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THE DEMOGRAPHIC DETERMINANTS OF DEVELOPMENT IN THE LOWER SILESIA REGION BY THE YEAR 2050

UWARUNKOWANIA DEMOGRAFICZNE ROZWOJU DOLNEGO ŚLĄSKA DO 2050 ROKU

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Abstract: The provision of the conditions for continued socio-economic development is one of the fundamental objectives for regions. In an age of intensive changes in the global economy, demographic determinants seem to play a heightened role, as the quality and supply of human resources in regions largely determine their capabilities and paths of development. This paper aims to provide a forecast of the long-term demographic changes expected to arise in the Lower Silesia region of Poland, along with their projected effects upon the development potential of the region as a whole. This study was prepared on the basis of publicly available statistical and prognostic data for the period between 2010 and 2050. For research purposes, the region of Lower Silesia was assumed to correspond with the administrative area of the Lower Silesia voivodeship. The study employs the following research methods: literature studies, simple statistical methods, and ratiocination from statistical data.

Keywords: development, region, Lower Silesia, economic analysis of population distribution by age.

Streszczenie: Rozwój społeczno-gospodarczy jest podstawowym celem działania regionu. W dobie intensywnych zmian, jakie mają miejsce w gospodarce globalnej, uwarunkowania demograficzne odgrywają coraz większą rolę. Jakość i ilość zasobów ludzkich determinują możliwości i kierunki rozwo-

ju. Celem artykułu jest wskazanie, jakie zmiany demograficzne będą zachodzić na obszarze województwa dolnośląskiego w długim okresie i jakie dają one możliwości rozwoju regionu. W publikacji posłużono się danymi statystycznymi i prognostycznymi za okres od 2010 do 2050 roku. Na potrzeby artykułu przyjmuje się, że województwo dolnośląskie jest tożsame z obszarem Dolnego Śląska. Zastosowane metody badawcze to: studia literaturowe, proste metody statystyczne i wnioskowanie na podstawie danych statystycznych.

Słowa kluczowe: rozwój, region, województwo dolnośląskie, analiza ekonomiczna wieku ludności.

1. Introduction

The recent upsurge of changes observed in the global economy is also distinctly reflected at the level of regions and localities. Under the current conditions, the role of demographic determinants has become fundamental in the development of regions. Human resources are invariably perceived as one of the basis of development processes, and the demographic determinants can be used to describe this class of resources and their long-term availability. As such, they may be used to forecast potential barriers in accessing human capital and providing the information needed to anticipate their negative effects and market trends. This study aims to provide a forecast of the long-term demographic changes expected in the region of Lower Silesia, together with their expected impact upon the region's development potential. This study was prepared on the basis of publicly available statistical data for the region, covering the period between 2010 and 2050. For research purposes, the region of Lower Silesia was assumed to correspond with the administrative area of the Lower Silesia voivodeship. The term "voivodeship" refers to NUTS-2 regions of the nomenclature of territorial units for statistics in European Union (Wojnarowski, 2019). The main research question for this paper is how contemporary conditions of Lower Silesia influence regional demography and what are the demography forecasts for the Lower Silesia voivodeship? The study employs the following research methods: literature studies, simple statistical methods, and ratiocination from statistical data. The theoretical section sheds some light upon such convoluted and often misrepresented terms as: development, factors of development, determinants of development, and barriers to development. The empirical section presents some of the most fundamental demographic factors determining the socio-economic development of the Lower Silesia region of Poland, along with a demographic forecast for the region up to the year 2050. The analytical evaluations were focused on the most fundamental demographic factors defining the region under study, based on a publicly available demographic forecast prepared by the Wrocław branch of the Central Statistical Office (GUS Wrocław), presenting the development potential of the region in the foreseeable future and some of the most important barriers to the region's development (*Prognoza demograficzna...*, 2017). The shape of the projected changes suggests that maintaining the present level of socio-economic development in the region will prove challenging at the very least.

2. Theoretical aspects of the region's socio-economic development

Effective development is the most fundamental objective defining the operation of any region, which can be defined as the process of transition to higher forms of organization, advanced structures and/or more developed states. Such transitions may proceed in a continuous manner or in stages, and their effects are largely positive (progressive) in character. However, the pursuit of development may, in some cases, result in the effective loss of specific properties and singularities, their vulgarization or negative perception. The effective development process includes transitions of qualitative or quantitative character, described by changes recorded per unit of time. Quantitative development is measured in numerical values reflecting the intensity of properties defining a given object or area. Qualitative development, on the other hand, reflects the transitions of the object's defining properties or attributes, often brought about as a consequence of quantitative changes.

From a general perspective, development is associated with growth, an increase in the number of units of a studied object, or an expansion of its dimensions. With reference to notions of socio-economic development, the process of development is employed to describe all complex and lasting changes that occur in the social and economic dimension, typically characterized by specific directional shift and largely irreversible (Chojnicki, 1989). In a more detailed approach, socio-economic development can be presented as a process involving anticipated qualitative and quantitative changes in economic, social, cultural, political, and institutional dimensions (Kupiec, 2008, p. 22; Miszczuk and Żuk, 2007, p. 161). In a broader perspective, the term can be employed to include growth and development, and changes of a social and institutional character (Marciniak, 1997, p. 51). A correlation was suggested wherein the economic growth results in development, and, while growth processes stimulate the increase of quantitative changes, development implies changes of a more qualitative character. Development changes are structural and multidimensional in nature, and quantitative increases result in magnifying or increasing the number of units describing a studied object. To be considered as elements of development, the observed transitions should present a positive outcome in terms of the steady progress observed over a range of consecutive units of time. Growth is typically associated with economic aspects, while development is more often described in association with a broader socio-economic perspective. Thus socio-economic development can be defined as the sum of all qualitative and quantitative changes within the economic and social realm; of a complex, long-term, structural and largely irreversible character, and affecting some of the specific properties of the individual elements of the socio-economic system (Parysek, 2018, pp. 39-40). For the most part, development is perceived as a dynamic category, while growth is believed to present a static dimension. Socio-economic development is determined by a range of factors, and their use or effects decide its course. The factors of development include both positive/stimulating elements and barriers that limit its extent.

