

Article

Challenges of Regional Development in the Context of Population Ageing. Analysis Based on the Example of Opolskie Voivodeship

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Abstract: Demographic changes, primarily the problem of progressive ageing, are one of the key challenges to development in Poland. The Opolskie voivodeship belongs to the regions characterised by extremely unfavourable demographic phenomena. This is because some population changes here have a broader dimension than on average in Poland and in the EU. Thereby, they have far-reaching as well as complex economic and social consequences in the region. Due to the fact that demographic processes are determined in the long term, and it is extremely difficult to influence them in the short term, the adaptation of social and economic spheres and, at the same time, the use of specific opportunities resulting from these changes, seems a useful strategy for regional development policy. Therefore, in the context of seniorial policy, complex, coherent and diversified activities in the sphere of growth of professional activity of elderly people, support for life-long learning, improvement of seniors' living conditions, including the development of health infrastructure, and seniors' integration in society prove to be necessary. The multidimensional concept of the 'silver economy' creates specific opportunities for using the possibilities resulting from population ageing, and minimising the unfavourable consequences of this process, in the Opolskie voivodeship. However, the implementation of this concept demands the consideration of several determinants and barriers, that consequently affect its effective functioning. The direct objective of the paper is to present the current and projected demographic situation of Opolskie voivodeship, and on its basis, to determine the challenges resulting from the ageing of society for regional development.

Keywords: regional development; silver economy; population dynamics; ageing of society; demographic changes; quality of life of elderly people

1. Introduction

At the turn of the millennium, in Europe, there were more people aged over 60 years than people aged under 15 [1]. It is projected that the share of the population aged 60 years and over in the total population in 2005–2050 will grow in almost each country of the world [2]. Population ageing is a global phenomenon that affects not only economic growth, regional development, and the accumulation of human capital, but also policy related to social benefits and insurance, as well as health care. Nowadays, due to the demographic aging in European states, it is also important to monitor life expectancy changes and investigate the determinants that affect them. Even in European countries, large regional disparities are visible, not only between EU member states, but also within these countries at the regional level, as well as between metropolitan and non-metropolitan, rural or peripheral regions [3,4].

Progressing demographic changes, increasing life expectancy, and growth of the share of elderly people in the total population (Table 1) force the necessity to change the way of thinking about the needs of an ageing society. It is observed that people live much longer and are generally healthier, whereas serious health problems occur in old age [2]. This should provoke political decision-makers to implement actions for the activation of elderly people, and to notice the specific consumers of various public services in them [5,6].

Table 1. Selected demographic indicators (European Union countries).

Country	Population		Total Fertility Rate		Proportion of Population Aged 65–79 Years		Life Expectancy	
	2008 *	2017	2007	2017	2007	2017	2007	2017
Austria	8,307,989	8,772,865	1.38	1.52	12.4	13.6	80.3	81.7
Belgium	10,666,866	11,351,727	1.82	1.65	12.5	12.9	79.9	81.6
Bulgaria	7,518,002	7,101,859	1.49	1.56	14.1	14.8	73	74.8
Croatia	4,311,967	4,154,213	1.48	1.42	14.4	14.6	73	78
Cyprus	776,333	854,802	1.44	1.32	9.5	12.1	79.8	82.2
Czechia	10,343,422	10,578,820	1.45	1.69	11.2	14.8	77	79.1
Denmark	5,475,791	5,748,769	1.84	1.75	11.2	14.7	78.4	81.1
Estonia	1,338,440	1,315,635	1.69	1.59	13.8	14.1	73.2	78.4
Finland	5,300,484	5,503,297	1.83	1.49	12.3	15.7	79.6	81.7
France	64,007,193	66,804,121	1.98	1.90	11.5	13.3	81.3	82.7
Germany	82,217,837	82,521,653	1.37	1.57	15.2	15.2	80.1	81.1
Greece	11,060,937	10,768,193	1.41	1.35	14.2	14.8	79.7	81.4
Hungary	10,045,401	9,797,561	1.32	1.54	12.3	14.3	73.6	76.0
Ireland	4,457,765	4,784,383	2.01	1.77	8.2	10.3	79.7	82.2
Italy	58,652,875	60,589,445	1.40	1.32	14.8	15.5	81.6	83.1
Latvia	2,191,810	1,950,116	1.54	1.69	14.0	14.7	70.8	74.9
Lithuania	3,212,605	2,847,904	1.36	1.63	13.3	13.8	70.7	75.8
Luxembourg	483,799	590,667	1.61	1.39	10.7	10.3	79.5	82.1
Malta	407,832	460,297	1.35	1.26	10.8	14.7	79.9	82.4
Netherlands	16,405,399	17,081,507	1.72	1.62	10.8	14.0	80.4	81.8
Poland	38,115,641	37,972,964	1.31	1.48	10.6	12.3	75.4	77.8
Portugal	10,553,339	10,309,573	1.35	1.38	13.3	15.0	79.3	81.6
Romania	20,635,460	19,644,350	1.45	1.71	12.2	13.4	73.1	75.3
Slovakia	5,376,064	5,435,343	1.27	1.52	9.4	11.8	74.6	77.3
Slovenia	2,010,269	2,065,895	1.38	1.62	12.5	13.8	78.4	81.2
Spain	45,668,939	46,528,024	1.38	1.31	12.1	12.8	81.1	83.4
Sweden	9,182,927	9,995,153	1.88	1.78	12.0	14.7	81.1	82.5
United Kingdom	61,571,647	65,844,142	1.86	1.74	11.5	13.2	79.7	81.3

Source: [7]. * The earliest time for that section.

The comparison of population change and demographic indicators in European Union member states—including, among others, birth rate and the share of elderly population—have indicated a significant demographic shift taking place in European countries. It should be emphasised that fertility rates in EU states are so low that, in 12 countries, a slight increase was reported (e.g., Romania from 1.45 to 1.75) whereas, in most countries of the EU, the trend is the opposite, despite the very low level of this rate (e.g., Italy from 1.40 to 1.32). All these results manifest in the fact that, in the entire EU, the share of the population aged 65–79 years of the total population is rapidly growing (Luxembourg is the only exception, see Table 1). Social policies of the EU countries oriented on more radical change in this sphere demand a long-term, socially accepted, and efficient influence both on the population responsible for the low birth rate, and on the group at pension age.

Poland, similar to several other countries of Central and Eastern Europe, belongs to the group of European countries that are old in terms of their demography [8]. In 1967, the country exceeded

the threshold of demographic senility, and in 1980 the threshold of advanced demographic senility. The number of elderly people is growing and, under circumstances of a decline in births and increasing life expectancy, their share of the total population is also increasing. Demographic projection shows that until 2050 the share of people aged over 65 will exceed 32% in Poland, while nowadays (2018) it is on the level of 18%. The problem of progressing demographic senility in Poland, similarly to many other parts of Europe, is also highly diversified in regional structure and in the division into urban and rural areas, which results in considerable development problems [9–11].

Because of long-lasting, permanent external migration and, in recent decades, internal outflow, the Opolskie voivodeship became the only Polish region characterised by extremely unfavourable demographic phenomena. Negative population changes have a much broader dimension here than on average in Poland. The level of the fertility rate is particularly unfavorable. Although this fertility rate will not ensure a simple generation replacement in the long run in all voivodeships in Poland, in Opolskie, it is noted at the extremely low level (e.g., in 2007—1.042, Table 2). Although this ratio has increased in all voivodeships in recent years (in Opolskie voivodeship to the level of 1.288), it is still at a level that determines the unfavorable demographic trends in the future (i.e., population decline). The decline in the population has been already clearly visible in the Opole region. While in some regions of the country the population has slightly been rising in the last decade, nowadays, Opolskie voivodeship belongs to those regions where the population has been systematically shrinking.

