

The labour market of the Silesian voivodeship (Poland), and its determinants

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ABSTRACT

The aim of this study was to characterise the labour market of the Silesian voivodeship and its determinants between 2010 and 2012, although in order to show certain trends in changes data from the beginning of the 21st century are also used as a basis whereas from the more forward-looking perspective, projections up until 2020 were used. This market is very important from the nationwide perspective, and this is due to its complexity, size (it concentrates 2 million employed people, that is 14.4% of the whole workforce of Poland) and specificity (industry still plays a crucial role). In order to achieve the objective indicated above, a set of measures relating to the number of employed people, business entities or GDP were used for the purpose of the analysis. The presented material shows the high volatility of the situation on the labour market both at the voivodeship level and individual communities – this is particularly true of the number of employed people and the rate of unemployment. An advantage of the newly created jobs over those that are shed which has been continuously recorded since 2008 and a decrease in the unemployment rate are positive symptoms. Katowice being the largest market and, moreover, characterised by the highest rank range of its impact and lowest unemployment rate have gained a dominant position in the regional labour market. Bielsko-Biała, Tychy, Gliwice and Bieruń-Lędziny County also clearly stand out against the background of other communities. The most difficult situation can be observed in Bytom, Świętochłowice, Piekary Śląskie and in the counties located in the northern part of the voivodeship, that is Częstochowa, Myszków and Zawiercie. Not only today but also in the coming decade, in terms of demand the labour market of the Silesian voivodeship will be strongly affected by its demographic situation; population decline, ageing population, migration, including, in particular, foreign migration will cause a decline in the labour force. By contrast, the labour supply will depend on an economic factor, that is mainly an improvement in the economic situation in Poland and around the world and a reduction in the cost of labour (external determinants). In the next few years the role of innovation (including the technological factor) which will affect the labour demand in terms of quantity and, perhaps to a greater extent, in terms of quality (changes in the structure of the labour market) will become more and more significant.

KEY WORDS: unemployment, labour market determinants, Silesian voivodeship

1. Introduction

Work is considered to be one of the priorities of the population in the age of economic activity, as it can ensure the basic living standards and determines the level of economic development. Hence, it is not surprising that both foreign and national literature on the labour market is very rich, and this applies to the very wide range of issues raised as well as the spatial scale of the studies (from a global to a local perspective). The same is true of the numerous studies which look at the labour market in the Silesian voivodeship (such as MARSZOWSKI, 2004; MELICH-IWANEK, 2004; MUSTER, 2009; RUNGE A., 2008, RUNGE J., 1996, 2004, 2010; RYNEK PRACY WOJEWÓDZTWA ŚLĄSKIEGO, 2011; SOJKA,

2014). This paper can be seen as a continuation of the research on the labour market of the Silesian voivodeship carried out as part of the research project entitled “Socio-economic and spatial trends of changes in the regional and local labour markets of the Silesian voivodeship” in the Department of Economic Geography at the University of Silesia (KŁOSOWSKI ET AL., 2013a,b,c,d; SITEK AT AL., 2013).

The labour market represents a specific type of market. In the literature it is variously defined, although in the classical sense it is analysed in the context of the relationship between labour demand and its supply (SZAŁKOWSKI, 1992). OLĘDZKI (1974) defines the labour market as an economic mechanism of indirect impact through wages and other incentives on the decisions of autonomous

entities – the owners of the ability to work for the purpose of the allocation of human resources to the needs of society. In contrast, BOERI, VAN OURS (2011) point out that the labour market is a market on which a certain number of labour services L , which corresponds to the tasks related to a vacant position or the description of this position (vacant), is offered in exchange for a price or remuneration referred to as wage w .

The labour market is therefore an economic mechanism which regulates the size of the labour supply and demand. It is in a state of equilibrium when supply and demand are balanced (or at least similar), which occurs at a certain level of real wages. If, however, the labour supply exceeds demand, unemployment is recorded.

The purpose of this study is to characterise the labour market of the Silesian voivodeship and its socio-demographic, economic and innovation-related (technological) determinants which decisively affect its contemporary state and will determine it in the future. To achieve the objective indicated above, the analysis is based on measures related to the number of employed people, GDP, and on ratios such as unemployment rate. Due to the lack of publicly available data that precisely specify the number of employed people, especially at the community level (data of the Central Statistical Office of Poland (GUS) include only people working for business entities employing more than 9 people) (SITEK ET AL., 2013; KŁOSOWSKI, 2014), it has been decided to use materials from various sources (Central Statistical Office of Poland (GUS), National Official Business Register (REGON), Labour Force Survey (LFS)) for the analysis at the voivodeship level; by contrast, the analysis at the community level is based on the purchased database on the employees working for businesses registered with the REGON system. However, one should also be aware of the fact that these materials are not ideal because they are collated by the method of businesses and have a declarative nature. The large number of inactive businesses (some estimate that there are approx. 20–30% of them) and assignment of employed people to the place of registration of the business (regardless of where the jobs are in reality) pose another difficult problem. This results in a general over-valuation of data, especially in large cities such as Katowice and their undervaluation in smaller cities.

The Silesian voivodeship, including lower levels of administrative division (communities, counties), has been defined as the study area. It is undoubtedly an exceptional area not only for Poland. This is, among other things, due to a high population (4.6

million inhabitants), and ranks as the second most populated region in Poland (with 12.1% of the total population), major role of the cities in the population, especially large cities (the urbanisation rate is 78%, which is the highest in the country), and the presence of several complex settlement systems – Katowice conurbation, Rybnik, Bielsko-Biała, and Częstochowa agglomeration. As regards the labour market, this is also due to 2 million employed people, which is the second largest (after the Mazovian voivodeship) labour market in Poland (accounting for 14.4% of the country's labour force) and the area where in the last quarter of the century major structural changes in the economy took place. The changes involved the reduction in the importance of industry in favour of services and a restructuring of the industry itself, in which the importance of the traditional industries (mining and metallurgy) has diminished in favour of a more modern electro-mechanical industry (especially automotive industry). Though 39% of the people employed in industry is still the highest proportion in Poland.