The determinants of development represent a range of circumstances or situations which – to a lesser or larger degree – affect the course of development or stimulate its pace; this perspective also provides the potential for identifying barriers to effective development. A detailed description of the socio-economic development can be derived from analyses of the factors, determinants, and barriers.

The determinants of socio-economic development can be classified in a number of ways. One of the most straightforward typological approaches is to differentiate them into internal and external ones (Szewczuk, Kogut-Jaworska, and Ziolo, 2011, p. 15). The external determinants are defined by such factors as: legislative regulations imposed by organizational units of a higher order than the one under examination; economic stability; the socio-economic situation of the studied unit's immediate environment; modern technical, technological and tele-communication solutions. The internal determinants, on the other hand, arise directly from the characteristics of the studied segment, such as the availability of resources, individual and discerning properties, or identity. These categories of determinants provide a collective account of the conditions and circumstances that determine the operation of the studied entities. The determinants of development, under the above classification, allow for an examination of both the internal and external operating conditions of the studied unit.

Similarly, the notion of region can also be defined in a number of ways. Geographic sciences describe regions as spatial and territorially cohesive units, often characterized by the specificities of their geographic location. A regional territory can be distinguished on the basis of the historical developments that integrate local communities of a given area, or on the grounds of their specific and characteristic natural properties and conditions. Regions can also be identified directly through legislative, administrative and political decisions as units of administration, with clearly defined administrative and political borders and governed by specific socio-economic systems. Lastly, regions may be defined through culture, based on the integrity of the traditions and customs developed in historical processes (Chudobski, 2009, p. 16). The distinct character of any area can be expressed, among others, in spoken language and communication, religious beliefs, local traditions, customs, and culture (Yip, 2004, p. 411). Another approach to defining the notion of a region can be found in social sciences, with an emphasis on local solidarity between groups and communities, formed on the fundament of shared (or similar) living conditions, life pattern formulas, or models of life (Tomaszewski, 2007, p. 14). The interpretation of the notion of region is thus related to the context of the analysis and the type of region under examination. For economic regions, a distinction can be based on those region properties that are directly related to human activities and the advance of economic culture (Tomaszewski, 2007, p. 14), as well as the specificity of the economic operations and analyses of the resulting economic relations formed as a consequence of economic activities conducted in the area under study. There are many typologies of economic regions, based on such criteria as: political-administrative, economic-administrative, statistical, level of socio-economic development, economic sectors.

Modern economies are characterized by a wide differentiation of levels of socio-economic development between regions. This observation allows for classifications of regions by their level of socio-economic development, into: developed (mature), developing (characterized by continued and harmonious growth, with conditions offering further increase, but only after proper harmonization of growth processes), and backward regions (underdeveloped, requiring activation, struggling with recession) (Winiarski, 1976, p. 176). Global economic conditions seem to enhance the polarity of regions, and their effects are particularly evident for underdeveloped regions and those in recession. To this end the European Union supports socio-economic cohesion which will be continued in the period 2021-2027 (Kutwa and Szymańska, 2019). The determinants of regional development define the capacities, resources, and fundamentals for the effective individualization of regions.

3. Present demographic determinants affecting the operation of the Lower Silesia voivodeship

The modern perception of the demographic determinants of socio-economic development emphasizes their role as one of the fundamental pillars of socio-economic progress. Human resources of a region are recognized in their roles of initiating, motivating, and enabling the realization of development processes. The Lower Silesia voivodeship, the object of this study, is an administrative region situated in south-west of Poland. With a total area of 19 947 km² (the 7th biggest region in Poland), Lower Silesia includes four cities with county (PL: powiat) rights, 26 counties, 1548 rural districts, 628 town-rural districts, and 302 town districts (*Rocznik Statystyczny Województw*, 2019). The region's population has shown large fluctuations, from 2917.2 thousand in 2010, following a reduction by around 0.45% in 2015, down to 2901.2 thousand in 2018. The share of males in the total population of the region in 2018 was above 48% (*Rocznik Statystyczny Województwa...* 2019, p. 106). In 2018, 68.6% of the total population of the Lower Silesia region lived in cities, allowing for the classification of the region as a highly urbanized one. The share of persons of non-productive age in the region's total population in 2010 was recorded at 52.2%, with further increases of that ratio by 7.1% in 2015, up to the level of 65.5% in 2018. For Poland, the non-productive age ratio was slightly higher (55.2% in 2010, 60.1% in 2015, and 65.1 in 2018). In 2018, the population density in Lower Silesia was 145 persons/km²; for Poland, the index was lower by 22 persons/km². Fluctuations were also observed for population growth (birth rate per 1000) in the region, with the most significant change recorded in 2015, when the ratio reached the level of -1.8 compared to a mere -0.1 in 2010; the 2018 level remained at 2015 values. Much more favourable levels were recorded for Poland (0.9 in 2010; -0.7 in 2015; -0.7 in 2018).

The general fertility rate for Lower Silesia in 2010 was recorded at 1.288, i.e. lower than that for Poland by 0.088; in 2015, the respective rates saw a distinct decrease by 0.082 for Lower Silesia, and by 0.087 for Poland; this was followed by equally significant increases up to 1.367 for Lower Silesia, and 1.435 for Poland.

