

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

***Economic Development of Slovakia
in 2021***

*Focused on:
Post-pandemic Economy with New Challenges*

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*We respectfully dedicate to our long time co-author
Herta Gabrielová*

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INTRODUCTION

In the series of annual publications Economic development of Slovakia, for the twenty-ninth year, we have noticed what we consider to be unique and interesting in the Slovak economy in each period.

Economic development in 2020 and 2021 was determined by forces whose origin is extra-economic. The economy was regulated by pandemic rules. These were determined by bodies that, under "normal" circumstances, are not decision-makers of economic policy. In 2020, this led to a deep recession with expectations of a more favorable development already a year later. In this publication you can read about the extent to which it was really more favorable and how it was marked by new problems and challenges.

Our publication always has its central theme, a selected cross-sectional problem. When assessing economic development in 2021, we focused on changes related to post-pandemic recovery. We assume that the shock caused by the pandemic will bring a series of long-term changes in the functioning of the economy. It is not just about the decline of the economy and the subsequent return to the original level; a series of new, unique phenomena is created.

At the Institute of Economic Research SAS, we prepare this annual analytical and evaluation view of the economic development of Slovakia since the founding of the independent Slovak Republic. Although the title of the publication contains a specific year, this does not mean that attention is paid to developments in an isolated one-year period. The evaluated phenomena are also placed in the context of tendencies in a longer period.

Attention in this analysis progresses from the initial summary view through a series of more detailed views on partial problems. In the last part, we deal with expected changes in the near future.

1. OVERALL ECONOMIC DEVELOPMENT

The introductory chapter provides a summary view (view "from above") of several specifics of the development of the economy of the Slovak Republic in 2021, also set in a wider time frame. It is not our intention in this chapter to interpret all aspects of macroeconomic development. Rather, it is about highlighting and explaining some phenomena that were characteristic and unique for the given period. A whole range of partial problems and points of interest are then addressed in more detail in other chapters.

The pandemic crisis not only caused a temporary decline in the economy (in 2020, specifically by 4.4%), but also caused many changes, e.g. in structure, stability, competitiveness, while several of them are more durable. In last year's edition of our series of publications, we emphasized that we do not perceive the pandemic recession as a temporary decline in the performance of the economy and a subsequent return to the original levels. We also understand it as a turning point that brings a whole series of changes in the course of the economy.

The development of the Slovak economy in 2021 was determined by the following noteworthy phenomena, according to which this chapter is also divided:

1. Recovery after the pandemic recession. We will try to show and explain that this recovery is significantly different from the previously known processes of recovery after past recessions. That's why we repeatedly use comparisons here with the overcoming of the previous recession. The return of the economy to pre-pandemic condition was complicated by a number of expected and unexpected barriers. At the same time, overcoming the recession changed the structure of the economy.

2. Overcoming the recession was not associated with a significant deterioration in the development of labor market indicators. However, this does not mean that the impact on the labor market would be absent. But it was different from past recessions.

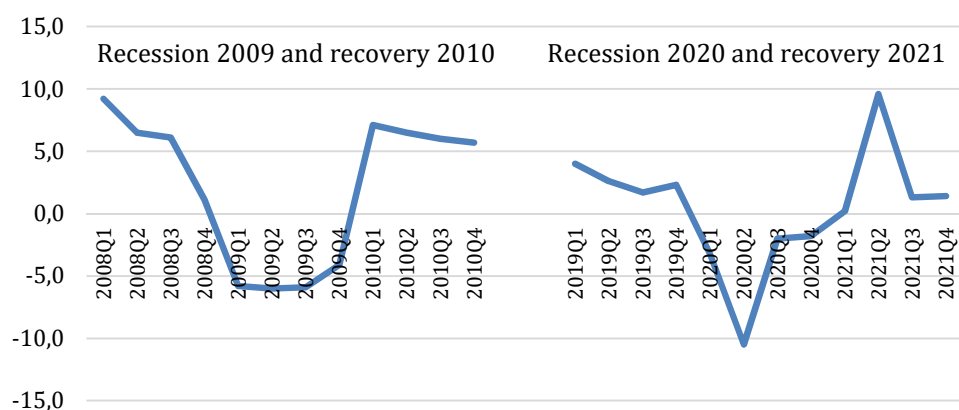
3. The macroeconomic balance suffered a weakening. Disruption of the stability of the price level and the balance of public finances are a manifestation of this.

Cautious Recovery after Pandemic Recession: The Economy Still Bound By Restrictive Regulations

After every economic recession, there is a debate about how strong the recovery will be and when the performance of the economy will return to its original level. In the final chapter of last year's edition of this publication, we pointed to optimistic expectations regarding the recovery of economic growth. After a significant fall, the recovery of growth was to some extent a highly probable phenomenon, but the recovery was significantly less vigorous and straightforward than after a similarly deep recession in 2009. The performance of the economy was still dependent on the extent of pandemic restrictions in parts of the year 2021. In addition, it was limited by the unreliability of production chains (the problem of missing components, delayed deliveries due to uneven recovery in different regions of the world and in different industries). For the second year in a row, non-economic factors (and decisions by authorities that have primary health priorities) were decisive for the development of the economy. Therefore, in Figure 1.1, we observe a picture of non-continuous revival of economic activity in individual quarters. The picture is markedly different from the post-recession recovery of a decade ago.

