Current Labour Market Challenges in the Light of Future Economic and Demographic Developments

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Abstract
Economic growth and GDP growth have been dramatically affected by the COVID-19 pandemic. Both indicators are the factors that decisively affect the situation in the labour market, which is currently facing major challenges. One of the challenges is aging population. The number of the working- age population is declining, which may also have a significant impact on GDP growth in the future. The main purpose of the study is to analyse past and predicted GDP growth rates and the past and predicted shares of the working age population in the selected economies. Based on the analyses, the study attempts to identify the factors that are able to stimulate GDP growth while the size of working age population is predicted to shrink in the future. In the opening section of the empirical part, a comparison of the GDP evolution in China, Russia, USA, India, Slovakia and the EU is presented. Subsequently, long-term GDP and demographic forecasts are presented. It follows from the analyses that it is necessary to introduce new technologies to replace the shrinking workforce if sustainable economic growth is to achieve.

Keywords: Gross domestic product; covid-19; labour market; demography; new technologies;

JEL Classification: F63; F66; J11; O11; Q55;

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1. Introduction

There has been a lot of volatility and uncertainty in the labour market recently. The labour market changes have been predominantly brought about the COVID-19 pandemic, demographic change, the introduction of new technologies within and beyond the sphere of production and new generations entering the labour markets.

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The global COVID-19 pandemic has severely affected the global economy, and has altered also the labour market. The pandemic put flexible work arrangements, especially remote work, to spotlight. Remote work can be of benefit for both employers and employees. For employers, cost savings are considered the biggest advantage. The idea of working from home was strengthened immediately after the COVID-19 pandemic outbreak, as flexibility at work was found to be a favourable solution (Lopez-Leon et al., 2020). In the banking industry, for instance, many bank offices and branches were closed to provide their services online. Working from home, however, separates employees from their work colleagues, leads to feelings of isolation and depression and reduces the overall performance of employees.

One of the factors affecting the labour market is population aging. Population aging refers to changes in the age composition of a population such that there is an increase in the share of older people. In order to better understand the issue of population aging, it is necessary to monitor changes in the age structure of a population. Everyone is more or less affected by the demographic change. Population aging is a long-term trend that has lasted for a few decades. The last decades can be characterized as a transitional period, in which countries of the European Union, and especially the countries of Central and Eastern Europe, are facing a demographic decline (Nicolae, Jimon 2020). The proportion of the population aged 64 or older has been on the rise in almost all EU member states. At present, population aging has one of the biggest effects on GDP growth. In the EU, the proportion of population aged 15-64 (working age) is shrinking, while the number of retired people is expanding. Thus, there is an increased burden on those of working age to provide for the social expenditure required by the aging population.

Labour markets have also been transformed by smart industry that has fundamentally changed the operation of companies and work environments to make it safer, greener, and more efficient. Companies consume about 40% of energy therefore their energy efficiency potential will be the key in promoting sustainable development. Smart machines will help companies become more efficient and streamline manufacturing processes. In addition, Industry 4.0 shall bring higher process elasticity as the machines can be programmed to perform multiple tasks. This will, however, mean less human workers since they will be replaced by fast, efficient and more accurate robots and computers. As a result, some jobs are going to disappear, and new job titles are going to emerge. Nafchi, Mohelska (2021) insist that new professions are continuously being born, and this will continue happening; some professions will face changes in the requirements in terms of the knowledge and skills necessary for their performance and other professions will disappear completely. There will be several barriers to the adoption of Industry 4.0 technologies though. In the first place, financial resources will be needed, which only have large and well-established enterprises.

Another major challenge that labour markets are facing is multigenerational workforce. There are four generations in the labour market – baby boomers – born after the WW II, generation X, generation Y, and generation Z. Each generation has its own views on how to complete job-related tasks and that is when conflicts between generations may arise. These are the factors affecting economic growth, economic sustainability as well as the standard of living.

2. Literature Review

Gross domestic product (GDP) is one of the main indicators of economic development. OECD defines gross domestic product as the standard measure of the value added created through the production of goods and services in a country during a certain period. As stated by Henderson et al. (2012), GDP is the most important variable in analyses of economic growth. Economic growth goes hand in hand with social development and progress; it is the way to raise the living standards. Sustainable economic development, measured by gross domestic product, has become the key objective globally. Petković, Kuzman, Barjaktarević (2020) confirm that economic development could be analysed based on different indicators but gross domestic product (GDP) is widely accepted and used indicator to track economic development.