The balance of internal and foreign permanent migrations for Lower Silesia in 2010 was 1385, followed by a decrease by 56.5% in 2015, and a marked increase up to 3712 persons in 2018; for Poland, this indicator was in decline for the first two periods of examination (–2114 in 2010, and –15 750 in 2015), and recorded a steep increase in 2018, up to the level of 3612 persons. The balance of internal and foreign permanent migrations per 1000 inhabitants for the Lower Silesia region was 0.5 in 2010, down to 0.3 in 2015, and up to 1.3 in 2018; for Poland, the respective values were recorded at –0.1 in 2010, down to –0.4 in 2015, and up to 0.1 in 2018. For Poland, the balance of internal and foreign permanent migrations per 1000 inhabitants was at its highest in the Mazowieckie voivodeship (3.5), and at its lowest in the Lublin voivodeship (–2.5). The ratio of population under 25 years of age was recorded for Lower Silesia at 27.1%, followed by subsequent reductions down to 24.6% in 2015, and 23.9% in 2018; a similar regression can be observed for Poland: 28.9% in 2010, 26.4% in 2015, and 25.5% in 2018. The percentage of the population aged 65 and older, in Lower Silesia was at 13.3% in 2010, followed by an increase of 2.9% in 2015, and further increase of 5.1% in 2018 (in relation to the 2010 value). For Poland, the ratios were fairly consistent with the above, with 13.5% in 2010, and an increase of 2.3% in 2015, up to the level of 17.5% in 2018. In Poland, the lowest ratio of persons under 25 years of age was in the Opole voivodeship (23.2% in 2018), while the highest value was recorded in the Pomorskie voivodeship (27.2% in 2018); the highest ratio of persons aged 65 and older was recorded in the Łódź voivodeship (19.5% in 2018), with the lowest recorded for the Warmińsko-Mazurskie voivodeship, at 15.9% in 2018. Compared to the remaining regions of Poland, Lower Silesia received medium scores in both ratios, as illustrated in Figure 1.

The economic analysis of the Lower Silesian population for 2018 suggests that the percentage of persons of productive age is fairly large at 60.43%, with a relatively large number of persons of post-productive age (at 22.56%), while the number of those at the pre-productive age is relatively low (at 17.01%) (Table 1). In the productive group, the ratio of males over that of women is higher by around 6.36%. A decisive shift in favour of women can be observed in the post-productive segment of the region's population (more than 2:1).

In the pre-productive segment, there was a slight advantage of men over women (at c. 2.62%). The economic structure of population age in 2018, coupled with changes in family models and the observed trend among women to postpone their decisions to have the first child, seems adequate enough to ensure the continued operation and development in the region, but the low share of persons of pre-productive age provides poor basis for the existing age pyramid. The observed relations in the age structure of the region's general population may be seen as evidence of the negative

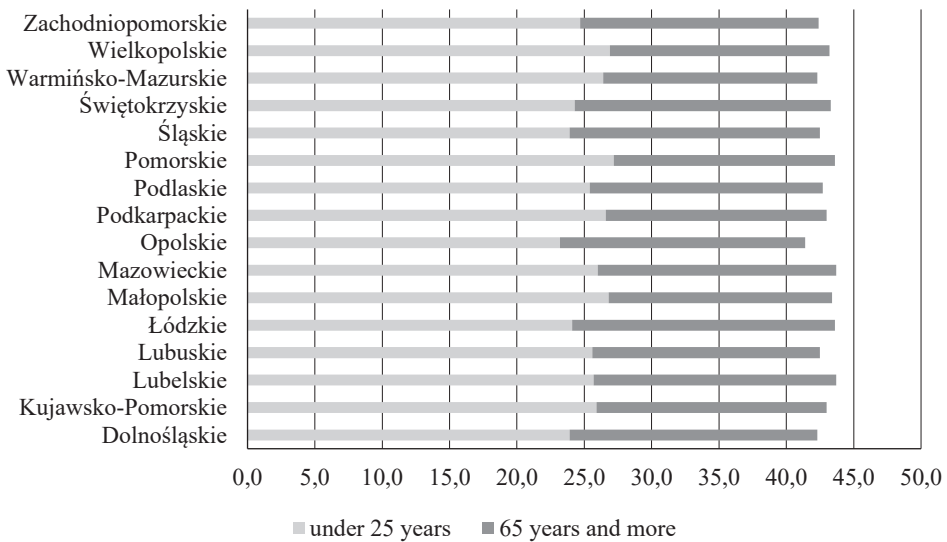


Fig. 1. Ratios of persons under 25 and over 65 for the Lower Silesia (Dolnośląskie) voivodeship, compared to other regions of Poland (as % of total population, for 2018)

Source: own study based on (*Rocznik Statystyczny Województw*, 2019, pp. 39-40).

Table 1. The economic analysis of Lower Silesian population in 2018

Age	Pre-productive	Productive	Post-productive
Total	493 594	1 753 236	654 395
Men	253 283	932 422	209 273
Women	240 311	820 814	445 122

Source: own research, based on (*Rocznik Statystyczny Województwa...*, 2019, pp. 106-107).

changes in this respect. In 2010, the share of persons of non-productive age per each 100 persons of productive age was 52.2; in 2018, the ratio increased by 13.3, suggesting a rapid change in the structure of the general population, and suggesting a wealth of unfavourable conditions for future generations, including a considerable reduction of the region’s potential for generating pro-development stimuli in a long-term perspective.

Alarming trends in this respect can also be seen from changes in the structure of the general population by gender observed in the period under study. There is evidence of a significant shift in the ratio of women in non-productive segments per each 100 persons of productive age. In relation to 2010, 2018 saw an increase of 17.7 women of non-productive age per each 100 of productive population (Table 2).