Figure 1.1

Different Course of Economic Collapse and Recovery in the Last Two Recessions (year-on-year changes in real GDP in quarters)

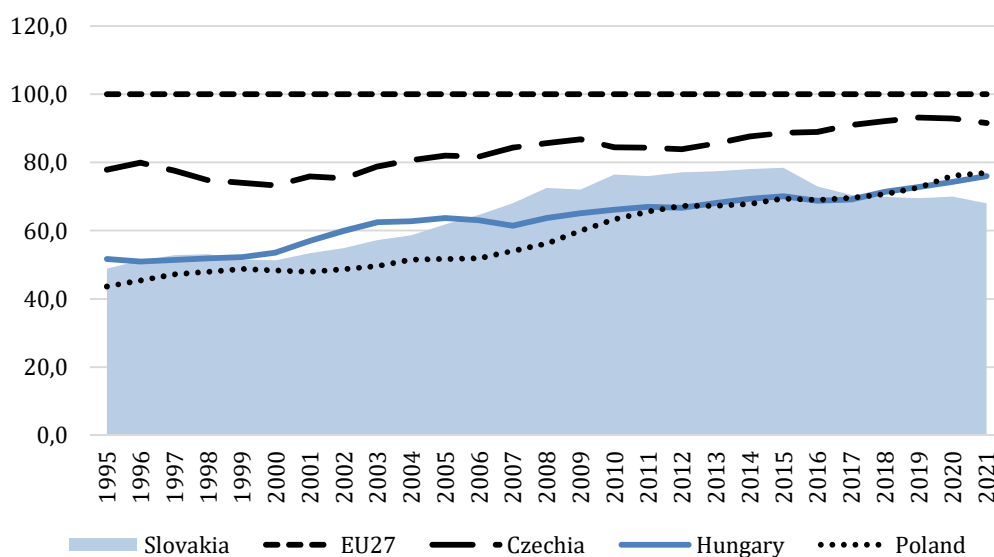


Source: Eurostat; own calculations.

The relatively cautious recovery of the economy in 2021 (with real GDP growth of 3%) did not even contribute to the restoration of the so-called real convergence (catching up with the economic level of more advanced economies, expressed as GDP per capita, Figure 1.2). Somewhat paradoxically, real convergence developed more favorably in the short term precisely during the economic downturn in 2020. The decline of the Slovak economy was milder than the average decline of the EU27 economies. Subsequently, however, the recovery in 2021 was less significant in the Slovak Republic than in the EU27 (compared to the EU as a whole, the decline in the recession was less significant in the Slovak Republic, but also a less significant recovery after it, see Figure 1.3).

Figure 1.2

GDP per capita (in purchasing power standard), **Relative to the EU27 Level** (EU27 = 100)



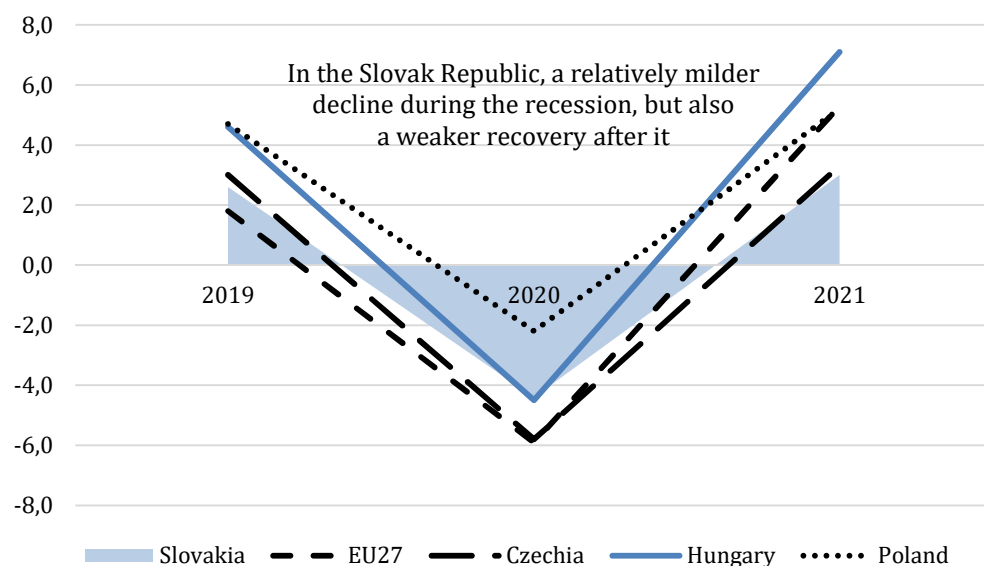
Source: Own calculations according to Eurostat data.