The main time span of the study covers the period from 2010 to 2012, although in the case of the available material more recent data from 2013 or 2014 were also used. However, in order to show the trends in changes in the labour market, statistical information from the beginning of the first decade of the 21st century were also used as a basis for the study.

2. Labour market determinants

The labour market is determined by many factors which in terms of demand and supply can be divided into two main groups of factors:

1) socio-demographic factors – determining the labour supply and relating to the labour force – its resources and structures;

2) economic factors – relating to the demand for labour, depending on the economic potential and economic situation which, in turn, determine the demand for goods and services.

In some studies, the technological conditions (GRYCUK, 2013) which are related to a widely understood technological progress or, more broadly, with innovation are distinguished as a separate factor. The analysis of the determinants will be carried out in this context within this study.

a. Socio-demographic determinants

In the context of the socio-demographic factors of the labour market, the labour force, which depends on the total population and its age

structure, is a fundamental issue. In 2012 a total of 4,615,900 people inhabited the Silesian voivodeship. In relation to the period in which the Silesian voivodeship in its current shape was established, i.e. prior to 1999, its population decreased by 161,000 people. This decline was as a result of the natural loss of 550,000 people in this period, as well as a negative migration balance which was twice as high and reached 111,700 people. Considering that according to the data of the Central Statistical Office in Poland the negative foreign migration balance was more than twice as high (759,000 people) as the domestic migration balance (358,000 people) (SITEK ET AL., 2013). In the analysed period, a decrease in the population was recorded in most communities, while nowadays this is a quite common phenomenon with respect to cities (the population fell by 6%), especially large cities (a decline of 8%), the population growth was mainly recorded in the rural areas of the voivodeship which in the same period recorded a 5% increase in the number of inhabitants. This resulted, among other things, from the sub-urbanisation processes taking place primarily in the sub-regions of Bielsko-Biała, Tychy and Częstochowa (SITEK ET AL., 2013). Hence, the population growth was recorded, in particular, in the communities located in the southern part of the voivodeship and, to a lesser extent, in its northern part.

In the context of the current problems in the labour market, it is not the total population that is essential, but a group of the population in the age of economic activity (according to the definition used by the Central Statistical Office it includes men and women aged 18–59 which constitute the labour force (although from the forward-looking perspective, the age groups which in the years to come will join the labour market and leave it are also of importance). Between 1999 and 2012, the working age population decreased by 22,000 people, but in the light of a more rapid depopulation of the voivodeship, the share of this group in the total number of inhabitants increased from 62.7% to 64.3% (this results from the fact that a number of age groups from the period of increased population growth during the late 1970s and early 1980s reached working age). The highest percentage of this group was recorded in the Tychy subregion (65.8%) and the lowest – in the Bielsko-Biała sub-region (63.3%). During the analysed period, the highest growth in the working age population (accounting for more than 15%) was recorded in the Bielsko-Biała, Pszczyna and Bieruń-Lędziny counties (maximum value: 18.4%). Declines in the population of this age group occurred in many communities but, in

particular, they were observed in Bytom (11.8%) and Jastrzębie-Zdrój (12.1%).

In terms of the impact of the socio-demographic structures on the labour market – in addition to the age structure mentioned above – the sex and education structure are also crucial. As for the labour market, the importance of the sex structure has been reduced, and this is due to increasing sex equality, and thus a complete blurring of the differences between typically “male” or “female” professions. Although such differences still exist, among other things, in respect of managerial positions, wage rates or, first and foremost, the level of unemployment (here women predominate). Taking into account the group of people aged 18–59, which is of most interest to us, we can observe a condition close to the balance of the sex structure because the feminisation rate is only 100.2 (compared with 107.2 for the total population of the Silesian voivodeship), and spatial differences are not too significant. However, while men between the ages of 18 to 44 outnumber women (the most significant advantage is recorded in the group aged between 18–24), the group of people aged over 45 years is dominated by women (in an age group ranging from 55 to 59 years of age the feminisation rate reached 109.8).

Education plays an essential role in the quality of the workforce since certain professions require a specific education – secondary or higher education. Furthermore, a well-educated society is better adapted for today's economic and civilisation challenges, including those related, for instance, to the development of the information society or learning society. In this respect, the situation has improved since 2012 when the largest proportion of employed people (31.3%) was characterised by a post-secondary and secondary vocational education, but the group of people with a higher education ranked second (30%) ahead of the group of people with a basic vocational education (27.4%) which had always been very strongly represented in this region. However, this structure differs sharply by age. Among the employed women those with a higher education accounted for the largest percentage (37.4%), whereas only 24.1% of employed men had completed such an education, and the largest male group had received the basic vocational education (34.2%). The large cities, in particular, Katowice and Gliwice, are characterised by the best-educated inhabitants.

b. Economic determinants

Economic determinants are critical to the labour supply and depend on the economic potential of

the region and rapid economic growth which allows the use of this potential and stimulates its growth. In the modern economy, characterised by greater openness and developed domestic and international links, the economic situation is, first and foremost, affected by external determinants.

Over recent years these determinants have not produced the most desired results. The down turn, which has affected most countries in Europe, caused a recession in many countries (this was also the case with our most important trading partners such as Germany). Poland was spared the turmoil, though our economy was affected by them, as a consequence of which the Polish economic growth has slowed down, export and size of foreign direct investment outlays have declined or certain limitations on domestic consumption have been observed (SITEK *ET AL.*, 2013).

Despite a certain slow down the economy of the Silesian voivodeship is constantly evolving, which is reflected by both an increase in the number of business entities and GDP per capita. Between 1999 and 2012, the number of business entities increased by 22.1%, i.e. up to 451,600, which was not fully translated into an adequate increase in the number of jobs. This resulted from changes in the size structure of business entities among which small and medium-sized businesses were developing most dynamically, along with a simultaneous decline in the number and share of the largest businesses. Given the fact that the market is dominated by micro-enterprises (which employ up to 9 people) whose share was as high as 94% (ZMIANY STRUKTURY..., 2012), between 1999 and 2012 the average number of people working

for one business in the Silesian voivodeship decreased from 5 to 4 people. The southern part of the voivodeship was characterised by the highest economic activity. In three communities of this region: Wisła, Jaworze and Szczyrk the level of 1,500 businesses per 10,000 inhabitants was exceeded.

