

***INSTITUTE OF ECONOMIC RESEARCH  
Slovak Academy of Sciences***

***Economic Development of Slovakia  
in 2020***

*Focused on:  
How the Coronavirus Crisis Is Changing  
the Economy*

***Karol Frank – Karol Morvay et al.***

***Bratislava 2021***

***Team of authors (in alphabetical order):***

Ing. Karol Frank, Ph.D.  
Ing. Martin Hudcovský, Ph.D.  
Ing. Veronika Hvozdíková, Ph.D.  
Ing. Tomáš Jeck, Ph.D.  
Ing. Karol Morvay, Ph.D.  
Ing. Ivana Šikulová, Ph.D.  
Ing. Mária Širaňová, M.A., Ph.D.

The authors are employees of the Institute of Economic Research, SAS.

***Reviewed by:***

Ing. Edita Nemcová, Ph.D.  
Ing. Eva Pongrácz, Ph.D.

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## INTRODUCTION

The economy, like society as a whole, changes a little every year. We have been noticing this on the pages of the publications "Economic Development of Slovakia" for the 28th time. But there are also such moments in the development of economies when it is clear to the observer that these are not "common" developmental changes. The year 2020 was undoubtedly such a moment. It probably sounds provocative, but from the point of view of observers and researchers, it was a good year – he gave a lot of research topics. Paradoxically, unpleasant, society-stressing economic shocks tend to be attractive times for researchers.

It has become a good habit that every year our publication has one of its central motifs, a cross-cutting issue on which it focuses its attention. In assessing economic developments in 2020, it would be difficult to compete with the issue of the effects of the coronavirus crisis. Therefore, we selected it as a central area of interest. But we don't just want to see it as a phenomenon that shook the economy that year. Rather than a phenomenon that shook the economy, but also changes it more permanently (therefore, in the subtitle, the term "is changing" and not "changed"). We are, of course, noticing the shock and the changes in economic parameters brought about by the pandemic crisis and the associated economic depression, but also the longer-term processes and changes that are caused by them.

The team from the Institute of Economics of the Slovak Republic is preparing this annual analytical and evaluation view of the economic development of Slovakia since the establishment of the independent Slovak Republic. Although the title of a publication always contains a specific year to which the evaluation relates, this does not mean that close attention is paid to that year alone. We try to place development tendencies in the context of a longer period of time.

The sequence in this analysis progresses from an initial summary view through a number of more detailed views on sub-issues (selected areas of competitiveness, macro-stability, market functioning and policy), to an indication of changes in the future trajectory of development.

## 1. OVERALL ECONOMIC DEVELOPMENT

In this introductory chapter, we will present a summary view (view "from above") of main specifics of the development of the Slovak economy in 2020 – and we will place these moments in a broader time frame. We do not have the ambition to completely map macroeconomic developments. Rather, it is a reminder of some phenomena that were characteristic of the period and should not escape attention. Several partial problems and points of interest are then the subject of attention in the next chapters.

Given the remarkable phenomena in the real economy, we focus here on:

1) Economic downturn; a view of the decline in real GDP from several sides. We will examine similar and different features with the previous economic depression and sharpen a more structured view of the economic downturn.

2) Labor market response to depression. The unemployment rate has not reacted as strongly to the economic downturn as in the past. We will try to justify it.

3) The problem of the already apparent loss of the competitiveness factor in the form of lower unit labor costs. Economists have been drawing attention to the risk of losing the competitive advantage of lower unit labor costs (ULC) for a long time. At present, such risk has already materialized and ULC in the Slovak Republic has already exceeded the level of some more advanced economies.

This chapter is divided into these three problem areas.

### ***Economic Downturn: The Depth of the Fall Is Like the Previous One, but for Reasons Quite Original***

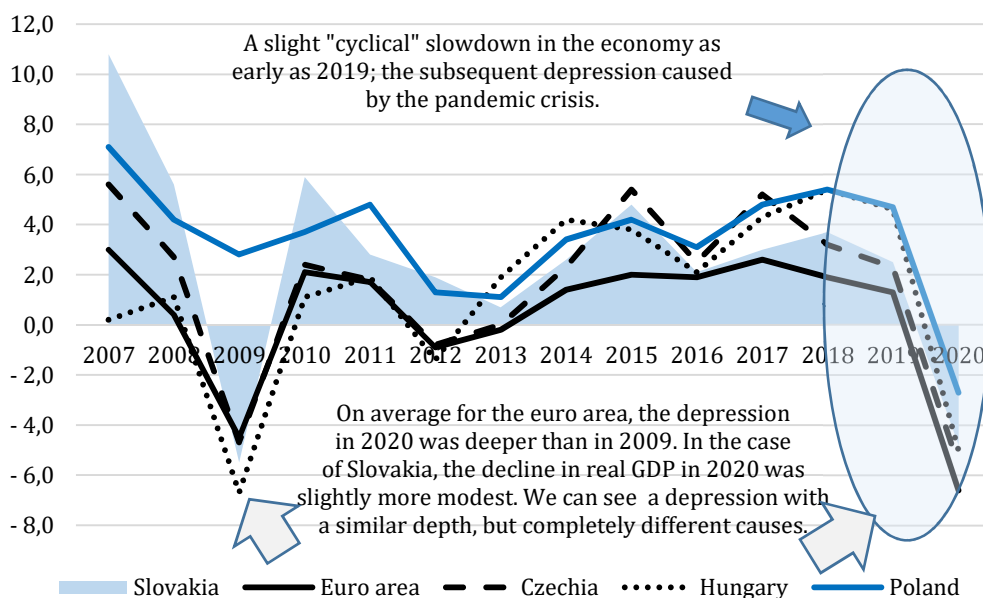
The first association for macroeconomic development in 2020 is probably the "coronacris" and the associated economic depression. This is shown in Figure 1.1 as similar to that of 2009. Similar to the depth of decline, not the causes, the course or the consequences. While the economic depression of 2009 had an economic origin (although from

the point of view of the Slovak economy it was external) in the form of a shock on financial markets, the depression in 2020 had a non-economic origin (pandemic protection limited some economic activities and labor use). Restrictions on some activities and restrictions on the workforce have brought a widespread shock to the supply side of the economy. However, the unused labor force meant limited household income and the resulting negative shock for the demand side of the economy as well.

The rate of decline in real GDP (-4.8%) in the Slovak Republic was lower than the euro area average (see Figure 1.1). As early as 2019, there was a slowdown in economic growth, which, however, was more related to standard cyclical and structural changes – and was not related to the coming depression (and the pandemic that caused it).

Figure 1.1

**Mild Cyclical Downturn Followed by a Deep Depression – Changes in Real GDP in the V4 Countries and the Euro Area Average (%)**



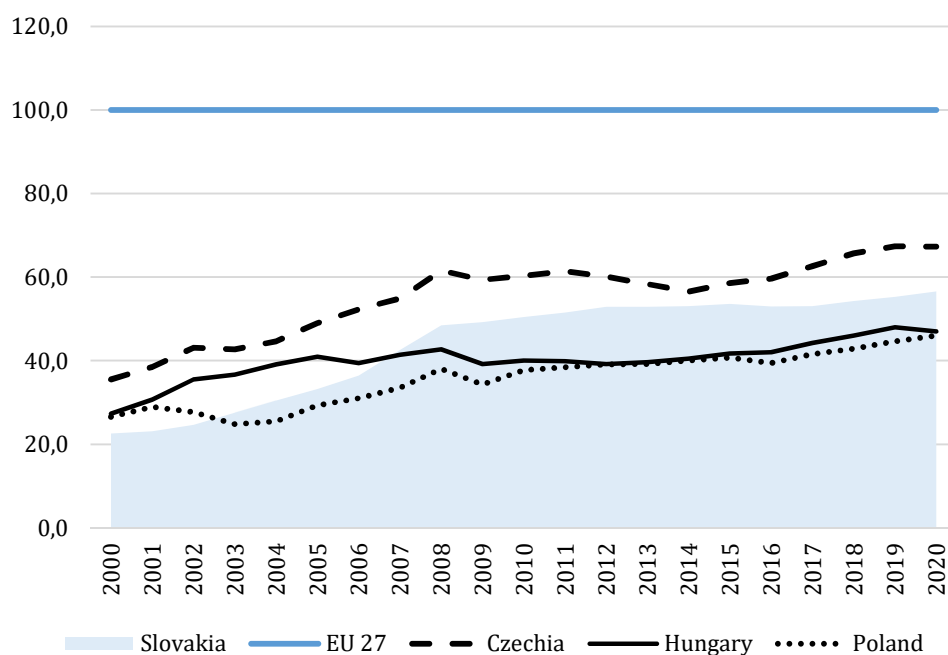
Source: Eurostat, Authors' processing.

In previous issues of our analysis, we have critically assessed the stagnation of the process of catching up with GDP per capita in more

advanced economies. Figure 1.2 shows a flattening of the GDP per capita development curve in the period after 2011 (more in Morvay et al., 2019). Here we use the expression of the economic level in euros (at the time of processing the data were not yet available in the purchasing power standard for 2020). Seemingly paradoxically, during the 2020 depression, the level of the Slovak economy converged with the levels of the EU27 again. This was related to the fact that, on average in the EU27, the economy declined even more sharply than in the Slovak Republic.

Figure 1.2

**GDP per capita** (current prices, EUR) **in Relation to the EU27 Level**  
(EU level 27 = 100)



Source: Authors' calculations based on Eurostat data.

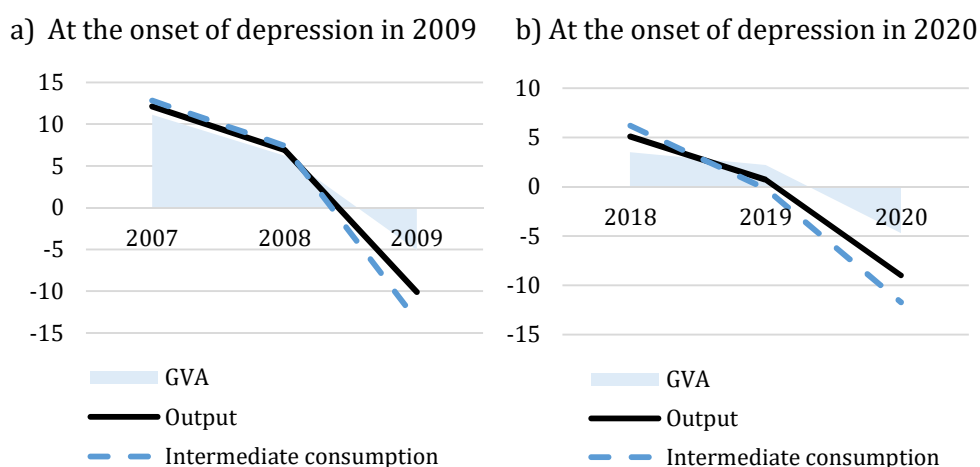
In the next steps, we will focus on the "anatomy" of the economic downturn. We will use the possibility of calculating the GDP indicator by three methods. We confront the development of parameters in the 2020 depression with the previous depression. We can present several very similar traits (they can be called patterns), which appeared despite the significantly different causes of depression:

1) Looking at the production method of GDP calculation, we state a significant decline in gross production, which was only partially reflected in the decline in value added (and thus also in the decline in GDP, Figure 1.3). This is because intermediate consumption tends to fall even more sharply in depression than production falls.<sup>1</sup> And since value added (and the GDP derived from it) is the difference between output and intermediate consumption, value added falls less sharply than output. Already in 2019, the volume of production stagnated and the growth in the volume of value added was made possible by a decrease in intermediate consumption.

Figure 1.3

**Changes in Selected Components of GDP According to the Production Method of Calculation**

(year-on-year changes in % at the onset of economic depressions)



Note: Calculations from constant prices data. GVA – gross value added.

Source: Authors' calculations based on the data of the Statistical Office of SR.

2) When assessing the decline in real GDP across the categories of its use (expenditure method of GDP calculation), the difference between the two groups of parameters stands out: Gross fixed capital formation and

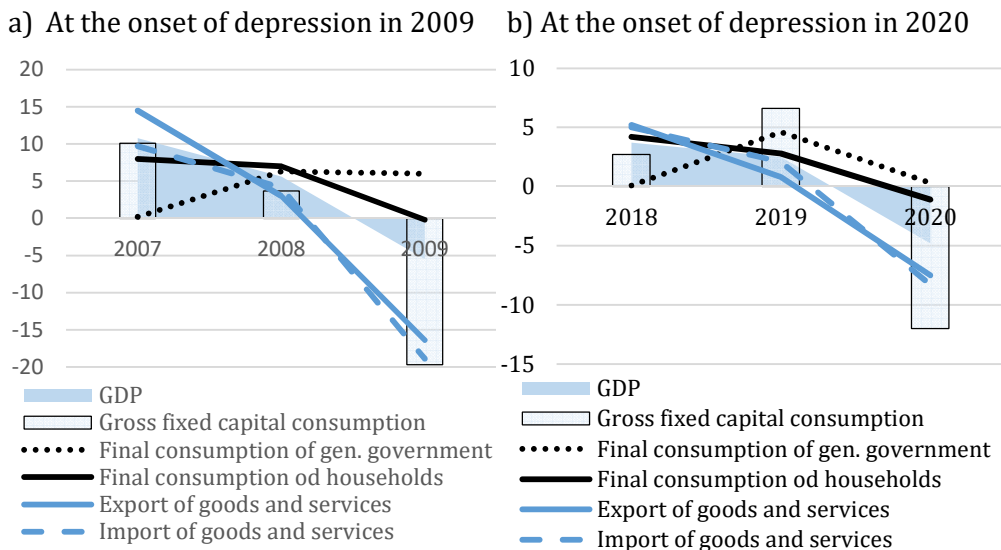
<sup>1</sup> At the onset of the downturn phase, the pressure on efficiency increases, and the use of inputs is rationalized. Due to the expected difficulties with the sale of production, companies limit the purchase of production inputs. This contributes to a sharp decline in the volume of intermediate consumption as well as to a decline in imports.



exports of goods and services are subject to very significant negative fluctuations in both periods (see Figure 1.4). On the contrary, both components of final consumption have a dampening effect on the decline, especially general government final consumption mitigates the decline in GDP. At critical moments of economic downturns, external demand (represented by exports) falls more sharply than domestic demand (final consumption + gross capital formation).

Figure 1.4

**Changes in Selected GDP Components by Categories of Use (expenditure)**  
(year-on-year changes in% at the onset of economic depressions)

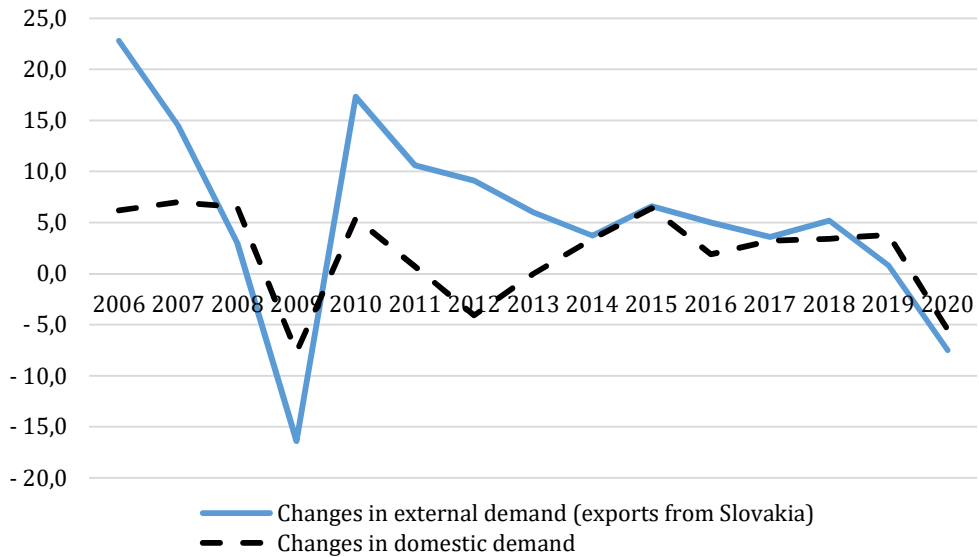


*Note:* Calculations from constant prices data.

*Source:* Authors' calculations according to the data of the Statistical Office of SR.

3) A view of the economic downturn across income categories (the income method of calculating GDP) reveals a significant structural change: the ratio between profits (more precisely, net operating surpluses) and wages (compensation of employees) has shifted significantly in favor of wages. But this is not a break in development trends, but rather a continuation and strengthening of the trend observed since 2014. The growing rarity of the workforce in the period 2014 – 2018 has skewed the ratio of profits and wages in favor of wages.

**Figure 1.5**  
**Changes in Domestic and External Demand**  
 (year-on-year changes in%)

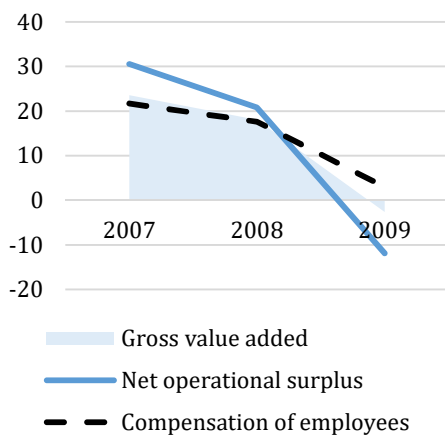


*Note:* From data at constant prices.

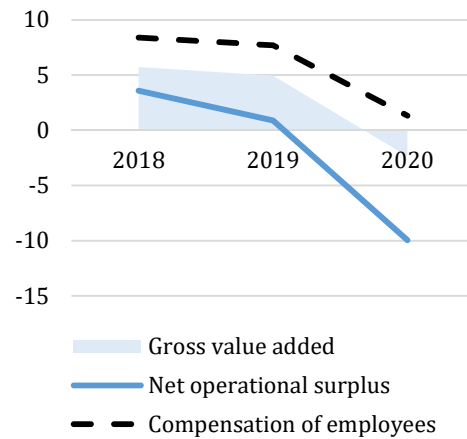
*Source:* Eurostat.

**Figure 1.6**  
**Changes in Selected Components of GDP According to the Income Method of Calculation**  
 (year-on-year changes in% at the onset of economic depressions)

a) At the onset of depression in 2009



b) At the onset of depression in 2020



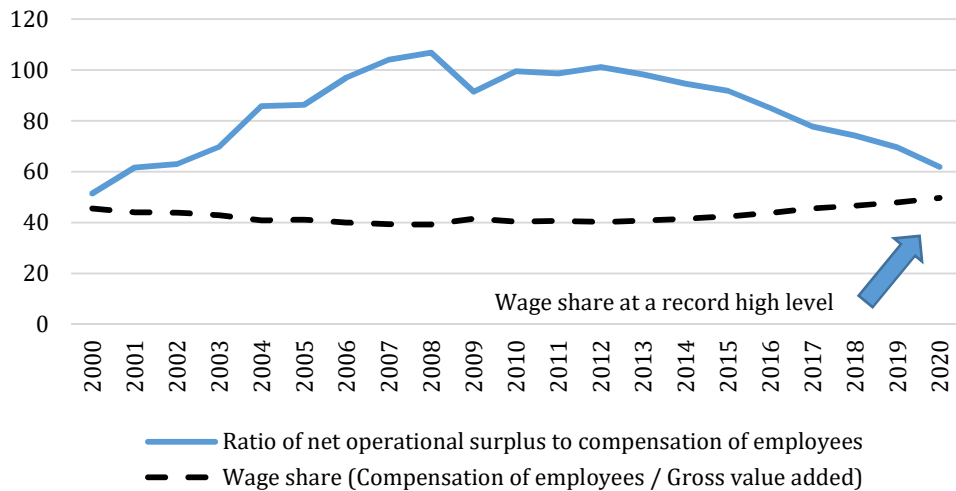
*Note:* Calculations from data in current prices.

*Source:* Authors' calculations based on Eurostat data.

And the subsequent slowdown and downturn in the economy (2019, 2020) brought with them a phenomenon typical of the downturn phases: when the economy slows down, profits usually fall very rapidly (they are volatile), but compensations of employees are more stable. The result is an increase in the share of compensations of employees in the total volume of income (the so-called wage share or labor share is growing) and a change in the profit to wages ratio in favor of wages (both phenomena are shown in Figure 1.7).

Figure 1.7

**Net Operating Surplus to Compensations of Employees Ratio**  
(Simplified: Profits to Wages Ratio) and the **Wage Share** (all in %)



*Note:* Calculations from data in current prices. OZ – Remuneration of employees.

GVA – Gross value added.

*Source:* Authors' calculations based on Eurostat data.

In 2020, the wage share (compensation of employees/gross value added) reached the highest value in the history of the Slovak Republic, namely 49.7%. At the same time, until approximately the period 2011 – 2012, the Slovak economy was characterized by a low and declining wage share. Since then, it has been growing continuously, as can be seen in the bottom row of Table 1.1. The problem is that continuous wage growth has taken place at a time when labor productivity growth is slowing; this constellation weakened one of the most important traditional

competitive advantages of the Slovak economy. We will return to this phenomenon in section 1.3.

An exceptionally high wage share (for the conditions of the Slovak economy) was achieved in 2020 even though the growth in the volume of compensations of employees slowed down significantly (Table 1.1). But with the decline in total value added, even weak employee compensation growth was sufficient for the wage share to jump up almost two percentage points year-on-year to a record level.

**Table 1.1**  
**Parameters of Wage and Wage Share Development**

	2013	2014	2015	2016	2017	2018	2019	2020
Nominal wages (year-on-year change in%)	2.4	4.1	2.9	3.3	4.6	6.2	7.8	3.8
Real wage (year-on-year change in%)	1.0	4.2	3.2	3.8	3.3	3.6	5.0	1.9
Average compensation per employee (year-on-year change in%)	2.6	2.0	3.7	2.2	5.1	5.9	6.8	3.3
Volume of compensation of employees (year-on-year change in%)	2.0	4.2	6.3	5.1	7.9	8.4	7.7	1.3
Gross value added (year-on-year change in%)	0.7	2.2	4.3	1.7	3.7	5.7	4.9	-2.3
Wage share (%)	40.7	41.5	42.3	43.7	45.5	46.6	47.9	49.7

Source: Authors' calculations based on data from the Statistical Office of SR and Eurostat.

### ***The Labor Market Has Reacted More Mildly than in the Past Economic Shocks***

The fact that the parameters of the labor market are reacting unfavorably to the economic downturn is a matter of course. It is less obvious that the response of the labor market to the current economic downturn is significantly milder than in previous downturns (Figure 1.8). Looking at the three slowdowns in the Slovak economy in the last two decades, we are seeing a gradually weaker impact on the unemployment rate. With a relatively modest economic slowdown in 1999, the unemployment rate rose sharply by 4 percentage points (to 16%), with the depression in 2009 the unemployment rate rose by 2.6 percentage points

(to 12.1%) and with the depression in 2020 it rose only by 1 percentage point (to 6.8%). It is thus clear that changes in the unemployment rate are gradually to a lesser extent a function of fluctuations in economic performance. The non-economic, demographic factor plays a very important role in explaining this phenomenon. When "pairing" data from Figures 1.8. and 1.9. we find that the following plays a role in mitigating the rise in unemployment in the economic depressions:

- Gradually easing decline in the number of workers in three consecutive depressions (the least significant decline in real GDP in 1999 was associated with a decline in employment by 71 thousand people; a significantly deeper decline in the economy in 2009 meant a decline in employment by 67 thousand and a similarly deep decline in the economy in 2020 brought a decline in employment "only" by 53 thousand). This is the result of the structural changes in the economy<sup>2</sup> over the two decades and the implementation of employment policies.<sup>3</sup>
- A fundamental change in the development of the number of people in productive age. With earlier economic depressions (especially in 1999, but to a lesser extent also in 2009), the year-on-year change in the number of people in productive age was markedly positive. At that moment, this complicated the development of the labor market in the short term – it increased the unemployment rate. In the depression in 2020, on the other hand, the number of people in productive age fell sharply, which dampened the rise in unemployment. This demographic factor had the opposite effect on the actual economic depression as on earlier depressions.

Employment protection measures of the government alone are not a sufficient explanation for the relatively modest increase in unemployment in 2020; the impact of the demographic factor must be clearly added to them. And it is necessary to take into account the fact that the unemployment rate in the past depressions did not increase only in the year of the economic downturn itself, but also shortly after it. Such a delayed response is natural in the labor market.

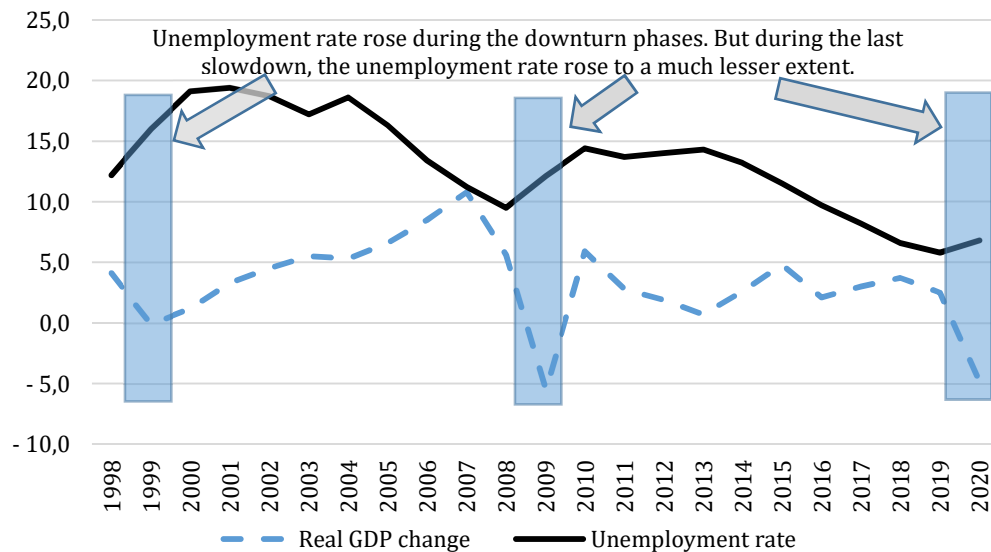
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<sup>2</sup> Significant shocks in the labor market during the economic downturn in 1999 – 2001 were largely caused by fundamental structural changes and a change in the regulatory framework of the economy at that time.

<sup>3</sup> See the chapter on employment changes.

Figure 1.8

### Economic Downturns and a Change in the Unemployment Rate in Them (year-on-year changes in real GDP in % and unemployment rate in %)

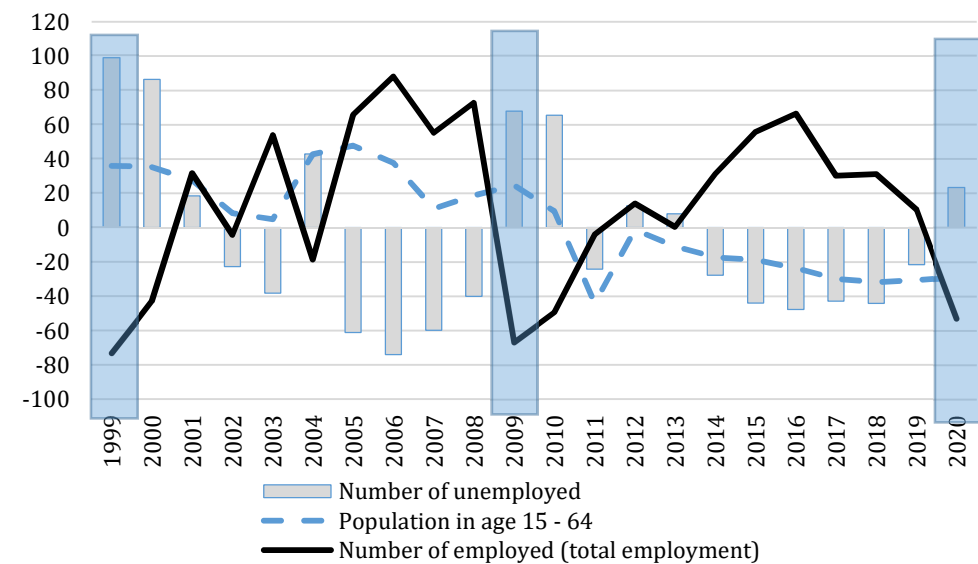


Note: Unemployment rate according to the labor force survey.

Source: Eurostat, Authors' processing.

Figure 1.9

### Changes in Employment, Unemployment and Working Age Population (year-on-year increases / decreases in thousands of persons)



Note: Employment and unemployment according to the labor force survey. The moments of economic slowdown are marked.

Source: Authors' calculations based on data from the Statistical Office of SR.

## ***The Loss of the Competitive Advantage of Lower Unit Labor Costs Is Already Apparent***

For a long time now, a warning against the erosion of the traditional competitive advantage of the Slovak economy in the form of lower unit labor costs has appeared in economic debates. In the period from about 2015, this risk visibly materialized (Figure 1.10). And in 2019 and 2020, the upward trend in unit labor costs intensified significantly. Unit labor costs in industrial production in the Slovak Republic have already exceeded the level of the EU15 average (we take the EU15 as a "benchmark", as this is an economically more advanced part of the EU). We focus our attention on the industrial production sector because it is in this sector that unit labor costs (ULC) play a significant role in determining international competitiveness.

Here, we quantify ULC as the ratio of average compensation of employee to labor productivity.<sup>4</sup> Already in last year's issue of our assessment of the economic development in Slovakia, we addressed the problem of rising labor costs with slower productivity growth. However, further developments have deepened this problem. The expansion of ULC in industrial production in the Slovak Republic in 2020 was due to the continuing growth of the average compensation per employee (also in the economic depression) and the slowdown in labor productivity dynamics. The process of losing this factor of competitiveness, which has been observed for several years, has thus taken on a new dimension<sup>5</sup> and can be expected to be a long-term challenge even after overcoming the current macroeconomic shocks. Thus, the factors of competitiveness, which are dealt with in the chapter 2, gain even more importance.

Figure 1.11 provides an overview of the development of ULC determinants. In the period after overcoming the financial crisis and the economic depression (2009), the catching up of the EU15 level slowed down

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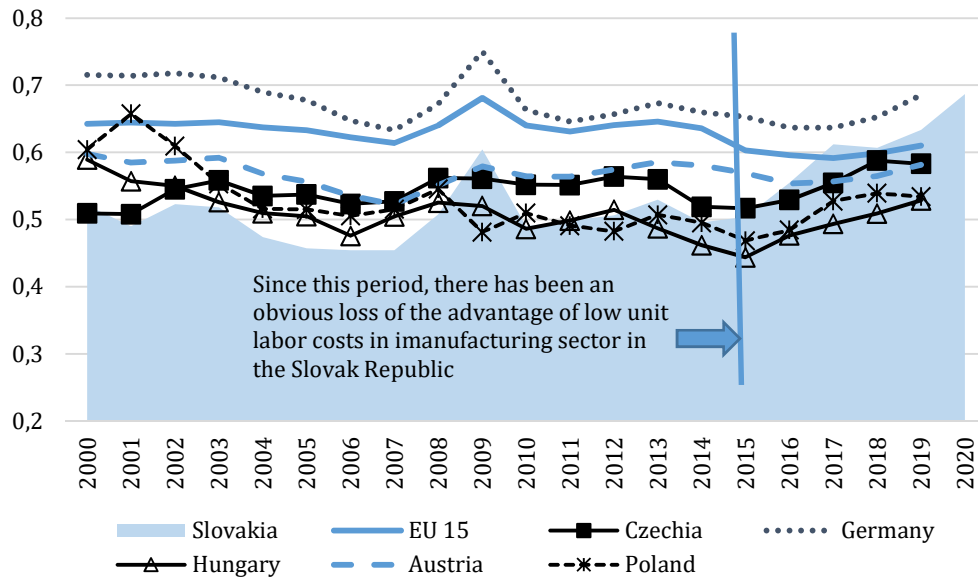
<sup>4</sup> The ULC fraction numerator, average compensation of employees is calculated as compensation of employees/number of employees. Number of employees according to the national accounts methodology (domestic concept). The denominator of the fraction, labor productivity, is calculated as gross value added per employed person.

<sup>5</sup> The data for the Slovak Republic in 2020 could not yet be compared with the EU15 average (due to missing data from some countries at the time of word processing), but based on trends from previous years, we assume a higher level in the Slovak Republic.

in the case of both determinants – average compensation of employees and labor productivity.

Figure 1.10

**Development of Unit Labor Costs in Manufacturing**

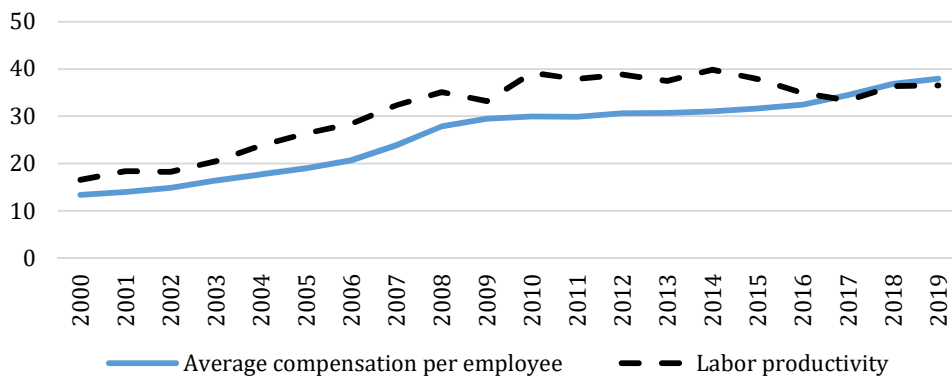


*Note:* Calculated as the ratio of average compensation of employees to labor productivity. Labor productivity expressed as added value per employed person.

*Source:* Authors' calculations based on Eurostat data.

Figure 1.11

**Development of Determinants of Unit Labor Costs in Manufacturing in Slovakia: Average Compensation of Employees and Labor Productivity (ratio to level in the EU15, values in the EU15 = 100)**



*Note:* Labor productivity expressed as value added per employed person.

*Source:* Authors' calculations according to Eurostat data.



