**Highlights**

# HIGHLIGHTS

## Highlight 1. The Effects of Strong Demographic Decline on the Economic Growth of Serbia and the Region

*Saša Ranđelović[1]*

By 2050, the world's population will increase by almost 30%, with growth in almost all regions, except in Central, Eastern and South-Eastern Europe (CESEE), in which population numbers will decrease by over 13% due to negative population growth and emigration. Similarly, it is estimated that over the next three decades, Serbia's population will decline by around 15% (about 1 million people), of which around two-thirds of the decline will be due to negative population growth, and about one-third to emigration. A sharp decline in population will affect the reduction of the labour force in Serbia by about one fifth, which, although slightly below the average of the CESEE countries (where labour force will decrease by about a quarter), is very significant. In addition, population aging will negatively affect overall factor productivity. Therefore, it is estimated that as a result of population decline, aging and productivity decline, the average GDP growth rate per capita in Serbia over the next three decades will be around 0.8 pp lower. This means that per capita GDP by 2050 will be lower by almost a quarter, compared to the amount that would have been realised had there been no negative demographic trends. The effects of negative demographic trends can be significantly mitigated (but not neutralised) by public policy measures, notably measures that would encourage labour activation. In order to slow down the negative migration trends, as well as to mitigate the negative birth rate trends, in addition to a faster rate of economic growth, it is necessary to make big changes in the general institutional environment. Negative consequences can also be mitigated by policies aimed at increasing productivity, which would mean improving the education system and increasing the overall level of investment.

### Long-term Demographic Trends in Serbia and Central and Eastern Europe

Demographic trends, in terms of population size and population structure, have a significant impact on the socio-economic performance of the country, including economic growth dynamics and sustainability of its

fiscal position. Estimates of the United Nations[2] show that from 2017 to 2050, global population will grow by almost 30%, from 7.5 to 9.7 billion people. The biggest impact on the strong growth of global population by 2050 will be made by large population increase in Africa, which will double over this period, as well as a solid population growth in South and North America as well as Asia - by around one fifth. During this period, a slight increase in the number of inhabitants in Western Europe is also expected (by around 3%). On the other hand, in the period from 2017 to 2050, the number of inhabitants in the CESEE countries will decrease significantly - by over 13% (Graph 1), due to the negative population growth, as well as emigration. Accordingly, the CESEE region will be one of the most vulnerable in the world in the coming decades in terms of demographic trends, which can have significant economic and social repercussions.

**Graph 1. Changes in global population from 2017 to 2050 (in %)**
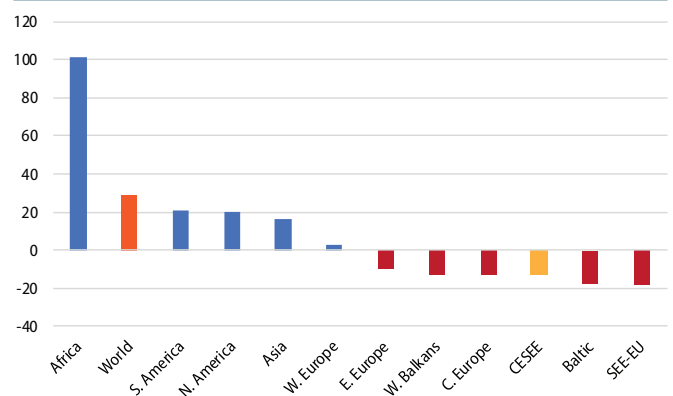


Source: UN World Population Projections, Batog et al. (2019) and author's calculations

Observed at the level of the CESEE region, the largest population decline (of close to 20%) will be observed in the SEE countries - EU member states (SEE-EU) and then in the Baltic countries, while the population decline in Central Europe, Eastern Europe, and the Western Balkans will be somewhat smaller but still significant. Expected population decline will range from around 5% in the Czech Republic, to over 23% in Latvia and Bulgaria.

According to the same estimates, in the period from 2017 to 2050, the population in Serbia will decrease by around 15%, i.e. by over 1 million inhabitants. The expected decrease in the population in Serbia is higher than the average of the CESEE countries as well as the

1 University of Belgrade – Faculty of Economics and *QM*

Western Balkans (Graph 2). Only seven out of the 20 observed CESEE countries will have a larger population decline than Serbia in this period.

