

THE LABOUR MARKET OF JASTRZĘBIE-ZDRÓJ IN PHASE II DEMOGRAPHIC CHANGE

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Objective: The purpose of this article is to justify the need for interdisciplinary research on demographic change due to the need to prepare for the challenges arising from many public policies, such as family, labour market, education and social security. The identified challenges and areas imply a broad reflection, which should focus on a holistic approach to active social policy and the labour market.

Design/methodology/approach: The theses presented in the article were verified using a: literature review, statistical research and comparative analysis.

Findings: The changes, processes and forecasts presented in the article indicate that in order to reduce mismatches in the labour market in Jastrzębie-Zdrój, measures should be taken to build the future shape of urban policies – especially in the phase of aging of the society. Not taking this type of action may delay preparation of Jastrzębie-Zdrój for changes in the age structure of inhabitants, which seems inevitable.

Originality/value: The article enriches knowledge and develops a discussion in the area of dynamically developing demographic changes. Based on the conclusions presented in the article, it seems that the biggest contemporary challenge for the community, institutions and people creating Jastrzębie-Zdrój's future may be maintaining the longest possible professional activity of the aging population of Jastrzębie-Zdrój while building a modern active social policy and labour market corresponding to the economic structure of cities.

Keywords: human, labour market, education, demographic changes.

1. Introduction

Currently, demographic phenomena permanently shape the social relations in economically developed countries. This fact and the consequences resulting from it determine the emergence in demography of new theoretical hypotheses and research questions directly related to the relations between the amount of births and deaths. Based on these relationships, a new approach was created in describing demographic phenomena, termed the "Second Demographic

Transition". This approach distinguishes four characteristic determinants, which, according to the creator of this theory, D. van de Kaa (Kaa, 1987, p. 11) are:

- decreasing the importance of marriage as a form of human co-habitation – transition from family model “the king–child with parents” focused on a child(ren) to the model called “the king–pair with a child” putting emphasis on a relationship of the couple,
- the transition from preventive contraception to conscious procreation,
- transition from homogeneous types of families and households to various forms.

As a result of ongoing changes and long-term forecasts, according to experts' assessments, demographic changes will have a significant impact on the future shape of labour markets. The most serious challenge is the need to adjust all levels of education to the population age structure resulting from demographic changes. Further, the need to improve people's competences by promoting the idea of lifelong learning. As a result of the ageing of the population, it should be noted that future European and national labour resources will come from significantly older than the current population. This is connected with another challenge, which is the need to update current training systems in order to adapt them to the needs of ageing societies from which the dominant percentage of employees will come, and the development and competitiveness of Europe and Poland will depend on the quality of their employment and of work efficiency.

In conclusion, demographic change is a significant challenge for numerous areas of public policy, such as family, labour market, social security and education. The indicated challenges and areas of their impact are part of a broader spectrum of reflection, which should focus on a holistic approach to active labour market policy, which is a key determinant shaping human capital, in which, as forecasts indicate, by 2050, people over sixty-five years of age may constitute 20% of the total population of Europe. Regardless of the social changes caused by the transformations described above, demographic changes will put enormous pressure on the pension systems and social security of EU countries. If these processes are neglected, as numerous studies indicate, the EU is threatening to reduce potential employment growth rates to extremely low levels of around 1% per year (Krysiak, 2007, p. 82). This forecast clearly shapes the need for developing scenarios for developments in the labour market, including in the area of staffing needs. This claim is determined, among others, by the fact that the societies of developed countries are entering a phase in which the proportion of economically active and inactive people shifts towards the latter group. On the basis of these conditions, Poland's demographic situation – including Jastrzębie-Zdrój – definitely places it in the zone of dynamically ageing societies.

It should be noted that in the analysis of data related to the Jastrzębie labour market, data describing the municipality of Jastrzębie-Zdrój, in accordance with the applicable territorial division of Poland and according to the Nomenclature of Territorial Units for Statistical Purposes, was included and correlated with the methodology and classification of data collection and processing adopted in public statistics (Jastrzębie-Zdrój, 2019).

2. Discussion of the results

In 2018, Jastrzębie-Zdrój was inhabited by 89,128 people, of which 51.2% are women, and 48.8% are men. The feminisation factor was seriously shaken. There were 100 men in 105 women in the analysed period. This resulted in a very low masculinisation rate of 95 men for 110 women (Jastrzębie-Zdrój, 2019). This scale is well illustrated by masculinisation coefficients describing, for example, the Rybnik commune – 95, Wodzisław powiat – 95, Racibórz powiat – 93. It is worth noting that the dispersion of the feminisation coefficient in Jastrzębie-Zdrój has been permanent since 2004. Throughout the period 2004-2018, the analysed ratio was distorted from 102 women to 105 per 100 men.

Searching for sources of the indicated state, it should be noted that the phenomena of gender imbalance occurring in the population should be considered in two dimensions: geographical – including in the city-village system, and age – individual age groups. In the first case, migration is the main factor in gender imbalance. Their directions and structure lead to the situation of over-representation of women in cities and the overall gender balance in rural areas. In 2009, there were 101 women for 100 men living in rural areas and 111 women for cities, which represented 52.7% of women in the urban population and 50.2% in the countryside. The key issue for determining the demographic effects of gender imbalances is, however, the analysis of the feminisation ratio (number of women/100 men) in specific age groups (Bański, 2002). This is one of the important indicators informing about the reproductive possibilities of the population in a given area. In this light, it is worth emphasising that in the youngest age groups, there is a natural phenomenon of over representation of men, because every year among new-born children, male new-borns predominate. The share of boys in the number of births is about 0.51-0.52 (Holzer, 1999). On the other hand, because women live on average longer than men, the natural age advantage of women is significant in the oldest age groups. The value of the feminisation indicator in the matrimonial age group (20-29 years) and in the age group with the highest fertility rates is particularly important for the current and future demographic situation of a given area (Celińska-Janowicz, 2010, p. 21). Analyses of the indicated population structure in Jastrzębie-Zdrój clearly showed that in the 20-29 age range, the feminisation rate in 2018 showed serious deficiencies in women. In the 20-24 age group, the ratio was 98 women per 100 men, in the 25-29 age group – 91 and in the 30-34 age group – 94, with the feminisation coefficient for the total hawkish population in the corresponding period being 105 (Bank Danych Lokalnych, 2018).

The result of the indicated shortages of women in these groups is a decrease in the number of marriages and the number of births, which, in turn, leads to an increase in the ageing process of the population. It is worth noting that over the last decade in Poland, the highest fertility (the number of live births per 1,000 women) was in the age group of 25-29 years. In recent years, there has been a phenomenon of a shift in high fertility rates towards older age groups.

While in the year 2000, in the whole country, the highest values of the number of births per 1,000 women were characteristic for the age groups 25-29 and 20-24 years. In 2005, the analysed indicator assumed similar values in the groups 20-24 and 30-34 years, and in 2009, the number of live births per 1,000 women in the 30-34 age group was higher than in the 20-24 age group (the highest values throughout this period were in the 25-29 age group) (Demographic Yearbook, 2010). This phenomenon affects both cities and rural areas, although in the latter case, it occurs with some delay, and it occurred for the first time in the whole country only in 2009 (Celińska-Janowicz, 2010, p. 21).