External factors affecting economic development and GDP have been examined in several sources. Joshua, Adedoyin, Sarkodie (2020) investigated the impact of trade openness and globalisation on economic growth. Faltsman (2020) examined the factors affecting economic growth in Russia, and outlined the following key components: oil extraction, demographic, innovation, investment, institutional, geopolitical and foreign economic factors. Moreover, he notes that the increase in population is no longer a factor of extensive economic growth. Regarding barriers to economic growth, shadow economy is one of them. The issue is studied by Luong, Nguyen TM, Nguyen TAN (2020). Results of their study suggest that the size of shadow economy could be controlled by improving the effectiveness of the rule of law and the growth of economy particularly in transition countries. Rahman, Alan (2021) investigated the driving factors of economic growth in the world's largest economies and they found out that energy use, trade, capital, labour, human capital development and foreign direct investment have positive and significant impact on the economic growth of these countries in the long run. In the short run, energy use, trade and capital also have positive and significant effects, but human capital has negative effect on economic growth.

The above sources examine economic growth and its determinants from various perspectives. Apparently, economic development depends on various factors and uncontrollable forces. In this context, the far-reaching impact of the COVID-19 pandemic on economic development and GDP growth in most countries is obvious. The impact of the COVID-19 pandemic on the global gross domestic product was analysed by Korneta, Rostek (2021). Original findings were presented by Pardhan, Drydakys (2021), who pointed out to a statistically significant negative association between GDP per capita and the change in new cases of COVID-19 per million population during the first wave over a 2-month period (1st April-31st May 2020) in 38 European countries. On the other hand, Pinilla et al. (2021) did not find a significant correlation between the economic fall in GDP in 2020 attributable to the COVID-19 pandemic and the cumulative incidence of infections.

The pandemic triggered unprecedented political, social, and economic processes, and opened up opportunities for a thorough investigation of their ramifications. One of the main destructive consequences was economic slowdown. Feng et al. (2021) analysed the economic impact of the COVID-19 pandemic on Chinese regions and industry and claim that to identify the epidemic's impact on the economic system, it is necessary to systematically assess the different impacts on the economy by dividing it into regions, risk categories and industries, so as to explore adaptability and recovery strategies under this three-way division strategy. Chinese economy has unique characteristics, and the economic effects of the pandemic have not been that severe when compared with other countries.

Similarly, Shao (2020) states the impact of this epidemic on the macro-economy is short-term. Several studies have investigated the impact of the pandemic on Indian economy. Chaudhary, Sodani, Das (2020) mention the statement of former Finance Minister of India, Yashwant Sinha, who estimated the cost of 21-day countrywide lockdown at 1 percentage point of GDP. India is known for its high inter-state migration rate. Migrant workers are employed in the construction sector (40 million), domestic work (20 million), textile (11 million), brick kiln work (10 million), transportation, mining and agriculture. These authors claim that during lockdown, 92.5 per cent of labourers have lost 1 to 4 weeks of work. Maksiminov et al. (2021) analysed the dynamics, in the context of the actions of the authorities in Russia, and they concluded that the downturn in the economy was caused not by the global problems associated with the COVID-19 pandemic, but by the actions of regulatory authorities. The issues of the US economy are investigated by, for instance, Domm (2021), according to whom the economy has rebounded and is now bigger than it was pre-pandemic and economists mostly expect strong gains in the second half. It is also confirmed by the Commerce Department, which states that the quarterly GDP level rose to $19.4 trillion in the second quarter, higher than the $19.2 trillion in the fourth quarter of 2019. Slovak economy also recorded a significant drop in GDP.

GDP, which tracks the health of a country's economy, is of the main labour market determinants, and the fact has been confirmed by severe economic downturns and rising unemployment rates due to the pandemic. Labour market and human capital were the first to feel negative effects of the pandemic due to the rising unemployment, job insecurity and the shrinking career opportunities due to the spread of COVID-19 all around the world (Costa Dias et al., 2020; Lemieux et al., 2020). Dvorak et al. (2020) analysed the economic impact of COVID-19 on the labour market and human capital claiming that digitalization and the use of information technology deepened and progressed in both large and small enterprises as well as in the higher education institutions. The relationship of GDP and the labour market is examined by Yili (2020), who explains the dependence of unemployment on GDP. The issue is also analysed by Cox (2020) who says that one of the newest estimates is revising downward the GDP growth rate from -24 per cent to -34 percent, with an unemployment rate of 15 per cent.