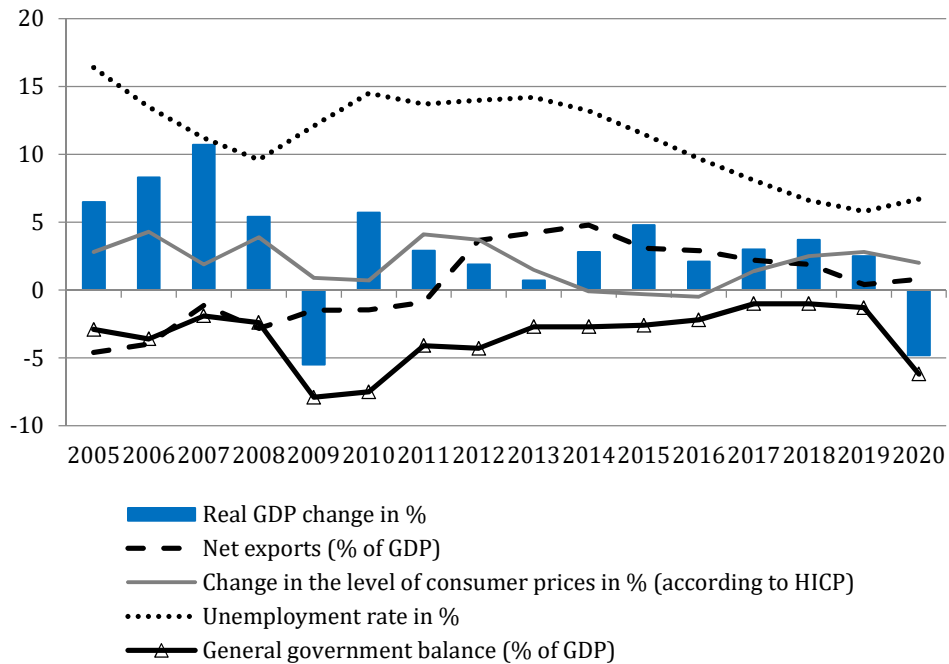
However, the turning point has been interesting since about 2015: in the Slovak Republic, the tendency to catch up with the average compensation of EU15 employees has resumed. But catching up with the level of labor productivity in the EU15 has not taken place. The Slovak economy lost the advantage of lower ULCs not only over the advanced economies of the former EU15, but also over the former transforming V4 economies.

### ***The Process of Consolidating Macro-Stability Is Interrupted – in Line with Expectations***

The long-standing trend of consolidating macroeconomic balance has been disrupted. In the period 2011 – 2019, we observed an approximation of the basic parameters of stability with their equilibrium value:

- Deficits in the general government budget decreased, approaching 0% of GDP, although they did not reach this value. They did not achieve it, despite the government's repeatedly declared interest in achieving a balanced budget.
- The inflation rate has reached a value close to 2%, which is slightly above the monetary policy target.
- Unemployment rates have been steadily declining to new historical lows each year.
- The balance of exports and imports of goods and services (so-called net exports) reached slightly positive values.
- At the same time, the growth of the economy was maintained. In this simple assessment, it can be stated that the requirement of growth and maintaining a sufficient level of macro-stability was met in parallel.
- The development of only one of the above-mentioned macroeconomic stability indicators was significantly complicated in 2020 (with real GDP declining). It was the general government balance. In the case of others, we observe only a relatively slight deviation from the current favorable trend: e.g. the unemployment rate has (so far) only returned to the level of 2018, the consumer price index did not resemble the risk of deflation (as in the previous depression) and the slightly positive value of net exports persisted.

Figure 1.12

**Development of Basic Parameters of Performance and Stability**

*Note:* Unemployment rate according to the labor force survey.

*Source:* Eurostat, Statistical Office of SR and Authors' calculations according to these data.

\* \* \*

The fact that the economic depression caused by the sudden non-economic shock changed the development tendencies of the economy is not surprising. The change in macroeconomic figures is not even as dramatic as predicted in the first half of 2020 when the "pandemic crisis" began. The decline in real GDP turned out to be less profound, real wage growth was maintained, the unemployment rate rose only slightly ... as if the economy was able to adapt to the shock more successfully than economists and the public expected. In the following, we will examine the impacts on partial areas in more detail. However, such a non-standard economic depression does not only change numerical parameters. It also changes the functioning of the economy, its quality. And we will return to these issues.

## 2. QUALITATIVE FACTORS OF ECONOMIC DEVELOPMENT

The Slovak economy is constantly searching for qualitative factors in terms of economic growth. It faces many external challenges and threats, which at the same time represent possible impulses for more intensive transformation and strengthening of domestic research and development (R&D), innovation development and digitalisation. The apparent loss of the price competitiveness factor in the form of higher unit labour costs in Slovak industry was highlighted in the previous chapter. The turbulent development of world trade, demographic changes, the challenges of robotisation and automation in industry and services, and the impact of climate change were compounded by the COVID-19 pandemic in 2020. This new situation has brought science and research to the fore as positive factors for the progress of civilisation. The anti-pandemic measures being taken have not only highlighted the need for, but also revealed the opportunities and limitations of digital infrastructure across the economy and society. In this chapter, we briefly analyse R&D developments over the last years, focusing on the field of medicine. In the second part, we focus on the development and drivers of the digital society, especially in the context of the COVID-19 pandemic.

### *R&D in Slovakia*

According to the indicators presented in Table 2.1, R&D in Slovakia has not experienced a significant year-on-year change in the last year<sup>6</sup> that would merit increased attention. The intensity of R&D (gross expenditure on R&D as a percentage of GDP) has been stagnating at 0.8 – 0.9% of GDP for the last four years. This stagnation can be explained by the slow absorption of EU funds in 2019, on which public R&D expenditure depends, as well as by the lack of activity in corporate R&D expenditure, where growth has stalled at 0.45% of GDP in 2019 after a positive trend in 2015 – 2017. We do not foresee a substantial increase in corporate R&D intensity in the period 2020 – 2021, especially in view of the economic

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<sup>6</sup> Most statistics on R&D or innovation are published with a two-year lag.

impact of the pandemic. Considering the development in the second half of the 2014 – 2020 programming period, we expect some increase in the uptake of EU funds allocated to R&D and innovation.

Table 2.1

**Selected Indicators of Research and Development 2015 – 2019**

	2015	2016	2017	2018	2019
<b>Financovanie VaV:</b>					
Gross expenditures on R&D (% GDP)	1.18	0.79	0.88	0.84	0.83
Divided by sector of performance (% GDP)					
Government	0.33	0.17	0.18	0.18	0.17
Business	0.33	0.40	0.48	0.45	0.45
Higher education	0.52	0.22	0.22	0.20	0.21
Divided by source of funds (% of total):					
Government	31.9	41.0	35.5	38.0	40.5
Business	25.1	46.2	49.0	48.9	46.8
Rest of national sources	3.6	2.1	1.7	1.9	2.1
Abroad	39.4	10.7	13.8	11.2	10.7
<b>R&amp;D personnel</b> (persons as of 31st December)	28 752	33 252	33 467	35 770	36 309
<b>Outputs of R&amp;D:</b>					
Domestic patent applications <sup>2</sup>	228	220	183	217	206
Number of domestic patent applications <sup>2</sup> per 1 000 R&D employees	7.9	6.6	5.5	6.0	5.7
Number of EPO applications <sup>3</sup>	47	44	41	51	42
Number of EPO applications per 1 000 employees R&D	1.6	1.3	1.2	1.4	1.2

Notes: <sup>2</sup> Domestic patent applications filed at the Industrial Property Office of the Slovak Republic.

<sup>3</sup> European patent applications per country of residence of the first-named applicant.

Source: IPO (2020); SO SR (2020); EPO (2021); Eurostat (2021).

We expect this factor to increase the share of public R&D resources but given both the remaining constraints on the providers' side and the barriers on the beneficiaries' side (limited absorption capacity and attendant administrative burden), this uptake growth will not be dramatic. In 2020 – 2021, the impact of the pandemic and the impact of political turbulence will be added to the stable factors limiting uptake. The growth in R&D intensity in the long term is not helped by R&D structural weaknesses, as noted in the European Commission report, 'the low quality of public research and limited collaboration with business, which can be partly explained by inefficiencies stemming from a fragmented governance system' (European Commission, 2020). The use of European Structural Funds will

also be affected by the creation of the European Recovery and Resilience Plan, which plans to allocate approximately EUR 6 billion to Slovakia in the long term, a substantial part of which is earmarked for the area of R&D and innovation. This, together with the EU funds (specified in the Partnership Agreement 2014 – 2020 and the Partnership Agreement 2021 – 2027), will significantly test the absorptive capacity of the public R&D sector and attendant capacity to manage and govern public investment. Business R&D expenditures in Slovakia are strongly linked to the foreign-controlled enterprise sector, which accounts for up to 80% of all business R&D expenditures. Thus, it can be assumed that business R&D expenditures will continue to depend on FDI inflows to Slovakia.

The fact of a pandemic in 2020 as a major event naturally raises the question of how national R&D systems in the medical sciences can meet the challenges of such a pandemic. If we consider funding as the main R&D indicator, medical R&D in Slovakia is in a very poor position compared to similar EU economies. In Table 2.2, we show gross expenditure on R&D per capita by science in 2018.

Table 2.2

**Gross Expenditure on R&D by Science Fields (EUR per capita, 2018)**

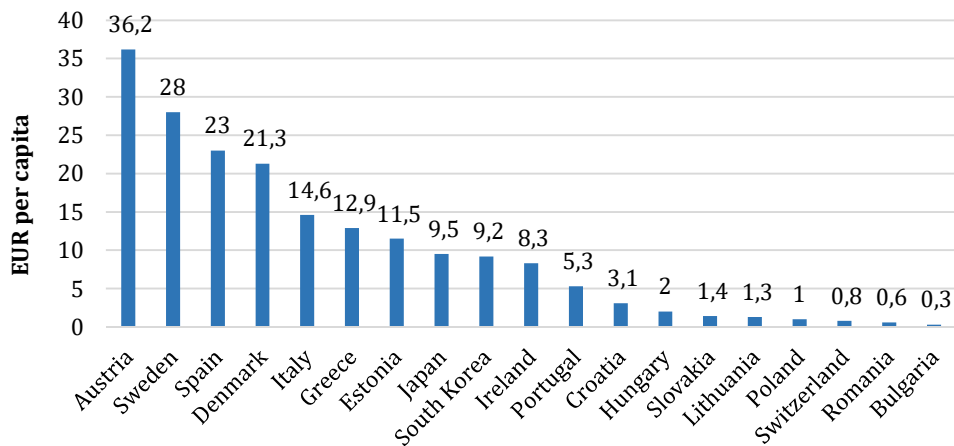
	Total	Natural sciences	Technological sciences	Medical and pharmaceutical sciences	Agricultural sciences	Social science	Humanities
Bulgaria	60	8	35	10	3	2	2
Czech Republic	378	128	191	25	10	13	11
Croatia	122	14	50	31	9	12	8
Cyprus	154	67	43	9	8	21	7
Latvia	96	32	33	13	10	6	3
Hungary	210	47	127	13	10	7	5
Malta	157	43	66	21	2	17	8
Poland	159	35	85	17	6	9	6
Portugal	269	62	119	34	9	31	15
Romania	53	8	38	3	2	1	1
Slovenia	432	124	196	66	14	16	15
<b>Slovakia</b>	<b>138</b>	<b>27</b>	<b>81</b>	<b>7</b>	<b>7</b>	<b>9</b>	<b>7</b>
Iceland	1 277	115	46	113	34	108	42
South Korea	1 279	216	934	59	25	26	18

Source: Eurostat (2021).

For comparison, we present the economies of Central and Eastern Europe; among the developed economies, data are available only for South Korea (one of the global R&D leaders). Although comparisons between regions may be distorted by different levels of purchasing power parity, the state of funding for medical and pharmaceutical sciences in Slovakia does not inspire optimism. A similar picture emerges when we look at the structure of gross R&D expenditure by socio-economic objectives. One of the objectives is the protection and improvement of health. Here we see (Figure 2.1) a very similar situation as in the previous table.

Figure 2.1

**Gross Expenditures on R&D on Health Protection and Improvement**  
(eur per capita, 2017)



Source: Eurostat (2021).

### ***Research, Development and Innovation in a Pandemic – A Global Perspective***

The R&D and business innovation sectors, like the rest of society, have been affected by the anti-pandemic measures. However, science, research and scientific expertise on a global scale have been key actors which are expected to find the final solution to the pandemic (diagnosis, effective treatment, vaccination), alongside the effectiveness of pandemic macro-management and the performance of health systems. The immediate impact of the pandemic on R&D and innovation can so far only

be ascertained through case studies, samples or ad hoc surveys. In standard R&D and innovation statistics, the impact of pandemia will only appear later. Looking globally, the impact of the pandemic on the R&D and innovation sector has been uneven. According to a study by Paun and Planes-Satorr (2021) in OECD countries, the impact of pandemic measures has been reflected in R&D through a decline in labour productivity, reduced access to the research infrastructure, a redirection of research activities towards COVID-19 disease topics, and constraints in human capital, mobility and training. According to an OECD survey (OECD, 2020), in the first half of 2020, three-quarters of scientists worked from home, half of the respondents expected to reduce their use of scientific facilities, and 40% of respondents expected to do less research. More than half of respondents reported concerns about their job security and career prospects. The impacts and pressures of the pandemic were felt more by younger grades and female researchers in R&D. Business research and innovation was limited by the constraints of formal and informal contacts (e.g. collaboration between enterprises and universities). In particular, SMEs have reduced R&D and innovation spending and have been forced to terminate or discontinue ongoing projects. Businesses have had to revise and reassess their planned innovation activities. Venture capital and patenting activity also weakened (in the first half of the year). Automotive and aircraft manufacturing saw a decline in R&D intensity in 2020. In contrast, but as expected, R&D intensity grew in the ICT and pharmaceuticals sectors.

### ***Without Physical Contact: the Development and State of the Digital Economy and Society in Slovakia***

While introducing emergency measures that restrict people's labour and social mobility, the existing rate of development of the digital economy and society is proving to be a key factor in adapting to sudden changes in conditions. The forced or voluntary limitation of immediate social contacts, the transition of part of the service sector to the home office, the widespread shift of pupils and students to distance learning, the change in purchasing behaviour, business models and leisure time

represent a positive external shock not only for the ICT sector but also for the public sector (education, health, public administration), households and the corporate sector. Issues such as the security of the digital economy, the fight against disinformation in the online space and questions around individual rights and freedoms in the context of the use of digital data as a tool to combat the pandemic are also coming under greater scrutiny. The transition to the home office model implies a sharp demand for certain types of digital services, e.g. cloud-based data sharing and video calls, creating higher demands on connectivity, as well as increasing demands (and spending) on digital security. In some countries, the successful digitisation of healthcare is proving to be a very effective tool for managing the fight against pandemics, as well as a way of reducing the social and economic costs of measures.

Access to basic digital infrastructure is a prerequisite for the digitisation of society. In Table 2.3, we present some indicators of household access to the internet. Slovakia is already close to the EU28 average in terms of households' access to the internet at home, or the share of households with broadband internet, although we are still slightly behind compared to other Central and Eastern European (CEE) countries.

Table 2.3

**Internet and Computer Coverage of Households in Slovakia and Selected Countries**

	SK	EU28	SK/EU28 (%)	EST	CZ	PL	HU
% of households with internet access at home (2020)	86	90	96	90	88	90	88
% of households with broadband internet (2020)	85	89	96	89	88	90	87
% of middle-income households with internet access at home (2020)	80	90	89	94	86	92	86
% of low-income households with internet access at home (2020)	82	80	103	70	63	75	61
% of households in rural areas with broadband internet (2020)	85	85	100	88	86	88	81
% of 65 – 74-year-olds who have never used the internet	30	32	93	36	31	48	41

Note: SK – Slovakia, EU – European Union, EST – Estonia, CZ – Czechia, PL – Poland, HU – Hungary.

Source: Eurostat (2021).



In Slovakia, 82% of low-income households (1st quartile of households by income) have access to the internet at home, which is slightly higher than the EU28 average and relatively higher than in other CEE countries. For middle-income households, the situation in Slovakia is different from the EU28, with 80% of middle-income households having access to the internet at home (the EU28 average is 90%). The situation in Slovakia is better in terms of access to broadband internet for households in rural areas, where we are on a par with the EU28 average.

We report access to the internet at home for low- and moderate-income households because the pandemic lockdown meant a shift of some economic activities to the home environment, and thus for about 20% of these households without access to the Internet, the inability to use online services combined with a lower income represented a large socioeconomic burden during the pandemic. The use of online internet services may reduce the negative impacts of the pandemic lockdown, especially for the older population.

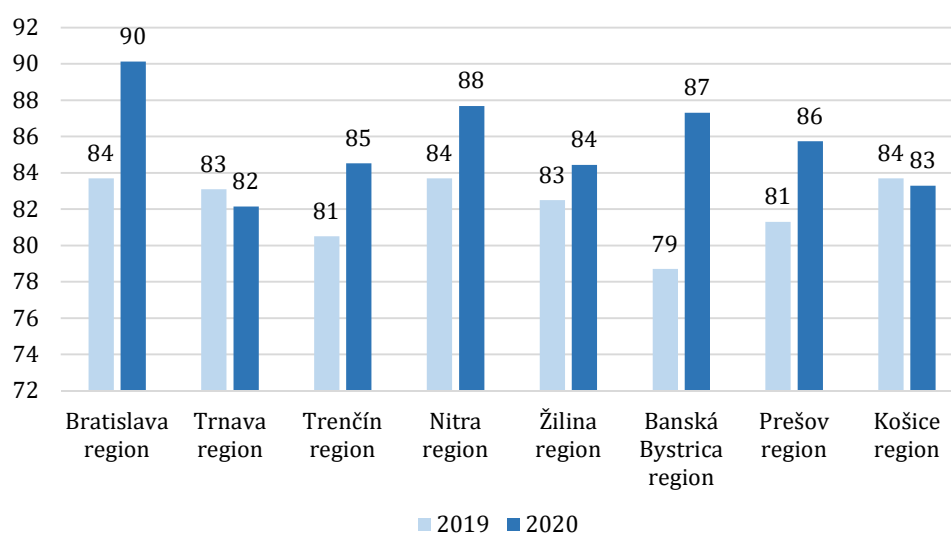
In this context, we provide an indicator for the percentage of 65 – 74-year-olds who have never used the internet. In Slovakia, the figure for 2020 is 30%, which is a relatively positive finding compared to the EU28 and other CEE countries, although it is still relatively high. In the period 2017 – 2019, the proportion of 65 – 74-year-olds in Slovakia who have never used the internet was as high as 53%. This is quite a significant jump, which can be attributed to the impact of the pandemic.

In the case of the population aged 16 – 74 who have never used the internet, the change was less pronounced, at 7% in 2020, compared to the 2017 – 2019 average of 12%.

Disparities in regional access to ICT in Slovakia persist, although they have narrowed considerably in the last year (Figure 2.2). All regions in Slovakia have internet coverage of more than 82%. On the positive side, however, there is a relatively large increase in the lagging regions, especially in the Banská Bystrica region between 2019 and 2020 (the share of households with internet access at home grew in every region except the Trnava and Košice regions).

Figure 2.2

### Household Members' Internet Access at Home by Region in 2019 and 2020 (% of households)



Source: SO SR (2020); SO SR (2019).

In Slovakia, the pandemic has significantly affected the education process throughout 2020. During the spring of 2020, full-time education (on primary and secondary levels) was suspended across the country (until 1 June). Universities also suspended full-time education (until the end of the summer semester), halls of residence were closed and international mobility of university staff was restricted. The resumption of distance learning also occurred at the beginning of the second wave of the pandemic (12 October) and lasted until the end of 2020. According to a survey by Ostertág and Čokyn (2020), 128,000 pupils (18.5% of the pupil population) did not study via the internet during the spring break of full-time education in primary and secondary schools (most of them, however, used other forms of distance learning). Online teaching was dominated by sending assignments by email or other communication channels (so-called asynchronous teaching). This problem was acute in the Prešov region (29.4%), the Košice region (27.3%) and the Banská Bystrica region (23.1%). For online learning, the biggest barriers were the pupils' lack of digital skills and insufficient internet speed on the teachers' side.

### ***Focused on eHealth***

The possibilities for international comparison on the level of national health systems digitalisation are limited, only two indicators are available: online search for health information and making an appointment with a general practitioner via a website (Table 2.4).

In the case of online health information searching, the Slovak population performs relatively well compared to the EU28, showing slightly above-average values. However, the “supply” side is also important for this indicator, i.e. to what extent the health facilities themselves make this service possible.

**Table 2.4**  
**eHealth in Slovakia and Selected CEE Countries in 2020**

	SK	EU28	SK/EU28 (%)	EST	CZ	PL	HU
<b>Online health information search:</b>							
% of total population	56	55	102	58	62	43	63
% of 65 – 74 year olds	39	37	105	32	41	35	42
% of low-income households	51	47	106	41	43	36	39
% of households in rural areas	53	47	113	56	58	37	54
<b>Making an appointment to see a general practitioner via the website:</b>							
% of total population	15	20	75	23	9	11	23
% of 65 – 74 year olds	8	13	61	9	7	4	13
% of low-income households	11	16	69	13	6	8	9
% of households in rural areas	12	13	92	21	7	5	14

*Note:* SK – Slovakia, EU – European Union, EST – Estonia, CZ – Czechia, PL – Poland, HU – Hungary.

*Source:* Eurostat (2021).

Table 2.5 shows the evolution of these indicators in 2017 – 2020. Comparing the values for 2020 and the trend for the previous period, we do not see the dramatic improvement that the COVID-19 pandemic could trigger.

However, it must be said that the digitalisation of healthcare services is itself a highly complex and extensive agenda, and the two indicators mentioned above fall far short of capturing its current state of development. They are based on national surveys of household use of ICT, thus examining the “demand” side of eHealth.

Table 2.5  
eHealth in Slovakia 2017 – 2020

		2017	2018	2019	2020	EU28 in 2020	Ranking of SK in EU28
Arranging a general practitioner appointment through the website	% of all who used the internet in the last 3 months	–	11	–	16	23	17.
Arranging a general practitioner appointment via the website	% of 55 – 74 year olds who have used the internet in the last 3 months	–	9	–	14	22	18.
Search for online health information	% of all who used the internet in the last 3 months	61	61	64	62	63	20.
Search for online health information	% of 55 – 74-year olds who used the internet in the last 3 months	65	65	66	67	61	10.

Note: SK – Slovakia, EU – European Union.

Source: Eurostat (2021).

One of the flagship projects of the digitalisation of the Slovak health-care system was to be the eHealth project, which was put into practice in 2015; and which, according to the Supreme Audit Office of the Slovak Republic (NAO, 2019), “did not deliver the expected benefits according to the original assumptions stated therein, thus failing to ensure the requirement(s) of economy, efficiency and effectiveness”. Only 1.8% of the total number of insured persons in Slovakia were registered in the system after its introduction.

One of the first, and partly controversial, anti-pandemic measures in Slovakia was a law allowing the use of mobile data of telecommunications operators by the state. The Public Health Authority of the Slovak Republic gained mass access to so-called location (but anonymised) data, which it can use to track the mobility of the population.

### 3. FOREIGN TRADE AND FOREIGN INVESTMENT

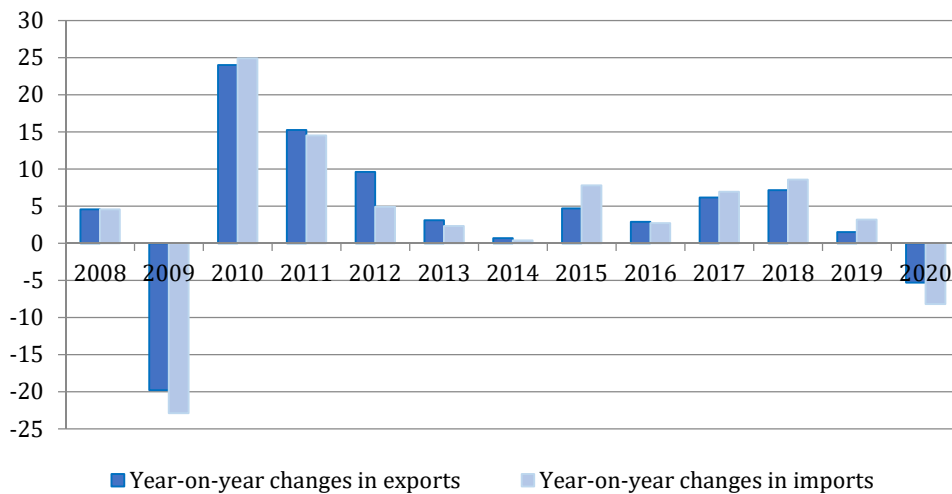
The pandemic year 2020 has hit Slovakia's foreign trade with full force. In this chapter, we take a closer look at how the changing situation in our country and beyond its borders was reflected in Slovak exports and imports during the year. We will also pay attention to the development of foreign direct investment in Slovakia and Slovakia's investment abroad, based on the data available so far.

#### *A Year Full of Extremes in Foreign Trade*

Already 2019 brought a slowdown in Slovakia's foreign trade dynamics compared to previous years, recording the weakest year-on-year growth since 2014 (Figure 3.1). This was particularly the case in the second half of the year, when weaker demand from Germany, Slovakia's most important trading partner, became apparent.

Figure 3.1

#### **Year-on-Year Changes in Exports and Imports since 2008 (%)**



Source: Based on NBS data (2021b), own calculations.

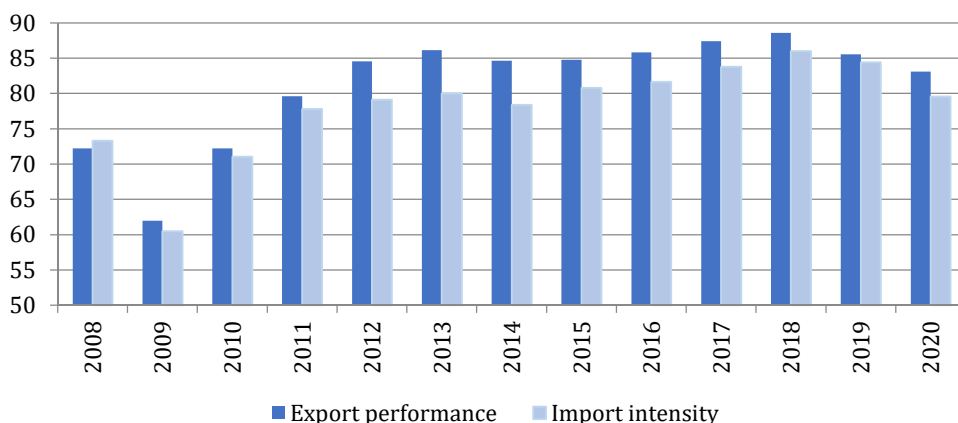
In 2020, marked by the pandemic (and in particular by its impact on the automotive industry), after a decade of year-on-year growth on both the export and import side, there was a slump, albeit much milder than

in 2009. Total merchandise exports amounted to EUR 76.1 billion, down 5.3% compared to 2019. Total imports stood at EUR 72.8 billion, down 8.2% year-on-year. Thus, the volume of both exports and imports fell below the level of 2018.

Due to a more pronounced decline in imports than exports, the full-year foreign trade balance in 2020 was positive at EUR 3.2 billion. Gross domestic product recorded a more moderate decline compared to exports and imports of goods, which was reflected in a reduction in the export performance as well as in the import intensity of the Slovak economy, similar to the previous year (Figure 3.2). The highest values of the two indicators so far were reached by the Slovak economy in 2018, when export performance exceeded 88% of GDP and import intensity reached 86% of GDP.

Figure 3.2

**Development of Export Performance and Import Intensity since 2008**  
(% HDP)

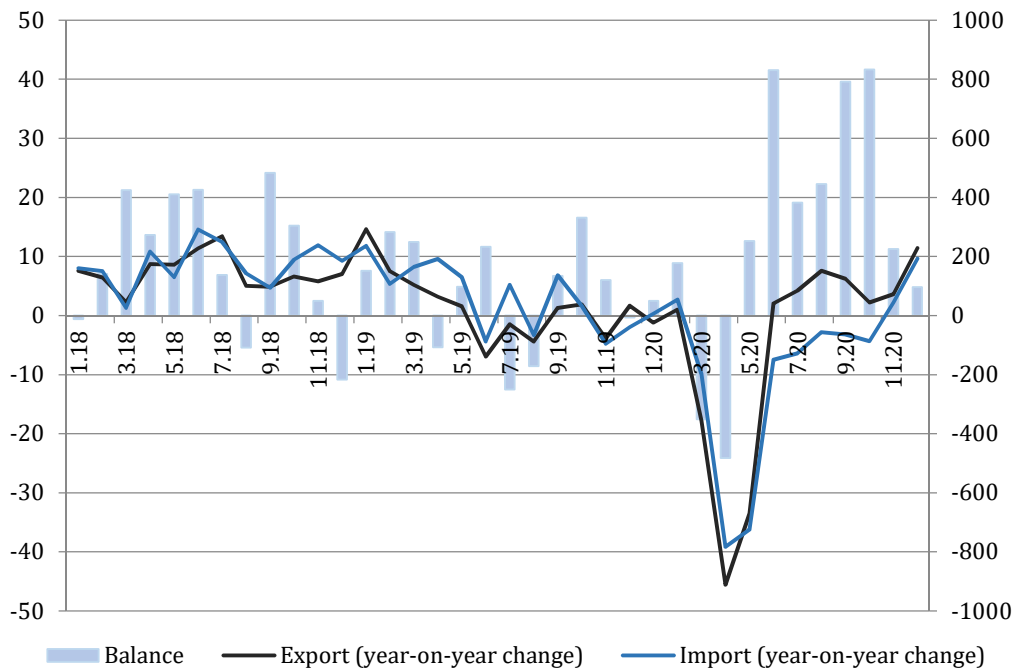


Source: Based on NBS data (2021b), own calculations.

Developments in different months of the year were particularly turbulent (Figure 3.3). The year-on-year decline in exports recorded in January was related to high exports a year ago, but exports rose month-on-month. In the spring months, the development of foreign trade was mainly influenced by the measures taken to contain the spread of the COVID-19 virus, namely the shutdown of production in the automotive and electrical industries.

Figure 3.3

**Year-on-Year Changes in Exports and Imports (left axis, %) and External Trade Balance (right axis, million euro) in Individual Months 2018 – 2020**



Source: Based on NBS data (2021b), own calculations.

This was already evident in the March figures, with exports falling by almost 20% year-on-year and imports by 10%. In April and May, both exports and imports fell by more than a third compared to the same period of the previous year (in April, exports fell by almost half). Exports stagnated on the one hand due to weakened demand and on the other hand due to problems in the supply of parts and components from suppliers. The unprecedented fall in exports with a more modest fall in imports in March and April resulted in high monthly foreign trade deficits, even the highest in more than a decade.

The easing of measures and the reopening of factories, the rapid recovery of foreign demand, as well as the additional filling of orders backlogged in the spring months, led first to a rebound on the export side in the second half of the year. However, this was accompanied by a lag in imports due to the accumulation of inventories from the beginning of

the year as well as some caution about future demand developments.<sup>7</sup> Slovakia's foreign trade therefore ended with monthly surpluses, which in June, September and October reached their highest levels in seven years.

In the last two months of the year, there was also a recovery on the import side, as firms started to rebuild their inventories after a long period of time. This led to lower monthly foreign trade balances. In terms of year-on-year changes, December was a record month for the whole year, with exports rising by over 11% and imports by almost 10%, the fastest growth since January 2019. Despite the decline (compared to the previous months), the December balance was unusually positive, mainly due to increased exports of automobiles.

### ***Exports and Imports in Commodity Terms***

From the commodity point of view, the highest share of Slovak exports and imports has long been in SITC 7 – *Machinery and transport equipment*, which also includes automobiles. In 2020, exports in this class accounted for 64% of total Slovak exports (Figure 3.4)<sup>8</sup> and imports for about half of total imports (Figure 3.5). Thus, over the last decade, the share of SITC 7 class in total exports has increased by 10 p.p. and in total imports by 8 p.p.

Thus, Slovak exports (and imports) are increasingly concentrated in a few groups of goods that have a relatively large share in total exports (imports). Such high and growing product concentration implies greater vulnerability of the economy to shocks in the dominant sector.

At the same time, there are undeniable benefits of the concentration of the Slovak economy on the automotive industry, which we will not discuss here.

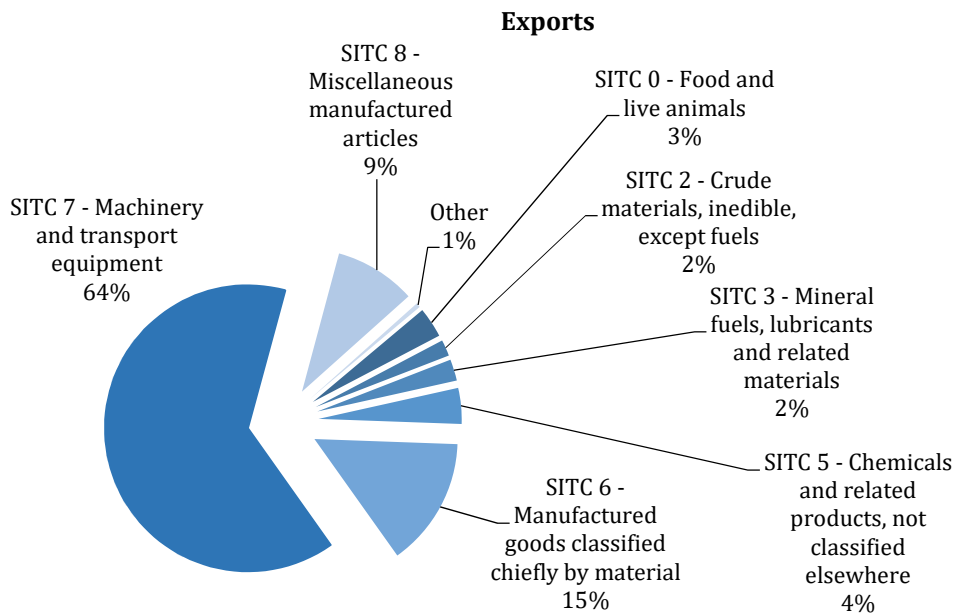
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<sup>7</sup> At this point, it is pertinent to mention that "*the motor vehicles sector of Slovakia depends heavily on imported intermediates, but the reliance on domestically produced intermediate inputs has increased over time. The share of direct imports in intermediate inputs of the motor vehicles sector decreased from 64 percent in 2005 to 53 percent in 2015. The trend is indicative of Slovakia moving up the value chain in the production of motor vehicles.*" (Banerjee and Zeman, 2021).

<sup>8</sup> Volkswagen Slovakia has long been the largest exporter, followed by Kia Motors Slovakia and PCA Slovakia.

