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EDUCATION OF PEOPLE WORKING IN POLAND VERSUS OTHER EUROPEAN UNION COUNTRIES

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K e y w o r d s: human capital theory, employment structure by level of education.

A b s t r a c t

Education plays a special role in the construction of a modern knowledge-based economy. The increase in the educational level of the population is a chance for a faster social and economic development of any economy. The level of education also determines the quality of the individual and is important for their position in the labor market.

The aim of this study is to show the role of education in shaping employment in Poland compared to other European Union countries in the years 2005–2014. The analysis makes it possible to positively assess qualitative changes in the structure of the employment stock in Poland. In the period under study, the share of employees with low educational attainment decreased in a fundamental way, while the share of employees with higher education increased significantly.

WYKSZTAŁCENIE OSÓB PRACUJĄCYCH W POLSCE NA TLE INNYCH KRAJÓW UNII EUROPEJSKIEJ

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S ł o w a k l u c z o w e: teoria kapitału ludzkiego, struktura pracujących według poziomu wykształcenia.

A b s t r a k t

Wykształcenie odgrywa szczególną rolę w budowie nowoczesnej gospodarki opartej na wiedzy. Wzrost poziomu wykształcenia społeczeństwa jest szansą na szybszy rozwój społeczny i gospodarczy każdej gospodarki. Poziom wykształcenia decyduje także o jakości kapitału jednostki i ma znaczenie dla jej pozycji na rynku pracy.

Celem opracowania jest ukazanie roli wykształcenia w kształtowaniu zatrudnienia w Polsce na tle innych krajów Unii Europejskiej w latach 2005–2014. Przeprowadzone analizy pozwalają na pozytywną ocenę jakościowych zmian zachodzących w strukturze zasobu pracujących w Polsce. W badanych latach w sposób zasadniczy zmniejszył się udział pracujących o niskim poziomie wykształcenia oraz wzrósł udział pracujących z wykształceniem wyższym.

Introduction

The level of education of society plays a special role in the construction of a modern knowledge-based economy. The increase of this level is a chance for faster social and economic development of any economy, and improves its competitiveness. The level of education, along with the qualifications and professional skills, determines the quality of the individual and is important for their position in the labor market.

The aim of this study is to show the role of education in shaping employment in Poland compared to other European Union countries in the years 2005–2014. The analyses conducted will make it possible to assess qualitative changes in the structure of the employment stock from the point of view of the level of education in Poland in relation to other Member States, particularly those who are highly developed. The analysis will verify the hypothesis that in modern economies the demand for workers with a high level of education, knowledge and skills is increasing, due to their adaptive qualities in conditions of dynamic changes in the labor market, high productivity and creativity, while the demand for people with a relatively low level of education and professional qualifications is falling.

To verify this hypothesis, Eurostat data were used for the years 2005 and 2014, showing the share and changes in the share of employed persons aged 15–64[1] in the overall employment stock in Poland and the other 28 EU countries, having three different levels of education: low, medium and high.

The structure of the study is as follows. After introductory remarks, the second part discusses the main assumptions of the human capital theory, which in particular stresses the importance of education in shaping the position of people in the labor market. The third part contains an analysis of the statistical data showing the relationships between particular levels of education and employment in Poland and the other EU 28 Member States.

The conclusions section presents the most important findings of the conducted analysis and determines the direction of further research.

Education in human capital theory

The human capital theory[2] was conceived and developed in the United States in the 1960s. It emphasized the importance of the quality of this capital

[1] The age 15–64 sets a working age limit as defined by Eurostat and used for international comparisons (*Aktywność ekonomiczna*... 2016, p. 22).

[2] The birth of the human capital theory was announced in 1960 by T.W. Schultz (Blaug 1995, p. 303).

in the process of socio-economic development and for the situation of individuals in the labor market. The creators of the theory of human capital, T.W. SCHULTZ (1961), J. MINCER (1958), and G.S. BECKER (1962), stressed the heterogeneity of the workforce, which is reflected in the diverse productivity of employees, due to a different state of ownership of human capital variables. These variables include, according to T.W. Schultz, primarily the education level, but also knowledge, skills, health and the vital energy of individuals and society as a whole. According to J. Mincer, the length of the education period and training at the workplace are important for the growth of human capital and these elements affect the differentiation of income from work.

G.S. Becker stressed the importance of investment in human capital, i.e., taking such measures which will increase the stock of this capital. Investment in human capital may, according to Becker, take various forms, e.g., learning in school, higher education, postgraduate studies, continuous training during the course of professional work, as well as health care. BECKER (1975, p. 17, 18) distinguishes general training and firm-specific training. General training increases the universal skills of workers and their productivity for the company for which they are employed, as well as for other companies. Firm-specific training leads to an increase in the so-called stock of job-specific human capital, which increases productivity only in the company organizing the training, which is to ensure an increase in its profits and further development. According to Becker, investments in human capital are taken in a conscious way by people, with the aim of future higher incomes and greater opportunities to find work, as well as a smaller probability of the outflow from employment to unemployment (KWIATKOWSKA 2007, p. 30).

Subsequent further theoretical and empirical research has shown that investments in human capital are also essential for the level and dynamics of economic growth, which is the basis for increasing the prosperity of the entire society (KRYŃSKA, KWIATKOWSKI 2013, p. 145–157).

The high quality of human capital and its continuous development along with the increasing propensity of economies to generate progress, investments in the sphere of science, the research and development sector, in the development of a modern system of education and teaching, adapted to the new socio-economic requirements, enable the implementation of a higher developmental stage known as the information society, i.e., a knowledge society (DRUCKER 2002, p. 441–471, KRYŃSKA, KWIATKOWSKI 2013, p. 160–166, DWORAK 2014, p. 13–20).

The impact of the level of education on employment in Poland and other EU countries

The above theoretical concepts will provide the basis to present and assess the impact of the quality of human capital, measured by the educational level of employees, on their share and the changes in the share in employment stocks in Poland and other European Union countries. This begs the question: Does a high level of education increase people's chances of employment and provide them with more stable jobs?

In line with international standards and the standards of the European Union, the level of formal education is related to a certain level of professional qualifications essential to implement the tasks and responsibilities within a particular profession and specialty[3]. Although these relations are not the subject of this study, it is worth noting that the high level of professional qualifications is determined by having higher education, knowledge and skills, and also depends on the professional experience of employees. In modern economies, these factors affect the development of the demand for work on the part of employers and determine the situation of employees in the labor market. Therefore, it seems appropriate to compare what changes took place in the years under study in the employment structure by level of education.

Table 1 contains data showing the percentage of workers with a lower educational level in Poland and the other 28 EU countries. This level includes incomplete primary, completed primary and lower level secondary education. Qualifications of persons with a low, first or secondary level education, according to the ISCED, are defined as elementary[4].

The data in the table show that in both years under study Poland was among the Member States with the lowest (below 10%) share of workers with low levels of education. In 2005, Poland ranked fifth, with a share of 9.5% of the total working population aged 15–64 after Slovakia (the lowest percentage 4.6%), the Czech Republic, Lithuania and Estonia. In 2014, Poland moved up in the ranking to fourth place, due to a decrease in the share of these workers to 5.7% and was behind the Czech Republic, Lithuania and Slovakia, where the percentage of workers with low education stood between 4.1–4.4%. In 2014,

[3] The International Standard Classification of Education (ISCED) distinguishes six levels of education, and 4 levels of professional qualification, based on the classification of professions and specialties for the needs of the labor market, Minister of Economy and Labour, Journal of Laws No. 82 of 17 May 2010 Item 537.

[4] The first level of education and elementary qualifications concerns incomplete primary and primary education while the second level of education and elementary qualifications is associated with lower secondary education.

Table 1

The share of workers with a low level of education as compared to the total number of employees aged 15–64 in Poland and other European Union countries (in%)

Country	2008	2014	Changes in percentage points 2014/2008
EU28	25.2	18.2	-7.0
EU15	28.2	20.3	-7.9
Euro area (19 countries)	29.0	21.0	-8.0
Austria	16.6	13.5	-3.1
Belgium	24.0	17.8	-6.2
Bulgaria	17.5	11.0	-6.5
Croatia	18.7	10.2	-8.5
Cyprus	28.0	16.9	-11.1
Czech Republic	5.7	4.1	-1.6
Denmark	20.1	20.5	+0.4
Estonia	9.0	8.0	-1.0
Finland	18.0	11.5	-6.5
France	26.7	17.1	-9.6
Greece	33.6	26.1	-7.5
Spain	44.7	34.5	-10.2
Netherlands	25.7	21.7	-4.0
Ireland	26.5	13.6	-12.9
Lithuania	8.5	4.2	-4.3
Luxembourg	29.8	15.4	-14.4
Latvia	13.0	7.9	-5.1
Malta	58.8	43.3	-15.5
Germany	16.0	12.2	-3.8
Poland	9.5	5.7	-3.8
Portugal	70.7	49.8	-20.9
Romania	22.9	22.7	-0.2
Slovakia	4.6	4.4	-0.2
Slovenia	15.3	10.4	-4.9
Sweden	14.8	13.5	-1.3
Hungary	14.0	11.2	-2.8
Great Britain	23.3	15.5	-7.8
Italy	40.2	31.7	-8.5

Source: author's own calculations based Eurostat: http://epp.eurostat.ec.europa.eu (access: 25.08.2016).

this group also included Latvia and Estonia, with the share of workers with low education respectively at 7.9% and 8%. None of these countries became members of the European Union until 2004.

It is worth noting that Poland at the beginning of the transition period, in 1992, had a percentage of workers with low education reaching 26.9%, which means that the percentage was more than 21 percent higher than it was in 2014. Those with less education generally have greater problems in finding a job due to their elementary qualifications, which represents a significant employability barrier for them due to the low demand of employers for such workers.

The highest percentage of workers with a low education level was in the member countries with a medium level of development, led by Portugal (70.7%) in 2005 and (49.8%) in 2014. Among these countries are also Malta, Spain and Italy, where the share of those with less education in 2014 stood at the level of 43.3%, 34.5% and 31.7%.

In highly developed countries of the European Union, the percentage of workers with primary education, incomplete primary education and lower secondary education was lower than 20%, e.g., in both years under study the percentage was: (16% and 12.2%) in Germany, (18% and 11.5%) in Finland, (16.6% and 13.5%) in Austria, (14.8% and 13.5%) in Sweden, while in 2014 these countries were joined by others such as the United Kingdom (15.5%), Luxembourg (15.4%), Belgium (17.8%), and France (17.1%)[5].

It is worth emphasizing that all EU28 countries demonstrated a downward trend in the share of employment of people with a lower education level (only in Denmark, there was a slight increase in the share of these persons by 0.4 pp). The largest decrease in the share of these workers was in Portugal (by about 21 percentage points), Malta (15.5 pp), Luxembourg (14.4 pp), Cyprus (11.1 pp), Spain (10.2 pp) and Italy (8.5 pp). Therefore, these are also the countries which occupied the first places in the ranking in terms of the highest percentage of people with lower education, significantly exceeding the average share of the EU28 and the EU15. Much weaker downward trends were demonstrated in the countries with the lowest share of workers with lower educational levels in employment, e.g., in Poland, the decrease was 3.8 pp, 1.6 pp in the Czech Republic, 4.3 pp in Lithuania, while in Slovakia it was 0.2 pp.

Generally, the declining trend in the share of the employment stock of people with a low level of education should be regarded as beneficial and obvious in terms of the construction of the knowledge economy. This is also consistent with the principles of the human capital theory, which, as mentioned earlier, emphasizes the importance of education and qualifications for the position of people in the labor market.

[5] The relatively higher percentage of people with low education in some countries (e.g., in Germany, Austria, and the Benelux countries)is due to classifying the lowest level of professional education as a second ISCED level (RANGUELOV et al. 2012, p. 27–31).

Table 2

The share of workers with primary vocational education, secondary and post-secondary non-tertiary education as compared to the total number of employed persons aged 15–64 in Poland and other European Union countries (in %)

Country	2005	2014	Changes in percentage points 2014/2005
EU28	49.3	48.8	-0.5
EU15	44.8	45.4	+0.6
Euro area (19 countries)	45.3	46.8	+1.5
Austria	64.7	54.4	-10.3
Belgium	39.1	39.0	-0.1
Bulgaria	56.8	57.4	+0.6
Croatia	61.9	63.2	+1.3
Cyprus	40.1	37.7	-2.4
Czech Republic	80.0	73.1	-6.9
Denmark	47.4	43.5	-3.9
Estonia	55.2	52.9	-2.3
Finland	46.8	46.5	-0.3
France	44.5	44.9	+0.4
Greece	42.5	40.2	-2.3
Spain	22.8	23.5	+0.7
Netherlands	43.1	42.5	-0.6
Ireland	39.4	38.0	-1.4
Lithuania	60.8	53.5	-7.3
Luxembourg	40.3	34.6	-5.7
Latvia	64.2	58.2	-6.0
Malta	25.2	31.7	+6.5
Germany	58.0	60.1	+2.1
Poland	69.1	61.9	-7.2
Portugal	15.2	25.2	+10.0
Romania	63.8	58.1	-5.7
Slovakia	79.0	73.1	-5.9
Slovenia	62.9	57.4	-5.5
Sweden	54.9	48.1	-6.8
Hungary	64.9	62.3	-2.6
Great Britain	45.4	41.6	-3.8
Italy	45.1	48.0	+2.9

Source: as for Table 1, author's own calculations.

The second group comprises the people with primary professional education, upper secondary education (ISCED level 3) and post-secondary non-tertiary education (ISCED level 4) in the EU28 employment stock.

The data in Table 2 show that in most countries the share of workers with this kind of education in total employment has been falling. The largest decrease was recorded in Austria (over 10 pp in the years 2005 to 2014), Sweden (6.8 pp), Luxembourg (5.7 pp), and in certain countries in Central and Eastern Europe, in the range from 5.5 pp (Slovenia) up to 6.9 pp (Czech Republic). The percentage of these workers increased in those countries where it was relatively low, especially in Portugal (10 pp), Malta (6.5 pp), Italy (2.9 pp), and Germany (2.1 pp), while in France, Spain, and Bulgaria the growth trends were weak and accounted for less than 1 percentage point.

In Poland, there was a fairly significant decrease in the share of people with the ISCED3 and ISCED4 levels of education (by 7.2 percentage points in the years under study), and the percentage of these persons was higher than the average percentage of the EU28 by 19.8 pp in 2005 and by 13.1 pp in 2014. Larger differences in the percentage were seen in the EU-15, where the percentage in Poland was higher by 24.3 pp in 2005 and by 16.5 pp in 2014.

Among the Member States with the highest, over 60% share of workers with primary vocational education, secondary and post-secondary education, Poland ranked third in 2005 (69.1%), after the Czech Republic (80%) and Slovakia (79%), and in 2014 moved to fifth place (61.9%), behind the Czech Republic (73.1%), Slovakia (73.1%), Croatia (63.2%) and Hungary (62.3%). In the case of the Polish economy, this decline was due to a decrease in the percentage of workers with primary vocational education (from 30.7% in 2005 to 26.4% in 2014). This was in connection with the limited development of vocational education, and limited learning in vocational secondary schools (technical schools, vocational secondary schools), which provided better employment opportunities, but also increased the emigration of people who sought after professional qualifications. In addition, people with primary vocational education dominated the stock of the unemployed (e.g., about 32% in 2015) *(Aktywność ekonomiczna*... 2016, p. 113), hence their share in employment was also decreasing.

Some people, especially after upper secondary school, but also those with post-upper-secondary education decided to continue their education in tertiary education to acquire skills and vocational training, which also contributed to a reduction in the percentage of workers with secondary education in the general employment stock.

In other EU28 countries, the share of workers with secondary education stood between 34 and 46%.

The third employment group consisted of persons with higher education, comprising the fourth and the fifth ISCED levels of education. The fourth level of education included employees with bachelors and engineering titles, and the

Table 3
The share of employees with higher education in the total number of employed persons aged 15–64 in Poland and other European Union countries (in %)

Country	2005	2014	Changes in percentage points 2014/2005
EU28	25.3	32.6	+7.3
EU15	26.8	33.8	+7.0
Euro area (19 countries)	25.6	32.0	+6.4
Austria	18.6	32.1	+13.5
Belgium	36.8	43.2	+6.4
Bulgaria	25.7	31.6	+5.9
Croatia	19.4	26.6	+7.2
Cyprus	31.9	45.3	+13.4
Czech Republic	14.4	22.8	+8.4
Denmark	32.3	34.1	+1.8
Estonia	35.8	39.0	+3.2
Finland	35.2	42.0	+6.8
France	28.8	37.7	+8.9
Greece	23.9	33.7	+9.8
Spain	32.5	42.0	+9.5
Netherlands	30.3	34.9	+4.6
Ireland	31.7	45.1	+13.4
Lithuania	30.7	42.3	+11.6
Luxembourg	29.8	48.7	+18.9
Latvia	22.8	33.8	+11.0
Malta	16.0	25.0	+9.0
Germany	26.0	27.6	+1.6
Poland	21.4	32.4	+11.0
Portugal	14.1	25.0	+10.9
Romania	13.2	19.1	+5.9
Slovakia	16.4	22.4	+6.0
Slovenia	21.9	32.2	+10.3
Sweden	29.5	38.2	+8.7
Hungary	21.1	26.5	+5.4
Great Britain	30.6	41.5	+10.9
Italy	14.7	20.3	+5.6

Source: as for Table 1, author's own calculations.

fifth – those after master studies and postgraduate studies[6]. The shares of employees with higher education in total employment in Poland and the other EU28 countries are presented in Table 3.

Data in Table 3 show that the share of the employed in the labor stock increased in all EU28 Member States in the years under study. These people are highly qualified, hence the increased interest of employers in hiring workers with higher education.

In Poland, the percentage of employees with higher education increased in the years 2005–2014 by 11 pp and was larger than the average in the EU28 (an increase of 7.3%) and the EU15 (an increase of 7%). The largest increase in the share of the highly educated took place in Luxembourg (18.9 pp), which was relatively high and above 13 pp, in countries such as Austria, Cyprus and Ireland, and over 10–11 pp in Great Britain, Slovenia, Portugal, Latvia and Lithuania. The lowest increase in employment of those workers took place in Germany (by 1.6 pp) and Denmark (1.8 pp).

Despite the considerable increase in the share of highly educated workers in the Polish economy, neither in 2005 nor in 2014 was Poland among the countries which were characterized by the highest percentage of these people in employment. However, the distance between our country in relation to the average share of these workers in the EU28 decreased significantly. Back in 2005, the difference was 3.9 pp, in 2014 the percentage of employees with higher education in Poland (32.4%) came close to the average of the EU28 (32.6%).

In 2005, Belgium was the first in the ranking of the Member States with the highest proportion (36.8%) of highly educated employees, followed by a group of 9 countries with a high percentage (30–37%). These were: Estonia and Finland (with a share above 35%), Spain and Denmark (over 32%), Cyprus and Ireland (over 31%) and Lithuania, the United Kingdom and the Netherlands (over 30%).

In 2014, due to the growing trends in the share of workers with a higher education level in the general labor force, there were 8 Member States with the highest percentage of those employees, within the range of 41–48%. Luxembourg ranked first with a share of 48.7% (the largest increase in the share, from the level of 29.8%). Cyprus and Ireland had shares over 45%, followed by Belgium, above 43%, Lithuania, Finland and Spain at more than 42%, while in the UK the share of these workers was 41.5%.

In 2005, the difference between the countries with the highest percentage of workers with higher education and Poland was 15.4 pp, and in 2014 it

[6] There is also the sixth level of ISCED education for people who have completed doctoral studies, but it is not included in the analysis.

increased to 16.3 pp. It should be assumed that the requirements of the knowledge-based economy will contribute largely to the increase in the number of people interested in improving their skills and the difference between Poland and the leading countries in the ranking will gradually decrease in subsequent years.

It is noteworthy that Poland is not included in the group of the countries with the lowest share of workers with a higher level of education, i.e. in the category of countries below 20%. In 2005, Romania ranked lowest in this group of countries, as its share of workers with a higher level of education totaled only 13.2%. Among the Member States in this category were also Portugal, the Czech Republic and Italy (with a share over 14%), Malta and Slovakia (with a share of 16% and 16.4%), Austria (18.6%) and Croatia (19.4%). In 2014, only Romania remained in this category of countries, i.e. those with a share of workers with a higher level of education below 20%, and its share had risen to 19.1%.The other countries in this category in 2005 had moved up to the group with the medium share, i.e. in the range of 20% to 40% of workers with higher education. This group of countries also includes Poland, thanks to its fairly substantial increase of educated people in the employment stock.

Changes in the share of people with higher education and qualifications in Poland should be assessed very positively. According to the human capital theory, the demand for knowledge and higher qualifications is the result of undergoing improvement in innovation for the Polish economy through the implementation of the process-technological progress and the product-technological progress, as well as progress in organization and management. It also results from the inflow of foreign direct investment together with new techniques and technologies which require the involvement of employees with higher and the highest education and qualifications. Also, integration processes, enforcing an increase in productivity and competitiveness of enterprises and the economy as a whole, are an essential prerequisite for the growth in demand for knowledge and skills. On the other hand, the employees invest in themselves, raising the value of their human capital, by continuing their studies through to higher education and further continuing education in postgraduate studies, specialized training and professional courses, professional development and accumulating professional experience (DOMAŃSKI 1993, p. 3–5, WELFE 2001, p. 39–43).

Conclusions

The analysis conducted in Poland and the other EU28 countries, against the background of the basic assumptions of human capital theory on the

employment structure by level of education, confirmed the study's main hypothesis concerning the direction of these changes. In the years examined, the share of workers with a lower educational level in the employment stock in Poland decreased significantly (down to 5.7% in 2014), while the share of employees with a higher level of education demonstrated quite a significant upward trend (up to 32.4% in 2014, and up by 11 pp compared to 2005).

The process of growth in the demand for labor with higher education and higher qualifications in the Polish economy is in line with the trends of the other EU28 Member States. In relation to those countries ranking high in terms of the share of workers with a high education level, in 2014 Poland still trailed by 16 pp.

However, the percentage of workers with primary vocational education, secondary and post-secondary education in the employment stock in Poland is still high (about 62% in 2014), despite its decline by 7.2 pp in the period 2005–2014. Therefore, the high, although declining share of workers with secondary education, as it is believed, can be explained by the tendency of these people to move to a higher level of education, which gives better opportunities in terms of employment and income.

The presented changes reflect the already ongoing, gradual qualitative transformations in the structure of the employment stock by level of education. The workers themselves are becoming more aware of the relationship between the level of education, professional qualifications and their position in the labor market.

Another study will present the employment structure by occupation in Poland and in other EU28 Member States to indicate the impact of the level of education and qualifications on their occupation.

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THE FACES OF CONTEMPORARY LABOUR MARKET SEGMENTATION

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A b s t r a c t

This article discusses the segments of contemporary labour markets and identifies the causes of evolution and the present-day manifestations and mechanisms of segmentation. To this end, changes occurring in the world today and the progress of research into labour market phenomena over the last 25 years are analysed. The article also provides an insight into the various types of labour market segmentation that underlie its functioning, i.e. competition-driven segmentation, informational segmentation, network-based segmentation and behavioural segmentation. The theoretical underpinning of the article is the concept of a dual labour market made up of a primary market and a secondary market. The analysis offers two main conclusions. Firstly, the labour market segmentation that we observe today causes an expansion of its secondary segment. Secondly, to identify the contemporary face of labour market segmentation, many extensive studies of the institutional, economic, social and psychological aspects of this process are necessary.