The COVID-19 pandemic has brought economic growth to a halt and had dramatic effects on the labour market. On the other hand, the pandemic has accelerated the implementation of information and communication technologies, which are essential for the future GDP growth and changes to work processes.

3. Methodology

One of the global goals is to ensure sustainable economic growth. Globalisation processes have led to robust GDP growth. Open borders encourage labour mobility and free movement of workers. The COVID-19 pandemic has hit the global economy in an unprecedented way, and led to a severe recession. Labour markets were disrupted by the pandemic, too. The aging of population has been a serious challenge in the light of GDP growth and labour force structure.

The main purpose of the study is to analyse the past and predicted GDP growth rates and the past and predicted shares of the working age population in the economies selected. The six economies selected are, except for Slovakia, among the largest in the world. These are the economies that significantly contribute to global GDP. In addition, the economies

feature different government interventions in economic development and represent various regions across the world. Slovakia was analysed for it is the home country of the authors of the paper. Based on the analyses, the study attempts to identify the factors that are able to stimulate GDP growth while the size of working age population is predicted to shrink in the future.

Several research methods were used, such as a comparative analysis of GDP data and the share of the working age population in total population. Next, a deductive approach is used to give opinions and draw conclusions. The data were extracted from the databases of the World Bank, OECD; and from secondary sources such as Eurostat and the Statistical Office of the Slovak Republic. In addition, mathematical and statistical methods were employed. The indicator data obtained were mostly in absolute values. To make the comparison objective, the values were converted into relative ones. When compiling the time series, the relative numbers were recalculated using the common GDP growth rate formula.

4. Research Results

First, an overview of GDP data in selected countries from 2015 to 2020 is given as GDP is regarded as one of the significant determinants of the labour market situation. GDP data can be extracted from the databases of the World Bank, OECD; and from secondary sources such as Eurostat or the Statistical Office of the Slovak Republic. The table below shows GDP per capita in thousands of dollars in the countries selected (***Table 1***).

Table 1. Comparison of GDP per capita in selected countries and groupings of countries from 2015 to 2020 (in thousands of dollars).

	2015	2016	2017	2018	2019	2020
Slovakia	29,92	29,66	30,08	31,51	32,56	**31,83**
EU	38,24	39,22	40,79	42,14	43,53	**41,54**
USA	56,86	58,02	60,11	63,06	65,28	**63,54**
China	12,98	13,57	14,34	15,61	16,77	**17,31**
Russia	24,09	24,13	25,93	28,68	29,19	**28,21**
India	5,46	5,84	6,18	6,68	7,00	**6,45**

Source: The World Bank, own elaboration

It follows from the table that all the countries selected and the EU recorded a decline in GDP per capita in the novel coronavirus outbreak year and in 2020. The only exception is China. India saw the biggest year-on-year drop in GDP per capita. India's GDP per capita fell from $6,997 to $6,454, by approximately 7.7%. Slovakia experienced the lowest decline in GDP per capita – GDP per capita dropped by 2.2%, from $32,557 to $31,832. In order to illustrate how GDP evolved in each country, their GDP per capita growth rate was calculated. The percentage values are shown in ***Table 2*** and ***Figure 1***.