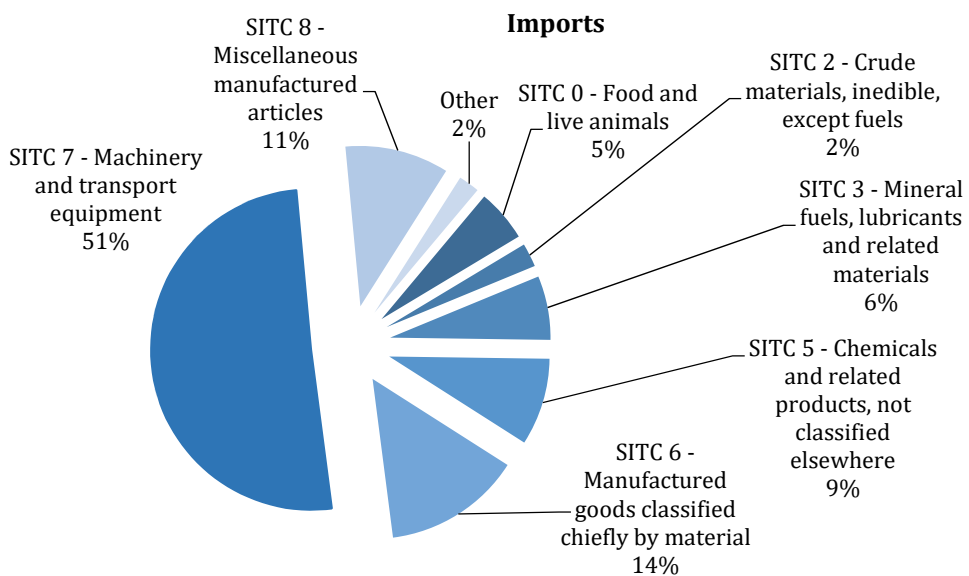


**Figure 3.4**  
**Export Structure by SITC Rev.4 Classes in 2020 (%)**



Source: Based on SO SR data (2021).

**Figure 3.5**  
**Import Structure by SITC Rev.4 Classes in 2020 (%)**

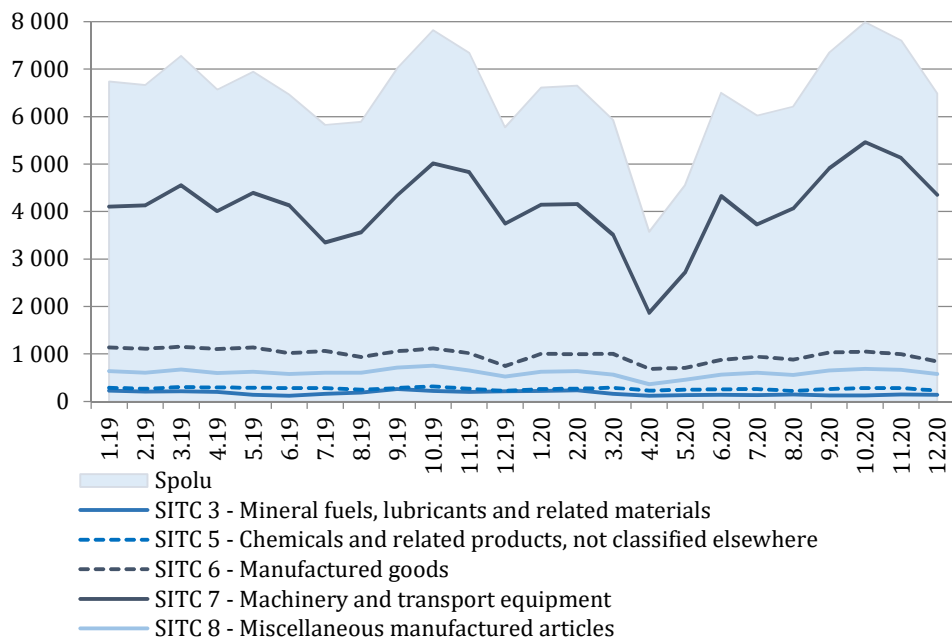


Source: Based on SO SR data (2021).

Figures 3.6 and 3.7 document through monthly data how the evolution of exports and imports in SITC 7 affects the evolution of Slovakia's total foreign trade (and hence economic performance). The decline in exports in the first quarter of 2020 affected all commodity classes, but the automotive industry was the hardest hit one due to production disruptions and border closures. At the end of the second quarter, it was the automotive industry, which experienced the fastest recovery. Already in June, car exports reached the monthly values of the end of the previous year, and this sector continued to pull the export recovery in the following months.

Figure 3.6

**Monthly Development of Exports by Selected SITC Rev.4 Classes in 2019 and 2020 (EUR million)**



Source: Based on SO SR data (2021).

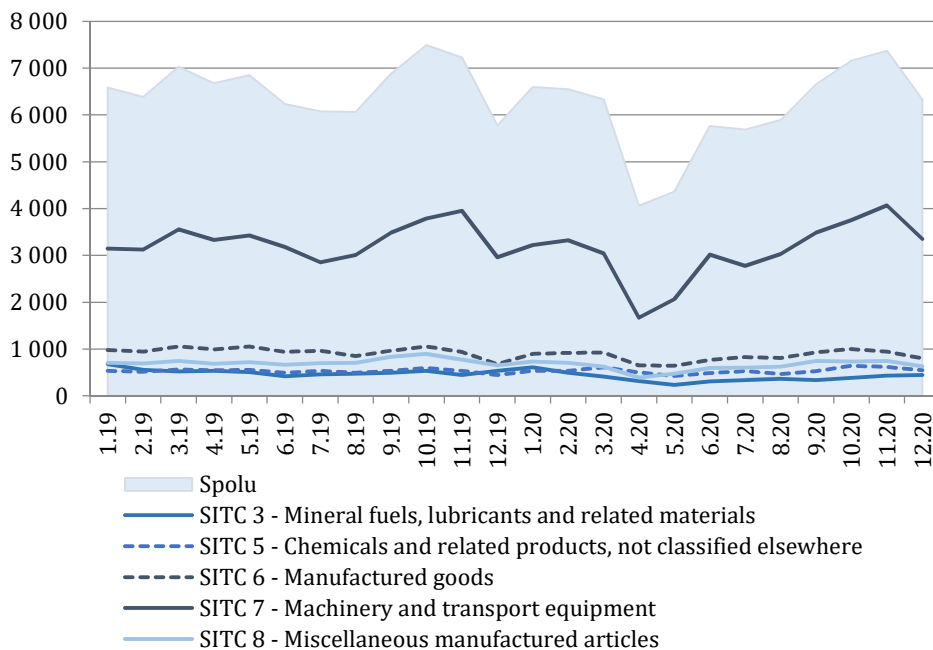
For the full year 2020, SITC 7 recorded a more modest year-on-year decline of 3.7% than total exports, according to the SO SR data (2021).<sup>9</sup>

<sup>9</sup> In 2020, approximately 985 thousand vehicles were produced in Slovak car plants, which is only 11% less than in the record year of 2019. At the same time, in the beginning of autumn, AAI SR was forecasting a more than 20% year-on-year decline, which would also mean a larger drop in the Slovak economy (AAI SR, 2021a).

The most significant year-on-year declines in exports are in SITC 9 – *Commodities and transactions not classified elsewhere* (by more than half) and in SITC 3 – *Mineral fuels, lubricants and related materials* (by more than one-fifth). On the import side, the most traded SITC 7 class recorded a decrease of 7.6%, i.e. somewhat more moderate than for total imports. Imports in SITC 3 – *Mineral fuels, lubricants and related materials* showed the largest year-on-year decrease (by almost a quarter).

Figure 3.7

**Monthly Development of Imports by Selected SITC Rev.4 Classes in 2019 and 2020 (EUR million)**



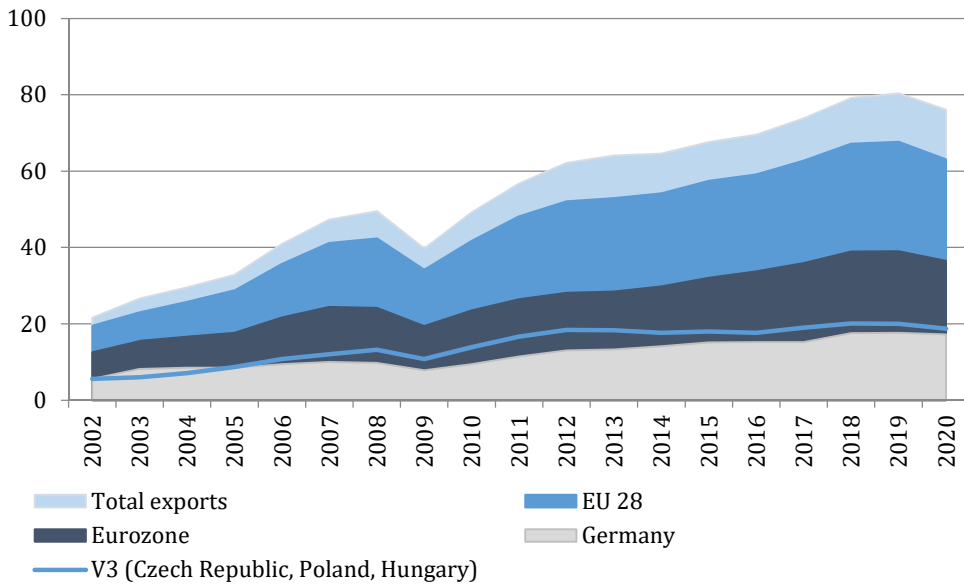
Source: Based on SO SR data (2021).

### ***Exports and Imports in Territorial Terms***

The majority of Slovak exports (and imports) go to (come from) EU member states (Figures 3.8 and 3.9). In 2020, exports to EU countries accounted for 83% of total exports and have been above 80% for a long time. Imports from the EU amounted to around 69% of total imports in 2020, a slight increase compared to previous years and a return to levels of more than a decade ago.

Figure 3.8

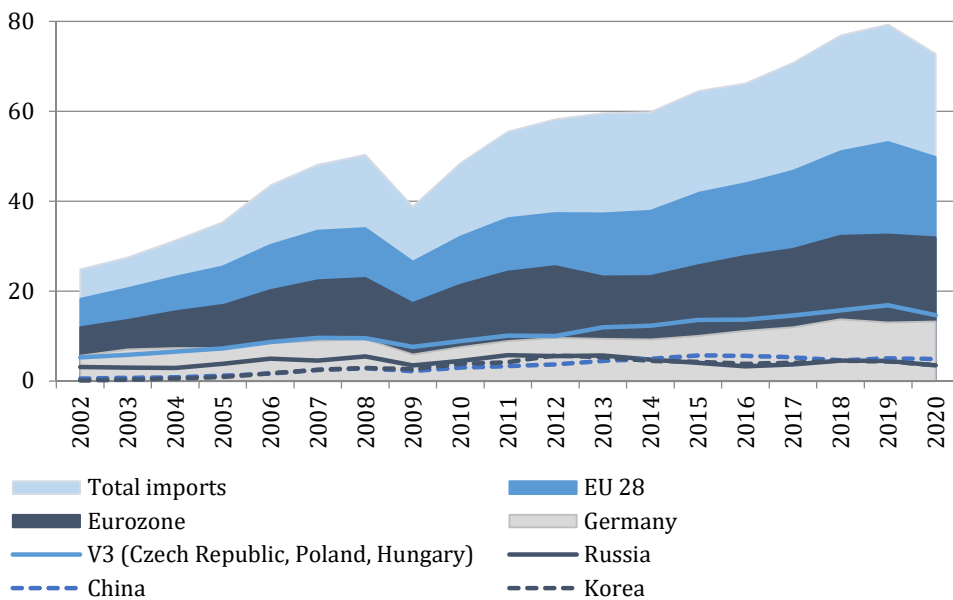
**Development of Exports from the Slovak Republic since 2002 in Terms of the Most Important Economic Groupings and Countries (billion euro)**



Source: Based on NBS data (2021b), own calculations.

Figure 3.9

**Development of Imports into the Slovak Republic since 2002 in Terms of the Most Important Economic Groupings and Countries (billion euro)**



Source: Based on NBS data (2021b), own calculations.

Within these shares, foreign trade with euro area countries accounts for the largest share (less than half of total exports and more than four tenths of total imports), especially with Germany. Outside the euro area, Slovakia's most important long-term trading partners are the other Visegrad Four countries, i.e. the Czech Republic, Poland and Hungary (V3), which together have accounted for a relatively equal share over the last two decades, namely a quarter of total exports and a fifth of total imports. In the territorial structure of imports since 2002, a decline in the share of Russia and an increase in the share of Asian countries, especially China, can be observed.

Compared to the year-on-year decline in total exports (−5.3%), exports to EU Member States (−6.8%) as well as to V3 countries (−6.5%) declined more in 2020. On the other hand, exports from Slovakia to China grew by up to 21% year-on-year, despite a decline in the first quarter, as in the second half of the year, especially in December, significant year-on-year increases were recorded. Imports from EU countries (and in particular the euro area), on the other hand, declined to a lesser extent (−6.2% and −1.9% respectively) than total imports (−8.2%), which meant the aforementioned increase in the share of EU Member States in Slovakia's total imports. Double-digit year-on-year declines in imports were recorded for the V3 countries, Russia and South Korea.

In 2020, Slovakia achieved the highest overall active balance with its most important trading partner – Germany (EUR 3.4 billion), followed by France (EUR 2.7 billion) and the United Kingdom of Great Britain and Northern Ireland (EUR 2.1 billion). On the other hand, the highest passive balance was recorded with three Asian economies, namely Vietnam (EUR 3.6 billion), the Republic of Korea (EUR 3.2 billion) and China (EUR 2.8 billion). A relatively high passive balance was also registered with Russia (EUR 2.3 billion).

### ***Slovakia's Foreign Trade Relations and Brexit***

The withdrawal of the United Kingdom of Great Britain and Northern Ireland from the EU on 31 January 2020 and the expiry of the transition period, during which the country still remained part of the EU's common

market and customs territory, on 1 January 2021 will affect its trade with EU Member States. Since January 2021, the UK has been treated as a third country and as a separate customs and tax territory. All economic operators from Slovakia trading with entities in the United Kingdom must therefore apply the customs formalities for trade as for trade with third countries.

The impact of Brexit is mitigated by a mutual so-called post-Brexit agreement<sup>10</sup> which regulates trade relations and cooperation between the EU and the UK. In many cases, this agreement will apply a zero or reduced rate of import duty, taking into account rules of origin. However, the post-Brexit agreement does not provide for the free movement of goods as was the case during the transition period.

Slovakia, like the other Visegrad Four (V4) countries, is more dependent on exports to the UK than on imports from the UK. In 2020, more than 4% of Slovak exports went to the UK (Figure 3.10).<sup>11</sup> It thus ranked seventh in the ranking of Slovakia's most important trading partners (after Germany, the Czech Republic, Poland, France, Hungary and Austria). In terms of commodities, the automotive industry has the highest share in exports. On the other hand, Slovakia's imports from the UK accounted for just less than 2% of total imports. This has been similar throughout the last decade, when the UK's share of total Slovak exports ranged between 3.5 – 5.5% and its share of total imports between 1.0 – 1.7%. With exports significantly higher than imports, Slovakia has had a long-standing active external trade balance with the UK.

Dovářová, Hošoff and Majzlíková (2019) examined the overall effects of Brexit on employment and value added generated (directly and indirectly) by the V4 countries' exports to the UK. Using a multiregional input-output model and data for the period 2000 to 2014, they concluded that in terms of value added, Slovakia has the strongest links with the UK among the V4 countries, especially in the services sector, but also in industry. In terms of employment, these links are similar across the V4,

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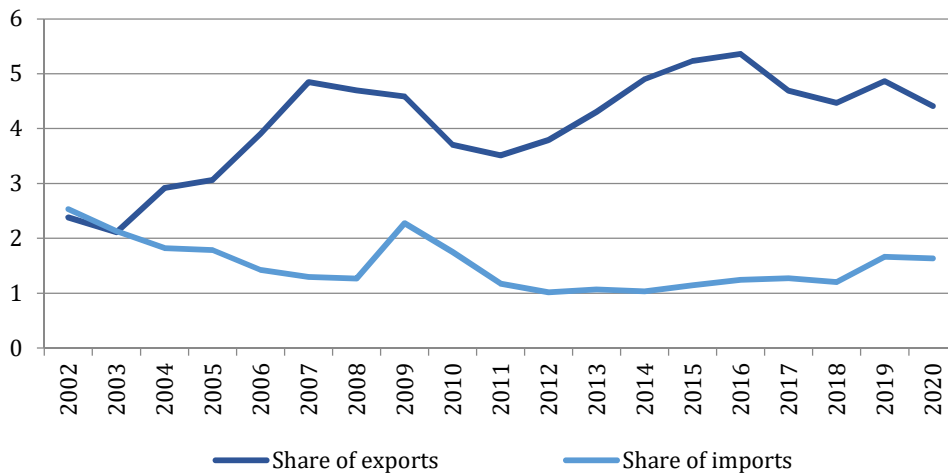
<sup>10</sup> Trade and Cooperation Agreement between the European Union and the European Atomic Energy Community, on the one part, and the United Kingdom of Great Britain and Northern Ireland, on the other part.

<sup>11</sup> Exports to the UK fell by 15%, which means a more significant decline than for total exports.

with Slovakia again dominated by services, followed by industry. In both cases, all V4 countries are ranked as medium-risk EU Member States, meaning that more than 2% of value added or employment is related to exports to the UK.

Figure 3.10

**United Kingdom's Share of Slovak Exports and Imports in Years 2002 – 2020 (%)**



Source: Based on NBS data (2021b), own calculations.

### ***Despite the Pandemic Other Investment Projects***

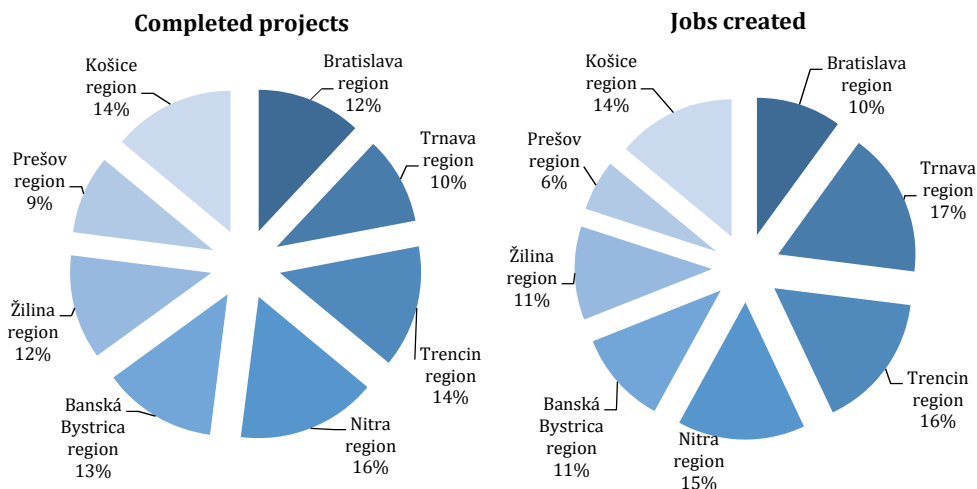
According to the Slovak Investment and Trade Development Agency (SARIO, 2021a), in 2020 it managed to conclude fifteen investment projects in the estimated amount of almost EUR 700 million. Of this number, almost half are higher value-added projects, confirming the trend of increasing capital-intensive investments. From the territorial point of view, these are investments from European countries, but also from Japan, and some investment projects were also created by Slovak companies. From the sectoral point of view, projects in the automotive and engineering industries predominate. The closed projects have the potential to create almost three thousand new direct jobs. A look at a longer period – from 2002 to 2019, during which SARIO reported 565 investment projects with a total value of more than EUR 11 billion – confirms

the predominance of investments in the automotive industry (30%), as well as in the electrical (13%), mechanical engineering (10%), chemical and metalworking industries (both 8%) (SARIO, 2021b). In terms of territorial structure, Germany dominates (19%), followed by South Korea (10%), the USA and Austria (both 7%).

SARIO has aimed at actively promoting investment outside the most sought-after locations in western Slovakia and channel it to less developed regions. The agency has been relatively successful in doing so, as the regional direction of investment within the Slovak Republic has been relatively even over the period. In terms of the number of completed projects as well as the number of jobs created, the Prešov region lags behind the most (Figure 3.11).

Figure 3.11

**Structure of Completed Investment Projects and Number of Created Jobs in 2002 – 2019 by Region (%)**



Source: Based on SARIO data (2021b).

According to preliminary data from the National Bank of Slovakia, in 2019 (the latest available data), a total of EUR 2.2 billion of investment was directed to Slovakia from abroad. The vast majority came from EU member states, especially Germany (almost half), Hungary (less than a quarter) and the Czech Republic. On the other hand, only EUR 137

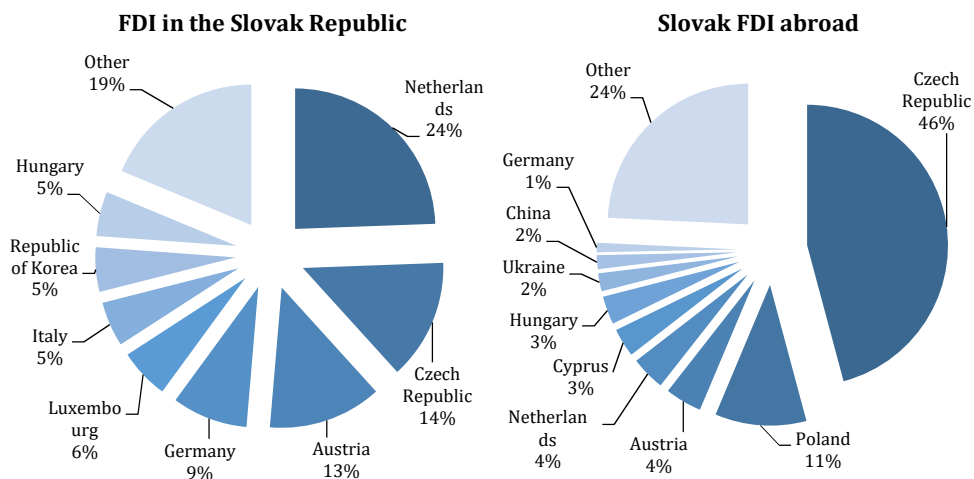


million went abroad from Slovakia, of which more than 60% went to Poland, mostly in the form of reinvested earnings (NBS, 2021b).

According to preliminary data from the NBS, total FDI in Slovakia reached over EUR 54 billion in 2019, with over 90% of it coming from European countries, mainly the Netherlands, the Czech Republic and Austria. Their structure is shown in Figure 3.12. At the end of 2019, EUR 4.2 billion of FDI invested abroad came from Slovakia. Investments in the Czech Republic clearly predominate, where almost half of the total FDI was directed. It should be stressed that the share of the Czech Republic in total Slovak FDI abroad (as well as in total FDI in Slovakia) is increasing compared to previous years. Poland has the second highest share of FDI from Slovakia, followed by Austria and the Netherlands.

Figure 3.12

**Status of FDI in Slovakia and Slovak FDI Abroad in 2019 by Investor's Country/Destination Country (%)**



Source: Based on NBS data (2021c), own calculations.

Slovakia remains an attractive country for foreign investment even in times of pandemic. At the end of 2020, the German carmaker Volkswagen (VW) confirmed another investment of approximately EUR 1 billion in its Bratislava plant, which is the largest exporter in Slovakia. VW's decision to expand capacity at the Bratislava plant was driven by a number of advantages in Slovakia, including membership of the eurozone and its

geographic location, as Germany, France and Italy are the main export markets. The VW investment will also give Slovakia the opportunity to benefit from technology transfer.

\* \* \*

The further development of Slovakia's external economic relations, like the overall economic development, is uncertain. In 2021, the development of Slovakia's foreign trade will depend to a significant extent on the nature and duration of the COVID-19-related restrictions (including the possibility of a hard lockdown, which, however, seems less likely at the moment)<sup>12</sup> and their impact on the situation in the automotive industry in particular. This concerns the impact of the pandemic on the functioning of supply chains (and the EU internal market in general)<sup>13</sup> and vehicle production itself, as well as the impact on the income situation of the population and, consequently, on the demand for cars in the most important export markets of the Slovak Republic. The pace and success of the vaccination of the population and the associated relaxation of restrictive measures will play an important role in the overall development.

If the impact of the pandemic crisis on the automotive industry is weaker than on other sectors, the orientation of the Slovak economy towards car production may accelerate the economic recovery. Conversely, if the automotive industry is more affected than other sectors, the specialisation of the Slovak economy would have a negative impact on economic development.

For the European automotive industry to return to pre-crisis levels, a recovery is needed not only in Asian markets as in 2020, but especially a sustained recovery has to take place in the EU economies as well as in the US. This can be helped by stimulus packages on both continents – Recovery and Resilience Plan investments in the EU countries and a massive fiscal stimulus in the US. At the beginning of 2021, the European

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<sup>12</sup> The mere consideration of a hard lockdown in Slovakia may lead to foreign buyers preemptively cancelling contracts with Slovak firms and redirecting their orders elsewhere. The implementation of a lockdown would cause a major shock with international implications.

<sup>13</sup> For car manufacturers operating in Slovakia, after the experience of the pandemic period, it will be crucial to ensure stability and reliability of supply in the future.

Automobile Manufacturers Association (ACEA) expected a recovery in the automotive sector already in 2021, with sales expected to increase by around 10% compared to the previous year (AAI SR, 2021b). The effects of the pandemic are still expected to linger in the first quarter, but with the continuation of vaccinations, markets should recover relatively quickly in the second half of the year.

According to the European Commission's Spring Forecast (2021), increased external demand in 2021 should have a positive impact on Slovakia's overall exports and Slovakia should see a positive contribution of net exports to economic growth. The Ministry of Finance (Dujava, Hojdan and Žúdel, 2021) forecasts double-digit annual growth in exports and imports in 2021, both around 15%. In the following years, it foresees a slowdown in foreign trade dynamics to around 6%. Similarly, the National Bank of Slovakia (NBS, 2021a) in its summer forecast expects exports and imports to grow by almost 16% and 14% respectively in 2021 and to decelerate in the following two years.

Overall, it can be concluded that the measures taken in connection with the second wave of the pandemic (from autumn 2020 to spring 2021) did not affect Slovak industry and exports to the same extent as the first wave (spring 2020). However, the phenomenon that occurred in 2020 and whose consequences were fully manifested in the spring of the following year is proving to be increasingly problematic.

The problem began to arise when car production was shut down during the first wave of the pandemic due to fears of the spread of the coronavirus. As a result, manufacturers of electronic components as suppliers to the automotive industry were also threatened with shutdowns or curtailments. At the same time, digitisation boomed and the demand for consumer electronics (mainly computers and laptops) increased significantly, leading chip and semiconductor manufacturers to focus on manufacturing for electronics and to reduce production for the automotive industry. In addition to the subsequent recovery of automotive markets in the second half of 2020, the automotive industry's needs for electronic components are now also growing due to the transition to new propulsion systems. In addition, there have been production shortfalls on the

part of chip suppliers in Japan and the US. As a consequence of all these factors, there is a global shortage of these components.

Automakers around the world are therefore facing another crisis in the form of a shortage of chips and other components. Because of this, they cannot complete thousands of vehicles and are once again stopping or reducing production. The global shortfall in the production capacity of electronic components has also affected all Slovak car companies in the first half of 2021, most notably the Trnava car company Stellantis Slovakia<sup>14</sup> and the Bratislava plant of Volkswagen Slovakia, which was forced to discontinue the production of SUVs.<sup>15</sup>

The outlook for Slovakia's foreign trade in the second half of the year is thus mixed. Although the pandemic situation has improved in the first half of the year due to the ongoing vaccination, the situation with regard to the future supply of electronic components is extremely problematic. A longer-term shortage of components would have a strong impact on the Slovak economy. With a little optimism, chip supplies can be expected to normalise during the year, but it is uncertain whether car manufacturers will catch up with their original annual production plans.

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<sup>14</sup> Stellantis was formed in January 2021 by the merger of Fiat Chrysler Automobiles FCA and Groupe PSA.

<sup>15</sup> These account for up to three-quarters of its production volume.

## 4. EMPLOYMENT DEVELOPMENT

The Slovak labour market was already cooling down in the period before the novel coronavirus pandemic. The weakening of external demand in 2019 (the dynamics of domestic demand was virtually unchanged compared to the previous period) had an impact on the deterioration of the economic climate in Slovakia and a dampening effect on the performance of some sectors. According to statistical reporting, employment (the number of persons employed) in industry, trade and in repair and sale of motor vehicles declined in the second half of the year; statistics on the number of workers according to the sample survey (LFS) looked unfavourable for an even larger number of sectors. Although employment in the economy did not fall year-on-year on average (neither according to statistical reporting nor according to the LFS), its growth rate slowed down noticeably. The cooling of labour demand could have been observed to even greater extent in the dynamics of new job creation as well as in the slowing pace of decrease in the number of unemployed persons from one quarter to another.

### ***The Effects of the Novel Coronavirus Pandemic Have Hit Employment in Manufacturing, Construction and Accommodation the Hardest***

The rate of employment growth in 2019 was only about half that of the previous two years, both in terms of employment as measured by the number of workers (LFS) and the number of people employed (according to statistical reporting). Both methodologies also confirmed a gradual diminishing of the year-on-year increase in employment over the year (from 1.5% in the first quarter to 0.4% in the last quarter by number of persons employed and from 1.8% to 0.1% by number of workers). Job losses were mainly in export-oriented sectors of manufacturing, due to weaker performance in the euro area and among export partners and the resulting concerns about a slowdown in the domestic economy. The trade sector also contributed to the slowdown in employment growth. Thus, already as 2020 approached, labour market indicators pointed to

imminent end of the (several years lasting) period of exceptionally favourable employment development. The more optimistic expectations of a recovery in economic performance and stronger employment growth in the early months of 2020 were finally dashed by the outbreak of a novel coronavirus pandemic spreading around the world.

The adverse impact of developments in the external environment on Slovak exports continued in early 2020: after fluctuating results in the second half of 2019, the value of Slovak exports (at current prices) has been declining continuously year-on-year during the first five months of 2020, with the deepest falls in April and May (down by 46% and 34%, respectively). From June onwards, the situation improved and the value of Slovak exports grew until the end of the year.

The development of output in manufacturing largely followed this trend (with the deepest year-on-year decline in April at 47.7% and in May at 37.5%; for example, output in the manufacture of transport equipment alone fell in April to 21% of its value of the previous year; output in the manufacture of computer, electronic and optical products or in the manufacture of textiles, clothing, leather and rubber and plastic products also fell significantly), but the resumption of growth in manufacturing only occurred in the last two months of the year. Towards the end of the year, the decline of the Slovak economy was mitigated by the already growing foreign demand, but the recovery of domestic demand lagged behind and remained in negative territory until the end of the year. This was also reflected in the development of employment in industry. The number of employed persons (employees and entrepreneurs) has been declining year-on-year already since July 2019, the pace of this decline accelerated slightly in the first two months of 2020 and since the outbreak of the pandemic on the European continent and the introduction of the first measures against its spread, the decline in employment in industry has been accelerating even more strongly since March (with the bottom of the employment decline in July 2020 at -8%). At a rate of more than 6%, the decline in employment in industry persisted in all months for the rest of the year. The deepening of the decline in employment in industry occurred almost immediately after the onset of

the first wave of the pandemic, and there was no noticeable recovery in employment even after the improvement in the external environment (after the resumption of growth in Slovak exports) and despite the fact that the measures taken in the second half of the year (after the stronger onset of the second wave of the pandemic) did not necessitate a halt in production.

Thus, on average, employment<sup>1</sup> in industry fell by 5.7% over the year, of which in manufacturing fell by 6%. Employers approached the resumption of recruitment with caution; a situation was blurred by the unpredictability of the measures being introduced and the impossibility to predict the evolution of the epidemiological situation. Even in standard economic crises, there is a time lag in the recovery of employment once economic performance indicators have recovered; in this case, the situation was moreover specific with regard to health risks (threats to the health of employees and, consequently, to production). The evolution of the epidemic in the Slovak Republic before the end of the year confirmed that outbreaks of infection were occurring in enterprises and establishments where a larger number of people were present. However, the year-on-year increase in manufacturing in the last two months of the year suggests that, with some degree of control of the spread of the epidemic, employment in the manufacturing sectors will be restored as early as 2021. Developments in the industrial sectors are crucial for employment in Slovakia, as they account for the bulk of employment in the economy.

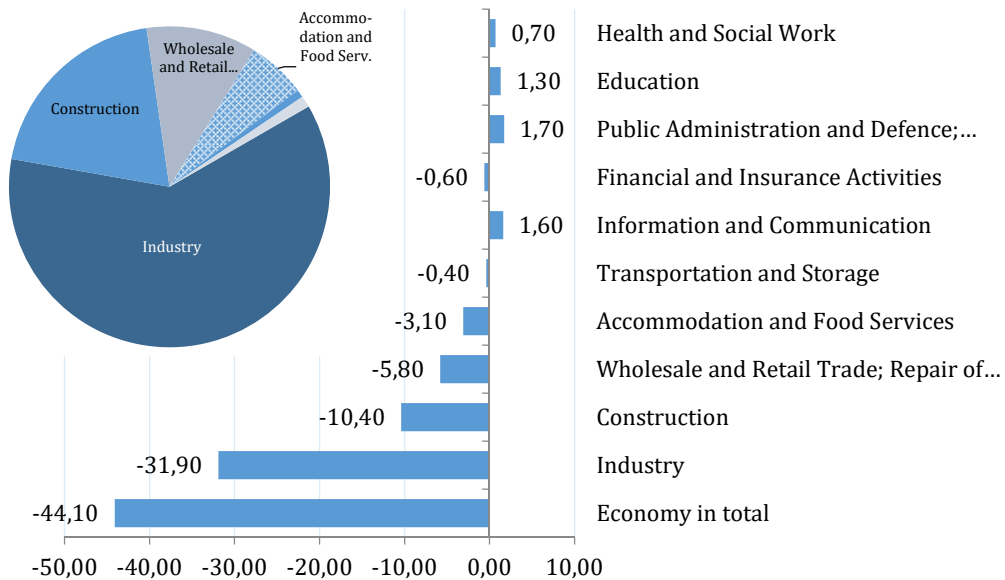
Due to the extent of employment in the sectors of industry, they accounted for up to 72% of the decline in total employment – of more than 44 thousand persons who dropped out of the labour market in 2020, almost 32 thousand were from the industrial sectors (Figure 4.1). Another more than 10 thousand persons left the construction sector, while the number of persons employed in trade decreased by almost 6 thousand. These three sectors contributed the most to the resulting decline in employment in the Slovak Republic.

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<sup>16</sup> The sectoral analysis of employment development is based on data on the number of employed persons from monthly sectoral statistical reporting and quarterly statistical reporting (SO SR).

Figure 4.1

**Change in the Number of Persons Employed in Selected Activity Sectors (in thousands) and Structure of the Decline in Total Employment by Sector (%), 2020**



*Note:* According to quarterly statistical reporting (employees and entrepreneurs).