Table 2. The ratio of non-productive persons per each 100 persons of productive age (years: 2010, 2018, 2020, 2030, 2040, 2050 in %)

Year	2010	2018	2020	2030	2040	2050
The ratio of persons in non-productive age per each 100 persons in productive age	52.2	65.5	68.2	73.0	82.3	106.4
Men	39.9	49.6	52.1	57.8	61.6	82.3
Women	65.8	83.5	86.5	89.9	106.9	135.9

Source: own research, based on (*Rocznik Statystyczny Województwa...*, 2019, pp.107, 123).

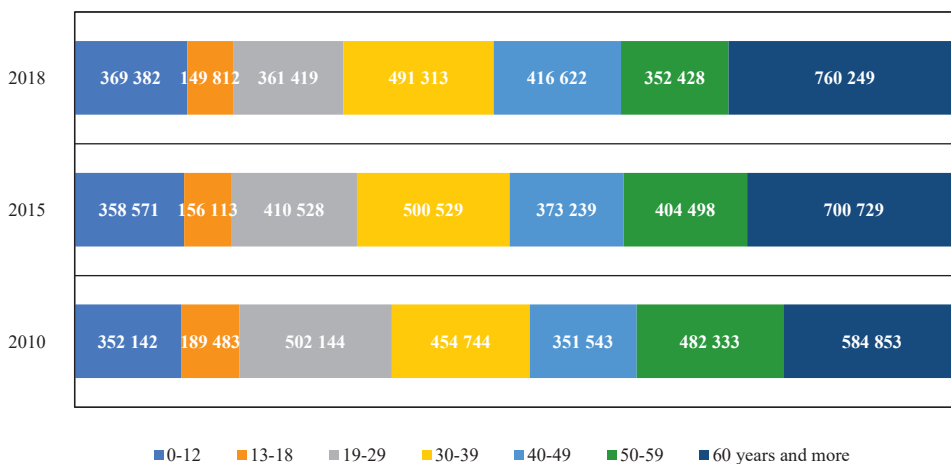


Fig. 2. Population by age group (as per Dec. 31)

Source: own research, based on (*Rocznik Statystyczny Województwa...*, 2019, p. 107).

Changes are also observed in general approach to marriage in the region: compared to 16 390 marriages in 2010, 2015 brought a reduction of 3218, to reach a total of 14 140 marriages in 2018. An evolution can be observed in the general approach to the institution of marriage and to lifestyle patterns in the region, with a sizeable increase of casual (non-formal) relationships and single households. Similar trends are recorded in the number of births and the average age of first-time mothers. Live births for the analysed period were as follows: 29 549 in 2010; followed by a decrease of around 11.1% in 2015; and down to 27 790 in 2018. The highest ratios of live births in 2018 were recorded for women in the age group of 25-34 (64.76%, including 52.2% births by women between the ages of 30-34, attesting to the rapid increase of the general trend among women to postpone their decisions to give birth.

Only 3694 births were recorded among women in the age group of 20-24, and the ratio of mothers aged 19 and less was as low as 2.65% of all births. A relatively

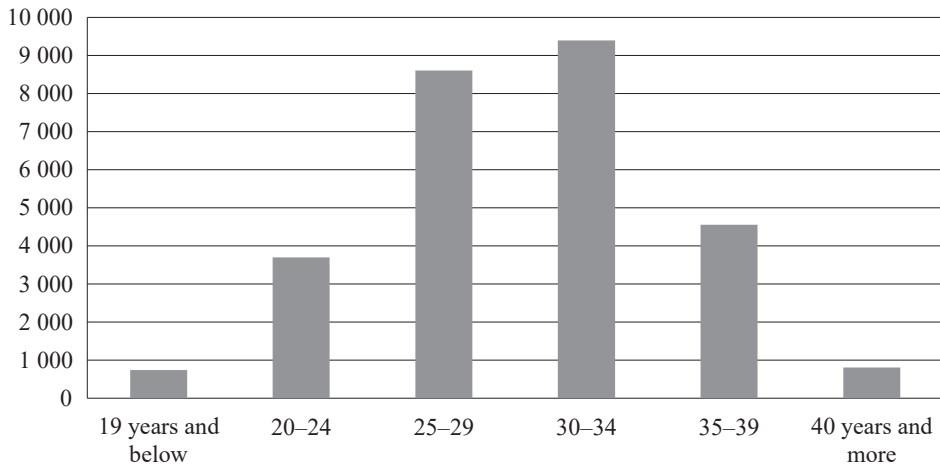


Fig. 3. Number of live births, by mother's age, in 2018 (children)

Source: own research, based on (*Rocznik Statystyczny Województwa...*, 2019, p. 116).

high birth ratio can be seen for women aged 40 and older, at 2.92% (Figure 3), and comparable to that for women aged 19 and younger. The postponement of the decision to give birth is not without consequences, including the risk of miscarriage, birth-related complications, foetal harm, infertility, and reduced probability of further births. The present decrease of live births will affect the vital statistics of the region in the years to come.

The demographic determinants of the region seem to impose specific approaches in the search for new strategies of development, typically formulated on the basis of the region's strategic and competitive advantages. The sources of such advantage need to be revisited. One of the most often used measures of development is the Gross Domestic Product. In Lower Silesia, the GDP (in current prices) was recorded at PLN 123 353 million in 2010; PLN 155 816 million in 2015; and PLN 166 095 million in 2017 (own study, based on *Rocznik Statystyczny Województwa...*, 2019, p. 367). Similar growth trends were observed in relation to per capita GDP in the region: PLN 42 295 in 2010, PLN 53 659 in 2016, and PLN 57 228 in 2017. Gross added value generated in Lower Silesia was at PLN 108 562 million in 2010, with an effective increase of 34.36% observed in 2017. Industry remained as the prime source of economic profit in the region, but its share in gross added value is in slow decline (by 2.2% in 2017 in relation to 2010). This trend is accompanied by a slow increase in the share of services in gross added value production in Lower Silesia, including services of a higher order, related to new technologies, techniques, and tele-communication.