**Graph 2. Changes in population of CESEE countries by 2050 (in %)**
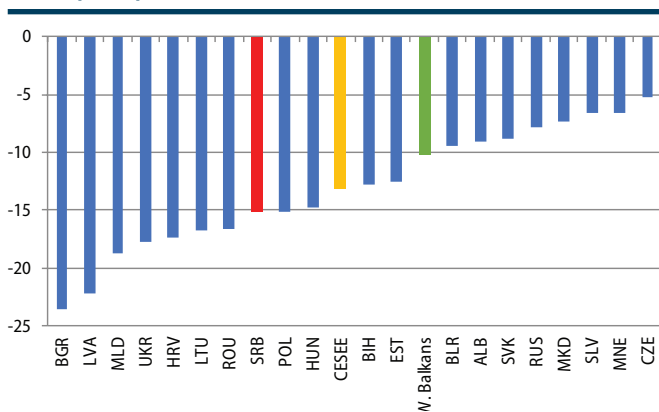


Source: UN World Population Projections, Batog et al. (2019) and author's calculations

Population movements in the CESEE countries will be affected by population growth as well as migration. In 10 out of 20 CESEE countries, including Serbia, both factors (population growth and migration) will have a negative impact on population, while in the remaining countries at least one of these two factors will have a negative impact.

The fertility rate in CESEE countries, which shows the number of children born per woman, is between 1.2 and 1.8, well below the rate required for replacement fertility (2.1). This leads to a conclusion that population growth will have a negative impact on population numbers in the CESEE region, more specifically in 16 of the 20 countries in the region.[3] According to United Nations estimates, fertility rates in Serbia will also be very low over the next three decades, ranging from 1.4 to 1.5, which means that negative population growth will have a strong negative impact on demographic trends in Serbia.

In terms of migration, 14 of the 20 CESEE countries will have a net migration decline in the next three decades, which will be pronounced the most in Albania (population decline of about 12%), while the remaining six countries (Czech Republic, Russia, Hungary, Slovenia, Belarus and Slovakia) will have a net inflow of population based on migration. It is estimated that by 2050, Serbia will have a population decline of around 5% due to migration, so that only two CESEE countries (Albania and Latvia) will have a greater relative net outflow than Serbia on this basis. We can conclude from the above that of the total population decline in Serbia over the next three decades, two-thirds will be due to negative population growth and one-third to migration,

3  In all countries except Turkey, Albania, North Macedonia and Montenegro

while the impact of these two groups of factors in the CESEE countries is equal on average. In addition to the decrease in the total population in the CESEE countries, due to the negative population growth and the increase in life expectancy (by around 4 years, by 2050), further aging of the population is expected, i.e. an increase in the share of the elderly in the total population, which can also have economic and social consequences.

## The influence of demographic trends on the determinants and dynamics of economic growth

According to standard theoretical models, economic growth depends on the availability of human and physical capital, as well as technological progress, that is, the productivity of the factors of production. Demographic trends can affect the dynamics of economic growth through both labour availability and productivity.

### *Demographic trends and availability of labour force*

As a consequence of the decline as well as the aging of the population, a strong fall in the labour force, comprising of working-age persons from 15 to 64, is expected by 2050 in CESEE countries by around 26%. The most pronounced decline in labour force of over 37% will be observed in Bulgaria, while a high decline of over 30% will be observed in Latvia, Ukraine and Poland. On the other hand, a slightly lower but still relatively high fall of about 20% will be achieved in Slovakia, Serbia and Macedonia (Graph 3). More specifically, it is estimated that from 2015 to 2050, the labour force in Serbia will be reduced by about 20%, i.e. by around 800-900 thousand people.