*Source:* According to the data of the Statistical Office of the Slovak Republic (SO SR, 2021).

Construction was not only the sector with the second largest decline in persons employed (in absolute value), but also the sector with the second highest dynamics of the year-on-year employment decline (–5.9%), after the aforementioned industry. Domestic construction output fell by 12.6%, with both new construction as well as repair and maintenance falling (the decline in domestic construction output was only mitigated by its growth abroad). This was matched by the development of the number of persons employed in the construction industry, which started to decline in March, already at the time of the first lockdown. In the following months the decline in employment in the sector deepened, the most pronounced being in August (–9%). The year-on-year decline in employment of around 8% persisted until the end of the year.

However, in terms of the dynamics of employment decline, the sector most affected by the pandemic was accommodation, where employment fell by more than 14% year-on-year. The first bottom of the year-on-year



employment decline came during the summer holiday season in July (–20.8%), and the situation in accommodation worsened even more before the end of the year (during the winter season and Christmas, in November and December, employment in the sector shrank by more than a quarter; by 26%). In fact, the number of visitors to accommodation facilities halved in 2020, with two-thirds fewer foreign guests than the year before. This was matched by a 46.4% year-on-year fall in accommodation receipts (including 64.5% lower revenues for foreign visitors), despite the fact that the average length of stay increased. The development in the accommodation sector, which had already been severely affected by the measures taken during the first wave of the pandemic, was further worsened by the new government measures restricting the provision of accommodation services, in force since October, adopted at the time of the intense onset of the second wave of the epidemic. Already at the end of September, following the announcement of the new measures, hoteliers announced mass redundancies and the closure of city hotels (which derive part of their revenues from congresses, sporting and cultural events, etc.). This has also been reflected in the changes in the average wage, with wages in accommodation sector falling by more than 10% compared to 2019. A somewhat less dramatic, but still extremely unfavourable, development in restaurants and catering activities (with a trough in employment in June; –13.4%) mitigated the resulting year-on-year decline in employment in the aggregate accommodation and food services sector. Thus, after industry and construction, these services represented the sector with the third deepest employment decline in the economy in 2020 (–4.9%). The fall in the wage rate in accommodation was only partially offset by the rise in restaurants and catering services, making accommodation and food services one of only two sectors in the economy to experience a fall in average monthly wages in 2020 (the other was administrative services). Yet in 2019, accommodation and also restaurants and catering services recorded solid growth in the number of persons employed, high growth in average wages and double-digit growth in sales. Even in early 2020, employment was still growing in their case.

On the contrary, employment in the trade sectors has already been declining throughout 2019, hitting its pandemic low in 2020 slightly earlier in retail trade than in the other sectors (along with market services). Retail establishments (along with other market services) responded to the restrictions by reducing their employment immediately after the measures were introduced under the first lockdown (with the trough of employment decline already in May – in case of retail; and in April – in case of selected market services). In the following months of the year, the situation improved slightly, with the employment decline slowing down. The slowdown in the decline in employment persisted even at the time of, and after, the introduction of stricter epidemiological measures in the autumn. This suggests that at least some of these establishments, after the initial shock in March/April, have found ways to maintain their operations, even with no or limited direct contact with the customer, and that government measures aimed to maintain employment may have helped as well. Also, retail sales in the second half of the year were already growing year-on-year. Employment in wholesale trade fared less well, with a more pronounced decline in employment continuing in the second half of the year, even though sales in wholesale, similarly to retail, also grew in the second half of the year. Sales growth between March and December 2020 was rare phenomenon across sectors of the economy; in addition to trade, sales in restaurants and catering also rose year-on-year, but only in the third quarter. Given that the trade sectors are the second largest employer in the economy after industry, they contributed significantly to the resulting decline in total employment, although the rate of decline was, in theirs case, considerably smaller (–1.6%) than that of the above-mentioned sectors.

On average, the number of employed persons in the economy started to decline in the first quarter of 2020 (around 14 thousand fewer persons); employment fell for the first time since the third quarter of 2013. Most of the key sectors experienced the deepest decline in employment (in the number of employed persons) in the third quarter (industry, construction) and in the fourth quarter. The acceleration of the decline in employment was a reflection of the economy's performance in the second quarter, when the economy experienced its historically deepest slump in

performance during the independence era of the Slovak Republic.<sup>17</sup> The second quarter also saw the largest fall in exports in the year, but the historic fall in nominal GDP was also provoked by domestic demand, including consumer demand (unlike in the first quarter, when the Slovak economy was not yet affected by the pandemic). The developments in the second quarter were also reflected in a significant drop in the confidence of economic agents (comparable to the drop in 2009; see Radvanský et al., 2020), most pronounced in industry and services (the performance of industry in this quarter was the lowest since 2013). Thus, employment responded to the downturn in economic performance and the weakening of domestic demand relatively quickly, with a lag of one or two quarters at most. This time, the decline in employment has been faster compared to the last crisis in 2009, but has not yet been as deep.

In 2020, the number of persons employed grew only in industries with a high representation of public sector entities and in information and communication (and employment in postal and courier services grew, most notably in March and June, although in transport and storage in general the employment has otherwise been declining since April). Thus, on average, the number of persons employed in the economy fell by 1.8% year-on-year. The number of workers (broader category; employment according to the sample survey) fell by 2% year-on-year (52,400 jobs were lost in the economy according to the sample survey). According to both methodologies, the decline in employment slowed down in the last quarter of 2020, despite the worsening of the epidemiological situation and the tightening of anti-pandemic measures. The slowdown in its decline probably reflected a fragile improvement in the confidence of economic agents, the domestic economic climate having improved following the easing of measures and the opening up of the economy in the summer months.

The number of people in employment (workers) fell in all regions of the Slovak Republic, the most in the Prešov region. According to statistical reporting, the number of employed persons decreased at the fastest rate in the Trenčín Region, only in the Žilina Region there was no decrease in

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<sup>17</sup> In terms of the number of workers (LFS), the largest decline in employment occurred directly in the second quarter itself.

their number. Growth in average nominal wages slowed to 3.8% (from 7.8% in 2019), which is the lowest growth rate in the last four years (i.e. still higher than in 2016). The average wage in the economy thus climbed to EUR 1,133.

Data from the first two months of 2021 suggest that the introduction of the stricter anti-pandemic measures, which were in force throughout the last quarter, will be reflected in a further decline in employment, again with only a short time lag, in the first quarter of 2021. Of all private sector industries, only employment in information and communication continued to grow, and in February employment growth almost stopped there as well. Employment continued to fall deeply in the sectors mentioned earlier as the most affected: accommodation (–22.7%) and restaurants and catering (–14.4%); the decline of employment in construction was even deeper (–9.9%) than in the months of 2020. Compared to developments in the last three months of 2020, the decline in employment in both wholesale and retail trade also accelerated, while in industry it continued at the same pace. The situation has also worsened in selected market services, which have returned from employment growth in the last quarter of 2020 to employment decline.

### ***The Cooling of Labour Demand Before the Pandemic Was Foreshadowed by a Shrinking Number of Job Offers***

The cooling of labour demand was already in 2019 clearly indicated by a decline in the number of job vacancies. The decline has been occurring since the first quarter of 2019, and in the last quarter of 2019 the number of vacancies in the economy fell by more than a quarter year-on-year (such a significant decline was last recorded in the second quarter of 2010), bringing it below the 20 thousand level, to its lowest level in three years. At that time, the retail and wholesale trade, construction and manufacturing sectors were the largest contributors to the decline in job vacancies. The long-term favourable trend of growth in job vacancies had thus come to an end already before the arrival of the novel coronavirus pandemic. On average over the year, the manufacturing sectors (which represent the largest pool of both occupied and vacant jobs in the

private sector) saw the largest decline in vacancies, as manufacturing reacted sensitively to the deterioration in the external environment during the course of the year. Negative expectations in industry initiated by developments in key export partners were immediately (still in 2019) reflected in weaker job creation in the second half of the year (a decline in the number of persons employed) and, even more markedly, in a year-on-year decline in the additional demand for new and replacement workers (job vacancies). Thus, the industry contributed up to 37% to the resulting decline in job vacancies in the economy (Morvay et al., 2020).

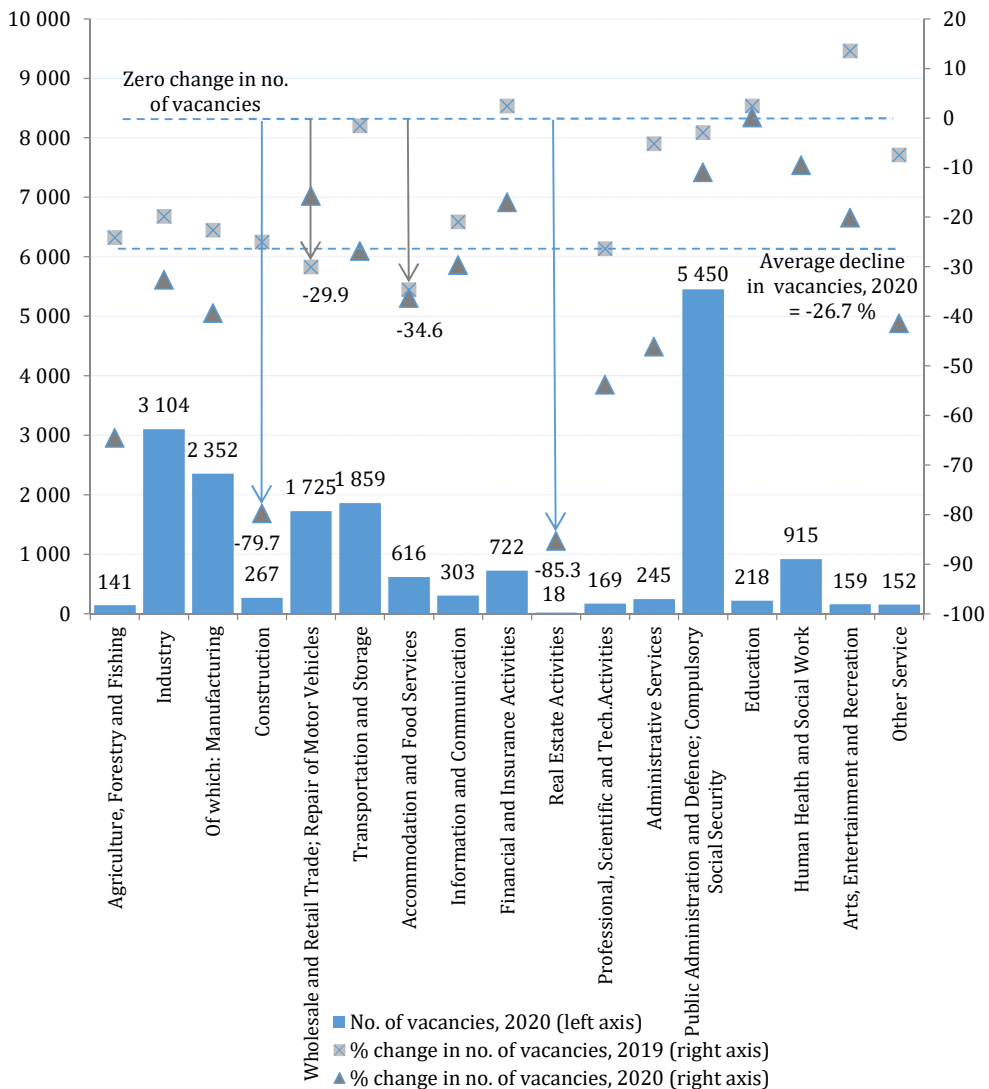
However, the highest dynamics of decline was in 2019 reported by accommodation and food services and trade – the number of vacancies in retail and wholesale trade fell by more than half in the last quarter of 2019 alone. But while accommodation and food services saw a reduction in additional demand for work together with the employment growth in the sector (the number of people employed was higher year-on-year in all months of 2019 for both accommodation and restaurants and catering; the number of people entering unemployment from this sector also declined year-on-year), what means that there has been some rebalancing of labour demand and supply in this sector; the decline in vacancies in trade has occurred together with the fall in the number of persons employed, in all months of the year, in both retail and wholesale trade. Finally, the fact that in the case of the industry and trade sectors, it was not only a weakening of demand for additional workers (documented by a contraction in the number of job offers), but also a decline in the number of existing jobs (already in the period before the pandemic), is illustrated by the statistics on the unemployed by the activity of their last employer: in the last quarter of 2019, among the unemployed, there were 16% more of those who had previously worked in the industry sector, and 38% more of those who had come from the trade sector.

The year 2020, marked by anti-pandemic measures, naturally brought a further decline in new job offers: while in 2019 the year-on-year decline in job vacancies in the economy was 12.6% (and we could still see an increase in some sectors), in 2020 it was 26.7%. This time, vacancies have declined also in the public sector; the number of vacancies has been

falling in virtually all sectors of economic activity, with the exception of education, where it has stagnated. The deepening of the decline in demand for additional and replacement workers (indicated by the change in the number of vacancies) due to the pandemic is illustrated in Figure 4.2.

Figure 4.2

**Job Vacancies by Economic Activity in 2020 and Their Year-on-Year Change in 2019 and 2020**



*Note:* For better readability, the figure does not include the high positive values of the year-on-year change in job vacancies in 2019 in the real estate activities (106%) and health care and social assistance (47%) sectors, which are outside the scope of the right axis.

*Source:* Processed from data from the SO SR (2020) and SO SR (2021).

Figure 4.2 documents the significance of each sector in terms of vacancies (bar chart), but also illustrates that the number of vacancies was falling in most sectors already in 2019 (we observe a negative value for the change in the number of vacancies in most sectors; right axis). The figure shows the values of the two largest declines (accommodation and food services and trade in 2019), for which the weakening in demand for additional labour continued in 2020 at a similar pace or even eased (trade). In this respect, in 2020 the pandemic year hit vacancies in construction or agriculture much harder (largest declines in 2020). The rate of decline in vacancies in some service sectors has also increased significantly.

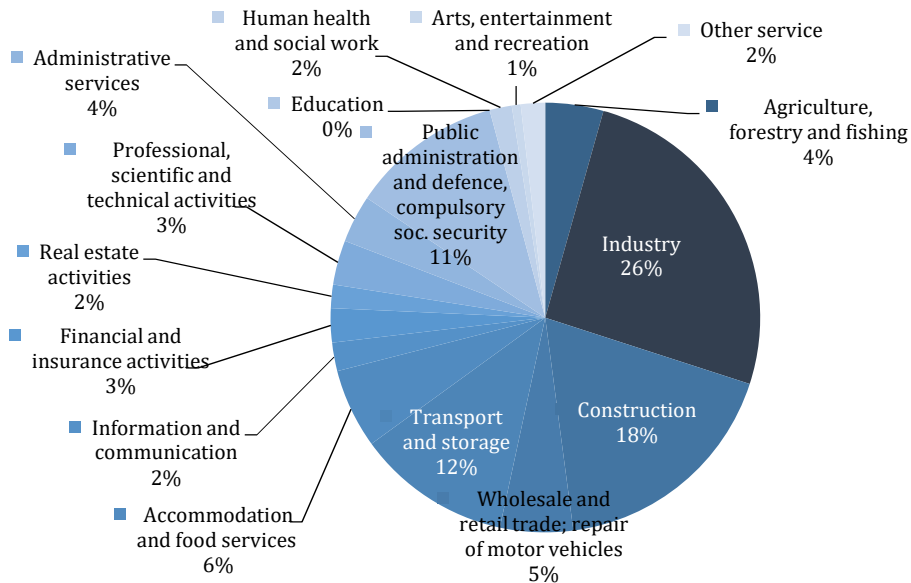
In terms of the implications for the total number of vacancies in the economy, the development in the sectors with the largest number of vacancies is important: the roughly 40% year-on-year decline in manufacturing (2020, see Figure) accounted for (the economy's largest) loss of 1,525 vacancies, the 80% decline in construction accounted for 1,050 vacancies (the second-largest loss), and the 27% decline in transport and storage accounted for the third-largest loss, 680 vacancies. Already the 11% decline in public administration brought the fourth largest decline in vacancies, as it is the sector with the largest number of vacancies in the economy. Since this time there was a decline in vacancies virtually across the board, manufacturing (or industry as such) contributed to the decline in vacancies in the economy less than a year earlier (Figure 4.3).

Thus, in 2020, industry and construction were the sectors with the largest decline in employment and job vacancies at the same time. It is important to note that the decline in the number of vacancies in trade has slowed down year-on-year, and the rate of decline in employment in this sector has also slowed down (this sector is the largest employer in the Slovak Republic apart from industry). Vacancies in public administration and defence declined significantly, but the number of vacancies remained by a wide margin the highest among the sectors. Employment<sup>18</sup> in the sector also continued to grow, in line with other public sector branches.

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<sup>18</sup> Employment calculated from the number of persons employed according to quarterly statistical reporting.

**Figure 4.3**  
**Structure of Year-on-Year Job Vacancy Losses by Sector, 2020**



Source: Processed according to data from the Statistical Office of the Slovak Republic; SO SR (2020) a SO SR (2021).

### ***The Effects of the Pandemic Include a Significant Increase in Short-Term Unemployment (Up to 6 Months) and Dynamic Changes in the Records of Labour Offices***

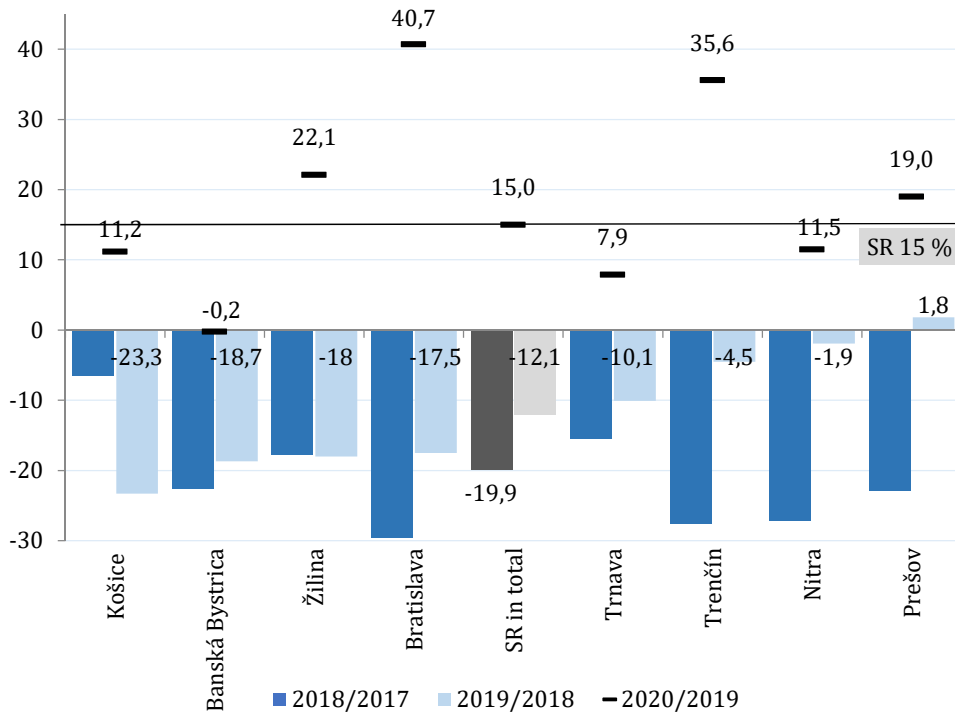
The cooling of labour demand was also reflected in a slowdown in the unemployment decline already in 2019, especially in the second half of the year (a 7 – 8% decline in the number of unemployed compared to a 20% drop in unemployment in 2018). However, the slowdown in the decline in unemployment was not similar in all regions; in fact, the dynamics of the decline (or even increase) in the number of unemployed showed significant regional differences compared to 2018. The weakening of demand at labour market did not affect the Košice region; the rate of decline in unemployment there was the highest in the Slovak Republic, whereas a year earlier (i.e. at the time of a particularly dynamic decline in unemployment in the Slovak Republic), unemployment in the Košice region was falling at the slowest pace. The decline in the number of unemployed also continued at a solid pace in the Banská Bystrica and Žilina



regions. However, the rate of decline in unemployment slowed down in the Bratislava region and decelerated considerably especially in the Nitra and Trenčín regions (compared to 2018, Figure 4.4).

Figure 4.4

**Year-on-Year Changes in the Number of Unemployed Persons (LFS)  
in Regions of the Slovak Republic (%)**



*Note:* A comparison of the year-on-year decline in unemployment in 2019 with the previous year is presented in a bar chart. Regions are ranked according to the most significant rate of decline in 2019. The values of the percentage increase in the number of unemployed in 2020 are captured by the dot plot (dash symbols).

*Source:* Based on data published in the SO SR (2019); SO SR (2020); SO SR (2021).

Thus, a noticeable change occurred in the three regions where, by contrast, the number of unemployed people decreased the fastest in 2018. The regional distribution of drop in job vacancies also corresponded to this trend (in the Trenčín region, the number of vacancies fell by 38% in 2019, while in the Košice region, the number of vacancies fell by only 5%). Since a noticeable slowdown in the decline of unemployment in 2019 occurred in the regions with the lowest unemployment

rates in the Slovak Republic, it contributed to a certain moderating of regional disparities in this aspect. The only region that stood out from this trend was the Prešov region, where unemployment was the only one to rise in 2019. The persistence of the trend of a rapid pace of unemployment reduction in the Košice and Banská Bystrica regions, and, conversely, the slowdown in its decline in the regions in the west of the country, is also documented by the data on the registered unemployment rate at the district level. Most of the districts with the largest decline in the unemployment rate were from the south-east of the country and from near the border of the Banská Bystrica and Košice regions; on the contrary, the districts with the largest increase in the registered unemployment rate in 2019 were located in the regions of Záhorie and Považie, i.e. in areas where a large part of industrial production is concentrated. Manufacturing was the first to react to the deterioration of economic sentiment by both a decline in the number of job offers and a reduction in employment already in 2019 (for more details, see the publication by Morvay et al., 2020).

Figure 4.4 also shows a reversal in the development of unemployment in 2020: with the exception of the Banská Bystrica region, where the number of unemployed changed only slightly, all regions of the Slovak Republic have already seen an increase in the number of unemployed. Similarly to the slowdown in its decline a year ago, unemployment has risen fastest in the regions with the lowest unemployment rates (Bratislava and Trenčín regions), and slowest in Trnava and Košice regions. In absolute terms, the largest increase in the number of unemployed was in the Prešov region (an increase of 7 thousand unemployed out of the total annual increase of 23.7 thousand) and in the Bratislava and Žilina regions (3.4 thousand each). By the end of the year, the situation had worsened significantly even in the Košice region, making eastern Slovakia being home to 45% of all unemployed in the Slovak Republic (2020).

With the arrival of 2020, the favourable period of decline in unemployment in the Slovak Republic, which lasted for several years, has come to an end. The growth in the number of unemployed persons was

only moderate at the beginning of 2020, but immediately in the second quarter (when there was both a significant drop in the performance of the economy and a deterioration in economic sentiment, as mentioned above), a deeper decline in employment was accompanied by an accelerated increase in unemployment. In the second half of the year, the growth in the number of unemployed accelerated even more, with the rate holding above 20%. Thus, by the end of the year, almost 35 thousand unemployed persons had been added to the economy (the difference of the last quarters, LFS), pushing their number to 189.8 thousand by the end of the year (last quarter).

The largest group of unemployed in 2020 were those whose last job was in industry (45.6 thousand), accounting for exactly a quarter of all unemployed in the country. Their number grew by a third year-on-year (by 33%, which corresponds to more than 11 thousand persons, almost half of the entire average annual increase in unemployment in the country in 2020). The second largest group of unemployed in 2020 were persons coming from the trade sector (15.8 thousand), and the third largest group were those from the accommodation and food services (13 thousand unemployed; annual average), where the number of unemployed doubled year-on-year (rose by 101%), thus outnumbering two previously significantly larger groups of unemployed whose last job was in the public administration and in construction sectors. The number of unemployed coming from the accommodation and food services sector grew throughout the year and stood at 15.7 thousand at the end of the year,<sup>19</sup> while at the beginning of the two-year period we have been looking at, in the first quarter of 2019, there were only 5.4 thousand unemployed from this sector. After industry, where most jobs were lost in 2020, it was the second sector whose members expanded the ranks of the unemployed the most in 2020. In terms of the number of workers, it was more than 7 times smaller sector than industry, yet the increase in the number of unemployed from this sector accounted for almost 60% of the increase in the number of unemployed from the industry sector and was 2.5 times higher than in the third-ranked sector, the trade sector. These comparisons

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<sup>19</sup> By comparison, those who remained employed in the sector in the last quarter of 2020 were less than 61 thousand, the number of those working in the sector slightly exceeded 90 thousand.

illustrate even better the situation in this (severely hit) sector, which we have already outlined in describing the circumstances of employment developments and which was not as well captured by the fall in the number of job vacancies.

Unemployment statistics also complete the picture of the situation in the public sector, which, according to the number of people employed, did not see a decline in employment in 2020. The numbers of unemployed persons reveal that, with the exception of the health care, unemployment has been increasing also in the public sector. The number of unemployed persons who have never been in employment fell year-on-year, despite the increase in total unemployment, making this previously the largest group of unemployed persons overtaken by the unemployed coming from the industrial sectors. In the second half of the year, however, their numbers also started to rise. As the rise in unemployment mirrored developments in the same year, the short-term unemployed were the most dynamic (the number of people unemployed for less than a month was almost 80% higher than a year earlier; those unemployed for one to three months increased by almost 60%). There was no increase in long-term unemployment throughout the year, but only due to the continued noticeable decline in the number of persons unemployed for more than two years (the number of persons unemployed for one to two years increased by 3,500, but this increase was still smaller than that of the short-term unemployed categories, whose unemployment lasted up to six months). The increase in the number of unemployed caused the unemployment rate to rise by 0.9 p.p., up to 6.7% (with the highest value in the third quarter; 7.2%).

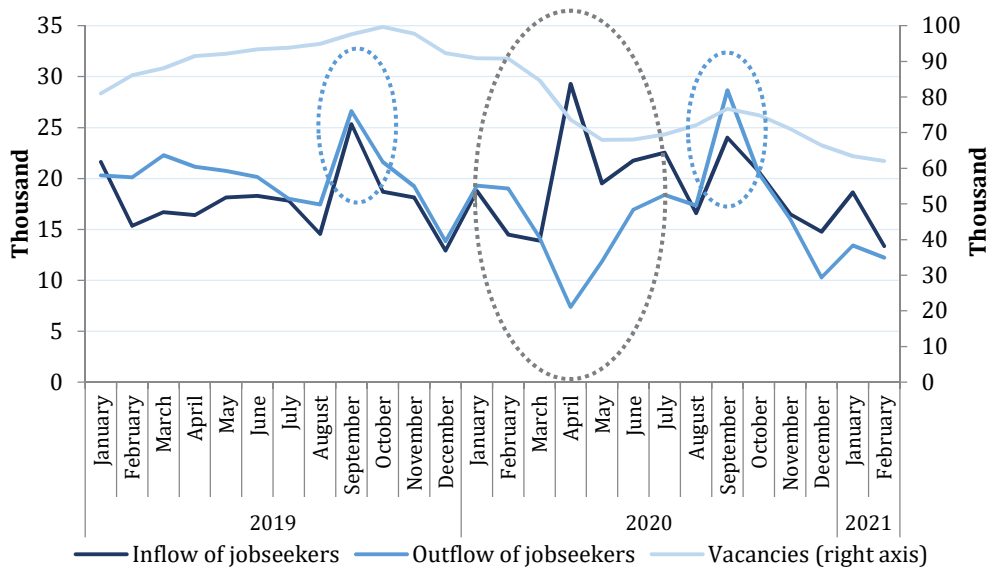
The worsening of the unemployment trend was also captured by the records of jobseekers registered at the labour offices. While at the beginning of the year the development of flows in the registers of jobseekers had a standard course, already in March we could observe a noticeable decline in the number of jobseekers who were excluded due to their placement on the labour market. Thus, the effect of the March economic lockdown and the overall deterioration of the labour market situation were, at the first moment, reflected in a marked slowdown in the recruitment

of the unemployed from the labour offices registers (Figure 4.5). Meanwhile, the inflow of new unemployed into the labour offices registers was still shrinking at that time compared to the beginning of the year. The marked reduction in the outflow from the register (labour market placement being the main reason for the drop-out) was matched by an acceleration in the decline in the number of job offers on the labour offices' register, however the number of job offers had been falling since October 2019 (which was in line with the cooling of labour demand, indicated as well by a decline in the number of job vacancies according to statistical reporting, which we have discussed in a separate section above). In April, the shrinkage in the outflow of jobseekers from the register continued on an even larger scale, as did the decline in the number of job vacancies. But this time, there was also an increase in the inflow of jobseekers to the register: the number of unemployed people registered in April was even more than double that of March. Since such a significant inflow of jobseekers was met with the biggest slowdown in the outflow of registered jobseekers in the year, the number of unemployed registered at the labour offices rose by 33.6 thousand in this one month alone. The April phenomenon has not repeated during the year (the concurrence of these two unfavourable fluctuations in the flows of the jobseekers registered at the labour offices is clearly captured in Figure 4.5; marked by large ellipse).

The structure of April's newly registered unemployed by their occupation prior entering unemployment confirms that at the time of the first lockdown the most of the layoffs were in manufacturing (3 077 jobseekers came from this sector; almost a fifth of them were from the Nitra region, where most of them from Komárno and Topoľčany; other numerous groups were from Žilina and Trenčín regions), in trade (2 801 jobseekers; most of them were from Žilina and Nitra regions) and in accommodation and catering services (2 146 jobseekers; most of them were from Žilina region, and here with a large lead among all districts of the Slovak Republic from Liptovský Mikuláš; the second largest group of jobseekers leaving this sector was from Prešov region, in this region most of them were from Poprad).

Figure 4.5

**The Flows in Labour Offices Register of Jobseeker (in thousands),  
1/2019 – 2/2021**



Source: Own elaboration according to monthly statistics of the Central Office of Labour, Social Affairs and Family (COLSAF, 2021).

The relaxation of the anti-pandemic measures in May was accompanied by an easing in the mentioned negative trend of both flows in the jobseekers register. In May, the number of jobseekers who found a job on the labour market increased by 60% compared to April, but the ranks of the unemployed continued to be swelled by employees coming from the three sectors mentioned above. In June, industry and retail trade were already recovering, export growth resumed with a positive effect on economic growth, and in August the number registered jobseekers finally started to fall, with inflows from manufacturing and trade returning to pre-pandemic levels. An unusually high outflow of jobseekers from the register occurred in September (as much as 4 thousand more jobseekers found employment on the labour market than in the same period of 2019); the highest number of vacancies since the beginning of the pandemic was also registered (Figure 4.5). The significant outflow of the unemployed from the registration also exceeded September's commonly increased inflow (when fresh school leavers enter the registration each

year), resulting in a decline in the number of registered jobseekers, whereas even a year earlier the number of jobseekers did not fall in September. The positive sentiment from the retreat of the pandemic in the summer months persisted, and the performance of the economy itself was better than expected in the third quarter, which was also reflected in the more massive hiring. However, in response to the intensifying second wave of pandemic, new, stricter anti-pandemic measures were already in place in October, which was immediately reflected in a significantly higher inflow of unemployed from the accommodation and food services sector. Before the end of the year, recruitment from the pool of jobseekers also dropped significantly again. However, since September's increased inflow due to graduates, the inflow of unemployed to the register in total picked up only in January 2021 (which is a common annual phenomenon). Even in February 2021, the inflow of unemployed was still higher than their outflow from the register, albeit only by a small margin. As has been the case for other indicators, also in the statistics on registered unemployment the second wave of the novel coronavirus pandemic in the Slovak Republic has not yet been as pronounced as the first one.

The decline in the registered unemployment rate (which peaked in July) stopped in November. By the end of the year, it has risen to 7.57%. Compared to December of the previous year, it represents deterioration by 2.65 percentage points. No district was spared from its increase. It has to be pointed that the registered unemployment rate reached historic lows in 2019 (with a low of 4.88% in May). The average duration of registration of jobseekers at the labour offices has not yet reached the definition of long-term unemployment, but it has significantly approached it (it has increased from 8.85 months in 2019 to 11.63 months).

### ***Labour Market Impacts Have Actually been Smaller than Expected***

The quarterly year-on-year results for both employment and unemployment suggest that both the fall in employment and the rise in unemployment have been weaker than during the last recession in the economy

in 2009. Even after adjusting for the different dynamics of developments in the two pre-crisis years (2008 and 2019), we can speak of at most a comparable rise in unemployment growth (Radvanský et al., 2020), while the decline in the economy's performance in the second quarter was multifold deeper this time. The relatively rapid recovery of the economy, especially of manufacturing and retail trade, soon after the first wave and the first closure of the economy (i.e. already in the third quarter), can be considered as the primary factor that mitigated the decline in employment. After the onset of the second wave of the pandemic and the introduction of stricter measures and the partial closure of the economy in the last quarter, employers reacted more flexibly and many were able to find alternative ways to stay in business (with the exception of sectors where a large number of establishments had to suspend their activities completely). Also thanks to the testing of employees for COVID-19, production in industrial enterprises did not stop this time. A different, and very specific, cause of the crisis has therefore played a role, which must be taken into account when comparing it with the 2009 crisis.

Other part of explanation is a role of the demographic factor. The decline in demand for labour was this time met with a decline in its supply: the possibilities to compensate for the decline in the number of people of working age (whose number has been declining continuously since 2010) by an increase in economic activity in recent years have already been exhausted. The labour shortage, which peaked in 2018 (for more details, see the retrospective of developments in the Slovak labour market as a key factor of the increase in labour immigration in the publication by Lichner and Hvozdková et al., 2020), reflected its increasing scarcity, especially for certain sectors and regions. Additionally, partial explanation consists in the effect of the out-migration of foreigners employed in the Slovak Republic during the pandemic; their employment peaked in the years just prior to the pandemic due to a shortage of suitable domestic labour. At the time of the onset of the pandemic, almost 78 thousand foreigners were officially employed in Slovakia (March, data from the COLSAF); by the end of 2020, 8 900 foreigners have left the Slovak labour market. By comparison, the number of persons employed in the economy



in general fell by 13.5 thousand between the first and the last quarter of the year. The decline in the number of employed foreigners by more than 11% was thus incomparably higher than the rate of decline in total employment in Slovakia (the deepest quarterly decline of 2.4%). It can be assumed that, given the severe restrictions on mobility both within and between European countries and the serious epidemiological situation across countries, many of them have returned to their home country. This probably had an effect on unemployment and later on employment statistics when, after the recovery of economic activity in the Slovak Republic, the difficulty of cross-border employment motivated employers to renew recruitment, this time, from the ranks of the available domestic workforce. Given the size of the (official) group of foreigners who have left the Slovak labour market since the beginning of the pandemic (relative to the size of the decline in employment and the rise in unemployment), this may be not an negligible effect.