WSPÓŁCZESNE OBLICZA SEGMENTACJI RYNKU PRACY

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S ł o w a k l u c z o w e: rynek pracy, segmentacja rynku pracy, segmenty rynku pracy, pierwszy rynek pracy, drugi rynek pracy.

A b s t r a k t

Przedmiotem opracowania są podziały współczesnych rynków pracy, celem jest identyfikacja ewolucji oraz współczesnych mechanizmów i przejawów segmentacji. Osiągnięciu tak sformułowanego celu służą analizy zmian zachodzących w realnym świecie oraz rozwoju badań zjawisk na rynku pracy w ostatnim ćwierćwieczu, jak również prezentacja rodzajów segmentacji

rynku pracy o zasadniczym znaczeniu dla jego funkcjonowania, jak segmentacje: konkurencyjna, informacyjna, sieciowa oraz behawioralna. Opracowanie skupia się na jednej z koncepcji segmentacji, jaką jest koncepcja dualnego rynku pracy podzielonego na dwa segmenty: pierwszy i drugi. Z przeprowadzonych analiz wynikają dwa podstawowe wnioski. Po pierwsze, obecne podziały rynku pracy skutkują rozszerzeniem się segmentu drugiego. Po drugie, identyfikacja współczesnych segmentów rynku pracy wymaga wielu szeroko zakrojonych prac badawczych, integrujących podejście instytucjonalne, ekonomiczne, społeczne oraz psychologiczne.

Introduction

The notion of "labour market segmentation" was coined in the late 1960s, a period of thriving studies on labour market components during which foundations were laid for the most popular segmentation concepts[1] referring to the intrinsic heterogeneity of the labour market. Due to the heterogeneous nature of labour supply and labour demand, as well as all of the phenomena and processes related to them, the labour market can be divided into components (segments) that contain similar jobs and workers with similar characteristics. It is recognized that the creators and most prominent advocates of the segmentation theories are Peter B. Doeringer and Michael J. Piore (DOERINGER 1967, DOERINGER, PIORE 1971, 1975). They have put forward the most popular concepts of a dual labour market and the notions of primary and secondary labour markets, but above all the idea of labour market segmentation. The dual labour market concept was created in opposition to the classical and neoclassical schools of economics. Its theoretical underpinning was derived from two major economic doctrines: institutionalism (Veblen, Mitchell and Commons) and a dual economy (Galbraith and Averitt). In the 1970s, the US labour market segmentation theories were adopted in Europe mainly by the German researchers Burkart Lutz and Werner Sengenberger (LUTZ, SENGENBERGER 1974, 1980, SENGENBERGER 1975), who created a triple labour market model allowing for aspects of Becker's theory of human capital (KRYŃSKA 1996). In the period after the 1980s, particularly over the last 25 years, a rise in interest concerning labour market segmentation concepts has been observed.

This article aims to identify the present-day causes of evolution and the mechanisms and manifestations of labour market segmentation that change with new findings offered by labour market research and with new phenomena arising in the real world. Due to the subjective selection of contemporary

[1] The very hypothesis of labour market segmentation is much older than that, though. It was presented as early as the 19th c. in the works of John S. Mill and John E. Cairnes and then elaborated by US researchers Clark Kerr and Lloyd Fisher, who introduced terms such as the structured labour market, the structure less labour market, the institutional labour market, and the internal and external labour markets (more in KRYŃSKA 1996, p. 7 and next).

labour market segmentation issues, the article does not aspire to be a detailed presentation of the problem that would require an in-depth analysis.

This article refers to the concept of a dual labour market made up of a primary sector and a secondary sector, different in the levels of wages and other characteristics (security of employment, redundancy risk, promotion and skill-improvement opportunities, health hazards, the convenience of working hours, etc.). The primary and secondary sectors of the labour market respectively represent the segments of "good jobs" and "bad jobs".

Factors behind the contemporary segmentation of labour markets

The changing real world

Today's labour market segmentation is considered to be mainly driven by factors such as the deepening globalisation of economies, the expansion of multinational and supranational corporations, the direction and ever-increasing rate of technological progress, the adoption of a new economic model by modern states and societies, and rising migration (BECK 2014, WIERZBICKI 2015, RODRIK 2011, STANDING 2011, SOWA 2010).

Globalisation processes that lead to the creation of a single world economy gather speed as successive barriers between local, regional, national and continental markets are removed. In very broad terms, the present stage of globalisation aims to increase the mobility of goods and capital to enable the creation of a global market where all players in economic competition play (theoretically) by the same rules. According to researchers, this stage is accompanied by a crisis of the welfare state and an increasing role of financial markets (OSTERHAMMEL, PETERSON 2005). With the widening of the field on which the "game of competition" for revenues and influence is played, the world economy increases its integration, the prices of production factors (including labour) seek an equal level, and countries and regions that used to occupy the peripheries of the world economy (e.g. in South-East Asia, particularly China and India) turn into major players.

Globalisation is accompanied by changes in the polarisation between companies. They have gradually contributed to the emergence and growth of large multinational and supranational corporations that follow strategies focused on profit maximisation (particularly short-term gains) and long-term expansion. In line with these strategies, the corporations have changed their organisational structure to be able to flexibly modify their business profiles, enter into new markets, form cooperative links with other firms, etc. They

have also redesigned the spatial distribution of their business activities with a view to reaching new markets and reducing costs (BORKOWSKA 2012, p. 144).

Among the aforementioned causes of labour market segmentation, there is the replacement by states and societies of the existing welfare state model with one stressing economic growth based on competitiveness and flexibility. This tendency is particularly clear in the EU member states that introduced the single market rules at the cost of many social functions. In this new model, workers are viewed through the prism of costs that are mostly attributed to lavish social benefits. The economic burden of these benefits provokes reactions that in the long-established welfare states (such as Sweden or Germany) erode away workers' rights, social standards and the power of trade unions, etc. (ANIOŁ 2012, p. 26, 27). The main argument against the concept of a welfare state is that it inevitably entails redistribution mechanisms (with arbitrary paternalism or even acts of expropriation) and a high cost of operation, as well as making economic growth more problematic (PETRING et al. 2012, p. 12, 13). Some researchers also argue that the welfare states contribute to economic crises, slumps in the economy and other economic problems (PALMER 2012, p. 13, 14).

The contemporary face of labour market segmentation is primarily determined by technical and technological progress, particularly by advancements in the field of information and communication technology (ICT). There are two reasons for this.

Firstly, a fast exchange of information allows companies to better coordinate and control production processes in their foreign facilities. This affects the spatial distribution of manufacturing industries that lose their local embedment and turn into increasingly universal and global entities. The freedom to choose the direction of geographical expansion and the relative ease of coordinating and organising plants provide manufacturers and some service providers with practically unlimited relocation opportunities[2]. Quite naturally, the companies that seize them take (export) jobs with them, causing an outflow of industrial and service jobs from the most affluent countries to poorer countries where labour costs are lower. The immediate consequence of this is a loss of industrial jobs in the former and workers needing to seek temporary employment.

Secondly, with these ICT tools (computers, robots, etc.) enabling the creation of casual, temporary ("flexible") jobs, even deeper cuts in labour costs

[2] An instance of relocation is educational services such as private tutoring that the US pupils receive from tutors in India. ICT advancements have also enabled the relocation of accounting services, medical consultations and legal counselling. The process is detrimental not only to unskilled workers in the countries of the capitalist centre, but also to the members of the salaried professional class (defined by Standing), such as teachers, physicians, lawyers, etc. (STANDING 2010, p. 116 and next).

have become possible. These tools have therefore added new insecure "bad jobs" to those comprising the secondary segment of the labour market.

From the labour supply perspective, labour market segmentation is also deepened by successive waves of immigrants. Most of them would take any job regardless of its quality measured by various guarantees of employment security, which presents an obvious temptation to lower employment and social security standards. Immigrants thus accelerate transformations in contemporary labour markets by deepening their segmentation and enlarging their secondary sectors.

The development of research on labour market phenomena

Modern approaches to labour market segmentation have evolved with the development of research on labour market phenomena, particularly on labour market flexibility and precarious employment. The research was undertaken in response to a changing economic reality, which in the case of social sciences, particularly economics, is a rule rather than an exception.

Throughout the last 25 years, researchers have gained substantial knowledge of the forms and manifestations of labour market flexibility (ROSENBERG 1989, SENGENBERGER 1990, ADNETT 1996, SOLOW 1998, WIŚNIEWSKI 1999, STANDING 2000, WILTHAGEN, TROS 2003). They have identified many facets of this phenomenon, e.g.:

– the flexibility of employment, i.e. an organisation's ability to adjust the size of its workforce and employment structure in response to changes in the economic and institutional settings;

– the flexibility of working time, i.e. an organisation' s ability to adjust the length and use of working time to organisational needs, as well as to the needs of groups of workers or tasks;

– the flexibility of wages, i.e. an organisation's ability to adjust the level and structure of wages so that they account for productivity, profitability and labour market changes;

– the flexibility of the labour force, i.e. a workers' ability to respond to changing circumstances with appropriate spatial, occupational and inter-company mobility.

Labour market flexibility has been proposed as a measure assisting companies operating in changing product markets in solving their problems. The challenges of intensifying price and non-price competition require that both employers and employees respond quickly and flexibly to new circumstances. The former must be able to adjust the size and price of labour to changes in the business setting, while the latter must be open to different forms

of employment relationships, the need for life-long learning, the use of modern technologies, and the need to be mobile.

A milestone in the development of modern labour market segmentation theories was the definition by Guy Standing, a British economist and sociologist, of seven social groups including "the precariat" in the first decade of the 21st c. (STANDING 2010, p. 102–115, STANDING 2011, p. 7, 8). He described the members of the precariat as workers who are not entitled to employment security guarantees such as minimum wage, wage indexation, comprehensive social insurance, the right to organise or join a trade union or another worker representation body, training and internship opportunities enabling professional development, and the protection against arbitrary dismissal or workplace accidents and occupational diseases.

The other six groups Standing defined are the elites (a tiny number of absurdly rich global citizens), salariat (still in stable full-time employment, concentrated in large corporations, government agencies and public administration, including the civil service), "proficians" (a term combining the traditional ideas of "professional" and "technician", but covering those with bundles of skills that they can market, earning high incomes on contract as consultants or independent own-account workers), manual employees (the essence of the old "working class"), unemployed, and a detached group of socially ill misfits living off the dregs of society. Groups 1 and 6 are not present in the labour market and the other four groups have different labour market status. G. Standing has noted that the groups of "salariat" and "manual employees" are shrinking these days, but the social class known as the precariat has been growing larger. Leaving aside all the differences in how labour market segmentation has been viewed over the years, the characteristics of today's precarious jobs show the closest resemblance to jobs comprising the "bad jobs" segment that also includes the groups of the salariat and manual employees that are uncertain of their entitlement to some guarantees (jobs or income).

Manifestations and mechanisms of contemporary labour market segmentation

Competition-driven segmentation

Labour market segmentation is driven today by two factors: competition and flexibility. While neither of them is new because they have been part of social and economic processes "for ages", in recent decades their importance has increased due to price and non-price competition.

Labour markets are made more flexible by scaling down the role of trade unions, tailoring laws to employers' needs, etc. The spreading use of atypical forms of employment and organisation of work changes the relations between employers and employees, making the latter more dependent on their employers. The dichotomous state employed-unemployed is being replaced by an irregular state resulting from work rendered based on different institutional solutions, including non-employment relationships.

As recently as 25 years ago, R.B. Reich observed that supranational corporations have a different organisational structure than traditional firms. The former shape it as "a spider's web", the hub of which is a creative team responsible for identifying and solving an organisation's strategic problems (REICH 1996, p. 71 and next). Opportunities for large corporations to implement organisational and management changes replacing hierarchical management with functionalization and decentralisation have been created by ICT solutions. The most important effect of this process on the labour market is that supranational corporations need relatively few permanent employees. Rather than using regular personnel, they outsource jobs or engage workers to do a specific job or deliver a specific service. The duration of the relationship with the corporation is fixed and subordinated to the strategic concepts of the creative team. Because in the world of global competition labour amounts to cost, having fewer permanent employees becomes a way to achieve sustainable competitiveness in uncertain markets. At the same time, the segment of "bad jobs" involving temporary employment will expand. These are usually contract jobs that create fragile relationships between employers and employees and allow the former to flexibly respond to changes in the product markets.

The main difference between "competition-driven segmentation" as explained in the dual market segmentation concept and that observed today is that Doeringer and Piore actually excluded the possibility of "bad jobs" being offered by large and profitable companies (with the exception of ancillary jobs, unrelated to the core business). The number of insecure jobs that such companies offer today is much higher, clearly pointing to the expansion of the "bad jobs" segment.

Informational and network-based segmentation

The development of ICT solutions in the second half of the 20th c., the invention and use of telematic techniques, the liberalisation of the telecommunications markets, the commercialisation of the media and the fast-spreading use of social media have led to the emergence of an information society. The processes resulted from a "microelectronic revolution" (informatisation) that

permeated into different areas of services, production and daily life, and forced workers to seek knowledge and skills enabling them to create and use state-of-the-art devices (computers, numerically controlled robots, etc.). As some people had a problem keeping pace with the occurring changes and meeting new requirements, a group of "digitally excluded persons" arose in the labour market. Those of its members who were not eligible for the status of "an economically inactive person" had to seek jobs in the "ICT-free" segment of the labour market, i.e. a secondary, outdated segment lagging behind global changes (ARENDT 2010, p. 15–26). This is the main mechanism of labour market segmentation driven by ICT advancements. Its importance fades, however, as workers improve their ICT skills and age groups reluctant to acquire new knowledge and skills leave the labour force.

A variant of the information society is a network society. Its central distinctive feature is that its key structures at the personal, social and workplace levels are determined by a combination of social and media networks (ŻMIJSKI 2013, p. 41, 42, BARANOWSKI, MIKA 2012). The "network-based" segmentation of the labour market arises from the operation of two main mechanisms.

One leads to the creation of traditional jobs in the web environment, i.e. having some of the guarantees of secure employment that Standing described. Such jobs are offered by web portals in lieu of or as an addition to the existing and known services, e.g. online newspapers and magazines, online stores or certified counselling services. Web portals generally target qualified individuals and offer them a regular employment relationship (regulated by the Labour Code) or a non-employment relationship (regulated by the Civil Code). This segment of jobs still needs to be investigated, but it is very probable that they resemble those available in the primary labour market. The web offers other jobs as well (one might wonder if the work they involve still corresponds to the traditional meaning of this word). For instance, one web portal in Poland seeks people to do jobs such as Pracujonline.com (http://pracuj-online.com/oferty/grupa,4,1,marketing.html, access: 1.07.2016) viewing online advertisements, reading e-mails with advertisements, transcribing audio files to text, maintaining a fan page promoting certain services among the readers, writing posts on social blogs dealing with social issues, etc. The candidates are not required to have any professional background (particularly a knowledge of IT), but only to have a computer with Internet access and basic computer skills. The majority of such jobs are offered by firms[3] to students and people with free time for causal jobs. This web-based segment of the labour market

[3] Some of them use the Internet to shape public opinion on political parties, manufacturing companies, insurance companies and banks, etc., by hiring people to post hate comments or likes.

has not been fully investigated yet, but it probably does without employment contracts, fixed compensation, and, naturally, without the Standing-defined guarantees protecting such workers from joining the ranks of the precariat. Consequently, it leads to the creation of casual, secondary jobs.

The other mechanism driving the network-based segmentation of the labour market arises from consumers choosing networks of informal contacts rather than formal institutions to meet some of their needs. A case in point is portals such as BlaBlaCar, the largest ridesharing platform in Europe that connects drivers who have empty seats with people who need to travel. Its existence causes that the "regular" providers of transportation services to lose customers and their employees become redundant. There are also social portals providing access to tourism services, through which private accommodation instead of a hotel bed or guided sightseeing in cities can be arranged. These irregular jobs or services are performed by people who have a different status in the labour market, as well as by economically inactive persons.

Some web-based platforms enable the financing of various projects through social lending and crowd funding. It is estimated that in 2014 almost 3bn was raised in this way in Europe (KRÓL 2015). This solution leaves the system of institutions with traditional jobs created to meet personal needs of the public to remain idle.

The network-based mechanisms changing the way people meet their needs certainly contribute to contemporary labour market segmentation, but further research is necessary to understand this process.

Behavioural segmentation

Behavioural segmentation divides the labour market into segments mainly based on workers' views about work, working, and economic activity itself.

It has been observed that some groups of workers, particularly young people, have changed their attitude to work in the last 25 years. Rather than following the long-established (almost traditional) pattern of career development involving step-by-step promotion and formal employment contracts they prefer non-standard careers with periods of regular employment intertwining with own-account work undertaken to broaden their professional experience, etc. (BALTES et al. 2011, p. 197–225). Some of them choose to take some time off from work to concentrate on less demanding activities that they believe can progress their personal development. This shows that irregular career paths do not necessarily need to be a burden for workers (especially the young ones) or something that they would rather avoid. They can even be desired by people who view irregular careers as an expression of their individuality in the labour

market and find the prospect of "life incarceration" disgusting (JAKONEN et al. 2012, p. 4). A particularly strong preference for irregular careers is observed among the members of the Y (millennials) and Z generations, i.e. persons born in the years 1975(1980)–1989(1999) and 1990(2000) or later[4]. Both generations (especially the Z generation) do not feel like growing up and show a tendency to leave the nest later than their parents and grandparents used to do.

According to surveys, the members of these generations who are either entering the labour market or have jobs already are anything but workaholics. They cherish their private lives, personal values and life goals (with the family at the top of the list) that are unrelated to professional careers[5]. They perceive a period of employment as "an intermission" in their free time that may turn into a longer, even twelve months" leave of absence. Unattached to their workplace, they quit when it fails their expectations (STACHOWSKA 2012, p. 33–56, LEVICKAITĖ 2010, p. 170–183). Studies show that there are people in the contemporary labour market that neither seek jobs nor intend to study, although they have no commitments or poor health that might prevent them from doing so, and accept their status. While other people spend time at work, they use theirs to explore the world or practice various arts (*Young people and NEETs...* 2012, p. 22, 24, 25).

Conclusions

To attain full knowledge concerning contemporary labour market segmentation, many extensive studies exploring the institutional, economic, social and psychological aspects of the process are necessary. It cannot be excluded that their findings may change the existing labour market paradigm(s) or ultimately would lead to the creation of a new paradigm(s). The fast rate of change arising from technological progress and globalisation, the evolving model of work, the efforts to minimise labour costs, as well as many other factors will probably continue into the foreseeable future. It will certainly make it necessary to find ways to restrict the deepening segmentation of contemporary labour markets, particularly the expansion of their secondary segments. In particular, such research should focus on identifying new manifestations and

[4] The scientific literature, popular articles and particular countries operate different dividing years. The years stated above are therefore rough estimates corresponding to the Polish circumstances.

[5] According to the CBOS survey of 2013, the life goals that young people in Poland value the most are love and friendship (41% of survey participants) and a fulfilling family life (48%). A rewarding and interesting job is a goal for 41% of respondents, and 35% aspired to achieve high professional status (*Sytuacja rodzinna i materialna...* 2013).

mechanisms of segmentation determined by ICT advancements and people's changing attitudes toward work.

Public statistics are insufficient to establish exactly where the line dividing the segments of "good jobs" and "bad jobs" runs, because they contain different jobs and people with different status. The statistics only enable a rough estimation of the size of the precariat that represents the core of the segment of "bad jobs". To handle the data insufficiency problem, researchers also reach for indicators such as "a job tenure" (measuring employment stability) and "income risk" (representing the variability of earnings)[6]. A large group of authors avail themselves of the analyses of contingent workers. This category of workers is defined in different ways, but most definitions are similar in stressing the short-lived, casual nature of their jobs (uncertainty of employment) and the exclusion of these workers from formal and institutional regulations in pay (uncertainty of income). Among the contingent workers, there are part-time workers, workers with fixed-term contracts, on-call workers and loaned and contract workers (including self-employed persons) (HORN et al. 2005, p. 1.1–1.6). The data shortage problem could probably be mitigated by combining public statistics with the results of basic quantitative and qualitative studies on the populations of economically active and inactive persons.

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PRODUCTIVITY AND REMUNERATION OF LABOUR: DISPARITIES ACROSS SECTORS AND COUNTRIES

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Key words: labour productivity, remuneration, disparities, analysis of sectors, European Union.

Abstract

The aim of this paper is to investigate the relationship between labour productivity and labour remuneration among agricultural and non-agricultural sectors in selected EU countries. The issue under investigation pertains to the question of whether remunerations for labour and their rate of growth are attributable to changes in labour productivity. The problem is analyzed via static and dynamic approaches. To carry out the research, the authors' own analytical approach is used, while appropriate statistical data for 1995–2013 and methods are used to verify the hypothesis. The conclusion of the study is that the relationship between remuneration and productivity substantially differ across sectors and countries. Especially in the agricultural sector, one can observe that the level of remuneration and growth are weakly related to productivity growth.

PRODUKTYWNOŚĆ A WYNAGRODZENIE CZYNNIKA PRACY – ZRÓŻNICOWANIE MIĘDZYSEKTOROWE I MIĘDZYNARODOWE

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Słowa kluczowe: produktywność pracy, wynagrodzenie, zróżnicowanie, analizy sektorowe, Unia Europejska.

Abstrakt

Celem opracowania jest przedstawienie związków między produktywnością a wynagrodzeniem czynnika pracy między sektorem rolniczym a sektorami pozarolniczymi w wybranych krajach UE. Problem badawczy odnosi się do odpowiedzi na pytanie, czy wynagrodzenie czynnika pracy i jego

zmiany są powiązane ze zmianami produktywności pracy. Odpowiadając na to pytanie, wykorzystano zarówno statyczne, jak i dynamiczne podejście. Badania oparto na własnym podejściu analitycznym, a odpowiednie dane statystyczne z lat 1995–2013 wykorzystano do weryfikacji hipotezy badawczej. W świetle badań relacje wynagrodzeń do produktywności znacząco się różnią między sektorami i krajami. Szczególnie w przypadku sektora rolnego wynagrodzenie czynnika pracy i jego zmiany jest słabo powiązane z jego produktywnością.

Introduction

The remuneration/productivity ratio is a key issue in economic research. The ratio indicates the rationality of business management and has a significant effect on competitiveness. Research shows that the ratio can vary across sectors and countries (LAGAKOS, WAUGH 2013). Of special interest might be the diversification of the remuneration/ productivity ratio between agriculture and non-agriculture, as well as the possible elimination of disparities across countries (convergence). This constitutes the research focus of our paper.

