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Review Article

DEPOPULATION AS A DEVELOPMENT CHALLENGE FOR SERBIA

Stojanka Dakić
University of Novi Sad, The Faculty of Economics Subotica, Subotica, Serbia
stojanka.dakic@ef.uns.ac.rs
ORCID: 0000-0002-2416-7847

***Abstract**: Europe is sometimes called the "old continent" because of its long and rich history. This nickname is also justified by the harsh truth that the process of depopulation in European countries is increasingly pronounced, just like the process of population aging. According to forecasts, in the next 50 years, the population of Europe will make up only 4% of the world's population. Serbia, like the countries in the region, is not spared from this growing trend of depopulation. Moreover, the population of Serbia belongs to the fastest-declining population in the world. With an average age of 43.8 years, it is one of the oldest in Europe. The 21st century is the century of aging, but also the century of migrations, which are somewhere in the low birth rate, brain drain, and accelerated aging of the population. The depopulation process in Serbia is dislocated differently and is more visible in rural and mountain areas, compared to urban areas. The average age of people in rural areas exceeds 65 years. The able-bodied population is mostly concentrated on the Belgrade-Novi Sad axis (developed north) due to better living and working conditions. Serbia did not deal with demographic policy in time and is now paying the price for it in economic, developmental and social terms. Since without human capital, any development, even economic, is not possible, the author tried to point out the concrete economic consequences that depopulation and demographic transition in Serbia gave birth to.*

***Key words**: depopulation, demography, transition, development, economic consequences, Serbia*

***JEL classification:** R23, J11, O18, P25*

1. INTRODUCTION

The age structure of the population is considered one of the most important demographic characteristics of any population. It develops over a longer period under the influence of birth rates, mortality, the scale, and intensity of population migration flows. The current picture of the age structure of a population provides valuable information about the level of development reached by the population. Likewise, it serves as the foundation for making estimates and projections of the population, which define strategies and policies related to population aging.

Population aging is a phenomenon that has become increasingly prominent in professional and scientific circles, especially in the second half of the 20th and first half of the 21st century. The reason for this lies in the fact that this process, with its attained level, raises important questions regarding the socio-economic and demographic development of the country. Demographic aging of the population is most often the result of a significant decline in fertility, as well as a significant increase in life expectancy.

The leading challenge Serbia faces in the post-pandemic period is depopulation, manifested through a decrease in the number of inhabitants and their accelerated aging. Depopulation is a process that implies a numerical decrease in the population of a country. This understanding can be characterized as a narrower interpretation. The process of depopulation includes, besides the aforementioned, qualitative changes such as urbanization, population aging, and demographic imbalance between different areas of the country. Historically, the decline in Serbia's population in earlier periods was not beyond the control of ordinary people and was most often defined as a logical consequence of wars, conflicts, and/or diseases. The reasons for the population decrease in the current period are significantly different. Their cause lies in individual decisions of people not to have children or to have fewer children, and to migrate to other countries to continue their lives there (Lutz and Gailey, 2020).

The transformation of the age composition of Serbia's population, realized through a decrease in the proportion of young people and an increase in the proportion of elderly, is fully in line with European trends. If we observe the period from the second half of the last century, we can see that the aging process of Serbia's population was faster

compared to the aging of Europeans, although Serbia's population was younger compared to the population of Europe as a whole. The mentioned differences in the age structure of Serbia's population and Europe have been decreasing over time, ultimately reaching a minimum by the end of the 20th century.