Table 2. Selected demographic indicators (Polish regions).

Voivodeships	Population		Total Fertility Rate		Non-Working Age Population per 100 People at Working Age		Life Expectancy Males/Females	
	2007	2017	2007	2017	2007	2017	2007	2017
Dolnośląskie	278,410	2,902,547	1.222	1.361	52	63	70.4/79.0	73.5/81.1
Kujawsko-Pomorskie	2,066,136	2,082,944	1.348	1.411	55	62	70.4/79.1	74.0/81.0
Lubelskie	2,166,213	2,126,317	1.343	1.372	60	64	70.2/80.2	73.6/82.2
Lubuskie	1,008,481	1,016,832	1.333	1.430	52	62	70.3/78.9	73.4/81.2
Łódzkie	2,555,898	2,476,315	1.243	1.409	56	67	68.7/78.7	71.9/80.8
Małopolskie	3,279,036	3,391,380	1.322	1.489	58	63	72.5/80.7	75.4/82.6
Mazowieckie	5,188,488	5,384,617	1.359	1.570	57	66	71.3/80.4	74.0/82.1
Opolskie	1,037,088	990,069	1.042	1.288	53	60	72.1/80.0	74.1/81.6
Podkarpackie	2,097,338	2,129,138	1.275	1.372	59	60	72.9/80.9	75.6/83.1
Podlaskie	1,192,660	1,184,548	1.253	1.401	59	61	71.5/80.9	74.2/82.9
Pomorskie	2,210,920	2,324,251	1.455	1.625	55	64	71.6/79.6	74.8/81.7
Śląskie	4,654,115	4,548,180	1.211	1.424	53	64	70.7/78.8	73.4/80.8
Świętokrzyskie	1,275,550	1,247,732	1.254	1.258	58	64	71.0/80.6	73.8/82.2
Warmińsko-Mazurskie	1,426,155	1,433,945	1.398	1.412	54	60	70.0/79.7	73.0/81.4
Wielkopolskie	3,386,882	3,489,210	1.393	1.579	54	63	71.4/79.5	74.1/81.6
Zachodniopomorskie	1,692,271	1,705,533	1.301	1.372	52	62	70.6/79.2	73.7/81.2

Source: [12,13].

The problem of senility is becoming one of the key challenges to development. In 2050, the share of the population aged 65 and over may reach almost 36% in Poland, and the median age will increase to 56 years (53 years in Poland). Thus, from the perspective of several decades, Opolskie voivodeship will become the oldest region in Poland in terms of demography. Therefore, there is a need for more intensive, active regional policy focused on the sphere of family, the labour market, and senior issues. Such policy should adjust the functioning of the region to adverse demographic changes, but also focus the region on a more favourable economic and demographic development path. Admittedly, challenges connected with depopulation effects are clearly articulated in strategic documents developed in the Opolskie voivodeship, however, the process of regional population ageing determines the possibilities

of accelerating economic and socio-cultural development, and also restrains regional development potential. These issues constitute one of the key development challenges.

The direct objective of the paper is to present the current and projected demographic situation of Opolskie voivodeship and, on its basis, to determine the challenges resulting from the ageing society for regional development. The paper attempts to identify the reasons for the long-term continuation of unfavourable demographic phenomena in the region with an evaluation of the results of ad hoc actions and long-term policies with counteracting results of depopulation in economic, infrastructural, and social spheres. The subject of direct deliberation is to evaluate the scope of regional population ageing, identify the causes and results of the process for the regional economy and living conditions of residents, and indicate the relevance of implementation of the assumptions of the silver economy concept in Opolskie voivodeship.

The problem of an aging society is based on the experience of the Opolskie voivodeship, which is a region perceived for several decades as a region of occurrence of extremely unfavourable demographic phenomena. Although processes of a similar nature are also observed in other European regions (including the central part of Spain—Castile; the south of Italy—e.g., Sicily; in the north of Finland, and in some regions of Bulgaria and Romania), Opolskie voivodeship (characterised by the lowest fertility rate in Poland and one of the lowest fertility rate in the EU, continuously negative balance of external and internal migrations, very rapid growth of old age index) is found in the leading position among depopulating regions of Europe, with projections of further negative changes to the population structure.

The added value of the paper is to present the specificity of the demographic situation in the Opolskie voivodeship against the background of Poland and Europe, as well as the formulation of challenges facing regions which have experienced the deepening problems of an aging population in a range of regional policies, including senior policy.

2. Literature Review

Population ageing in Poland results from many reasons of a demographic character (e.g., declining number of births), economic character (e.g., foreign migration of young people), and social character (late marriages or living in non-formalised relationships). There are also many diverse consequences of this process, and challenges facing Polish society and economy in this sphere [14,15]. Many studies show that, for several decades, the main reasons leading to population ageing include structural population changes, that consequently bring decline in fertility, stagnation in population growth, and new relations in sex, age and population structure [16,17]. Economic and social consequences of the process are broadly analysed [1,18,19]. Priority areas of these changes include the labour market, in which the effects of declining labour resources and their ageing are reflected. Population ageing in Poland will not only bring a decline in employment, decrease in GDP and individual incomes, but will also weaken the possibilities of financing consumption of elderly people from the state budget [20]. Elderly people work less frequently and save less, which represents considerably smaller contribution to building the potential of economy development [2]. On the other hand, the expenditure of the public sector related to the creation of the system of long-term care of the elderly, and challenges in the sector of medical and social services are growing [21].

The main reasons for intensifying the depopulation process, and consequently accelerating population ageing in Poland include the massive emigration of Polish people. This process intensified in 2004 and brought an exodus of young people. The change in the migration model of Poland, from the country of emigration to the country of migration, that has been revealed on a larger scale since 2010, compensates for this outflow of human resources only to some extent [22,23], yet it is not sufficient to prevent regional population ageing [24,25]. In the European Union, the processes related to the ageing of societies is mainly analysed in the context of the shift of populations towards metropolitan regions and the gradual concentration of young people and immigrants in these places, as a result of the continuation of current demographic trends and preventive policies [26]. On the other hand, in Polish

regions with no metropolis (e.g., Opolskie), a negative impact of these processes on their development potential, competitiveness of regional economies, and quality of life is observed (e.g., [27–29]).

Demographic changes in regions are also strongly affected by new trends in Polish and European social policy. Many analyses show that lowering the retirement age in Poland (60 years for women and 65 for men since 2017) [30] significantly affected the situation of the labour market and forecasted a decline in professional activity in the future [18]. Furthermore, a lower retirement age will considerably decrease future pensions, and it will increase the number of paid minimum pensions and costs related to them [31]. Longer lifespan expands the demand on means necessary to meet the needs in the period of old age, and a lower retirement age increases these needs even more. The current load on working-age population is significantly growing. Already, in 2004, the World Economic Forum emphasized the value of increasing the retirement age and the role of the public as well as private sectors in encouraging workers to continue employment [32]. Under conditions of demographic crisis, entrepreneurs will have to be more open to elderly workers if they show willingness to work. This openness can become the key competitive advantage for companies and regions encouraging greater openness to the labour resources of elderly people.

On the other hand, EU policy towards population ageing considers several areas of intervention and focuses mainly on including these issues in the main trend of public policy through the employment policy, equal opportunities, innovative and science policy, as well as life-long learning [33]. The issues of population ageing are also increasingly referred to in the context of challenges facing regional policy [34,35]. Emphasising the need to consider negative demographic changes in regions, and the challenges related to them, is a vital element of these analyses. On the other hand, positive aspects of population ageing (including longer life expectancy, improvement of the health condition of elderly people, growth of their social activity and on labour market) are also noticed. Together with the growing share of elderly people in the population structure, they are becoming a new paradigm for regional development (e.g., [36,37]).