**Graph 3. Changes in the labour active population in CESEE from 2015 to 2050 (in %)**
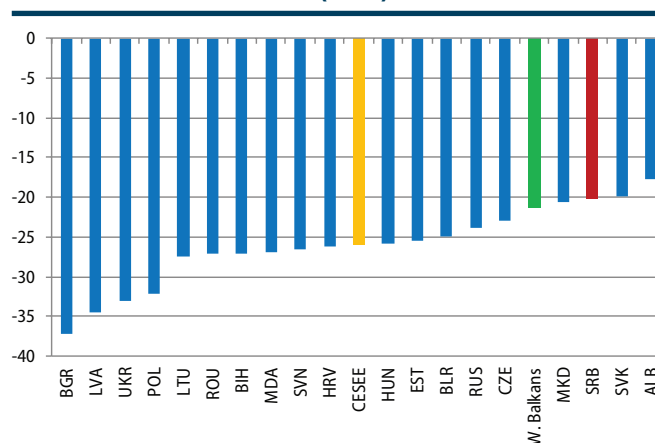


Source: UN World Population Projections, Batog et al. (2019) and author's calculations

### Demographic trends and total factor productivity

The transmission mechanism through which demographic trends affect factor productivity is more complex than the impact on labour force availability. Economic theory suggests that demographic trends can have a threefold effect on factor productivity: positive, negative, and agglomeration effect (Batog et al, 2019). On the plus side, the experience that accumulates with age has a positive impact on productivity, and, in addition, reducing the labour force creates incentives for innovation and automation to meet the needs of the population. On the other hand, physical and mental abilities, as well as adaptability to change, decline with age.

The results of empirical research show a significant decrease in the average level of skills over the working life in CESEE countries (EBRD, 2019). Also, with the aging of the population, the cost-effectiveness of innovation and the propensity of society to entrepreneurship are declining, which can also negatively affect overall productivity. In addition, research findings show that the propensity to generate ideas and innovations is linked to age structure and that creativity in this regard, on average, peaks in the forties. Empirical studies, based on macroeconomic as well as microeconomic approaches, show, as a rule, that the negative effect outweighs the positive and the agglomeration effects, and that overall factor productivity rises up to the forties and then declines, resulting in a net negative aging impact on overall factor productivity (Feyrer 2007; Batog et al, 2019). Thus, the results of the aforementioned studies show that the increase of participation of workers over 55 in labour force by 1 pp affects a decrease in product per worker by 0.7 to 0.8 pp, with most of this decline (about 0.6 pp) being due to the decline in overall factor productivity.

**Graph 4. Effects of demographic trends on total factor productivity in CESEE by 2050 (in %)**
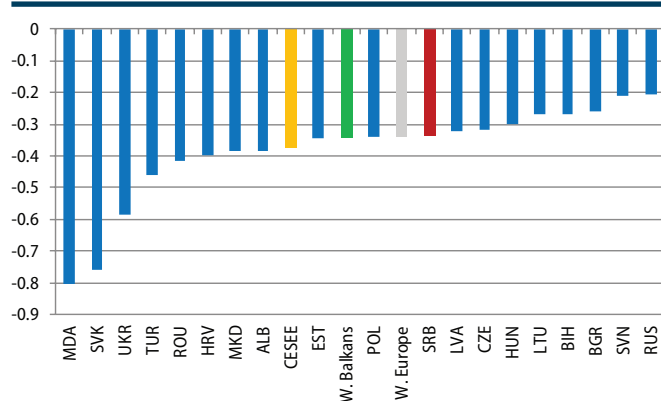


Source: Batog et al. (2019)

According to United Nations estimates, from 2015 to 2050, the share of workers over 55 years of age in the CESEE workforce will increase from 15.75% to 22%, which will adversely affect productivity. Thus, due to the aging of the population, on average, total factor productivity will decline by about 0.4 pp from 2020 to 2050, with that decrease in Serbia being slightly smaller, amounting to about 0.34 pp, which is approximately the average of the Western Balkan countries.

On the other hand, until mid-2040s, the share of highly productive population (45-55 years of age) in CESEE will grow, while in Western Europe it will decline for most of the period, so that the negative impact of demographic trends on the total factor productivity in CESEE will be still slightly lower than in Western Europe.