In turn, the GDP per capita for the period 2000 to 2011 increased by as much as 105%, reaching PLN 42,800 in 2011 (with inflation at 34%). This allowed to maintain an advantage of approx. 7-8% over the country's per capita GDP (Fig. 1). In the Silesian voivodeship there were two sub-regions, i.e. the Tychy and Katowice regions, where the per capita GDP exceeded PLN 50,000 (where the maximum is PLN 56,000 in the Tychy sub-region) maintained its leading position.

Changes in the economic structure of the voivodeship towards a strengthening of services in the service and industrial structure of the region were also continued. This is of paramount importance for the labour market of the voivodeship since services due to their nature indicate a significantly greater demand for labour. As a result, in 2010 59% of people were employed in the service sector, 39% – in industry, and only 2% in agriculture (in 2002 this structure was 57%, 40%, and 3% respectively). In the coming years coal mining may again pose a major problem, and this is due to the fact that it is faced with a very difficult economic situation, which forces it into even deeper restructuring, and we must remember that 100,000 people are still employed in coal mining (that is 5% of the total employed people in the Silesian voivodeship).

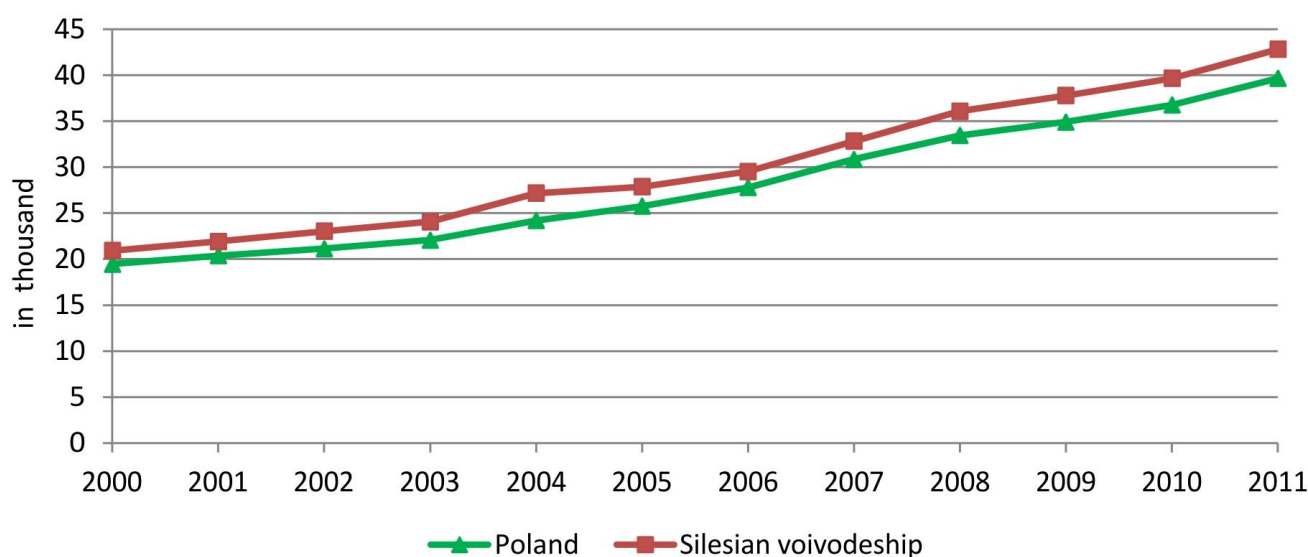


Fig. 1. Changes in the nominal GDP per capita in Poland and the Silesian voivodeship between 2000 and 2011 (in PLN at current prices)

c. Technological determinants

These are of immense importance for the labour market since, as history shows, measures aimed at increasing productivity on the one hand and limiting human labour on the other are constantly being taken. Today attention should be paid mainly to the processes of automation, robotisation and computerisation, which are effectively displacing human beings in the processes of production and the provision of services (to a lesser extent). As noted by KRZYSZTOFEK & SZCZEPAŃSKI (2002), the computer is the greatest "job killer" in history. As a consequence of rapid technical progress the labour market is subject to constant qualitative and quantitative transformations, and this tendency will probably be strengthened.

In the context of technological progress particular regard should also be paid to the "worst-case scenario" for the labour market presented by MARTIN & SCHUMANN (1999) in the concept of "a 20:80 society" formula who point out that modern changes are associated with globalisation as well as with the globalisation-related technological progress which may lead to a state in which only 1/5th of the population will be actively involved in life, income and consumption (including labour), and the remaining majority will stay on the sidelines, without a permanent job, with all the social and economic consequences of this situation. However, as noted by KRZYSZTOFEK & SZCZEPAŃSKI (2002) mentioned above, throughout history man has been repeatedly faced with revolutionary changes in the labour market and has always been able to adapt himself to new conditions so far by turning the emerging threats resulting from the loss of existing types of work into the development of new professions that are better adapted to the changing labour market.

In the literature, the impact of innovation (including technological innovations) on employment is referred to as *creative destruction* (KABAJ, 2005; WĘGRZYN, 2013), since innovation destroys traditional jobs on the one hand and creates them in the modern sectors of industry and services on the other. However, given the complexity of the issue of innovation it is difficult to clearly specify the scale of its impact on the labour market. Considering the fact that as noted by FAGERBERG ET AL. (2007) the organisational innovation affect the employment to a greater extent than the technological innovation.

