UDK
314.116(497.7)
330.55:314.116(497.7)"2010/2022"
331.5:314.116(497.7)"2000/2017"
(Original scientific paper)

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DEMOGRAPHIC CHANGES IN NORTH MACEDONIA – EFFECTS AND CONSEQUENCES ON ECONOMIC GROWTH

Abstract

This paper aims to analyze the demographic changes occurring in the Republic of North Macedonia and their impact on the economy, with a specific focus on labour market dynamics, aggregate demand and supply shifts, regional development disparities, and implications for economic growth. Through this analysis, the paper seeks to identify key challenges and propose strategic measures to address them. The research utilizes data from the 2021 census and other relevant sources to examine the demographic trends in the Republic of North Macedonia, including population decline, aging, and emigration patterns. By examining these interrelated factors, the paper aims to provide insights into the challenges faced by the Macedonian economy and propose policy recommendations to promote sustainable development and address demographic challenges effectively.

Key words: demographic changes, economic growth, labour market, productivity, North Macedonia

JEL classification: O11, J110, J24

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1. The research results presented in this paper are part of the project Demographic changes in the Republic of North Macedonia with a focus on 2021 Population Census – causes, consequences and implications (Демографските промени во Република Северна Македонија со фокус на пописот на населението од 2021 година – причини, последици и импликации), NIP. UKIM.22-23, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia

INTRODUCTION

The data from the census in 2021 shows that the Republic of North Macedonia has been experiencing significant population changes in recent years. The reduction of the natural population increase, expressed by the reduced birth rate, as well as the benefits of the increased life expectancy, the intensive emigration of the population from the country, especially the young and educated people, led to a gradual decrease in the number of the population. This has resulted in the population aging in the past few decades.

This situation imposes numerous challenges and produces problems that the state has to deal with. First of all, with the reduced population, the available workforce also decreases. In that context, the labour market's functioning is affected by the reduced available labour force, which directly impacts economic growth. The labour market is facing shortages of workers, primarily due to the emigration of young people. The labour supply is limited and there is a mismatch between supply and demand. The employment is characterized by greater participation of the adult population, which hardly accepts technologically innovative ways of working. Their motivation is low and they require more training and prequalification. Productivity in the economy in the past decades, measured as total factor productivity as well as employee productivity, has been low. The analysis of the industry in the economy shows that in the creation of the real GDP of North Macedonia, the participation of the labour-intensive industries is dominant. The heavy industry, the food industry, the textile industry, wholesale and retail trade, construction, and agriculture are the industries that employ the most people. These industries are labour-intensive, use low levels of technology, and do not generate significant added value in the economy.

Demographic changes lead to changes in the structure of aggregate demand, which directly impact the aggregate supply in the market for goods and services. At the same time, it has an effect on the real GDP. The needs of the aging population are changing, and there is an increased demand for certain categories of goods and services, while it decreases for others. The necessity for various food products, as well as services for providing food and care for the health of the population, visibly changes the structure of the aggregate offer in the economy. Hence, an increase in the industries that should provide the requested goods and services appears as a necessity.

Also, the current situation and demographic changes have significant implications for regional growth and development in the Republic of North

Macedonia. The disproportional development, at the regional level, which the economy has been facing since the beginning of independence of the state, has not decreased, but on the contrary, the inequality that is present between the regions has increased more and more. Demographic changes further emphasize that one central region (Skopje) which gravitates around the capital is growing and developing faster than other regions. Therefore, centralized functioning of the economy in the capital city of Skopje, as well as employment opportunities in the Skopje region, led to large migrations of young people from the interior of the country to the capital, as well as emigration abroad. The aging of the population will be particularly noticeable in all regions of Macedonia.

That is why the comprehensive approach in creating development strategies and taking measures to overcome the current problems caused by demographic changes, as well as an increased role of the state, efficient institutions, are ways that the Republic of North Macedonia should deal with current and future challenges and problems.