In recent years, domestic workforce has become scarcer, and foreign labour has become less available as well due to mobility restrictions. Another, third dimension of labour supply tightening is described in the NBS commentary (Gylánik, 2020). Here, the reduction in labour availability is also understood in the context of restrictions on the concentration of people in the workplaces (as part of adopted anti-pandemic measures), which worsens the availability of workers, especially in industries where most of activities cannot be carried out from home. Thus, also the technical possibilities of working or commuting while complying with anti-pandemic measures also affect the size of the labour supply during a pandemic, as well as concerns about one's health and the health of household members at times of high risk of infection, or the need to stay at home with children during school closures. In the context of employment impacts, it was the negative shock on the labour supply side that distinguished this crisis from the last crisis in 2009 – in fact, during the global crisis in 2009, the cooling of labour demand was, in case of the SR, accompanied by a positive shock to labour supply. This time, by contrast, a negative labour supply shock meant that employers maintained part of employment even at the cost of a significant fall in hours worked.

Indeed, when the economic situation deteriorates, with a negative impact on the performance of key sectors, a cooling of labour demand usually results first in a reduction in the number of hours worked and, if the unfavourable situation persists, in a decline in employment afterwards. Conversely, when economic activity recovers, working hours are extended first, then comes recruitment. Strong demand for labour combines employment growth with an increase in hours worked (which is what we saw in our economy during the favourable macro-economic developments of 2004 – 2008). The crisis in 2009 brought a decline in hours worked already in the first quarter, followed by its largest drops in the second (by 3%) and third quarters (by 3.3%; ESA 2010). The decline in employment bottomed out only slightly later, in the third (–4.5%) and fourth quarters (–4.8%; ESA 2010), and was thus somewhat deeper. In 2020, hours worked also started to fall in the first quarter, but the fall in the second quarter was not only historically unprecedented (a fall of 17%) but also incomparably deeper than the fall in employment at any time later in the year (with a trough of 2.5% as early as the second quarter). The fall in hours worked was also significant for the rest of the year, and deepened again in the last quarter at a time of tightened anti-pandemic measures (–8.2%). A look at hours worked thus gives a very different picture of the impact of the pandemic period on employment in the Slovak Republic, especially when compared with the last recession or other periods of economic downturn. In this case, labour demand should be seen more than ever as a function of both the number of people employed and the hours worked. Their dramatic decline explains the more modest impact on employment. The lower availability of labour has deepened the decline in hours worked to a greater extent. We pointed to the slower growth in hours worked relative to employment growth in 2019 in the previous edition of this publication. We illustrated there, among other things, the divergence in developments in manufacturing – unlike in other sectors, not only did employment fall here in 2019, but employment drop was accompanied by even faster decline in hours worked (the remaining employees also worked fewer hours per person on average, signalling an apparent cooling in labour demand).

However, a negative labour supply shock itself cannot fully explain such a dramatic fall in hours worked; government measures to maintain employment have played a significant role as well. Already in April 2020, the Ministry of Labour launched the First Aid programme, under which employers could apply for wage subsidies for employees if they had to close their establishments due to a decision of the Public Health Authority of the Slovak Republic, or if their employees could not work due to obstacles on the employer's side, or could not work more than 50% of their working time due to obstacles on the employee's side, such as sick leave or care for dependants sick leave (the programme also applied to self-employed persons). In October, together with the introduction of the stricter anti-pandemic measures, the government introduced an extended version of the First Aid+ programme, which included, among other things, an increase in compensation (increase in monthly limits for the use of the aid, increase in wage compensation to 80% of total labour costs from the previous 80% of the employee's gross wage, compensation scaled according to the depth of the drop in revenues, etc.). Despite the administrative complications, the measures taken by the Ministry of Labour have helped to maintain part of employment even in case of employers who had to reduce or suspend their activity, thus moving the impact of the crisis on employment away from the trend in the number of hours worked. Maintaining links between employers and at least part of the workforce and not interrupting the employment legal relationship also has the benefit of reducing the inertia effect in the fall in labour supply once activity recovers (no need for re-recruitment).

Also several studies that have attempted to map the effect of working from home during a pandemic emerged. Their results have been summarised, for example, by Hojdan and Vitáloš (2020). Hojdan and Vitáloš applied the algorithm they adopted to data on employees in Slovakia in 2019. They estimate that up to 37% of employees in Slovakia may work from home. Comparing the structure of job seekers according to whether their last job was one of those that can be done from home revealed that jobs where this is not possible are associated with a higher probability of unemployment. In July 2020, when unemployment peaked, the share of

such jobseekers in the year-on-year increase in registers was even slightly higher than usually (82%). Jobs with a predominance of activities whose nature does not allow them to be carried out from home were somewhat more at risk from the pandemic. Thus, the increased use of working from home office (in the context of its regulation at a time of stricter anti-pandemic measures, when homeworking was ordered wherever the nature of the work tasks allowed it) may have protected some jobs. The results at the district level also showed that unemployment grew more in districts with a relatively lower share of jobs performed from home. The picture of the impact of home-based work use during the pandemic is complemented by Dujava and Peciar (2020), who also showed that the impact of the pandemic on individuals' employment varied according to whether they were able to work from home and according to the intensity with which they came into contact with other people while performing their work. By comparing data on mobility and regional differences in opportunities to work from home, the authors also concluded that districts with higher concentrations of activities that allowed working from home actually saw a reduction in work-related mobility, and districts with greater opportunities to work from home have also experienced a slower spread of infection. Based on surveys among employers, it appears that the position of teleworking will change even after the pandemic. A number of employers have reported a positive effect of this form of work on the productivity of their employees and on the reduction of fixed costs, and are therefore counting on its increased use.

\* \* \*

The pandemic has in many ways changed the behaviour of employers (and increased their flexibility), but also the behaviour of households, what may bring a more lasting changes not only in the forms of work and other activities (e.g. combining face-to-face with distant forms, not only in performing work but also in education, for example), but also in the nature of household consumption (changes in the ways of purchasing the goods, but also in the size of consumption and in the share of its components, with possible implications for the activity of certain sectors and

employment in these sectors; tourism or transport and delivery services as examples). The pandemic has significantly changed the perception of the possibility of working from home, both on the side of employers and employees. However, the question arises here whether its increased use after the pandemic will not favour certain categories of workers in terms of educational attainment or age, but also whether it will, or will not, contribute to further widening of income inequalities (for the relationship between teleworking and income and other aspects, see the analytical commentary by Jurašková Kucserová (2021); for example, according to this estimate by the NBS author, up to 32% of GDP in the Slovak Republic could have been produced 'from home' in the second quarter of 2020). Longer-term consequences for output, sales and employment may be felt in sectors where the government regulations have forced many entities to terminate their activity (although business statistics have not yet shown significant changes in overall numbers). It will also be interesting to monitor changes in the number of hours worked during the waning of the pandemic, or during any further waves of the pandemic.

## 5. PRICE DEVELOPMENTS

The coronavirus crisis has also had a major impact on the price level. The original inflationary pressures that had pushed prices up moderately in previous years have disappeared with the onset of the global pandemic. Aggregate demand has faltered, with areas such as *Food* experiencing a surge in demand, while in other sectors, the impact of the introduced measures has reduced effective demand to almost zero. Thus, the overall level rose by 1.9% on average on an annual basis measured by the CPI, and by 2.0% measured by the HICP.

However, there is also a slight problem with measuring inflation during a pandemic. The methodology measuring the standard inflation rate is not fully capable of dealing with the changes that occurred in the economy during the pandemic. This issue will be addressed in the second half of this chapter. However, it is important to recognize upfront that the predictive value of the officially published data may be biased in some months of 2020 compared to standard values during other (normal) years.

### ***Pandemic Affects Everything***

If anything can be said with certainty about the evolution of the price level in 2020, it is precisely the fact that the role of the pandemic in it was crucial. This is a logical assumption given by the fundamentals of economic theory that there are no upward pressures on prices when demand is low. Generally speaking, such a claim was especially true for so-called non-essential goods and services. On the contrary, essential goods and services faced an increase in demand. In particular, the following factors can be identified as important for the development of the price level.

a) *Gradual moderation in food price growth* – at the beginning of the year, the strong inflationary impulse from the previous year continued. The rising meat prices, in particular, fuelled inflationary tendencies across the category. After the onset of the pandemic, the impact of meat prices gradually began to diminish and by the end of the year, it accounted

for only a marginal effect on the overall change in the entire *Food* category. We do not attempt to empirically prove a causal link between the development of the pandemic and the demand for meat – however, correlation-wise, these variables are close to a perfect (negative) match.

b) *Absolute oil price slump* – in the first phase, the low economic activity on a global scale mainly affected transport demand. The lack of demand was most clearly demonstrated by the short-term slump in WTI crude oil prices in April, when crude oil achieved its worst short-term performance in the lifetime of the index, at – Dollar 37.63 per barrel (producers did not sell but subsidized crude oil offtake). Globally, it is estimated that in the first months of the pandemic, the fall in oil demand reached 1/3 which must have been reflected in fuel prices. Later, oil (and subsequently fuel) prices stabilized but had a negative impact on the overall inflation rate throughout the rest of the year.

c) *Regulated price increases at the beginning of the year* – for products where there is no effective competition in the market, regulation oversees price setting. Thus, a dichotomous situation has arisen where, alongside the falling price of gas and electricity traded in the market (due to the pandemic), regulated prices have contributed to the overall rise in inflation. This is not a failure of regulation, since it is set for the whole upcoming year and the unexpected developments in the form of the pandemic could not have been captured by it. Thus, the impact of the pandemic on administered prices will only become apparent in the coming year.

d) *Dissipating base effect* – the previous year also saw price increases in some regulated sectors, such as the price of bus transportation or postal services. Thus, the year-on-year contribution of this increase was also valid in the first part of 2020. Logically, its impact disappeared one year after its introduction.

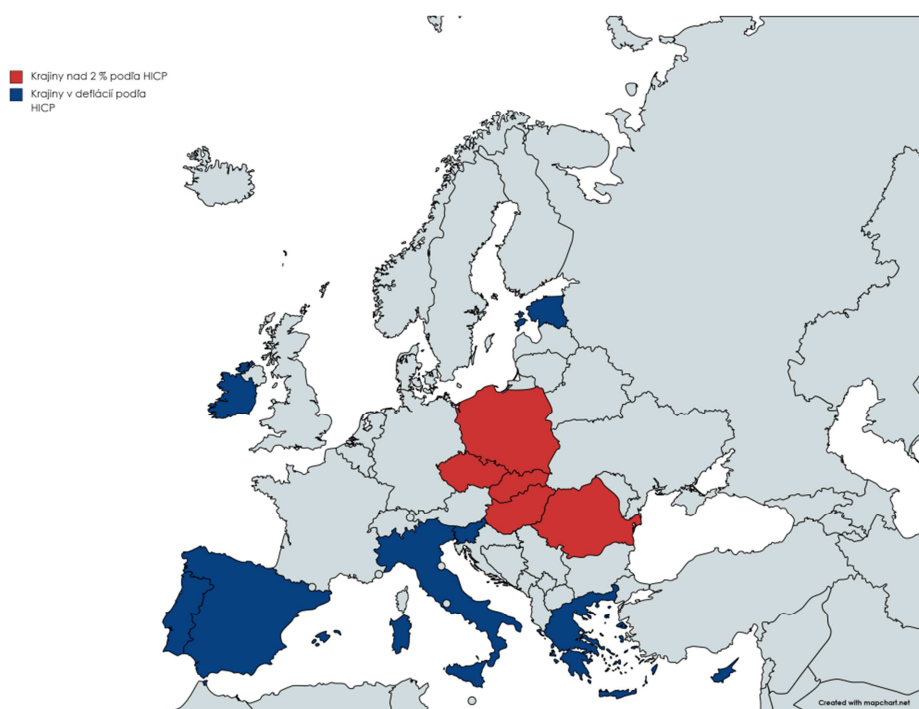
### ***EU Countries Are Worse Off with Inflation***

In last year's edition, we pointed out that inflation in the EU is geographically unbalanced. While countries in the east of the EU were experiencing higher levels of inflation, the countries known as the PIIGS

(i.e., the south of the EU and Ireland) had very low inflation rates even in times of economic expansion. Nothing fundamental has changed about this distribution in 2020. Although the scale of the economic problems from this division has become even greater. In general, there has been a leftward shift in the inflation rate scale, with most countries experiencing a decline in price level growth. In the case of the PIIGS, the decline in inflation growth has moved into the deflationary band. Thus, as many as seven countries experienced a decline in the overall price level during the pandemic. These are Portugal, Ireland, Italy, Spain, Greece, Cyprus, and Estonia. Slovakia was among the top 5 highest inflation rates in the EU, but at 2.0% HICP, this is more a consequence of low inflation rates in other economies than a real threat to the economy. Overall, the EU inflation rate is in retreat, with the majority of countries in the 0 – 2% range and the EU average at 0.8% and the euro area at just 0.4%.

Image 5.1

#### **Inflation Rates in Selected EU Countries in 2020 (HICP)**



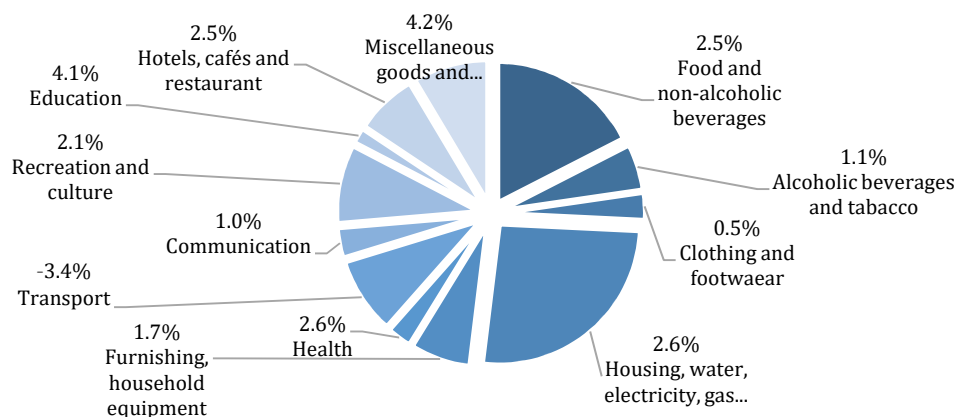
Source: Eurostat (2021), Author's design.



Figure 5.1

### Year-on-year Change in Price Level in Consumer Price Index Categories in 2020

(size of categories in the chart according to weights in the consumption basket)



Source: Macroeconomic Database NBS (2021).

Table 5.1

### Overview of the Main Price Indexes in Slovakia (in %)

	2017	2018	2019	2020
<b>Inflation rate (HICP):</b>				
Euro area	1.5	1.8	1.2	0.3
Slovakia	1.4	2.5	2.8	2.0
Czech Republic	2.4	2.0	2.6	3.3
Hungary	2.4	2.9	3.4	3.4
Poland	1.6	1.2	2.1	3.7
<b>Industrial prices:</b>				
Industrial producers prices – total	2.5	2.5	1.9	-0.4
Industrial producers prices – domestic	1.9	4.9	2.5	0.8
of which: Manufacturing	2.6	3.2	0.7	-1.9
Industrial producers prices – export	2.9	1.1	1.5	-1.1
Construction work prices	3.0	3.4	3.9	2.9
Construction material prices	3.5	4.4	1.8	-0.8
Agriculture products price	4.7	2.0	1.8	0.5
Real estate prices – apartment – average	8.9	8.0	8.5	9.6
Real estate prices – house – average	2.9	3.3	5.1	8.1
<b>Deflators:</b>				
GDP deflator	1.2	2.0	2.5	2.4
Government consumption deflator	3.2	4.2	5.6	6.6
Private consumption deflator	1.4	2.3	2.7	2.2
Fixed investments deflator	1.6	2.3	1.2	0.7
Export deflator of goods and services	2.2	1.8	0.0	-2.2
Import deflator of goods and services	2.8	2.4	0.2	-1.8
Terms of trade	-0.6	-0.6	-0.3	-0.4

Source: Eurostat (2021); Macroeconomic Database NBS (2021); MF SR (March 2021); Datacube database SO SR (2021).

In the consumer basket, despite the declining economic activity, most categories have maintained positive growth. Only *Transportation* saw a significant decline. It is noteworthy that the two largest items by share in the total basket – *Food and non-alcoholic beverages*, together with *Housing, water, electricity, gas and other energy* (Figure 5.1) grew faster than the overall change in the price level. However, the average does not capture developments over time, which have been differentiated, especially for food. There may also have been some bias due to the pandemic. The topic is analysed at the end of this chapter.

In the Slovak environment, it can be said that the inflation rate does not yet pose a dramatic risk to economic development in the short term. However, a higher inflation rate is expected in the phase of full economic recovery when people start to realise their deferred consumption.

### ***Producer Price Growth Has Disappeared***

A look at the output side of the economy tells us that industrial producer prices have, in aggregate, seen quite different developments. The overall average deflated by 0.4% year-on-year, with the largest contributor to this development being the substantial fall in prices of products from the *Coke and Refined Petroleum Products* manufacturing sector (down 22.7%).

However, a look at the structure of industrial producer prices shows that prices have maintained positive growth on average for domestic products (although overall industrial production has fallen by almost 2%). The maintenance of positive growth is to be attributed to the rise in regulated prices in the *Electricity, Gas, Steam and Cold Air Supply* sector, which could not respond to changes in the economy during the year. However, the prices of industrial producers for export products reflected the changes and fell by more than 1% year-on-year (although the most important export sector of the Slovak Republic – the *Manufacture of Transport Equipment* – maintained positive price growth at 1.3%). In total, we observe a decline in industrial producer prices, which was temporarily hampered by the increase in energy prices at the beginning of the year.

Construction work prices continued the trend of previous years and rose by almost 3%, while construction material prices followed the general trend of falling prices and declined by 0.8% year-on-year.

Housing prices do not seem to have been affected by the pandemic. Despite a very temporary stagnation at the beginning of the pandemic, the average rate of house price growth accelerated year-on-year. Apartment prices attacked the 10% mark and the pace of house prices accelerated by more than half year-on-year. Speculations about healthy price developments in the real estate market are becoming more and more frequent when according to the assessment of the NBS Composite Housing Price Development Index (NBS, 2020), housing prices were in the risk zone (the next stage is already a bubble in the real estate market).

After turbulent years, the prices of agricultural products produced in the domestic economy have stabilised at annual growth rates close to 0.5%. This growth was driven by the rise in prices of livestock products, which reached 0.8%, compared to crop products, which barely grew and rather stagnated at 0.2%.

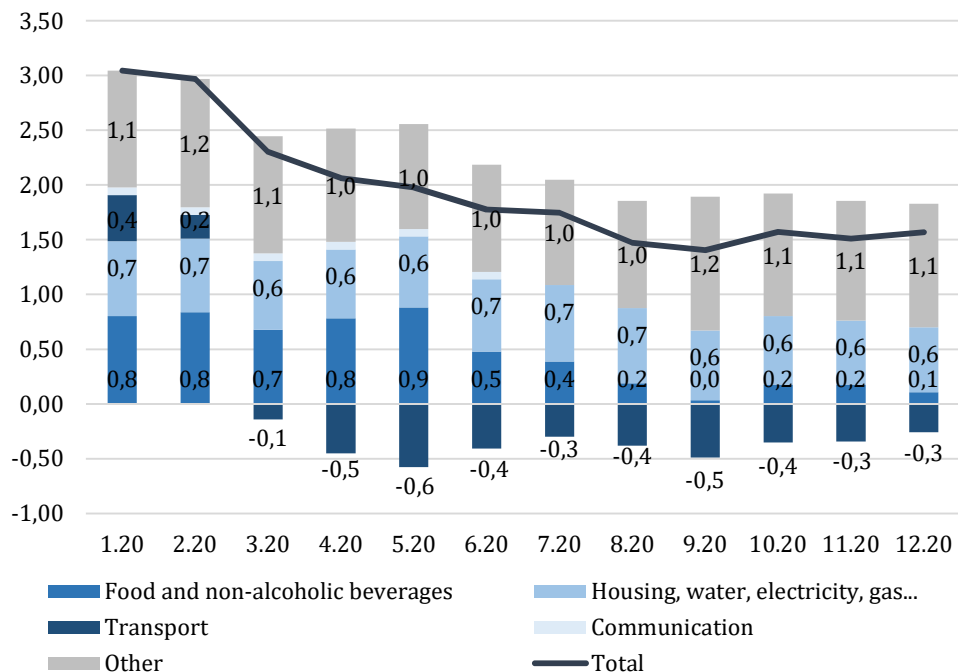
In the area of deflators, the government consumption deflator was again above average, with prices of products consumed by the general government growing almost three times faster than the other GDP component deflators (up 6.6% y-o-y). The private consumption deflator was close to the rate of growth of consumer prices in its year-on-year level (1.9% vs. 2.2%). Prices in Slovakia's foreign trade have fallen. The aforementioned decline in the export prices of industrial products contributed to the overall decline in the export deflator (by 2.2%), while the import deflator declined similarly year-on-year (to -1.8%). It has long been the case in Slovakia that import, and export prices do not develop favourably from the Slovak perspective. The import prices rose faster than export prices in the expansion phase or, conversely, fell more slowly in the recession phase. This is reflected in the terms of trade which have traditionally deteriorated (by 0.4% in 2020). Thus, for the same volume of exports, it has again been possible to import a smaller volume of imports.

## ***Food No Longer Dragged Inflation; Transport Supported Inflation Growth***

Looking at the development of the inflation in terms of the contribution of individual items in the consumption basket, it can be observed that the contribution of the vast majority of categories has been roughly constant. The category *Housing, water, electricity, gas, and other fuels* contributed an almost constant 0.6 – 0.7 p.p. throughout the year. The other categories cumulatively contributed to inflation each month by around 1 p.p. In Figure 5.2, it is also worth noting the impact of the base effect behind the change in administered prices back in 2019, when the price of postage and bus transport changed (a marginal contribution of 0.1 pp. in the first half of 2020). However, the evolution of the contribution of the *Food and non-alcoholic beverages* category together with the *Transport* item is particularly worth analysing.

Figure 5.2

**Percentage Contribution to Y-o-Y Growth in Individual Months for Selected Categories of Consumption Basket (in p.p.)**

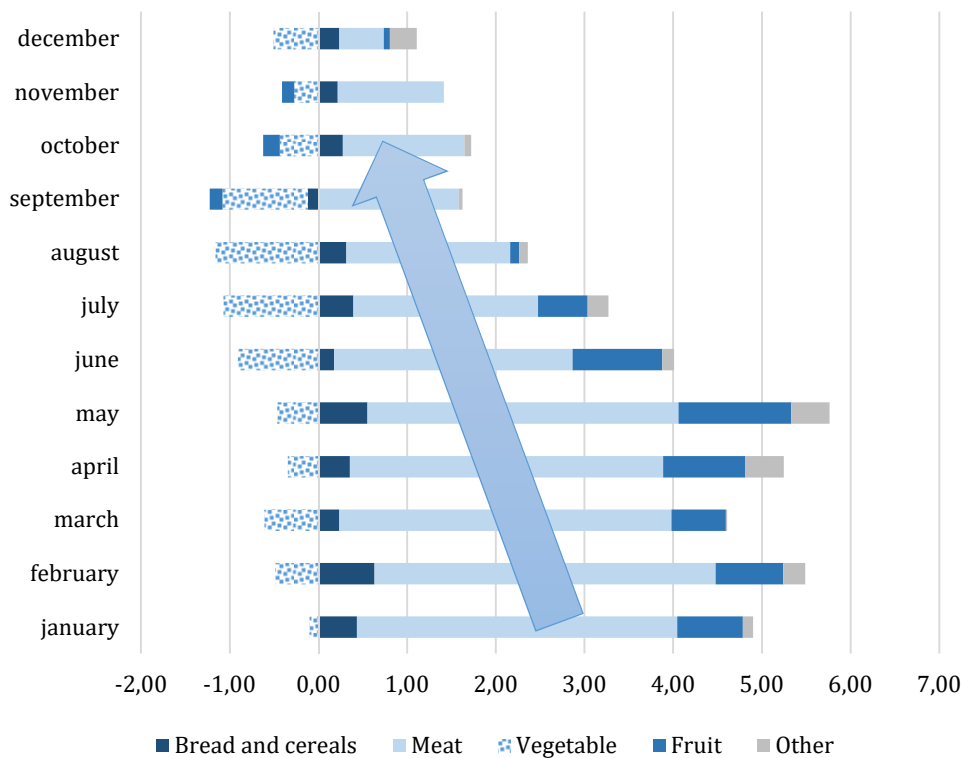


Source: SO SR (2021), Author's calculations and design.

Already in last year's publication, we addressed the topic of the impact of rising food prices on the overall inflation rate, especially in meat and potato prices. We will follow up on this topic when these two types of commodities affected the development of inflation in 2020 – but in the opposite direction. Global meat prices, which have been the main driver of food inflation, fell gradually over the course of the year, losing the inflationary momentum in the consumer basket. This trend is visible in Figure 5.3.

Figure 5.3

**Contribution of Selected Subcategories to Overall Growth of Category Food and Non-alcoholic Beverages (in p.p.)**



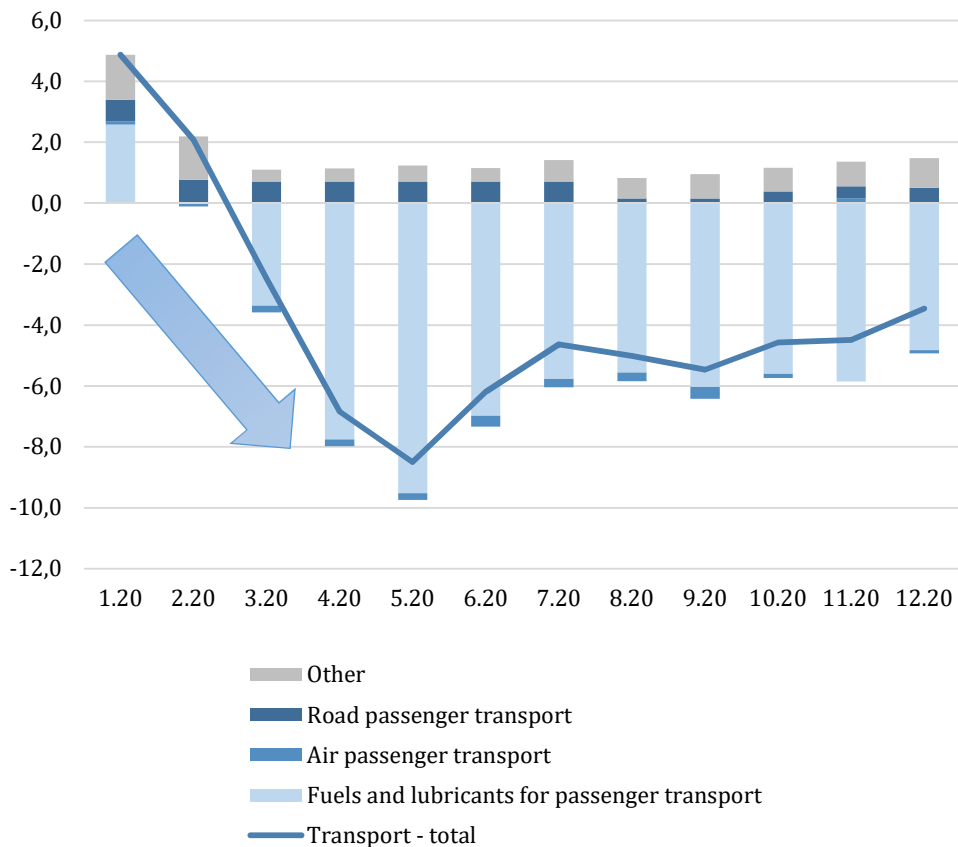
Source: SO SR (2021), Author's calculations and design.

The trend broke again in the first quarter of 2020, which suggests (but does not confirm) a pandemic outbreak. The effect of the change in vegetable prices (and in particular potatoes) had the same effect. In 2019, the potato harvest was the second-highest in the last 20 years in terms of

total volume as well as yield in tonnes per hectare. As expected, the large supply of potatoes pushed down prices, thus the negative year-on-year contribution of vegetables in the food category of the consumer basket. The established measures to prevent the spread of the virus also played a role in the development of prices weakening the demand for some crops when the demand from restaurants and mass caterers was limited or absent in some places.

Figure 5.4

**Contribution of Selected Subcategories to Overall Growth of Transport Category (in p.p.)**



Source: SO SR (2021), Author's calculations and design.

As we mentioned in the previous section of this chapter, the global pandemic has also been marked by an absolute drop in demand for transport and, in particular, oil and petroleum products. From a highly

positive item in the consumer basket, the trend changed sharply during the month – in particular, fuels making a year-on-year contribution of –7 and more percentage points in the second quarter. Although overall mobility declined, the increased share of road passenger transport in total passenger transport (as a logical shift from public transport during the pandemic) slightly increased the overall contribution in the category. However, it was again partially erased by a similar drop in the prices of air passenger transport (air tickets) – Figure 5.4.

### ***Problems of Measuring Inflation During a Pandemic***

Although it may not seem so at first sight, measuring the change in the price level during a state of emergency such as a pandemic is more difficult than in the normal phases of the economic cycle. The measurement of inflation relies on several assumptions, which can be undermined during such exceptional situations.<sup>20;21</sup>

The first important assumption is a certain stability in consumer behaviour. Consumers tend to use their income on food, housing, leisure, etc. on an average in similar proportions every year. This assumption did not apply at all during the pandemic when the supply of certain goods and services was limited. The common weights of the individual categories in the consumer basket thus did not have to reflect the actual consumer behaviour.<sup>22</sup>

The second assumption is the availability and measurability of the prices of goods and services. Even this assumption did not apply at the time of the pandemic when some products or services could not be purchased (either due to restrictions or lack of goods on the market). E.g. the price of accommodation or meals in a restaurant could not be determined precisely in some months due to the existence of measures prohibiting the offer of such services.

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<sup>20</sup> We do not have the ambition to identify all the factors, we only point to some that have played a role in determining the headline inflation rate.

<sup>21</sup> A similar exceptional situation can be war.

<sup>22</sup> The weights in the consumer basket are adjusted with a two-year delay, when the weights for the consumer basket in 2020 reflect the behavior of consumers in 2018.

Another distortive factor in the officially published inflation rate is the absence of some important goods in the consumer basket. An easily illustrative example can be found in sanitary napkins or respirators, which were not part of the consumer basket in 2020 but were in fact an important part of the consumer basket.

Due to the existence of all the mentioned factors, we will try to calculate "real" inflation in 2020 with a slight time lag. However, please note that this is an estimate and not an exact quantification, given the availability of the necessary data for such an estimate.

The measurement of current consumer inflation in Slovakia is based on the measurement of the change in the price level in a representative consumer basket consisting of 728 representatives divided into 12 categories. If we want to find out the level of "real" inflation, it is necessary to find out what the real weight of individual goods in the consumer basket is based on the development of their consumption.<sup>23</sup> However, we do not have such a detailed view of the change in the weights of individual representatives, so we will adjust the weights in the consumer basket at a rougher (more aggregated) level – according to categories.

As a determinant of the adjustment of weights in the consumer basket, we used final household consumption according to the COICOP classification in current prices by individual quarters, comparing individual aggregates for 2020 with the average of 2012 – 2019. Figure 5.5 shows us the difference in aggregate household consumption compared to previous years by consumption category.

The achieved results reflect the expected development when the highest increase in the share of consumption was achieved by *food and non-alcoholic beverages* throughout the year. Due to the absence of mass dining in the first quarters of the year and only allowed delivery and take out of meals during the rest of the year, this result is expected. Similarly, the increase in the share of *housing and energy costs*, which rose above average in the second and fourth quarters, was expected mainly due to the then valid and strict measures aimed at the general population (working from home, closed companies, and operations).

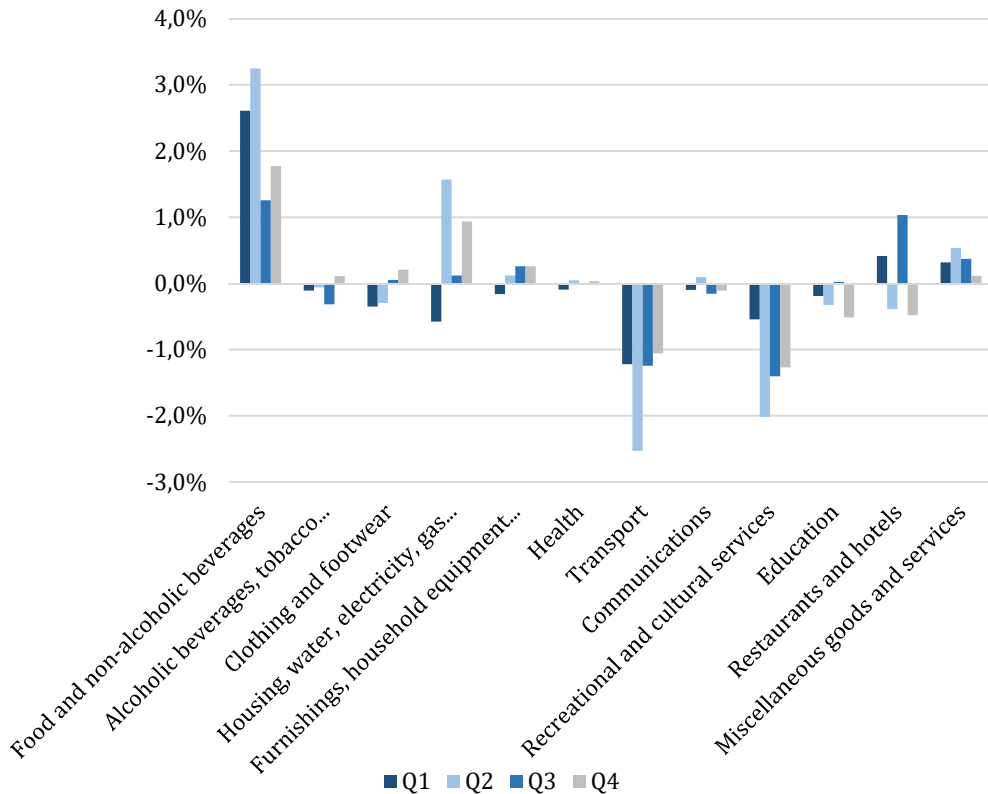
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<sup>23</sup> It is logical to assume that the weight of categories such as recreation and culture must be lower during the pandemic than is officially established.



Figure 5.5

**Difference in Aggregate Consumption in 2020 Compared to Average 2012 – 2019 by Category (%)** (%, quarterly data)



Source: Macroeconomic database NBS and Eurostat (2021), Author's calculations and design.