According to INNOVATION UNION SCOREBOARD (2014), Poland is classified as one of the least innovative economies in the European Union. It is

also the case with the economy of the Silesian voivodeship which according to the studies of STRAHL (ed., 2010), in 2007 it was ranked 189th in terms of innovation among the EU regions, but at the same time it was ranked fifth among the Polish voivodeships. In similar studies carried out by MARKOWSKA (2008) the Silesian voivodeship was ranked slightly higher as the fourth voivodeship. According to the studies conducted in 2012, among the businesses of the Silesian voivodeship (SITEK ET AL., 2013) 29.5% of the companies surveyed indicated the implementation of innovative solutions, where these solutions mainly involved activities related to investment in machines and equipment (20% of the companies), improvement in the quality of the offered goods and services (18%), technological innovations in the production and provision of services (14%) and customer service (12%). These actions are perhaps not too advanced, but nevertheless, they are even implemented in different forms. They show, however, a greater advancement than the nationwide average (DZIAŁANIA INNOWACYJNE ..., 2012), since throughout the country the percentage of companies implementing innovations in the period from 2008 to 2010 was only 12.8% with a predominance of organisational and marketing innovations. At the same time changes in the structure of employees by different sections of the Polish Classification of Business Activities (PKD) indicate an increase in the importance of services based on advanced knowledge (information and communication, professional, scientific and technical activity, education); and thus, they are, in fact, a result of the implementation of innovative measures (WĘGRZYN, 2013).

3. Labour Market of the Silesian voivodeship

The Silesian voivodeship labour market is one of the largest in the country, ranking second only to the Mazovian voivodeship and reaching the size of almost 2 million employed people. However, attention should be paid to the fact that after a massive decline in the number of jobs in the first years of the 21st century, since 2006 a slow increase in the number of employed people has been observed (Fig. 2). In spatial terms, a regression in the number of jobs in the larger cities (with high levels of volatility) along with their simultaneous growth in smaller cities and in rural areas was noticeable. A particularly large decline in the number of jobs was recorded in Bytom, Ruda Śląska and Rybnik.

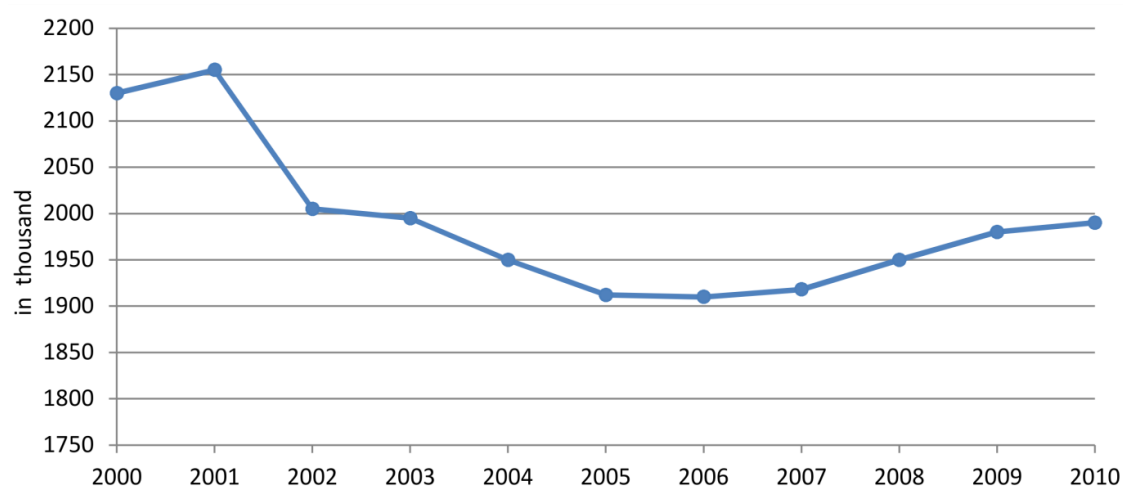


Fig. 2. Changes in the number of people working for businesses registered with the REGON system in the Silesian voivodeship in the period from 2000 to 2010 (after Sitek et al., 2013)

The regional labour market of the Silesian voivodeship consists of a number of local markets which differ according to their size, importance or spatial impact. Considering the size of the local labour market, the small labour markets of up to 10,000 employed people predominate. There are 131 of them in total (78% of the total workforce) and these include both small towns and rural communities (Tab. 1). Despite their large number and even distribution they play a limited role in the region since they make up only 19% of the total working population and serve a strictly local function. In contrast, the medium-sized markets in which half of the total working population of the voivodeship is employed play a major role, usually serve supra-local functions (especially SB and SC subclasses) and are quite evenly distributed

in the space of the voivodeship (except for the northern part of the voivodeship).

However, a group of large, and very large markets, is of special importance; even though it is represented by only 4 cities, it concerns nearly 1/3rd of the labour force. These are typically the largest cities of the region – Katowice, Bielsko-Biała, Częstochowa and Gliwice. Katowice represents the largest labour market in the voivodeship since the city has 275,000 employed people (14% of the total working population of the voivodeship), thereby serving not only regional but also supra-regional functions. This is the effect of the role of this centre in the settlement system of the country (SOKOŁOWSKI, 2006) and its enhanced functions, including those of a metropolitan nature (TKOCZ, 1995; ZUZAŃSKA-ŻYŚKO, 2012; GWOSDZ, 2014).

Table 1. Selected data on labour markets in the Silesian voivodeship in 2010 according to size classes (after Sitek et al., 2013)

Class/Subclass	Size	Number of communities	Total number of employed people	Number of employed people in %	Average number of employed people per class	Average population
SMALL LABOUR MARKET (M) including:	0–10 thousand	131 (78.4% of the communes)	373,434	19	2,851	10,092
MAA	0.	16	11,441	1	715	4,255
MA	1 – 3	71	145,600	7	2,051	8,275
MB	3 – 5	29	110,002	5	3,793	12,503
MC	5 – 10	15	106,391	5	7,093	20,260
MEDIUM-SIZED (S) including:	10 – 100 thousand	32 (19.2%)	1,009,064	50	31,533	74,997
SA	10 – 20	11	148,887	7	13,535	35,730
SB	20 – 50	15	444,406	22	29,627	68,975
SC	50 – 100	6	415,771	21	69,295	162,041
LARGE (D)	100–200 thousand	3 (1.8%)	343,659	17	114,553	199,929
VERY LARGE (BD)	> 200 thousand	1 (0.6%)	275,615	14	275,615	311,421
Total: voivodeship		167	2,001,754	100	11,987	4,633,236

What is important for the overall system is that these cities are located in different parts of the voivodeship, thereby serving at least sub-regional functions, affecting the central part related to the core part and surrounding area of the Katowice conurbation (Katowice, Gliwice), southern part (Bielsko-Biała) and northern part (Częstochowa).