The silver economy, perceived in multi-sectoral categories, can be the answer to the challenges [38]. The silver economy, also known as the senioral economy, is focused on the needs and demands of the elderly population and, at the same time, it aims at their activation and support for independence [39,40]. What is vital in the silver economy is the change in the attitude to the phenomenon of population ageing, from approaching it as a threat in economic terms to perceiving it as market potential and the opportunity for development [41,42]. In the opinion of the European Commission, the silver economy is “a combination of good living condition (high level of education, research and development, sensitive and flexible markets) with growing purchasing power of elderly consumers, that offers new opportunities of economic growth” [43]. The role of human capital in regional development is very important. Gennaioli et al. demonstrated that, on an example of 1569 sub-national regions from 110 countries, regional education is the critical determinant of regional development because it influences regional development through the education of workers, entrepreneurs, and substantial externalities, which come primarily from education. They found that better educated regions have larger and more productive firms [44].

The silver economy is a very broad term and comprises, among others, goods and services for elderly people, healthcare, smart living, the adaptation of houses, information and communication technologies, media, service-providing robots, solutions for mobility, recreation, fitness and wellness, care assistance, insurance, education, research and development work and even clothes and fashion [33,38,45,46]. The starting point for the recognition of the role of the silver economy as the chance for development is assuming that the process of population ageing comprises complex results whose negative impact can be limited, and which public intervention can be undertaken to address while using the achievements of scientific and technological progress [47]. The concept of the silver economy postulates an increased interest not only in elderly people, but also in people right before reaching old age, as well as groups, institutions, and organisations whose activities are targeted at seniors [41].

3. Materials and Methods

Desk research—a secondary data analysis—was considered useful by the authors in order to establish a theoretical framework of the situation, perspectives, and challenges of regional development in the context of population ageing (with a focus on Opolskie voivodeship), to present the silver economy approach, and to discuss the quality of life among elderly people in the region. In order to accomplish these tasks, the following sources were used:

- academic literature;
- national and regional reports;
- websites dedicated to demographic problems, the silver economy, and the quality of life of elderly people;
- statistical data.

Based on this approach, demographic determinants of the region development were presented and challenges in the sphere of senioral policy were proposed. The research was also conducted on the basis of the authors' expert knowledge resulting from research and analyses (especially the report [48–52]). Demographic phenomena analysed in the paper are shown with the use of statistical data, and differences in the quality of life of elderly people in diverse spatial structures are discussed (EU, Poland, Polish regions, Opolskie voivodeship).

Data regarding the demographic situation in Poland and Opolskie voivodeship come from the system of public statistics (Central Statistical Office). In the sphere of predicted demographic changes, the analysis was based on the population projection for 2014–2050 [48]. It is essential that data included in the projection concern the category of population by the so-called national definition of domicile, and not by the residing population without residents who have been abroad for a period of over 12 months (residing population is a category of population developed for the needs of international statistics with the use of the criteria of an international definition of usual resident population [53]). This distinction is of key significance to the evaluation of the demographic situation in Opolskie voivodeship, because in practice it means that the population adopted as the basis for the projection of population changes in 2014–2050 is overstated with respect to the population actually staying in the region. Research shows that the difference between both categories of population represents almost 12% in the region [49]. These differences mainly result from a large scale of emigration abroad, both definitive (permanent), and temporary (for at least 12 months) [50,51]. Both were not registered in current records, in which only the fact of de-registering from the permanent address is registered. This situation causes problems regarding the proper registration of migration gain in Opolskie voivodeship. Consequently, incomplete information about the real size of migration outflow results in the overstatement of the number of people in the region. A new projection of the residing population in Poland until 2050 considers registered long-term migration [52], however it does not refer to the regional level (voivodeships). The projection of 2015 does not significantly change the future demographic processes associated with the dynamic decline of the population, even though some changes may proceed slightly more slowly (Figure 1) (e.g., [54]).

Data from the system of public statistics (Local Data Bank of the Central Statistical Office) were used in the diagnosis of the current situation of elderly people in the sphere of conditions and quality of life. On the other hand, in the analysis of the instruments of regional policy targeted at the needs of elderly people, two documents implemented at the level of Opolskie voivodeship were analysed. They were: The 'Development Strategy for Opolskie Voivodeship until 2020' (because it is the most important strategic document on the level of the region) and "Opolskie dla Rodziny" (Opolskie Voivodeship for Families)—the 'Project of Special Demographic Zone until 2020' (because it is a pioneering project on the national scale—it is perceived as unique on the EU scale and contains the concept of regional management in the situation of permanent loss of human resources). In practice, the focus was on actions referring to elderly people in Opolskie voivodeship in terms of typical instruments of regional, senioral policy, as well as selected results of these actions.

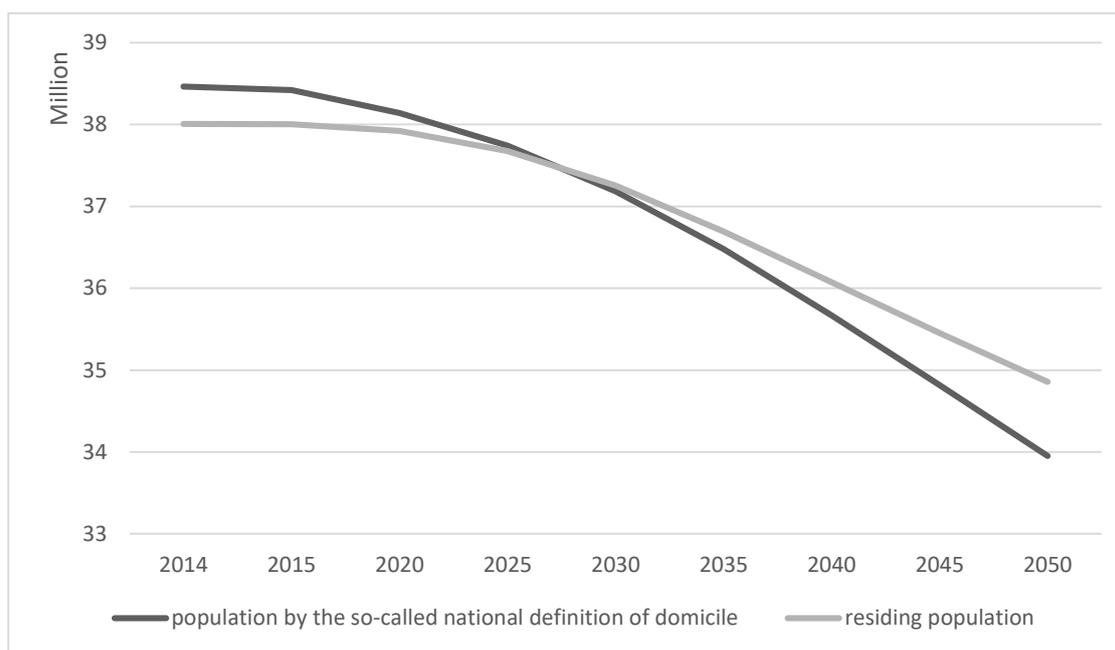


Figure 1. Projection of population decline in Poland until 2050 by the so-called national definition of domicile and by residing population (in million). Source: Own study based on the [47,48,51,52].