### Demographic trends and economic growth

Demographic trends, which are characterised by a decline in population and an aging population, will have an impact on the reduction of the workforce, as well as on the overall factor productivity in the CESEE. Thus, the average annual real GDP growth rate from 2020 to 2050 in CESEE will be around 1.5 pp. lower due to negative demographic trends, where the negative impact of declining labour supply is on average twice as strong as the negative impact of declining factor productivity. However, as the total population will also decline significantly over this period, a more relevant indicator of the economic consequences of negative demographic trends is GDP per capita. Thus, in this period, the average real GDP per capita growth rate in the CESEE will be on average lower by about 1 pp due to negative demographic trends. The biggest negative effect will be recorded in Poland, Slovakia, Romania, and the Czech Republic, mainly due to a significant drop in total factor productivity (Graph 5).

In the next three decades, the average real GDP per capita growth rate in Serbia will, on average, fall by around 0.8 pp due to demographic trends, which is approximately the average of the Western Balkan countries and slightly less than the average of the CESEEs. About three-fifths of the mentioned slowdown in GDP per capita in Serbia is due to a decline in total factor productivity, and the remaining two-fifths are a consequence of a decrease in labour supply.

**Graph 5. The effect of demographic trends on the economic growth rate per capita in CESEE by 2050 (in %)**



■ Labor suply    ■ Total factor productivity
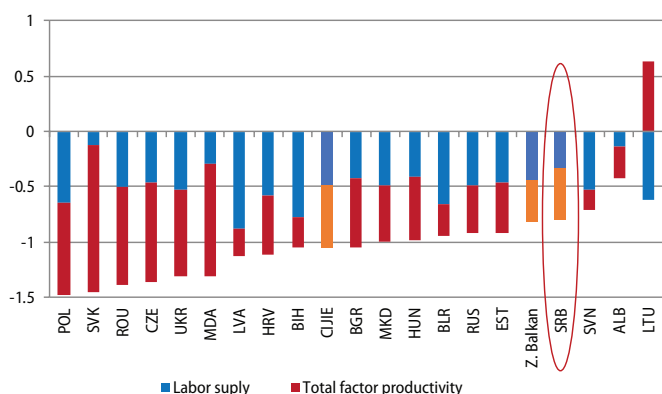
Source: Batog et al. (2019)

Consequently, total real GDP in the CESEE will be on average lower by around 35% due to negative demographic trends in 2050, compared to a scenario where there are no demographic changes, while total real GDP per capita will on average be lower by around 27%. The opportunity cost, in terms of lost GDP per capita, will be particularly high (over 35%) in Slovakia, Romania, Poland, and Bulgaria, while the lowest (below 15%) will be in Albania and Slovenia (Graph 6). Real GDP per capita will be over 23% lower in Serbia by 2050, due to negative demographic trends, which represents a slightly higher loss than in the Western Balkans but smaller than the CESEE average.

**Graph 6. The effect of demographic trends on GDP per capita in CESEE by 2050 (in %)**
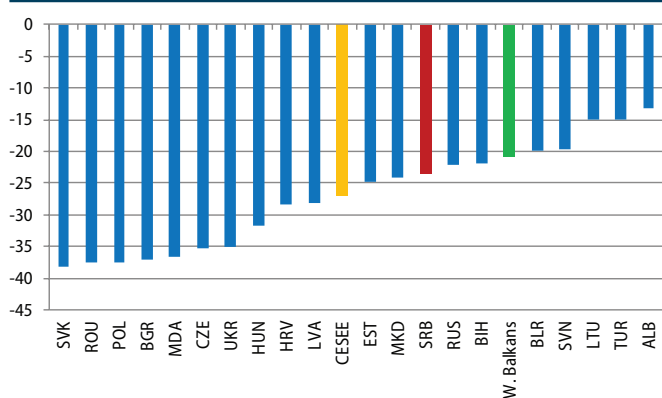


Source: Batog et al. (2019)

Despite the slowdown in economic activity due to negative demographic trends, the CESEE countries will achieve slightly faster economic growth in the next three decades than the Western European countries, so that moderate economic (income) convergence will continue in this period, but will be much slower due to demographic factors. Thus, it is estimated that, by 2050, the average GDP per capita in the CESEE will increase from 52% to 60% of the average in Western Europe,

while, without negative demographic trends, that growth would be more significant. That is, the GDP per capita in the CESEE would account for about 74% of the Western European average over the next three decades (Batog et al, 2019).