The total number of working people defines the size of the labour market, but it does not give the full picture of its rank since it is lacking the information on the level of economic activity of the inhabitants or spatial impacts. The working-age population, that is people who are theoretically able to work, account for 64% of the total population of the Silesian voivodeship. However, the reality shows that not all people of that group work, as a result of a variety of reasons such as health problems or early retirement (in the Silesian voivodeship this concerns a number of groups of people employed in mining). Therefore, the actual rate of economic activity according to the Labour Force Survey in 2010 was 52.3% (in 2012 - 53.5%)

and thus was lower than the national rate (55.4%). Hence, only slightly more than half of the working-age population is working, although a large spatial differentiation is observable. Taking into account the number of employed people per 1,000 inhabitants, the obtained values of the ratio range from 140 employed people in the rural community of Łękawica to 885 in Katowice (Fig. 3). This high level of activity in Katowice is attributable to the large economic potential of the centre and the strong impact of the labour market on the neighbouring and more distant communities, which results in a high proportion of workers commuting to work (SITEK ET AL., 2013). In 2006, almost 9 people commuted to Katowice to work and 1 person left Katowice to work outside of the city. A high ratio of employed people (in the range of 600 to 850) was also recorded in the following communities: Żywiec, Ornontowice, Bielsko-Biała, Ustroń, Bieruń and Gliwice. All of them are characterized by higher ranking labour markets, which are similar in size, to other communities.

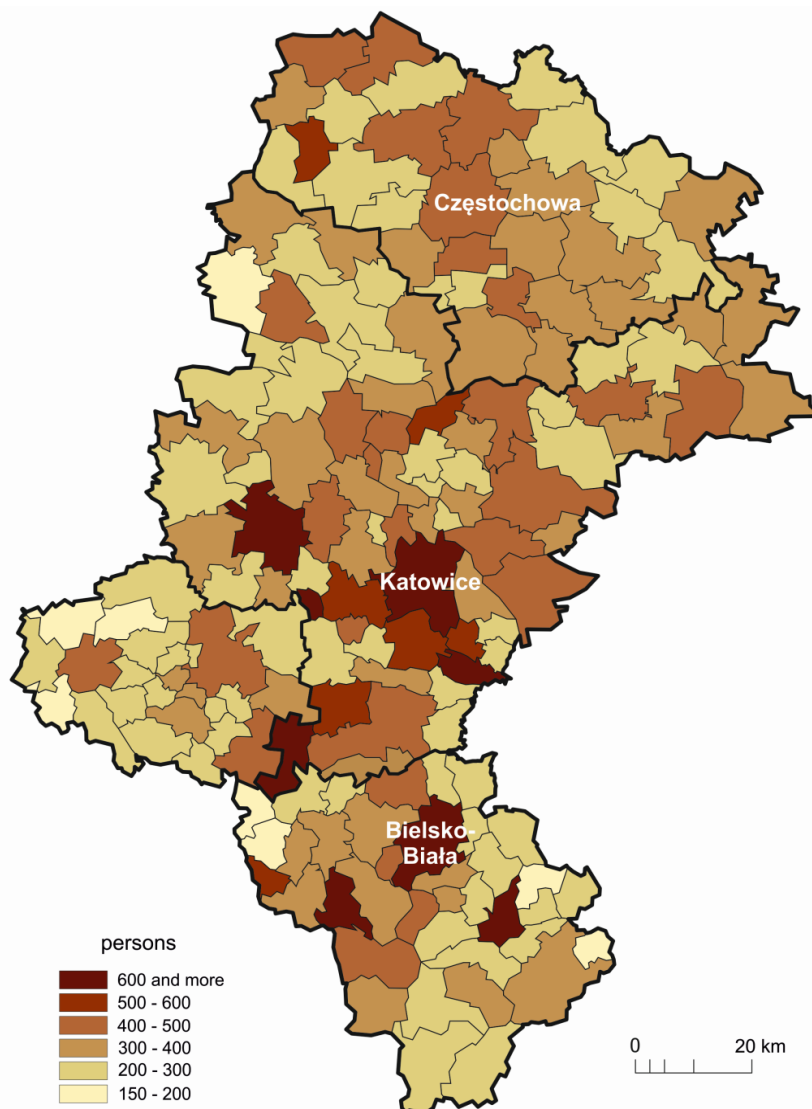


Fig. 3. Number of employed persons per 1,000 inhabitants of the Silesian voivodeship in 2010 (after Sitek et al., 2013)

Due to the economic structure of the area of today's Silesian voivodeship the labour market primarily offers jobs to the male population. Today, there is a slow equalization observable of the sex structure of the working population, but still men account for 55.8% of the labour force (in 2002, their share was 55.1%).

However, the labour market of the Silesian voivodeship will be faced with other challenges too, such as those related to different forms of employment. According to the data of the Ministry of Labour and Social Policy, in 2012 employment contracts for a specified, or unspecified, period of time is still the dominant form of employment (77% of people are employed on the basis of such contracts). Also people running their own business account for a large percentage (19% of all employed persons). Only approx. 4% of the population is employed on the basis of contracts of mandate and contracts of specific work (the so-called "junk contracts"). It was estimated that in the Silesian voivodeship this group comprises approx. 60,000 people. For the reason that often employers feel more and more uncertain about the market situation and prefer to use the so-called atypical forms of employment which are more beneficial for them, it should be expected that despite the protests of trade unions such forms of employment will also become increasingly common in Silesia. This trend has been confirmed in many Western European countries, where such forms are much more common and work well especially in times of crisis. For example, according to [NYKLEWICZ \(2013\)](#) in the case of Germany, despite the economic crisis of 2008–2009 an increase in employment in the service sector was recorded, where it was

based virtually on atypical employment contracts (marginal, for fixed term and part-time).