4. Present Situation and Perspectives of Demographic Situation in Opolskie voivodeship

The population of Opolskie voivodeship reached the highest level in the late 1970s and the beginning of 1980s, but already from the mid-1980s, a continuous decline in the number of people is observed. Negative population growth and, at the same time, negative net migration, are determinants shaping such an unfavourable population situation. Net migration has been taking negative values since 1950s [55]. Despite the fact that positive balance of internal migrations occurred from time to time, registered net foreign migrations constantly reached negative values that were so high that total net migration was also negative. In some years, absolute value of net migration was many times higher than the size of population growth, e.g., 1985–1989 (over 100%) and 1994–2002 (over 200%) [56]. Negative population growth has been observed since the end of 1990s mainly due to the fact that, for several decades, women from Opolskie voivodeship were characterised by the lowest fertility rate in Poland. In 2011, total fertility rate reached only 1.1 here, in comparison to the mean value of 1.3 in Poland.

Negative population growth, together with negative net migration, bring continuous decline in the population of the region and, thus, unfavourably affect the future demographic situation. In light of the demographic projection, in 2050, the population of Opolskie voivodeship will represent around 74% of the population of 2013, whereas in Poland, this rate will reach around 88%. The scale of population decline is therefore greater than the average for Poland (Figure 2).

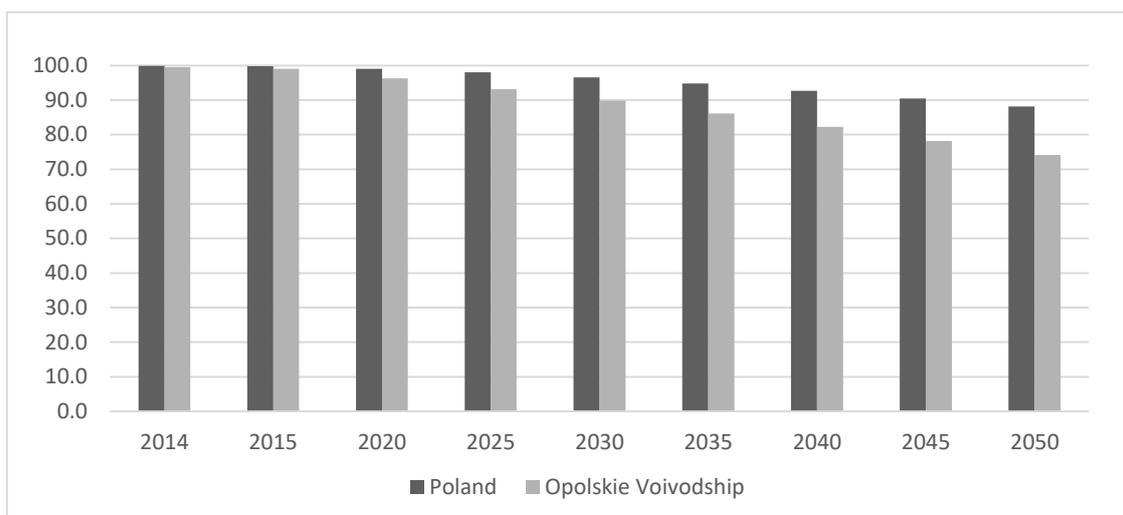


Figure 2. Changes of population in Poland and in Opolskie voivodeship until 2050 (2013 = 100%). Source: Own study based on the [48].

The projected population decline in Opolskie voivodeship concerns both cities and rural areas. However, it is predicted that the dynamics of population loss will be diverse in the urban–rural structure, while cities will be depopulating with a greater intensity than villages. The population of cities in 2050 can represent only around 70% of the urban population of 2013, whereas the rural population, 80% (Figure 3). The possibility of such high population losses in urban areas (almost 30%) and rural areas (nearly 20%), from the perspective of 2050, shows the scale and significance of demographic changes in the Opolskie region for processes of building sustainable regional development in Poland among others [for example look at [57]. Faster dynamics of population decline in cities will be caused by lower urban growth in cities, accompanied by very dynamic processes of suburbanization in recent years, as well as a high scale of foreign migration of residents of cities.

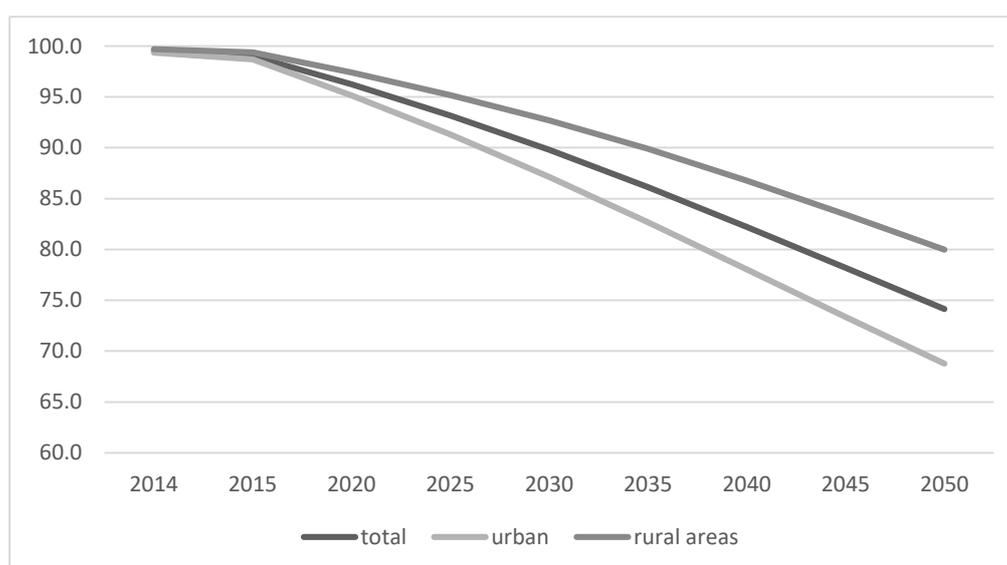


Figure 3. Changes in population in cities and in rural areas of Opolskie voivodeship to 2050 (2013 = 100%). Source: Own study based on the [48].

The number of children up to 14 years of age and people up to 64 years of age is regularly falling, while at the same time the population aged 65 and older is growing (Figure 4). This means that a clear change in the population structure, in terms of biological age groups, is occurring. It is forecasted that

in 2050 the share of people aged 65+ will be three times higher than the share of children. At the same time, the average life expectancy is increasing.