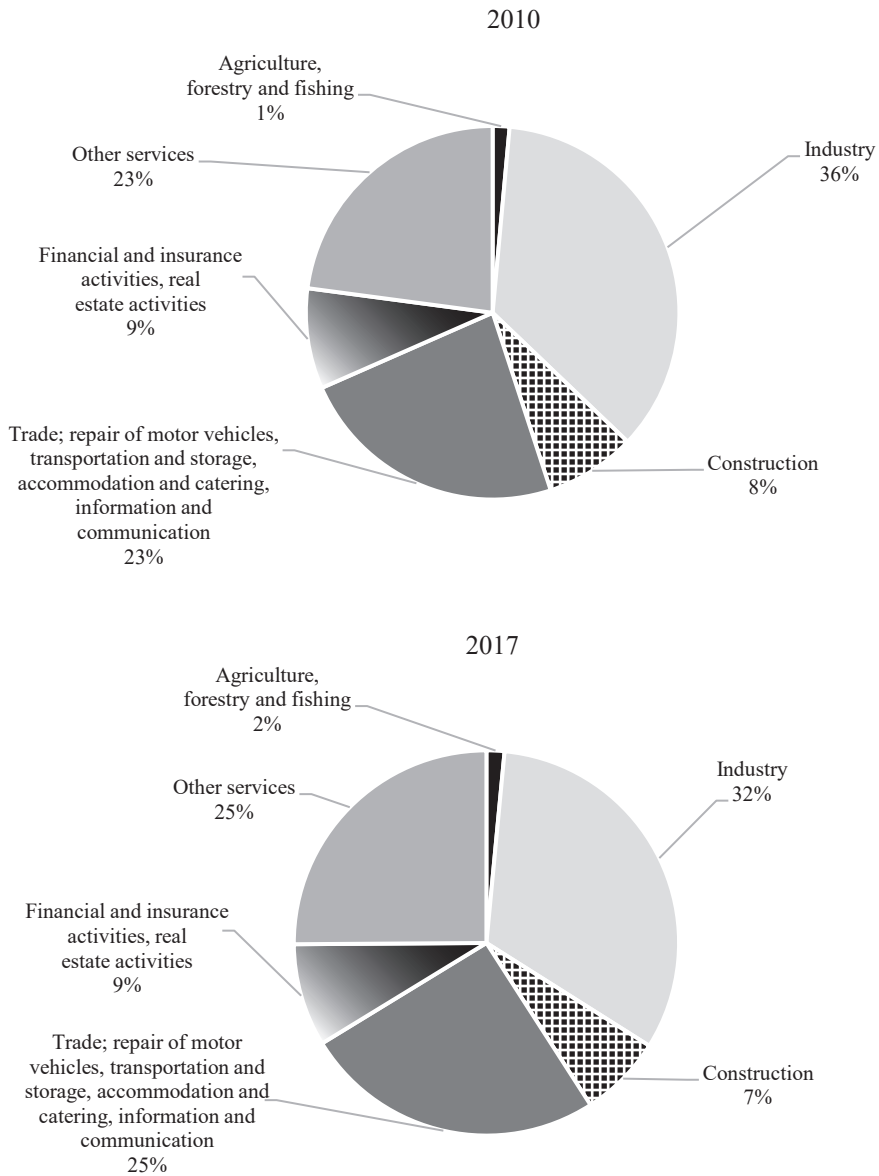


Fig. 4. The share of economic segments in the added value creation in Lower Silesia, in the years 2010 and 2017 (in %)

Source: own study, based on (*Rocznik Statystyczny Województwa...*, 2019, p. 367).

The changes observed in the region are clearly associated with transition in demographics and generally adopted lifestyle models. With the observed decrease

of the region's general population, the increased emphasis on the development of modern sectors (new technologies, techniques, and tele-communication) can be viewed as a reasonably effective foundation for future development. This strategy will be continued in the years to come, to ensure the proper sustenance of the present development processes despite the negative effects brought about by demographic trends.

4. The region's demographic forecast up to 2050

The present demographic forecast commissioned by the Lower Silesia voivodeship provides evidence of many negative trends, and ones that will surely exacerbate in the years to come. The forecast was prepared by regional offices of the Central Statistical Office, with the forecast horizon of 2050. The most significant trend is the rapid decrease of the general population in Lower Silesia. An overview of the region's population for the year 2018 with a 2020 forecast horizon suggests a slight (1.2%) decrease of population in the region. However, the 2020-2050 forecast shows an effective decrease by as much as 13%.