Considering the fact that women have a high advantage over men in Jastrzębie-Zdrój, a clear regularity should be emphasised, which is the high proportion of men in deaths of people aged up to 65 years due to cardiovascular disease per 100,000 inhabitants at this age; the indicated share in 2017 was 140.7 in relation to 48.3 among women. In this category of causes of death, there is a clear advantage in relation to the country: 94.8 Jastrzębie-Zdrój, 87.7 country. When analysing the above variable describing deaths, one should notice its dominant position in relation to other causes. In 2017, in the group of three causes, deaths due to cardiovascular disease accounted for 41.8%, deaths due to cancer 32.6% and deaths due to respiratory issues 5.3%.

The average age of poviát residents is 42 years and is comparable to the average age for the Śląskie Voivodship and for residents throughout Poland. In 2017, the residents of Jastrzębie-Zdrój registered 440 marriages, which corresponds to 4.9 marriages per 1,000 inhabitants. The number of marriages per 1,000 inhabitants was comparable to the value for the voivodship and the country. In the analysed period, 2.1 divorces per 1,000 inhabitants were recorded in Jastrzębie-Zdrój, which is clearly greater than the voivodship data (1.8) and the country data (1.71). Due to the variable describing the marital status of the inhabitants of Jastrzębie-Zdrój, 25.7% were single in 2017, 60.5% were married, 5.4% were divorced, and 8.3% were widows or widowers (Jastrzębie-Zdrój, 2019).

In this light, it is worth noting that over the years 2006-2018, the number of inhabitants of Jastrzębie-Zdrój decreased by 6%, i.e. by 5,588 people. This process was accompanied by the irregular positive growth dynamics of live births, which, in 2007-2018 in Jastrzębie-Zdrój, was in the range from 102.7% in 2006 to 87.7%. Total deaths in the analysed period were characterised by an upward trend from 102% in 2007 to 127.6% in 2018 (Table 1).

Table 1.

Basic demographic characteristics of Jastrzębie-Zdrój in the years 2006-2018

Variables	Years												
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	94 716	93 939	93 554	92 988	92 622	92 105	91 723	91 235	90 794	90 283	89 883	89 590	89 128
2	100	99,2	98,8	98,2	97,8	97,2	96,8	96,3	95,9	95,3	94,9	94,6	94,1
3	968	994	1,049	984	970	895	886	857	824	784	804	901	790
4	100	102,7	105,5	93,8	98,6	92,3	99,0	96,7	96,1	95,1	102,6	112,1	87,7
5	409	417	391	441	410	406	461	436	409	511	462	486	522
6	100	102,0	95,6	107,8	100,2	99,3	112,7	106,6	100	124,9	113,0	118,8	127,6
7	276	314	362	257	276	183	91	67	82	-66	-28	24	-122

Cont. table 1.

8	100	113,8	131,2	93,1	100,0	66,3	33,0	24,3	29,7	-23,9	-10,1	8,7	-44,2
9	-990	1072	-855	-724	-802	-700	-517	-621	-527	0	-347	-394	-381
10	100	108,3	86,4	73,1	81,0	70,7	52,2	62,7	53,2	0,0	35,1	39,8	38,5

Legend: 1. Total population of Jastrzębie-Zdrój (as of 31 XII), 2. Dynamics of growth/decline of the population of Jastrzębie-Zdrój in 2004-2016, 3. Live births in Jastrzębie-Zdrój, 4. Dynamics of growth/decline of live births in Jastrzębie-Zdrój in 2004-2016, 5. Total deaths in Jastrzębie-Zdrój, 6. Dynamics of increase / decrease in total deaths in Jastrzębie-Zdrój in 2004-2016, 7. Natural increase in Jastrzębie-Zdrój in 2004-2016, 8. Dynamics of increase/decrease birth rate in Jastrzębie-Zdrój in 2004-2016, 9. Balance of internal and international migration for permanent residence in Jastrzębie-Zdrój in 2004-2016, 10. Dynamics of increase/decrease in the balance of internal and foreign migration for permanent residence in Jastrzębie-Zdrój in 2004-2016.

Source: GUS Local Data Bank. Aggregated data in publicly available predefined tables. Population status and natural movement.

The described distribution of the number of live births and total deaths had an impact on the birth rate in Jastrzębie-Zdrój, which, in the analysed period, was highly unstable, with a tendency to decrease its dynamics. In the years 2006-2018, the natural increase was in the range from 276 to -122, which gives a dynamics of decline from 113.8% in 2007 to -44.2% in 2018. As a result, in 2017, the key fertility rate for population reproduction was 1.49 and was higher than the voivodship ratio in the analysed period, which reached 1.42, as well as the national rate of 1.45. It should be noted that if the fertility rate is in the range of 2.10 to 2.15 for the number of births of children per woman of childbearing age (15-49 years), there is full replacement of generations (Zdrowie kobiet w Polsce, 2012, p. 22). Similarly to the fertility rate, the gross reproduction rate was shaped, which amounted to 0.70 in Jastrzębie-Zdrój in the same period and was higher than the voivodship ratio by 0.01 and lower than the national by 0.01. It is worth noting that a factor of 1 is a guarantee of simple reproduction of the population, while when it reaches a value above 1, there is a process of population expansion (Aktywność ekonomiczna, 2014, p. 192). The demographic dynamics ratio was similar in Jastrzębie-Zdrój (is the ratio of the number of live births to the number of deaths (Holzer, 2003), which amounted to 1.03 and was significantly higher than the ratio for the voivodship (0.87) and comparable to the ratio for the country. On the other hand, the demographic load indicator according to the forecast in 2018 was 34 people in post-working age per 100 people in working age. In subsequent years, it may dynamically increase to a total of 40 people in 2035 and 59 people in 2050. It is worth noting that the indicator has been dynamically increasing in recent years. In the of 2002, in the Śląskie Voivodeship, this indicator was at a level of 25 people in post-working age per 100 people in working age (Figure 1).

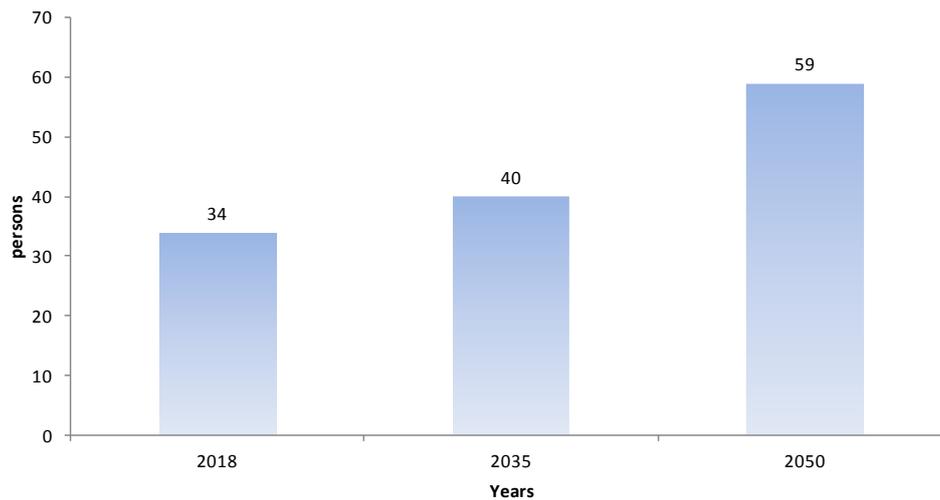


Figure 1. Changes in the demographic load indicator for Jastrzębie-Zdrój according to the CSO forecast until 2050. Source: Population forecast for 2014-2050. GUS, Warsaw 2014.