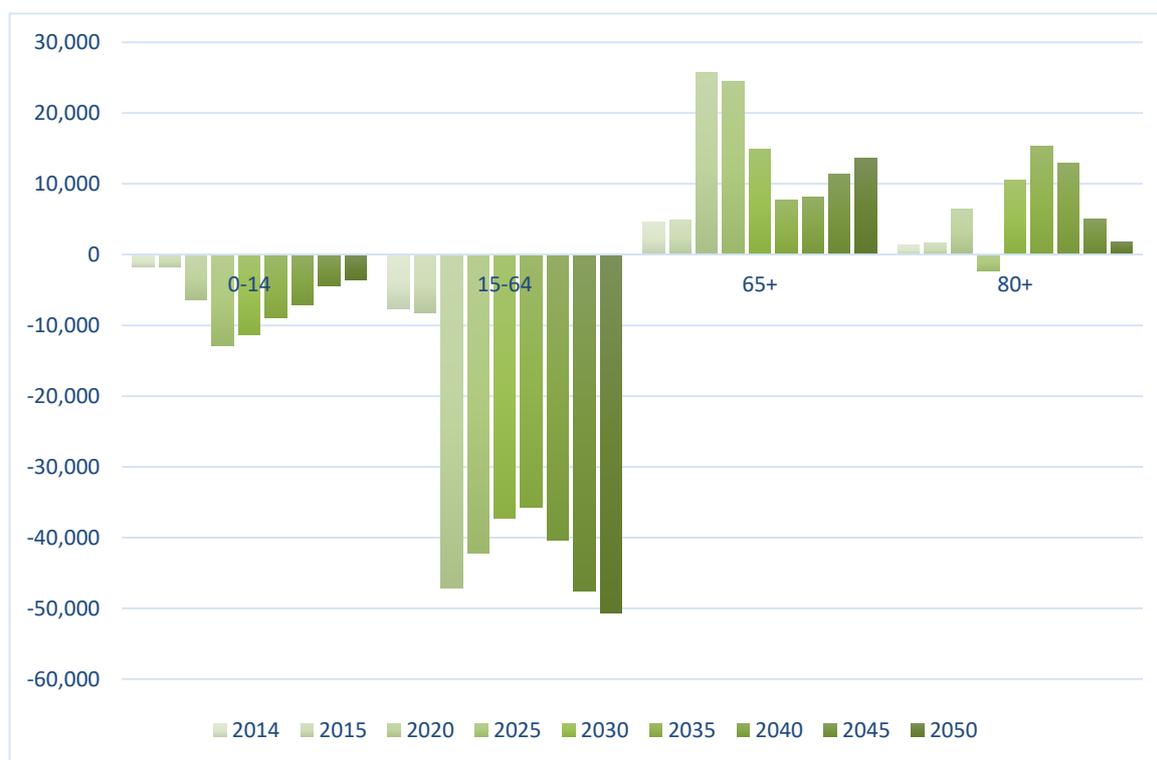


Figure 4. Changes in population by biological age groups in Opolskie voivodeship until 2050. Source: Own study based on the [48].

The highest median age (age median) in 2050 will grow in Opolskie voivodeship to around 56 years (around 53 years in the country), for men, almost 54 years, for women, to over 58 years (Table 3). Thus, the age median will be 3.5 years higher than for the whole of Poland.

Table 3. Age median in Poland and Opolskie voivodeship until 2050.

	2014	2020	2035	2050
Poland				
men	37.8	40.3	46.7	50.1
women	41.2	43.5	50.4	54.8
Opolskie voivodeship				
men	39.5	42.1	49.0	53.8
women	4.8	45.2	52.4	58.3

Source: Own study based on the [48].

In Opolskie voivodeship, the share of people aged 65 and over in the total population (old age coefficient) in 2050 will reach the highest level in Poland (36.1% towards 32.7% on average in Poland). The senility index, presenting the ratio of the generation of grandparents and the generation of grandchildren, also confirms that the process of population ageing is faster in Opolskie voivodeship than in Poland. In 2000, there were 63 grandparents per 100 grandchildren whereas, in 2016, there were already 130 of them. In 2050 this index could increase by almost three times. The rate of double ageing society is also growing. In 2016, in the group of people aged 65 and older, every fourth person was 80 years and older, whereas in 2050 it could be every third person [58].

Furthermore, the population structure according to economic age group is also significantly changing. Declining share of working-age population, especially in mobile age, and at the same time increasing share of post-working population is especially important. The post-working population in 2000 represented 14.5% of total population and, in 2014, almost 19%. It is forecasted that, in 2050, the share of these people will be over 32%. A growing proportion of the post-working population, and simultaneously declining share of people of non-working age, affect the changes in the level of demographic dependency ratio. Now, there are 58 people of non-working age, including 25 people of pre-working age and 33 people of post-working age per 100 people of working age. In 2050, the demographic dependency ratio could increase to 110, which will be a consequence of the greater dependency of the post-working population (85) at an unchanged dependency of people of pre-working age (25) [58].

Not only the process of population ageing, but also ageing of labour resources, is progressing. In 2014 the share of mobile and non-mobile age population in total working-age population reached in Opolskie voivodeship respectively around 40% and 25%. In 2040, it will be 26% and 35% and, in 2050, 25.5% and 30% (Figure 5). This means that the problem of population ageing is not only a result of the growing share of elderly people (i.e., of post-working age), but also of the increasing number of older employees.

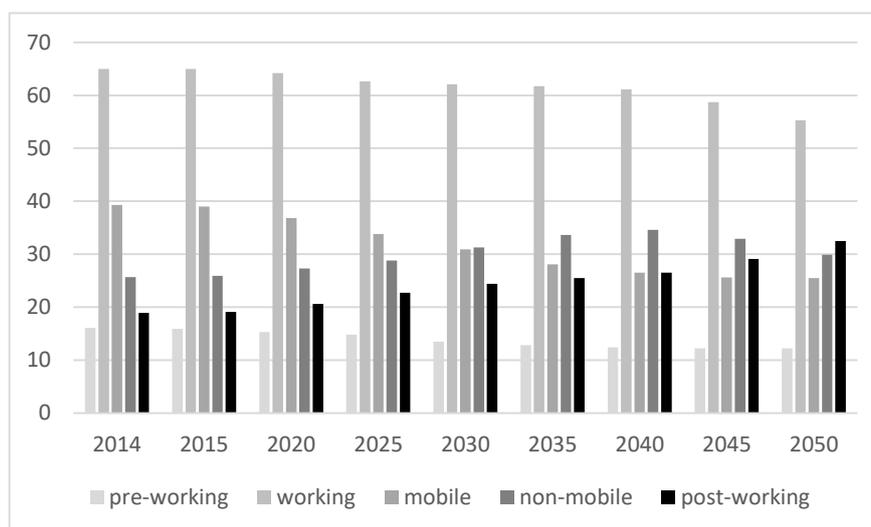


Figure 5. Population structure by economic age group in Opolskie voivodeship until 2050. Source: Own study based on the [48].

5. Quality of Life of Elderly People in Opolskie Voivodeship

In the context of projected demographic changes, a diagnosis of elderly people's living conditions is the starting point for the development of recommendations for senioral policy in Opolskie voivodeship. The financial situation is the key issue affecting the quality of seniors' lives. The ratio of the gross average pension to the gross average monthly salary does not offer favourable opportunities for pensioners to function in the social environment, not to mention their development chances (see Table 4). In Opolskie voivodeship, this ratio (towards the salaries in the region) is only slightly higher than the national mean, however, in nominal terms, it is lower.

Table 4. The pensions in Poland and in Opolskie voivodeship in 2012–2017.

	2012	2013	2014	2015	2016	2017
Poland						
Relationship of the average gross monthly pension to the average gross monthly salary	0.55	0.56	0.56	0.56	0.54	0.53
Average gross monthly pension	1938.09	2041.68	2117.35	2170.64	2204.96	2253.57
Opolskie voivodeship						
Relationship of the average gross monthly pension to the average gross monthly salary	0.57	0.58	0.58	0.57	0.56	0.53
Average gross monthly pension	1810.83	1907.66	1977.01	2035.67	2070.22	2097.82

Source: Own study based on the [59].

Relations between pensions and earnings in Poland had a stable character in Poland until 2015 (on the level of around 0.56), but later they started to worsen (2017—0.53). In Opolskie voivodeship this relation was slightly better than in Poland (2015—0.57), but it worsened relatively more (2017—0.53). At lower pensions, in Opolskie voivodeship in comparison with the Poland-wide level, the real level of pensioners' lives in the region is poorer than in other parts of the country, especially in metropolitan areas (Mazowieckie, Małopolskie, Dolnośląskie). Consequently, this is the factor lowering the social evaluation of Opolskie region as a place of competitive living conditions that does not attract new residents to the city and does not prevent the migration of people currently staying there.