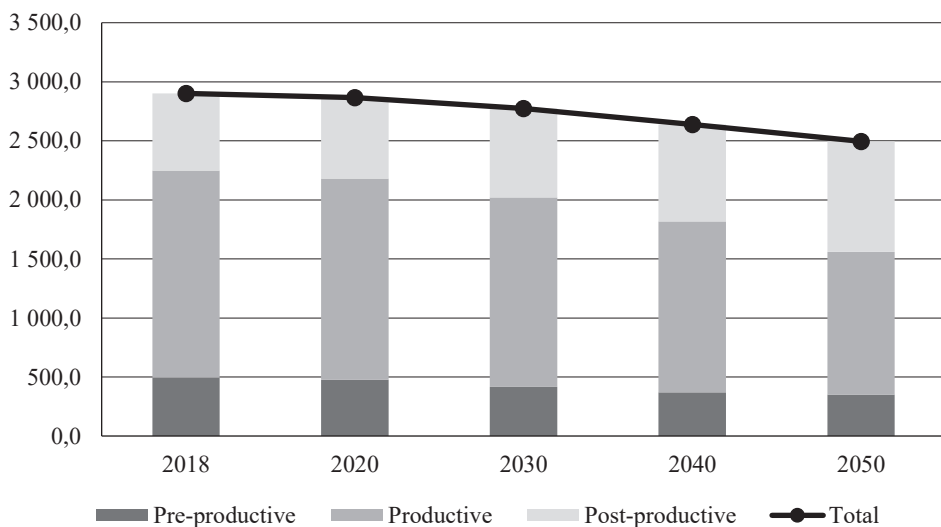


Fig. 5. Economic analysis of population age in the Lower Silesia region, in the years 2020-2050 (in thousands)

Source: own research, based on (*Rocznik Statystyczny Województwa...*, 2019, p. 123).

In the short term, the ratio of persons in their productive age, as recorded in 2018 and in relation to the 2020 forecast, shows a decline by 48.9 thousand persons. An

alarming pace of decline can be observed with respect to the share of productive persons in the general population. In the period 2020-2050, this ratio is expected to drop from 59.46% to 48.45%. This will directly affect the ratio of persons of post-productive age in the above forecast horizon, from 23.95% to 37.49%. At the same time, the percentage of persons of pre-productive age will decline from 16.6% to 14.05%. The negative trends of the forecasted changes will directly affect the potential for socio-economic development in the region. Assuming a further significant increase of average life expectancy in the region, the wealth of changes in the economic structure of general population will take an additional toll on the region's future potential in all aspects, including economic, social, and demographic. In 2020, the average life expectancy for women is at 80.9, with 72.5 years for men; the 2050 forecast suggests effective increases of this value as 6.4 years for women, and 8.8 for men (*Prognoza demograficzna...*, 2017, p. 1).

The forecast suggests that the share of persons of their non-productive age per each 100 persons of productive age will be at 68.2 in 2020, and is expected to rise steadily to 106.4 in 2050. In this respect, particularly dramatic increases are expected for women (from 86.5 in 2020 up to 135.9 in 2050). For men, the expected values are 52.1 and 82.3, respectively.

In 2050, in relation to the year 2020, the forecast indicates a significant decline in the number of persons of pre-productive age (by 125 thousand), accompanied by a reduction in the number of persons of productive age (by 495.2 thousand), and a dramatic increase in the post-productive age segment (by 249.1 thousand). The gender structure of the pre-production segment of population (in 2050, and compared to 2020) will be characterised by a decrease for men (by 63.7 thousand), and an equally steep decrease for women (by 61.3 thousand); for the productive segment of population, the expected decrease for men is estimated at 242 thousand, and 253.2 thousand for women (2050, in relation to 2020). An increase is expected in the post-productive segment of the region's general population, by 138.3 thousand for men, and by 110.7 thousand for women (2050, relative to 2020).

According to the forecast, no significant changes are expected by 2050 in the region with regard to the structure of individual economic segments of general population by gender (Figure 6). The only exception to the above can be found for the post-productive segment, with a significant increase in the share of men (relative to women) in this age group, of 5.92%.

The forecast also envisages some distinct trends in future developments of settlement patterns and the ratio of population distribution between cities and rural areas. Stimuli generated by the ongoing depopulation of the Lower Silesia region will result in a notable reduction of the effective supply of persons of productive age in cities (by 398.4 thousand persons in 2050, relative to 2020), but it is assumed that, within the forecast's horizon, cities will surely attract a greater share of persons of post-productive age (by an estimated 111.2 thousand), with a further reduction expected in the pre-productive segment of population living in cities (by 92.7 thousand). Rural