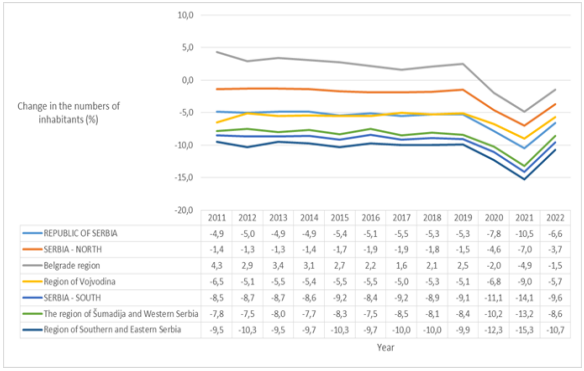
Although the connections between demographic changes and development are not straightforward, previous experiences and research show that population changes affect development and vice versa (Ahlburg and Cassen, 2008). Most of the available literature deals with the study of population growth, rather than decline, and its subsequent impact on the poverty of inhabitants, women's freedom of choice, and the availability of public services (UN, 2020). The reason for this is the limited experience of countries regarding population decline and the impact of this demographic phenomenon on the social and economic aspects of existence. Previous experiences, albeit limited, have shown that population decrease, in synergy with the rapid aging of the population, has an extremely negative impact on well-being, inequality, productivity growth, technological progress and innovation, as well as on the economic development and investments of a country. Large pressures on social security systems are a consequence of, on the one hand, a smaller number of workers who partially finance pensioners and the health and social protection system with their earnings, and on the other hand, an increase in the number of pensioners and dependents due to the accelerated aging of the population. These processes lead to the popularization and growth of metropolitan areas, at the expense of rural and smaller urban regions. Reduced workforce, declining birth rates, insufficient number of experts in rural areas and smaller cities contribute to reducing the potential for development and motivation for investing in already underdeveloped areas. All of this leads to the relocation and/or closure of public institutions and enterprises to larger centers, the closure of entire communities, and the degradation of the well-being of individuals and households (Coleman and Rowthorn, 2011; van Dalen and Henkens, 2011; Beunen, Meijer and de Vries, 2020; Hospers and Reverda, 2014; Reher, 2007).

Considering these profound and fundamental demographic changes that evidently create a new reality, it is clear that the future of Serbia largely depends on how it will adapt to and react to this new reality and the challenges it brings. Population depopulation cannot be viewed solely as a demographic and social phenomenon and/or change, but as a major challenge on the path to the future growth and development of Serbia. The purpose of this paper is to point out the current demographic challenges faced by Serbia as a developing country, and to emphasize the need for adequate adaptation to demographic changes since they have a strong impact on the economy and the overall society.

2. CURRENT DEMOGRAPHIC CHALLENGES IN SERBIA

Serbia ranks among the countries with the highest depopulation rates in the world. As we can see in Figure 1, the trend of negative population growth rates in almost all regions of the country (with the exception of the Belgrade region) has not changed over the years.

Figure 1. Population Change (%) from 2011 to 2022

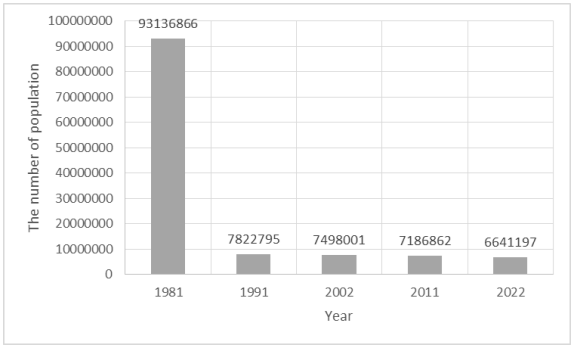


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
REPUBLIC OF SERBIA	-4,9	-5,0	-4,9	-4,9	-5,4	-5,1	-5,5	-5,3	-5,3	-7,8	-10,5	-6,6
SERBIA - NORTH	-1,4	-1,3	-1,3	-1,4	-1,7	-1,9	-1,9	-1,8	-1,5	-4,6	-7,0	-3,7
Belgrade region	4,3	2,9	3,4	3,1	2,7	2,2	1,6	2,1	2,5	-2,0	-4,9	-1,5
Region of Vojvodina	-6,5	-5,1	-5,5	-5,4	-5,5	-5,5	-5,0	-5,3	-5,1	-6,8	-9,0	-5,7
SERBIA - SOUTH	-8,5	-8,7	-8,7	-8,6	-9,2	-8,4	-9,2	-8,9	-9,1	-11,1	-14,1	-9,6
The region of Šumadija and Western Serbia	-7,8	-7,5	-8,0	-7,7	-8,3	-7,5	-8,5	-8,1	-8,4	-10,2	-13,2	-8,6
Region of Southern and Eastern Serbia	-9,5	-10,3	-9,5	-9,7	-10,3	-9,7	-10,0	-10,0	-9,9	-12,3	-15,3	-10,7

Source: Authors according to data collected from the website of the Statistical Office of the Republic of Serbia.