In the analysed period, 901 children were born in Jastrzębie-Zdrój, including 46.8% girls and 53.2% boys. In contrast, observation of internal migrations and foreign for permanent residence in the years 2006-2018 indicated a negative balance of its value with a downward trend. In the analysed period, migrations took place in the range from -990 in 2006 to -381 in 2018. The period of the largest migrations was 2007-2008, in which the migration balance amounted to -1,072 and -855, respectively (Table 1).

The described phenomena have not only been permanently shaping the condition and structure of the population of Jastrzębie-Zdrój for years, as they have also been intensively revealed in the Śląskie Voivodeship and the country (Marszowski, 2017, pp. 229-244). The changes in the population structure that took place in 1988-2008 and 2009-2015 are quite significant. Searching for their sources, one can indicate the following reasons. It seems that the ground-breaking factors were of a cultural nature, which include (Kaa, 1999):

- promotion of premarital sexual intercourse,
- delay in the marriage age,
- diversification and dissemination of alternative forms of partnerships,
- increasing the phenomenon of persistent celibacy (remaining outside partnerships),
- increase in divorce severity,
- universality of single-parent families,
- the multiplicity and diversity of partnerships throughout the life of the individual,
- reducing the proportion of people in formal marriages,
- reducing the average number of children in the family,
- disappearance of many children,
- increase in voluntary childlessness,
- dissemination of contraceptives,
- delayed procreation age.

An important source of demographic changes are also the phenomena observed in the first decade of the 21st century related to Poland's accession to the European Union. Among them, the following deserve special attention (Runge, 2015, pp. 286-287):

- narrow reproduction of the population below simple generational replacement,
- decreasing number of new marriages,
- decrease in women's fertility level,
- increasing international migrations, especially among young populations.

These regularities shape the demographic structure of the population of Jastrzębie-Zdrój, including significant changes in biological age groups. As of 2014, the population by indicated division was as follows: population in the age of 0-14 years constituted 14.6% of the total population, in the age of 15-64 – 68.6%, 65 years of age and over – 16.8%. According to forecasts, this distribution in 2035 may, respectively, be as follows: 12.1% - decrease by 2.5%, 61.6% - decrease by 7%, 26.3% - increase by 9.5%. In turn, the analysed distribution of the population of the city by biological age groups may change further in 2050 according to the following forecasts: 11.5% - a decrease of 0.6% (compared to 2014, the forecast decrease may be 3.1%), 53.5% - a decrease of 8.1% (15%), and 34.9% - an increase of 8.6% (18.1%) (Proгноza ludności, 2014) (Figure 2).

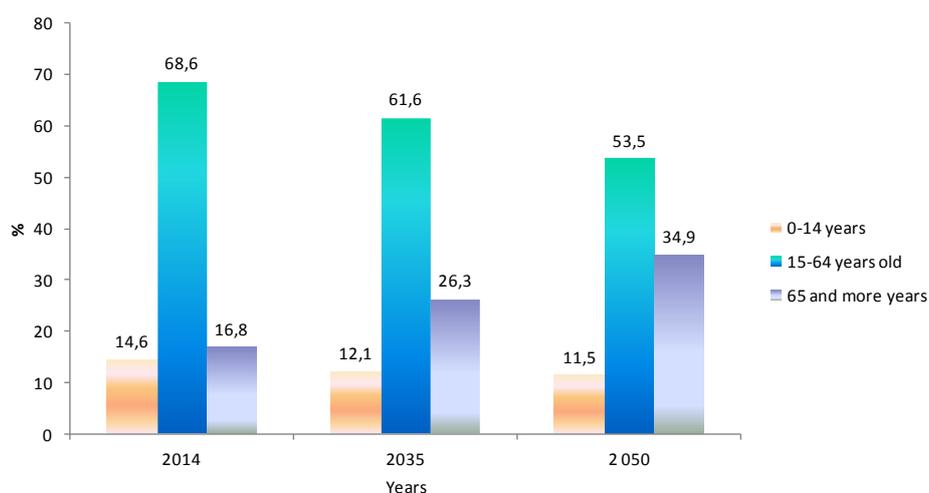


Figure 2. Changes in the population in biological age groups for Jastrzębie-Zdrój according to the CSO forecast for 2014-2050. Source: Population forecast for 2014-2050. GUS, Warsaw 2014.

An analysis of the population living in Jastrzębie-Zdrój by age groups allows for the formulation of several more conclusions. In the structure under study, the most numerous groups were people between 25-29 years old, 30-34 years old, 35-39 years old, 39-44 and 45-49 years old. Due to their size (nearly 40% of the total population), it can be assumed that these are three age groups which will decide on the future quantitative and qualitative structure of the population of Jastrzębie-Zdrój. It seems that they will most dynamically shape processes taking place on the labour market. In relation to the indicated regularity, the age range is important, in which the population of Jastrzębie-Zdrój is clearly decreasing. This is in the age range from 65 to 85 and over. In this context, it should be noted that shifts of individual cohorts

in the demographic structure can cause a marked increase in the population of retirement age with a simultaneous decrease in the population size in age groups characterised by demographic youth and the highest professional activity and mobility (Figure 3).

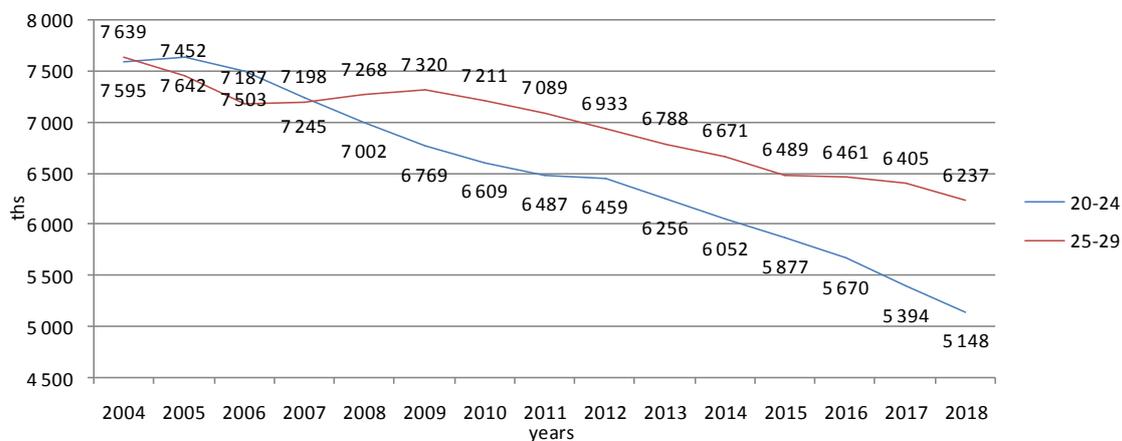


Figure 3. Population of Jastrzębie-Zdrój by age groups 20-24 and 25-29. Observations for 2004-2018. Source: GUS Local Data Bank. Aggregated data in publicly available predefined tables. Population status and natural movement.