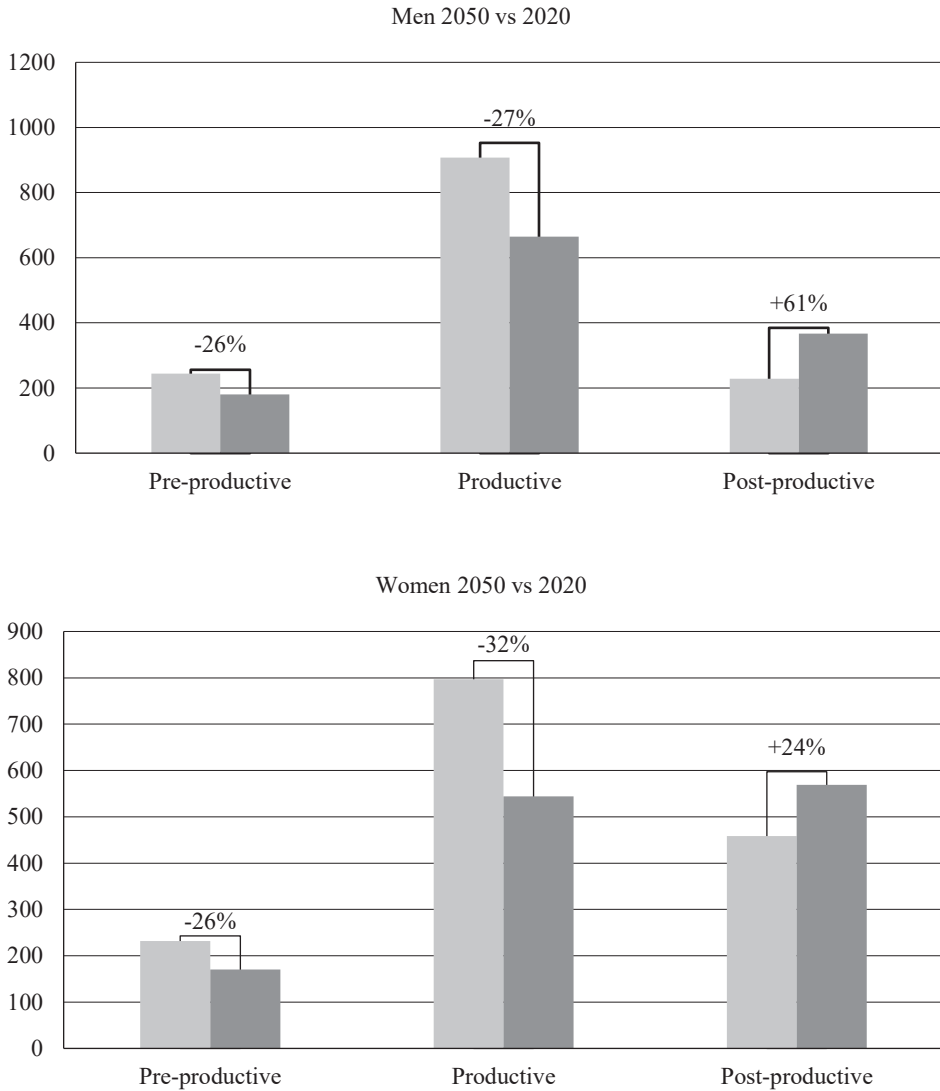


Fig. 6. Economic analysis of population age by gender, for the years 2020 and 2050 (thousand persons + dynamics)

Source: own research, based on data published in (*Rocznik Statystyczny Województwa...*, 2019, p. 123).

areas will mainly attract persons of post-productive age, with an expected increase of 137.9 thousand in the number of persons settling in rural areas of the region by 2050 (relative to 2020). A marked outflow will be observed for persons of productive age (96.8 thousand), along with a relatively large reduction in the number of persons

of pre-productive age – by 32.3 thousand (Figure 7). In the long-term perspective, the majority of people from all economic segments of the general population will choose to settle in cities – this may be seen as an optimistic prognosis, ensuring the effective support and sustenance for socio-economic development processes in this respect. Between the years 2020 and 2050, a reduction is expected in the share of the productive segment of the general population living in cities – by nearly 5.6% – with a comparable reduction for the post-productive segment (by 7.8%). These figures

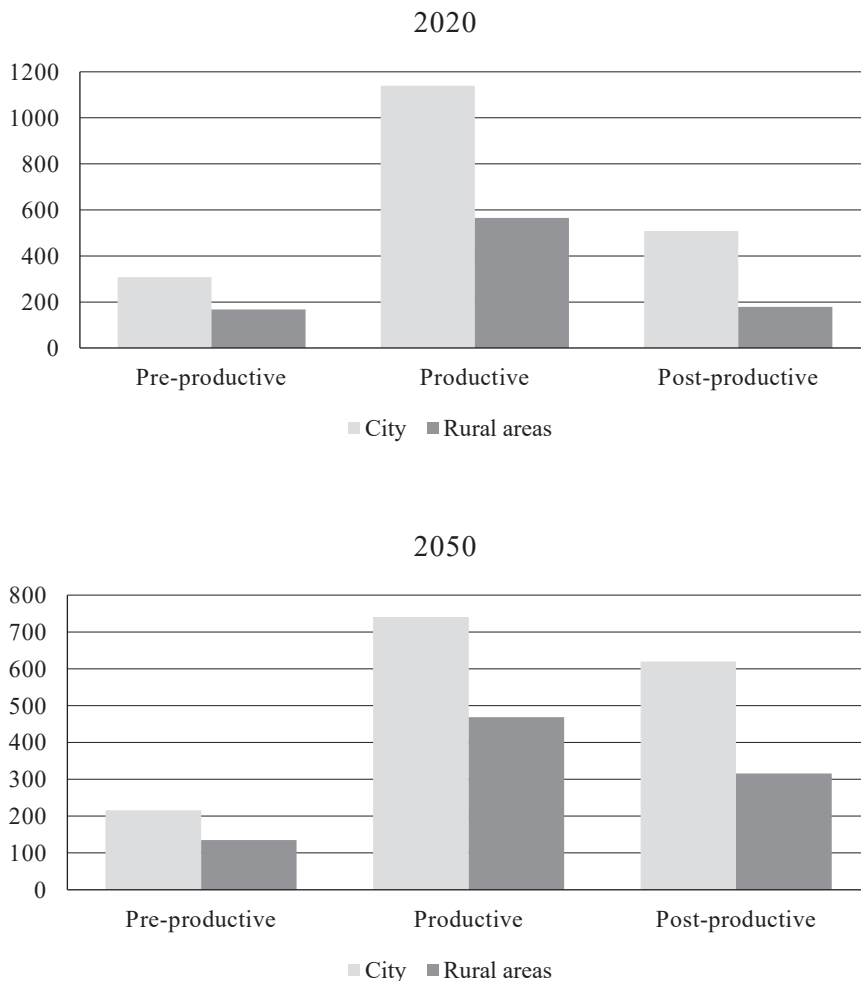


Fig. 7. Economic analysis of population age structure, by city/rural distribution, years 2020 and 2050 (in thousands)

Source: own research, based on data published in (*Rocznik Statystyczny Województwa ...*, 2019, p. 123).

may be suggestive of a more general trend of increased settlement in rural areas, but may not necessarily affect the pace of socio-economic development outside the region's cities, as the labour market is fairly reluctant to follow transitions in settlement patterns.