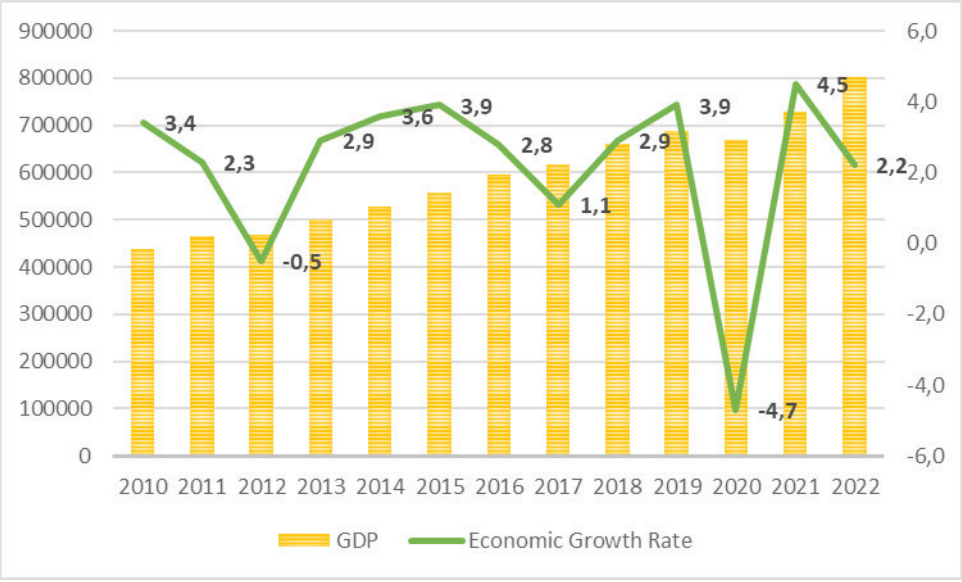
1. DEMOGRAPHIC CHANGES AND THEIR INFLUENCE ON ECONOMIC GROWTH

Changes in the quantity and quality of the factors of production that occur in any of the basic factors of production directly affect real GDP. Accordingly, the reduction of the labour factor limits the potential GDP[1] as well as the possibilities to produce a higher GDP.

All economies aim to achieve the functioning of the economy at the potential GDP level. But most of the time it is difficult to achieve. The larger gap that occurs as a difference between the achieved real and potential GDP in an economy is an indicator of underutilization of available resources. In terms with the restricted resources, especially human resources in North Macedonia, the challenge to achieve a higher GDP is even greater.

1 Potential GDP is an indicator of the long-term tendency of the gross domestic product, i.e. it shows the real production possibilities in the country. When the economy is operating at the level of its potential GDP, it means that all available resources of the country are being used efficiently. Then, all factors of production are highly engaged and optimal total production is achieved. Therefore, potential GDP is often referred to as gross domestic product at the level of full employment. Potential GDP is not the maximum output, but it is reduced to the maximum sustainable output, the maximum volume of production that an economy can ensure without disrupting price stability, without causing inflation.

Figure 1 Real GDP and economic growth rate in North Macedonia, 2010-2022



Source: State Statistics Office of the Republic of North Macedonia, (accessed on 20.1.2024)

Economic growth rate in the Republic of North Macedonia during the period 2010-2022 is mostly positive, and a constant increase in real GDP is noticeable. (Figure 1). However, the achieved real GDP and growth rate is insufficient to significantly reduce the gap that is present in development level and the standard of living in relation to highly developed economies, and especially in relation to of EU countries.

Macroeconomic stability expressed through price stability and exchange rate stability, was present in the Macedonian economy until 2021. Then the economy faced rising inflation rates as a consequence of the health and economic crisis from Covid-19 and the energy crisis caused by the war in Ukraine. Even so, the data confirm that macroeconomic stability, as a basic prerequisite, is not sufficient for the acceleration of economic growth. The achieved economic growth was significantly below the potential growth of the economy.

The data on the employment in the Republic of North Macedonia confirm that the utilization of the available labour force (age 15-64), as the most significant factor of economic growth, is still very low. (47,2 % employment

rate in 2021)[2] This indicates that a large part of the labour force is discouraged from looking for employment and is inactive, or temporary work abroad or is employed in the informal economy.