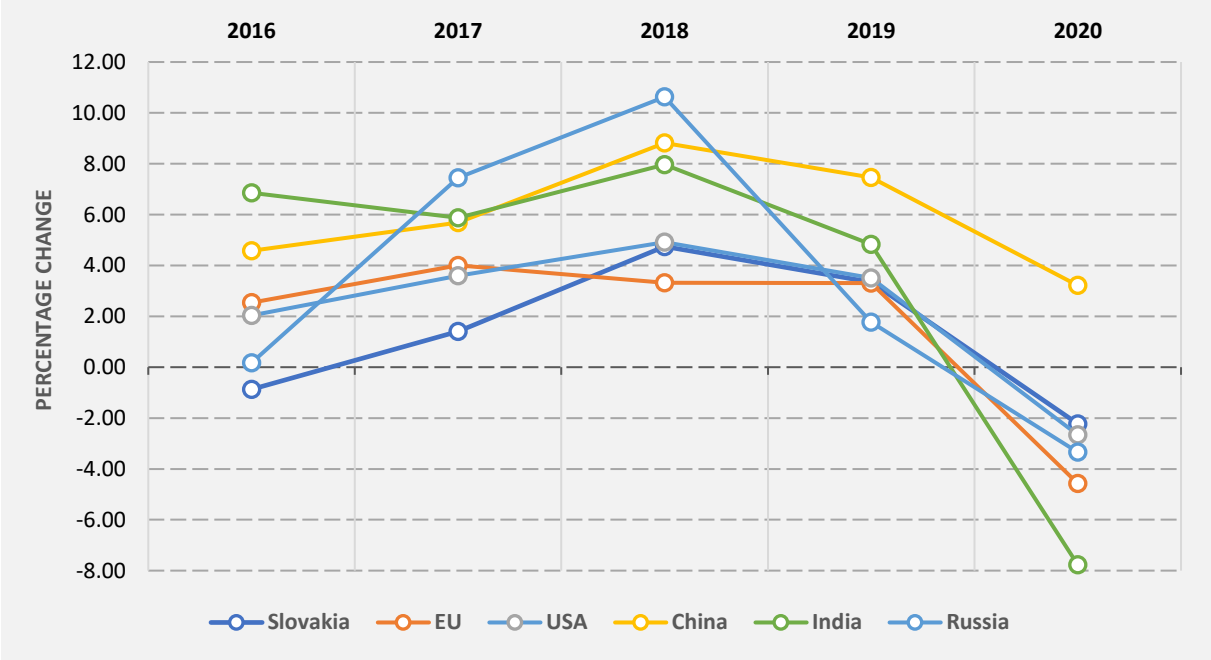
Table 2. GDP growth rate per capita in selected countries and groupings of countries from 2015 to 2020 (in percentages).

	2015	2016	2017	2018	2019	2020
Slovakia	-	-0.87	1.41	4.75	3.34	**-2.23**
EU	-	2.54	4.00	3.32	3.30	**-4.57**
USA	-	2.04	3.60	4.92	3.51	**-2.66**
China	-	4.58	5.69	8.82	7.46	**3.21**
Russia	-	0.18	7.45	10.63	1.77	**-3.34**
India	-	6.86	5.87	7.97	4.83	**-7.77**

Source: own elaboration

Table 2 provides the data on the GDP per capita growth rate in the analysed countries from 2015 to 2020. Apparently, the pre-pandemic period saw a moderate rise in the year-on-year GDP growth, especially in 2018. One year before the global COVID-19 pandemic broke out, there had been global economic slowdown. In 2019, none of the respective economies sustained the GDP growth of 2018. In 2020, there were negative GDP growth rates in most economies. The exception was the Chinese economy. Even though the novel coronavirus emerged in Wuhan, Chinese year-on-year GDP growth stood at 3.21%, which is an increase of $ 540 per capita (from $16,772 to $17,312).

Figure 1. GDP growth rate per capita in selected countries and groupings of countries from 2015 to 2020 (in percentages).