So far, attention has been paid to the issue of lower labour productivity in agriculture relative to non-agricultural sectors (CAI, PANDEY 2013). In this respect, greater disparities are shown to exist in less developed countries. One of the reasons for this diversification is the underestimation of production in agriculture due to the low level of marketability of production in these countries (GOLLIN et al. 2004, HERRENDORF, SCHOELLMAN 2012). It has also been indicated that across countries, diversification in labour productivity in agriculture is greater than in non-agricultural sectors (CASELLI 2005, RESTUCCIA et al. 2008). The processes of eliminating disparities in labour productivity across countries are less effective in agriculture than in non-agricultural sectors. This stems from factors such as the cost of technology transfer or imitation, trade barriers or political barriers (BARRO, SALA-I-MARTIN 1995, GUTIERREZ 2002).

Ratios of productivity and remuneration of factors of production form the basis for effective allocation of production factors across business entities and sectors of the economy in the long run. The ratio of remuneration of labour to labour productivity is reflected in one of the most important economic categories, the Unit Labour Cost (ULC). Cross-sectoral remuneration disparities between agriculture and non-agriculture should have an effect on the reallocation of labour resources from agriculture to non-agricultural sectors (HAYAMI, RUTTAN 1985). Thus, what should follow is cross-sectoral convergence in the relation between remuneration and productivity. It does not always happen, hence the ineffective allocation of production factors. Among the reasons for overemployment in agriculture may be the necessity to safeguard food security (food problem), barriers to move out of the agricultural sector or the country's

policy (CASELLI, COLEMAN 2001, GUTIERREZ 2002, LAGAKOS, WAUGHT 2013). VOLLRATH (2009) estimates that about one third of disparities between agricultural and non-agricultural income may be explained in terms of an ineffective allocation of production factors.

The aim of this paper is to present an analytical and empirical framework (from both a static and dynamic point of view) of the ratios of labour productivity and remuneration across sectors (agriculture and non-agriculture) as well as across countries. At the same time, it is important to evaluate the convergence of these ratios across sectors and countries. This problem has been discussed in relation to sectors of the Lithuanian economy (TAMASAUSKIENE, STANKAITYTE 2013) as well as the Eurozone (FELIPE, KUMAR 2011); but it has only been investigated relative to statistical relations between these variables.

Analytical framework

In accordance with the aim of this paper and relative to the literature on the subject, we assume that the ratios of remuneration for labour employed in various sectors and countries stem mainly from the ratios of labour productivity. In this respect, we assume the existence of some proportion, rather than an equal value.

This assumption can be based on the following analytical and theoretical foundations. In general, it can be assumed that remuneration of labour is determined by its productivity (it is a ratio of the production obtained over the employment of that factor) and product price. We can describe it as follows:

$$\varpi_L \approx \frac{Y}{L} \cdot p_Y \tag{1}$$

where:
ϖ_L – remuneration,
Y – production,
L – labour,
p_Y – prices obtained for goods.

The theoretical basis for determining remuneration is the marginal productivity of labour $\varpi_L^{\wedge}$ (p_Y given), which is connected with the producer equilibrium (rational choice), that is:

$$\varpi_L \succ \hat{\varpi_L} \approx \frac{\partial Y}{\partial L} \tag{2}$$

On the other hand, the level of remuneration so determined is affected by the impact of the equilibrium on the labour market:

$$\varpi_L \prec \varpi_L^E \approx \frac{S_L}{D_L} \tag{3}$$

where:
ϖ_L^E – remuneration resulting from market equilibrium,
S_L – labour supply,
D_L – labour demand.
Thus:

$$\varpi_L^E \succ \varpi_L \prec \hat{\varpi_L} \tag{4}$$

This expression indicates the complexity of determining the basis for remuneration. Any institutional and regulating factors, transfers or interventions are not considered here.

Therefore, we can assume that the relation between remuneration and labour productivity in agriculture and non-agricultural sectors should be describable as:

$$\frac{\varpi_L^A}{\varpi_L^N} = \frac{Y_A / L_A}{Y_N / L_N} = \frac{p_L^A}{p_L^N} \tag{5}$$

whereby:
A, N – indicate respectively: agricultural sector and other sectors,
p_L^A, p_L^N – labour productivity in agriculture and other sectors, respectively.

Presuming general equilibrium in cross-sectoral allocation, it can be assumed that remunerations of labour in sectors are proportional to the productivity of labour:

$$\frac{\varpi_L^A}{p_L^A} \approx \frac{\varpi_L^N}{p_L^N} \tag{6}$$

This issue can be analysed in terms of unit labour costs (ULCs). ULCs can be analysed via a static or dynamic approach. In the static approach, the UCL index in particular sectors can thus be expressed as follows:

$$\mathrm{ULC}_A = \frac{\varpi_L^A}{p_L^A} \qquad \text{and} \qquad \mathrm{ULC}_N = \frac{\varpi_L^N}{p_L^N} \tag{7}$$

The cross-sectoral ratio of labour costs l, which will be the object of our empirical analysis, can be expressed as follows:

$$l = \frac{\mathrm{ULC}_A}{\mathrm{ULC}_N} \tag{8}$$

Both approaches converge and indicate the rationality of business management in sectors and the competitiveness of microeconomic entities.

In the dynamic approach, the ratios of UMCs indicate changes in the competitiveness level and rationality of business management. We can express it as follows:

$$l' = \frac{\mathrm{ULC'}_A}{\mathrm{ULC'}_N} \tag{9}$$

where:

$$\mathrm{ULC'}_A = \frac{\Delta\, \varpi_L^A}{\Delta p_L^A},$$

$$\mathrm{ULC'}_N = \frac{\Delta\, \varpi_L^N}{\Delta p_L^N},$$

Empirical analysis

We now examine the extent to which the above analytical approach and the formulated assumptions are reflected in economic practice and statistical data. We first refer to the data and methods used. Then, we attempt to compare productivity and remuneration and analyse the changes in agricultural and industrial sectors in selected countries of EU.

Data and methods applied

In the empirical analysis, we have used data concerning labour productivity and remuneration taken from National Accounts in the nomenclature of ESA95, NACE Rev2 (Source: ECB/Eurostat). Productivity and labour remuneration are presented nominally as EURO/hour's work (data are not adjusted due to full-time employment). Labour productivity reflects the output that can be produced with a given input of labour. It is measured as GDP divided by total hours worked. Compensation per employee is the total remuneration, in cash or in kind, that is payable by employers to employees in return for work, i.e. gross wages and salaries, as well as bonuses, overtime payments and employers' social security contributions, divided by total hours worked. Unit labour costs are calculated as the ratio of compensation to labour productivity.

The data analysed is from 2000 to 2013. In the case of Poland, data is only available from the year 2005 onwards. Therefore, that data has not been included in the statistical analyses. The empirical analysis entails the comparison of two sectors. The first sector: agriculture, forestry, and fishing are together referred to as agriculture. Non-agricultural sectors are represented by industry, embracing mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; water supply; sewage, waste management and remediation activities. The general name for this sector is non-agriculture.

The empirical research is based on assumptions presented in the analytical section. In the empirical evaluation of productivity changes and changes in remuneration as well as their ratios methods of central tendency analysis (average – Av), dispersion (coefficient of variation – Cv), and dynamic indexes have been used. The results have been presented in the form of tables and graphs.

Labour productivity, remuneration, and Unit Labour Costs

Table 1 presents data from 2000 to 2013 indicating productivity and remuneration in the agricultural and non-agricultural sector in the old and new member states of the European Union (OMS, NMS, respectively). The statistical data and calculated averages confirm significant cross-sectoral differences both in productivity and remuneration, according to which non-agriculture compares favourably with agriculture. In the OMS, productivity and remuneration are several times higher than in the NMS.

The levels of both analysed variables are extremely diversified across countries. This is indicated by the high values of the coefficient of variation (Cv). The data show that the diversification of productivity and remuneration

Table 1
Labour productivity and labour remuneration in agricultural and non-agricultural sectors of EU countries (euro/hour)

Sector	Agriculture				Non-agriculture			
Variable	p_L^A		ϖ_L^A		p_L^N		ϖ_L^N	
Year	2000	2013	2000	2013	2000	2013	2000	2013
Austria	5.11	8.08	10.55	12.98	38.06	54.83	22.03	32.81
Cyprus	5.43	5.13	3.64	5.80	16.52	18.46	7.07	11.07
Germany	9.02	13.84	13.82	14.80	38.02	50.35	27.49	36.13
Denmark	15.69	16.20	18.95	26.31	50.74	61.96	23.90	40.24
Spain	14.52	17.93	4.53	6.27	26.05	39.75	13.80	22.42
Finland	10.81	16.58	10.01	14.71	37.28	50.60	22.01	32.14
France	14.59	19.28	12.14	19.53	36.28	49.14	23.34	34.38
Greece	5.70	6.73	3.05	5.82	16.40	20.66	7.94	11.75
Italy	10.99	12.69	7.83	10.46	29.04	30.76	17.47	25.67
Netherlands	15.99	23.11	16.22	23.56	48.03	64.44	22.94	34.28
Portugal	3.11	4.97	4.19	5.68	11.92	17.30	6.47	9.34
Sweden	12.12	17.91	14.79	19.85	38.10	60.04	23.28	33.86
Bulgaria	1.52	1.31	0.82	2.86	2.71	4.87	1.40	3.48
Czech Rep.	3.55	5.62	2.73	6.90	6.56	17.58	3.55	8.97
Estonia	4.15	8.22	1.52	5.18	5.05	10.58	2.50	7.44
Hungary	2.16	4.34	1.84	4.33	7.12	9.68	3.03	6.61
Lithuania	1.70	5.03	1.10	4.20	5.02	12.71	2.52	6.39
Latvia	1.20	3.55	0.70	4.48	3.31	7.25	1.68	5.85
Slovenia	2.52	3.98	6.06	12.20	12.58	23.01	6.93	16.55
Slovakia	4.97	14.73	2.60	5.74	7.92	20.95	4.05	9.11
Descriptive statistics								
Av.: all	7.24	10.46	6.85	10.58	21.84	31.25	12.17	19.42
Av: OMS	10.26	13.54	9.98	13.81	32.20	43.19	18.14	27.01
Av.: NMS	2.72	5.85	2.17	5.74	6.28	13.33	3.21	8.05
Cv: all	0.70	0.60	0.82	0.65	0.72	0.64	0.76	0.64
Cv: OMS	0.42	0.43	0.52	0.51	0.37	0.39	0.39	0.38
Cv: NMS	0.47	0.65	0.75	0.47	0.46	0.46	0.51	0.45

Source: authors' own calculations based on Eurostat/ECB, ESA95 National Accounts.

in the new members states (NMS) is higher than in the old member states (OMS). The preliminary analysis of the data also indicates the lack of any greater changes in the diversification of labour productivity and remuneration in the OMS in the years 2000–2015. In the NMS, an increase in diversification of labour productivity in agriculture relative to 2013 is noticeable. At the same time, the diversification of remuneration across the NMS has decreased in the years 2000–2013.

From the perspective of neoclassical theory, labour remuneration should be determined by its productivity (expressions 2–4). However, it can be observed that we are dealing with a reversed relationship between productivity and remuneration within particular sectors (Table 1). In the agricultural sector of most countries, remuneration is higher than labour productivity. In 2013, the exceptions to this were Estonia, Finland, Spain, Greece, Italy, and Lithuania. In the case of the non-agricultural sector (industry), remuneration constitutes ca. 50-80 per cent of labour productivity.

The above observations are supported by the calculated average ULC presented in Figure 1. It can be observed that the non-agricultural ULCs in the NMS are lower than in the OMS. This condition gives greater competitiveness to the NMS, which allows less developed countries to catch up with more developed countries, hence some convergence. Symptoms of this convergence have already started to appear, and disparities between the NMS and the OMS have already begun to decrease.

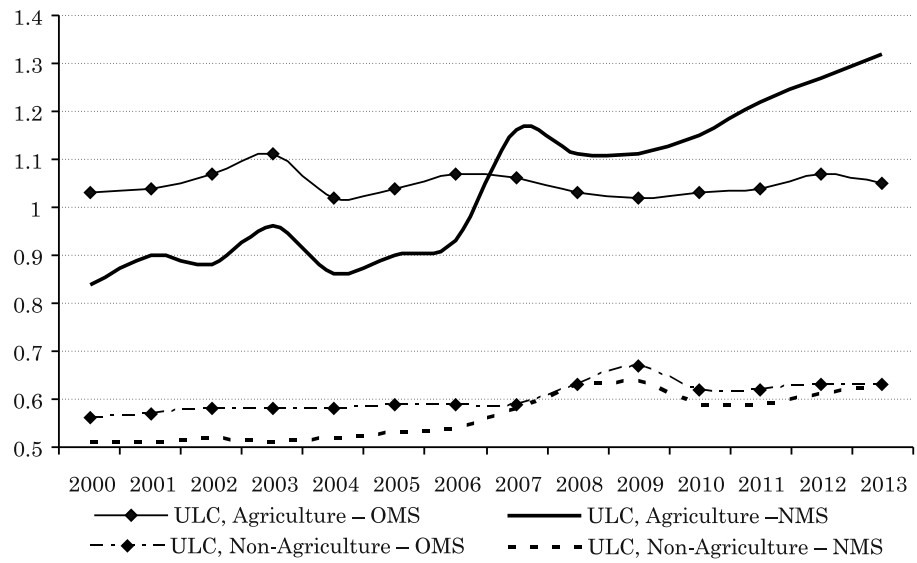

Fig. 1. Average values of hourly Unit Labour Costs (ULC) in agricultural and non-agricultural sectors of EU countries
Source: authors' own calculations based on Eurostat/ECB, ESA95 National Accounts.

Since 2006 in the agricultural sector, the ULC has been lower in the NMS than in the OMS, being less than 1. Since 2007, agricultural remunerations in the NMS have been increasing faster than the productivity of labour employed. The average ULC in the NMS has increased significantly above 1, when compared to the level observed in the OMS. This may be related to the volume

of support for the NMS within the framework of Common Agricultural Policy (CAP), which is relatively greater than in the OMS with regards to labour productivity. This might decrease the pressure to improve labour productivity in agriculture in the NMS, because farming incomes are increasingly less dependent on labour productivity.

When we compare ULCs in the agricultural sector to the non-agricultural sector (expression 8), it can be observed that (Fig. 2) the ratios in agriculture compare unfavourably with non-agriculture both for the OMS and NMS. However, it may be noted that in the case of the aforementioned change, since 2007 the analysed ratios have been greater in the NMS, while they have been decreasing in the OMS. This can be considered as a manifestation of some convergence across sectors in the case of the OMS and divergence in the NMS case. In light of the dual economy theory, this does not seem to be a good characteristic of development processes in the NMS.

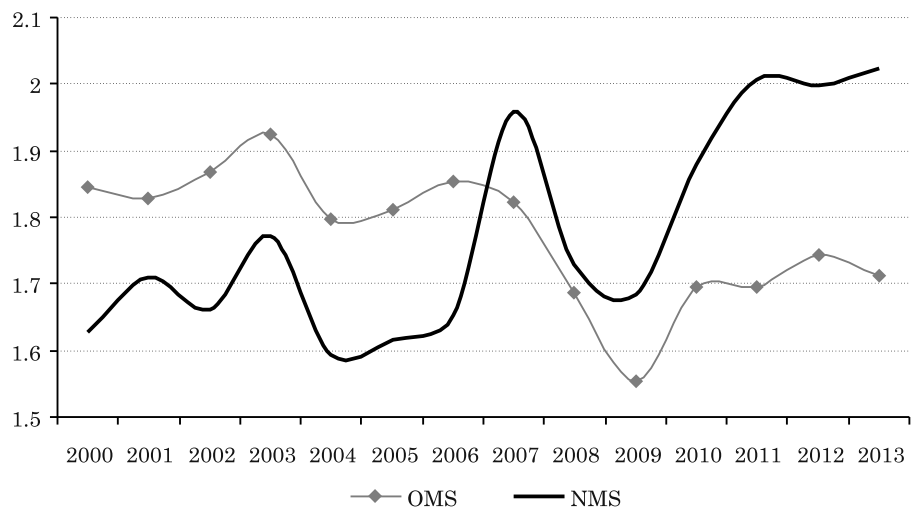

Fig. 2. Average index values of ULC in agriculture versus ULC in non-agriculture of EU countries
Source: authors' own calculations based on Eurostat/ECB, ESA95 National Accounts.

The values and graphs obtained may indicate an improvement in the ULC ratio across analysed sectors of the OMS, and a deterioration in the NMS. This confirms the observations formed on the basis of Figure 1. In the NMS, the dependence of income on productivity in agriculture has been decreasing relative to other sectors, while the opposite is occurring in the case of the OMS.

Changes in productivity, remuneration and unit labour costs

A question arises as to the dynamic of these processes. That is, what is the relation between the increase in remuneration and the growth of labour productivity (expression 10) in the NMS and OMS in the sectors under investigation? It can be assumed that in agriculture, the growth of productivity should be faster than the growth of remuneration relative to other sectors ($l' < 1$), especially in the NMS so as to eliminate the signalled disparities of income between agriculture and other sectors. In this respect, the analysis is possible on the basis of the data in Table 2.

Table 2

Changes in labour productivity and labour remuneration in 2000–2013 of EU countries

Sector	Agriculture			Non-agriculture			Ratio
Variable	Δp_L^A	$\Delta \varpi_L^A$	ULC'$_A$	Δp_L^N	$\Delta \varpi_L^N$	ULC'$_N$	l'
Austria	1.58	1.23	0.78	1.44	1.49	1.03	0.76
Cyprus	0.94	1.59	1.69	1.12	1.57	1.40	1.21
Germany	1.53	1.07	0.70	1.32	1.31	0.99	0.71
Denmark	1.03	1.39	1.35	1.22	1.68	1.38	0.98
Spain	1.23	1.38	1.12	1.53	1.62	1.06	1.06
Finland	1.53	1.47	0.96	1.36	1.46	1.08	0.89
France	1.32	1.61	1.22	1.35	1.47	1.09	1.12
Greece	1.18	1.91	1.62	1.26	1.48	1.17	1.38
Italy	1.15	1.34	1.16	1.06	1.47	1.39	0.83
Netherlands	1.45	1.45	1.01	1.34	1.49	1.11	0.91
Portugal	1.60	1.36	0.85	1.45	1.44	0.99	0.86
Sweden	1.48	1.34	0.91	1.58	1.45	0.92	0.99
Bulgaria	0.86	3.48	4.03	1.80	2.48	1.38	2.92
Czech Rep.	1.58	2.53	1.60	2.68	2.53	0.94	1.70
Estonia	1.98	3.41	1.72	2.10	2.98	1.42	1.21
Hungary	2.00	2.36	1.18	1.36	2.18	1.60	0.74
Lithuania	2.95	3.81	1.29	2.53	2.53	1.00	1.29
Latvia	2.96	6.40	2.16	2.19	3.48	1.59	1.36
Slovenia	1.58	2.01	1.27	1.83	2.39	1.31	0.97
Slovakia	2.96	2.21	0.74	2.65	2.25	0.85	0.87
Descriptive statistics							
Av.: all	1.65	2.17	1.37	1.66	1.94	1.19	1.14
Av: OMS	1.34	1.43	1.11	1.34	1.50	1.14	0.97
Av.: NMS	2.11	3.27	1.75	2.14	2.60	1.26	1.38

Source: authors' own calculations based on Eurostat/ECB, ESA95 National Accounts.

Any clear tendencies or observations in accordance with the assumptions that productivity growth should exceed an increase in remuneration, both within a sector and across sectors, cannot be observed. In general, the remuneration growth in EU countries is faster than the labour productivity growth (ULC'). Greater discrepancies occur in the NMS (the average values in agriculture and non-agriculture are 1.75 and 1.26, respectively) then in the OMS (the average values being 1.11 and 1.14, respectively).

In relation to expression 9, in most of the countries growth ratios l' are below (especially in Germany and Hungary) or close to 1. This may indicate the equalization of ratios of remuneration and productivity across sectors, which reflects some convergence across sectors and solving the income disparity problem in the market. In the case of Cyprus, Greece, Finland (in the OMS) and Bulgaria, Czech Republic, Estonia and Lithuania (in the NMS), the growth of remuneration relative to productivity in agriculture is greater than in non-agriculture. In these countries, cross-sectoral differences are worsening (given the already existing disparities), which can indicate some risk of an ineffective allocation of labour in these economies.

Summary

We have outlined an analytical framework with some empirical analysis of the ratios between productivity of labour and remuneration and their respective changes in relation to sectors (agriculture and non-agriculture), both in the NMS and OMS. An analysis of such ratios and their changes allows statistical and dynamic evaluations of the rationality of business management, eliminating income disparities across sectors or convergences. The analysis and observations are preliminary, indicating a new way of approaching this key economic issue, which determines competitiveness within and across sectors. The proposed analytical framework can be further enriched with statistical models allowing the computation of sigma and beta convergence.

Observations based on empirical analysis are not always unambiguous. Nevertheless, in the case of some countries (mainly the OMS) some positive processes can be observed, including convergence, levelling across sectors of ratios of remuneration and labour productivity, both in terms of the static and dynamic approach. The aforementioned positive relation between remuneration for labour and labour productivity cannot be observed in the agricultural sector of the NMS. One can observe an increasing disparity across sectors most frequently in these countries as well.

From an international perspective, one can notice a decreasing disparity between unit labour costs in non-agriculture between the OMS and the NMS.

In the case of agriculture, after the EU enlargement, the level of ULC in the NMS has significantly exceeded the level observed in the OMS. Thus, it can be concluded that we are not dealing with processes of convergence of ULC in the agricultural sector in the European Union.

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DEMOGRAPHIC DETERMINANTS OF POTENTIAL LABOUR FORCE SUBSTITUTION IN POLAND AND EUROPE

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K e y w o r d s: potential labour force, working-age subpopulation, changes in the population age structure, population aging process.

A b s t r a c t

This article presents the levels of the potential labour force in European countries resulting from the inflow of young cohorts into the age group 15+ and the outflow of people aged 65 years and older from the labour market. The purpose of the analysis is to assess the replacement of the present and future potential labour force in European countries, particularly in Poland. This study is at the level of voivodeships and poviats.

DEMOGRAFICZNE UWARUNKOWANIA ZASTĘPOWALNOŚCI POTENCJALNYCH ZASOBÓW PRACY W POLSCE I W EUROPIE

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S ł o w a k l u c z o w e: potencjalne zasoby pracy, ludność w wieku produkcyjnym, zmiany w strukturze wieku populacji, proces demograficznego starzenia się.

A b s t r a k t

W opracowaniu przedstawiono bilanse potencjalnych zasobów pracy w krajach europejskich, wynikające z napływu młodych roczników do grupy 15 lat i więcej oraz odpływu poza rynek pracy roczników w wieku 65+ lat. Celem analizy jest ocena zastępowalności (rotacyjności) obecnych i przyszłych potencjalnych zasobów pracy w krajach europejskich, ze szczególnym uwzględnieniem Polski (w której przypadku analizy są prowadzone na poziomie województw i powiatów).

Introduction

According to economic criterion, the potential labour force and the working-age subpopulation are equivalent. However, the definitional heterogeneity of working age (especially of the mandatory retirement age) causes international comparisons of the potential labour force to be identified as the age group of 15–64 years (following the biological division into age groups). The real labour force consists of all economically active people regardless of their age.