Similar results can be expected in Serbia. Without demographic change, GDP per capita in Serbia would increase from about 25% over the next three decades to over 45% of the Western European average, which means that negative demographic trends will have a very strong negative impact on Serbia's economic convergence with developed European countries.

## Policies directed toward the consequences of negative demographic trends in Serbia

The overall demographic trends are a consequence of natality and migration dynamics. In addition, the availability and structure of the workforce, as well as the country's overall economic performance, are also affected by the utilisation rate as well as the labour productivity of existing resources. Accordingly, public policy measures that could mitigate negative demographic trends and the consequent negative economic consequences can be grouped into birth control and migration policies, as well as those in the domain of activating resources and increasing productivity.

### Natality

Unlike a significant number of CESEE countries, where negative demographic trends are more a consequence of emigration than negative population growth, a negative birth rate in Serbia is a more significant determinant of overall demographic trends. Accordingly, the question arises as to whether and with what policies the negative birth rates expressed in the last few decades can be mitigated. As mentioned above, the fertility rate in Serbia is about 1.4 (1.4 children per woman), which is lower than the CESEE average and well below the replacement fertility rate (2.1). The decision to have a child is conditioned by a number of factors, the most important being the predictability in terms of material and financial conditions (employment, income level, housing conditions, education conditions, availability and quality of health care, etc.), as well as the social and cultural environment. Consequently, according to empirical research, pro-natality policies, implemented through single or multiple payments of social benefits over a period of time, have a very limited impact on birth rates in less developed countries (Kalwij 2010). Such policies affect to some extent having children earlier in life rather than the number of children born.

In Serbia, the parental allowance is the basic instrument of a pro-natal policy, but it is implemented through other policies as well - e.g. the Pension and Disability Insurance Act foresees women being awarded bonus years of work experience based on the number of children born. Although with the last wave of reforms of the parental allowance system, it has been significantly increased, with no significant advancement on other issues relevant to the childbearing decision, the effect of this reform will likely be limited. Other countries' experiences show that policies that reduce the opportunity cost of parenting are significantly more effective at boosting birth rates than direct financial support programmes. Maternity leave in Serbia is limited to 52 weeks, while in Europe, it ranges from 6 weeks (in Portugal) to 52 weeks (in Bulgaria), with a European average of 22 weeks, which means that this system is already generous in our country compared to other countries. On the other hand, there is considerable room for improvement in terms of increasing the availability of quality kindergartens, as well as increasing the chances of women's active inclusion in the labour market after childbirth.

In order to mitigate the negative trends in the birth rate, it is necessary to work on improving the above-mentioned conditions. However, the effects of these measures, even if effectively designed and implemented, can only be expected in the next 20-30 years. This means that, in addition to birth rates, to mitigate negative demographic trends, it is necessary to work in parallel to mitigate negative migration trends, as well as to activate and more productively utilise existing resources.

### Migration

According to the results of empirical research (Atoyan et al, 2016), the main factors influencing the decision to move out of Eastern European countries are the difference in income, i.e. the real income premium that can be achieved by relocation, then the difference in employment opportunities, as well as the difference in the overall quality of the institutions. In addition, the design and abundance of social protection systems in developed countries can also be a relevant attraction factor, especially for lower-skilled people. The results of the aforementioned study also indicate that the relative importance of the aforementioned factors is different depending on the level of qualifications of the person. This is particularly the case with the impact of the quality of the general institutional environment, which is particularly significant with regard to highly skilled workers deciding to migrate.