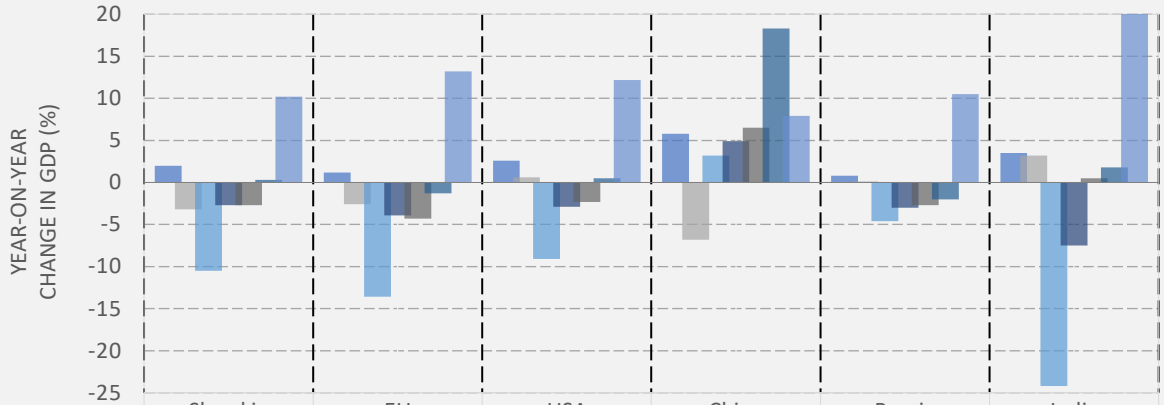


Source: own elaboration

Figure 1 shows the short-term evolution of GDP. It can be seen that in 2016, India achieved the highest year-on-year GDP per capita growth (almost 7%) and its GDP growth was the lowest among the countries analysed (-7.8%) in 2020. On the other hand, Slovakia, the only country with a negative year-on-year increase in GDP per capita in 2015 (-0.9%), recorded the second lowest change in GDP per capita among the countries analysed in the pandemic year, namely -2.2%.

The above tables and figures summarise the data on GDP per capita from 2016 to 2020. Since the data for 2021 were not available in full, quarterly year-on-year changes in GDP were analysed. In order to illustrate the fluctuations caused by the outbreak and spread of the COVID-19 pandemic in depth, the first period analysed is the fourth quarter of 2019 (the last quarter unaffected by the pandemic). The last quarter analysed is the second quarter of 2021, for which the statistical data are available. In order to make the effects of the pandemic on the economies and the introduction of containment measures clear, quarterly year-on-year data were presented. ***Figure 2*** below illustrates year-on-year quarterly changes in GDP.

Figure 2. Year-on-year quarterly changes in GDP (4Q/2019 – 2Q/2021): comparison of selected world economies (in percentages).



	Slovakia	EU	USA	China	Russia	India
4Q/2019	2	1.2	2.6	5.8	0.8	3.5
1Q/2020	-3.2	-2.6	0.6	-6.8	0.1	3.2
2Q/2020	-10.5	-13.6	-9.1	3.2	-4.6	-24.2
3Q/2020	-2.7	-3.9	-2.9	4.9	-3	-7.5
4Q/2020	-2.7	-4.3	-2.3	6.5	-2.7	0.5
1Q/2021	0.3	-1.3	0.5	18.3	-2	1.8
2Q/2021	10.2	13.2	12.2	7.9	10.5	20.1

Source: OECD, own elaboration

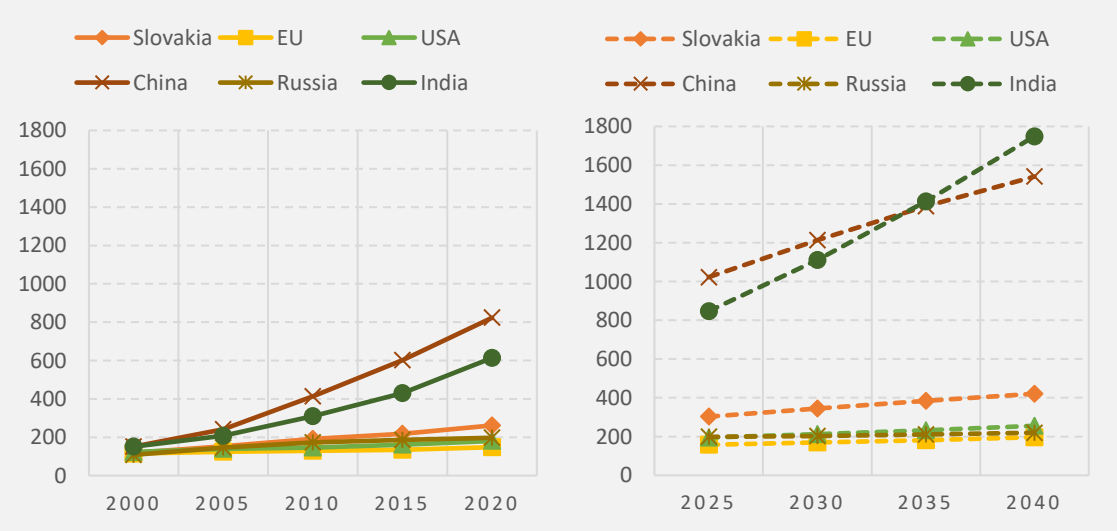
The OECD data were used to illustrate quarterly year-on-year changes in GDP. The OECD database was used to diversify the data sources and to make a more relevant analysis. Figure 2 indicates that all the economies analysed achieved year-on-year GDP growth in Q4 2019. GDP growth in the first quarter of 2020 was affected by the COVID-19 pandemic. Its gradual expansion from mainland China can clearly be seen in year-on-year GDP changes. The Chinese economy took the worst hit, and shrank by 6.8% compared to the same period in 2019. The next largest drops were recorded in the Slovak Republic (-3.2%) and the EU (-2.6%). COVID-19 spread quickly from China to Europe, where a number of strict containment measures were implemented and enforced, and the labour market was no exception. In our humble opinion, governmental interventions in national labour markets in an attempt to contain the spread of COVID-19 had the biggest impact on economic development of countries and large groupings of countries. The containment measures taken impacted many industries, and those hit hardest were the tourism and hospitality sectors. With regard to manufacturing industry, some manufacturing plants slowed down their production while other industrial units were closed (component shortages, manufacturing enterprises going bankrupt, redundancies, lower global demand for certain