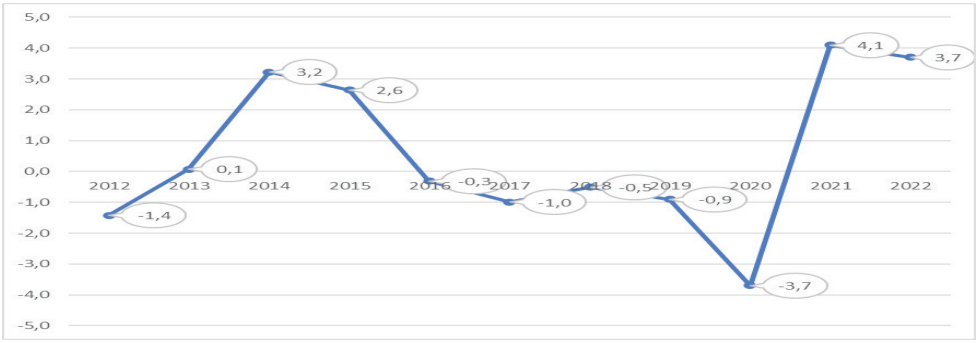
The low productivity in North Macedonia stands out as a particular problem, namely the total factor productivity and the productivity of the employees. Calculations made for the total factor productivity, using the Solow's growth model and Coob-Douglas production function the data from 2000 to 2020, evident that average growth rate of GDP is 4.97%, while the average growth rates of employment and physical capital are 1.86% and 6.17%, respectively. The contribution of employment (labour) to economic growth is 2.04%, physical capital (intensity of capital use) is 1.25%, and the residual representing the contribution of productivity to economic growth is 1.69%[3]. Low productivity is the result of many different factors, such as demographic trends that have a negative impact on productivity, traditional industries that are mostly labour-intensive, and quality of employment.

The unsustainable growth in North Macedonia can be linked to low productivity. Economic growth rates are achieved primarily due to the intensive use of labour and capital. In addition, the growth of real GDP is financed by the rising public debt in the past decade. Investing in education, research, and development is reduced and insufficient when productivity is low, which directly impacts the quality of human capital.

2 Ministry of finance, Macroeconomic indicators (December 2023), https://finance.gov.mk/indicators-and-projections/?lang=en

3 Djambaska E., Lozanoska A., Economic development and the labour market in the Republic of North Macedonia in the conditions of the Covid-19 pandemic, Economic Institute - Skopje, University "St. Cyril and Methodius" in Skopje, p. 59, 2023

Figure 2 Labour productivity in North Macedonia, 2012-2022



Source: National Bank of the Republic of North Macedonia, https://www.nbrm.mk/bilteni.nspx

* Annual growth rates in (%). As of October 2018, the historical productivity data has been replaced by a new productivity calculation, where total productivity is calculated as a weighted sum of the calculated productivity at the individual industry level. Within each industry, productivity is calculated as the ratio between the value added in that industry and the number of employed persons. The calculations were made in the Directorate for Monetary Policy and Research of the NBRSM.

Figure 2 shows the labour productivity indicator in North Macedonia for the period 2012-2022. Labour productivity in the analyzed years has the highest level in 2021 and is 4.1, and in 2022 it is 3.7. The lowest value was recorded in 2020, when the pandemic began. But if we exclude 2020, 2021 and even 2022 as pandemic years, the conclusion is that still the value of labour productivity in all analyzed years is low.

Historically, various factors have influenced and increased labour productivity. Increases in labour productivity are driven by innovation, better education and investment in physical capital. Innovation and investment in the private industry require an appropriate macro-environment that encourages growth in the economy, developed and efficient institutions, and the application of supportive policies, including policies that promote macroeconomic stability and the rule of law. Of course, productivity growth is encouraged by the production of sophisticated and complex products and services with higher added value that are intended for export, thus enabling international technological diffusion. This complements the research and supports the argument that indeed "what an economy exports are important"[4].

The demographic structure of the population is one of the most significant factors affecting productivity. Changes in the age structure of the population directly affect labour productivity. The development of technique and technology, as well as their increasing application in work processes, is a prerequisite for increasing productivity. That is why changes in the age structure

4 Hausmann Ricardo, Hwang Jason, Rodric Dani, "What you export matters", CID Working Papers Series 2005, Harvard University, Cambridge, MA, 2005

of employees, that is, the greater participation of older workers in the total number of employees, is a serious challenge in increasing productivity. Thus, the oldest employees often have difficulties with the use of new technologies, as well as the digitization of work processes.