Currently, the country has 6.64 million inhabitants (according to the 2022 census), which is almost one million fewer people compared to the census from 2002 (see Figure 2).

Figure 2. Population Change (%) from 2011 to 2022



Source: Authors according to data collected from web-site of Statistical Office of Republic of Serbia.

The question arises, why is this so? The answer is multifaceted. Depopulation in Serbia is a kind of mix of trends that affect most countries in Southeastern and Eastern Europe. On one hand,

such a trend has been facilitated by decades-long emigration, characteristic of developing countries with lower or middle incomes. According to Stanojević et al. (2022:41), "Around 60,000 people leave Serbia every year, with about 15,000 to 20,000 more people leaving than returning each year. OECD (2020) estimates that "over the past two decades, more than 650,000 people have left Serbia, mostly young people." The reason for this situation lies in the fact that neighboring European countries with strong economies seek educated workforce from Serbia and offer better living and working conditions in return. "According to the World Economic Forum's measurements, Serbia's ability to retain its talent or prevent 'brain drain' currently ranks among the worst of all countries in the region and beyond, placing Serbia at 134th out of 137 countries included in the assessment" (Stanojević et al., 2022:41). In terms of the structure of human capital leaving the country in search of a better life, it can be noticed that it is mostly highly educated professionals or low-skilled individuals (willing to perform the simplest jobs). Considering Serbia's economic power and the fact that, as a country, it cannot afford the luxury of its most valuable capital "draining" from the country, a specific problem and question that must be addressed is how to reduce and transform "brain drain" into "brain circulation" (return of highly educated population to the home country and its permanent employment).

In addition to the above, Serbia's accelerated depopulation process is influenced by years of low fertility rates (Table 1), rapid population aging (Tables 2 and 3), and the trend of increasing the coefficient of total population dependency and dependency of the elderly population (Table 4).

Table 1: Total fertility rate

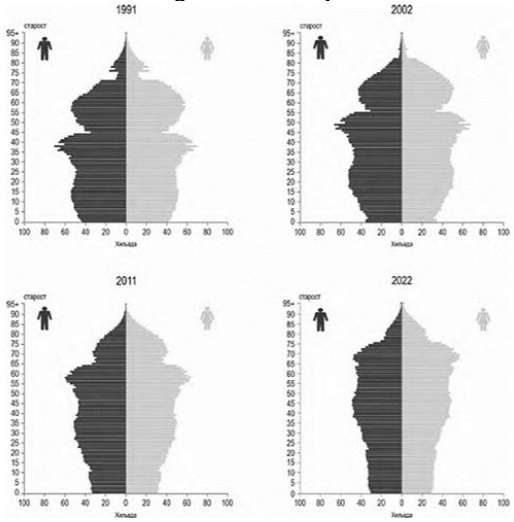
Indicator	Year	Teritory - NSTJ				
		Republic of Serbia	Belgrade Region	Vojvodina Region	The region of Šumadija and Western Serbia	Region of Southern and Eastern Serbia
Total fertility rate (number of children per woman)	2011	1,40	1,44	1,38	1,40	1,35
	2022	1,63	1,58	1,67	1,67	1,56

Source: Authors according to data collected from web-site of Statistical Office of Republic of Serbia.

The population of Serbia is undergoing a profound aging process. It is a worrying trend that has been increasing for decades (see Figure 3). Population aging can be observed in two ways. Aging driven by low birth and fertility rates and a reduced share of young population in the total is defined in the literature as "bottom-up aging". On the other hand, aging resulting from the increase in the share of population aged 65+ years is referred to as "top-down aging". There is no consensus in scientific and professional circles regarding a single indicator of demographic population aging, but indicators such as the aging index (see Table 2), average age of the population (see Table 3), and dependency ratios (see Table 4) are most commonly used for this purpose. What scientists have agreed upon is that the aging process is primarily a result of low fertility, but it is also significantly influenced by the increasing life expectancy of people.