products and services, etc.). The economies of India, Russia and USA saw positive year-on-year GDP growth in 1Q 2020. The effects of the pandemic on their economies were stronger in Q2 2020.

The second quarter of 2020 was an economic disaster for most countries. This was the worst period during the pandemic in terms of year-on-year GDP evolution. India was hit hardest by the pandemic, and its GDP dropped by almost a quarter. During the second quarter, the EU GDP saw a considerable decline (-13.6%), and so did Slovakia (-10.5%). China that was the only major economy to report economic growth, its GDP grew by 3.2% Q2 2020. In Q2 and Q3 2020, the macroeconomic situation improved slightly and most of the countries (with the exception of the EU) rebounded. At the beginning of 2021, the countries recorded a positive year-on-year GDP change. The EU and Russia, however, saw negative year-on-year GDP growth in the first quarter of 2021, -1.3% and -2% respectively. With the exception of the first quarter of 2020, China's economy recorded fairly high year-on-year GDP growth, namely 18.3% in the first quarter of 2021. The remarkable growth was mainly achieved due to the effective steps taken by the Chinese government, which stimulated industrial production and increased investment in infrastructure and real estate. China, however, also relies heavily on the international trade, which was, at that time, teetering on the brink of collapse. In spite of positive economic developments in China, the pandemic had negative effects on the labour market in terms of stagnant wages and rising wage inequality. India also recorded high year-on-year GDP growth (exceeding 20%) in the second quarter of 2021. Nevertheless, this is not such a major improvement since this is a year-on-year GDP comparison, and at the same time in 2020, India's GDP dropped more than it grew in the second quarter of 2021.

OECD has made forecasts for the following two indicators up to 2040, which is a forecast for approximately twenty years. Therefore, the past evolution of 20 years was included in the comparison, making the time series start in 2000 and end in 2040. To calculate the first year of the interval, the indicator values of 1995 shall be known, which is the reason for their inclusion in the analysis.

Figure 3. GDP evolution in the countries selected compared with the base year of 1995 in the years 2000-2020 (on the left) and its forecast for 2025-2040 (on the right) (change expressed in percentages).



Source: OECD, own elaboration

GDP forecast is illustrated in ***Figure 3***. OECD data on GDP are in trillions of dollars. The changes in GDP growth compared to the base year of 1995 were calculated and listed in ***Table 3***. This way, an objective comparison of GDP growth across the selected countries could be made.

Table 3. Calculated values of the basic index (percentage changes in individual years in comparison with the GDP value of the given country in 1995).