4. Unemployment

While comparing the supply and demand sides of the labour market of the Silesian voivodeship, it is clear that they are not characterised by an equilibrium. The supply side prevails, and thus we are dealing with the phenomenon of unemployment. Although the unemployment rate in relation to the beginning of the decade has clearly decreased (Fig. 4), the global economic crisis which began in 2008 caused it to increase to 11.2% (2012). The most recent data from July 2014 indicates favourable trends because the unemployment rate has decreased to 10%. This is one of the lowest values among Polish voivodeships and far below the national average (13.4%). It should, however, be noted that in absolute terms, this still translates into a considerable "army" of nearly 200,000 unemployed people.

Unemployment varies greatly at the county level. Katowice is continuously ahead of the counties characterised by lowest unemployment rates. In addition, the group of counties with the lowest unemployment rate (of a few per cent) includes: Bielsko-Biała, Tychy, Gliwice and Bieruń-Lędziny county. In this respect, the most difficult situation can be observed in Bytom ([KRZYSZTOFIK ET AL., 2011](#)), Świętochłowice, Piekary Śląskie and in the counties located in the northern part of the voivodeship, that is Częstochowa, Myszków and Zawiercie (Fig. 5). In these units the unemployment rate in 2012 ranged from 15% to 20%.

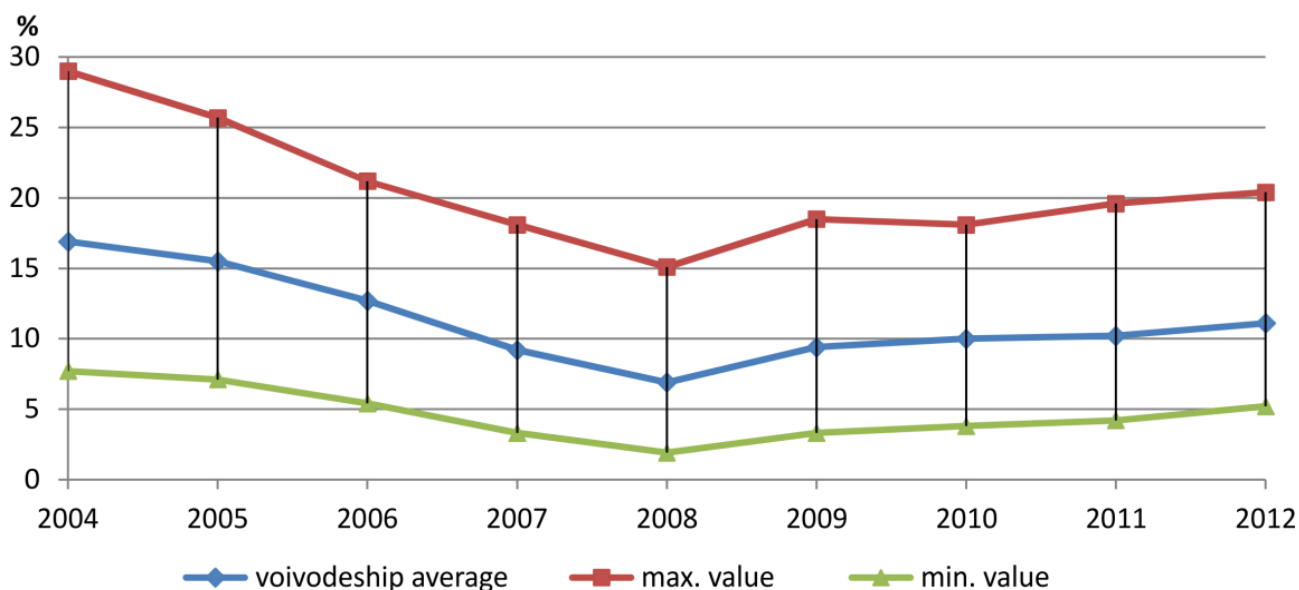


Fig. 4. Unemployment rate in the Silesian voivodeship in the period from 2004 to 2012 (after Sitek et al., 2013)

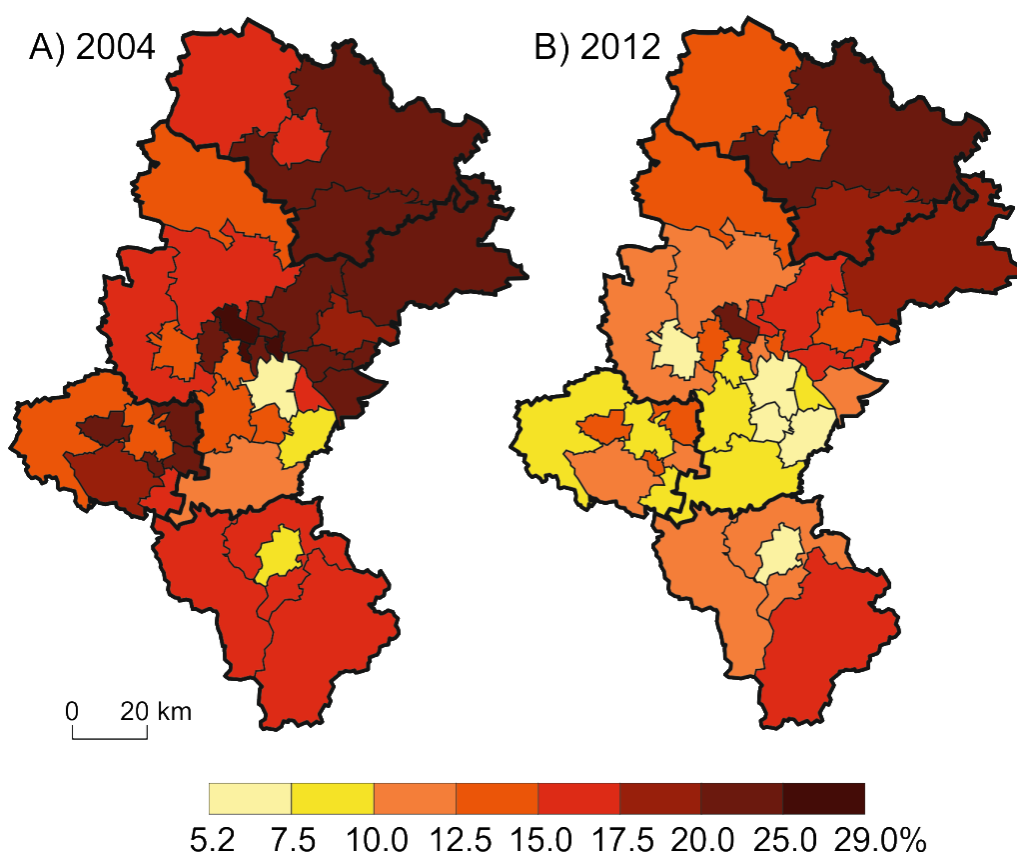


Fig. 5. Registered unemployment rate in 2004 and 2012 (after Sitek et al., 2013)