It should be noted that the indicated distribution of the number of inhabitants of Jastrzębie-Zdrój by age groups will determine the processes on the labour market that are the result of two phenomena: a decrease in population at the age of demographic youth and high educational, professional and migration mobility, with a simultaneous clear increase in the population size in older years.

As indicated by demographic forecasts – which has already been noted – the highest rate of growth of the ageing population of Jastrzębie-Zdrój will occur in the so-called old-old group, i.e. in the oldest category of those aged 75 and over. In relation to the intensive ageing of the population, creating more and better jobs is not only a political ambition, but also a necessity from an economic point of view. At present, a change in approach to the elderly is needed, as well as counteracting the harmful stereotype that this group is socially useless and is a burden for society¹. Anticipated demographic changes pose new challenges for employers in the field of human resource management. More and more organisations are undertaking various activities addressed to employees over 45 year of age as part of age management. They aim to improve the working environment to keep older people in the workplace, despite the retirement age.

¹ As A. Poczowski writes, the issue of acquiring the right people and the effective use of their knowledge and skills in achieving organisational goals have been the subject of research and practical solutions for a long time. In the last 20 years, thinking about the place and role of people in an organisation determines the approach referred to as human resources management. This was established in the 1980s of the United States and resulted from the need for reorientation in the field of personnel function caused by changes in the business environment, which were growing and taking on global dimensions of competition, growing demands from customers regarding high quality and, at the same time, favorable price of products and services offered, increasingly faster diffusion of innovation, growing level of education of the society and related changes in value systems. See: A. Poczowski, Human resources management. Strategies, processes, methods, ed. PWE, Warsaw 2008, p. 34.

In this light, based on the analysis of the population of Jastrzębie-Zdrój in economic age groups, in 2006-2018, further regularities were observed. First of all, in the years 2006-2018, the number of people in the pre-working age significantly decreased (16.9%). Similarly, the dynamics of population decline in the working age population was 83.3% in the corresponding period as compared to 2006. In the population of post-working age population in Jastrzębie-Zdrój in the years 2006-2018, a dynamic population growth of 67.6% was observed (Table 2).

Table 2.

Dynamics of decline/increase in the population of Jastrzębie-Zdrój by economic age groups in 2006-2018. As of 31 December 2006 = 100%

Population	Years												
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	15 450	14 964	14 652	14 276	14 188	13 869	13 620	13 417	13 242	13 039	12 943	12 915	12 843
2	100	96,9	94,8	92,4	91,8	89,8	88,2	86,8	85,7	84,4	83,8	83,6	83,1
3	67 096	65 998	64 961	63 856	62 775	61 573	60 566	59 491	58 595	57 825	57 106	56 533	55 885
4	100	98,4	96,8	95,2	93,6	91,8	90,3	88,7	87,3	86,2	85,1	84,3	83,3
5	12 170	12 977	13 941	14 856	15 659	16 663	17 537	18 327	18 957	19 419	19 834	20 142	20 400
6	100	106,6	114,6	122,1	128,7	136,9	144,1	150,6	155,8	159,6	163,0	165,5	167,6

Legend: 1. Pre-working age population in Jastrzębie-Zdrój (14 years old and below), 2. Dynamics of increase / decrease in pre-working age population in Jastrzębie-Zdrój (14 years old and below), 3. Working age population in Jastrzębie-Zdrój (15-59/64 years), 4. Dynamics of increase/decrease in the working age population in Jastrzębie-Zdrój (15-59/64 years), 5. Population in the post-working age in Jastrzębie-Zdrój (60/65 years and more), 6. Dynamics of growth/decline in the post-working age population in Jastrzębie-Zdrój (60/65 years and more)

Source: own calculations based on the CSO Local Data Bank. Aggregated data in pre-defined public tables, Pre-working, working and post-working age population by sex.

Another important variable describing the population structure is the demographic dependency ratio². As of 2014, for 100 people of working age, there were 61 professionally inactive people in Jastrzębie-Zdrój. The forecast clearly indicates that in the perspective of 2050, the load on the working age population in the inactive population in Jastrzębie-Zdrój may increase from 61 in 2014 to 64 in 2025 and 2035 and 84 people in 2050 (Figure 4).

² This indicator is determined as the ratio of the number of people in the age when they are inactive or inactive, i.e. in the non-working age (number of children aged 0-14, number of people aged 60 or 65 and more) up to the number of people of working age (number of people aged 15-59 or 64). See: Central Statistical Office. Information portal: www.stat.gov.pl/gus/definicje_PLK_HTML.htm?id=POJ-6132.htm (accessed: 22.12.2019).

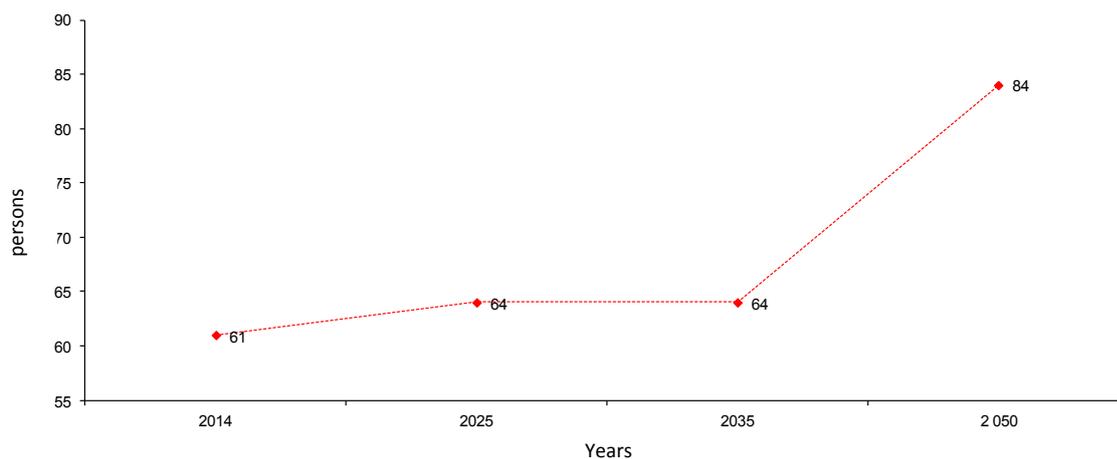
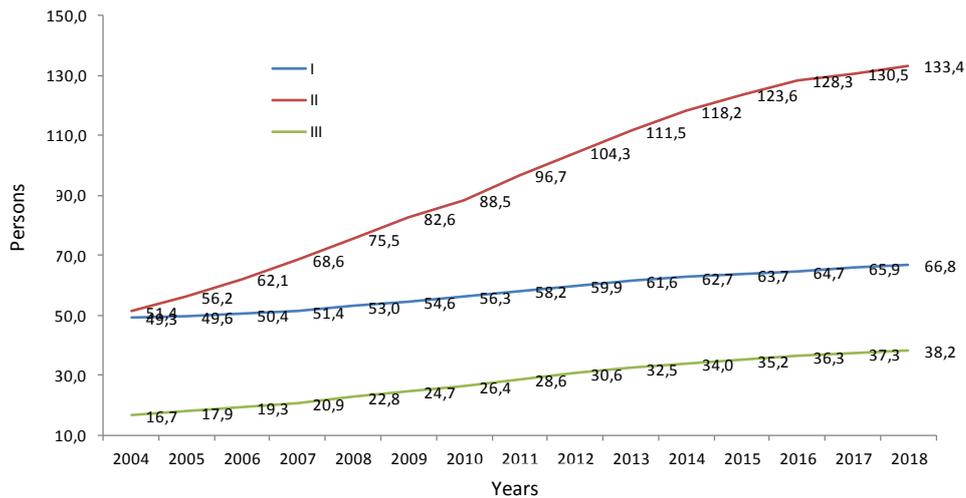


Figure 4. Changes in the demographic load indicator for Jastrzębie-Zdrój according to the CSO forecast until 2050. Source: own calculations based on the population forecast for 2014-2050. GUS, Warsaw 2014.