The size of the potential labour force and of the real labour force depends on many factors: demographics (the size of a population inhabiting an area, population structure by sex, age and educational attainment), economics (the level of wages and the supply of products and their prices), legal aspects (the working-age band determined by the number of obligatory school years and official retirement age, etc.), and socio-cultural determinants (the prevailing traditions and customs, including the family model and the attitudes people hold to engaging in economic activity) (KRYŃSKA, KWIATKOWSKI 2013, p. 87–90).

Changes in the age structure of most European populations, e.g. the shrinking of the potential labour force, are caused by population aging, i.e. a steadily expanding share of older people in relation to other age groups. The main factors in this process are low fertility rates (much below the generation replacement levels)[1] and rising average life expectancy. Their combined influence on an area is frequently made worse by negative net migration[2].

This article presents the size of the potential labour force in European countries as determined by the entry of younger birth cohorts and the withdrawal of older birth cohorts from the labour market[3], and estimates the current and future potential labour force replacement ratios for European countries and Poland (by voivodeship and poviat).

The population age structure in European countries and Poland is analysed based on information from years 2005, 2010, 2014, 2020, 2025, 2030,

[1] One reason why fertility rates have been declining in highly-developed economies over the last several decades is changes in the matrimonial and procreative models. The most important of them are delayed decisions to marry and older age at first child-birth, an increasing proportion of couples choosing to live in free unions, a falling percentage of multi-child families, and an increasing percentage of couples deciding against having offspring at all. The family formation changes are explained in the context of the second demographic transition (see: KOTOWSKA 1999, KURKIEWICZ 2008, LESTHAEGHE 2010, VAN DE KAA 2002).

[2] For more on population aging, the causes, consequences and course of this process in different countries of the world (see: UHLENBERG 2005, p. 143–167, *International handbook of population aging* 2009).

[3] The literature contains also other ways of determining how potential labour force relates to labour demand projections (see PODOGRODZKA 2015).

2035, 2040[4] derived from the Eurostat online statistical database and the quinquennial data on Polish voivodeships and poviats from the years 2005–2040 published by the Central Statistical Office (GUS).

A comparative analysis of potential labour force in European countries

The 2005 percentages of population aged 15–64 years (representing the potential labour force) were relatively high in the majority of European countries, the highest in Poland, Slovakia and the Czech R. (Tab. 1). Over the next decade, they decreased in most countries excluding Cyprus and Luxemburg (where they slightly rose). Among the EU countries, in 2014 they were the highest in Slovakia, Poland, Luxemburg and Cyprus, and the lowest in Sweden and France.

In the next several to ten-plus years, changes in the population age structure will reduce potential labour force in all European countries. The largest falls are predicted to take place between 2014 and 2020 in Poland, the Czech Republic, Slovenia and Malta (in these countries the age group 16–54 years will be smaller by 5%), and in the years 2014–2030 and 2014–2040 in Germany and Lithuania. Eurostat forecasts for the EU countries show that in 2030 and 2040 relatively high percentages of this population will be noted in Cyprus, Luxemburg and Slovakia, while the Lithuanian rate will be the lowest (Tab. 1).

Compared with other EU countries, Poland has today and will have in the future a relatively large potential labour force. However, its size will be gradually decreasing over time. A downward trend will be particularly clear after 2040, due to large birth cohorts of post-baby boomers born in the early 1980s leaving the subpopulation aged 15–64 years.

The consequence of the subpopulation of children aged 0–14 years being smaller and smaller in most European countries, including Poland, is that the potential labour force receives increasingly small birth cohorts. At the same time, more and more people reach the threshold of demographic old age at 65 years. Changes in the age structure of populations that are potentially ready to "enter" or "exit" the labour market can be measured using a labour force replacement ratio, which is calculated as a quotient between the number of people aged 15–24 years and the number of people aged 55–64 years.

Labour force replacement ratios greater than 1 show that in 2005, the first year of the analysis, the subpopulation of people that could enter the potential

[4] The data on the age structure of European populations are presented in Poland as on 31 Dec. each year, but in the Eurostat database, they are dated 1st Jan. of the next year.

Table 1

Proportion of population aged 15–64 years in EU countries and some other European countries between 2005 and 2040 [%] and its change in the years 2005–2014 (2005 = 1.0) and 2014–2040 (2014 = 1.0)

Country	2005	2010	2014	2020	2025	2030	2035	2040	2014/2005	2020/2014	2030/2014	2040/2014
1	2	3	4	5	6	7	8	9	10	11	12	13
EU countries												
Austria	67.7	67.6	67.2	65.9	64.0	61.7	60.1	59.6	0.99	0.98	0.92	0.89
Belgium	65.7	65.9	64.9	63.5	62.4	61.2	60.6	60.4	0.99	0.98	0.94	0.93
Bulgaria	69.1	68.3	66.1	63.9	62.9	62.3	61.2	59.3	0.96	0.97	0.94	0.90
Croatia	66.7	67.0	66.5	64.2	62.6	61.3	60.6	59.9	1.00	0.97	0.92	0.90
Cyprus	68.5	70.5	69.0	66.8	65.0	64.0	63.7	63.0	1.01	0.97	0.93	0.91
Czech Republic	71.1	69.9	67.0	63.6	63.4	63.0	62.6	60.3	0.94	0.95	0.94	0.90
Denmark	66.1	65.3	64.4	63.3	62.3	60.5	59.4	58.9	0.97	0.98	0.94	0.91
Estonia	68.1	67.2	65.3	62.6	61.8	61.0	60.3	58.8	0.96	0.96	0.93	0.90
Finland	66.7	66.0	63.7	61.0	59.8	58.9	58.8	59.3	0.95	0.96	0.93	0.93
France	65.1	64.7	63.0	61.5	60.3	58.9	57.9	57.2	0.97	0.98	0.94	0.91
Greece	66.6	66.1	64.6	63.8	63.1	61.8	59.3	56.8	0.97	0.99	0.96	0.88
Spain	68.9	67.9	66.3	65.4	64.5	62.7	60.0	56.7	0.96	0.99	0.95	0.86
Netherlands	67.5	67.0	65.5	63.9	61.9	59.7	57.9	57.4	0.97	0.98	0.91	0.88
Ireland	68.5	67.2	64.9	63.3	63.3	63.0	61.7	59.1	0.95	0.98	0.97	0.91
Lithuania	67.1	67.2	66.7	63.7	60.2	57.5	56.1	55.3	0.99	0.96	0.86	0.83
Luxemburg	67.5	68.5	69.2	67.8	66.5	65.1	64.0	63.5	1.02	0.98	0.94	0.92
Latvia	68.5	67.4	65.6	63.6	61.8	60.3	59.4	58.1	0.96	0.97	0.92	0.89
Malta	69.1	69.3	67.2	63.6	61.2	60.2	60.6	60.6	0.97	0.95	0.90	0.90
Germany	66.6	66.0	65.8	63.9	61.6	58.7	56.5	56.2	0.99	0.97	0.89	0.85
Poland	70.5	71.1	69.5	66.0	64.2	63.7	63.4	62.0	0.99	0.95	0.92	0.89
Portugal	66.8	66.2	65.3	64.5	63.3	61.3	59.1	56.4	0.98	0.99	0.94	0.86
Romania	68.4	68.0	67.5	65.3	64.1	63.9	61.5	59.8	0.99	0.97	0.95	0.89

cont. Table 1

1	2	3	4	5	6	7	8	9	10	11	12	13
Slovakia	71.5	72.0	70.7	67.9	66.4	65.5	64.7	62.5	0.99	0.96	0.93	0.88
Slovenia	70.2	69.3	67.3	63.7	62.1	60.9	59.8	58.3	0.96	0.95	0.90	0.87
Sweden	65.4	64.9	63.1	61.5	60.9	60.3	60.2	60.2	0.96	0.97	0.96	0.95
Hungary	68.8	68.7	67.6	65.1	64.1	63.7	62.6	60.8	0.98	0.96	0.94	0.90
United Kingdom	66.1	66.0	64.6	62.8	61.8	60.7	59.9	59.6	0.98	0.97	0.94	0.92
Italy	66.0	65.4	64.5	63.7	62.9	61.2	59.2	57.4	0.98	0.99	0.95	0.89
Other selected European countries												
Belarus	70.3	71.3	69.8	·	·	·	·	·	0.99	·	·	·
Montenegro	66.8	68.0	67.8	·	·	·	·	·	1.02	·	·	·
Iceland	66.5	66.8	66.1	63.5	61.9	60.5	60.1	59.7	0.99	0.96	0.92	0.90
Macedonia	69.4	70.8	70.5	·	·	·	·	·	1.02	·	·	·
Moldavia	71.8	73.6	73.7	·	·	·	·	·	1.03	·	·	·
Norway	65.7	66.2	65.8	64.6	63.7	62.6	61.8	61.4	1.00	0.98	0.95	0.93
Serbia	67.1	68.4	67.1	·	·	·	·	·	1.00	·	·	·
Switzerland	68.0	68.0	67.3	65.4	63.7	61.8	60.6	60.2	0.99	0.97	0.92	0.89
Ukraine	69.3	70.5	69.3	·	·	·	·	·	1.00	·	·	·

Source: Eurostat; developed by the authors.

Table 2
Potential labour force replacement ratios for EU countries and some other European countries, 2005–2040

Country	2005	2010	2014	2020	2025	2030	2035	2040
EU countries								
Austria	1.08	1.05	0.96	0.73	0.68	0.76	0.88	0.88
Belgium	1.07	0.99	0.94	0.87	0.92	1.01	1.06	1.07
Bulgaria	0.99	0.82	0.71	0.68	0.72	0.71	0.67	0.66
Croatia	1.08	0.88	0.81	0.76	0.77	0.81	0.79	0.75
Cyprus	1.54	1.44	1.24	0.89	0.88	0.93	0.90	0.82
Czech Republic	0.97	0.84	0.77	0.76	0.87	0.82	0.71	0.75
Denmark	0.84	0.97	1.05	0.95	0.91	0.91	0.96	1.11
Estonia	1.31	1.03	0.81	0.72	0.86	0.90	0.84	0.78
Finland	0.92	0.84	0.87	0.85	0.91	1.02	1.04	0.98
France	1.16	0.97	0.94	0.98	0.98	1.00	1.05	1.11
Greece	1.16	0.93	0.83	0.76	0.74	0.70	0.65	0.64
Spain	1.13	0.94	0.82	0.72	0.72	0.68	0.61	0.62
Netherlands	0.98	0.93	0.94	0.86	0.81	0.83	0.94	1.00
Ireland	1.58	1.28	1.06	1.13	1.16	1.17	1.04	0.97
Lithuania	1.39	1.25	0.99	0.68	0.65	0.78	0.97	1.10
Luxemburg	1.15	1.08	1.05	1.01	0.98	1.05	1.12	1.13
Latvia	1.38	1.10	0.81	0.67	0.78	0.84	0.87	0.86
Malta	1.10	0.94	0.91	0.81	0.87	0.91	0.88	0.85
Germany	1.02	0.90	0.79	0.61	0.56	0.66	0.78	0.77
Poland	1.56	1.00	0.82	0.77	0.91	0.89	0.74	0.64
Portugal	1.07	0.89	0.82	0.76	0.71	0.64	0.58	0.61
Romania	1.30	0.92	0.81	0.95	0.85	0.71	0.73	0.79
Slovakia	1.52	1.09	0.89	0.78	0.82	0.79	0.65	0.57
Slovenia	1.14	0.84	0.69	0.66	0.73	0.82	0.78	0.74
Sweden	0.94	1.05	1.05	0.92	0.96	1.02	1.10	1.15
Hungary	1.06	0.90	0.82	0.86	0.85	0.73	0.66	0.74
United Kingdom	1.11	1.11	1.10	0.90	0.89	1.01	1.10	1.08
Italy	0.85	0.79	0.78	0.71	0.68	0.68	0.71	0.78
Other selected European countries								
Belarus	1.80	1.19	0.86	·	·	·	·	·
Montenegro	1.52	1.17	1.02	·	·	·	·	·
Iceland	1.53	1.37	1.23	1.08	1.17	1.25	1.24	1.24
Macedonia	1.62	1.32	1.11	·	·	·	·	·
Moldavia	2.27	1.63	1.12	·	·	·	·	·
Norway	1.06	1.09	1.11	1.05	1.00	1.01	1.08	1.13
Serbia	1.10	0.78	0.72	·	·	·	·	·
Switzerland	0.98	0.99	0.93	0.78	0.75	0.86	0.96	0.96
Ukraine	1.54	1.12	0.84	·	·	·	·	·

Source: Eurostat; developed by the authors.

labour force (15–24 years) was larger than the proportion of people nearing retirement (55–64 years) in most EU countries (Tab. 2). By 2014, there were only six of them (Cyprus, Denmark, Ireland, Luxemburg, Sweden and the UK). In the other countries, the older group outnumbered the younger group. The largest differences between the two populations were observed in Slovenia, Bulgaria, Germany and Italy.

Ireland's percentage of children is high today, so in 2020 and 2025 it will be the only country where the subpopulation aged 15–24 years will be significantly larger than the age group of 55–64 years. However after 2030, the first subpopulation will decrease and the other will increase. With the difference between them growing increasingly small, within a decade (in 2040) the older group will be larger. In 2040, the potential labour force replacement ratios will be relatively good in Luxemburg, Denmark, France, Lithuania and Sweden. The lowest ratios will be noted in Slovakia, Portugal, Greece, Spain and Poland, where the subpopulation aged 15–24 years will be almost half as small as the age group 55–64 years (Tab. 2).

A comparative analysis of potential labour force in Poland

In 2015, the Polish population of people aged 15–64 years (the potential labour force) was counted at nearly 27 million (69.2% of the entire population), but projections show that over the following years it will decrease. Between 2005 and 2015, it diminished by 285,800 people (in rural areas it increased by 691,200 people, mainly due to urban-to-rural migrations and smaller outflows from rural areas than in previous years). It is estimated that in the years 2015–2030 and 2015–2040 it will be smaller by 1,320,000 and 4,670,000, respectively. In the analysed years (2005–2040), it will most likely decrease by almost 5 million (Tab. 3)[5].

The proportion of population aged 15–64 years was falling in Poland from the beginning of the second decade of the 21st c. (in urban areas the process started somewhat earlier)[6]. The trend will probably continue into the future. Although before 2013 a higher percentage of this subpopulation was noted in towns, in 2014 the rural and urban percentages were the same. GUS projections indicate that in the following years the rural percentage will be slightly higher (Fig. 1).

[5] Tables 3 and 1 show different rates of population aged 15–64 for Poland, because of differences between GUS and Eurostat.

[6] The percentage of this population was lower in the 1980s and 1990s than it is today (in 1990 it was 65.4%), because today's potential labour force has been strengthened by a relatively large subpopulation of children.

Table 3
Polish population aged 15–64 years between 2005 and 2040 and its change in the years 2005–2015 and 2015–2040 (millions)

Specification	2005	2010	2015	2020	2025	2030	2035	2040	2005–2015	2015–2020	2015–2030	2015–2040	2005–2040
Total	26.9	27.5	26.6	25.3	24.3	23.7	23.0	21.9	-0.29	-1.32	-2.92	-4.67	-4.95
Urban areas	16.9	16.9	16.0	14.8	14.0	13.5	13.0	12.2	-0.98	-1.16	-2.47	-3.73	-4.71
Rural areas	9.9	10.6	10.6	10.5	10.3	10.2	10.0	9.7	0.69	-0.17	-0.45	-0.94	-0.25

Source: GUS; developed by the authors.

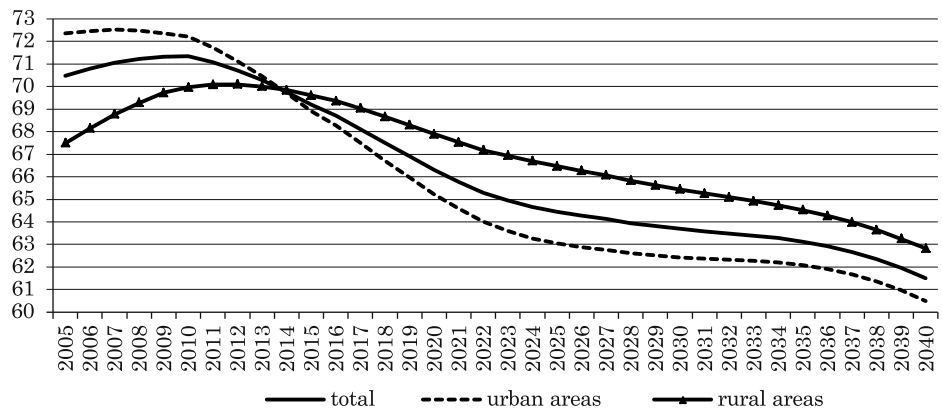

Fig. 1. Proportion of population aged 15–64 years in Poland, years 2005–2040 [%]
Source: GUS; developed by the authors.

In Poland, the percentages of population aged 15–64 years vary territorially, and in most voivodeships they are higher for rural areas than for towns (tab. 4–5). In 2015, the highest percentages were recorded for the Lubuskie, Opolskie, Zachodniopomorskie and Warmińsko-Mazurskie voivodeships, and the lowest in Mazowieckie and Łódzkie. Over the next several to ten-plus years, they will decline in all voivodeships. In 2040, the lowest percentages will be noted in the Opolskie, Podlaskie and Świętokrzyskie voivodeships.

At the beginning of the analysed period and in 2010, towns had a higher percentage of population aged 15–64 years compared with rural areas in all voivodeships (Tab. 5). Today, a reversed situation can be observed in most voivodeships (the exceptions are the Lubelskie, Podkarpackie and Podlaskie voivodeships). After 2020, the rural percentage of this population will be

higher in all voivodeships. In 2040, the lowest proportion of population aged 15–64 years in towns will occur in Świętokrzyskie and the highest in Mazowieckie, and in rural areas in Podlaskie and Pomorskie, respectively.

Table 4

Proportion of population aged 15–64 years in Poland and its voivodeships, years 2005–2040 – totals [%]

Specification	2005	2010	2015	2020	2025	2030	2035	2040
Poland	70.5	71.3	69.2	66.3	64.5	63.7	63.1	61.5
Dolnośląskie	71.7	72.6	69.7	66.0	63.9	63.4	63.2	61.6
Kujawsko-Pomorskie	70.8	71.9	69.6	66.7	64.7	63.7	63.0	61.4
Lubelskie	68.8	70.2	68.9	66.4	64.5	63.4	62.5	60.8
Lubuskie	71.8	72.8	70.1	66.6	64.4	63.7	63.3	61.7
Łódzkie	70.2	71.0	68.4	65.2	63.3	62.7	62.2	60.6
Małopolskie	69.3	70.3	69.0	66.8	65.3	64.5	63.8	62.3
Mazowieckie	69.8	70.2	68.0	65.2	64.0	64.0	63.8	62.2
Opolskie	71.2	72.2	70.4	67.7	65.4	63.8	62.3	60.4
Podkarpackie	69.0	70.7	69.9	67.7	65.9	64.6	63.5	61.6
Podlaskie	68.7	70.3	69.6	67.4	65.2	63.5	62.2	60.4
Pomorskie	70.8	71.4	69.0	66.1	64.5	63.9	63.5	62.0
Śląskie	72.0	71.8	69.3	65.9	63.7	62.8	62.2	60.6
Świętokrzyskie	69.0	70.7	69.0	66.1	63.9	62.8	62.0	60.2
Warmińsko-Mazurskie	70.7	72.3	70.6	67.6	65.2	63.8	62.9	61.3
Wielkopolskie	71.1	72.0	69.3	66.5	64.9	64.3	63.9	62.4
Zachodniopomorskie	71.8	72.9	70.2	66.6	64.3	63.4	62.9	61.3

Source: GUS; developed by the authors.

The future size of the potential labour force in Poland will be shaped by the present age structure of the population and the relatively low fertility rates in voivodeships, as well as by the directions and volumes of migration flows.

Between 2005 and 2015, the urban percentage of population aged 15–64 fell in all voivodeships, while the rural percentage increased (Tab. 6). The main causes were positive net migration in rural areas surrounding towns and especially large cities (a clearly higher outflow of younger working-age people from rural areas to towns was accompanied by a slightly higher inflow of urban residents to rural areas). In the space of the years 2015–2020, 2015–2030 and 2015–2040, the population aged 15–64 will decrease in the rural areas and towns of all voivodeships. In 2040, the largest decrease when compared to 2015 will be noted in the Opolskie voivodeship (by 14%).

Table 5
Population aged 15–64 years in Poland and its voivodeships in urban and rural areas, 2005–2040 [%]

Specification	Urban areas				Rural areas			
	2005	2015	2025	2040	2005	2015	2025	2040
Polska	72.4	68.9	63.0	60.5	67.5	69.6	66.5	62.8
Dolnośląskie	72.5	69.0	62.4	60.5	69.9	71.3	67.0	63.7
Kujawsko-Pomorskie	72.2	69.2	63.3	60.0	68.5	70.2	66.7	63.0
Lubelskie	73.1	69.7	63.1	59.2	65.0	68.3	65.7	62.0
Lubuskie	72.9	69.5	63.0	60.7	69.7	71.2	66.8	63.1
Łódzkie	72.3	68.3	61.9	59.4	66.5	68.5	65.4	62.2
Małopolskie	71.7	68.6	63.6	61.4	66.9	69.3	66.9	63.0
Mazowieckie	71.6	67.6	62.9	62.0	66.5	68.8	65.9	62.6
Opolskie	72.9	69.6	63.4	59.0	69.4	71.3	67.5	61.9
Podkarpackie	72.7	70.3	63.7	59.9	66.5	69.7	67.4	62.7
Podlaskie	72,5	71.0	64.8	60.1	63.2	67.4	65.7	60.9
Pomorskie	71.8	68.3	63.0	60.7	68.7	70.3	67.1	64.0
Śląskie	72.8	69.1	63.0	60.1	69.4	69.7	65.9	62.0
Świętokrzyskie	72.6	68.9	61.6	57.7	66.0	69.1	65.6	61.9
Warmińsko-Mazurskie	72.5	70.3	63.9	60.1	68.1	71.0	67.1	62.9
Wielkopolskie	72.6	68.9	63.4	60.9	69.0	69.8	66.6	63.8
Zachodniopomorskie	72.8	69.5	62.9	60.2	69.4	71.6	67.0	63.3

Source: GUS; developed by the authors.

The potential labour force replacement ratio that was falling from the beginning of the period under consideration was higher in rural areas than in towns (Tab. 7, 8). In 2005, people aged 15–24 years, i.e. theoretically ready to "enter" the potential labour force, outnumbered in the rural areas and towns of all voivodeships those nearing retirement (55–64 years). By 2010, both subpopulations became similar in size (earlier in towns than in rural areas where they became equal only in 2015). In 2040, the ratio between people aged 55–64 years and those in the age group 15–24 years will most likely be 100 to 57. In other words, the outflow of people nearing retirement age will not be compensated for by the inflow of people old enough to start economic activity. This will lead to a further decrease in the proportion of population aged 15–64 years.