According to a large body of empirical research, income disparity is one of the most powerful drivers

of emigration. In this respect, data on average monthly net earnings in euros (Graph 7) show that in 2018, in Serbia, it was lower than in any EU member state. In Western European countries, average earnings were 5.3 times higher than in Serbia, the average in the EU-28 was 3.7 times higher than in Serbia, and the average in CESEE was about 1.8 times higher than in Serbia. Given that there is also a difference between Serbia and the countries mentioned in terms of the general level of prices and purchasing power of the income unit, and assuming that migrants seek a premium in real purchasing power rather than nominal income, a relevant comparison parameter could be the real net earnings expressed in euro, which were calculated by adjusting nominal net earnings to the difference in the general price level index, using the average price level in the EU-28 as a benchmark. And when you consider the difference in the purchasing power of income, similar conclusions are reached - the average real net earnings in Western Europe are 2.4 times higher than in Serbia, in the EU-28 they are on average 1.8 times higher, and in the CESEE countries by about 1.4 times.

**Graph 7. Average net monthly earnings in Europe in 2018 (in euros)**
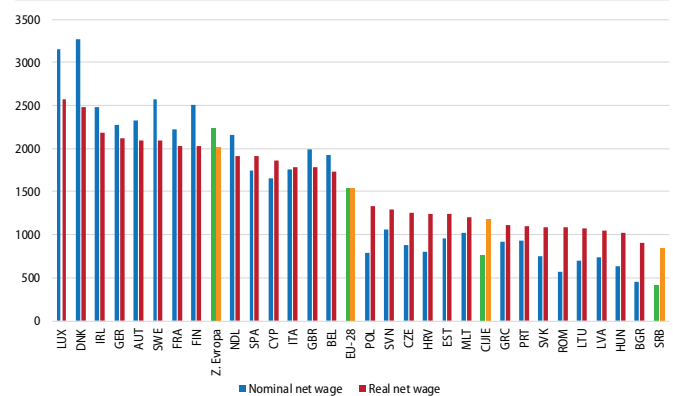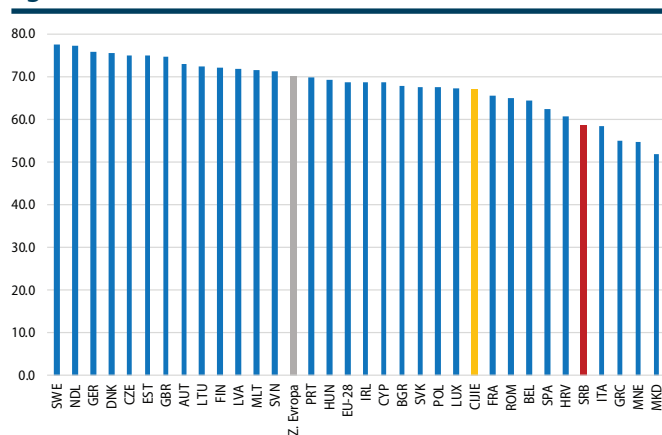


Source: Author's calculations using Eurostat data

Bearing in mind that wages in Serbia compared to productivity are already relatively high (as indicated by the high share of personal consumption in GDP), as well as the fact that the wage gap between Serbia and developed European countries is very large, it is estimated that this factor will continue to be very relevant in the future, and that its action cannot be substantially mitigated by direct public policy measures. An increase in the minimum wage, a slightly faster rise in public sector earnings or a reduction in the fiscal workload would in the short term result in a slight narrowing of the real wage gap. This would not significantly slow down emigration trends, and some of these measures (faster wage growth in public sector and large increases in minimum wages) would have a negative effect on the dynamics of future economic growth. Accordingly, it is

concluded that in order to mitigate the impact of this significant factor, it is crucial to ensure dynamic and sustainable growth of the economy of 4-5% per year over a longer period of time, which would in the long run also result in a slight narrowing of the wage gap. In addition, it is necessary to review the public sector wage policy through the introduction of well-defined pay grades and to ensure that the wage indexation policy in the next period rewards the most productive workers, as well as those occupations where the emigration trends are most pronounced.

*The difference in employment opportunities* is also a relevant factor influencing the decision to emigrate. Data from the Labour Force Survey show that the rate of inactivity in the labour market in Serbia is very high and that the employment rate of the working-age population, aged 15-64, is among the lowest in Europe. Thus, the employment rate in Western Europe is almost one fifth higher than in Serbia, while in the CESEE countries it is almost 14% higher. The large gap in employment rates between Serbia and developed European countries indicates that differences in employment opportunities are also considerable, which also affects people's decision to emigrate. Significant reduction of this gap requires a significant acceleration of the growth of economic activity, and a prerequisite for this is the increase of investments, especially of domestic, both private and public.