If we consider the burden of the high cost of medications and the relatively high expenditures on the current maintenance of household budgets, it is reasonable to state that an average Polish pensioner has poor living conditions. Therefore, from the perspective of further, unfavourable demographic changes, the importance of involvement of public institutions in the creation of services to improve the quality of life of seniors, especially in the sphere of health protection, welfare services, and housing, as well as physical education culture, leisure, and recreation will grow [60].

On the country scale, but also at the regional level, longevity growth should imply changes in the attitude to medical care. It can be expected that there will be fewer and fewer infectious diseases, whereas there will be more long-treated and chronic diseases [61,62]. Therefore, population ageing should put more pressure on the development and improvement of assistance for people with complex health needs, and this may generate significant changes in the transfer of public resources or in the organisational sector ([1], p.590). The situation of residents of Opolskie voivodeship in the sphere of access to selected hospital wards appears to be worse than the average in Poland. This refers to the access to beds in cardiology, oncology and psychiatric wards (Table 5). Only in the case of cardiac surgery wards does the region reach the values that are close to the national average. The number of doctors per 10,000 residents in Opolskie voivodeship is also lower than the national average.

Now, the medical care of elderly people is far from the European standard. The number of geriatricians per 100,000 inhabitants of Poland is 0.8, whereas in Sweden, 7.7, and Slovakia, 3.1. In Opolskie voivodeship, the situation in the sphere of geriatric treatment is extremely unfavourable. In 2012–2016 the number of beds in geriatric wards did not change, and in 2017 it declined by 15%, while a constant growing trend of people treated in geriatric wards was observed (Table 6). In the same period, on average in Poland, the number of geriatric wards was regularly growing to three per voivodeship on average (in analysed region the number of geriatric wards remained on the same level). The number of beds in geriatric wards, as well as treated patients, was also growing. In Opolskie voivodeship, until 2016, the average number of people per bed was lower than 25, however, in 2017, it reflected the national mean reaching 29 people per bed in geriatric wards.

Table 5. Selected indices in the sphere of access to medical services in Poland and Opolskie voivodeship in 2012–2017 per 10 thousand people.

	2012	2013	2014	2015	2016	2017
Poland						
Beds in cardiology wards	2.28	2.34	2.36	2.35	2.50	2.33
Beds in cardiac surgery wards	0.31	0.29	0.30	0.32	0.30	0.30
Beds in oncology wards	1.34	1.43	1.52	1.56	1.55	1.39
Beds in psychiatric wards	1.35	1.45	1.50	1.51	1.52	1.49
Working doctors in total	48	49	52	54	56	57
Nurses and midwives	69	66	68	68	68	71
Opolskie voivodeship						
Beds in cardiology wards	1.42	1.59	1.62	1.76	1.76	1.66
Beds in cardiac surgery wards	0.30	0.30	0.30	0.30	0.30	0.30
Beds in oncology wards	0.99	1	0.98	0.94	0.83	0.58
Beds in psychiatric wards	0.84	0.87	0.67	0.82	0.83	0.83
Working doctors in total	33	34	35	37	40	40
Nurses and midwives	69	61	62	70	63	66

Source: Own study based on the [59].

Table 6. Geriatric treatment in Poland and Opolskie voivodeship in 2012–2017.

	2012	2013	2014	2015	2016	2017
Poland						
Geriatric wards	29	31	38	41	48	49
Beds in geriatric wards	697	721	853	1001	1122	1095
Patients treated in geriatric wards	17353	19300	21787	25510	31860	31886
Opolskie voivodeship						
Geriatric wards	2	2	2	2	2	2
Beds in geriatric wards	66	66	66	66	66	56
Patients treated in geriatric wards	1382	1439	1443	1656	1611	1627

Source: Own study based on the [59].

The quality of seniors' lives is affected by the access to social infrastructure, including the sphere of education and culture. Elderly people usually have more free time, and they also have ambitions to gain higher levels of education [63]. Therefore, in an ageing society, the significance of institutions offering specific educational opportunities for elderly people is growing. Higher education institutions perform an important role in stimulating the intellectual and social capital of this group. Studies showing the impact of higher education institutions on the development of urban centres in various contexts, with respect to the creation of demand for various services by students (including foreign students), taking work by them [64], and the creation of a knowledge-based economy [65,66] among others are conducted. But there is also an interaction between universities and elderly people who often become beneficiaries of educational opportunities, for example through offered courses or third-age study programs.

Third age universities are accepted as one of the most successful educational foundations providing alternative learning opportunities to the elderly, and are defined as socio-cultural centers. Third age universities provide the third age perspective in lifelong learning with practical classes and recreation facilities as well as enable students to share their experiences and knowledge [67].

Third age universities are important for elderly people and for regional development due to many reasons which include, among others, mental and physical activity, prevention, strengthening of the sense of self-esteem, giving sense to life, achievement of goals that could possibly never be achieved in the period of professional activity, and, in terms of the region: an active senior is healthier, uses medical services less frequently. Further, active seniors usually provide support for a multi-generational family model, which reduces the costs of maintenance of such facilities as nursery schools or kindergartens.

In Opolskie voivodeship there are 19 third-age universities that are established by various institutions. They are located in urban centres [68] and except for one powiat (Głubczycki powiat), they can be found in each of them (Table 7). However, if we take into consideration third age universities, all clubs, circles and sections dedicated to seniors, in 2018 there were 79 such units functioning in the region with a total of 3968 members [59]. Since 2012, their number grew by 1000 people.

Table 7. Third Age Universities in Opolskie voivodeship.

Powiat	Number of Universities	Location
Brzeski	1	Brzeg
Głubczycki	0	-
Kędzierzyńsko-Kozielski	2	Kędzierzyn-Koźle (2×)
Kluczborski	1	Kluczbork
Krapkowicki	1	Krapkowice
Namysłowski	1	Namysłów
Nyski	3	Głuchołazy, Korfantów, Nysa
Oleski	2	Dobrodzień, Olesno
Opolski	1	Niemodlin
Prudnicki	2	Prudnik (2×)
Strzelecki	3	Strzelce Opolskie, Zawadzkie (2)
Miasto Opole	2	Opole

Source: Own study based on the [68,69].

Senior and medical clusters are one of the tools supporting access to public services, such as healthcare or activities that increase the quality of life of elderly people. Clusters are phenomena that develop mainly spontaneously, as a result of natural competitive advantage or, more commonly, by chance. However, thanks to pursuing the appropriate policy of support for cluster type initiatives, it is possible to stimulate their creation and to strengthen existing structures [70].

In the context of ageing processes of regional society, senior clusters, i.e., Regionalny Opolski Klaster Senioralny (Regional Opolskie Senior Cluster) and Opolski Klaster Medyczny 50+ (Opolskie Medical Cluster 50+) emerged in Opolskie voivodeship. The goal of the first was to develop innovative solutions supporting the creation of complex offers of healthcare and personal services for elderly people, both for regional residents and visitors [71]. On the other hand, medical clusters emerged for the purpose of focusing actions around medical and social problems of the senior age population [72]. Further support, e.g., financial support, could intensify the activities of clusters.

To enable the complete use of public services, access to them should be provided. It is really vital for elderly people, and especially for elder inhabitants of villages. It needs to be understood that for these people access to public services represents the access to the places where the services are located. Therefore, the key issue is good quality transport (perceived as the possibility of transport from places convenient for seniors, of appropriate frequency and at convenient time, enabling contact thanks to public and private transport, at relatively low cost or free transport among others) to centres providing this type of services, and thus places of location of such services and offices. Furthermore, the location of public services in urban centres is extremely important [73,74]. Unfortunately, it often proves that public services targeted at rural residents are unfavourably located in spatial terms, generally in peripheral areas, local structures, or in city districts with poor transport access [11,75].