The indicated increase is determined in the forecast mainly by the very high projected increase in the demographic load indicator for the post-working age population from 32 in 2014 to 59 persons in 2050. It should be noted that according to the forecast for 2050 (Proгноza ludności, 2014).

On the basis of the forecasts presented above – which is particularly emphasised – the summaries published by the European Commission regarding forecast changes in the size of burdens resulting from the payment of benefits from both the first (pay-as-you-go) pillar of the pension system and those financed by private mandatory capital plans show that in the next 50 years in Poland, the sum of public expenditure (in relation to GDP) on retirement benefits may fall (from 11.8% of GDP to 9.6% of GDP), although they are still to be unbalanced in the whole perspective for 50 years (European Commission i Economic, 2012, p. 101). In addition to Latvia, we are in this respect compared to other countries European exception, as most of them are to experience an increase in the relative burden of pension financing in relation to GDP (Janicka, 2015, p.26).

The described trends fully confirm the demographic burden indicator analysis by age groups. As it has already been emphasised, the greatest burden on the post-working age population will result from the pre-working age population. Over the years 2004-2018, in this population, the demographic load indicator increased from 51 people to 133 people in post-working age per 100 people in pre-working age (Figure 6). It is worth noting that this is the result of the dynamic ageing of the population of Jastrzębie-Zdrój (Sytuacja demograficzna województwa, 2011, pp. 14-32).



Legend: I. Post-working age population per 100 persons in pre-working age, II. Working age population per 100 persons in pre-working age, III. Post-working age population per 100 persons in post-working age.

Figure 5. Changes in the demographic load indicator by economic age groups for the city of Jastrzębia-Zdrój in 2004-2016. Source: GUS Local Data Bank. Aggregated data in publicly available predefined tables. Population status and natural movement.

In the context of this phenomena, it should be noted that from the point of view of social policy, one of the most important demographic conditions is the population structure by age (Orczyk, 2005, p. 31). As E. Trafiałek notes, contemporary civilization guarantees longer and longer life expectancy. This is accompanied by the phenomenon of an increase in the number of elderly people, with a simultaneous decrease in the birth rate. As a result, this results in the consolidation of the so-called inverted demographic pyramid (Strzelecki, 2010, pasim), which is characterised by, among others in the social sphere, the lack of a generational replacement on the labour market and raises the problem of securing decent conditions when leaving work. In turn, in the sphere of economic effects, it causes labour market devastation (Trafiałek, 2006, p. 246). Hence, despite the passage of several years from its formulation, the postulate of L. Frąckiewicz is still valid, which states that the economic, social, social, medical and cultural effects of the phenomenon of demographic old age cover various spheres of behaviour, needs and tendencies, creating an extensive catalogue of tasks, the implementation of which requires the activation of relevant social policy entities and instruments (Frąckiewicz, 2003).

Analysing the population of Jastrzębie-Zdrój by education level, it should be noted that 22.5% of the inhabitants of this city are in the age of potential education - 3-24 years (including 49.4% women and 50.6%). According to the 2011 National Census, 11.9% of the population had university education, 2.4% post-secondary education, 10.7% general secondary education, and 16.9% secondary vocational education. 31.9% of Jastrzębie-Zdrój's inhabitants had basic vocational education, 5.6% in junior high school, and 20% completed primary education. Only 0.8% of residents completed education before finishing primary school.

Compared to the national average, the inhabitants of Jastrzębie-Zdrój have a lower level of education. Among women living in Jastrzębie-Zdrój, the highest percentage has completed basic (23.9%) and basic vocational education (23.5%). Men most often have basic vocational education (40.6%) and secondary vocational education (18.5%). In turn, 16.6% of the residents of Jastrzębie-Zdrój at the age of potential education (3-24 years) are in the 3-6 age range, i.e. pre-school education (16.2% among girls and 17% among boys). Out of a thousand pre-schoolers, 825 attend pre-school education. There are 0.89 preschool children per one place in the preschool education institution (<http://www.polskawliczbach2019>).

Taking into account the structure of education, it is worth paying attention to the importance of education in shaping the relationships on the labour market. Numerous documents and studies emphasise that education is a key factor determining the growth of an individual's development opportunities on the labour market, in particular in the context of professional activation and opportunities related to finding employment. It is thanks to education that knowledge "spreads" in all sectors of the economy. Economists and social politicians provide convincing tangible evidence of the benefits of education. Economic benefits illustrate the differences in earnings between people with different levels of education. In more than 2/3 of OECD countries, people with higher education have 50% higher earnings compared to people with upper secondary and post-secondary education. From a macroeconomic point of view, investing in education is profitable. In OECD countries, a man with higher education during the period of professional activity brings the state budget an income from taxes and insurance contributions by an average of approx. USD 100,000 compared to a person with secondary education. After deducting public funds allocated to finance student education in higher education, the net benefit is over USD 91,000 (Education at a Glance, 2011, pp. 161-165). Profits from education are even greater if one considers benefits expressed in the indicators important for building social capital resources. According to the OECD report, as well as according to the results of the "Social Diagnosis" research, people in Poland with higher education declare greater satisfaction with life, better health, a higher degree of mutual trust and greater involvement in social life in the form of participation in elections or volunteer activities (Czapiński, 2009, p. 271).

It is also worth noting that the results of the National Census showed a large share of families with children in the total population in Jastrzębie-Zdrój by dependent children up to 24 years of age. In relation to voivodship data (0.11%) this share was almost nine times higher (1%) (Figure 6).

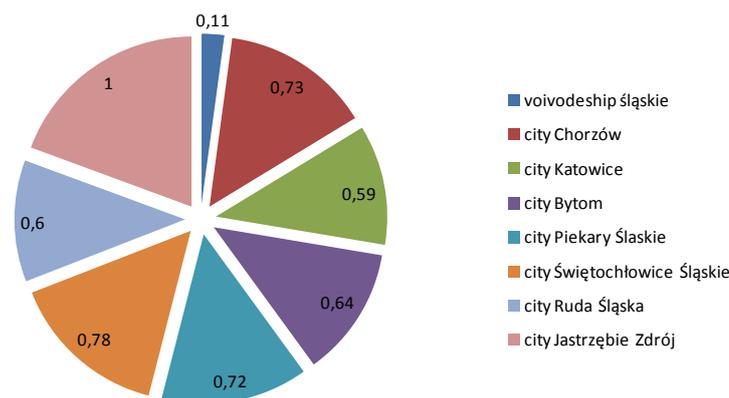


Figure 6. Families with children by the number of dependent children up to 24 years of age in the Śląskie Voivodeship and selected poviats of the Śląskie Voivodeship in 2011 in%. Source: GUS Local Data Bank. National Census 2011 – households and families.