As seen in Figure 3, the age structure depicted in the age pyramid from 1991 was predominantly defined by the size of the incoming cohort in the age group of 65 to 69 years. The number of individuals in this age group was two and a half times larger than the cohort of individuals aged 80 and above. In the figure showing the results obtained from the 2002 census, we can observe a significant expansion of the base of the elderly age pyramid. In other words, there was a so-called demographic rejuvenation resulting from high birth rates recorded between the two world wars.

Figure 3. Population of Serbia by age and gender, according to censuses from 1991 to 2022.



Source: RZS. (2022).

On the age pyramids reflecting the last two censuses (2011 and 2022), we can see a complete demographic aging of the elderly population. The

aging index in all regions of Serbia has significantly increased compared to the previous census in 2011. Differences between urban and rural areas, as well as between the developed north of the country and the less developed south, are noticeable in terms of this indicator, to the detriment of rural areas and the underdeveloped south of Serbia (Table 2).

Table 2: Ageing index by type of settlement

Year	Type of area	Teritory -NSTJ						
		Republic of Serbia	SERBIA - NORTH	Belgrade Region	Vojvodina Region	SERBIA - SOUTH	Region of Šumadija and Western Serbia	Region of Southern and Eastern Serbia
2011	Total	121.9	119.3	122.9	116.4	124.4	119.4	130.8
	Urban settlements	112.3	120.1	125.6	114.1	102.2	99.4	105.6
	Other	136.0	117.6	112.5	119.6	147.4	138.9	159.0
2022	Total	149.7	139.7	132.9	146.3	160.6	155.5	167.7
	Urban settlements	136.3	134.5	130.4	139.8	138.9	134.8	144.2
	Other	173.1	153.2	144.6	157.1	186.5	178.7	198.1

Source: Authors according to data collected from web-site of Statistical Office of Republic of Serbia.

The average age of the population in Serbia has a consistent upward trend (Table 3). According to data from the 2022 census, we can conclude that the average age of the population has increased by a year and a half (on average) compared to the average age recorded in the 2011 census. The oldest residents are in the municipality of Crna Trava, located in the southernmost part of the country, with an average age of 56.37 years, while the youngest residents are in the municipality of Tutin, located in the Šumadija and Western Serbia region, with an average age of 34.60 years.

Table 3: The average age of the population between the two censuses

Year	Teritory - NTSJ						
	Republic of Serbia	SERBIA - NORTH	Belgrade Region	Vojvodina Region	SERBIA - SOUTH	Region of Šumadija and Western Serbia	Region of Southern and Eastern Serbia
2011	42.1	41.7	41.7	41.7	42.5	42.2	42.8
2022	43.8	43.2	42.7	43.6	44.5	44.3	44.8

Source: Authors according to data collected from web-site of Statistical Office of Republic of Serbia.

Alongside the increase in the aging index and the average age of the population, dependency ratios (total dependency and dependency of elderly individuals) are also rising in all regions, but the highest rates are still present in underdeveloped regions of southern Serbia (Table 4).

Table 4: Dependency ratio by type of settlement

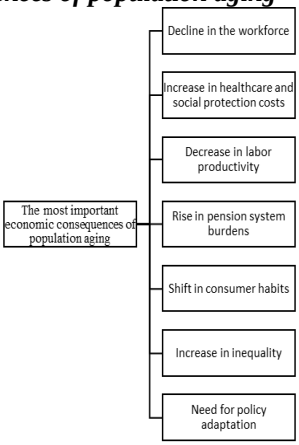
Indicator	Year	Teritory - NSTJ					
		Republic of Serbia	SERBIA - NORTH	Belgrade Region	Vojvodina Region	SERBIA - SOUTH	Region of Šumadija and Western Serbia
Total dependency ratio (%)	2011	46,3	44,0	43,5	44,3	48,7	47,8
	2022	57,3	55,9	54,8	56,8	58,9	59,0
Dependency ratio of the elderly population (%)	2011	25,2	23,4	23,4	23,5	27,1	26,0
	2022	34,7	32,6	31,4	33,9	36,9	36,4

Source: Authors according to data collected from web-site of Statistical Office of Republic of Serbia.