**Graph 8 Employment rate of the population aged 15-64 (in %)**



Source: Author's calculations using Eurostat data

The quality of institutions and the value system are also an important determinant of emigration trends. The results of empirical research show that, as a rule, emigrants from CESEE countries are, on average, younger than the population that remains in those countries (Atoyan et al, 2016). The situation is similar in Serbia, where there is an increasing number of the young and highly qualified among the emigrants, some of whom earn relatively high wages here (e.g. employees

in the IT sector, finance, etc.). Their decision to (not) emigrate is influenced not only by the amount of their salary but also by the general living and working conditions, which we in the economy call institutions. This is confirmed by the results of the aforementioned research, which shows that the quality of the institutional environment is a particularly important factor for highly qualified persons when making the decision to emigrate. Reversing the trend of emigration of the young and the highly educated, as well as initiating their return, represents a significant opportunity to alleviate Serbia's demographic problems, since these are people whose creative productivity is high and who can also contribute to improving birth rates. In order to achieve this, it is necessary to make a fundamental turn regarding the quality of institutions, where Serbia has been almost continuously declining in recent years. This means that we need to start building a social system in which people can effectively exercise the right to quality health care and education, legal certainty, a healthy environment, and to raise a family in a safe society based on positive values, in which there is no tolerance for corruption, crime, kitsch and rudeness, in which true knowledge is valued, verified through quality diplomas, and in which positive selection is made and people are rewarded based on merit and results. In order to achieve this, it is necessary to take a step towards the establishment of inclusive institutions, which would generate modern laws, the implementation of which would be uncompromisingly pursued.

### *Activating resources and improving productivity*

Activating the working-age population can significantly mitigate the negative effects of demographic trends on labour supply. The labour market activity rate in Serbia is about 67%, which is about 9% less than the CESEE average and about 10% lower than the EU average. Only 3 CESEE countries - Moldova, Turkey, and BiH - have a lower rate of labour market activity. Raising labour market activity to the average of the CESEE countries would lead to an increase in the number of active people by over 400 thousand, which would almost halve the negative effects of demographic trends on the labour supply.

The increase in labour market activity is mainly achieved by extending the working life of people, i.e. raising the retirement age, as well as implementing various tax and social policy measures and labour market policies. The implemented pension reforms in Serbia have already raised the age limit for men to 65, and for women it will gradually reach that level by 2032, bringing the conditions of retirement in line with the common European practice. In addition, in practice in almost

all European countries, early retirement penalties have been introduced, which also encourages the retention of older people in the labour market. Therefore, in the medium term, there is no need for significant additional adjustments to the retirement age, although in the long run, this issue is likely to become relevant again, as the average life expectancy in Serbia is expected to increase by 3-4 years by 2050. Therefore, in order to activate the population, the focus should be on tax and social policy reforms that would increase the cost-effectiveness of employment. These include reducing the fiscal burden of work, reforming the part-time taxation system for low-wage earners, reforming the social benefits system so as to further reward poor people earning some money on the market, and improving the system of active labour market policies, especially with regard to retraining, as well as the development of a system of continuing adult education and training.

*Activation of other economic resources* can also have a positive impact on long-term economic developments. For example, significant agricultural land in Serbia is uncultivated. Tax policy measures that made land ownership unprofitable could be mitigated. In addition, although some progress has been made in the past few years regarding the privatisation of state-owned enterprises, there are still a significant number of enterprises (and assets in those enterprises) that are not economically active. Therefore, speeding up the privatisation process in a transparent manner and accelerating bankruptcy proceedings would help to activate a certain part of those assets economically.