The pandemic has also imposed many other numerous challenges for labour productivity. Reduced investment and limited trade, disrupted supply chains, public and private debt burdens, erosion of human capital are problems that have affected productivity. On the other hand, the pandemic forced awareness and the search for new solutions for functioning, which caused permanent organizational and technological changes for business and education, the diversification of global value chains and changing social norms. Such changes are also reflected in the data on labour productivity in the Republic of North Macedonia. (Figure 2)

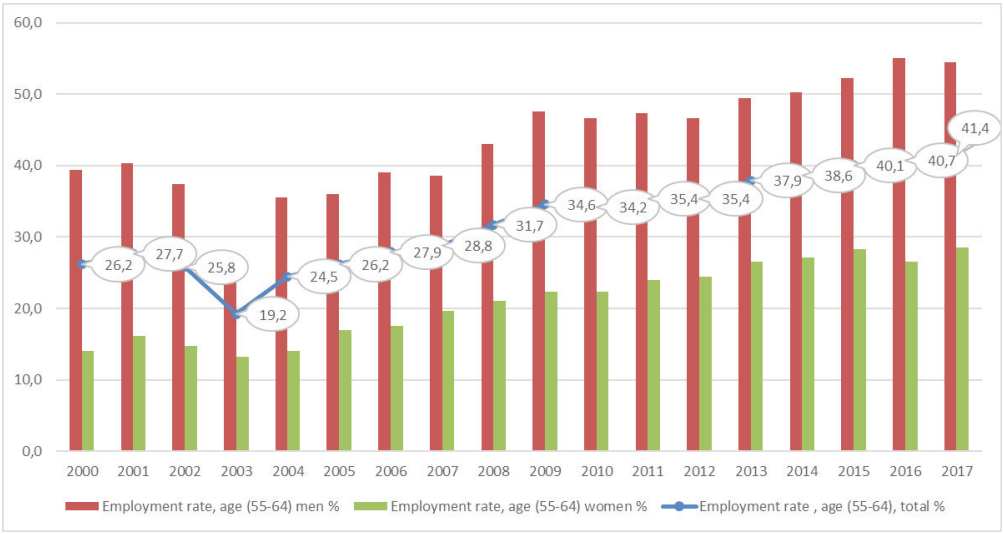
2. IMPACT OF THE DEMOGRAPHIC CHANGES OVER THE LABOUR MARKET FLUCTUATIONS

Demographic changes, including changes in population size, age distribution and workforce composition, have direct implications for businesses, policy makers and society as a whole. Understanding these trends is essential to effectively address challenges and capitalize on opportunities in the labour market and industry.

One of the most significant demographic trends affecting the labour market is the aging of the population. In many developed countries, including the Republic of North Macedonia, the birth rate has decreased, while life expectancy has increased. As a result, the percentage of elderly people in the population has increased, leading to a reduction in the labour force and a growing elderly dependency ratio. (Figure 3) The aging of the population presents a challenge for the labour market and the industry. First, there is a greater demand for health care services, long-term care facilities and retirement communities to support the aging population. This creates opportunities for growth in healthcare-related industries, but also strains public resources and social protection systems.

Second, an aging workforce affects labour supply and productivity. Older workers may face age-related health problems, skills obsolescence and retirement decisions, leading to labour shortages in certain industries and loss of experience and knowledge in others. Employers must adapt by implementing age-friendly policies, offering retraining programs and promoting intergenerational collaboration to increase productivity and retain talent.