In the light of numerous studies (Marszowski, 2018, pp. 419-429; Jongblut, 2012; Rybicka, 2014) and a review of the data of the Central Statistical Office, it is worth noting that the share of families with children in the total population in Jastrzębie-Zdrój according to the number of dependent children up to 24 years of age may have serious consequences expressed by the negative effects of the NETT³ phenomenon that may occur in Jastrzębie-Zdrój. As Attewell and Newman note (Attewell, 2010, p. 181), the NEET phenomenon is currently one of the most important social problems that requires rapid and decisive intervention in most European Union countries. The importance of supporting the effort and activities of numerous state and local government institutions aimed at depopulation of the NEET group is evidenced by alarming EUROSTAT messages, which clearly state that too many young people are marginalised by entering the NEET population. In 2015, there were 6.2 million people aged 18-24 in the EU-28 who were not in education, employment or training (NEETs youth); the percentage of NEET in the same-age population was 15.8%. One of the key factors explaining the differences in the percentage of NEET is the low level of education; therefore, in regions with a relatively high proportion of early leavers, a relatively high proportion of NEET can be expected.

The above-mentioned even dramatic data implies the need to pay attention to the issue of the relationship between the situation of young people on the labour market and the forms of their support in a smooth transition from education to employment. In this area, it is important to clearly emphasise the importance of programmes and activities in which young people are perceived as a population of creative, mobile people, and despite the difficulties they encounter, they are to be successful. This form of perception of this population determined the recognition

³ The acronym NEET was first introduced in the United Kingdom in 1999 through the Social Exclusion Unit (SEU) report. The report, referring to the NEET group, analysed the situation of people who have no employment and do not participate in education or training, which means in English Not in Education, Employment or Training – hereinafter NEETs. See: The Social Exclusion Unit, Office of the Deputy Prime Minister 7th floor, Eland House, Bressenden Place London SW1E 5DU 2004, pp. 1-12.

of one hundred million young people living in the European Union as a group of citizens on whom the success of the current Europe 2020 strategy depends (Mrozowska, 2014, p. 29).

Due to the economic activity of the population of Jastrzębie-Zdrój, it should be noted that according to the forecast of the Central Statistical Office (Prognoza ludności, 2014), in 2014, 17.8% of residents were in pre-working age, 62.1% in working age, and 20.1% of residents were in post-working age. It is worth emphasising here that the proportions described can be seriously deformed. As cited forecasts indicate, in 2035, the population in the pre-working age group will constitute 14.8% - a decrease compared to 2014 by 3%, in the working age, 60.1% - a decrease by 2%, and in the post-working age, 24.3% - an increase of 3.2%. An even more serious regression may occur in 2050, in which the above age groups may reach the following levels of the share in the total population of Jastrzębie-Zdrój: 14% - decrease by 0.8%, 54.2% - decrease by 5.9%, 31.8% - an increase of 6.5%. (Figure 8).

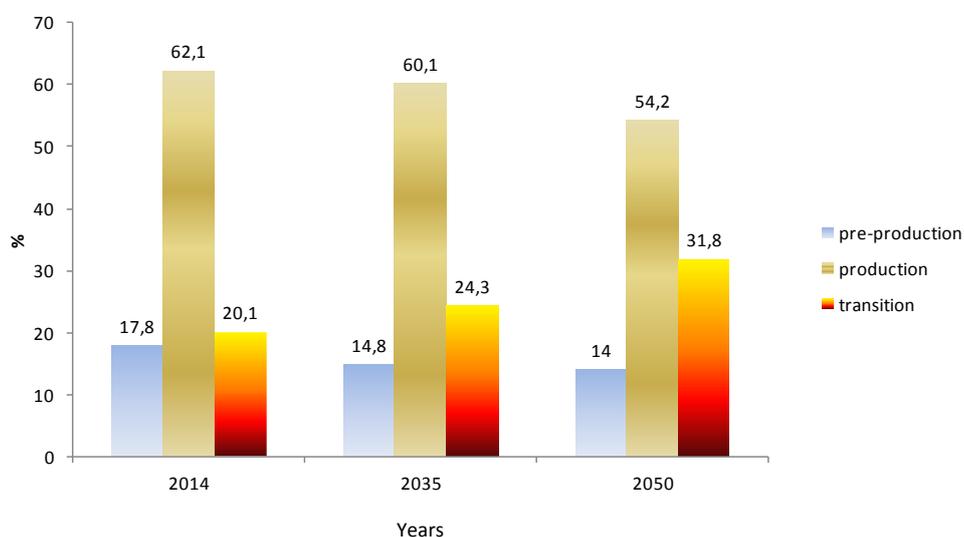


Figure 7. Changes in the population according to economic age groups for Jastrzębie-Zdrój according to the CSO forecast until 2050. Source: own calculations based on the population forecast for 2014-2050. GUS, Warsaw 2014.

These adverse changes in the structure of the population of Jastrzębie-Zdrój due to economic activity have significant consequences on the city's economy and its social life. Changes in the age structure of the population translate into changes in many aspects, ranging from changes in the structure of consumption, through changes on the "production" side (labour force, GDP), and will result in consequences for public finance systems. As the population ages, the ratio of labour and capital changes, and the ratio of labour supply and demand for labour, which is a derivative of consumer demand, also changes (Börsch-Supan, 2008, pp. 52-77). With regard to the labour market, it should be clearly noted that each of these changes in the population structure has economic consequences. Due to the fact that work is the basic factor of production, changes on the labour market should be highlighted as those that will be of key importance for the functioning of the economy, the rate of GDP growth or the rate of GDP per capita growth. In this regard, first of all, mention should be made of changes in the size of the

labour force as a whole (reduction in the number of people who can take up work) and their composition (e.g. increase in the percentage of employees of retirement age). Changes in the proportions of age groups in the population will translate into changes in the functioning of the labour market, because potential employees from different age groups will differ even by the rate of market participation of work (Bloom, 2008, pp. 17-51). Another effect that can be expected will also be mismatches in the labour market by sector or by profession (for example, in connection with the increase in demand for health and social care workers related to the increase in the population aged 65+ and those 80+), which may result from changes in the structure of consumption. Attention should also be paid to the consequences that already exist on the labour market for social security systems and the possible influx of immigrants necessary to fill the gaps in labour supply (Janicka, 2015, p. 8).

According to data from the Central Statistical Office of Poland, in Jastrzębie-Zdrój, 278 people worked per 1,000 inhabitants in 2017. This value is comparable with the value for the Śląskie Voivodeship (270) and clearly higher than the value for Poland (247). Women constituted 38.5% of all employed persons, with 61.5% being men. 6.4% of the professionally active inhabitants of Jastrzębie-Zdrój (agriculture, forestry, hunting and fishing) worked in the agricultural sector, 53.4% in industry and construction and 13.2% in the service sector (trade, vehicle repair, transport, accommodation and gastronomy, information and communication), and 5.1% worked in the financial sector (financial and insurance activities, real estate market services). Unemployment in Jastrzębie-Zdrój systematically decreases from 9.9% in January 2014 to 4.1% at the end of October 2019. In view of the findings resulting from surveys on the structure of those employed and unemployed, it should be noted that among the professionally active residents of Jastrzębie-Zdrój in 2017, a positive balance of arrivals and departures for work was clearly dominant, as 2,227 people went to work in other communes, and 384 employees came to work from outside the commune. In 2017, the balance of arrivals and departures to work amounted to 14,457 employees (Jastrzębie-Zdrój w liczbach, 2019).