6. Actions Targeted at Elderly People and Included in the Policy of Opolskie Voivodeship Development

The unfavourable demographic perspective of Opolskie voivodeship development requires the implementation of active policy related to the adaptation of social and economic spheres to these changes. The Strategy of Opolskie Voivodeship Development until 2020 (hereinafter referred to as the Development Strategy) [76] and “Opolskie dla rodziny” [“Opolskie for family”] Project of Special Demographic Zone until 2020 (hereinafter referred to as SSD) [77] resulting from the Strategy, are some

of the tools of this policy. They both consider the issues of an aging society and indicate the need to use the potential of elderly people, as well as the necessity to adapt the infrastructure to the needs of this group of residents [78].

In regional strategic documents, an unfavourable demographic situation is recognised as the greatest development barrier for Opolskie voivodeship and, therefore, preventing and combating depopulation processes has become a horizontal challenge. Demographic changes resulting from population ageing, growth of the post-working age group, and increasing life expectancy are considered large challenges to development, but at the same time, phenomena offering new opportunities. The Development Strategy includes the need to prepare an attractive offer for elderly people, including care, rehabilitation and therapeutic services, as well as services of a cultural and touristic character. However, the strategy refers to the issues in a very general way; actually, no index of goal achievement directly refers to the group of elderly people. It is obvious that the strategy is a document created on a specific level of generality, and its main task is to determine the most important development goals, that are the expression of the mission that the region wishes to implement while considering specific determinants of this development. However, it seems that the issues resulting from the problem of an ageing society are not sufficiently considered in the strategy.

The SSD Project that is one of the instruments of the Development Strategy and refers to demographic issues far more. The document presents priorities, objectives, and the proposition of tools including four packages of action.

The tasks targeted at the needs of elderly people are included in the Złota Jesień (Golden Autumn) package. It was assumed that actions supporting the development of innovative and specialist services, premises dedicated to elderly people, an increase in the activity of the group, and development of digital competencies of people aged over 50 should be undertaken in this sphere. Little friendly public space and a public transport network that is not adjusted to their needs are among the most important problems for seniors. Therefore, there is a need to remove architectural barriers and to facilitate independent movement. Poor digital competences as well as little motivation to continuous development of knowledge and acquisition of new skills are equally important barriers restraining activity of elderly people. Higher competences and greater mobility should translate into the development of people-to-people contacts and an improvement in the psychical condition of the elderly. The instruments for the implementation of the assumed goals include, among others, a cluster of senior services, modern care institutions, short-term care institutions, mobile and home care, improvement of competences of people providing services for seniors, Opole voucher for seniors, and the education of animators and volunteers for seniors. The indices describing the expected results of these actions were also determined (Table 8).

Table 8. Expected products in “Golden Autumn” Package IV.

Indicator	Unit of Indicator Measurement	Reference Year	Size in the Reference Year	Size/Expected Change of Indicator in the Period until 2020
The number of intitutions which joined the cluster	items	2013	-	14
Number of places in daily social care centres	items	2013	-	560
Number of places in centres of support for elderly people	Items	2013	-	200
Number of places in centres or social welfare institutions with places of temporary residence	items	2013	-	180
Number of employed animators of elderly people	persons	2013	-	40

Source: ([76], p. 68).

By the end of 2018, many projects within “Opolskie dla Rodziny” (“Opolskie for the Family”) had been implemented. One of them is Opolska Karta Rodziny i Seniora (Opolskie Family and Senior Card), which is a card that people aged over 65 are entitled to. They can count on discounts in cultural and recreation institutions, as well as in some shops and restaurants. Within the program, over PLN 320 million was provided to spend on health and social services. They included the following, among others [78,79]:

- 388 places in 24-h care and 232 places in daily care facilities, as well as 211 places in the so-called supported houses for elderly and disabled people;
- 10,650 people were included in the free colorectal cancer prevention program;
- 2521 obtained a free health care aimed to reduce overweight and obesity, as well as risk of diabetes;
- 4891 people obtained support in the sphere of health care, including 2770 who obtained access to medical tele-care;
- 15 new rehabilitation equipment rentals were opened;
- 540 care workers for elderly people and dependants were prepared for work.

All these actions do not have a direct impact on the change in negative demographic trends in Opolskie voivodeship, but they improve the image of the region and its local government as an effective structure that improves the conditions of functioning of elderly group of the regional population.

7. Challenges Resulting from Ageing Society—Examples of Solutions in the Sphere of *Silver Economy*

The improvement of the quality of seniors’ lives, both in objective terms (including economic, housing, leisure, health, natural environment), and subjective terms (well-being, expressed by self-evaluation of living conditions, feeling of satisfaction, fear and loneliness) is essential in the silver economy [80]. Therefore, while analysing the quality of life of elderly people, it is important not to focus only on economic indices, but also to consider a broader scope of determinants affecting the quality of life of elderly people (Furthermore, the evaluation can also apply the models analysing the quality of elderly people’s lives, e.g., the multi-dimensional Lawton model that distinguishes four spheres of the good life and evaluates the situation of a given person from this perspective [81]. (Table 9).

Table 9. Determinants affecting directly and indirectly the quality of elderly people’s lives.

Determinant	Description of Determinant
physical well-being:	- actions, power, functionality; no pain; sexuality; having good sense of hearing and sight; quality of health care; appropriate amount of time for sleep and rest;
personal well-being:	- self-esteem; happiness; dignity; memory; appearance; independence; no stress; love; possibility of choice; ease of adaptation
social well-being:	- social support; social life; family; friendship;
material and financial well-being:	- possession of tangible goods, e.g., flat/house, car;- financial independence; incomes from various sources;
aesthetic well-being:	- hobby, interests; leisure time; contact with culture;
moral well-being:	- clear conscience;
aim of life:	- involvement in other people’s lives; fruitful ageing process;
life satisfaction:	- cheerfulness; fulfilment; reminiscence;
joy of life:	- big and small pleasures; fun; the feeling that it was worth living;
living the present time:	- freedom of preoccupation with the past and the future; natural character and simplicity;
the end of life:	- minimisation of sufferings and pain; quality of dying;

Source: [81,82].

Furthermore, the catalogue of objective and subjective determinants affecting the quality of life of elderly people should also include the changes in socio-economic environment, e.g., conditions of the

natural environment or knowledge about technology. This is because, on the one hand, developments in technology and information technology can cause the alienation of seniors who are not able to keep pace with new technologies and cannot learn to use newer devices. On the other hand, tele-medicine, tele-monitoring, and other technologies can affect the quality of life of elderly people and offer medical support in situations of poor transport accessibility. It is especially vital in the case of elderly people who live alone [83], especially in the situation when, as studies show, most elderly grown-ups prefer an independent life in their own house [84]. Therefore, it is a significant challenge to create senior-friendly districts thanks to which elderly people do not live feeling isolated and lonely [85]. Supporting the good physical condition of elderly people is another challenge because it generates lower costs than expenditures on medical treatment. Such actions can often be cost-efficient and include, for example, promoting walks as a form of activity that has a positive impact on the health and well-being of elderly people [86].

Despite a growing number of care institutions, it is crucial to develop services that can be applied in the private houses of elderly people [87]. This is because seniors often prefer living in recognisable environment in which they can easily feel comfortable [88]. In this context, gerontology that applies instruments and methods improving the quality of elderly people's lives in various spheres, facilitating the access to goods, services, and infrastructure offers good solutions [89,90]. Gerontology provides the devices increasing independence of elderly people in the sphere of communication, physical fitness, self-esteem, fulfilment of their plans [89], and access to information [91]. Innovative tools of gerontology include smart wheelchairs and exoskeletons, as well as social robots, connecting elderly people with digital technology (including robots of the "service" type that support basic activities such as eating, dressing, mobility, and monitoring of people who need attention, as well as robots resembling animals that can support the psychological well-being of their users) (a series of examples can be found in: [89]).