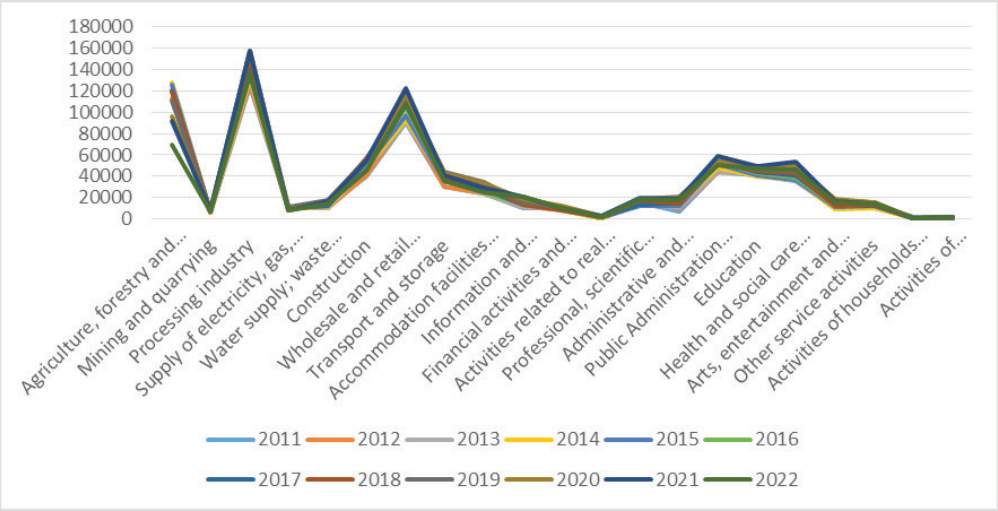
Figure 3 Employment rate of the population by age and gender, 2000-2017



Source: State Statistics Office of the Republic of North Macedonia, https://makstat.stat.gov.mk/PXWeb/pxweb/mk/MakStat/MakStat__OdrzlivRazvoj__IndikatoriZaOdrzlivRazvoj/275_OdrzRaz_Mk_04Demog_mk.px/?rxid=46ee0f64-2992-4b45-a2d9-cb4e5f7ec5ef (accessed on 20.1.2024)

Figure 4 presents the number of employees by industry in the Republic of North Macedonia for the period from 2011-2022. It can be seen, that the largest number of working population is concentrated in two industries, the manufacturing industry and the wholesale and retail trade industry. The third industrial branch that includes the largest part of the working population is agriculture. However, it should be taken into account that despite the fact that it counts a large part of the labour force, the once main industry of the country counts fewer employees from year to year with the lowest number reached exactly in 2022. On the other hand, the number of employees in industries such as construction and education are growing. Additional reduction and outflow of the working population can seriously affect the industrial development, especially in the labour-intensive industries of the country, such as manufacturing.

Figure 4 Number of employees by industries in North Macedonia, 2011-2022



Source: State Statistics Office of the Republic of North Macedonia; https://makstat.stat.gov.mk/PXWeb/pxweb/mk/MakStat/MakStat__DelovniSubj__AktDelovniSubjekti/225_DelSub_Mk_02DeSSeV_ml.px/?rxid=46ee0f64-2992-4b45-a2d9-cb4e5f7ec5ef (accessed on 25.1.2024)

Another demographic trend that affects the labour market is the decrease in the birth rate. Fertility rates have fallen below replacement levels, resulting in population stagnation or decline. This demographic phenomenon has implications for labour force growth, consumer demand and economic development. With fewer young people entering the workforce, businesses may struggle to find skilled workers to fill vacancies and drive innovation. Employers may need to invest more in training and development programs to nurture talent internally or attract workers from other regions or countries through immigration policies. Moreover, the decline in the birth rate affects consumer markets and industrial demand. With fewer families and children, there may be reduced demand for products and services aimed at raising children, such as childcare, education and toys. Instead, industries that cater to older demographics, such as healthcare, leisure and retirement planning, may experience growth opportunities.

Migration patterns also affect the labour market and industry dynamics. Immigration can alleviate labour shortages, fill skills gaps, and spur economic growth by expanding the workforce and enhancing diversity. Many industries, including agriculture, hospitality, construction and healthcare, rely on migrant

workers to meet demand and sustain operations. However, immigration policies, cultural attitudes and social integration efforts affect the extent to which migrants contribute to the labour market and society. On the other hand, emigration can deplete talent pools, hinder economic development and exacerbate demographic challenges in countries. Brain drain, or the outflow of skilled professionals, particularly in STEM and health care fields, can hinder innovation and capacity building efforts in developing regions. Governments can implement incentives, retention strategies and repatriation programs to mitigate the negative effects of emigration and promote sustainable development.