3. THE MOST IMPORTANT ECONOMIC CONSEQUENCES OF POPULATION AGING

The economic consequences of declining population receive less attention in the professional literature compared to the economic consequences of population aging. The reason for this can be found in the initial (misguided) understanding of population decline as a transient phenomenon. Population decline causes numerous economic consequences and induces changes to which transition economies must adapt adequately and promptly (Figure 4). Primarily, the change in population size creates significant adjustment costs for societies affected by transitional changes. On the other hand, all of this leads to changes in spatial distribution of the population as well as changes in wealth distribution among so-called post-populations (Stanojević et al., 2022).

Figure 4. The most important economic consequences of population aging



Source: Author.

The process of population decline leads to certain imbalances in society that must be addressed to restore balance in a timely manner. Primarily, population aging is classified as one of the reasons for population decline and the increasing economic dependency of the older population on the eco
nomically active population. This imbalance can be reduced by investing in human capital, increasing the participation of women (as a marginalized group in the labor market) in the workforce, and raising the existing retirement age. Another imbalance observed in practice is the imbalance in the geographical distribution of the population, which is a result of strong interregional migrations within the country, most often between rural areas (villages and small towns) and urban areas (major cities). Many young and economically active individuals migrate to large cities in search of better living conditions, prospects, and opportunities for progress. They often leave behind older and less qualified individuals as caretakers of their homes in rural areas. In the context of this demographic-spatial imbalance, it is important to encourage the development of medium-sized cities as they serve as a link between major urban centers and villages and small, underpopulated towns. Population decline through the process of reduced economic activity inevitably leads to a decrease in the overall GDP or, at best, slows its growth in the country.

The economic consequences of depopulation are not always negative. Lower population growth, viewed in the context of less dilution of capital, can also be seen as beneficial as it increases income per capita, as it requires lower capital investment in equipping new workers with capital. Additionally, lower population growth encourages greater participation of women in the labor market and contributes to their increased participation in the workforce.

On the other hand, according to Stanojević et al. (2022), there are "possible compensation effects that negatively affect per capita income in the case of lower population growth: the effects of scale (or reverse scale effects) of declining population can lead to reduced specialization and slower innovation, as well as imbalance in labor supply and demand, leading to mismatch and possible brain drain effects (in open economies), especially if there is selective migration".

Taking all of the above into account, theoretically speaking, the question arises whether the economic consequences of population decline are positive or negative. Empirical and precise answers are still lacking. What is certain is that Serbia must take all necessary steps to combat the potentially negative effects of depopulation and continuously invest in human capital through the healthcare and education systems to compensate for the reduction in the number of workers in the labor market. Automation in the era of the digital revolution is certainly one of the possible responses to the challenges of depopulation, but currently, it is a tool used by much more advanced economies compared to the economy of Serbia.

4. SPATIAL ASPECTS OF DEPOPULATION IN SERBIA

Depopulation of rural areas has been a well-known demographic phenomenon in Serbia since the 1960s. All national spatial plans over the past 60 years have indicated this demographic-spatial imbalance, and most measures taken to overcome it have been ineffective. The decline of socialism triggered the depopulation process at all spatial levels, causing uncontrolled deindustrialization, which initiated the depopulation process even in