According to the forecast, the age pyramid distribution in Lower Silesia in 2050 will be as follows: a relatively narrow foundation, expanding slowly up to the margin of 40-44 years of age, representing the first quantitative leap (of relatively low value); more distinct changes are observed in the range of 55-79 years of age, with a culmination between 65-69 years of age; and with a relatively high share of persons aged 80 and older (*Progniza demograficzna...*, 2017, p. 2). In 2050, an estimated 54.8% of the general population will fall in the range between 15-64 years of age, suggesting a stable demographic fundament for the effective development in the region, at least in the foreseeable future, but the future basis of such development will be encumbered by the relatively low share of the youngest generation of persons between 0 and 14 years of age (as little as 11.7%); with an additional risk borne by the relatively high share of persons aged 65 and older (33.5%, including a 10.3% share in the segment of persons aged 85 and older). This situation seems to stimulate the risk of double ageing, represented by a steady increase in the share of persons aged 85 and older in the post-productive segment (i.e. persons aged 65 and older). Such a structure may result in drastic reformulations of social needs, economic inefficiency, and a weakening of pro-developmental economic and demographic stimuli.

5. Conclusion

The effective development of the Lower Silesia region of Poland is largely determined by the conditions suggested in recent demographic forecasts. The present edition of the demographic forecast for the region was employed as basis for ratiocination of the future progress in this respect. The most alarming conclusion from the forecast is the risk of a demographic crisis in the region, already evidenced by the negative changes in the structure of economic age segments of the general population. Strong ageing trends are observed throughout the entire studied period from 2010 to 2050. Another characteristic trend observed in Lower Silesia is the growing distance between patterns of labour and patterns of residence, particularly evident for people of productive age deciding to settle in rural suburbia while retaining their jobs in the cities. These negative trends are quite potent in the projected structure of the age pyramid in 2050, with evidence for the effect of double ageing through the rapid increase in the share of persons aged 85 and older in the post-productive segment of the region's population. The low ratio of persons of pre-productive age determines the narrow basis for the future age pyramid, suggestive of a relative decrease of the productive segment, with the assumed reduction of pro-development stimuli.

The ongoing transitions will directly affect the region's chances and development potential in the foreseeable future. In response to these trends, it may be advisable to introduce effective changes to the regional policies as curative measures to prevent these effects. These may include family incentives designed to stimulate birth rates and the provision of the associated social infrastructure, including security. At the same time, proper measures should be taken to transform the local economic structure with a focus on the most promising and creative segments, supported by a high level of innovation, technical and technological capabilities, and advanced telecommunication, i.e. where profit is relatively less dependent on employment figures.

References

- Chojnicki, Z. (1989). Podstawowe aspekty rozwoju społeczno-gospodarczego. *Rozwój Regionalny, Rozwój Lokalny, Samorząd Terytorialny*, (18), 107-121.
- Chudobski, A. (2009). Regionalizm jako wartość kształtującego się ładu globalnego. In A. Stępień-Kuczyńska, K. Dośpiał-Borysiak, and R. Łoś (Eds.), *Regiony Europy. Uwarunkowania, wyzwania i perspektywy rozwoju*. Toruń: Wydawnictwo Adam Marszałek.
- Kupiec, L. (2008). Jaki rozwój?, In A. F. Bocian, *Rozwój regionalny a rozwój zrównoważony*, Białystok: Wydawnictwo Uniwersytetu w Białymstoku.
- Kutwa, K., and Szymańska, A. (2019). *Polityka spójności, czyli solidarność w działaniu*. Warszawa: Polski Instytut Ekonomiczny.
- Marciniak, S. (1997). *Innowacje i rozwój gospodarczy*. Warszawa: Ośrodek Nauk Społecznych Politechniki Warszawskiej.
- Miszczuk, A., and Żuk, K. (2007). Samorząd terytorialny jako stymulator lokalnego i regionalnego rozwoju gospodarczego. In A. Miszczuk, M. Miszczuk, and K. Żuk, *Gospodarka samorządu terytorialnego*. Warszawa: Wydawnictwo Naukowe PWN.
- Parysek, J. J. (2018). Rozwój społeczno-gospodarczy oraz czynniki i uwarunkowania rozwoju. *Studia PAN KPZK*, (183).
- Prognoza demograficzna na lata 2014-2050 dla województwa dolnośląskiego*. (2017). Urząd Statystyczny we Wrocławiu. Retrieved from https://wroclaw.stat.gov.pl/download/gfx/wroclaw/pl/defaultaktualnosci/2801/2/1/1/prognozademograficzna_województwo_dolnoslaskie.pdf
- Rocznik Statystyczny Województw*. (2019). Warszawa: Główny Urząd Statystyczny.
- Rocznik Statystyczny Województwa Dolnośląskiego*. (2019). Wrocław: Urząd Statystyczny we Wrocławiu.
- Szewczuk, A., Kogut-Jaworska, M., and Ziolo, M. (2011). *Rozwój lokalny i regionalny. Teoria i praktyka*. Warszawa: Wydawnictwo C.H. Beck.
- Tomaszewski, K. (2007). *Regiony w procesie integracji europejskiej*. Kraków: Oficyna Wolters Kluwer Polska.
- Winiarski, B. (1976). *Polityka regionalna*. Warszawa: PWE.
- Wojnarowski, K. (2019). Europejska klasyfikacja NUTS i jej znaczenie dla województwa mazowieckiego. *MAZOWSZE Studia Regionalne*, (28), 52-53.
- Yip, G. S. (2004). *Strategia globalna*. Warszawa: PWE.