Demographic trends also shape workforce diversity, including factors such as gender, ethnicity, age and socioeconomic background. A diverse workforce benefits businesses by fostering creativity, improving decision-making and enhancing customer relationships. However, disparities in representation, pay equity, and advancement opportunities persist across demographic groups. Promoting diversity and inclusion in the labour market and industry requires proactive measures, including fair employment practices, inclusive workplace policies, and cultural sensitivity training.

Technological advances are further intersecting with demographic trends to reshape the labour market and industry landscape. Automation, artificial intelligence and digitization are affecting job roles, skill requirements and labour market dynamics. While these innovations offer opportunities for increased efficiency and new business models, they also present challenges related to job displacement, skills mismatches and socioeconomic inequalities. As certain tasks become automated, workers may need to acquire new skills or transition to occupations that require human creativity, emotional intelligence, and problem-solving abilities. Lifelong learning initiatives, reskilling programs and collaboration between industry, academia and government are essential to facilitate smooth transitions and ensure inclusive growth.

Addressing the implications of demographic trends on the labour market and industry requires a multi-pronged approach involving policy makers, employers, educators and civil society. Governments can implement policies to support workforce development, promote labour market flexibility and address socio-economic disparities. This can include investing in education and training, strengthening social safety nets and encouraging innovation and entrepreneurship.

CONCLUSION

Challenges and opportunities arising from these demographic changes requires proactive measures, joint efforts and adaptive policies to ensure inclusive and sustainable growth in the local economy. The economy will be confronted with the issue of a significant loss, primarily due to a lower potential GDP. There are multiple approaches and possibilities to overcome this situation and the consequences from the demographic changes in the economy.

- Strategic approach is necessary to achieve ***higher economic growth*** by applying endogenous growth models. The theory of development recognizes many models that should be utilized when building the national strategy for economic growth and development.[5] Economic growth should be based on increased value of human capital, high level of application of technology, know-how and artificial intelligence, as well as increased productivity. Economies can achieve high rates of economic growth, although they have low rates of population growth and limited available basic resources, they can ensure growth with high rates of investment in physical capital and spend a greater part of time and resources for human capital accumulation.

- Measures for ***improving productivity*** - Total productivity in North Macedonia indicates the fact that there is a potential with which, through taking measures and activities, productivity can be increased. Investments in human capital by individuals, enterprises and the state, encouraging research and development of new technologies, as well as digitization of work processes and the use of artificial intelligence, will enable an increase in productivity. At the same time, it is necessary to increase the capacities and capabilities of enterprises for the application of new technologies and encourage innovative activities, private investments in human capital, active involvement of management, as well as conducting technical training. The role of the state as an active participant in these processes is essential. Above all, increasing investments by the state in education, through training and education of the teaching staff, enabling adaptation of curricula in all levels of education, greater investments in research and science, help and support of the private industry and creation of programs and activities with which the private and academic sector will be more connected are the ways in which the state should actively support the economy.

- ***Improving the quality of education*** should enable the acquisition not only

5 The Mankiw-Romer and Weil model is an extended Solow model that includes human capital $Y = K^{\alpha} (AH)^{1-\alpha}$. Then the AK model, the Ramsey model, the Uzawa-Lucas model, see the book Economy of Development, Dimitar Eftomoski, 2009

of new skills and knowledge, but also enable people to think critically and develop abilities for easier adoption and application of new technologies.
- Taking measures to ***reduce emigration abroad***, especially among the young population, through systematic solutions that will create conditions for them to stay in the country.
- ***Structural changes*** in the economy (development of industry that create higher added value and increase their participation in GDP). Raising the level of potential GDP will largely depend on well-designed and implemented structural reforms in the medium term. Only in such conditions can the potential GDP be raised to the level of 4.3 to 5% in the period from 2020-2035 (without it, it will would move around 3.5% and the convergence would continue slowly).

Economic development in North Macedonia depends on the capacity of the institutions, and not only on the availability of resources. ***Strengthening institutional capacities*** is a basic prerequisite for the implementation of any measures and activities that would encourage economic growth and development.

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