Another variable describing the socio-economic situation of Jastrzębie-Zdrój is the average gross monthly salary, which, in the analysed period, was 8,121.08 PLN (Bank Danych, 2019). In the years 2002-2018, a dynamic and high – over two and a half times – increase of gross monthly remuneration should be noted. It is worth noting that this was also a linear increase in the average gross monthly in relation to the average national salary, which, in the analysed period, ranged from 136.8% to 168%. This is demonstrated by the regularity of the systematic increase in the standard of living of the city's inhabitants (Figure 9).

Table 3.

Changes in the average gross monthly salary in Jastrzębie-Zdrój in relation to the national average in the years 2004-2018

Salary	Years														
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	3 408,53	3 769,78	3 965,34	4 318,46	4 822,06	4 851,26	5 213,89	6 324,79	5 974,57	6 384,43	6 536,76	6 182,71	6 131,62	6 609,12	8 121,08
2	141,5	150,4	150,4	150,7	152,7	146,3	151,8	174,5	159,6	164,7	163,3	149,0	142,9	146,0	168,0

Legend: 1. In All; 2. Average monthly gross salary in relation to the national average (Poland = 100).

Source: GUS Local Data Bank. Aggregated data in publicly available predefined tables. Salaries and social benefits.

An analogous comparison of the average monthly gross salary in the southern subregion (www.subregioncentralny2019) – in the area of Jastrzębie-Zdrój – indicates that the analysed variable was at a very high level and the prevailing among the surveyed poviats (Figure 9).

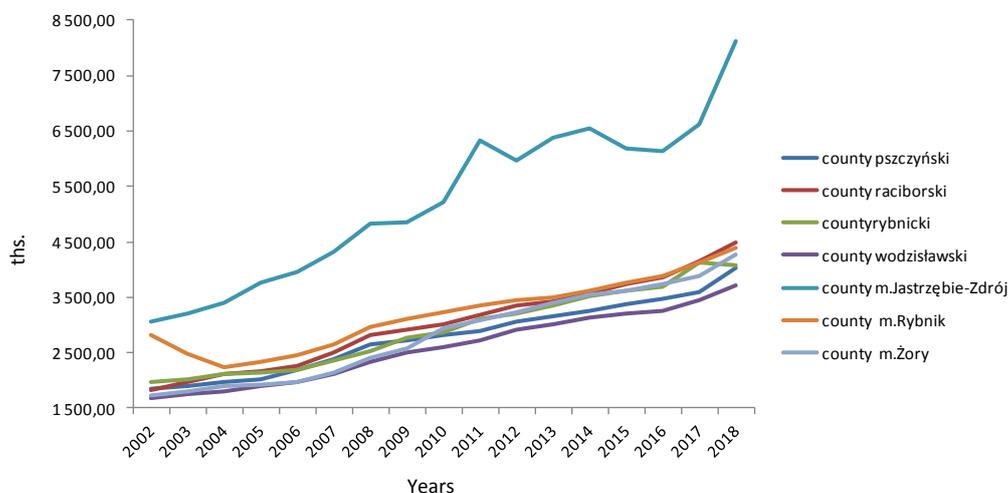


Figure 9. Changes in the average gross monthly salary in poviats and municipalities of the Rybnik subregion in the years 2002-2018. Source: GUS Local Data Bank. Aggregated data in publicly available predefined tables. Salaries and social benefits.

Research on the structure of business entities locating their activities in Jastrzębie-Zdrój clearly show the dominance of private sector entities (Table 3).

Table 4.

National Economy Entities in the REGON register in 2017 in Jastrzębie-Zdrój. As of 31 December

Specification	Total	Public sector	Private sector	From total numbers							natural persons conducting business activity
				Legal persons and organisational units without legal personality together in this						association foundations and social organisations	
				Total	Commercial law companies		civil partnerships	Cooperatives			
					total	including with foreign capital					
The municipality of Jastrzębie-Zdrój	5,836	514	5,581	1,636	450	38	535	10	228	4,200	

a Excluding persons running individual farms in agriculture.

Source: Silesian Voivodeship. Subregions, powiats, gminas in 2018, ed. Statistical Office in Katowice, Tab. 1 (89), p. 413.

The share of these entities at the end of 2017 amounted to over 95%. The remaining 5% were entities corresponding to the public sector. The distribution due to legal subjectivity was as follows: most were natural persons conducting business activity and civil law partnerships, 71.9% and 9.2%, respectively.

Conclusions

Based on the conducted analyses and research, it can be concluded that the dynamic process of ageing of labour resources is clearly noticeable on the labour market of Jastrzębie-Zdrój – in the segment related to the labour supply stream. Based on the above conclusion, it seems that the need to subordinate the policies implemented in the city to the process indicated is justified. Taking into account the implemented and planned policies aimed at successfully shaping the social and economic development of the city, it seems they should primarily focus on such phenomena as:

- clearly disturbed feminisation rate,
- serious shortages of women in the age group 20-29 (age of the highest matrimonial activity),
- unnatural number of women in the oldest age groups,
- a clear decrease in the number of marriages,
- significant decrease in the number of births,
- negative birth rate,
- extremely low fertility,
- extremely low gross reproduction rate,
- low demographic dynamics ratio,
- dynamically growing demographic load indicator.

The clearly unfavourable phenomena indicated above, equally unfavourable to the development of the labour market, is the age structure of Jastrzębie-Zdrój's population. As a result of the processes taking place in the age structure on the labour market of Jastrzębie-Zdrój, determined by the above phenomena, one should expect further dynamic stratification of the streams of labour demand and labour supply. The stratification will first of all be implied by a clear increase in the population of those in the retirement age (occupational inactivity), with a simultaneous decline in the population in the age group characterised by demographic youth and those with the highest professional activity and mobility. As a result of the above-mentioned processes on the Jastrzębie labour market, a clear increase in the inactive population should be expected. In addition, it should be noted that indirectly indicated changes and forecast trends are perpetuated by the negative migration balance (depleting the labour market in the

most active age groups of labour resources), very low share of people with higher education in the population of Jastrzębie-Zdrój (Miłaszewicz, 2016, pp. 109-120), very high – one of the highest in the voivodship – share in families with children in the total population in Jastrzębie-Zdrój by number of children up to 24 (a key determinant of the growth of the NETTs population) (The Social Exclusion, 2004), as well as a very high proportion of men in deaths of people aged up to 65 due to cardiovascular disease (more than three times higher than among women) (Jastrzębie-Zdrój w liczbach, 2019).

All the changes, processes and forecasts outlined above indicate that in order to limit stratification in the Jastrzębie labour market, which are the main source of structural mismatches, it is necessary to take measures aimed at building the future shape of urban policies, especially in old age. Failure to take this type of action may delay the preparation of Jastrzębie-Zdrój for changes in the age structure of the population living in the city, which seems inevitable.