In many countries, increasing the access to innovative information technologies in the context of elderly people's health care is increasingly emphasised, however its economic justification raises a lot of doubts. There are postulates that public funding should only finance such technological solutions that show clinical and cost effectiveness [92]. This can form some kind of barrier to the spread of technology of a smaller market share. However, nowadays, it is assumed that, by using gerontology, a higher level of efficiency can be achieved in improving the quality of elderly people's lives, delivering a simultaneous potential reduction of individual and social costs of care of the elderly people [87,93].

Furthermore, good solutions are brought by telemedicine that applies innovative technologies of medical and imaging data transfer to consultation centres—it also facilitates remote contact with people who need constant medical supervision in their home environment. A series of innovative categories of medical services, including teleconsultations, tediagnosis, teleteaching, teleresult/telesurgery, telecare, telecardiology, tediabetology, and teletherapy can be indicated in this area [92,94,95].

A high quality of elderly people's lives also entails physical, social, and economic mobility. Mobility should be perceived as the possibility of being mobile, but also as the capability to transform this potential into the reality that is affected by physical, socio-cultural and economic determinants [96,97]. Poor mobility can threaten social integration due to insufficient access to various types of development possibilities, services and social networks [98]. On the other hand, social participation and the broadly perceived integration of elderly people, are considered an important aspect of healthy ageing because they are positively associated with the quality of life [99,100].

Smart flats that consider the needs of this group of people are an innovative solution favouring the achievement of elderly people's integration approached in this way, and ensuring possibly high comfort and functionality applied mainly in developed countries [101]. A model flat for seniors in Bielany in Warsaw is one of the examples of a Polish solution [84]. Except for single flats, complete housing estates that have appropriate facilities and services necessary for elderly people, as well as appropriately developed external space and the adequate use of colours, are created for seniors. Armstrong Place in San Francisco is an example of such a housing estate [102]. In Poland, housing

estates for seniors are rather approached in categories of architectural and social experiment, even though some examples can be indicated, e.g., the Senior Apartments housing estate in Majdan near Warsaw. The place offers apartments adapted to elderly people's needs, including catering services with the possibility to adjust to a diet, nurse duty and organisation of medical care, 24-h assistance of carers, consultations of specialist in physiotherapy, housing estate reception desk service, offer of activities, housing services (cleaning, washing and technical services), supply of shopping, access to television and the Internet, as well as monitoring and parking spaces [103].

8. Discussion and Conclusions

The aim of the article was to show the current and projected demographic situation of the Opolskie voivodeship, in particular the changes leading to aging at the regional scale. In this context, the concept of the silver economy as an element of priority in the region was discussed. Against this background, challenges were formulated arising from the aging regional population. When referring to the assumed goals of the article it should be taken into account that the projected demographic changes in Opolskie voivodeship are analysed from the point of view of the present situation of elderly people in the sphere of conditions and quality of their lives to show that ageing of the regional population is the key challenge to the development policy of the region. In this context, the multidimensional concept of silver economy creates specific opportunities for using the possibilities resulting from the ageing population and minimising the unfavourable results of the process. Perceiving the silver economy in terms of development opportunities should direct the actions of institutions and enterprises at providing products and services enabling the maintenance of professional activity of elderly people, meeting seniors' needs, and the use of the latest technologies for increasing their quality of life.

However, the implementation of the silver economy concept in Opolskie voivodeship requires a consideration of a series of determinants and barriers that consequently affect its effectiveness. The projected low level of pensioners' material lives will represent the development of the care services sector, subsidised by public institutions, and thus the growth of public expenditure on long-term care (increase on the level of 30% is estimated). The significance of care services is becoming indispensable, especially in the situation of the poorer role of the family in the care for the elderly and, at the same time, the growth of the number of single-person households (in 2035 nearly every third household in Opolskie voivodeship will be a single-person one).

Now, the medical care of elderly people is considerably far from the European standards. This means that emphasis should be put on the development of medical services targeted at the needs of elderly people. At the same time, a healthy lifestyle should be promoted, and prevention programs should be developed to enable staying psychically fit until old age and, in this way, to limit the costs of medical care and care services.

Together with the progressing process of population ageing, increasing shortages in medical personnel will be severely experienced. In this situation, the care of the elderly people will require for example employment of foreigners [104] or additional support in the form of non-standard care options. The creation of the incentives for foreigners to work in the Opolskie voivodeship becomes one of the instruments for minimizing negative changes in the labor market and filling labor shortages, including elderly care. It seems to be extremely important to have immigrant workers in the area of medical services for the elderly, especially in rural areas where access to public services is difficult. In regional policy, attracting immigrants should be one of the key instruments for resolving demographic problems, especially in areas particularly affected by the problem of depopulation and population ageing. Those issues are consequences of the outflow of human capital, especially for young people and skilled workers. As Benhabib and Spiegel showed, the ability of a nation to adopt and implement new technology from abroad is a function of its domestic human capital stock [105]. Therefore, the transfer of knowledge and relations from abroad can have a positive impact on the development of the region. This is especially important in the context of the results of Panda studies, showing that college education per worker affects state TFP growth positively, and on the contrary, the association between high school

education and TFP growth is insignificant [106]. The demand on appropriately targeted education, e.g., carers of the elderly, art therapists, physiotherapists, sport coaches, psychologists, animators of events dedicated to the elderly, and educators of elderly people will also be growing. The adjustment of educational opportunities to these changes is one of the challenges to education in Opolskie region already now. The lack of 'know-how' can be an additional barrier to the development of care services. The transfer of technologies that facilitate the independent lives and active functioning of elderly people in the society should be enabled in this sphere.

Elderly people who are not fully fit more often experience social exclusion. Social isolation can be overcome through the creation of conditions for an active life, through social networks and access to public and commercial senior services. Finally, the possibility to create housing estates available for various groups of seniors, both active and with limited abilities, should be considered. However, the removal of barriers, in the form of limited possibilities of use of public transport, architectural barriers, or health-related barriers should be the priority from a closer perspective.

The analysis in the paper shows that lower pensions in Opolskie voivodeship in comparison with the Poland-wide level, associated with a poorer rate of economic growth and long-term, significant migration, lowers the real level of pensioners' lives in the region. It is even worse than in other parts of the country, especially in regions of metropolitan type (including Mazowieckie, Małopolskie, Dolnośląskie). Consequently, it is a determinant lowering the social evaluation of Opolskie region as a place of competitive working and living conditions. The region does not attract new residents and does not prevent the migration decisions of those who are already there, which significantly lowers the effectiveness of regional policies targeted, on the one hand, at support for a higher fertility rate of young people and, on the other hand, at the activation of elderly people.

General population decline results in serious changes to the population structure, including a decline in the number of children, growth of the post-working age population, and also increasingly greater limitations on the regional labour market. The creation of opportunities for elderly people to return to the labour market, as well as their activation and inclusion in employment structures are some lines of action worth considering. Actions implemented in Opolskie voivodeship that support the minimisation of negative demographic processes should stabilise the regional labour market and provide for workers in the future [107]. The development of services for elderly people is another possibility resulting from the changing population structure of the region. Services for this growing group of residents of the region make the regional labour market significantly more attractive in the sphere of broadly perceived health protection, care, and social activation for young people who are professionally active and learning in the region. It seems obvious that the so-called silver economy and related development policies in Opolskie voivodeship are not the main factors counteracting the problems associated with the region's depopulation and ageing society, but they certainly weaken their negative impact on its development.

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