	Past GDP evolution					Forecast			
	2000	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**
Slovakia	119.0	152.2	191.9	217.2	261.5	302.6	344.6	384.7	420.8
EU	115.0	124.4	129.5	134.4	148.3	157.6	169.0	181.9	196.6
USA	123.4	139.9	145.3	161.9	180.5	194.9	212.8	232.7	255.4
China	151.3	241.4	412.5	602.6	823.1	1022.4	1213.1	1389.0	1541.1
Russia	108.3	145.7	173.4	186.5	197.1	198.5	202.7	210.8	219.8
India	151.0	207.6	309.5	430.6	613.7	846.7	1111.4	1412.8	1748.8

Source: authors' calculations

Figure 3 and ***Table 3*** show a rising world GDP. As to the countries analysed, the data show the upward trend in GDP growth, both in the past and future. There are, however, big gaps in the growth rate across countries. While the EU, US and Russia were not able to double the volume of their GDP in two decades (148.3%; 180.5%; 197.1%; respectively), India and China, having a status of developing countries, managed to increase manifold the volume of their GDP (India more than six-fold, China more than eight-fold). GDP is expected to grow in all the countries analysed. The 2040 GDP forecast for China is 15 times higher than that of 1995 (1,541.1%) and for India even 17 times (1,748.8%) higher than that of the base year. Compared to the base year of 1995, the Slovak economy is set to quadruple its volume by 2040. To make the data as complete and accurate as possible, the calculated chain index values are listed ***Table 4***.

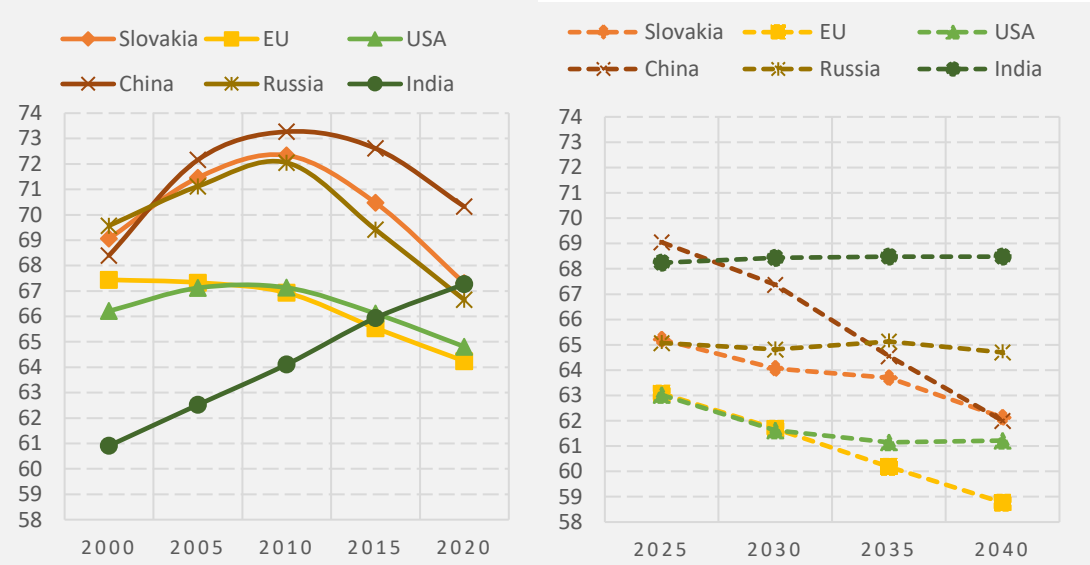
Table 4. Calculated values of the chain index (percentage changes in individual years compared with the previous value of GDP of the given country).

	Past GDP evolution					Forecast			
	2000	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**
Slovakia	119.0	127.9	126.1	113.2	120.4	115.8	113.9	111.6	109.4
EU	115.0	108.2	104.1	103.7	110.4	106.3	107.2	107.6	108.1
USA	123.4	113.3	103.9	111.4	111.5	108.0	109.2	109.4	109.7
China	151.3	159.6	**170.9**	146.1	136.6	124.2	118.7	114.5	111.0
Russia	108.3	134.6	119.0	107.6	105.7	**100.7**	102.1	104.0	104.3
India	151.0	137.5	149.1	139.1	142.5	138.0	131.3	127.1	123.8

Source: authors' calculations

The calculated values of the chain index provide an insight into the GDP evolution in five successive years. The graph shows China reaching its highest value in 2010. In the course of five years (2005-2010), China's GDP grew by 70.1%. The lowest is the GDP growth forecast for Russia, from 2020 to 2025, its GDP is expected to grow by only 0.7%. The highest average change between the compared periods was achieved by India (137.7%), the lowest by the EU (107.9%).