*Education*, in the context of a declining labour force, can be a significant mechanism for improving labour productivity, thereby partially mitigating the negative effects of reducing labour supply. In this regard, the continuation of the reform of primary and secondary education, and the introduction of order in the higher education system represent a solid opportunity. Regarding higher education, internationally comparable accreditation standards should be introduced and their consistent and precise implementation should be ensured, with the aim of providing education services to institutions that truly have the appropriate resources in terms of expertise and competences. It should also be ensured that employment in the public sector, which is the largest employer in Serbia, is done based on actual knowledge and skills, not just based on formal diplomas, which are often of dubious quality. Suppressing negative selection in the area of education and employment, as well as sanctioning violations of the rules of academic integrity, would have a positive effect on improving the general value system, as well as encouraging young people to seek quality education, rather than to obtain diplomas quickly.

*Investments* in fixed assets have a positive impact on overall productivity. This is especially important, given that a significant part of the expected slowdown in GDP growth in Serbia due to demographic trends is owed to productivity decline. According to the results of numerous empirical analyses (Arsić et al, 2019), total investment in Serbia in the previous five years was on average lower by about 4-6% of GDP compared to the average of EU, CESEE, and Western Balkan countries, primarily due to low public and domestic private investments. Increasing public investment, with the introduction of a rigorous project selection mechanism based on economic criteria, and improving general business conditions (reducing corruption, improving legal certainty, and efficiency of state administration, etc.) that would affect the growth of domestic private investment, are the basic mechanisms raising the overall level of investment. Increasing private investment and increasing and improving the system of allocation of public investment in infrastructure, as well as in research and development, while building inclusive institutions and creating a level playing field, would also stimulate the development and diffusion of innovation, which is also an important mechanism for improving productivity.

## Conclusion

The CESEE region, including Serbia, will be exposed to very negative demographic trends in the coming decades, due to the negative birth rate, emigration as well as population aging. As a result, there will be a significant decline in the labour force in Serbia, especially in the number of skilled workers, which will become more and more relevant as the EU accession process progresses. In addition, an aging population, with a decline in the total population, will have an impact on the decreasing total factor productivity, which will have significant negative consequences on the prospects for economic development. The negative consequences of such trends probably cannot be eliminated, but well-designed and consistently applied public policy measures could mitigate them. Above all, this refers to the implementation of a wide range of measures aimed at increasing activity rates (and employment rates) in the labour market, but also to implementing a number of reforms that would positively affect productivity growth. To achieve this, it is necessary to create conditions for increasing and improving the structure of investments, as well as for improving the education system. Such changes would have a positive effect on the dynamics of economic growth, which would have a deterrent effect on the further outflow of the population. However, in order

to slow down this outflow, in addition to the difference in economic opportunities, a number of changes in the institutional environment should be introduced, leading to the establishment of a socio-political and economic framework based on positive selection and a positive value system.

## Literature

1. Arsić, M., Ranđelović, S. i Nojković, A., 2019. *Uzroci i posledice niskih investicija u Srbiji*, Zbornik radova "Ekonomska politika Srbije u 2019. godini". NDES i Ekonomski fakultet Univerziteta u Beogradu

2. Atoyan, M.R., Christiansen, L.E., Dizioli, A., Ebeke, M.C., Ilahi, M.N., Ilyina, M.A., Mehrez, M.G., Qu, M.H. and Raei, M.F., 2016. *Emigration and its economic impact on Eastern Europe*. International Monetary Fund.

3. Batog, C., Crivelli, E., Ilyina, M.A., Jakab, Z., Lee, M.J., Musayev, A., Petrova, I., Scott, M.A. and Shabunina, M.A., 2019. *Demographic Headwinds in Central and Eastern Europe*. International Monetary Fund.

4. European Bank for Reconstruction and Development. 2019. *Transition Report 2018–2019*. London.

5. Feyrer, J., 2007. Demographics and productivity. *The Review of Economics and Statistics*, *89*(1), pp.100-109.

6. Kalwij, A., 2010. The impact of family policy expenditure on fertility in western Europe. *Demography*, *47*(2), pp.503-519.

7. UN World Population Projections. Available at: https://population.un.org/wpp/

## Osvrt 2. Međunarodna konkurentnost srpskog turizma

*Aleksandar Radivojević[1]*

U poslednjih 15 godin

1 Fondacija za razvoj ekonomske nauke, Ekonomski fakultet
Koordinator istraživanja Svetskog ekonomskog foruma za Srbiju