Since most employees are men, women with a 55% share (only slight fluctuations in the values can be observed) predominate in the group of unemployed people. People with a secondary or lower and basic vocational education account for 56% of the unemployed people. Those groups are dominated by men (their share is 53.4%). At the other end of this scale there are people with a higher education level which account for 12.3% (their share is constantly increasing), and women predominate among them (68.3% share). This is due to the fact that women are more likely to have a degree in the humanities which is not in demand in the labour market.

5. Discussion of results

What is the impact of the socio-demographic, economic and technological determinants on the evolution of the labour market? There is no doubt that it is, and will be of profound importance. The age groups of the population decline which will reach the working age in the coming years, retirement of numerous age groups of the population growth of the 1950s and, moreover, a negative migration balance will result in a massive decline in the labour force of the voivodeship. According to the projections of the Central Statistical

Office, in 2020 the number of the working-age population will decrease to 2,639,800 people, that is by as much as 11.2% compared to 2012). Certainly this situation may resolve the problem of unemployment, but this brings only seeming and short-term benefits which may create barriers to the future development of the region in the long run. One must realize that mainly young people who are well-educated and most dynamic emigrate, thus it will be difficult to replace them (although, of course, this gap may be offset by foreign immigration, mostly from the East, for example, Ukraine). Losses resulting from the cost of the education of young emigrants who will use their skills to improve their welfare in other countries pose another problem of an economic nature.

The reduction in the labour force does not have to automatically become a problem and barrier to development; by contrast, the shortages in the well-educated staff are a problem. This results from the impact of innovation on the labour market and a reduction in the demand for labour in general, but at the same time an increasing demand for a highly skilled labour force (not always a workforce which has received higher education). Suffice to say that according to EUROSTAT between 2006 and 2012 the performance of the Polish

economy grew by 24.1%, but the reserves in this regard are still major.

A nearly 4-fold increase in the number of new jobs between 2010 and 2014 and a decrease in the unemployment rate give grounds for optimism. The situation may be even better, however, on several conditions, of which the following factors will be crucial:

1) improvement in the economic situation not only in Poland but in the European Union – once the economic crisis is over, an increase in the demand for goods and services and consumption thereof will be observed, which will also increase exports (the automotive industry is of key importance here). However, as pointed out by GAWRYCKA (2009), not every economic growth will result in a growth in employment, given that the share of labour in the national income has decreased (GAWRYCKA & SZYMCHAK, 2012);

2) reduction in labour costs – which is particularly strongly stressed by employers.

While the first of the aforementioned conditions can indeed be fulfilled in the near future (provided that the international developments related to the policy of Russia do not change that), the fulfilment of the second condition is rather unlikely. With regard to the aspect of innovation, given the current priorities of the Polish and EU regional policy, further strengthening of the innovative trends should be expected in the years to come.

6. Conclusion

Despite certain difficulties resulting, *inter alia*, from the restructuring of the mining industry, from the beginning of the 21st century the labour market in the Silesian voivodeship is characterised by a relatively good shape in comparison to the whole country. The economy shows growth and employment rate is also at one of the lowest levels among the Polish voivodeships. Nevertheless, considering its outlook, one can observe certain threats mainly relating to demographic determinants. The population decline, ageing population or emigration mainly of young people will result in the fact that the labour force will decrease and age significantly in the coming years. What more can be done to further stimulate the development of the region?

As for the economic determinants, external factors (domestic, foreign) which fall outside the scope of the study will play a decisive role. Nevertheless, past experience, especially the manner in which we should respond to an economic crisis, gives grounds for moderate optimism.

In the next few years it should be expected that in accordance with global trends the role of innovation, including the technological factor, which will affect the labour demand in terms of quantity and, perhaps to a greater extent, in terms of quality (changes in the structure of the labour market) will become more and more significant.

One thing is certain, in the coming years we will continue to observe changes in the labour market and due to the growth in the dynamics of transformations in the entire global economy we should expect the same in the Silesian voivodeship.