In 2015, all voivodeships and towns had a potential labour force replacement ratio below 1 (Tab. 7, 8). In the rural areas of nine voivodeships, the younger of the two subpopulations was in the majority. Over the next several to ten-plus years, the potential labour force replacement ratios are likely to decline more in all voivodeships. In 2040, they will be particularly low in the towns. In some voivodeships, the younger of the two subpopulations will not be

Table 6

Change in the proportion of population aged 15–64 years in Poland and its voivodeships, 2005–2014 (2005 = 1.0) and 2014–2040 (2014 = 1.0)

Specification	Total				Urban areas				Rural areas			
	2015/2005	2020/2015	2030/2015	2040/2015	2015/2005	2020/2015	2030/2015	2040/2015	2015/2005	2020/2015	2030/2015	2040/2015
Poland	0.98	0.96	0.92	0.89	0.95	0.95	0.91	0.88	1.03	0.97	0.94	0.90
Dolnośląskie	0.97	0.95	0.91	0.88	0.95	0.94	0.90	0.88	1.02	0.96	0.93	0.89
Kujawsko-Pomorskie	0.98	0.96	0.92	0.88	0.96	0.95	0.90	0.87	1.03	0.97	0.93	0.90
Lubelskie	1.00	0.96	0.92	0.88	0.95	0.94	0.89	0.85	1.05	0.98	0.95	0.91
Lubuskie	0.98	0.95	0.91	0.88	0.95	0.94	0.90	0.87	1.02	0.96	0.92	0.89
Łódzkie	0.97	0.95	0.92	0.89	0.94	0.94	0.90	0.87	1.03	0.97	0.94	0.91
Małopolskie	1.00	0.97	0.93	0.90	0.96	0.95	0.92	0.89	1.04	0.98	0.95	0.91
Mazowieckie	0.98	0.96	0.94	0.91	0.94	0.95	0.94	0.92	1.04	0.98	0.94	0.91
Opolskie	0.99	0.96	0.91	0.86	0.95	0.95	0.89	0.85	1.03	0.97	0.92	0.87
Podkarpackie	1.01	0.97	0.92	0.88	0.97	0.94	0.89	0.85	1.05	0.99	0.95	0.90
Podlaskie	1.01	0.97	0.91	0.87	0.98	0.96	0.89	0.85	1.07	0.99	0.96	0.90
Pomorskie	0.97	0.96	0.93	0.90	0.95	0.95	0.92	0.89	1.02	0.97	0.94	0.91
Śląskie	0.96	0.95	0.91	0.87	0.95	0.95	0.90	0.87	1.01	0.97	0.93	0.89
Świętokrzyskie	1.00	0.96	0.91	0.87	0.95	0.94	0.88	0.84	1.05	0.97	0.93	0.90
Warmińsko-Mazurskie	1.00	0.96	0.90	0.87	0.97	0.95	0.89	0.85	1.04	0.97	0.93	0.89
Wielkopolskie	0.98	0.96	0.93	0.90	0.95	0.95	0.91	0.88	1.01	0.97	0.94	0.91
Zachodniopomorskie	0.98	0.95	0.90	0.87	0.96	0.94	0.89	0.87	1.03	0.96	0.92	0.88

Source: GUS; developed by the authors.

even half as large as the older subpopulation. Naturally, assuming that the PLN 500+ child allowance programme produces positive effects and delivers its promises, the ratios may rise in both rural areas and in towns, but not until after 15 years.

Table 7
Potential labour force replacement ratios for Poland and its voivodeships, 2005–2040 – totals

Specification	2005	2010	2015	2020	2025	2030	2035	2040
Poland	1.56	1.01	0.79	0.75	0.87	0.83	0.66	0.57
Dolnośląskie	1.48	0.86	0.67	0.67	0.84	0.80	0.61	0.52
Kujawsko-Pomorskie	1.58	1.02	0.82	0.76	0.87	0.83	0.66	0.57
Lubelskie	1.66	1.11	0.87	0.79	0.85	0.80	0.65	0.56
Lubuskie	1.65	0.95	0.75	0.74	0.90	0.86	0.65	0.55
Łódzkie	1.29	0.85	0.71	0.70	0.82	0.78	0.62	0.54
Małopolskie	1.70	1.19	0.92	0.83	0.89	0.86	0.71	0.61
Mazowieckie	1.44	0.95	0.76	0.78	0.94	0.88	0.69	0.59
Opolskie	1.62	1.03	0.75	0.65	0.69	0.69	0.57	0.49
Podkarpackie	1.88	1.26	0.97	0.84	0.86	0.81	0.66	0.57
Podlaskie	1.80	1.24	0.89	0.74	0.79	0.77	0.65	0.56
Pomorskie	1.61	1.03	0.83	0.82	0.96	0.92	0.73	0.64
Śląskie	1.41	0.92	0.69	0.65	0.78	0.79	0.64	0.54
Świętokrzyskie	1.53	0.98	0.78	0.73	0.80	0.75	0.60	0.52
Warmińsko-Mazurskie	1.88	1.13	0.84	0.76	0.87	0.85	0.68	0.58
Wielkopolskie	1.62	1.04	0.84	0.81	0.94	0.90	0.71	0.61
Zachodniopomorskie	1.54	0.90	0.72	0.71	0.86	0.80	0.61	0.53

Source: GUS; developed by the authors.

The above analysis, similar to that performed for European countries, focused on the Polish subpopulation of people aged 15–64 years and the relation between its two outermost, 10-year age groups. This approach, although somewhat simplified, is frequently found in the literature, particularly in international studies. The scope of the next part of the analysis will be widened to account for the working-age subpopulation (defined according to economic criteria)[7] and changes in the mandatory retirement age[8].

In 2015, the working-age population in Poland was estimated at 24.9 million (less than 65% of the total population), of which 15 million people lived

[7] Age groups defined according to economic criteria are also called functional age groups (KRYŃSKA 2006).

[8] The mandatory retirement age was raised by a pension system reform (before 2012, it was 60 and 65 years for females and males, respectively). In the years under consideration, the following retirement ages will be applied (GUS 2014): men: 2015 – 65.75, 2020 – 67, 2025 – 67, 2030 – 67, 2035 – 67, 2040 – 67; women: 2015 – 60.75, 2020 – 62, 2025 – 63.25, 2030 – 64.5, 2035 – 65.75, 2040 – 67.

Table 8

Potential labour force replacement ratios for Poland and its voivodeships, 2005–2040 – urban and rural areas

Specification	Urban areas				Rural areas			
	2005	2015	2025	2040	2005	2015	2025	2040
Polska	1.40	0.66	0.81	0.52	1.87	1.02	0.94	0.65
Dolnośląskie	1.35	0.60	0.79	0.49	1.89	0.85	0.94	0.57
Kujawsko-Pomorskie	1.41	0.69	0.80	0.51	1.92	1.03	0.98	0.67
Lubelskie	1.62	0.69	0.79	0.50	1.70	1.05	0.90	0.61
Lubuskie	1.51	0.67	0.87	0.52	1.96	0.91	0.94	0.60
Łódzkie	1.19	0.59	0.77	0.48	1.51	0.95	0.89	0.63
Małopolskie	1.47	0.71	0.80	0.52	2.01	1.17	0.97	0.70
Mazowieckie	1.27	0.62	0.92	0.55	1.82	1.03	0.98	0.68
Opolskie	1.43	0.65	0.69	0.46	1.89	0.87	0.68	0.52
Podkarpackie	1.78	0.74	0.80	0.50	1.97	1.18	0.89	0.62
Podlaskie	1.90	0.77	0.76	0.54	1.67	1.10	0.83	0.60
Pomorskie	1.36	0.69	0.87	0.56	2.38	1.14	1.12	0.77
Śląskie	1.35	0.64	0.76	0.52	1.66	0.88	0.83	0.61
Świętokrzyskie	1.36	0.60	0.73	0.44	1.71	0.96	0.86	0.57
Warmińsko-Mazurskie	1.70	0.71	0.82	0.53	2.22	1.07	0.95	0.65
Wielkopolskie	1.44	0.70	0.85	0.53	1.93	1.05	1.05	0.70
Zachodniopomorskie	1.39	0.63	0.82	0.50	2.01	0.92	0.93	0.60

Source: GUS; developed by the authors.

in towns and cities (Tab. 9). It is projected that over the next several to ten-plus years this potential labour force will decrease considerably, more in towns than in rural areas. In a period as short as the next five years (2015–2020), it will most likely be smaller by over one million people, and in the periods 2015–2030 and 2015–2040 by 2 and almost 3 million people, respectively.

Had the working-age band remained as it was before the pension system was changed (i.e. 18-59F/64M), in 2040 Poland would have 19.5 million people of working age (10.9 m in towns and 8.7 m in rural areas), i.e. 2.5 m less than in the GUS projection accounting for new retirement ages for males and females. Due to the possible consequences of the shrinking potential labour force, the raising of the mandatory retirement age seems a rational solution.

In 2015, the working-age population accounted for 64.8% of the country's total inhabitants. Projections show that by 2040 the rate will fall to 61.7% (Tab. 10). Its decrease in the years 2015 and 2040 is estimated at 5% (6% and 4% in towns and rural areas, respectively).

Table 9
Working-age population in Poland allowing for changes in the mandatory retirement age (millions) and its decrease in the years 2015–2040; proportion of the working-age population in Poland and its change between 2015 and 2040 (2015 = 1.0)

Specification	2015	2020	2025	2030	2035	2040	2015–2020	2015–2030	2015–2040
	population at working age (millions)						decrease (millions)		
Total	24.9	23.8	23.1	22.9	22.6	22.0	-1.08	-2.01	-2.90
Urban areas	15.0	14.0	13.3	13.1	12.8	12.3	-0.99	-1.89	-2.63
Rural areas	9.9	9.9	9.8	9.8	9.8	9.7	-0.09	-0.12	-0.27
	proportion of working-age population [%]						change (2015 = 1.0)		
Total	64.8	62.5	61.2	61.6	61.9	61.7	0.96	0.95	0.95
Urban areas	64.6	61.5	59.9	60.4	61.0	60.9	0.95	0.94	0.94
Rural areas	65.1	63.9	63.0	63.2	63.1	62.7	0.98	0.97	0.96

Source: GUS; developed by the authors.

The lowest percentage of the working-age population (18–66 years) in 2040 will occur in the Podlaskie voivodeship. For towns and rural areas, its values will be the lowest in Świętokrzyskie and Podlaskie, respectively (Tab. 10).

Table 10 contains the 2040 values of the potential labour force replacement ratios for Poland and its voivodeships (calculated as a quotient between the population aged 18–24 years and the population aged 60–66 years, taking into account the retirement age changes). The ratios show, again, that the subpopulation of people that will be old enough to start economic activity will not be sufficiently large to replace the subpopulation nearing retirement. In 2040, the countrywide ratio between the number of people aged 18–24 years and the number of people aged 60–66 years will be 62 to 100 (57 and 70 for towns and rural areas, respectively). Among voivodeships, it will most likely be the lowest in Opolskie (in Świętokrzyskie for towns and in Opolskie for rural areas).

The potential labour force varies in size and percentage inside voivodeships as well. For instance, in 2040 the Opolskie voivodeship will have a relatively small proportion of the working age population, while having the largest population of people nearing retirement in relation to people ready to enter the labour force of all voivodeships. The labour market situation in Opolskie is likely to become relatively disadvantageous after 2020, because its potential labour force will be reduced by the present, strong outflow of population from the voivodeship (frequently towards foreign destinations) and very low fertility rates.

Among the Opolskie poviats (NTS4 units), Głubczyce, Kędzierzyn-Koźle and Olesno will probably have the lowest percentages of population aged 18–66 years in 2040 (60%). The highest value of the rate will be noted in Opole (63%). The rural rates will be higher in all poviats. In the same year, the potential

Table 10

Population aged 18–66 years (millions), proportion of the population aged 18–66 years and potential labour force replacement ratios ($L_{18\text{-}24}/L_{60\text{-}66}$) for Poland and its voivodeships in 2040

Specification	Population aged 18–66 years (millions)			Proportion of population aged 18–66 years [%]			Replacement ratio $L_{18\text{-}24}/L_{60\text{-}66}$		
	total	urban areas	rural areas	total	urban areas	rural areas	total	urban areas	rural areas
Poland	22.01	12.33	9.67	61.7	60.9	62.7	0.62	0.57	0.70
Dolnośląskie	1.64	1.04	0.59	62.1	61.1	63.9	0.57	0.54	0.62
Kujawsko-Pomorskie	1.17	0.63	0.54	61.5	60.5	62.8	0.62	0.55	0.72
Lubelskie	1.14	0.49	0.65	61.1	59.8	62.1	0.61	0.54	0.66
Lubuskie	0.58	0.34	0.24	62.0	61.1	63.2	0.60	0.57	0.65
Łódzkie	1.31	0.75	0.56	61.0	60.2	62.2	0.58	0.52	0.67
Małopolskie	2.09	0.92	1.16	62.2	61.7	62.7	0.67	0.58	0.76
Mazowieckie	3.35	2.12	1.23	62.3	62.2	62.4	0.64	0.60	0.72
Opolskie	0.50	0.24	0.26	61.1	59.8	62.4	0.53	0.49	0.57
Podkarpackie	1.23	0.46	0.77	61.8	60.4	62.8	0.62	0.55	0.67
Podlaskie	0.64	0.39	0.25	60.6	60.3	61.1	0.61	0.60	0.64
Pomorskie	1.43	0.83	0.59	61.9	61.0	63.2	0.70	0.61	0.85
Śląskie	2.42	1.77	0.64	60.9	60.5	62.1	0.59	0.57	0.66
Świętokrzyskie	0.65	0.25	0.40	60.8	58.7	62.2	0.55	0.47	0.62
Warmińsko-Mazurskie	0.80	0.45	0.35	61.4	60.5	62.7	0.63	0.58	0.71
Wielkopolskie	2.11	1.02	1.09	62.3	61.3	63.3	0.67	0.58	0.76
Zachodniopomorskie	0.96	0.62	0.34	61.7	60.8	63.4	0.57	0.53	0.65

Source: GUS; developed by the authors.

labour force replacement ratios will be the lowest in the poviats of Nysa and Opole (46 and 48 people aged 18–24 per 100 people aged 60–66 years, respectively). The highest ratio will be noted in the poviat of Strzelce Opolskie (63).

Conclusion

The deep changes in population age structure in European countries, including Poland, will continue into the future. Their multiple consequences, some of which will be negative, will be particularly observable in the labour market, but the stability of the pension system that mostly depends on redistribution will be affected too. It can be expected that a longer period during which less people will be "entering" the potential labour force than leaving it will make the system's inefficiencies particularly obvious. In the long

term, the raising of the mandatory retirement age will slow down the downward trend in potential labour force in Poland, rather than reversing it. Higher fertility rates will not make the situation much better either, unless a generation replacement rate (which could significantly halt the trend) is achieved overnight (quite an unrealistic vision, indeed) (JÓŹWIAK 2013, p. 20). These circumstances call for actions stimulating fertility growth in the long term, as well economic activity, particularly among women and people at the threshold of retirement[9].

Changes in the population age structure are usually analysed from a quantitative prospective. However, there is a range of qualitative factors that allow their detrimental impacts to be cushioned. Some of them serve the purpose of promoting economic activity, while others focus on increasing individual productivity (e.g. by the introduction of newer and newer technologies that lead to social productivity improvements). The latter, by reducing demand for labour, make the problem of shortages in potential labour force less painful[10]. There is also a solution that goes against the nature of a redistributive pension system and is very difficult to implement. It consists in changing the system in such a way as to allow retired people to have a sufficient share of the capital they have accumulated over pensionable years, and thereby to be independent of the number of economically active people contributing to the pension system.

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[9] Many countries attempt to tackle the problems by attracting immigrants, but it is not likely that the use of a migration policy could satisfactorily change the shape of the population age pyramid in Poland. To make up for shortages in real labour force resulting from structural changes, Poland would need to receive 5 million people by 2060 (JÓŹWIAK 2013, p. 22 as quoted in Strzelecki). Let us note that unless the general level of fertility increases in the long term, the ultimate outcome of this approach, which is unrealistic to implement in Poland anyway, would be a larger proportion of the retirement age population.

[10] An in-depth analysis of the probable demand for labour in Poland can be found, inter alia, in the studies by KWIATKOWSKI, WŁODARCZYK (2014) and DAŃSKA-BORSIAK et al. (2014).

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ECONOMIC ACTIVITY OF GROUPS BEING IN A SPECIFIC SITUATION IN THE LABOUR MARKET IN THE LODZ PROVINCE

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K e y w o r d s: economic activity, labour market, employment structure, vulnerable groups in the labour market.

A b s t r a c t

The aim of this study is to determine the structure of economic activity among selected groups of individuals experiencing the greatest difficulties in the labour market, especially: people under the age of 30, people over the age of 50, persons with disabilities, women and people caring for dependents, as well as the characteristics of these particular groups. The study includes a deepened analysis of the employment structure by employment status, work contract and working time in the analysed groups. Also the reasons for part-time work and economic inactivity have been identified.

The study uses cross-sectional data from the Labour Force Survey for the fourth quarter of 2013 as well as the data from The Assessment of Resources of Social Assistance in the Lodz Region for the year 2015 and covers the Lodz province.

AKTYWNOŚĆ EKONOMICZNA GRUP BĘDĄCYCH W SZCZEGÓLNEJ SYTUACJI NA RYNKU PRACY W WOJEWÓDZTWIE ŁÓDZKIM

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S ł o w a k l u c z o w e: aktywność ekonomiczna, rynek pracy, struktura zatrudnienia, grupy problemowe na rynku pracy.

Abstrakt

Celem badania jest określenie struktury aktywności ekonomicznej wśród osób należących do grup doświadczających największych trudności na rynku pracy, w szczególności: osób poniżej 30. roku życia, osób powyżej 50. roku życia, osób z niepełnosprawnościami, kobiet oraz osób opiekujących się osobami zależnymi, a także charakterystyka poszczególnych zbiorowości. Badanie pogłębiono analizą struktury pracujących należących do analizowanych grup ze względu na status zatrudnienia, rodzaj umowy oraz wymiar czasu pracy. Przeanalizowano przyczyny pracy w niepełnym wymiarze czasu pracy oraz bierności zawodowej w badanej zbiorowości.

W badaniu wykorzystano dane przekrojowe pochodzące z Badania Aktywności Ekonomicznej Ludności (BAEL) z czwartego kwartału 2013 roku oraz dane z *Oceny zasobów pomocy społecznej dla województwa łódzkiego za rok 2015*. Zakres przestrzenny badania obejmuje województwo łódzkie.

Introduction

The risk of staying outside employment or exclusion from the labour market is not equal for all social groups – it is highly associated with the socio-demographic characteristics of the population such as age, gender or health status. Factors influencing the risk of exclusion from the labour market or disfavouring certain groups particularly include the lack of qualifications and professional experience, necessity to combine professional and family responsibilities, temporary cessation of work or other forms of participation in the labour market or a reduced level of physical and mental forces (STASZEWSKA 2010, p. 233, 234).

The aim of the study is to determine the structure of economic activity among selected groups of individuals experiencing the greatest difficulties in the labour market[1] in the Lodz province, especially: people under the age of 30, people over the age of 50, persons with disabilities, women and people caring for dependents. The study includes a deepened analysis of the employment structure by employment status according to the International Classification of Status in Employment (*Aktywność ekonomiczna ludności Polski*... 2014, p. 16) (self-employed person, employee, contributing family worker), work contract (permanent, temporary) and working time (full-time, part-time) of the analysed groups. Also reasons for part-time work, cessation of work and economic inactivity were identified.

The study used cross-sectional data from the Labour Force Survey (fourth quarter of 2013 illustrating the situation at the end of the year). Also data from The Assessment of Resources of Social Assistance in the Lodz Region for the year 2015 was used.

[1] With respect to these groups, the following terms are used interchangeably in the paper: vulnerable groups, disadvantaged groups, disfavoured groups.

National and regional policy towards vulnerable groups in the labour market

The category of persons with special labour market status has been defined in the legal system (*Ustawa z 20 kwietnia 2004 roku o promocji zatrudnienia i instytucjach rynku pracy*, from now on referred to as: ustawa o promocji zatrudnienia) where it refers directly to the unemployed: those under the age of 30, those over the age of 50, the long-term unemployed, social assistance recipients, those unemployed bringing up at least one child under the age of 6 years (or 18 years old and having a disability) and people with disabilities. However, in national and regional programs relating to employment, these categories refer not only to the unemployed, but also to all the communities mentioned above.

The legal act (ustawa o promocji zatrudnienia) established the National Action Plan for Employment, which has been implemented in Poland since 2005. It is the basis for the state task of employment promotion, professional activation and mitigating the effects of unemployment. One of the prior areas specified in the Plan for the years 2015–2017 is supporting groups disadvantaged in the labour market: young people, people over the age of 50, people with disabilities, women and parents with young children (uchwała Rady Ministrów 28/2015..., p. 4, 5, 18). Professional activation of groups experiencing the greatest difficulties in the labour market is also one of the main action directions in the Regional Action Plan for Employment in the Lodz Region in 2016 (*Regionalny plan działania...* 2016). Particular priorities include professional activation of young and older people by increasing the availability of labour market instruments, supporting the employment of persons wishing to combine family and professional responsibilities, as well as support in the inclusion of people socially excluded and threatened with exclusion.

The difficult situation of some social groups requires increased and more targeted state intervention in order to improve their chances of finding employment, as well as prevent their exclusion from the labour market (SZYLKO-SKOCZNY 2004, p. 225). This intervention is mainly reflected in the application of labour market instruments on both the supply side (e.g. vocational training, work experience, training in the workplace) and the demand side (job creation) (see KWIATKOWSKA 2012). Professional activation of vulnerable groups in Poland also takes the form of special programs such as: "The Solidarity between Generations. Actions to increase the professional activity of people aged 50+" or "Guarantees for Youth".

The importance of supporting the economic activity of vulnerable groups is perceived by the regional authorities, which is reflected in the direction of regional and social policy defined in strategic documents such as: Regional

Strategy for Social Policy 2020, Regional Program for the Equalization of Opportunities for People with Disabilities, Prevention of their Social Exclusion and Support for their Employment for the years 2014–2020 or Plan for preventing depopulation in the Lodz region 2020. Furthermore, particular actions included in the Regional Operational Program for the Lodz Region 2014–2020 may receive EU funding. The program includes an organization of training and granting business start-ups for unemployed and economically inactive women, people with disabilities and persons over 50 years of age, improvement of qualifications and supporting professional rehabilitation of people with disabilities, as well as job placement and training for people caring for children under 3 years of age who are willing to return to work (*Szczegółowy Opis Osi Priorytetowych*... 2017, p. 129–222). Since one of the obstacles to active participation in the labour market is the insufficient availability of services of institutional care for dependents[2], both in the Regional Strategy for Social Policy 2020 and in the Regional Operational Program, a number of actions aimed at increasing the availability of care services for children, seniors and persons with disabilities have been planned; thus increasing employment possibilities. Particular attention was paid to the development of deinstitutionalised and personalised care services provided in the local environment, especially homecare provided by professional caregivers (daily assistance) and health care professionals (home health nurses, hospice care) who take over responsibilities related to care for dependents traditionally resting on members of their families. Regional government support is also provided for by self-help groups of carers and the development of business activities for the market substitution of household services related to care for dependents, especially in the form of social enterprises (*Wojewódzka Strategia*... 2017, *Szczegółowy Opis Osi Priorytetowych*... 2017, p. 179–201).