urban areas. Serbia, like most former socialist countries in Europe, has not remained immune to this demographic-spatial pattern. "The main reasons for urban decline are often cited as problems in restructuring the urban economy, while other significant factors include administrative and territorial division constraints, the influence of boundaries and areas of influence, changing demographic, social, and environmental patterns at the local, regional, or national level, and accessibility and networking issues" (Martinez-Fernandez et al., 2012). The first signs of population depopulation in major cities such as Belgrade, Novi Sad, Niš, and Kragujevac were recorded during the 2002 census. The declining trend in urban population was continued and recorded in the censuses conducted in 2011 and 2022 (the latest population census), officially confirming the demographic crisis at the state and urban levels. The causes of all of the above should be sought in the fact that power in Serbia is centralized in large cities. The middle level of government in the form of administrative districts as independent entities does not exist, leading to the conclusion that medium-sized cities in the country actually lack the necessary economic power, and their social and demographic capabilities are limited and denied. Thus, medium-sized cities are legitimately deprived of the power of connection and bridging the imbalance between villages and large cities. The importance of internal spatial balance is significant when it comes to the demographic development of Serbia. The reason for this is that Serbia does not have external sources for repopulating devastated areas, as it simply does not border countries that are tourism significant or economically highly developed. Practice shows that there is no global solution for urban decline, but solutions should be sought by combining international guidelines and recommendations with local and regional characteristics (Haase et al., 2014).

CONCLUSION

On the threshold of the fourth industrial revolution, human resources are characterized as the most important economic resource, and investing in them is an investment in the future. For years, Serbia has faced a shortage of human resources and must take vital steps to address this issue accordingly. The future society that Serbia is moving towards is a society that is smaller in scale, predominantly urban, and significantly older. To transform this society into one capable of harnessing the benefits of the ongoing digital revolution, it is necessary to change the understanding of aging, migration, and gender roles and emphasize the importance of social inclusion (as a key tool for halting the population decline trend) and orientation toward medium-sized cities as a kind of transition between villages and large cities.

One of the consequences of Serbia's demographic aging is the significant pressure on the public services sector. The increase in demand for long-term care services (which are currently almost non-existent in Serbia) and geriatric services is certain (Matković, 2012). However, the main challenge we will face as a country is not infrastructure, but rather the lack of potential employees who could provide these services. "According to the most likely outcome of the forecast scenario, which assumes Serbia's accession to the EU at the beginning of the next decade, the number of inhabitants in 2051 compared to 2011 would decrease by 29%, the labor force volume by 23%, while the coefficient of dependence of the elderly would increase by as much as 90%, and certainly by 50%. At the same time, the coefficient of economic dependence would decrease by 15%, which would still be significantly above the European average" (Nikitović, 2013:204). The shortage of qualified labor in the future will be acute and will be addressed in one of the following two ways: a) engaging marginalized groups in the labor market in performing atypical jobs (part-time jobs, "time-share" jobs, "online" jobs) b) increasing the retirement age.

Serbia belongs to the group of countries that apply a "pay as you go" social protection system, which is implemented so that currently employed population, through social security contributions (from their earnings), finances retirees and inactive individuals over 65 years of age. Bearing this in mind, it is evident that the current combination of decreasing labor force and increasing number of retirees will have a devastating impact on the social protection system in Serbia. The consequences of reduced pension fund revenues and growing pressure on it are the impossibility of paying guaranteed pensions from the budget in the future, which necessitates the need to supplement household living with life savings (if they exist at all), further reducing pensioner bank savings and investments. The enumerated challenges can be preempted by taking steps that would contribute to increased economic activity and, accordingly, increasing the volume of the workforce. A fertility growth strategy aimed at rejuvenating the workforce is an effective instrument of demographic policy, but only if viewed in the long term. Working on the accelerated transformation of Serbia into a net immigration country, as well as promoting policies aimed at supporting childcare, household

role-sharing, and balancing family life and employment (Palomba, 2003), would contribute to improving the current demographic-economic situation of the country in the short and medium term.

From all the above, we can conclude that a synergistic effect of a wide range of applied policies and action steps is needed to prevent dramatic consequences of demographic changes in the near future. The best magnet for attracting quality labor force is undoubtedly the good economic performance of a country and favorable socio-economic factors that would stimulate immigration flows and rejuvenate and renew the existing workforce, providing almost instantaneous results, which is more than significant for Serbia and its position.

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