Figure 4. Development of the share of the working age population (15-64 years) in total population of the countries analysed from 2000 to 2020 (on the left) and its projection for 2025-2040 (on the right) (in percentages).



Source: OECD, own elaboration

The estimates of the share of the working age population in total population are in sharp contrast with the GDP projections. The chart on the left illustrates the dominant demographic phenomenon – population aging. Compared to the base year of 2000, all the countries analysed, excluding India, recorded quite a significant decline in the working age population (approximately since 2010). By 2020, the share of working age population in total population decreased most in Russia (by 5.4 p.p., i.e. more than 7%). In Slovakia, the share of working age population in total population shrank by 5.03 p.p. (6.9%). In India, the share of the working age population went up by 6.4 p.p. (10.4%). In the chart on the right, the forecast indicates that the working age population will stop growing and stabilise at 68.5% in India and increase slightly in the USA. In the remaining countries, the share of the working age population in total population is expected to decrease mainly in China, Slovakia and the EU. The sharpest drop is expected to occur in China. Between 2010 and 2040, the share of the working age population in total population in China will decrease by 11.27 p.p. (15.4%). A decrease by 14.1% (10.21 p.p.) will take place in Slovakia. The highest share of the working age population was in China in 2010 (73.27%), whereas the lowest share is expected to be in the EU (58.77% in 2040). In 2040, India is anticipated to have the share of working age population of 65%. Historic GDP evolutions and projections and the share of working age population in total population reveal an undeniable fact: while GDP is projected to grow with varying intensity and volume in all the countries analysed, the growth is not possible to achieve (at least until 2040) with the given shares of the working age population. In the optimistic scenario, we may talk about a period of economic stagnation in India and the USA. In the remaining countries analysed, the trend is clearly negative and there is no sign of a reversal after 2040. In addition to the population aging and the unsustainable pension systems around the world, a problem of sustainable economic growth and the projected workforce shrinkage has arisen in relation to the well-functioning labour market.

To tackle the problem, one can use the input factors of production more efficiently and/or improve labour productivity. New technologies, artificial intelligence and non-traditional

forms of work organization will play a decisive role in this process. The increasing importance of the implementation of new technologies was also confirmed by the SWOT analysis carried out by the European Commission in 2017. The implementation of cutting-edge ICT will open up ample opportunities, such as for instance making up for the upcoming negative impact of the population change in many EU countries. These trends are taken in account in the GDP forecasts because the expected volume of the working age population is used in their calculations. It is obvious that the COVID-19 pandemic is one of the driving forces for the introduction of new technologies within and beyond the sphere of production. The need to perform a number of work tasks with the latest information and communication technologies means that the modern solutions, which were only a topic for discussion in connection with the labour market before, have become a part of everyday working life. In this sense, the COVID-19 pandemic is not only a determinant, but also a major accelerator of the recent technological and labour market-related progress.

5. Conclusion

Even though there is a number of methods and indicators to track economic performance, GDP is still one of the widely used to assess quantitative macroeconomic situation and economic growth. GDP provides a snapshot of a country's economic growth in a given period of time or over some period of time, and it is necessary to know what factors decisively affect the economic growth. One of these factors is labour, both within and beyond the sphere of production. The relationship between GDP growth and the labour market situation is therefore an established fact.

Economic growth varies across countries as each country has different characteristics, capabilities and potential, which result from structural differences. This is why six diverse economies of the world, such as China, the USA, Russia, India, the EU and the Slovak Republic, were selected. The purpose was to identify and describe global trends related to their economic developments and labour market developments. Recently, labour market and economy-related trends have been shaped by the COVID-19 pandemic, even though a number of other factors play a part (demographic developments and related generational differences in expectations and preferences, changes in the organization of work, implementation of scientific and technological progress, use of new information and communication technologies, etc.).

Following the analyses of the historic GDP evolution and GDP projections and the share of the working-age population in total population, an ever increasing gap between the two examined indicators can be observed. While there is an upward long-term trend in GDP of various intensity in all the economies analysed, long-term projections of the share of the working age population in total population indicate a decline (except for India and Russia, where a relatively constant level of this share is expected as of 2030). It is assumed that the contradictory evolution of these indicators will give an impetus for countries to think of substitutions of labour. The projected GDP growth must be achieved with the shrinking size of working age population.

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