The situation of vulnerable groups in the labour market

This paper includes a detailed analysis of four groups considered as being disadvantaged in the labour market in the Lodz province: young people of working age – over 15 and under 30 years old, older people of working age

[2] The main source of data illustrating actual and future (in the perspective of two consecutive years) demand for services of institutional care for children, seniors and persons with disabilities in the region are data from The Assessment of Resources of Social Assistance in Lodz Region. Actual analysis in this area can be found in the following documents: *Analiza sytuacji wewnątrzregionalnej*... 2016, *Diagnoza dotycząca zapotrzebowania na miejsca opieki*... online, *Instytucje świadczące opiekę*... 2016.

– between 50 and 64 years old[3], people with disabilities (legal criterion) and women.

Because the data from the Labour Force Survey does not allow the extraction of a separate group of people caring for dependents (children under 6 years old and other persons who remain unable to support themselves due to age or disability and require constant care) it was impossible to conduct a detailed analysis of this group. Therefore, a diagnosis of the situation of persons caring for dependents have been limited to an analysis of their situation within each of the four disadvantaged groups mentioned above (especially among women).

People under 30 years of age

The share of the population under the age of 30 who are economically active in the Lodz region was at 57% in 2013 (the entire working age population was at 70%). The highest level of economic activity was among people aged 25–29 (about 90%, where 80% are employed and 10% unemployed) and in the group aged 19–24 not including students (87%; 64% – employed, 23% – unemployed) (Fig. 1). At the same time, people aged 19–24 (especially among the population without pupils students) were unemployed more often than people aged 24–29. It indicates greater difficulties in finding employment by people from this group which may result directly from their younger age, as well as the lesser professional experience or lower level of qualifications.

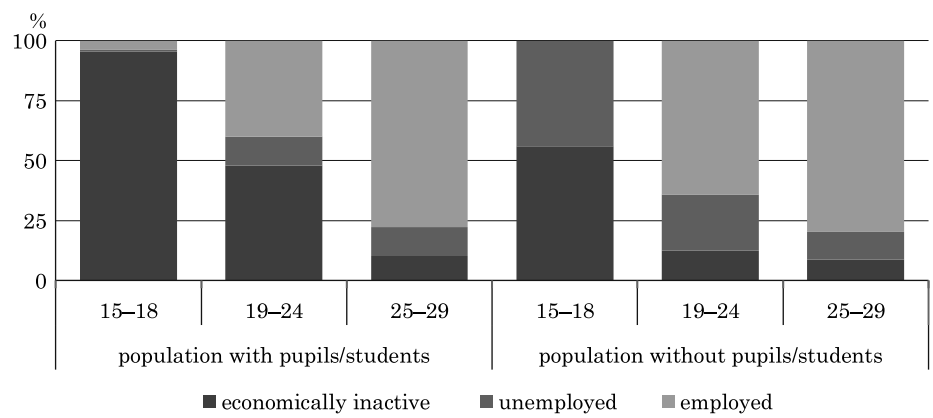

Fig. 1. Economic activity of people under 30 years of age in the Lodz province
Source: own elaboration based on LFS results.

[3] Analysis also includes people over 65 years of age, however this group has not been widely analysed.

While analyzing the economic activity among people under 30 years of age, it should be noted that people in the youngest subgroup (under 18 years old) are obliged to learn. Therefore, the share of economically inactive people aged 15–18 among whom are pupils/student is the highest and a slight percentage of employed representatives of this group are at most trainees. On the other side, it is very worrying that people aged 15–18 who have completed (or discontinued) their education do not work at the same time – 56% of them are economically inactive and 44% – unemployed.

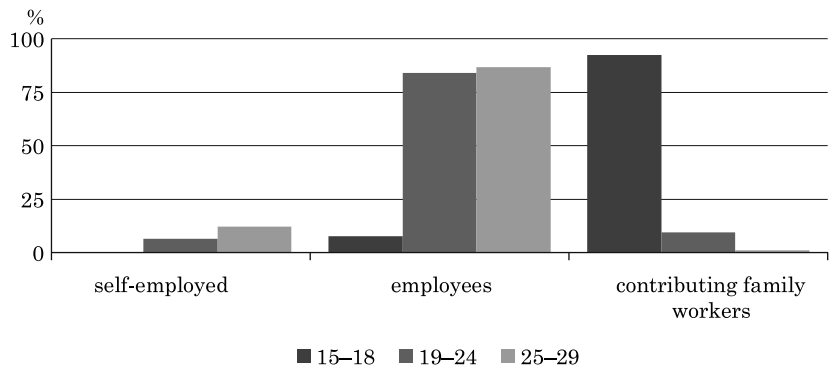

Fig. 2. Employed under 30 years of age by employment status in the Lodz province
Source: own elaboration based on LFS results.

The share of self-employed persons among the employed under 30 is very low (Fig. 2). It is relatively the highest in the age group of 25–29. The share of employees is the highest (and almost equal to) among people aged 19–24 and 25–29. Contributing family workers most often covered the employed aged between 15 and 18. Young employees most often had a temporary work contact (58% of employees aged 15–29) and only 42% of them had a permanent work contract, which is the most advantageous form of employment (mainly it concerned employees in the eldest group – at around 53%). Temporary work was the most common among employees aged 15–18, where the main reason was training, and among employees aged 19–24 – most often because of an inability to find another job.

All of the employees aged 15–18 worked part-time and most of the employees in older groups worked full-time (82% in age group 19–24 and 96% in age group 25–29). The most common reason for taking part-time work among younger employees (15–24) was learning and training. Among employees aged 25–29, the most common cause of working part-time was an inability to find a full-time job.

In the group of people under 30 years of age who are not working (unemployed and economically inactive) 82.4% were people who have never

had any paid work (nearly 90% of them were pupils/students) and only 17.6% had already worked in the past. The most common reasons for the cessation of work among young people who had already worked in the past was the end of temporary, casual or seasonal work (51.3%) and loss of work connected with the liquidation of the workplace or the job (16.2%). A relatively common reason for cessation of work in the 19–24 age-group was also dismissal. One of the likely reasons for this situation could have been low employer satisfaction with the quality of work provided by this group due to short (or negligible) work experience or a low level of professional qualifications.

The main reasons for not seeking work by inactive people under 30 was supplemental education and qualifications, which mostly affects younger people: almost all of them were aged 15–18 and about 87% aged 19–24. In the 25–29 age group, the leading cause of inactivity was taking care for children and other dependent persons (44%), but this situation was not related to a lack of access to care services or their poor quality.

People aged 50 years and older

The structure of economic activity in the population aged 50 years and older varies among different age groups. The youngest group (50–54 years old) is relatively more involved in the labour market. In 2013, this age group had the highest share of employed (72%) among all age groups in the population aged 50 years and older and higher when compared to the total working age population in the Lodz province (63%). Only 20% of persons aged 50–54 were economically inactive, which is the lowest among separated age groups over 50 and lower by 10 percentage points when compared to the total population (Fig. 3).

The share of economically active persons decreases with age (especially the employed – the share of unemployed within the elderly population is relatively

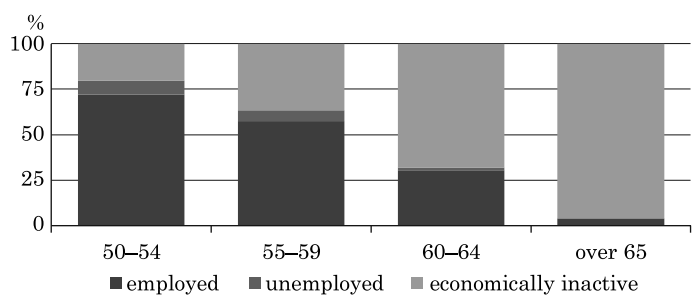

Fig. 3. Economic activity of people over 50 years of age in the Lodz province
Source: own elaboration based on LFS results.

low). The share of employed in the 50–54 age group was at 72% and in the 60–64 age group it was only 30%. It can be seen that after crossing the age of 55, career opportunities significantly decrease. On the one hand, it may be a result of the unwillingness of employers to hire older workers which often are perceived as less efficient, but on the other hand persons over 55 years of age are often interested in withdrawal from the labour market (WASILEWSKA 2014, p. 39). In 2013 in the Lodz region, retirement, early retirement or going on pension was the reason for ceasing work among 69% of people aged 60–64, 34% of people aged 55–59, but also for 28% of people aged 50–54. At the same time, the most common reason for stopping work in the 50–59 age group was the loss of a job due to the liquidation of the company or the job (about 30%).

A common reason for inactivity among older people in the Lodz province was due to health problems. It is significant that illness or disability was the most common cause of inactivity for nearly 50% of representatives of the age group 50–54 and for nearly 40% of people aged 55–59 years. This may indicate generally poor health within the elderly population, which is not supporting their involvement in the labour market.

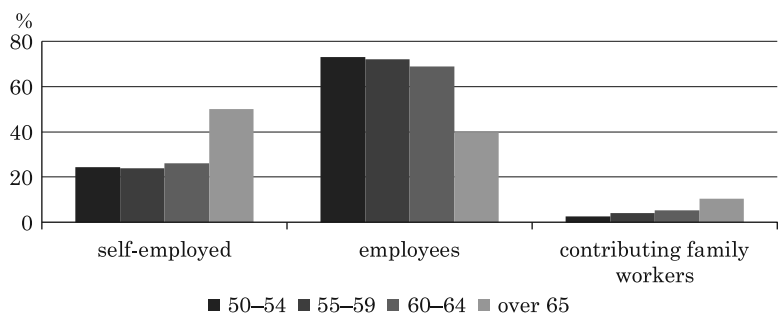

Fig. 4. Employed over 50 years of age by employment status in the Lodz province
Source: own elaboration based on LFS results.

The structure of employment of those aged 50 years and over in the Lodz province in 2013 was dominated by employees (Fig. 4). The share of self-employed was the highest among the employed aged 65 years and over (50%). These persons had also worked more often as contributing family workers (10% of representatives of this group).

Older employees (in all age groups) most often had a permanent work contact (77%). The most common reason for having a temporary work contract was the inability to find another job, but some employees (especially in older groups) preferred this type of work contract.

In 2013 in the Lodz region, most employees aged 50–64 worked full-time (92% of employees aged 50-59 and 85% of employees aged 60–64). Part-time

work was more common among employees aged 65 years and over (52% worked part-time), so the share of working part-time increased with age. Older employees working part-time (especially aged 65 years and over) mostly preferred this form.

People with disabilities

In the Lodz province in 2013, the share of the employed among people with disabilities of working age was far lower than for the population without disabilities (17% vs. 56%) and most of this group was economically inactive (80%; 38% among people without disabilities). What is more, the highest share of the employed was among people with a minor degree of disability (23%) and the lowest was among people with a severe degree of disability (5%). Therefore, the level of economic activity decreases in the higher ranges of disability (Fig. 5).

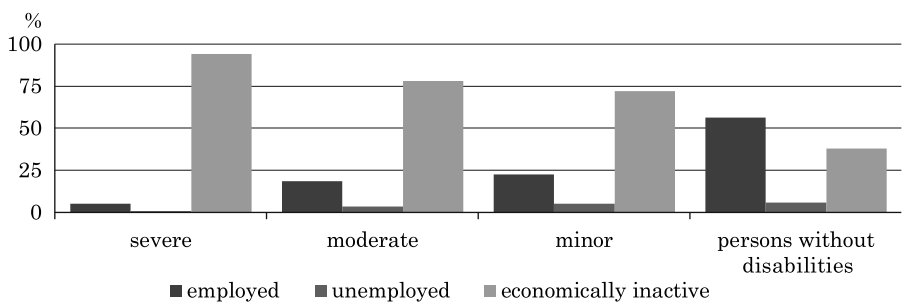

Fig. 5. Economic activity of people with disabilities by degree of disability in the Lodz province
Source: own elaboration based on LFS results.

The share of particular employment status among people with moderate and minor ranges of disability is close to the range for persons without disabilities (although there were fewer self-employed and a higher share of employees among people with disabilities) (Fig. 6). The situation for the group of people with severe degree of disability is quite different. There were no self-employed and the share of contributing family workers was much higher (16%).

Employees with severe and minor degrees of disability most often had a permanent work contact (56-60%) and employees with a moderate degree of disability most often had a temporary work contact (64%). The most common reason for having a temporary work contract was the inability to find another

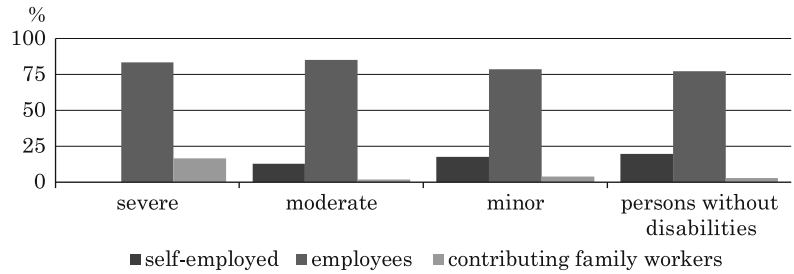

Fig. 6. People with disabilities by degree of disability and employment status in the Lodz province
Source: own elaboration based on LFS results.

job, especially among people with a severe and moderate degree of disability. The share of working full-time is higher than working part-time in this group (73% on average), although it decreases with a higher range of disability and is still lower than among the non-disabled (93%). Illness or disability was indicated as a reason for part-time work more often by employees with a moderate degree of disability than by people with a severe degree of disability, while employees with a severe degree of disability more often could not find a full-time job despite their willingness to take it (Fig. 7). Employees with a minor degree of disability more often choose a part-time job because they prefer this form.

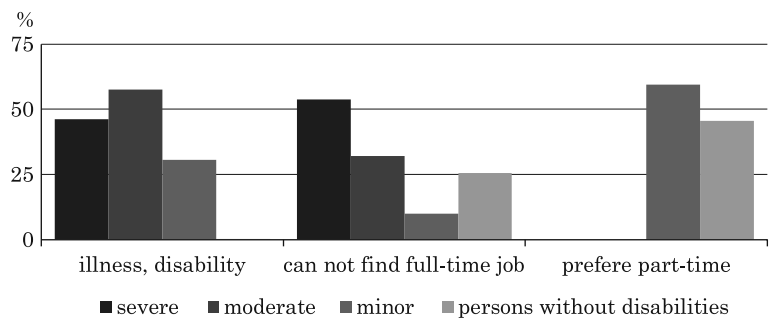

Fig. 7. People with disabilities by degree of disability and reasons for working part-time in the Lodz province
Source: own elaboration based on LFS results.

Among people with disabilities who are not working, 11.5% are people who have never had any paid work, where 60% are persons with a severe degree of disability. The share of previously employed is higher among people with a moderate degree of disability (40%). What is interesting is that the percentage of people who are not working and never had any paid work is higher for the non-disabled (over 24%). It can be related to the fact that people with disabilities are the recipients of particular activities aimed at developing

or maintaining work skills necessary to participate in vocational training or to start working (e.g. schools preparing to work, occupational therapy). People with disabilities also have the possibility to take up employment within specific units and organizations carrying out professional rehabilitation such as: sheltered workshops and work centres or social enterprises, so that they can obtain necessary skills and work experience before entering the open labour market. On the other hand, the careers of people with disabilities often end up at protected forms of employment and most of them never enter the open labour market.

The most common reasons for cessation of work among people with disabilities who have already worked in the past (excluding retirement) was going on pension (40%), although it concerned mainly people with a minor to moderate degree of disability and much less frequently people with a severe degree of disability (about 20%). The second reason was the fact of having a disability (19%) although (again) it was mainly mentioned by persons with a moderate degree of disability and rarely by persons with a severe degree of disability.

Furthermore, among the main reasons for economic inactivity in the group of people with disabilities (except retirement), the most frequent was illness and disability; while in the group of people without disabilities, the most common reason was learning and skills supplementation. This indicates that the largest obstacle to labour market participation for people with disabilities is the very fact of having a disability and the difficulties which people with disabilities experience in the labour market due to disability.

Economic activity by gender

The level of economic activity among women in the Lodz region in comparison to men is much lower. In 2013, the share of employed women was at 45% while among men it was nearly 61%. The share of unemployed was similar in both groups. There were also differences in the structure of employment status for women and men. There was a lower share of self-employment among women (15%; 23% for men) and a higher share of being employees (81%; 71% for men) and contributing family workers (4%; 2% for men).

Women as often as men have a permanent work contract (about 70%). Nevertheless, the share of full-time working women (90%) was lower than men (95%). Women more often worked part-time due to the inability to find another job or the need to care for dependents (children or other dependent persons). The most common reasons for working part-time among men were that they prefer this form or they are learning (Fig. 8).

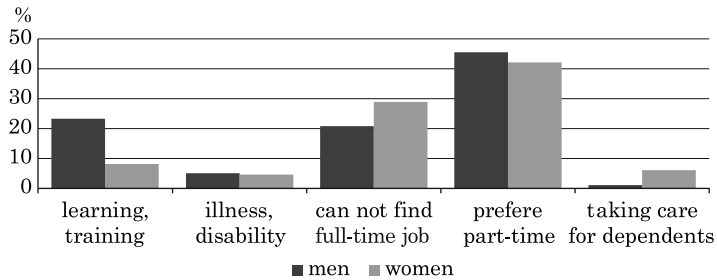

Fig. 8. Reasons for working part-time among men and women in the Lodz province
Source: own elaboration based on LFS results.

Among women who are not working, 19% are persons who have never had any paid work, while among men it was nearly 27%. Therefore despite their lower economic activity, women more often take up employment. A common reason for cessation of work among men and women were similar: going on pension, loss of job due to the liquidation of the company/job or the end of temporary work; although these reasons were mentioned mainly by men. Women much more often gave reasons connected with taking care of dependents (mainly children) and poor non-financial working conditions. Taking care of children or other dependent persons is also a common reason for economic inactivity among women – this reason was mentioned by 17% of women and only 2% of men.

According to Labour Force Survey data, the economic inactivity of women in the Lodz province is connected with taking care of dependents and is not directly related to the availability of institutions providing care services due to their localization, financial reasons or poor quality of services. However, the problem may be an insufficient number of places in these institutions. The Assessment of Resources of Social Assistance in the Lodz Region (*Ocena zasobów pomocy społecznej*... 2016) shows that there is a need to increase the number of places in child care institutions (nurseries, kindergartens) and elderly and disabled care centres (nursing homes, community self-help homes) in the region. The index reflecting the insufficiency of places in child care institutions[4] in the region in 2013 was at 5% (4.5% for kindergartens, 14% for nurseries), which means that the demand for places is 5% higher than the number of existing spots. The situation in this area is systematically improving. In 2011, the rate was at the level of 6.6%, while in 2015 it was at 3.5%, although it was mainly the result of an increase in the number of places in kindergartens. Definitely a worse situation is observed for the elderly and the

[4] Indicator calculated as the ratio between the number of children not granted a place in the nursery or kindergarten, illustrating the missing places, and the number of existing places.

disabled care institutions, where the rate illustrating the insufficiency of places[5] in 2013 was at the level of 155%. The needs were one and a half times higher than the number of existing places. The availability of places in these institutions is also improving (the rate decreased to 60% in 2015), while there are still visible shortages in this area.

Summary

An analysis of the economic activity of vulnerable groups in the Lodz region indicated certain disadvantages and difficulties which these groups experience in the labour market.

The highest level of economic activity among young people occurred in the 25–29 age group. People from the youngest subgroup (under 18 years of age) were mostly economically inactive as they are obliged to learn. Most young people were employees with a temporary work contract which they did not prefer and the end of which was the most common reason for cessation of work in this group. The economically inactive population under 30 years of age was not seeking work mainly because of learning or qualification supplementation.

People just after crossing the age of 50 were often in the climax of their careers, but their activity decreased with age. It was related to the fact that people aged 55 years and over mainly want to retire. On the other side, employers are often unwilling to employ older workers. Therefore, it is necessary to promote the "silver economy" and support the economic activity of older workers, inter alia, by improving professional qualifications, especially in the ICT area. What is more, a common reason for economic inactivity in this group seems to be mainly concerned with health; indicating a general poor health condition of the older people in the Lodz region, which is not supporting their involvement in the labour market.

People with disabilities were the most excluded from the labour market. The share of employed among people with disabilities was very low and most of them are economically inactive. The results suggest that the largest obstacle to participate in the labour market for representatives of this group is the fact of having a disability. At the same time, people with severe degree of disability (more than people with other degrees of disability) want to participate in the labour market despite their limitations. This group much less frequently mentioned issues directly related with disability as a reason for cessation of work or economic inactivity when compared to the people with other degrees of

[5] Indicator calculated as the ratio between the number of people waiting for placing in nursing homes and community self-help homes (missing places) and the number of persons placed in these institutions (existing places).

disability. There was also a question concerning the effectiveness of the system of professional rehabilitation which in its current form seems to give people with disabilities limited opportunities to participate in the open labour market.

The level of economic activity among women in the Lodz region in comparison with men was much lower. Women much more often than men indicated taking care of dependents as a reason for cessation of work and staying out of professional activity which can be related with the poor availability of places in institutions providing care services for children (especially in nurseries), elderly and persons with disabilities occurring in the Lodz province. Therefore, it is necessary to increase the availability of care services for children and dependent people (mostly the elderly), which will support people – mainly women – who care for depenents and allow them to return to work.

Bearing in mind the above conclusions, it is necessary to indicate solutions planned within the regional and social policy which may contribute to increase the professional activity of the described groups, such as: the promotion of lifelong learning and retraining, the promotion of career planning and combining education with work among young people, the enhancement of cooperation between employers and schools, health-related actions which may improve access to medical care for seniors, the creation of conditions for the transition from protected forms of employment to the open labour market for people with disabilities and the integration of activities within professional, medical and social rehabilitation. Solutions should be applied which enable participants in the workforce to combine family and professional responsibilities; such as flexible working hours, tele-working, the development of workplace nurseries and kindergartens and deinstitutionalised care services for dependents.

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THE ROLE OF THE STATE IN DETERMINING THE EFFECTIVENESS OF ENVIRONMENTAL INSURANCE

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K e y w o r d s: environmental insurance, environmental risk management, insurance programme.

A b s t r a c t

The concern for the natural environment gives rise to the need for corporate developments toward systemic management tools for environmental risk management, including private insurance. The purpose of this research was to answer the questions: what are the premises for the effectiveness of insurance in environmental risk management and what is / should be the role of the state in the moulding of these premises? It was assumed that effectiveness is a multidimensional concept linked to the subject-centred idea of risk. Description and clarification were performed on the basis of inference as a method of logical reasoning.

The attributes of the natural environment and the external effects of human activity validate the state's intervention in the system of environmental risk management. Additionally, the passive attitude of insurers and the potentially insured increases the need for governmental activity. It may amount to substantive, factual participation or providing stimuli and organising a common platform for cooperation of competent entities. The effectiveness of a macroeconomic risk management system depends on the system's effectiveness on the micro-level (the degree of fulfilment of goals for insurers and the insured). This argument should be decisive with regards to the selection and structure of the state insurance strategy and its instruments.