The drop in the share of expenditure on transport and recreation and culture is also logical, as these sectors, in particular, have been hit the hardest by the measures in place. The last important deviation from the normal share is the different share of expenditure on hotels, cafes, and restaurants. The downturn periods due to the implemented measures alternated with an increase in consumption in the third quarter of domestic hotel services (as people were scared to travel on holidays abroad).

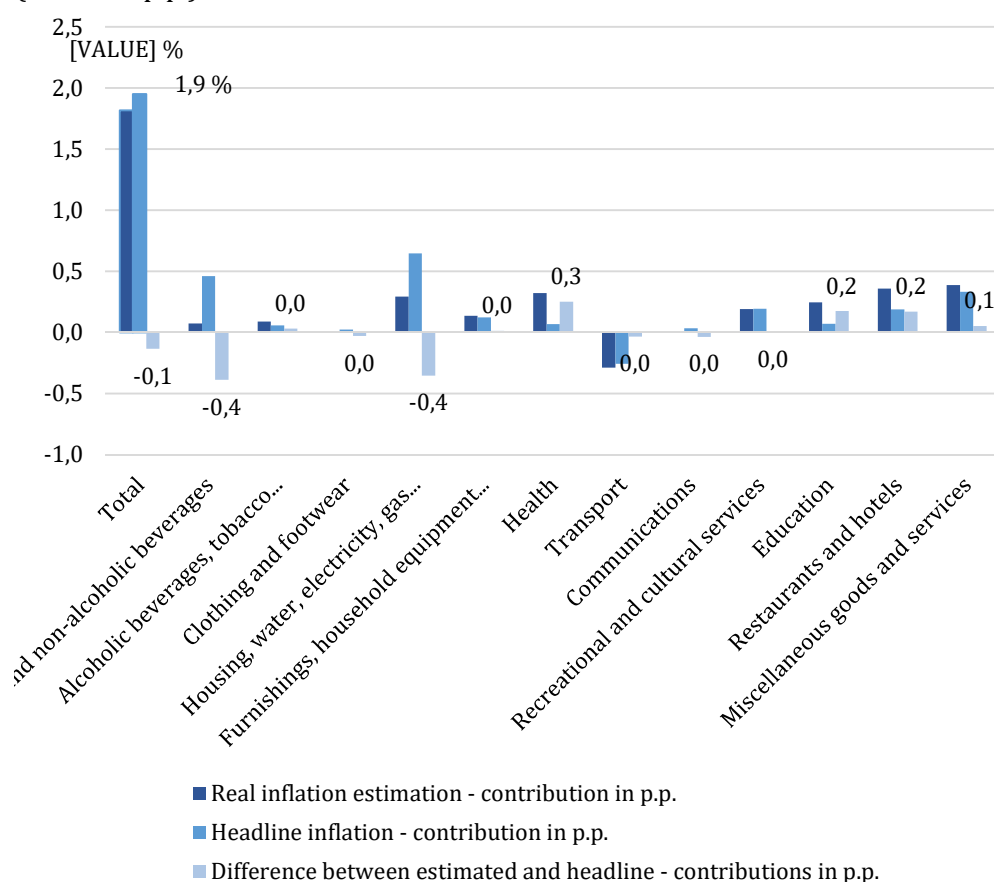
Based on the change in the share of consumption of individual categories in the consumer basket, we subsequently adjusted the weights according to these deviations and standardized the weights for individual consumer basket categories so that the sum of all weights by categories

gives the original sum of the original basket weights (and thus comparable with our results). Subsequently, to obtain a change in the price level, we used new weights derived from actual consumption (so-called pandemic weights) in the calculation of consumer inflation.

In the final step, estimates of the contributions of individual categories in the consumer basket to the overall development of inflation in 2020 were obtained. However, it was the slowdown in the growth of food prices since the onset of the pandemic that caused our estimated year-on-year inflation with pandemic weights to be as high as 0.1 p.p. lower than the officially published rate – 1.8% (Figure 5.6).

Figure 5.6

**Comparison of Official and Estimated Contributions of Individual Categories in Consumer Basket and Headline Inflation in 2020**  
(in % and p.p.)



Source: Macroeconomic database NBS and Eurostat (2021), Author's calculations and design.

Still, the contributions of individual categories in the consumer basket were different. Based on our calculations, it can be concluded that the contribution of the categories *Food and non-alcoholic beverages* and *Housing, water, electricity, and others* are overestimated compared to the adjusted weights by 0.4 p. b. At the same time, however, the contributions of the categories *Health, Education and Hotels, cafes and restaurants* are, on the contrary, underestimated by 0.3, or 0.2 p.p. The overall inflation rate is thus similar to the official (1.8% vs. 1.9%), but the structure of the categories that contributed to its overall level is different.

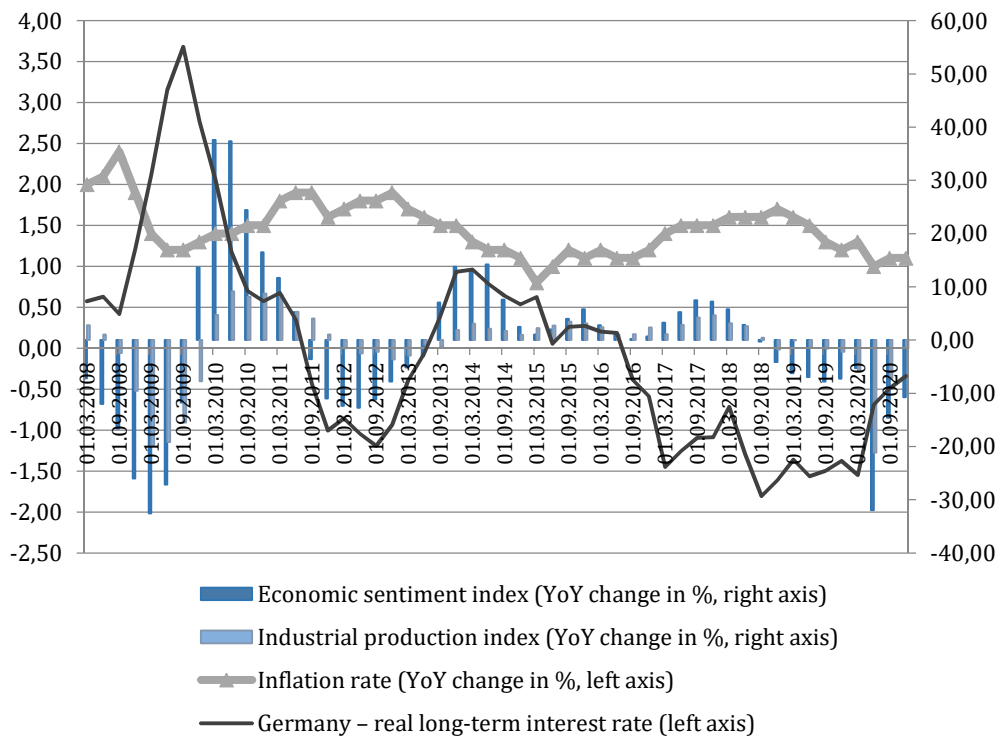
\* \* \*

Price development in Slovakia in 2020 recorded a decrease in its growth rate compared to the previous year. Although the aggregate value for the whole year basically speaks of the textbook case of the inflation target, a look at the detailed development in individual months is no longer such a case. Higher values at the beginning of the year were greatly weakened by the ongoing pandemic and the impact of measures to prevent its further spread. This weakened effective demand and created room for slower, albeit still positive, price growth. However, this cannot be said of the entire EU where almost a third of the Member States have achieved year-on-year deflation. In 2021, we expect a modest economic recovery from a deep recession with a direct impact on inflation, which is expected at similar levels as in 2020. However, the development of prices of some raw materials in the first half of 2021 suggests that in some sectors of the economy it may exceed the expectations. Still, its final level will be determined by the rate of recovery of economic activity and the realization of the expected effect of consumption catch up.

## 6. MONETARY POLICY OF THE EUROPEAN CENTRAL BANK AND SLOVAK BANKING SECTOR DEVELOPMENT

The euro area entered the 2020 in an economic cooling-off period with continuously declining rates of economic activity, economic sentiment as well as inflation (Figure 6.1). Surveys of individual inflation expectations by professional analysts also captured the same economic trend (Figure 6.2). As discussed in the previous edition of Economic Development (Frank and Morvay et al., 2020), the economic slowdown first began to materialize in 2017. While the first quarter of 2020 was still marked by a subtle improvement in economic expectations, the first wave of the new coronavirus pandemic had already brought with it a historic slump comparable only to the situation more than a decade ago (crisis year 2009).

Figure 6.1  
Development of Baseline Economic Indicators



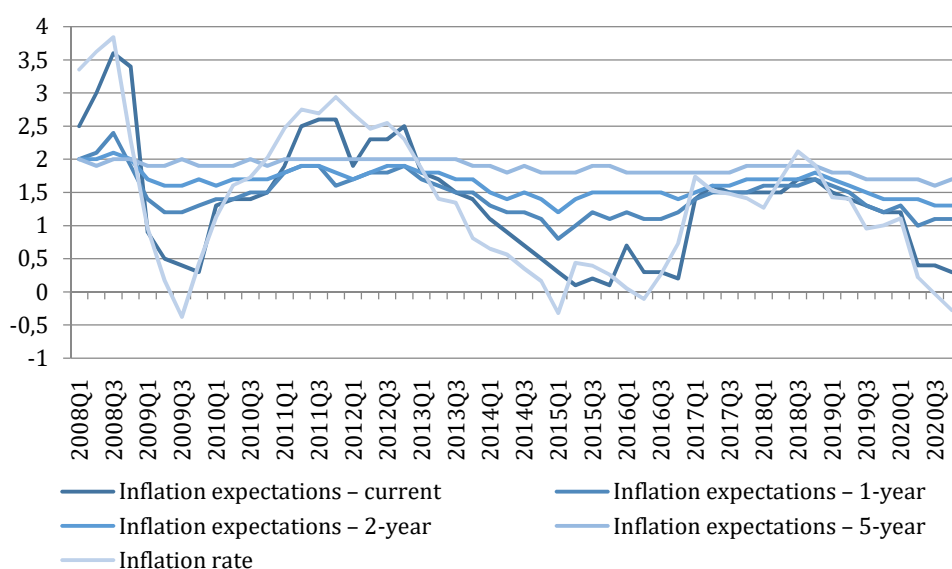
Source: ECB, Eurostat.

The historical decline in long-term inflation expectations (5-year) also continued and reached 1.6% in 2020. On the other hand, the anchoring of short- and medium-term inflation expectations above the lower bound of 1% (Figure 6.2), with a sign of slight improvement in the last quarter of 2020, could be seen as a positive sign for monetary policy. Interestingly, from the historical perspective of the last two decades, the fall in inflation expectations has not been that exceptional, and it has only repeated the situation of 2009, as well as that of 2015.<sup>24</sup>

Although the monetary easing in the second half of 2019 was reflected in a subtle increase in both the inflation rate and short-term inflation expectations at the end of 2019, developments in 2020 were already determined by the pandemic situation and the subsequent monetary policy measures.

Figure 6.2

**Development of Inflation Expectations and Inflation Rates (%)**



Source: ECB, Eurostat.

<sup>24</sup> Of course, the costs associated with achieving a return to the 2 per cent level of inflation expectations differ in each of the three cases. While monetary policy had the interest rate channel of monetary policy at its disposal in the case of the first shock in 2009, the next two waves were already marked by the use of quantitative tools. In the case of monetary policy, however, the comparative costs of monetary policy measures are often treated as a negligible factor, as the success of monetary policy is more likely to be measured through the achievement of pre-set objectives and broader economic benefits.

The exhaustion of the effectiveness of the interest rate channel of the monetary policy transmission mechanism was already evident before the arrival of the pandemic. Although the ECB did proceed to cut the deposit rate to  $-0.50\%$  at its September 2019 meeting (Figure 6.3), this decision was more or less cosmetic. Much more important and significant is the fact that the use of quantitative monetary policy tools (the asset purchase programme – APP, the Targeted Long-Term Refinancing Operations programme – TLTRO) as well as the communication policy of influencing inflation expectations (forward guidance) has been unceasing.<sup>25</sup> It is therefore not surprising that, following the spread of the first wave of the new coronavirus pandemic to the euro area countries, the primary instruments to which the ECB has resorted have once again been securities purchases (the so-called ‘pandemic emergency securities purchase programme’, PEPP) and financing through long-term targeted refinancing operations (the so-called ‘pandemic emergency long-term targeted refinancing operations’, PELTRO).

At the same time, the ECB has entered into swap agreements and opened bilateral lines with a number of central banks in order to address possible shortages of euro liquidity in economically linked countries as well as to provide liquidity for international currencies in the foreign exchange market.<sup>26</sup>

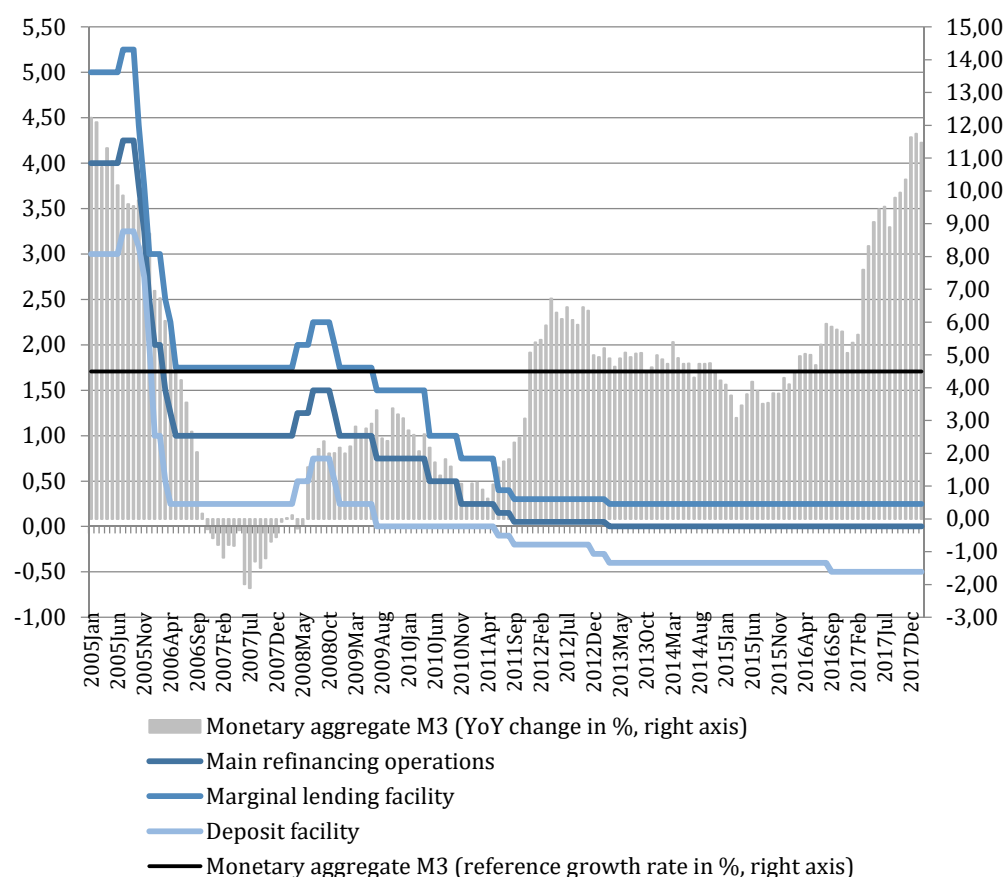
Following the positive experience in the previous rounds of long-term refinancing operations, one of the key factors was the benefit to banks, which used the funds raised to increase credit financing to the household sector (excluding real estate purchases) and the non-financial corporations sector. According to the ECB’s lending conditions, the interest rate on long-term refinancing operations was reduced with regard to the volume of loans granted, up to a limit of 50 bp below the deposit rate.

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<sup>25</sup> In a previous edition of the Economic Development (Frank and Morvay et al., 2020), we discussed the issue of a possible change in the European Central Bank’s Strategy (Chapter 6, p. 85). At this point, we merely note that it might be appropriate to abandon the “old” terminology and start distinguishing between qualitative (key interest rates) and quantitative (credit and quantitative easing) instruments instead of labelling them as non-standard monetary measures.

<sup>26</sup> Swap agreements have been concluded with developed countries (Switzerland, UK, USA, Canada, Japan, Denmark) and emerging economies (Bulgaria, China, Croatia). Bilateral repo agreements for the provision of euro liquidity have been concluded between the ECB and other central banks (Albania, Hungary, San Marino, North Macedonia, Romania, Serbia).

Figure 6.3

**Development of Key ECB Interest Rates and Growth Rate of M3 (%)**

Source: ECB.

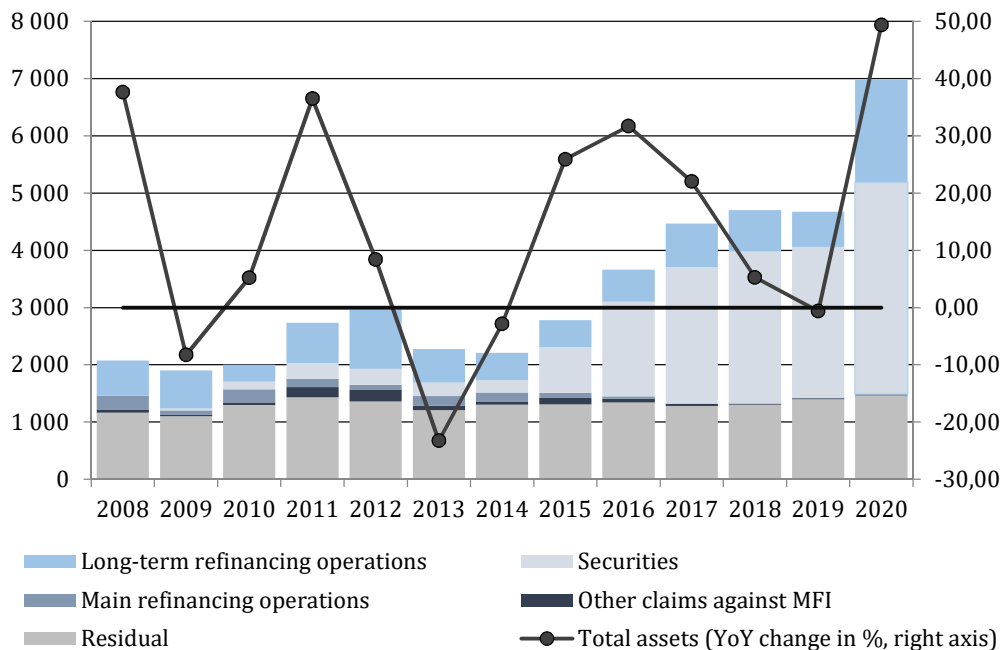
The change in the structure of the Eurosystem's balance sheet can also be seen from this perspective (Figure 6.4). The expansion of total assets reflecting the activation of the anti-pandemic instruments has exceeded even the last crisis period (2008), the debt crisis (2011) or the initial use of quantitative easing (2016).

In terms of instruments, however, long-term refinancing instruments played a much more important role in this case, although, of course, the volume of securities purchased once again reached an all-time high. However, unlike securities purchase programmes, the activation of re-financing instruments represents a step that has a more precisely delimited end, with a maturity much shorter than in the case of securities

held to maturity.<sup>27</sup> It can therefore be expected that, in the event of a favourable economic outlook during 2021 and 2022, a gradual contraction of the balance sheet will occur in 2022 and 2023 and the ECB will once again revert to the slow exit strategy initiated in 2019. Of course, everything will depend on the speed of the economic recovery from the pandemic crisis.

Figure 6.4

**Development of the Eurosystem's Balance Sheet Structure (bil. eur, %)**



Source: ECB.

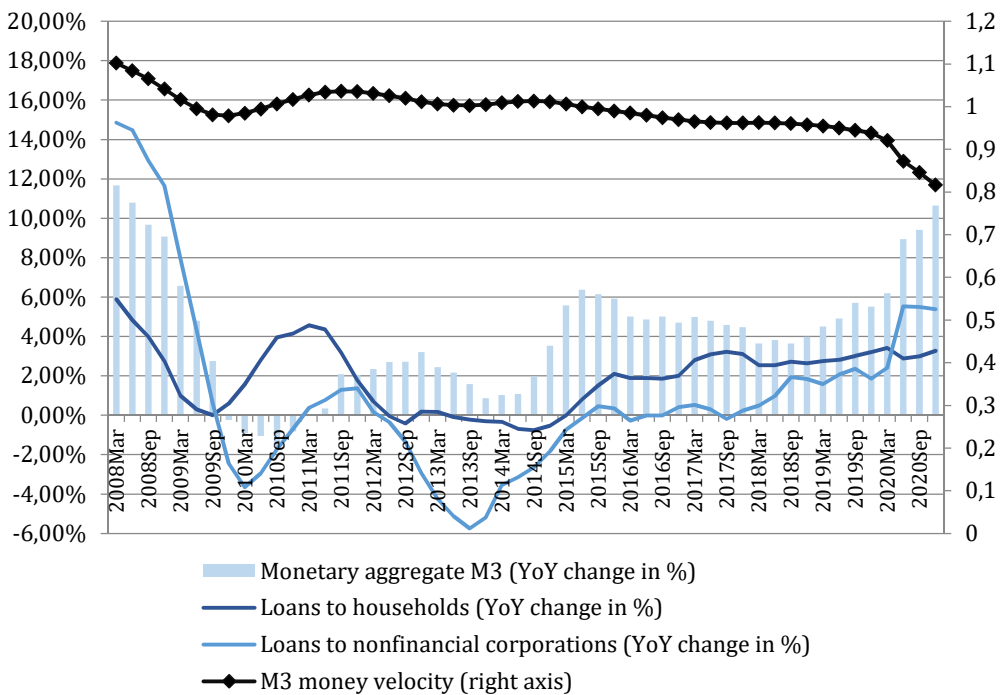
While real long-term interest rates in the euro area (Figure 6.1) were hitting historic lows and inflation expectations (Figure 6.2) pointed to the persistent problem of achieving targeted inflation close to, but below, two per cent, for the first time in more than a decade the average growth rate of the main monetary aggregate M3 was well above the benchmark of 4.5 per cent and reaching pre-crisis annual growth rates of more than 10 per cent (Figure 6.3).

<sup>27</sup> The average maturity of the targeted refinancing operations under the PELTRO programme is one year, and 36 months for the third round of TLTRO III. However, the possibility of early repayment in the case of TLTRO III occurs after the first year of the contract.



The importance of the monetary policy credit channel has emerged as one of the key channels for influencing the business cycle, not least as a result of the experience of the recent financial crisis. Given the limited effectiveness of the interest rate channel in the case of negative interest rates (liquidity trap), the question of the possibility of influencing lending to households and non-financial corporations with other instruments has come to the fore. While lending to households has generally shown higher sensitivity to monetary policy changes, lending to non-financial corporations only started to grow more significantly from 2018 onwards. This trend reflects the reluctance of banks to finance credit expansion and instead deposit money in the form of excess reserves with the ECB (Fiedler and Gern, 2019). The program of targeted long-term refinancing operations has become the most effective among unconventional instruments in terms of credit growth, especially to the corporate sector (Altavilla et al., 2019).

Figure 6.5

**Development of Credit Aggregates and Growth Rate of M3 (bil. eur, %)**

Source: ECB.

The positive effect of monetary measures aimed at supporting the economy during the pandemic period can thus be described as a significant growth in lending to the business sector while maintaining the level of growth in lending to households, which emerged in the pandemic year 2020. This phenomenon may have been partly due to the increase in lending triggered by the activation of the PELTRO and LTRTO III programmes linked with a significant discount offered to lending interest rates. An alternative explanation is that the banking sector itself perceived the pandemic as a one-off short-term event, which it helped firms to overcome by temporarily increasing their short-term funding.

Towards the end of 2020, an interesting phenomenon occurred in the world economy. The visible upward trend in long-term nominal interest rates in the US, with a start date of October 2020 and a peak reached in March 2021, has raised the question of possible post-pandemic inflation among analysts and commentators. While Europe at that point still had a period of third-wave pandemic to come in 2021, the combination of the rise in real interest rates (Figure 6.1) coupled with the further unprecedented expansion of the Eurosystem's balance sheet (Figure 6.4) and the significant increase in both the monetary aggregate M3 (Figure 6.3) and its credit counterparts (Figure 6.5) presents an interesting moment to pause and reflect on the possibility of future inflationary pressures. We will therefore explore this topic in more detail in the next section of this chapter.

### ***Can Post-Covid Inflation be Expected?***

In the previous issue of Economic Development, we took a closer look at the problem of the lack of inflation in the euro area in the post-crisis years. Despite the cautionary voices, scientific studies have not yet shown that the relationship between economic activity and inflation has broken down in the euro area; on the contrary, the link may have become even stronger. The same is true for Slovakia (Frank and Morvay et al., 2020). The persistently low inflation rate until the outbreak of the new coronavirus pandemic could thus be attributed to other fundamental factors

(globalisation, changes in the labour market, the formation of inflation expectations) or to insufficiently strong monetary expansion by the ECB. Given the problem of disinflation in the euro area, the possibility of the materialisation of a post-covariance inflation rate could thus, paradoxically, at first glance be positive information for monetary policy.

One important issue for the conduct of monetary policy is whether inflation is caused by a supply or a demand shock. While the monetary policy response to demand shocks is relatively straightforward, dealing with supply shocks is problematic and depends on a number of circumstances.<sup>28</sup> In the presence of short-term supply shocks, the current consensus is on the side of passive monetary policy, i.e. no central bank response. The latter should only react to a shock if there are second-round effects resulting in a change in aggregate demand or changes in consumers' long-run inflation expectations.<sup>29</sup>

Three recent studies using the US data attempt to estimate whether the new coronavirus pandemic caused an overwhelmingly negative demand or supply shock. Del Rio-Chanon et al. (2020) define a supply shock as a reduction in output induced due to the cessation of production in non-essential sectors and due to the inability to work from home. A demand shock arises when there is a drop in demand for products that people stop consuming due to the possibility of contagion (e.g., restaurants and hotels) and a change in the pattern of spending in favour of vital goods. The pandemic is estimated to have been dominated by a supply shock over a demand shock, with the employment shock being more important in terms of overall effects and less important in terms

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<sup>28</sup> Imagine a situation where monetary policy follows a simplified version of the Taylor rule, where the change in the key interest rate depends on the inflation gap (the deviation of inflation from the inflation target) and the output gap. In the case of a positive demand shock, both the inflation gap and the output gap simultaneously turn positive, which in both cases signals an increase in the key interest rate. However, a negative supply shock can cause up-ward pressure on the price level (positive inflation gap) in the presence of a negative output gap. Thus, the impact of a supply shock on the change in the key interest rate depends on the monetary policy preferences in the monetary rule equation. Thus, in some cases, the central bank should even respond by lowering the interest rate, even in the presence of supply-side inflationary pressures.

<sup>29</sup> In this case, the standard recommendation for monetary policy is that priority should be given to monitoring and managing inflation. If monetary policy succeeds in stabilizing inflation, it will automatically generate an optimal level of economic activity. For more details, see Dujava (2016) on the so-called divine coincidence as a property of neo-Keynesian models.

of value added and wages. Brinca et al. (2020) showed that the labour supply constraint (supply shock) accounted for two-thirds of the total decline in hours worked. Bekaert et al. (2020) point to the need to distinguish between the different stages of a pandemic. While in the initial phase of the pandemic two-thirds in the fall in aggregate output can be attributed to the demand shock, the subsequent continued fall in output was already two-thirds driven by the supply shock.<sup>30</sup>

The above studies suggest that a pandemic could be considered as a combination of both demand and supply shocks, but that supply shocks could have a dominant and delayed effect. Thus, as a result of these factors, once the initial negative effects are removed, a supply shock could put upward pressure on the price level in the short run. At the same time, an increase in the money supply, driven, among other things, by a rise in the lending volumes, may start to feed into this increase for the first time since the 2009 crisis (Figure 6.5). If the transitory decline in the velocity of money in circulation returns to pre-pandemic levels, this phenomenon could also contribute to short-term inflationary pressures. The second-round effects of the supply shock have not yet manifested themselves in medium-term inflation expectations, as these remain anchored below the target inflation rate. Thus, a recovery in economic activity associated with a pick-up in demand may also contribute to upward pressure on prices in the short term.

From a monetary policy perspective, this news could paradoxically be a positive impulse helping to kick-start an exit strategy from the negative interest rate trap. Monetary policy can even be expected to welcome a temporary increase in short-term inflation expectations above the two per cent threshold.<sup>31</sup>

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<sup>30</sup> Quantitative estimates of the contribution of supply and demand shocks to the decline in output during the pandemic are not available for Slovakia. However, some studies have addressed the individual factors. The possibility of working from home, i.e. a supply shock, was investigated in Hojdan and Vitáloš (2020). This topic is also discussed in Chapter 5.

<sup>31</sup> In the previous issue of Economic Development, we discussed the revision of the ECB's monetary policy strategy, which takes place this year. One of the topics discussed was the question of the specification of the monetary policy target. Some proposals leaned towards redefining this target using a symmetric rule based on targeting the *average* long-term inflation rate. Raising short-term inflation expectations even above two per cent could thus help monetary policy to implement an exit strategy from the zero interest rate bound.

Since monetary policy should not react to supply shocks in the short run, the use of fiscal policy instruments to help improving the supply side of the economy in the medium term seems all the more important, otherwise a pandemic situation may result in a stagflationary episode (a combination of inflation and a negative output gap). The importance of fiscal instruments is also underlined by the observable rise in the real interest rate, which could increase the cost of financing economic activity, which also negatively affects the output side of the economy. While monetary policy can also be highly effective in managing inflation in the event of stagflation, the costs of such policy may then be too high to pay.

### ***The Slovak Banking Sector and the New Coronavirus Pandemic***

The Slovak banking sector was caught by the pandemic at a time of its continued expansion, especially in the area of lending to the household sector. However, the banking model based on strong competition in the area of financing the purchase of real estate in the presence of minimum interest rates was beginning to hit its limits.<sup>32</sup> Concerns about an overheated bank market in an environment of loose ECB monetary policy and rising household debt led the National Bank of Slovakia (NBS) to tighten macroprudential policy as recently as 2019. The pandemic has significantly disrupted these plans. Thus, the increase in the countercyclical capital buffer to 2.00% in August 2020, approved in 2019, was eventually put on hold due to the onset of the crisis.

As part of the state support to overcome the effects of the pandemic, the banking sector made primarily use of the measure allowing the possibility of deferring repayments of loans to households and businesses adopted in April 2020 (Act No. 67/2020 Coll.). Under this measure, bank customers could apply once to defer repayments on an existing loan for the following 9 months.

According to NBS data, 11.1% of retail clients applied for loan deferment, mainly for the consumer loan segment. At the same time, however, these were mostly loans with a riskier profile than the average loan.

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<sup>32</sup> For a detailed discussion, see the publication by Frank and Morvay et al. (2019).

Thanks to the bank's ability to defer repayments, the share of defaulted loans was at a minimum during 2020 (after the first wave of the crisis) (NBS, 2020).

The overall growth rate of lending in 2020 not only remained in the black numbers, some segments even reached almost the pre-pandemic values of 2019. The most affected sector remained the segment of consumer loans with a maturity of up to 5 years, but it should be noted that this segment was already showing negative growth rates before 2020. On the contrary, the growth rate of housing loans maintained its momentum. Within the corporate sector, although there was a decline in medium-term lending, both long-term (investment) and short-term lending (operating liquidity) remained unaffected.

Table 6.1

**Lending Growth Rate for the Household and Non-financial Corporations Sector and Comparison with the Base Year 2019 (%)**

	(jan-feb)	Q4	Q3	Q2	Q1	(jan-feb)	Q4	Q3	Q2	Q1
	Households					Nonfinancial corporations				
	Total loans									
Growth rate in 2021 (YoY)	3.3					0.1				
Growth rate in 2020 (YoY)		6.3	6.6	7.1	9.7		2.6	4.0	3.6	4.1
Growth rate in 2019 (YoY)	9.8	7.9	8.1	10.1	9.7	5.1	3.5	4.2	5.1	5.0
Difference (against 2019)	-6.6	-1.6	-1.5	-3.0	0.0	-5.0	-0.9	-0.3	-1.5	-0.9
	Loans up to 1 year (including)									
Growth rate in 2021 (YoY)	-11.5					-1.5				
Growth rate in 2020 (YoY)		-10.2	-9.7	-9.4	-8.0		2.6	5.0	7.3	6.3
Growth rate in 2019 (YoY)	-3.4	-6.3	-3.8	-4.5	-3.4	4.1	4.7	3.3	4.1	4.6
Difference (against 2019)	-8.1	-4.0	-5.9	-5.0	-4.6	-5.6	-2.1	1.7	3.3	1.7
	Loans between 1 and 5 years (including)									
Growth rate in 2021 (YoY)	-13.7					-2.0				
Growth rate in 2020 (YoY)		-19.9	-18.4	-16.5	-12.3		-5.1	-7.0	-6.4	-1.6
Growth rate in 2019 (YoY)	-1.9	-3.4	-1.7	-1.0	-2.0	-0.2	-0.3	3.3	1.9	-0.4
Difference (against 2019)	-11.8	-16.5	-16.8	-15.4	-10.4	-1.8	-4.8	-10.3	-8.3	-1.3
	Loans over 5 years									
Growth rate in 2021 (YoY)	4.1					2.1				
Growth rate in 2020 (YoY)		7.6	8.0	8.4	11.1		6.0	8.4	5.7	5.3
Growth rate in 2019 (YoY)	10.8	8.8	8.9	11.0	10.6	8.4	4.4	5.3	7.4	8.1
Difference (against 2019)	-6.7	-1.1	-0.9	-2.6	0.4	-6.3	1.5	3.0	-1.7	-2.7

Note: Growth rates are calculated compared to the same period of the previous year.

Source: NBS, own computation.

However, the combination of deferral requests for loans with a riskier profile, as well as the onset of a second wave of the coronavirus crisis in late 2020, have contributed to a negative outlook for the banking sector in 2021. The banking sector will have to cope with the consequences of a new tougher lockdown coinciding with the expiration of the possibility to defer repayments on existing loans. Banks ended the first months of 2021 with a significant drop in lending, and the data thus clearly showed that the real burden on the banking sector will come only in 2021 (Table 6.1).

Aware of these risks, banks undertook the highest-ever provisioning in 2020 in preparation for the likely increase in defaulted loans pushed back to 2021. Provisioning represented more than one per cent of the estimated amount of unsecured loans, while covering more than twenty per cent of realized loan income (Table 6.2). All this was happening at a time when, despite the growing volume of total loans, there was a continuous decline in their profitability. Thus, in 2021, the banking sector will have to face not only the deferred consequences of the pandemic crisis, but also the question of how to change the business model in the long run to avoid the growing revenue shortfall from the standard banking model.