References

- Boeri T., van Ours J. 2011. *Ekonomia niedoskonałych rynków pracy*. Ofic. Wolter Kluwers business, Warszawa.
- Działalność innowacyjna przedsiębiorstw w latach 2008-2010*. Informacje i opracowania statystyczne, GUS, Warszawa 2012.
- Fagerberg J., Mowery D., Nelson R. 2007. *The Oxford Handbook of Innovation*. Oxford Univ. Press, Oxford.
- Gawrycka M. 2009. Wpływ wzrostu gospodarczego na europejskie rynki pracy. [in:] Kopicieńska D. (ed.) *Ekonomiczne problemy funkcjonowania współczesnego świata*. Szczecin: 105-116.
- Gawrycka M., Szymczak A. 2013. Udział pracy w dochodzie narodowym w Polsce z uwzględnieniem województw. *Stud. Ekon.*, 145, Uniw. Ekon. w Katowicach, Katowice: 187-196.
- Gryczuk A. 2013. Najważniejsze tendencje na rynkach pracy w krajach rozwiniętych. *Studia BAS*, 4 (36): 9-25.
- Gwosdz K. 2014. *Pomiędzy starą a nową ścieżką rozwojową*. Uniw. Jagiell., Inst. Geogr. i Gosp. Przest., Kraków.
- Innovation Union Scoreboard*, 2014.
- Kabaj M. 2005. *Ekonomia tworzenia i likwidacji miejsc pracy. Dezaktywizacja Polski?* Inst. Pracy i Spraw Socjal., Warszawa.
- Kłosowski F. 2014. Problemy z wykorzystaniem pracujących jako miernika rozwoju usług (przykład województwa śląskiego). [in:] Klima E. (ed.) *Przestrzeń – Społeczeństwo – Gospodarka*, 13, Uniw. Łódź., Łódź: 269-280.
- Kłosowski F., Pytel S., Runge A., Sitek S., Zuzańska-Żyśko E. 2013a. *Rynek pracy w podregionie bielskim*. Sosnowiec.
- Kłosowski F., Pytel S., Runge A., Sitek S., Zuzańska-Żyśko E. 2013b. *Rynek pracy w subregionie centralnym województwa śląskiego*. Sosnowiec.
- Kłosowski F., Pytel S., Runge A., Sitek S., Zuzańska-Żyśko E. 2013c. *Rynek pracy w podregionie częstochowskim*. Sosnowiec.
- Kłosowski F., Pytel S., Runge A., Sitek S., Zuzańska-Żyśko E. 2013d. *Rynek pracy w podregionie rybnickim*. Sosnowiec.
- Krzysztofek K., Szczepański M.S. 2002. *Zrozumieć rozwój. Od społeczeństw tradycyjnych do informacyjnych*. Wyd. Uniw. Śl., Katowice.
- Krzysztofik R., Runge J., Kantor-Pietraga I. 2011. *Paths of Shrinkage in the Katowice Conurbation. Case Studies of Bytom and Sosnowiec Cities*. WNoZ, Uniw. Śl., Sosnowiec.
- Markowska M. 2008. Innowacyjność polskich regionów – ujęcie dynamiczne. [in:] Miszczak K., Przybyła Z. (eds.) *Nowe paradygmaty gospodarki przestrzennej*. Biul. Kom. Przest. Zagosp. Kraju PAN, 236, Warszawa.
- Marszowski R. 2004. Bezrobocie a edukacja zawodowa. [in:] Barczak A., Tausz K., (eds.) *Śląski rynek pracy. Analiza wielowymiarowa*. GIS, PWN, Warszawa: 46-79.
- Martin H.P., Schumann H. 1999. *Pułapka globalizacji. Atak na demokrację i dobrobyt*. Wyd. Dolnośl., Wrocław.

- Melich-Iwanek K. 2004. Lokalne rynki pracy w okresie przemian w górnictwie węglowym. [in:] Barczak A.S., Fijałkowska Cz. (eds.) *Społeczno-ekonomiczne skutki przemian gospodarczych w województwie śląskim przełomu XX i XXI w.*, Akad. Ekon., Katowice: 63-87.
- Muster R. 2009. Rynek pracy województwa śląskiego – stan obecny oraz trendy zmian. *Stud. Socjol.*, 4 (195/2009): 191-211.
- Nyklewicz, K. 2013. Wpływ kryzysu gospodarczego na stosunki zatrudnienia w sektorze usług w Niemczech. [in:] Kotlorz D. (ed.) *Zróżnicowanie sytuacji na rynku pracy – ujęcie regionalne, krajowe, międzynarodowe*. Uniw. Ekon. w Katowicach, Katowice: 112-121.
- Olędzki M. 1974. *Polityka zatrudnienia*. PWE, Warszawa.
- Runge A. 2008. Ludnościowe uwarunkowania rynku pracy w miastach Górnośląskiego Zespołu Metropolitalnego. [in:] Dulias R. Hibszer A. (eds.) *Górnośląski Zespół Metropolitalny. Zarys Monograficzny*. Pol. Tow. Geogr., Oddz. Katowicki, Sosnowiec: 160-170.
- Runge J. 1996. *Struktura rynku pracy regionu tradycyjnego i jego otoczenia na przykładzie województwa katowickiego*. Wyd. Uniw. Śl., Katowice.
- Runge J. 2004. Rynek pracy w miastach województwa śląskiego. [in:] Ślodziński J. (ed.) *Rozwój miast i zarządzanie gospodarką miejską*. Uniw. Opol., Opole: 281-298.
- Rynek pracy województwa śląskiego – identyfikacja obszarów problemowych, ocena funkcjonalnego modelu edukacyjnego oraz roli lokalnych liderów gospodarczych w kreowaniu nowych możliwości na rynku pracy*, 2011, PSDB Sp. z o.o. Wyd. Urz. Marszał. Woj. Śl., Katowice.
- Sitek S., Runge J., Kłosowski F., Runge A., Petryszyn J., Pytel S., Spórna T., Kurpanik M., Zuzańska-Żyśko E. 2013. *Społeczno-gospodarcze i przestrzenne kierunki zmian regionalnego oraz lokalnych rynków pracy województwa śląskiego*. SGP WSL. Sosnowiec.
- Sojka E. 2014. Analiza porównawcza powiatowych rynków pracy województwa śląskiego, *Stud. Ekon.*, 181, Uniw. Ekon., Katowice: 101-113.
- Sokołowski D. 2006. *Funkcje centralne i hierarchia funkcjonalna miast w Polsce*. Wyd. UMK, Toruń.
- Strahl D. (ed.) 2010. *Innowacyjność europejskiej przestrzeni regionalnej a dynamika rozwoju gospodarczego*. Wyd. UE we Wrocławiu, Wrocław.
- Szałkowski A. (ed.) 1992. *Rynek pracy w procesie transformacji systemu gospodarczego*. Akad. Ekon. w Krakowie, Kraków.
- Tkocz M. 1995. Katowice jako ośrodek regionalny w latach 1865-1995. Wyd. Śląsk, Katowice.
- Węgrzyn G. 2013. Innowacje jako determinanta zmian strukturalnych rynku pracy. *Stud. Ekon.*, Uniw. Ekon. w Katowicach, 145: 209-219.
- Zmiany struktury grup podmiotów gospodarczych zarejestrowanych w systemie REGON w 2011 r.* 2012, GUS, Warszawa.
- Zuzańska-Żyśko E. 2012. Funkcje metropolitalne Górnośląskiego Obszaru Metropolitalnego. *Studia Region. i Lokal.*, 2(48): 39-61.
- http://ec.europa.eu/enterprise/policies/innovation/facts-figures-analysis/innovation-scoreboard/index_en.htm