ROLA PAŃSTWA W DETERMINOWANIU SKUTECZNOŚCI UBEZPIECZEŃ ŚRODOWISKOWYCH

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S ł o w a k l u c z o w e: ubezpieczenia środowiskowe, zarządzanie ryzykiem środowiskowym, polityka ubezpieczeniowa.

Abstrakt

Troska o środowisko naturalne rodzi konieczność rozwoju organizacyjnego (konstrukcyjnego) systemowych narzędzi zarządzania ryzykiem środowiskowym, w tym ubezpieczeń gospodarczych. Celem badań była odpowiedź na pytanie: jakie są przesłanki skuteczności ubezpieczeń w zarządzaniu ryzykiem środowiskowym i jaką rolę w ich kształtowaniu pełni/powinno pełnić państwo? Przyjęto założenie wielowymiarowości pojęcia skuteczności i podmiotocentryczną koncepcję ryzyka. Przeprowadzono opis i wyjaśnianie, realizowane na podstawie dedukcji jako metody wnioskowania logicznego.

Atrybuty środowiska naturalnego – dobra wspólnego oraz występowanie efektów zewnętrznych działalności człowieka uzasadniają ingerencję państwa w system zarządzania ryzykiem środowiskowym. Dodatkowo bierność ubezpieczycieli i potencjalnych ubezpieczonych wzmaga konieczność aktywności władz. Może ona mieć wymiar czynnościowy (aktywne, merytoryczne uczestnictwo w wykonywaniu czynności) bądź inicjujący lub organizacyjny (budowanie bodźców i platformy współpracy). Skuteczność systemu zarządzania ryzykiem (w ujęciu makroekonomicznym) jest warunkowana jego skutecznością na poziomie mikro (stopniem osiągnięcia celów ubezpieczycieli i ubezpieczonych). Teza ta powinna determinować dobór i konstrukcję instrumentarium polityki ubezpieczeniowej państwa.

Introduction

The need for prevention against and the remedy of damage caused to the natural environment is becoming a paradigm of present-day societies. Fulfilment of this proposition involves overcoming numerous obstacles which result from, among other things, the inability to predict and measure the scope of environmental damage as well as the divergent goals set forth by various stakeholder groups. Science must conceive environmental management instruments which will be quite effective in solving problems related to natural environment issues despite the existing barriers. This is because scientists are unanimous about the urgent need to act now regardless of the unsolved problem of the measurability of the external environmental implications of human activity, thus fighting humanities greatest enemy – time. "The problem does not consist in whether we will manage to deal with environmental issues; it is whether we will manage to deal with them within the time we have left'' (TAYLOR as in: SEMKOW 1989, p. 151).

Therefore, bearing in mind the continuous necessity to develop techniques for assessment of the likelihood of environmental damage occurrence, its implications and remedy costs, it is indispensable to improve the systemic tools which facilitate damage prevention and remedy. It is obvious that these instruments will reflect the current state of knowledge about nature and engineering, regardless of which their relentless organisational (constructional) development should be seen as a priority.

Private insurance is one of the instruments which can be successfully used in managing the risk of the occurrence of environmental damage. The functions which are attributed by the doctrine to this type of insurance, i.e.

protective and preventive functions, are in line with the general goals of the state environmental policy (*II Polityka ekologiczna*... 2000, points 18, 19, *Polityka ekologiczna*... 2008, p. 21). The degree to which these functions are fulfilled by individualised contracts between the insured and the insurers depends on the structure of particular insurance products.

As a result, it seems justified to seek an answer to the question about the premises concerning the effectiveness of insurance within environmental risk management and what role the state has /should have in the creation of this insurance. The multi-dimensional nature of the effectiveness and the subject-centred concept of risk were assumed (MICHALAK 2009, p. 5–9). Environmental risk means the future state of affairs, unacceptable to the subject, emerging due to occurrences which pollute elements of the natural environment. The description and clarification were performed on the basis of inference as a method of logical reasoning. The analysis of the literature related to this subject as well as operating solutions practised on insurance markets, as well as potential implementation opportunities on the Polish market – all of this will be the reason for selecting only the most essential items out of the abundant portfolio of effectiveness determinants. This current article deliberately moves away from the model and standard perspective. The previous attempts at measuring the effectiveness of insurance protection did not result in developing a satisfactory assessment methodology (KREID 1979, p. 115–127, ŁAŃCUCKI 1975, p. 83–100 and the literature cited), they only proved the problem to have multiple aspects. Moreover, an increasing number of economists point to the fact that a persistent use of mathematical constructions in social research seems unjustified, especially in areas where the effects depend on a number of individualised decision-making premises. (HARDT 2009, p. 168, 170)[1].

This article assumes an arrangement of environmental insurance which eliminates the state financing contribution. The analysis of the effectiveness of insurance products will only refer to third party insurance (based on civil and administrative law) against environmental damage.

The concept of effectiveness of environmental insurance

The economic understanding of effectiveness has been interpreted and re-interpreted multiple times (MATUSZAK-FLAJSZMAN 2010, p. 13–18). More often than not, the term is incorrectly used as a synonym of such indicators of

[1] An overview of forces affecting the decision-making apparatus of business entities prepared on the basis of scientific works on enterprises and the science of management (BOROWSKI 2013, p. 79–89).

business activity as its efficiency or operationality. Mostly, effectiveness is defined in the context of assessment of organisational operations within various areas of its results (GRIFFIN 2008, p. 19). Product (tool, instrument) effectiveness should be analysed according to the functions which it should perform for the subjects while fulfilling their goals. An assessment of effectiveness through the prism of organisational goals puts this notion in the subject-centred, evaluative economic category. Consequently, an instrument which is effective in reference to the goals of one entity does not need to remain the same with regard to others[2]. General effectiveness (referring to all the subjects using the same instrument), then, is achievable either through unification of goals or through multi-functionality of the tool itself, thus making it suitable for the fulfilment of varied (albeit uncompetitive) goals of the subjects.

In the light of contemporary economic works, it is certain that the unification of goals of all the stakeholders is impossible (JEŻOWSKI 2000, p. 10, 11, 15). The actual challenge is to develop a multi-functional instrument which would consider the stakeholders' varied goals and affect the determinants of the degree of achievement of these goals (effectiveness), so that the instrument could be considered applicable and commonly used in trading. Insurance products are predestined to reach macroeconomic goals, while they simultaneously remain microeconomic instruments. Intentional and justified application of regulatory solutions and insurance technical tools makes it possible (through insurance) to reach the goals which are defined on all levels of economic systems. The effectiveness of private insurance is determined by the degree to which the structure of an insurance product incorporates solutions which take into account goals at every level of the economy.

State insurance strategy as a source of factors determining the effectiveness of environmental insurance

The effectiveness of third party insurance is particularly susceptible to non-contractual determinants. The object of insurance in this case is a conventional occurrence which is confined by legal regulations. Insurance relationships are not only determined by the will of both parties but also by the will of the state expressed in legal acts. Furthermore, if these regulations are a part of the "conscious moulding of developmental processes which ultimately lead to awakening, shaping, transforming and fulfilling the insurance needs of various

[2] This assertion also served as a basis for research on effectiveness of private insurance (KREID 1979, p. 115).

economic entities", one can begin discussing the basics of an insurance state strategy (HANDSCHKE 1998, p. 63).

A state insurance strategy does not constitute a separate subject of state activities and is closely related to i.e. the state environmental policy[3]. The latter has a clear-cut purpose of the actions undertaken, the sources of which can be found in decisions taken on the global, international and domestic level. They are the ones which create the axiological basis for environmental insurance. Regulations regarding environmental damage prevention and remedy should be dynamic. They should effectively implement the findings of scientific research on nature, especially those which deal with defining the justified scope of remedy to an instance of environmental damage. The goals of environmental policy (directly) and insurance strategy (indirectly) should be socially justified in the first place, which increases (albeit does not guarantee) their technical and economic feasibility. As a sign of the implementation of the above principles into the Polish legal order, there is a departure from the strict rules for re-cultivation of polluted soil in favour of its remediation based on the analysis of risk generated by the pollution to the surrounding environment (Ustawa z 11 lipca 2014 roku o zmianie ustawy Prawo ochrony środowiska oraz niektórych innych ustaw, Journal of Laws of 2014, item 1101, article 1, point 2h). Re-cultivation, which consists in the restoration of the acceptable soil condition described by a rigid set of indicators, more often than not remains socially and environmentally unjustified. Additionally, it may be technically impossible or economically difficult to conduct, while action taken towards it (including environmental insurance) is usually ineffective. This is a proof that the goal itself which is a defining element of effectiveness, simultaneously determines the effectiveness of many instruments, including insurance products.

Aside from the construction of axiological factors of an environmental risk management system, the state also has the competency to create a collection of operating determinants, i.e. to suggest instruments, which will be beneficial for fulfilment of the set goals. Insurance, by its nature, is "a service-offering institution which fulfils the functions it has been assigned" (HANDSCHKE 1989, p. 103). In areas of the economy where the market does not provide sufficient resource allocation mechanisms, the array of measures taken within the framework of the insurance state strategy may be relatively wide. This is particularly applicable in reference to public goods and the occurrence of external effects[4]. The elements of the natural environment which are a subject

[3] In its principles, environmental policy is similarly planned to be integrated with sector policies (*The European Union's (EU) 7th Environment Action Programme*, point 85, *II Polityka ekologiczna*... 2000, point 14).

[4] Representatives of the environment and natural resources economy believe that the notion of public good and public external effects mostly refer to identical situations and can be used interchangeably. However, in economic science, dissimilar methods of analysis have been developed

of insurance activity meet the distinguishing criteria of public goods[5]. The market is unable to ensure a supply of most public goods (ŻYLICZ 2004, p. 36). Moreover, insurers actually deal with mutual relations between human activity and the elements of the environment in terms of the former generating external effects. Microeconomic analysis leads to a conclusion that the occurrence of external effects results in establishing a balance at a higher level of supply than it would be if the social cost of developing the good was considered. A lack of state intervention causes external effects to be ignored. State interventionism must therefore amount to an imposition of the obligatory inclusion of social cost in market mechanism operations. Hence, mandatory insurance seems to be the most obvious suggestion for an insurance state strategy instrument in this situation. Insurance cost constitutes a value-related equivalent of the social cost in microeconomic analysis. However, the doctrine (*Stan prawny ubezpieczeń*... 2013, p. 5 and the works cited there), insurance market stakeholders (*Comments on the BioIS*... 2010, p. 3) and finally the legislators (*Report from the Commission*... 2010, p. 10) are rather clear about their objection to the legal obligation, asserting that the market of mandatory insurance is quite ineffective[6]. With a view to the above, a system is recommended in which insurance is voluntary by law but economically enforced, which is justified and moreover, advisable in the conditions of a market economy. It is because economic freedom should always be coupled with financial liability for the outcomes of one's operations, including the removal of consequences of the produced external effects (WILCZYŃSKI 1987, as in: HANDSCHKE 1998, p. 69). The market of voluntary insurance faces the challenge of becoming effective (from the state's point of view), which will depend on a number of individual decisions made by economic entities. These are greatly affected by the non-regulatory activities of the state which reflects political culture. This regards i.e. consistency in the enforcement of legal liability principles, depending on which "the polluter pays" principle should be established in the insurance awareness of the entities held responsible for damages.

Besides the axiological and operating determinants of environmental insurance effectiveness, the state can create a wide array of aid determinants. Their character and scope should be compiled on the basis of the analysis of goals and preferences depending on which the environmental insurance market participants make their decisions. The effectiveness of insurance in fulfilment of

for them. The purpose of research should determine the selection of the method – either through the prism of public good or the external effect (ŻYLICZ 2004, p. 38).

[5] More on identification of public goods (*Zarys ekonomii*... 2010, p. 46, 47, SEMKOW 1989, p. 146, 147).

[6] Insurance obligation reduces product's adaptability, its susceptibility to innovation or the capacity to absorb effective insurance technical tools as well as technological solutions.

macroeconomic goals depends on the degree of fulfilment of the principle relating to universality and completeness of insurance protection[7]. These, in turn, are contingent upon the adaptation of the insurers' offer (price and structure of insurance product) to the needs and abilities of the entities which may potentially be included in the insurance protection.

The insurance company as a producer of insurance protection

Article 14 of the directive on environmental liability (Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage, OJ L 143/56 2004) obliges member states to foster the development of financial instruments which will support the fulfilment of the principle of the "polluter pays". The directive clearly distinguishes between insurance and other products of the financial market. A similar solution can also be found in the European legislation in article 98 of the Treaty establishing the European Atomic Energy Community – Euratom (Treaty establishing the European Atomic Energy Community (Euratom), consolidated version – OJ C 84/01 30.03.2010)[8], and in the Polish legal system – in article 103 of the Atomic Law – the obligation to sign a third party insurance contract to cover the nuclear damage done to the environment (Ustawa z 29 listopada 2000 r. Prawo atomowe, consolidated text, Journal of Laws of 2014, item 1512) as well as in article 187 section 1 and 2 of the act of 27 Apr 2001 Law on Environmental Protection – the possibility of establishment by the environmental protection authority a provision for claims regarding the occurrence of negative environmental effects and environmental damage (Ustawa z 27 kwietnia 2001 r. Prawo ochrony środowiska, consolidated text, Journal of Laws of 2013, item 1232, hereinafter: e.p.).

Compared with the above expectations, the insurers' response is a rather limited product range. They exclude high-risk sectors from insurance protection (*Study on the Implementation...* 2009*,* p. 58). Moreover, they actively use all the insurance technical tools, which limit the insurer's scope of liability (MINOLI, BELL 2002, p. 357, 358, *Green paper...* 2013, p. 23, 24). Additionally, the number of products available on the Polish market is rather small: only two insurance companies (branches of foreign companies notified in Poland) present stand-alone environmental insurance products. Other companies

[7] One must assume feasibility of protection which is guaranteed by the prudential supervision of insurance operations and availability of litigation for the purpose of legitimacy verification.

[8] "Member States shall take all measures necessary to facilitate the conclusion of insurance contracts covering nuclear risks".

generate supply by attaching an environmental clause to a third party insurance contract, where protection is offered only in the case of civil (not administrative) liability for the damage done to the environment. Analysis of the phenomenon makes it possible to identify quite a few reasons (barriers for market development) for this situation: the unpredictability of the scope of environmental damage, interpretational difficulties in the area of defining the liability of the author of the damage, difficulties in calculating the costs of damage remedy, lack (or shortage) of precedents which would affect judicature in the studied subject area, legal risk, extending the scope of liability (a gradual shift from the guilt principle to the risk principle in defining liability), and making the damage remedy more adaptable (a shift from soil re-cultivation to remediation). The latter limits the predictability of the cost of souch actions.

Environmental insurance results from economic operations of an insurance company. In the neo-classical sense, its main goal will be either profit (or another financial measure) maximization in the case of commercial insurance, or fulfilment of the needs of mutual insurance company members. Even in the latter case (mutual insurance), though, meeting the demand for insurance coverage cannot be considered with complete disregard for economic performance categories[9]. Detractors of neo-classical economics point at the necessity to take a number of institutional factors into account when determining insurers' operations. There is a wide array of cognitive biases which affect the insurance sector's decisions concerning insurance protection covering particular types of perils. These are, according to Swiss Re, among other things: the tendency to rely – during decision-making process – on one trait or piece of information, the tendency to overestimate the likelihood of events with greater "availability'' in memory, information structure (drawing different conclusions from the same information, depending on how or by whom that information is presented), the ability to distinguish between a trend and an occasional occurrence, the tendency to search for, remember or interpret information that confirms one's own opinions, and the tendency to underestimate the possibility of a rare event[10]. The biases above often make operations in the area of environmental insurance to be seen as unfavourable (ineffective) from the insurers' subjective point of view. As a result, if the status quo of the Polish insurance policy remains unchanged, both the voluntary and mandatory market of environmental insurance will continue to be ineffective in reaching macroeconomic goals. A sine qua non condition for effectiveness to take place on a macroeconomic level is to overcome the barriers to effectiveness on a microeconomic

[9] Mutual and commercial insurance differ in fact with respect to the economic surplus and its allotment, while the goal of business activity remains the same (LEMKOWSKA 2010, p. 51–53).

[10] Swiss Re calls them biases or effects of: anchoring, availability heuristic, framing, sunk costs, confirmation and normalcy bias.

level. Consequently, there is a need for activation of an insurance state strategy in the area of the environment, especially by generating aid determinants encouraging insurance operations[11].

State interventionism should aim to eliminate barriers to market development when insurance companies cannot or are not willing to undertake individual or sector-related action. Primarily, an effort should be made to compile operating interpretational guidelines for concepts like: environmental damage or scope of liability for its prevention and remedy. The meagre number of interpretations made in the course of application of laws in Europe show how complex and vast an area is the issue of identifying the scope of the damage and the amount of compensation in environmental damage liability (LOUREIRO 2014, p. 20–25). Particular solutions of individual countries are of huge importance here. Directive regulations are only harmonized to a minimum, which encourages member states to build their own unique systems of environmental risk management. Development of domestic insurance markets will be insufficiently stimulated by the compilation of interpretational guidelines for directives, such as the REMEDE project (http://www.envliability.eu/index.htm). At the same time, accomplishments of the European initiatives should be properly incorporated into the process of guideline compilation at the domestic level[12].

Resulting from the interpretation of legal regulations are the construction premises of the general insurance conditions (GIC). The barriers to the market development justify undertaking common initiatives in the area of GIC (ORLICKA 2010, p. 21). The regulation of the European Commission (Commission Regulation No 267/2010 of 24 March 2010 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to certain categories of agreements, decisions and concerted practices in the insurance sector, OJ L 83/1 30.3.2010) and a compatible initiative of the Polish Council of Ministers (Rozporządzenie Rady Ministrów z 22 marca 2011 r. w sprawie wyłączenia niektórych rodzajów porozumień, zawieranych między przedsiębiorcami prowadzącymi działalność ubezpieczeniową, spod zakazu porozumień ograniczających konkurencję, Journal of Laws of 2011, no 67, item 355) abolished automatic exclusion of agreements on standard insurance conditions from the banning of competition-limiting agreements. This does not

[11] Lack of action from the state may lead to a dramatic reduction or even total withdrawal by insurance companies from offering environmental insurance. If within the economy management system there is no clear-cut and appropriate association between common interest and individual interest, one of the two prevails; in most cases individual goals dominate the common ones (FEDEROWICZ 1971, p. 1–11, as in ŁAŃCUCKI 1975, p. 93).

[12] The European Parliament makes it clear that environmental risk management is strongly affected by domestic particular interests and therefore should be organized on the local level of each member state and regional authorities (*European Parliament Resolution*... 2014, point 18).

mean, however, that such agreements are forbidden. The European Commission sees the wide range of benefits of standardisation which it brings to the supply and demand on the insurance market. Especially, the emphasis is placed on the effect of standards on facilitating comparisons between products (demand side), limiting barriers to entering markets (supply side) lowering the costs of offering insurance services and increasing legal certainty of clauses (both sides) (*Guidelines*... 2011, point 312). The interpretation of EC guidelines leads to a conclusion that non-binding agreements, openly available in the preparatory (participation of both interested parties) and application stages, which do not pertain to the price of an insurance product, are a legally acceptable and desirable institution of the insurance market (*Guidelines*... 2011, points 270–272, 300–307, 324). The specific situation in the market of environmental insurance requires initial encouragement from the Polish state. It will be a proof of "establishing circumstances conducive to financial instruments development" and compliance with article 14 of the environmental directive.

Initiative of the state and co-operation of insurance companies should also refer to measures preventing environmental damage. The institution of intangible prevention necessary to ensure the due approach of the insured may appear insufficient. On the one hand, it reduces the risk of occurrence of motivational hazard, but if applied vastly, intangible prevention may violate the principle of completeness of insurance protection. Moreover, contractual obligations of the insured to undertake preventive measures may become too burdensome, which, in a voluntary system, may reduce their willingness for purchasing insurance. The initiative of the state and the insurance sector stakeholders' co-operation may support the insured in fulfilment of contractual requirements. Until March 2011, Polish legislation (in the wake of European legislation) allowed for a sector-wide exclusion of agreements on compilation, recognition and proliferation of technical specifications, rules and codes of practice regarding protective devices from the ban on competition-restraining agreements (Rozporządzenie Rady Ministrów z 30 lipca 2007 r. w sprawie wyłączenia niektórych rodzajów porozumień, zawieranych pomiędzy przedsiębiorcami prowadzącymi działalność ubezpieczeniową, spod zakazu porozumień ograniczających konkurencję, Journal of Laws of 2007, no 137, item 964, paragraph 3). Similarly in the area of standard insurance conditions, a lack of sector-wide exclusion (since 2011) in the area of aspects of preventive activities does not mean that such agreements are forbidden. What is more, such agreements do not need to pertain to technical devices only; they may concern organizational (systemic, managerial) activities of a preventive character. Additionally, they should not be limited to the insurance sector, and an integration of institutions (e.g. ISO or Polish Committee for Standardisa-

tion) whose statutory activity is related to standardisation is suggested in this area. Non-binding standard, openly available, which has been compiled by numerous insurance companies' stakeholders, will not be legally banned as a competition restraining agreement. The degree and scope of utilising such standards as a result of obligations arising from the contents of an insurance contract, may contractually determine the effectiveness of environmental insurance products[13].

All of the aforementioned initiatives require an intense commitment of natural science experts. It is indispensable at every stage of the production cycle of an environmental insurance product, starting from its design (operationalization of legal notions through the prism of natural and technical sciences, the reference of particular legal regulations to the anticipated – on the basis of present-day knowledge about nature – factual states), to premium calculation (estimates of insurance technical indicators, such as damage probability, maximum loss probability etc.) to loss adjustment (estimates of costs pertaining to restoration of the initial / the secure state of the elements of the environment).

The polluter as the potentially insured

The Law on Environmental Protection (e.p.) and the act on environmental damage prevention and remedy (Ustawa z 13 kwietnia 2007 roku o zapobieganiu szkodom w środowisku i ich naprawie, Journal of Laws of 2007, no 75, item 493, hereinafter: d.p.r.) provide – at a variety of scopes and terms – the liability of any entity which affects the environment in a way which causes a damage or poses a threat of damage (article 3, points 20, 39; article 248; article 322–328 e.p.; article 2, 3, 6 point 11 d.p.r.). The system of liability means that the analysis of economic efficiency must take into account the effects of entities' generating external costs and the gains of their activities.

The idea of environmental economics based on neo-classical assumptions indicates that one of the aspects of a market imperfection is the lack of an entities' willingness to incur any (internal) cost contributing to the development of an external benefit (Żylicz 2004, p. 33, 34), which may amount to damage prevention or remedy. The potential emergence of legal liability leads

[13] Environmental management standards, particularly including the ISO 14001 norm, assume aside undertaking prevention and remedy-related actions a number of informative duties. It would be advisable to consider such duties in the standards compiled for insurance purposes. This would be a counterpart to the postulates of the European Parliament pertaining to environmental information standardization (*European Parliament Resolution...,* 2014, point 11).

to a situation in which the issue of cost is no longer a matter of individual decision. However, as the obligation to pay the compensation is rather uncertain, delayed in time and dependent on the claim being made and executed or not, it may not be a sufficient stimulus for incurring a certain and current cost of the insurance premium.