Based on the above conclusions, it seems that the biggest contemporary challenge for the communities, institutions and people creating the future of Jastrzębie-Zdrój may be to maintain the professional activity of the ageing population of Jastrzębie-Zdrój while building a modern active social policy and labour market corresponding to the economic structure of the city. On the basis of the assessments and forecasts developed, it should be considered to develop a long-term programme for Jastrzębie-Zdrój that would determine the minimisation of the already mentioned negative phenomena occurring on the labour market during the demographic change phase (Wojdyło-Preisner, 2010, pp. 157-158).

References

1. *Aktywność ekonomiczna ludności Polski, IV kwartał 2013 r.* (2014). Warszawa: GUS.
2. *Analiza regionalnego rynku pracy. Podręcznik prognozowania* (2009). Katowice: Wojewódzki Urząd Pracy w Katowicach.
3. Attewell, P., Newman, K.S. (eds.) (2010). *Growing Gaps: Educational Inequality Around the World*. New York: Oxford University Press.
4. Bank Danych Lokalnych GUS, *Wynagrodzenia i świadczenia społeczne*, <https://bdl.stat.gov.pl/BDL/dane/tablica>.
5. Bański, J. (2002). Typy ludnościowych obszarów problemowych. In: J. Bański, E. Rydz (eds.). *Spoleczne problemy wsi. Studia Obszarów Wiejskich, nr 2*. Warszawa: PTG, IGiPZ PAN.
6. Bloom, D., Canning, D. (2008). Global Demographic Change: Dimensions and Economic Significance. *Population and Development Review, Vol. 34*. Population Ageing, Human Capital Accumulation, and Productivity Growth.

7. Börsch-Supan, A. (2008). The Impact of Global Ageing on Labour, Product, and Capital Markets. *Population and Development Review, Vol. 34*. Population Ageing, Human Capital Accumulation, and Productivity Growth.
8. Celińska-Janowicz, D., Miszczuk, A., Płoszaj, A., Smętkowski, M. (2010). *Aktualne problemy demograficzne regionu Polski wschodniej*. Warszawa: Centrum Europejskich Studiów Regionalnych i Lokalnych EUROREG.
9. Czapiński, J., Panek, T. *Social diagnosis 2009 the subjective quality and objective conditions of life in Poland*.
10. *Education at a Glance 2011: OECD Indicators*, http://www.oecd.org/document/2/0,3746,en_2649_39263238_48634114_1_1_1_1,00.html.
11. European Commission i Economic Policy Committee (2012). *The 2012 Ageing Report. Economic and budgetary projections for the 27 EU Member States (2010-2060)*. European Commission, European Economy, 2.
12. Frąckiewicz, L. (2003). Problemy demograficzne Polski. *Problemy Polityki Społecznej. Studia i Dyskusje, nr 5*, passim.
13. Holzer, J. (1999). *Demografia*. Warszawa: PWE.
14. [http://www.polskawliczbach.pl/Jastrzębie-Zdrój#ixzz4c8NxSLVM2019](http://www.polskawliczbach.pl/Jastrz%C4%99bie-Zdr%C3%B3j#ixzz4c8NxSLVM2019).
15. <http://www.subregioncentralny.pl/wizytowki-miast-i-gmin.html>.
16. Janicka, M. (2010). *Liberalizacja przepływów kapitałowych w gospodarce światowej: przypadek Polski*. Wydawnictwo Uniwersytetu Łódzkiego.
17. *Jastrzębie-Zdrój w liczbach*, <http://www.polskawliczbach.pl/2019>.
18. Jungblut, J.M., Mascherini, M., Meierkord, A., Salvatore, L. (2012). *NEETs – Young people not in employment, education or training: Characteristics, costs and policy responses in Europe*. Luxembourg: Publications Office of the European Union.
19. Kaa, van de D.J. (1999). *Europe and its Population. The long View European Populations*. Dordercht: Unity in Diversity.
20. Kaa, van de D.J. (1987). Europe's Second Demographic Transition. *Population Bulletin, no. 42*, p. 1. Washington: Population Reference Bureau Inc.
21. Kryńska, E., Kwiatkowski, E. (2010). Polityka państwa wobec rynku pracy: idee ekonomiczne i rzeczywistość. *Polityka Społeczna, nr 5-6*. Warszawa: IPiSS.
22. Krysiak, I. (2007). *Wyzwania współczesnego rynku pracy*. In: J. Tokarz (ed.), *Rynek pracy a osoby bezrobotne 50 plus. Bariery i szanse*. Warszawa: Akademia Rozwoju Filantropii w Polsce.
23. Marszowski, R. (2018). Aktywizacja zawodowa ludzi młodych w koncepcji aktywnej polityki społecznej. *Zeszyty Naukowe Politechniki Śląskiej Seria Organizacja i Zarządzanie, z. 132*. Gliwice.
24. Marszowski, R. (2017). Regres demograficzny w województwie śląskim. Źródła i następstwa. *Międzynarodowe Studia Społeczno-Humanistyczne. Humanum, nr 2*. Warszawa.

25. Miłaszewicz, D., Siedlikowski, R. (2016). Zmiany demograficzne i procesy migracyjne oraz ich oddziaływanie na rynku pracy. *Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach*, nr 276.
26. Mrozowska, S. (2014). „Młodzież” w strategii Unii Europejskiej Europa 2020. In: M. Boryń, B. Duraj et al. (eds.), *Polityka Młodzieżowa Unii Europejskiej*. Toruń: A. Marszałek.
27. Orczyk, J. (2005). *Polityka społeczna. Uwarunkowania i cele*. Poznań: AE.
28. Poczowski, A. (2008). *Zarządzanie zasobami ludzkimi. Strategie, procesy, metody*. Warszawa: PWE.
29. *Prognoza ludności na lata 2014-2050* (2014). *Ludność według płci i funkcjonalnych grup wieku, stan w dniu 31.XII*. Warszawa: GUS.
30. Runge, J. (2015). Regionalne i lokalne konsekwencje współczesnych przemian demograficznych Polski – elementy metodologii badań. Przykład województwa śląskiego. *Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach*, nr 223. Katowice.
31. Rybicka, K. (2014). Sytuacja młodzieży na polskim rynku pracy. *Studia i prace Wydziału Nauk Ekonomicznych i Zarządzania*, nr 37, t. 2. Uniwersytet Mikołaja Kopernika w Toruniu.
32. Strzelecki, Z. (2010). Współczesna i przyszła sytuacja demograficzna cywilizacji zachodniej. In: J. Osiński (ed.), *Współczesna cywilizacja zachodu. Atuty i słabości*. Warszawa: Oficyna SGH, pasimm.
33. Sytuacja demograficzna województwa śląskiego (2011). In: *Wyzwania rozwojowe gmin województwa śląskiego w kontekście zachodzących procesów demograficznych*. Katowice: Urząd Marszałkowski Województwa Śląskiego.
34. Trafiałek, E. (2006). *Starzenie się i starość*. Kielce: Wszechnica Świętokrzyska.
35. Wojdyło-Preisner, M. (2010). Ewolucja programów zatrudnienia. In: Z. Wiśniewski, K. Zawadzki (ed.), *Aktywna polityka rynku pracy w Polsce w kontekście europejskim*. Toruń: Wojewódzki Urząd Pracy, Uniwersytet Mikołaja Kopernika.
36. *Zdrowie kobiet w Polsce w latach 2004-2009* (2012). Kraków: GUS.