**Table 6.2**  
**Profitability of Credit Activities in the Banking Sector and the Creation of Provisions (mil. eur)**

	2020	2019	2018
Interest income on total loans	1 682	1 769	1 797
Fees and commissions received from total loans	622	630	605
Fees and commissions received from total loans	-348	-135	-159
Profit/loss before tax	595	804	824
Total loans	60 652	57 152	53 221
Of which corporate loans	19 791	19 112	18 296
Households up to 5 years	1 977	2 282	2 357
Households over 5 years	38 883	35 758	32 568
Provisions/Total loans	0,57 %	0,24 %	0,30 %
Provisions/Total loans (Collateral 0,7)	1,04 %	0,42 %	0,52 %
Provisions/Interest income on total loans	20,68 %	7,65 %	8,82 %
Average yield on loans	3,80 %	4,20 %	4,51 %

*Note:* A collateral ratio of 0.7 is applied to the total amount of loans to households with a maturity of more than 5 years. The value of total loans in the calculation of the provisioning includes corporate loans, loans to households with a maturity of up to 5 years and loans to households with a maturity of more than 5 years less the amount of collateral (if applicable). The average yield on loans is determined as the ratio of interest income and fees and commissions received on total loans to total loans.

*Source:* NBS, own computation.

One of the answers to the problem of the sustainability of the profitability of the banking sector is the continued pressure to increase cost efficiency. The pandemic has not only brought future threats to the banking sector, but also an opportunity to accelerate the introduction of new e-banking services for its customers. Thus, both the first and second waves of hard lock-downs only accelerated the move into the electronic space, which slowly began to fill up.<sup>33</sup> At the same time, banks continued the trend of reducing bank branches during the pandemic, with the number of branches down by almost 4 percent. This trend has been evident since 2017, with more than 200 branches closing over the past four years, or more than 17 percent from 2017.

Meanwhile, the effects of the latest wave of bank branch network restructurings have not yet been sufficiently explored. Proponents of e-banking argue that technological progress and the unstoppable computerization of everyday life bring benefits in terms of time and cost savings. However, international research so far confirms that the closure of bank branches still has a predominantly negative impact on the establishment of small and medium-sized enterprises (Ho and Berggren, 2020) and worsens access to bank financing for existing firms (Nguyen, 2019). In the Slovak context, a research study by Rafaj and Siranova (2020) showed that a higher number of bank branches per capita, and thus better access to bank resources, does not lead to an increase in regional productivity. On the other hand, regional productivity is affected by the characteristics of the banks operating in a given region, especially if these banks are more efficient and focus on activities other than primarily lending.

\* \* \*

From the monetary policy perspective, the pandemic year 2020 was marked by the reactivation of the almost standard quantitative tools aimed at increasing or maintaining the volume of bank funding. The

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<sup>33</sup> According to data from the Slovak Banking Association for 2020, the number of e-commerce merchants grew by 40 per cent, the number of transactions by 24 per cent and the volume of transactions by 14 per cent. According to a survey conducted by IMAS for Slovenska Sporitelna, a.s. e-banking services are used by up to ¾ of the banking population. At the same time, the use of these services has increased significantly due to the influence of the pandemic.

Source: <<https://www.slsp.sk/sk/aktuality/2020/9/18/kratka-sprava-bankove-sluzby-posilnuju-v-online-priestore-prispela-aj-pandemia>>.



loose monetary policy was also supported by the easing of the macro-prudential policy settings and the possibility of deferring loan repayments to the affected groups of banks' clients.

While these measures should rather be seen as one-off and time-limited exogenous shocks, the pandemic has also accelerated the processes of increasing digitization of banking (and financial services in general), manifested by a gradual reduction of the role of physical contact with the customer. However, we will have to wait to assess the long-term effects of such changes.

At the same time, for the first time in more than a decade, the possibility of materialization of more than two per cent inflation is proving real, which paradoxically, at least in the short term, represents a positive phenomenon for "exhausted" monetary policy. It will be interesting to see to what extent inflationary pressures will be sustainable in the longer term (due to the limits that exist as a result of the change in the structure of the economy) and how long central banks will be willing to tolerate a possible increase in inflationary expectations facilitating their exit from non-standard monetary policy.

## 7. PUBLIC FINANCES IN A PANDEMIC

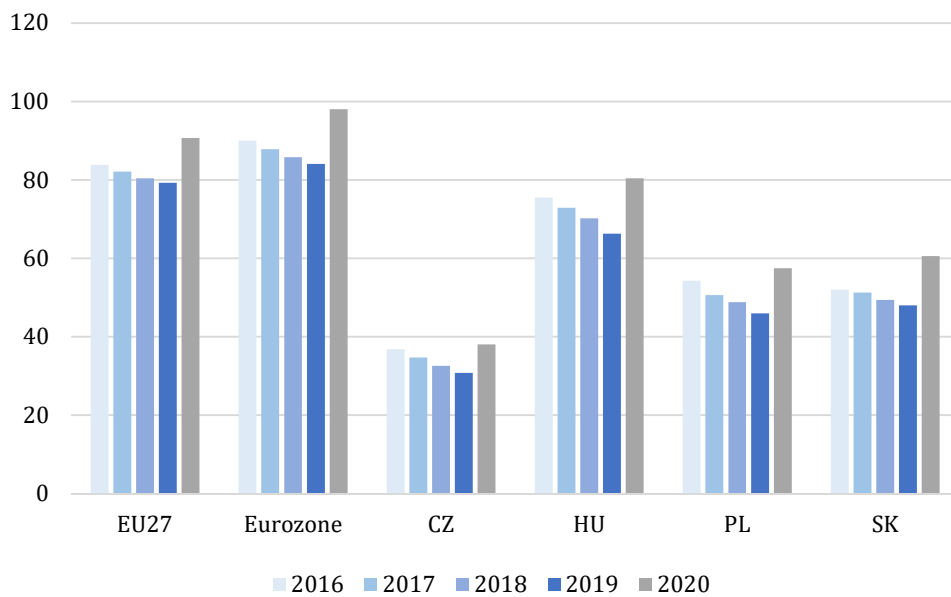
In 2020, public finances have been exposed to major internal as well as external factors that have fundamentally affected their functioning. The end of the next political cycle, which traditionally in the Slovak context represents a natural pressure on expenditure growth and deficit growth, together with the relaxation of budgetary discipline as well as of budgeting rules, were the main factors that contributed to the deterioration of the general government balance. However, a major factor was the outbreak of the novel coronavirus pandemic, which took full effect in the first quarter of 2020. The first signs of a pandemic coming from China were largely underestimated in our region, not least in view of the ongoing election campaign, and the incumbent government did not prepare for the possible impact of the coronavirus, either medically or economically. The first wave thus caught the public administration largely unprepared and after the first cases of infection were detected, the administration had to implement lock-down measures as well as budget-intensive measures to mitigate the impact on the Slovak economy.

### ***General Government Budget***

The general government budget was naturally affected by the increased expenditure necessary to mitigate the impact of the pandemic and by the decline in revenue, given the need to dampen economic activity and population mobility, particularly in the first half of 2020, to limit the spread of the virus in the population. For 2020, the general government deficit reached 6.16% of GDP and the public debt-to-GDP ratio reached 60.16% of GDP. It thus increased by 12.6 percentage points year-on-year. In an international comparison with the V4 countries, gross public debt reached the second highest value, with Hungary having the highest debt and the Czech Republic the lowest (Figure 7.1).

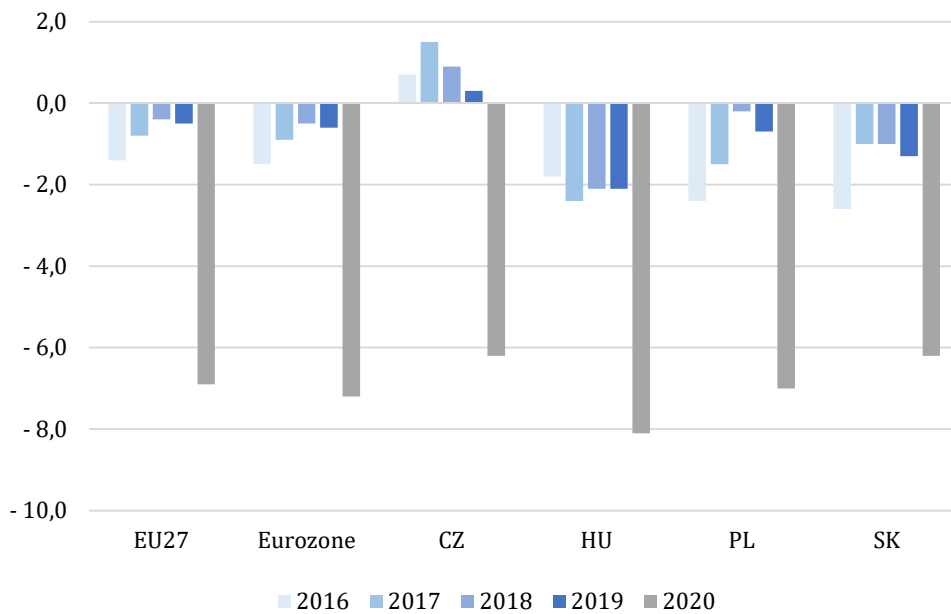
Taking a closer look and comparing with neighbouring countries as well as the EU and euro area averages, we can conclude that the deficit achieved was the lowest among the V4 countries (together with the Czech Republic) and was also below the EU and euro area averages (Figure 7.2).

Figure 7.1

**Comparison of Gross Public Debt as % of GDP (2016 – 2020)**

Source: Eurostat (2020).

Figure 7.2

**Comparison of General Government Deficits as % of GDP (2016 – 2020)**

Source: Eurostat (2020).

## ***Development of Central Government Budget in 2020***

The impact of the pandemic has also been felt in the central government budget (i.e. state budget), resulting in an amendment to the 2020 State Budget. The state budget deficit, planned at EUR 11.9 billion, was intended to ensure a sufficient reserve for the implementation of anti-pandemic measures related to increased expenditure in the health sector and the disbursement of direct and indirect aid to the affected sectors of the Slovak economy.

Table 7.1

**Development of Central Government Budget in 2017 – 2020** (v mil. eur)

Indicator	2017	2018	2019	Planned 2020	Actual 2020	% of compliance 2020	Y-o-Y change %
Total revenue	14 014	15 381	15 825	14 366	15 750	109.6	–0.5
of which:							
1. Tax	11 152	11 966	12 336	11 546	11 872	102.8	–3.8
of which:							
Personal income tax	7.0	10.0	–7.4	–48.2	–23.0	47.7	210.8
Corporate income tax	2 604	2 801	2 757	2 546	2 355	92.5	–14.6
Income tax collected by deduction	179	209	245	232	235	101.3	–4.1
VAT	5 923	6 419	6 742	6 361	6 800	106.9	0.9
Excise duties	2 253	2 324	2 357	2 204	2 264	102.7	–3.9
2. Non-tax	1 395	1 211	1 327	1 103	1 289	116.9	–2.9
3. Grants and transfers	1 467	2 203	2 161	1 716	2 588	150.8	19.8
of which:							
Income from the EU budget	1 423	2 169	2 126	1 677	2 551	152.1	20.0
Total expenditure	15 234	16 563	18 027	26 319	23 509	89.3	30.4
of which:							
Current expenditure	13 682	14 160	15 168	24 690	20 846	84.4	37.4
Capital expenditure	1 553	2 402	2 858	1 628	2 662	163.5	–6.9
Defici/Surplus	–1 220	–1 182	–2 201	–11 952	–7 758	64.9	252.5

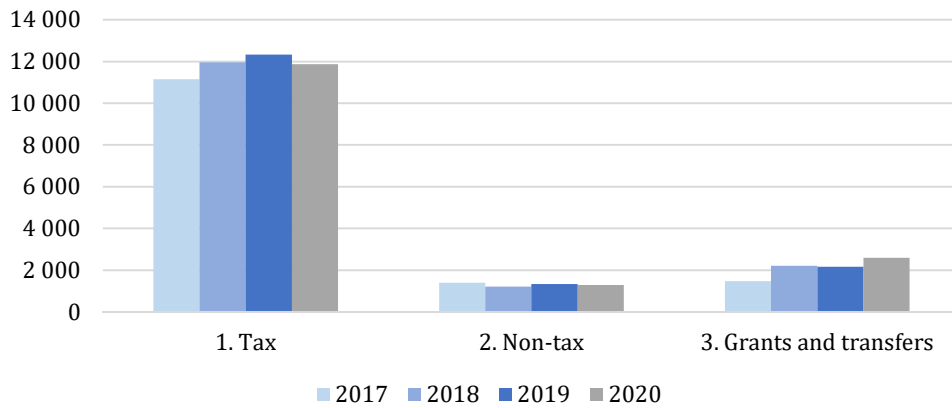
*Note:* Total personal income tax revenue is higher, because it is the revenue of the local government and not listed in the table.

*Source:* MF SR (2021a), own calculations.

On the revenue side, the highest decreases were recorded in the collection of corporate income tax by 14.6%, excise duties by 3.9% and non-tax revenue by 2.9% compared to the same period of the previous year. Total tax revenue was 3.8% lower year-on-year.

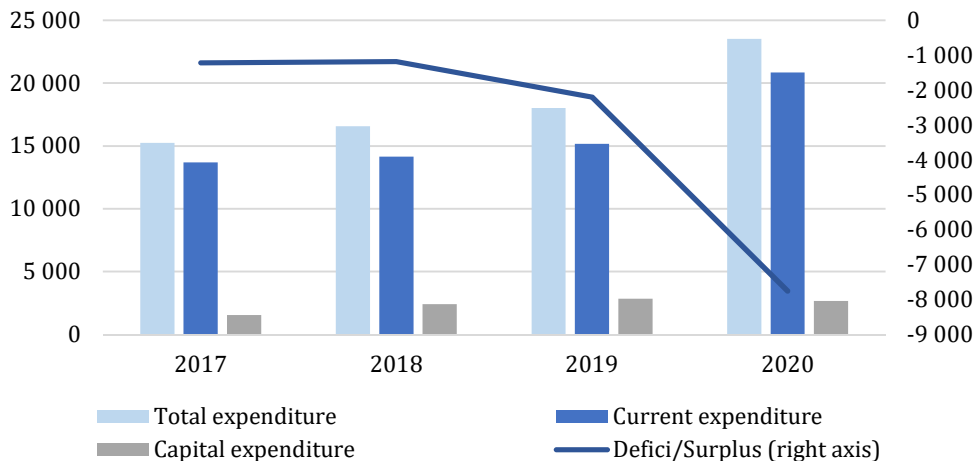
The central government budget expenditures amounted to EUR 23.5 billion in 2020 and were higher by EUR 5.5 billion compared to 2019.

Figure 7.3

**Development of Central Government Budget Revenue in 2017 – 2020**

Source: MF SR (2021a).

Figure 7.4

**Development of Revenue and Expenditure of Central Government Budget in 2017 – 2020**

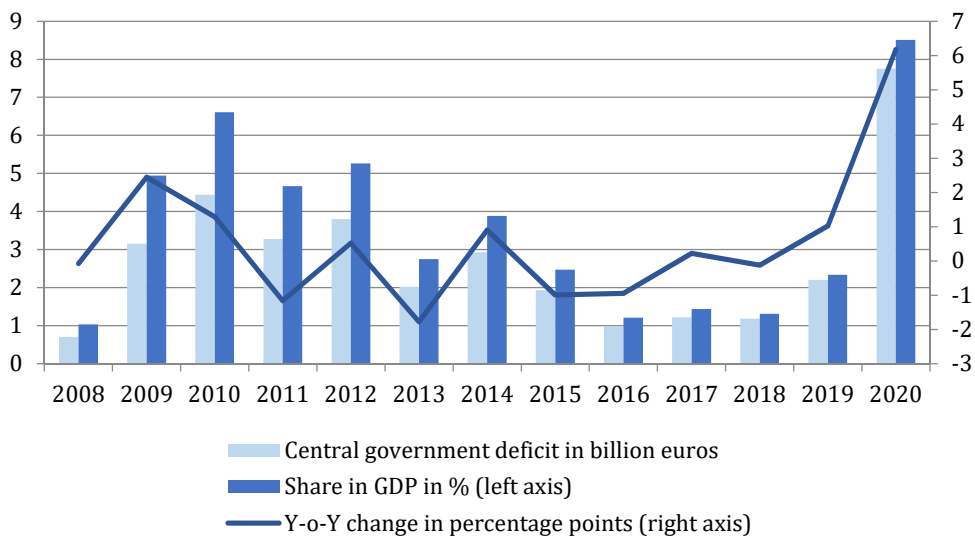
Source: MF SR (2021a).

***Central Government Budget Deficit and Central Government Debt***

The central government budget deficit has reached record levels in the face of the pandemic, rising by 6 percentage points year-on-year. The deficit amounted to EUR 7.75 billion, representing 8.5% of GDP. Given the later outbreak of the second wave of the pandemic, which manifested mainly in 2021, the deficit was lower than initially estimated.

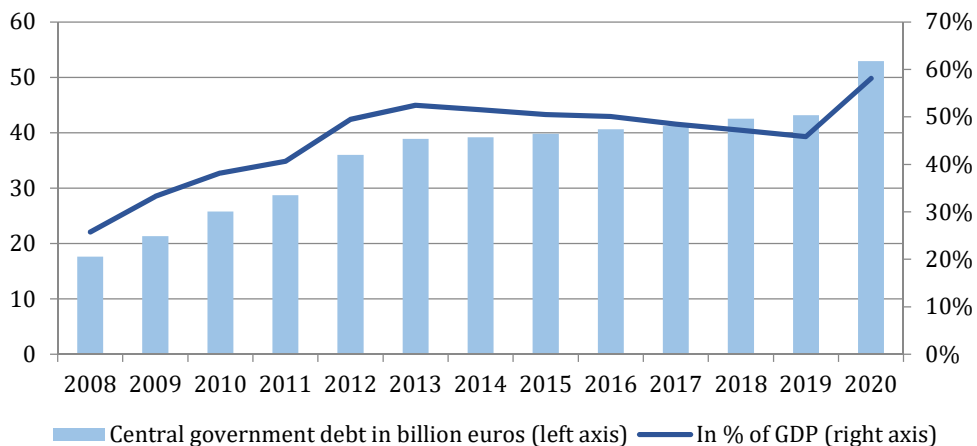
Nevertheless, it has reached record levels and its consolidation in 2022 – 2023 will be a rather challenging fiscal operation. Part of its reduction may be helped by the resumption of economic growth, coupled with the large investments that are part of the Recovery and Resilience Plan (the economic policy component in the coming years).

**Figure 7.5**  
**Central Government Deficit 2008 – 2020**



Source: MF SR (2021a), own resources.

**Figure 7.6**  
**Development of the Central Government Debt in 2008 – 2020**

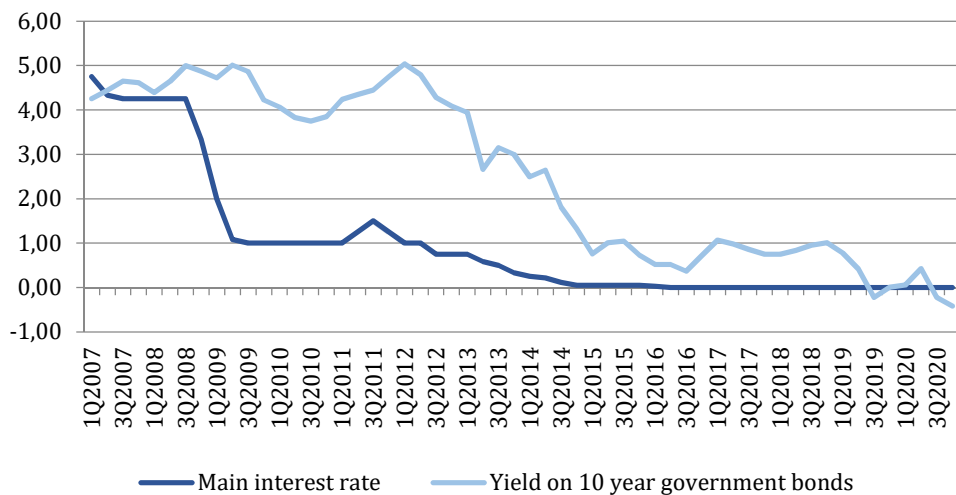


Source: MF SR (2021b), own calculations.

Naturally, the high year-on-year deficit growth was also reflected in an increase in central government debt, which reached 58.1% of GDP at the end of 2020. From the point of view of implementing anti-pandemic measures, the increase in debt is of course acceptable and necessary. The relatively low interest costs associated with the increase in this debt also argue in favour of the deficit. More detailed information on the level of interest rates is provided in Figure 7.7.

Figure 7.7

**Development of Interest Rates on 10-year Slovak Government Bonds in 2007 – 2020 in %**



Source: Database of the NBS.

The European Central Bank's (ECB) key interest rate has remained at zero for a long time, which is also reflected in the cost of debt financing for the Slovak state budget. The average yield on 10-year government bonds has been oscillating around zero, reaching negative at the end of 2020.

***Financial Position of the Slovak Republic vis-à-vis the Budget of the European Union***

Figure 7.8 shows the net position of the Slovak Republic vis-à-vis the EU budget, which was lower year-on-year at EUR 1.5 billion, representing 1.7% of GNI.

Table 7.2

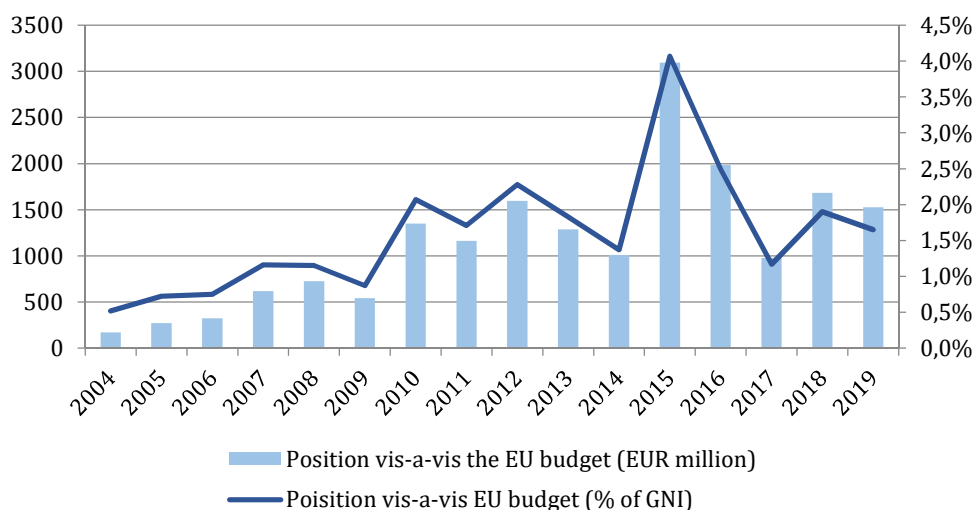
**EU Budget Spending in the SR in 2013 – 2019** (in millions of euros)

	2013	2014	2015	2016	2017	2018	2019
1. Sustainable growth	1 439.2	1 120	3 147.9	2 075	1 005.8	1 782.6	1 606.8
1.1 Competitiveness for growth and jobs	58.4	69.2	61.6	85.5	191	168.3	129.3
1.2 Cohesion for growth and jobs	1 380.8	1 051.7	3 086.3	1 989.6	814.9	1 614.3	1 477.5
1.2.1 Structural Funds	812.1	1 026.3	3 053.6	1 904.2	759.1	1 544.8	1 375.9
1.2.2 Cohesion Fund	568.7	507.2	1281.1	558.2	325.7	723.9	547.7
2. Conservation and management of natural resources	566	532	566.5	566.4	616.9	653	671
3. Citizenship, freedom, security and justice	11	5.6	9	10.7	11.2	10.2	14.4
4. The EU as a global partner	0	0	0.5	0.1	0	0	0
5. Administration	9.9	10.2	10.9	10.6	11.3	11.4	12.2
6. Compensation	0	0	0	0	0	0	0
Total	2 026.1	1 668.8	3 734.8	2 662.8	1 645.2	2 457	2 304.4

Source: European Commission (2021).

Total expenditure amounted to EUR 2.3 billion, with the highest expenditure in the Sustainable Growth chapter.

Figure 7.8

**Development of the Net Position of the SR vis-à-vis the EU Budget, 2004 – 2019**

Source: European Commission (2021).

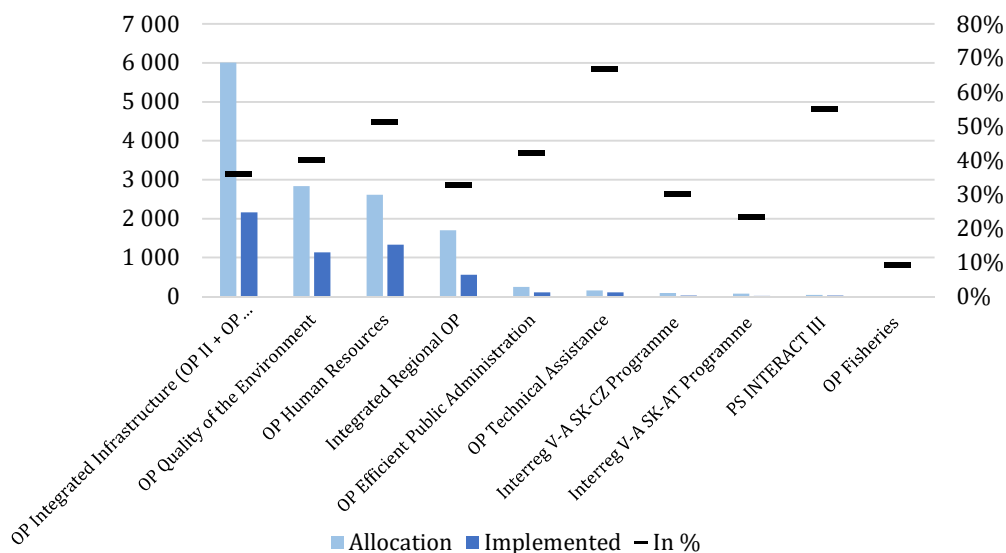


## ***Implementation of the European Union's Cohesion Policy in the 2014 – 2020 Programming Period***

In 2020, the programming period officially ended, while of course the spending of the current programming period can continue under the  $n+3$  rule until 2023. The pace and the amount of implementation have been slightly accelerated thanks to the changes made at the level of the central coordinating body – the Ministry of Informatization, Regional Development and Investment of the Slovak Republic (MIRRI). This was mainly about simplifying the processes related to the implementation and control of the Structural Funds. The Ministry also managed to limit the amount of decommitments, especially in the Integrated Regional Operational Programme. The management of this programme was transferred to MIRRI from the Ministry of Agriculture and Rural Development.

Figure 7.9

**Implementation of ESIF in the 2014 – 2020 Programming Period by Operational Programmes at the End of 2020 v % (EU funding)**



Source: MF SR (2021c), own calculations.

At the same time, preparations were underway for the next programming period 2021 – 2027, for which the Slovak Republic has approximately EUR 13 billion allocated.

## ***Pandemic Mitigation Measures***

The government's response was to adopt several measures at national level to mitigate the impact of the reduction in economic activity and to maintain jobs in the affected sectors by reimbursing part of the labour costs and compensating for the loss of income for firms and the self-employed. At the regional level, the government proceeded to provide repayable financial assistance to local governments that experienced revenue shortfalls due to a decline in tax and levy collection. The EU authorities have also responded to the pandemic situation by presenting a plan to raise an unprecedented amount of financial resources on the financial markets to assist Member States. Strong monetary policy measures were also taken by the ECB.

The European Structural and Investment Funds (ESIF), which, following an initiative by the European Commission, could be redirected from several operational programmes and priority axes to finance pandemic-related measures, helped significantly to mitigate the impact on public finances. The ECB implemented a EUR 1 350 billion asset purchase programme in the form of an emergency pandemic programme. The main objective was to reduce the cost of borrowing on existing and new debt, as well as to increase lending activity in the euro area by buying bonds of banks and corporates. The ECB also increased the amount of funds that banks could borrow, reduced the structure and amount of collateral requirements and introduced measures to maintain bank liquidity. Within its mandate and competences, the ECB has implemented monetary policy measures and banking supervision regulation.

To mitigate the impact of the pandemic, negotiations were launched at EU level during the year to provide Member States with additional financial resources to respond to the fiscal impact of the economic shutdown. The current structure of the Multiannual Financial Framework (MFF) inherently did not allow the EU to use its budget as a tool to respond to the economic cycle, given the multiannual planning and the precise budget headings. The first measures implemented by the EU were aimed at providing immediate financial assistance by increasing flexibility in the area of cohesion policy and relaxing state aid rules, allowing Member

States to support the affected sectors of the economy. Work also started on additional development priorities, which were to be financed for the first time by increasing the EU budget through the Next Generation EU (NGEU) instrument. The resulting agreement between the EC, the European Parliament and the Presidents and Presidents of the Member States resulted in an unprecedented increase in the EU budget for 2021 – 2027 to EUR 1.8 trillion. Of this amount, the Multiannual Financial Framework is EUR 1.07 trillion and the NGEU instrument is EUR 750 billion. The MFF allocations together with the NGEU are shown in Table 7.3.

Table 7.3

**Financial Allocations of the Agreed MFF and NGEU (in billion euro)**

	MFF	NGEU	TOTAL
1. Single market, innovation and the digital economy	132.8	10.6	143.4
2. Cohesion, resilience and values	377.8	721.9	1 099.7
3. Natural resources and environment	356.4	17.5	373.9
4. Migration and border management	22.7	–	22.7
5. Security and Defence	13.2	–	13.2
6. Neighbourhood and the world	98.4	–	98.4
7. European public administration	73.1	–	73.1
Total	1 074.3	750	1 824.3

Source: European Commission (2020a).

The detailed breakdown of the financial allocations under the NGEU is as follows:

- Recovery and Resilience Facility: EUR 672.5 billion, of which loans EUR 360 billion and grants EUR 312.5 billion;
- REACT-EU: EUR 47.5 billion;
- Horizon Europe: EUR 5 billion;
- InvestEU programme: EUR 5.6 billion;
- Rural Development: EUR 7.5 billion;
- Fair Transformation Fund (FST): EUR 10 billion;
- rescueEU: EUR 1.9 billion.

The EU budget plans to gradually repay the funds borrowed to finance the grants and loans. The first instalment will be made from 2028 onwards and the total amount of borrowed funds should be repaid by 2058 at the latest. The annual amount involved is capped at EUR 37.5 billion.

In addition to the principal, the interest costs of the loans will also be covered by the EU budget. The Commission estimates that these interest payments could amount to up to EUR 17.4 billion in expenditure under the next MFF between 2021 and 2027. In the future, the Commission is to propose the introduction of new EU own resources to help repay funds raised on the markets while contributing to the EU's policy objectives. In this context, additional revenues from the reform of the EU Emissions Trading Scheme (ETS), a carbon duty, an own resource based on companies' operations in the EU single market and a digital tax are being considered. Without these new own resources, the post-2027 MFF would have to see an increase in national contributions or a reduction in funding allocated to other expenditure items. In contrast, the loan component of the new EU generation will be repaid directly by the Member States requesting this form of assistance. The same applies to the interest costs related to the loans and borrowings received.

The main instruments are the Support, Recovery and Resilience Facility, the rescueEU programme and the newly created EU4Health health sector support instrument. More than EUR 5 billion is to be used to fund research and innovation under Horizon Europe under the agreement. In addition, resources will be used to address the challenges of climate change through the Fair Transformation Fund and the need for digital transformation through the Digital Information Programme. The Recovery and Resilience Facility allocates EUR 312.5 billion in grants (2018 prices), of which 70% is committed in 2021 and 2022 and 30% needs to be implemented by the end of 2023. The allocation of 70% of the total funding envelope for 2021 – 2022 is subject to an allocation mechanism that takes into account:

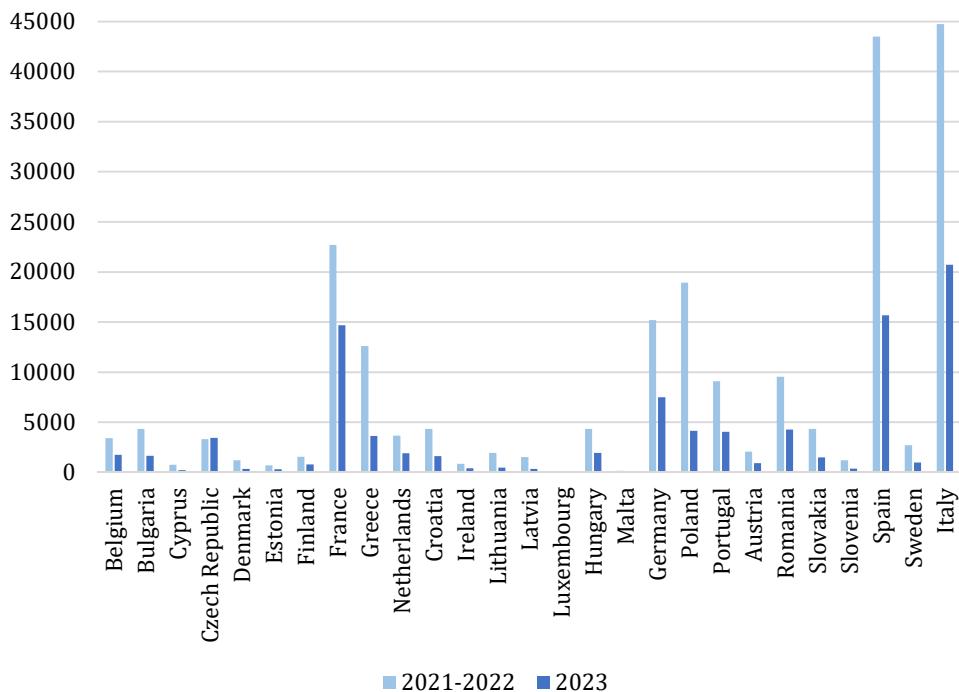
- the population of the Member State;
- the inverted value of GDP per capita;
- the relative unemployment rate over the last five years.

The remaining 30% in 2023 will be allocated in a similar way, considering the decline in real GDP in 2020 instead of the unemployment rate and the cumulative percentage decline in real GDP in 2020 – 2021. By the end of 2023, loans for Member States will also be available, amounting

to EUR 360 billion. The maximum volume of such loans is capped at 6.8% of a Member State's gross national income (GNI). The aggregate allocation of the Recovery and Resilience Facility will reach EUR 750 billion. In order to obtain these resources, it was necessary to give the EC a mandate to borrow these resources on the financial markets, an unprecedented step in the history of the EU's functioning. In doing so, the European Union has taken the first step towards increasing its budget, which until now has been at 1% of the GNI of the EU Member States.