According to neo-classical thought in economic sciences, the goals of the entities liable focus on maximisation of the surplus gains above the costs resulting from completion of an insurance contract. Assessment of these gains through the prism of the polluters' interest will not be limited to the scope of the purchased protection. It is also vital to consider the perception of the scope of financial commitments resulting from the insured liability and reality of their emergence. Insurance products will be seen as effective by the polluter if the practice of execution of financial commitments proves them to be real and very costly[14]. While neo-classical theory understands gains mainly in the context of financial aspects, it is also possible to broaden the scope with an institutionalist perspective. Research shows that in the area of environmental management, pro-environmental activity has its social dimension and the action is taken in order to create the entity's image (MATUSZAK-FLAJSZMAN 2007, p. 51). Insurance, so far, has not performed image-building functions. Nothing stands in the way, though, of making insurance, alongside other instruments of environmental risk management (e.g. certified environmental management systems ISO 14001) a proof of the entity's socially rewarded activities[15]. Compilation of rules and criteria for displaying proof of the completion of an environmental insurance contract is still another task proposed.

The cost-related aspect of insurance effectiveness assessment (as seen from the polluters' perspective) is affected by a number of actions indicated in the previous parts of this article. The factors reducing the costs of providing insurance protection are directly translated into the level of the insurance premium. Moreover, the actions indicated above lead to an increase in market competition, which has an indirect effect on costs and the availability of insurance protection.

[14] Research conducted on over 600 risk managers in 6 EU countries gives evidence that the strongest incentive for taking action within environmental risk management is knowledge about the scope and implications of environmental disasters caused by humans (*Environmental Risk* 2012, p. 5).

[15] Making information about insurance public is also suggested due to protection of potential victims and their right to be informed about the author of the damage's insurance. Inclusion of this duty amongst informative obligations is considered with regard to SEVESO III (2012/18/EU) (*Green Paper*... 2013, p. 25).

Conclusion

An analysis of the effectiveness of environmental insurance must be conducted on the assumption of the servitude of insurance towards its wide range of beneficiaries. The condition of the environment is a source of particular concern for those who obtain definite profits, both tangible and intangible, from its quality[16]. There is an entire community of such entities, which is derived from the fact that the natural environment is also a communal good. The point is that when common goals are at stake (i.e. common goods) group activity is also indispensable (OLSON 2012, p. 26). Therefore, the state's engagement becomes unconditional (as a representative of the stakeholders' community). It is not sufficient to confine the state intervention to issuing regulations which oblige actual and potential polluters to take financial liability for prevention and remedy of environmental damage. It is necessary – according to the directive on damage – to take action towards the development of financial markets which will facilitate fulfilment of thè polluter pays'' principle. Financial market instruments are intended to assist and aid the state environmental policy and aid in fulfilling its goals. However, their effectiveness in this respect depends on the insurers and potentially insured goals being taken into consideration in the structure and development techniques of insurance products. Effectiveness as seen through the prism of these entities is a sine qua non condition for effectiveness on a macroeconomic level. State intervention may either take the form of active, substantial participation in certain operations or merely amount to initiating or organising actions (creating stimuli and a platform for co-operation of competent entities). Co-operation should encompass, alongside insurers, the potentially insured, their associations, standardisation related organisations (ISO or the Polish Committee for Standardisation) as well as experts in the natural sciences. The actions which may essentially improve the effectiveness of environmental insurance for all stakeholders include i.e. compilation of interpretational guidelines for the scope of environmental damage, preparing standards for general insurance conditions or establishing standards (both technical and organisational) for environmental damage prevention for insurance purposes.

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[16] Natural environment is increasingly perceived as a subject of human rights protection (LEWANDOWSKI 2014, p. 149-163).

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SOCIAL RESPONSIBILITY AS A DETERMINANT IN THE IMPROVEMENT OF ORGANIZATIONAL COMPETITIVENESS (CASE STUDY)

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K e y w o r d s: social responsibility, wood processing industry, competitiveness.

A b s t r a c t

The level of involvement of Polish companies, especially micro, small and medium-sized ones, in their activities consistent with the concept of Corporate Social Responsibility is relatively small. On the one hand, it may be due to poor knowledge concerning this subject, especially about the benefits that derive from it, and what can be achieved (e.g. improved image, increased competitiveness, the ability to innovate). On the other hand, there is a need to bear, particularly in the beginning, the necessary costs, and this reimbursement is not immediately felt by the company.

The aim of this article is to present a way of implementing the concept of Corporate Social Responsibility and its impact on improving the competitiveness of the audited company. The analysis was carried out at the largest wood processing plant in the Opole region.

ODPOWIEDZIALNOŚĆ SPOŁECZNA JAKO CZYNNIK POPRAWY KONKURENCYJNOŚCI ORGANIZACJI (STUDIUM PRZYPADKU)

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S ł o w a k l u c z o w e: odpowiedzialność społeczna, przemysł tartaczny, konkurencyjność.

A b s t r a k t

Stopień zaangażowania polskich firm, zwłaszcza mikro, małych i średnich, w działalność zgodną z ideą odpowiedzialności społecznej przedsiębiorstw jest stosunkowo niewielki. Z jednej strony może to wynikać ze słabej znajomości tej koncepcji, a zwłaszcza korzyści jakie dzięki niej można osiągnąć

(m.in. poprawa wizerunku, wzrost konkurencyjności, możliwość wdrażania innowacji), a z drugiej z konieczności ponoszenia, zwłaszcza na początku, niezbędnych kosztów, których zwrot nie jest odczuwalny przez przedsiębiorstwo natychmiast.

Celem artykułu jest ukazanie sposobu wdrażania koncepcji odpowiedzialności społecznej przedsiębiorstw oraz jej wpływu na poprawę konkurencyjności badanej firmy. Analizę przeprowadzono w największym zakładzie przerobu drewna na Opolszczyźnie.

Introduction

The dynamic changes occurring in the world, resulting from technological, organizational, economic and social progress, indicate that corporate social responsibility is playing an increasingly important role in shaping the image of any organization that wants to enter the market, be competitive and influence sustainable socio-economic development. Polish enterprises are increasingly realizing that their activities should be based on durable, strong and transparent relationships not only with employees, suppliers, and investors, but also with customers, the community and the state administration. Hence, the concept of social responsibility is gaining more and more popularity and becoming an important part of strategic management. It plays a particularly important role in specific industries where, due to various conditions (for example the financial location of a company), it is more difficult to enter the market. One of them is the wood processing industry, and in particular sawmills, which are mostly characterized by an improper realization of mandatory EU standards (particularly in terms of ensuring proper working conditions and environmental protection), not to mention the actions expected or desired by the environment in which it operates.

This article describes the social responsibility of an organization in the sawmill industry of Poland. The primary objective is to recognize the need to implement the concept of social responsibility in the context of achieving by the company a competitive advantage with the example of a large sawmill plant located in the Opole region.

The term corporate social responsibility

The idea of corporate social responsibility (i.e. CRS) is a concept distinguished around the world. The basis of its doctrine is business ethics dating back to 1899 (BERNATT 2009, p. 23). It was established on the basis of two principles: charity and stewardship which generally promote certain obligations of business to the society in which it operates. Convergent Stakeholder Theory (WOŁOSZYN et al. 2012, p. 10) has also made a significant contribution.

It assumes a close correlation between the factors that determine the activities of the company and at the same time are in some way dependent on the company. In a modern sense, it appeared for the first time in the United States in the sixties, while in Europe in the mid-nineties (POLEK-DURAJ 2010, p. 241). In Polish enterprises, it is a phenomenon relatively less popular.

The main premise of CSR is the concept of enterprise as a consistent member of society. "CSR can be defined as a concept whereby companies integrate social and environmental concerns in their daily business operations and in their interaction with their stakeholders on a voluntary basis" (ŻEMIGAŁA 2007, p. 11). According to the European Commission, social responsibility is an organization's voluntary acknowledgement of social and environmental issues in business, which are not obliged by binding legal requirements and do not arise from contracts. Therefore, it is a concept through which the company has already been mobilized from an early stage of building the management strategy to determine a stable and clear relationship with employees, investors, customers, suppliers and the local community. Responsibility in this regard is based on the assumption that (BERMAN et al. 1999, p. 206):

– an organization has a relationship with various stakeholders, who also decide on its functioning and are dependent on it,

– an analysis of the relationship is considered in terms of benefits, not only for the organization but also for stakeholders,

– each stakeholder's primary aim is to maximize their own benefit,

– decisions are a priority.

It should be borne in mind that being responsible is not only about the implementation of necessary requirements, without which the operation of enterprises would not be possible whatsoever, but primarily on the development and care for the human capital and creation of positive relations with the company's environment; since those elements significantly determine its value. Additionally, the impact of the business on the environment in which it operates plays a crucial role. Therefore, social responsibility points to a commitment from the organizations to take action in various areas (i.e. economic, legal, philanthropic, sociological and ecological) that are desired, expected or required by the society. At the same time, these areas are considered in two dimensions: internal (includes activities within the organization, e.g. in relation to the employees, by providing them with proper working conditions) and external (its range includes the attitude toward customers, investors, as well as the impact on the local community and on the natural environment). The enterprise's approach towards CRS may be either active or passive. This is conditioned on the degree of an organization's commitment in this field and objectives to be achieved. The passive approach, as opposed to active approach, is characterized by a lack of direct, detailed action which is focused on causing

certain effects. It is inextricably linked to the fact that corporate social responsibility plays a dual role. On the one hand, it assumes that organizations should bear the consequences of their actions, regardless of whether those actions are positive or negative, and on the other hand, it assumes that an essential element of an organization's proper functioning is responding to the needs of stakeholders within their environment.

The properly implemented concept of social responsibility generates significant benefits for the organization, society and the economy. The most significant profits shall be: creating a positive opinion of all stakeholders, improving the quality of working conditions, acquiring new customers and investors, developing human capital, improving the natural environment and increasing the competitiveness of companies on a global level while at the same time creating conditions for sustainable social and economic development (POLEK-DURAJ 2011, p. 242).

The level of an organization's involvement in social responsibility is determined by many factors. The most significant are the following – own competencies and prerogatives, capital, human and natural resources, stakeholders, cultural traditions and the social and ecological situation in which a particular organization operates.

Characteristics of the Polish wood processing industry

Despite its unusual specificity, the wood processing industry, resulting from factors both internal and external (e.g. improper working conditions, obsolete machines, lack of major foreign investment) plays an important role in the national economy. Its distinct role stems mainly from the fact that it operates on a natural, yet renewable, domestic raw material base. According to the Central Statistical Office of Poland – at the end of 2014 the forest area in Poland accounted for 9,196.9 thousand hectares, which corresponds to a forest cover of 29.4% and allows about 25–26 million m^3 of wood per year to be obtained, while still maintaining other forest functions not related to production. Therefore, this branch of industry does not require a relatively large demand for energy needed to process the wood. At the same time, it has the opportunity to recover and recycle wood waste. These elements largely determine the ecological character of the wood processing industry, which is important in terms of achieving sustainable development.

Every year, Polish forests provide to the market a significant amount of raw wood material in the form of round wood. It is divided into several main groups of products purchased by separate branches of the wood industry, among which the sawmill industry dominates because it has the largest

quantitative share of timber purchases (about 38% of the total harvest). The majority of the revenue from timber sales is collected by the State, particularly by the State Forests National Forest Holding organization (at more than 50%). Of significant importance is the relatively high dynamics of the marketed timber production and the average employment (Tab. 1, Tab. 2), despite many unfavorable factors.

Table 1

Dynamics of marketed timber production in the wood processing industry in total between the years 2006–2014

Specification	2006	2007	2008	2009	2010	2011	2012	2013	2014
Industry in total	111.2	111.2	104.4	95.5	109.0	107.5	100.5	101.8	104.1
Industrial processing	112.8	112.4	104.0	96.1	109.9	108.7	100.7	101.9	105.5
Wood processing industry	106.7	113.7	101.2	94.5	107.6	103.0	102.5	103.4	109.7

Previous year = 100%, fixed prices
Source: own elaboration on the basis of data from the Central Statistical Office of Poland.

Table 2

The average employment dynamics in the wood processing industry in total between the years 2006–2014

Specification	2006	2007	2008	2009	2010	2011	2012	2013	2014
Industry in total	101.8	104.7	102.8	94.3	98.9	100.7	98.5	92.8	101.9
Industrial processing	102.5	105.7	103.2	93.0	98.6	101.0	98.5	98.6	94.8
Wood processing industry	103.7	107.8	103.2	99.9	89.6	96.8	94.9	98.9	104.1

Previous year = 100%, fixed prices
Source: own elaboration on the basis of data from the Central Statistical Office of Poland.

The wood processing industry plays a special role since it is the primary recipient and at the same time the place of sawing timber, characterized by both large dimensions and surfaces. The products of the sawmill industry are an indispensable base for the production of other industries (e.g. construction sector, furniture industry). It is also worth noting that the by-products from sawmills are of great importance to the country's energy balance as they are a source of renewable energy. A characteristic feature of the Polish sawmill industry is an extensive location of plants, mostly in rural areas, with a relatively large group of entities, especially small mills characterized by small scales of production. These groups of mills are constantly changing. However, among all the branches of the wood processing industry, it is the sawmill industry that is currently growing steadily and relatively intensely.

According to the National Business Registry, the number of entities operating in the industry after privatization first sharply decreased and then increased more than 12%, and for several years remained relatively stable (around 8,600–8,700). The actual number of sawmills operating in the market is oscillating stably between 1,200 and 1,400, with a basic core of 700 companies. Most of them are small factories; only about 3% of them employ more than 49 people, and a negligible proportion are large corporations. The Opole region has a relatively weak position in terms of the number of operators from this particular industry, and the number of companies is the lowest in the country.

The high functioning of the Polish wood processing industry in the market may be a little astonishing, especially because this branch of industry has been characterized by considerable economic and financial difficulties since the beginning of the transformation process. This was mainly caused by a complete reorganization of the sawmill industry in the second half of the nineteen nineties. Before that time, the market was dominated by approximately thirty powerful enterprises, which grouped a dozen wood processing plants in one voivodeship, and their centralized management did not allow for rational economics. Typically funds earned from profitable plants were directed to plants less profitable or even unprofitable, which did not bring visible benefits either party, because this did not increase production or capacity and did not introduce any required modernization. After the abolition of the centrally planned economy, enterprises from the wood processing industry were left unaided and failed to perform reforms and lift the burden of restructuring. In this situation, most of them found themselves on the verge of bankruptcy and the only rational choice was to close the plant. The free space in the market was then occupied by new businesses, especially small ones, using mainly existing production plants run by the timber industry and other rural production plants (e.g. the old brickyards). Their launching usually followed a few months of standstill when a substantial part of the property had already been auctioned or sold off, and the best employees had found new employers. Currently operating sawmills, in comparison to the period prior to privatization, are characterized by a limited volume of production in m^3.

Apart from the changes that occurred, essential for the proper functioning of this sector were and still are high costs associated with the purchase of raw wood material. Currently, it is one of the fundamental problems of these manufacturing plants, since the generic raw materials are more than 55% of their costs. The main supplier of wood to the Polish market is State Forests National Forest Holding, who control 78% of harvested timber in the country, thus it has a significant effect on the structure of the wood market primarily by shaping the supply of material. Since 2006, the final price has been set on the

E-drewno portal, where the wood from forest districts across Poland is sold. In this form, the sale consists of three stages. In the first two stages, forest districts offer a particular type of wood with a fixed minimum price below which it cannot be sold. Then, entities place orders and offer a price. Here, while dividing the timber, the history of the purchase of raw material is taken into consideration, which means that the best chance for purchase is from plants operating for some time on the market who have already benefiting from this form of purchase. The situation is different in the third stage of the electronic auction, where one can buy timber that has not been sold yet. Here, the price is fixed during the auction and this determines who the buyer will be. Consequently, the price at the third stage is much higher than in the first and second stage, but anyone who wants to purchase timber, and has adequate resources, can do it. This adopted form favors one party more (e.g. companies operating in the market for many years), and others less (e.g. the newly established plants), but it is much better than previously, where producers had a specific allocation of wood at an arbitrary price, usually high, established by the State Forests National Forest Holding.

Polish sawmilling, despite its fairly good market situation, faces financial, organizational and technical problems. Often, the lack of adequate financial liquidity is the reason for the relatively low level of investment and modernization (including the improvements in material working conditions) in the industry. Simultaneously, it also has an impact on the poor level of commitment of the owners of wood processing plants in adopting the corporate social responsibility concept, especially in areas expected and desired by the society.

Whereas continuous organizational-technical problems stem from the number of threats to workers' health (including an unfriendly working environment, a lack of full mechanization of machining operations, as well as exploited and obsolete machines) and improper organization of work both by the employer and the employee. Furthermore, employers do not always give due importance to conduct training on health and safety risks, hazards in the workplace and those raising the need to use personal protective equipment.

It should be noted, however, that despite the various obstacles present in the sawmill industry, which generate its unusual characteristics, many manufacturers have been able to enter the market and successfully operate in it since 2000. There has also been some foreign investment, which positively impacted the image of sawmills in Poland and increased its profitability.

The impact of corporate social responsibility in terms of improvement of competitiveness in the sawmill industry (case study)

The degree of implementation of corporate social responsibility as mentioned before depends on many factors. In fact, in Polish reality, apart from the financial situation of the company, employee education and the promotion of corporate social responsibility plays a significant role, since the level of knowledge, despite making some attempts in this field, is unsatisfactory. Mainly, corporations with foreign capital are characterized by a good knowledge of the principles of social responsibility, which was confirmed by recent studies. Small and medium-sized plants only occasionally undertake social activities since the entrepreneurs often believe that the costs incurred in this regard are too high and ineffective. This belief is improper, because the costs incurred, although they will not be returned immediately, will in the long-run perspective bring a variety of benefits for the company, society and the economy.

The wood processing plant that was analyzed is located in the Opole Voivodeship. Before restructuring in 1997, the plant was liquidated and taken over by the joint stock company known as Opole Wood Industry OPDREW. This was created thanks to employees and other individuals with the participation of a strategic investor, and was a part of the Opole Wood Industry OPDREW with headquarters in Opole. As a result of the wrong decisions of the principal investor, the company remained in this form only until 2001, when it filed for bankruptcy. Plants belonging to OPDREW were put up for sale. In 2002, the plant was purchased by the Department of Wood Industry Sp. z o.o. Unfortunately, the sawmill was still facing many challenges, ranging from financial ones, resulting from a lack of adequate capital, through problems with obtaining raw timber, low quality of working conditions, a low level of employee involvement, problems with acquiring new favorable orders and the failure to create a positive image of the environment. These factors affected the company position in the market, which ceased to be competitive. Therefore, the company began to look for a strategic partner which would invest in the modernization of the sawmill, and thus support the industrial development of the region. In late 2006, the plant was purchased by an international Swedish – Finnish corporation, which is an integrated company engaged in the processing of raw material, the production of paper and industrial packaging and environmentally-friendly wood products; with the aim of satisfying customers, while maintaining safe conditions for employees, the environment and society. The corporation undertakes in all of its European plants various measures in terms of social responsibility, which significantly allows it to maintain a competitive position in the market.

After taking over this particular plant, the new firm firstly introduced measures required by European Union standards. These were introduced in four spheres:

1. The health and safety of workers (a formal employee safety policy has been implemented within the system of practical tools to ensure acceptable levels of risk, identification of threats and the prevention of occupational diseases and occupational diseases – this system is in line with international safety and health standards OHSAS 18001, BS 8800).

2. Environmental protection (introduction of an environmental policy as a formal document, moreover regular training in the field of the ISO 14000 series are systematically conducted).

3. Improvement of the quality of finished products (all finished products possess a verification system – Chain-of-Custody, thanks to which it is known that the wood comes from certified forests).

4. Consumer protection (the plant has implemented a security system for finished products).

It should be borne in mind that the actions in the first two areas have a significant impact on the quality of social objectives. Moreover, attention was given to the professional development of both managers and employees, as the motto of the corporation is that investment in buildings and equipment does not bring the expected benefits if it is not accompanied by adequate investment in employee education and training. The staff undertakes training in various fields, among others those related to methods of shaping workstations, cost accounting, production planning and control, quality management, communication and employee management.

In addition, the plant has carried out various types of entrepreneurial activities in terms of other non-mandatory activities in order to function following the social responsibility concept. The most important issues were the implementation, firstly in an informal form, a code of ethical conduct of business (trainings were carried out for both superiors and subordinates) and social commitment by supporting the local community (e.g. financial support for schools, sport competitions, cultural events, and the construction of a sports hall).

In this particular plant, surveys were conducted twice and the analysis of statistical data in the field of workplace hazards, accidents, the number of product recipients, employee productivity and efficiency were performed. The purpose of the survey was to acquire the respondents' opinions about the working conditions, their motivation, their involvement and their perception of the organizational culture. The survey was conducted in April of 2004 and in December of 2014. The first survey was completed by 65 people, which accounted for 54% of the entire crew, while the second survey was completed

by 85 people, and accounted for 50.3% of the crew. In both cases the respondents were randomly selected.

Based on the analysis of surveys and statistical data, it can be concluded that significant changes have occurred with regards to the organization and its crew since the introduction of new rules of operation at the beginning of 2007. Among the favorable changes are the following:

– a decrease in the number of accidents at work (in 2007 – 10 accidents, 2008 – 6, 2009 – 8, 2010 – 5, 2011 – 4, 2012-2013 – 0, 2014 – 1);

– improvement of working conditions (modernization of machinery and tools, systematic training on occupational hazards, abiding by the established working hours, provision of personal protective equipment to employees and awareness of the need for their use);

– increased employee motivation and engagement, and hence their productivity;

– higher level of organizational culture;

– improvement of interpersonal relations between superiors and subordinates;

– increase in the efficiency of business activity (increase in raw materials purchased by 190%, which increased the abrasion by 150% – compared to 2007);

– improved image of the company (social activities for the local community e.g. financing of the construction of a sports hall – 100,000 zl);

– better domestic and foreign market competitiveness (increase in sales of lumber by 129% – compared to 2007);

– acquiring new customers (e.g. gaining Chinese buyers – export of wood) and the deepening of loyalty (preferential terms of sale for permanent long-term customers).

In addition, it can be concluded that the management and staff of this company, through appropriate and regular training and good information flow, are well aware of the concept of corporate social responsibility and its positive aspects. A major role was played by the experience of a foreign investor who has been successful in its other European plants operating in accordance with this concept for many years.

Summary

The implementation of the concept of social responsibility in enterprises is becoming more and more popular, and at the same time necessary. It takes institutionalized forms, both in the individual EU countries, and in the structures of the European Community, becoming a worldwide trend. CSR

measures have become a strategic area and a priority in the political agenda, because taking actions in this field are an indispensable element of any organization that wants to be competitive in domestic and foreign markets. By shaping appropriate attitudes in all areas of social responsibility, organizations are more flexible and they perform better in the constantly changing market and often undertake new challenges.

On the basis of the analysis of this wood processing plant, it may be concluded that the operation according to the concept of corporate social responsibility brings significant benefits for the organization, employees and the environment in which it operates. An improved competitiveness on the global level is confirmation of the above statement and that is especially important in the sawmill industry. The sawmill presented here may be a good example for other wood processing plants that want to be competitive in the market and act in accordance with the concept of sustainable socio – economic development.

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