Figure 7.10

**Grants to Member States from the Recovery and Resilience Facility  
(2018 prices) EUR Million**



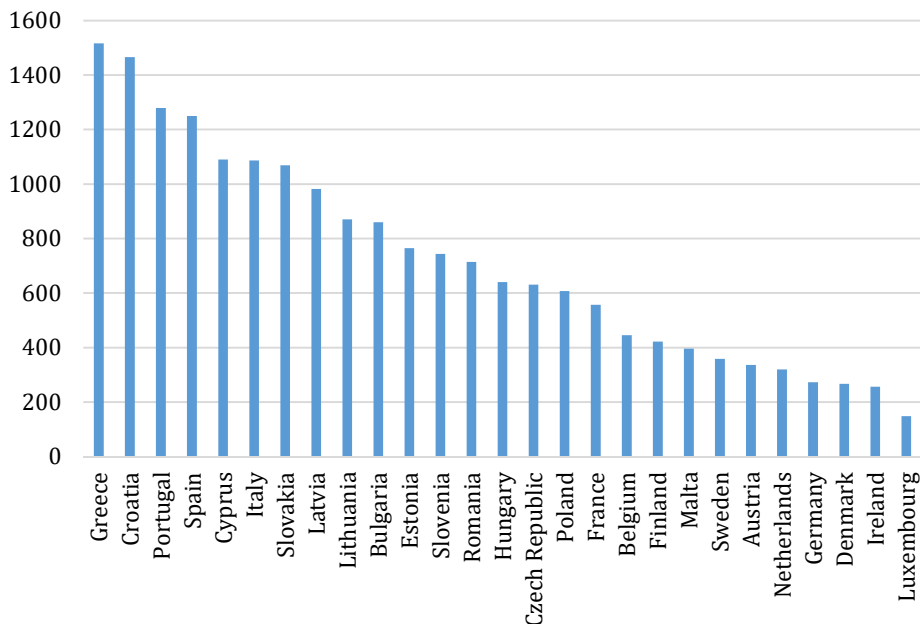
Source: European Commission (2020a).

The use of resources from EU support mechanisms is conditional on the development of National Recovery and Resilience Plans, in which Member States set out their reform and investment programmes for the period 2021 – 2023. The plans will be reviewed in 2022 and adjusted as necessary to reflect the final allocation of funds for 2023.

For Slovakia, EUR 4.3 billion is available in 2021 – 2022 and EUR 1.5 billion in 2023. In terms of per capita resource allocation, Greece has the highest allocation and Luxembourg the lowest (Figure 7.10). The plans must include specific investment targets with milestones and deadlines for their achievement.

Figure 7.11

**Grants to Member States from the Recovery and Resilience Facility (2018 prices) per capita for 2021 – 2023**



Source: European Commission (2020a), Eurostat, own calculations.

The document Modern and Successful Slovakia – National Integrated Reform Plan was developed under the Ministry of Finance to meet these needs. The Ministry presented the material as a form of a reform menu from which specific reform and investment programmes would emerge on the basis of political and professional discussions with the ministries concerned, to be approved at EU level. In the area of regional policy, the Modern and Successful Slovakia document focuses primarily on the reform of local government and its financing. In May 2021, the government presented the concrete form of the Recovery and Resilience Plan, which was subsequently sent to the EC for consultation.

\* \* \*

In the coming years, we can expect the lingering effects of the pandemic and the associated increased spending to translate into higher government deficits in the public finances. Consolidation of public finances to reduce deficits will be a gradual process, which we foresee only in 2023. Important in this respect will be the implementation of resources from the Recovery and Resilience Plan and the Structural Funds, which can increase the potential of the Slovak economy for higher economic growth in the medium term. However, the implementation of the high volume of financial resources from both instruments will require measures to increase their absorption and reforms that are linked to these expenditures. The envisaged reform of old-age pensions, which reduces their sustainability by introducing a parental bonus, also poses a risk to the development of long-term sustainability.

## 8. ECONOMIC POLICY MEASURES IN 2020

The year 2020 has brought two key non-economic events that have significantly shaped the nature of the economic policy and legislative measures taken and whose expected impact goes beyond the 2020 horizon. The first, expected political event was the parliamentary elections, which resulted in a new centre-right government. This event marks a change in the nature of economic policy in the medium term. The second, unexpected factor (with the character of an external shock) was the impact of the COVID-19 pandemic. This factor, by suddenly changing the economic conditions for all actors, necessitated the adoption of qualitatively new and extensive legislative measures. The emergence of a new government and the first wave of the pandemic in Slovakia thus defined the “short year 2020” (March – December), which is the focus of this chapter.

With the formation of the new government (March 2020), *the Programme Statement of the Government* became the main medium-term economic policy document. The priorities of the rather broad and generous programme can be considered the fight against corruption, strengthening the transparency of the public sector and the entire institutional framework of the functioning of the state, the administration of justice and the rule of law. Among the large number of measures envisaged, we should mention the large-scale construction of state rental housing, a unitary health insurance system, a significant increase in health spending (increasing by 0.3 p.p. of GDP per year), reform of all features of the pension system, balanced public finances by 2024, a possible return to a flat tax, the introduction of free transport on trains, regional buses and urban public transport for children, students and pensioners.

In May, the main budgetary document of the Slovak Republic, *Stability Programme of the Slovak Republic for 2020 – 2023*, was adopted. The document identifies and quantifies, ex ante, the risks to macroeconomic developments (the impact of the pandemic, but also the impact of changes in the pension system in the past period on public finances). The necessary measures to reduce the deficit and stabilise the public debt concern the reform of the pension system and measures aimed at “the main



structural challenges of the Slovak economy, namely health, education, the labour market and a more efficient use of resources in the economy”.<sup>34</sup> Multi-annual expenditure ceilings will also be introduced, and the principles of value for money (especially in investment projects) and transparency will be strengthened.

The annually approved *National Reform Plan 2020* (May 2020) takes into account, in addition to the recommendations of the EU Council for Slovakia, the crisis triggered by the COVID-19 pandemic and the Programme Declaration of the Government. The government’s priority is to stabilise the public debt and the public deficit to 3% of GDP by 2023. The stability and efficiency of the pension system, better remuneration of teaching staff, reviewing spending on groups at risk of poverty or social exclusion, and addressing the labour market threatened by the impact of the pandemic are also objectives. The fight against corruption and the efficiency of the judiciary, the reduction of the bureaucratic burden, the reform of the hospital network and the definition of a basic package of free care, taking into account time and geographical accessibility, are also priorities of the National Reform Plan. There is also an ambition to decouple economic growth from environmental degradation. The document *Foreign and European Policy of the Slovak Republic in 2021 – Slovakia and the World in a Time of Pandemic* defines some principles of economic diplomacy. “It will focus on the diversification of export opportunities, internationalisation of Slovak enterprises, promotion of foreign direct investment inflows, and specifically on new challenges related to the industrial revolution, digitisation, innovation and the green economy”(MFA SR, 2021).

The key event of the “short year” 2020 in the Slovak economy was the COVID-19 pandemic, which triggered the need to introduce highly restrictive measures that directly or indirectly affected all actors in the Slovak economy. Already in the first half of March, some selective measures were adopted (e.g. a ban on visits to health facilities care homes). The declaration of a state of emergency became the main, widespread

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<sup>34</sup> <<https://www.mfsr.sk/sk/financie/institut-financnej-politiky/strategicke-materialy/program-stability/program-stability.html>>.

instrument (the declaration of a state of emergency on 15th March, pursuant to Constitutional Act No. 227/2002 Coll., and its extension on 19th March, 27th March, 6th April and 16th April). The aim was to partially reduce mobility and control it. Thus, in the first half of March, schools were closed, border controls and a mandatory 14-day quarantine upon return from abroad were introduced and international passenger transport was suspended, testing was introduced, especially in the risk groups (care homes and gypsy communities), and sporting, cultural and public events were banned. Retail sales and services were banned in all establishments except food outlets and pharmacies. The state of emergency started to be gradually relaxed at the end of April and ended on 14th June. In mid-August, the Ministry of Health presented a pandemic plan. The government responded to the onset of the second wave of the pandemic by re-introducing a state of emergency (1st October), the regime was tightened on 24th October when a curfew (except for travelling to work, for testing and to provide essential supplies or to stay in the countryside in the district of residence) became effective throughout Slovakia.

In response to the economic impact of the pandemic, the European Commission has adopted a *Recovery and Resilience Plan* with a budget of EUR1.8 trillion (in the form of repayable and non-repayable financial assistance to EU Member States). More than 50% of the funds are earmarked for research and innovation, climate mitigation and adaptation and digital transformation, and strengthening preparedness, recovery and resilience (health sector). In this context, Slovakia presented in October its vision for the use of the funds, the document *Modern and Successful Slovakia. National Integrated Reform Plan*. The main goal of the vision "is to move the country out of the middle-income trap to a level of 92 per cent of the EU27 average in GDP per capita by 2030" (MF, 2021b). It can be assumed that the resources of the *Recovery and Resilience Plan*, together with the resources of EU funds (specified in the *Partnership Agreement 2014 – 2020* and the *Partnership Agreement 2021 – 2027*), will represent a substantial part of public investments in Slovakia in the coming decade.

The move to distance learning has necessitated the rapid adoption of new legislation. The amendment to the Act on Education and Training, the so-called School Act (Act No. 56/2020 Coll.) and the amendment to the Act on Higher Education (Act No. 93/2020 Coll.) responded to the changes brought about by the transition to this new and sudden change in the form of education, unprecedented in scope. The changes concerned the regulation of the activities of collective bodies, the modification of the attendance method, and in the field of R&D, the amendment dealt operationally with changes in the funding of projects. Changes in primary education were particularly relevant in the area of textbooks. The changes also made it possible to conduct examinations without being physically present (online). The pandemic was also reflected in the abolition of the matriculation examinations. The Higher Education Act was also amended at the end of 2020, the change concerned the possibility of withdrawing university degrees. Education reform was again discussed during 2020. The Ministry of Education presented a vision for the transformation<sup>35</sup> of the Slovak education system in the form of 12 strategic measures.<sup>36</sup>

### ***Economic Measures to Mitigate the Effects of the Pandemic***

By shutting down a significant part of the economy, the government was forced to take measures that were partly intended to reduce the negative impacts of the lockdown. *The First Aid project* (later replaced by the *First Aid Plus project*) was intended for employers (and self-employed persons) who had to close their establishments or reduce their activities following a decision by the Public Health Authority of the Slovak Republic. The aid was also intended for employers who would keep their jobs if their activities were interrupted or restricted during

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<sup>35</sup> The Minister explicitly avoids the word “reform”.

<sup>36</sup> 1. Opening of the textbook market, 2. Digitalisation, 3. Changes in the content of education, 4. De-bureaucratisation, 5. Optimisation of the school network, 6. Merger of directly managed organisations in the Education Department, 7. Creation of a model school, 8. Unification of the financing of education from a single budget Chapter, 9. Compulsory pre-primary education, 10. Promotion of inclusion and desegregation, 11. Change in the financing of universities and promotion of their internationalisation, 12. Introduction of special wage bonuses for teachers.

a declared emergency. These are active labour market measures and the source of support is EU funds. A form of aid for so-called closed establishments is an allowance per employee (to whom the employer cannot assign work because of an obstacle on the employer's side). In this case, the state reimburses 80% of the total cost of the work (the maximum amount of the allowance per employee is EUR 1,100 and the eligibility period was from 13th March 2020).

For the group of employers and self-employed persons whose sales have fallen and who keep their jobs, the state paid an allowance of EUR 90 to 270 for March (depending on the fall in sales) and EUR 180 to 540 in the following months (depending on the fall in sales). Employers (and self-employed persons) whose sales fell by 10% in March and by 20% in the following months were eligible. Another amendment to the Social Insurance Act (Act No. 63/2020 Coll.) was aimed at quarantined employees. An employee declared temporarily unfit for work due to a quarantine measure or isolation is entitled to sick pay from the first day of temporary incapacity for work at the rate of 55% of the daily assessment base. Part-time work has also been introduced (so-called *Kurzarbeit*). The employer may ask the state to pay wage compensation for the time when the employer is unable to assign work to the employee due to an obstacle on the employer's side.

The new law on certain extraordinary measures in the financial sphere in connection with the spread of the dangerous contagious human disease COVID-19 (Act No. 67/2020 Coll.) dealt with the postponement of repayments of loans granted to consumers or small employers and other entrepreneurs (the institution of the so-called Covid creditor is introduced – as a result of the emergency and the state of emergency, the creditor has fallen or will fall into default on the repayment of the loans). In the tax area, the law changed, e.g. the postponement of legal deadlines for tax obligations and the relaxation of tax obligations (e.g. exemption from import duties and VAT on the import of medical supplies from third countries and postponement of tax obligations).

A new law on certain emergency measures in connection with the spread of COVID-19 and the judiciary (Act No. 62/2020 Coll.) has also

been adopted. This law instituted new, temporary protection for entrepreneurs, effective from 12th May 2020 until the end of 2020. The Act provides entrepreneurs in trouble with temporary protection from foreclosure, bankruptcy and creditors, or from the obligation to file for bankruptcy. For example, the Act stays a bankruptcy petition, a business in temporary protection is protected from foreclosure proceedings, temporary protection prevents the commencement of a lien foreclosure, and the termination and rescission of a contract for non-payment of an invoice is not possible. The law also protects tenants, postpones the execution of action against individual entrepreneurs, and extends the prohibition on the enforcement of the lien (Marônek, 2020).

The Ministry of Economy has launched a package of measures to improve the business environment. The measures were adopted under Act No. 198/2020 Coll. amending certain acts in connection with improving the business environment affected by measures to prevent the spread of COVID-19. The package of measures contains more than 100 small legislative changes aimed at simplifying processes in the business environment and removing bureaucratic burdens on business. As part of this amendment, 40 laws have been changed. The measures entailed minor changes to a large number of small areas of business. Among the changes, we will mention the abolition of the special bank levy.

The pandemic and the state of emergency have also affected the cultural and creative industries. Act No. 129/2020 Coll. was adopted, which responded to the current situation and regulated contractual relations in the context of organising public cultural events, this Act suspended the 2% contribution to art funds until the end of 2020 and regulated the functioning of art support funds.

To ensure the liquidity of SMEs, an amendment to Act No. 120/2020 Coll. was adopted. The guarantee providers are the Export – Import Bank of the Slovak Republic and funds managed by Slovak Investment Holdings. The pandemic and the state of emergency have also affected the drawing down of European Structural Funds. The amendment allows all actors; providers, beneficiaries and other participating parties to adapt more flexibly to the new conditions. The extensive amendment to Act No.

90/2020 Coll. has modified 15 acts (in the fields of inland road, rail, air and water transport, tourism and housing). Act No. 155/2020 Coll. Introduced a rent subsidy and applies to those entrepreneurs who have been unable to use the rented premises for the agreed purpose due to the declaration of a state of emergency.

In July 2020, a new Ministry of Investment, Regional Development and Informatisation of the Slovak Republic was established, which integrated the activities of the Office of the Deputy Prime Minister of the Slovak Republic for Investment and Informatisation and the regional development function from the Ministry of Agriculture and Rural Development of the Slovak Republic. In addition to informatisation and regional development, the Ministry also manages, coordinates and supervises the use of European Union funds.

The Act on Extraordinary State Guarantees (Act No. 149/2020 Coll.) has also been adopted, which responds to Council Regulation (EU) 2020/672 establishing a European Temporary Assistance Facility to address unemployment risks in an emergency (the SURE facility). The SURE Credit Facility is intended for member states to cover public expenditure related to the maintenance of employment. Slovakia received EUR 631 million under this facility in 2020.

\* \* \*

In 2020, legislative and economic policy measures were dominated by laws aimed at mitigating the effects of the constraints on economic life resulting from the imposition of a state of emergency. According to an estimate by the Financial Policy Institute (sme.sk, 2021), expenditure on measures to combat COVID-19 amounted to EUR 4.6 billion (5.1% of GDP), with the highest item being direct aid of EUR 1.3 billion (job support, social assistance, pandemic sick leave and other sick leave, and remission of levies).

Since the beginning of the pandemic, we have witnessed changes in the perception of the fundamentals of economic policies. Actors that were not at the forefront in the pre-pandemic period are becoming the focus of key decisions and attention including: The Government Pandemic

Commission, the Central Crisis Commission, Public Health Authority of the Slovak Republic, the Permanent Crisis Commission or National Health Information Centre. Financial intensity is no longer the only criterion for the measures taken (and the impact on public finances) – also included are health indicators (the number of hospital admissions, number of pandemic victims, the speed and extent of testing or vaccination). In the perception of economic policies, we can observe a shift towards strengthening the active and regulatory role of the state and towards limiting some of the economic freedoms of households and economic agents. Large parts of the public sector such as health, education and sectors of the economy (especially services) have been placed in previously unrecognised and qualitatively new situations that are likely to influence their future shape.

## 9. EXPECTED QUALITATIVE SHIFT OF THE ECONOMY

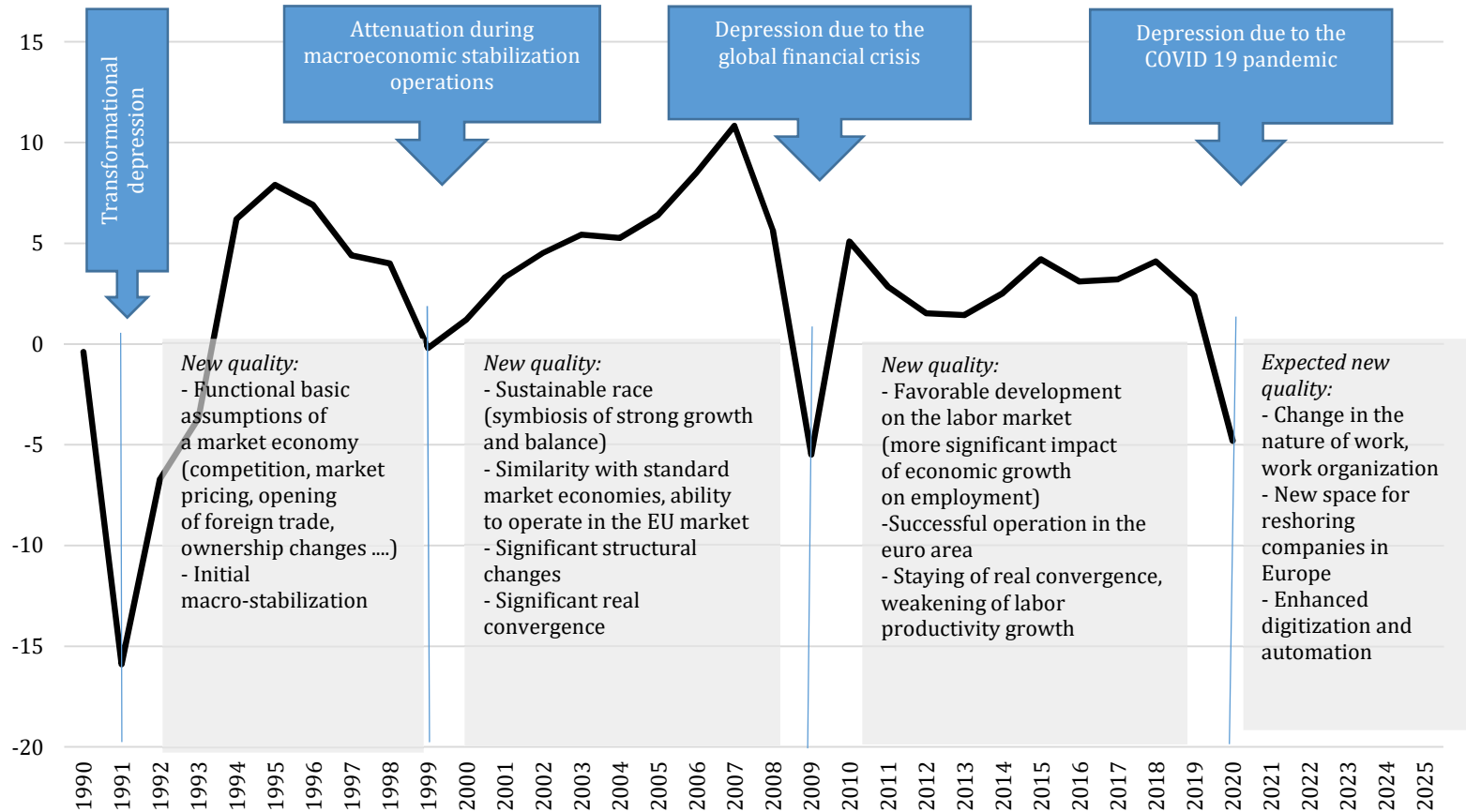
After about a decade, the Slovak economy has gone through a period of decline again. The repetition of falls in economic activity in about 10-year periods looks like a regularity in Figure 9.1, but it is not: each downturn had different causes.

Here we want to point out that after each of the economic depressions shown, there was a development phase that brought significant new qualitative features compared to previous periods. Every depression seems to mark an imaginary boundary: after overcoming it, something qualitatively changed in the economy. Adapting to the shock (which caused the depression) brought a new qualitative element to the economy (a new qualitative element does not necessarily mean only a favorable change, but it can also be a new problem indicating a change in the development phase):

- After the transformational depression in the early 1990s, the key elements of a market economy became functional, albeit still in a rather non-standard model.
- After the recession of 1999/2000, conditions were created for the standard functioning of the economy (already described by a similar model as the Western European economies – see Luptáčík and Páleník et al., 2005). Macroeconomic stability has strengthened and there has been a significant restructuring of output, coupled with a massive inflow of FDI, an increase in the export performance of the economy and significant progress in real convergence.
- After the 2009 depression, structural changes took place, which brought with them better employment dynamics and contributed to the improvement of the long-term problematic development on the labor market. At the same time, however, after this depression, the previously observed model of growth in the Slovak economy and catching up with the most advanced economies (based on the use of a massive inflow of FDI and technology transfer from more advanced economies) has been exhausted.



Figure 9.1

**Downturns of the Slovak Economy and Qualitative Changes after Overcoming Them (changes in real GDP in%)**

Source: Data according to Eurostat and SO SR (data before 1996), own processing. Data up to 1995 may have a lower quality standard.

After the 2020 depression, we also expect elements of a different quality in the development of the economy. In 2020 and at the beginning of 2021, we had the opportunity to observe the decline of the economy (until its cessation in the first months of 2021), in the coming years we will observe the adaptation of the economy and the creation of a new quality. We will look at some of its expected elements below.

### ***New Expectations towards the State and Its Economic Policy***

The coronavirus crisis has strengthened the role of the state in the economy. The state has become an entity that has been able to decide what economic activity to limit, completely "shut down" and when (and under what conditions) it will re-authorize them. In addition, he performed such a strong regulatory role in a framework of time pressure, lack of information and unpredictable developments. The position of the state as an active regulator is likely to influence the decision-making of economic entities on the allocation of their resources for a longer period. Prolonged mistrust may occur in sectors where there was a significant reduction in activities during the coronavirus crisis (this was already seen in difficulties in finding employees in the catering and accommodation sectors in the first half of 2021). On the other hand, the state has been given the task of compensating entities that have suffered outages during the constraints. The state also performs this compensatory role in the absence of information, lack of rules and under pressure.

Actors whose influence was not observable in the past period were involved in the creation of decisions with a major impact on the economy: policy-makers such as Pandemic Commission of the Government of the Slovak Republic, Central Crisis Staff, Permanent Crisis Staff, etc. (for more details, see Chapter 8).

Health indicators have entered the decision-making processes, suppressing economic indicators. In the interest of health and life protection, the economic freedom of the subjects was limited, with consequences that are still difficult to predict (compensation from the state can reach an unpredictable amount, even depending on court decisions on compensation).

In addition, economic policy is expected to take care of longer-term recovery, which is embodied in the Recovery and Resilience Plan. We thus encounter an unprecedented reduction in economic activity, alternating with an unprecedented amount of resources to restart economies and support new factors of competitiveness. In summary, this is an unusual shift towards a stronger and more active regulatory role for the state.

### ***Influence on the Nature and Structure of Economic Activities***

Earlier was mentioned the uniqueness of the last economic crisis in that it was partially blocked the ability to work of one of the factors of production – labor. In addition, temporary barriers to the movement of goods have emerged. Unlike previous recessions, there have been “hard” obstacles to the use of certain services, the performance of certain economic activities or the ways in which activities are carried out. Despite the dramatic impact on “affected sectors”, perceived by the public and portrayed by the media, the impact was cross-sectoral and less heterogeneous by sector than in the previous depression (2009). Figure 9.2 compares the sectoral heterogeneity of development during the depressions in 2009 and 2020.

At the depression of 2009, the dynamics of the production in branches was more diverse. While the rate of decline in gross output for the whole economy was almost identical in both moments (a decrease of about 7.6% in 2009 and 2020), in 2009 the sectoral projection was significantly more fragmented. In 2020, the decline was less sector-specific and more widespread.<sup>37</sup> This does not mean that it is not possible to identify several sectors with an extremely serious impact. Negatively affected activities are present across sectors and are not concentrated only in the most media-discussed sectors. The impact on economic activities

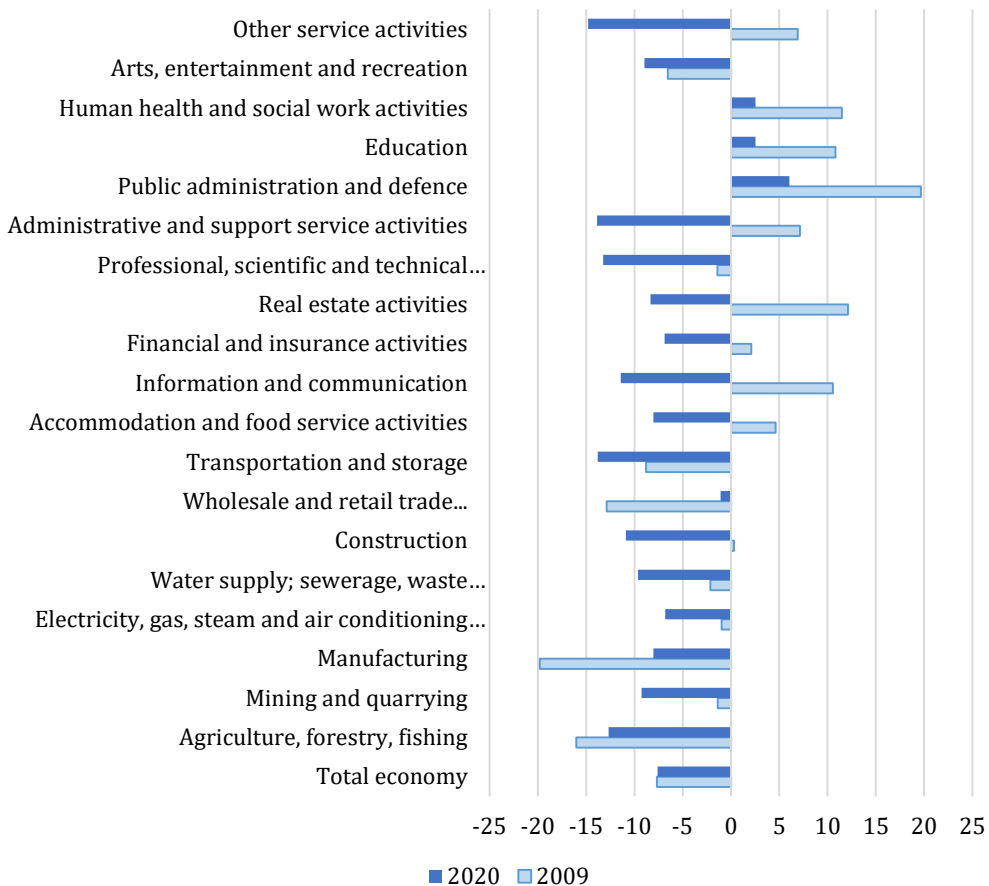
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<sup>37</sup> Average deviation in the rates of year-on-year change in production in the sectors shown in Figure 9.2. has a value of only 4.5 in 2020 (in 2009 it was almost doubled, reaching 8.2). The standard deviations are similarly different: 5.9 in 2020 and 10.1 in 2009). This means less difference in the dynamics of the sector in 2020. True, this is a rather rough sectoral view. We will be able to comment on more detailed sectoral perspectives only in the continuation of this analysis next year, with the availability of more detailed and better data and after the mitigation of the current shocks caused by the turbulence in the economy.

is influenced by the extent to which social contacts take place and the extent to which work can be carried out from home/online.<sup>38</sup>

Figure 9.2

**Heterogeneity in the Decline in Production in Industries in the Slovak Republic during the Last Two Crises**  
(year-on-year changes in gross production in %)



Note: Calculated from data in current prices.

Source: Author's calculations based on Eurostat data.

The impact is not as sector-specific as is commonly presented, but rather specific to the nature of the activity carried out. Therefore, policies should not focus primarily on sector-specific but cross-sectional adaptation in any sectors. This way, they avoid the controversies associated with selective, vertical assessment.

<sup>38</sup> Details in Chapter 5, on employment changes.

Several changes in the common market can be expected, which may mean a threat or a chance for producers in the Slovak Republic:

- After a period of expansion of global chains, segmentation of production, increase in transport intensity of production, etc. these processes are likely to slow down or be reversed in some cases. With various pandemic constraints on a global scale, one of the disadvantages of complex production chains has emerged: vulnerability to the failure of any link, limited production due to missing supplies of a component. Complex global production chains have proven to be unreliable, vulnerable at times. Such an experience can lead to an effort to shorten the chains and make them more reliable (to have them more under the control of the finalizing producer). Security and stability of supply can be enhanced at the expense of efficiency.

- Self-sufficiency efforts are likely to be stepped up. This does not mean reviving the vision of more closed economies, only trying to ensure the availability of strategically important components, getting rid of dependence on long-distance supplies (reviving the perception of distance, which has ceased to play a role in the past period).

Reassessing production chains brings with it opportunities. The Slovak economy is significantly involved in global production chains, and if European concerns rely on chain shortening, reindustrialisation and reshoring,<sup>39</sup> companies in Central and Eastern Europe may have a chance to become those relatively closer and more stable suppliers in times of shock.

### ***How Will This Affect the Problem of Stuck Labor Productivity?***

Last year, we presented the problem of a slowdown in labor productivity amid continuing growth in labor costs. It can already be confirmed that the economic depression in 2020 highlighted this problem in the short term. This was also reflected in the loss of the advantage of low

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<sup>39</sup> These are tendencies that are leading to a renewed strengthening of the share of industry in Europe (the opposite of previous deindustrialization) and to the return of industrial activities previously relocated to low – cost countries (the opposite of offshoring). For more details on these tendencies, see e.g. Pidchosa and Buz (2020).

unit labor costs, which was already mentioned in the first chapter. However, it can be assumed that due to technological changes (by coronavirus crisis strongly supported), the competitive advantage of lower ULC is losing its importance.

It is the pressure exerted by the coronavirus crisis that can help accelerate the development of new competitive advantages. It gave incentives to overcome this problem – but it is no longer possible without the contribution of domestic economic actors.

The impact of the past depression on labor productivity is markedly negative in the short term: a sharp decline in output or GDP (i.e. output) has been accompanied by a much more modest decline in employment. The level of employment was protected by a series of measures. The continuing decline in employment may occur after these measures are taken. A strong decline in economic output, with a relatively weaker decline in the number of employed persons, inevitably means a decline in labor productivity.

Prospectively, however, the impact on productivity may be positive: digitization, automation and robotics are strengthening. These processes took place spontaneously even without a stimulus from the coronavirus crisis, but they received a new driving force. It can help processes that lagged<sup>40</sup> in the Slovak Republic (digitization in education, public administration, healthcare).

It is still insufficiently explored how new elements in ways of working and in the use of work as a factor of production will affect productivity. Not only innovations of work, but also social innovations will probably follow.

And a new space is emerging for policies (not just economic policies) to help adaptation strategies, in which the use of labor will lead to strong productivity growth. So far, the following changes in the employee-employer relationship can be foreseen:

- Efforts to reduce labor intensity, especially where actions require physical presence and there is a possibility of substitution of such work;

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<sup>40</sup> In this context, the finding of reducing regional disparities in access to ICT (as presented in the chapter on the qualitative factor of economic development) is also interesting.

- Strengthening individualism in work activities and more individual negotiation (employer – employee);
- Strengthening flexibility in employee-employer relations;
- Weakening of the function of the workplace as a social environment;
- Changed requirements for equipping the employee with assets (capital in the form of ICT).

The intensity and impacts of the indicated changes will be a function of the mentioned labor and social innovations, which are still difficult to predict.

***The Recovery Is almost Certainly Coming.  
However, the Ambitions Go Further.***

The forecasts of the relevant organizations reflect the expected recovery of the Slovak economy in 2021 and a further acceleration in 2022 (Table 9.1). Preliminary data from the first months of 2021 support this expectation. Admittedly, the main determinant of economic dynamism remains outside the remit of economists – it remains epidemiological in nature.

Table 9.1

**Selected Parameters of the Slovak Economy in the Forecasts of Relevant Organizations**

Organization	Real GDP change (in 2020: -4.8 %)		Inflation rate HICP (in 2020: 2.0 %)		Unemployment rate (in 2020: 6.7 %)	
	2021	2022	2021	2022	2021	2022
NBS (1)	5.0	5.6	1.3	1.9	7.4	7.1
IFP (2)	4.6	5.0	1.5	2.9	7.0	6.3
European Commission (3)	4.8	5.2	1.5	1.9	7.4	6.6

*Note:* The forecasts were not made on the same date, so they could be based on an unequal information base.

*Source:*

(1) NBS Medium-Term Forecast, P1Q-2021, March 30, 2021;

(2) IFP Macroeconomic Forecast, 56th Meeting of the Macroeconomic Forecast Committee, June 16, 2021;

(3) European Commission, Economic Forecast for Slovakia, Spring 2021 Economic Forecast, May 5, 2021.

Relatively strong real GDP growth is almost a regularity in this situation: if the constraints on economic activity are eased, real growth appears strong given last year's markedly negative value. However, the ambitions of economic policymakers should go further than to resuming economic growth or returning to pre-crisis levels. The ambition in whole EU is to move the economy to a higher quality level than before the crisis. In the case of the Slovak economy, such ambition is logically associated with overcoming the middle income trap and restoring the stagnating real convergence.



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Phone: 42-1-2-52 49 54 80, Fax: 42-1-2- 52 49 51 06  
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<<http://www.ekonom.sav.sk>>