Overall, however, we have been observing the absence of a more permanent real convergence for about a decade. Even after deepening of lagging behind in 2021, we can state the same relative position of the SR in real convergence as it was in 2007 (even then GDP per inhabitant in purchasing power standards reached 68% of the EU27 average, the same as in 2021). This is a bad result of the strategy of catching up with the

most advanced – and a phenomenon strongly reminiscent of the so-called middle income trap. We have already addressed this problem in previous editions of this series of publications (Morvay et al., 2019), but from today’s point of view, it is already a long-term problem. It is a manifestation of the disappearance of the original drivers of growth (inflow of foreign direct investments, adoption of advanced technologies from the outside – and thanks to this, a rapid growth in the productivity of production factors, etc.) and insufficient creation of new ones (based on domestic innovation potential).¹

Figure 1.3

Depth of Recession and Dynamics of Recovery in International Comparison
(changes in real GDP in %, at the onset of the recession and its overcoming)



Source: Eurostat.

The cautious recovery was associated with some specifics in the structure of GDP increase (see Table 1.1):

- *The role of stocks was unusually significant.* The change in inventory is usually an insignificant part of the gross capital formation (i.e. investments). It is not typical for inventory fluctuations to play a significant role in changes in GDP. Looking at the use side of GDP in 2021, an enormously

¹ See Žuk et al. (2018), EC (2019).

large share of the change in inventories will take up the increase in GDP: the change in the state of inventories accounted for almost half of the year-on-year increase in GDP. Such an anomaly is also difficult to evaluate, the stocks will be used in some form in the next period. However, this swing in inventories is obviously related to the decline in inventories during the pandemic recession – the depletion of inventories amid limited economic activity in 2020 was likely followed by a jump in inventories the following year. Accumulation of stocks in fear of supply shortages could also play a role.

- *Predominance of income from business in the increase of total income.* It is typical for the recovery phase that the gross operating surplus (income of enterprises and entrepreneurs, including depreciation used to replace used assets) is growing faster than the income of employees. In the case of a slowdown and recession, it is the opposite. Therefore, it is not a big surprise that in 2021 the gross operating surplus (that is, revenues of a business nature) made up more than half of the total increase in GDP, calculated using the income method.

Table 1.1

The Structure of GDP Increase at the Time of Overcoming the Pandemic Recession: Share of Components in Annual GDP Growth in 2021 (in %)

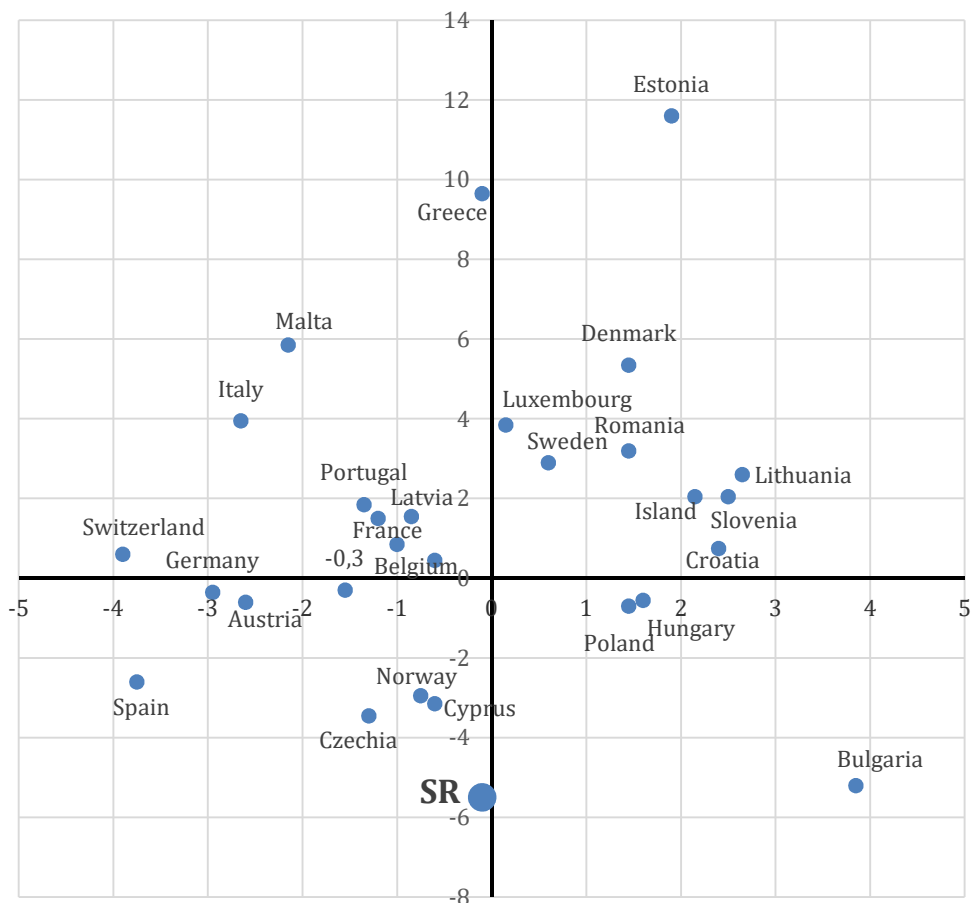
	Production method	Use method	Income method
Total increase 5 043.2 mil. eur	Value added 82.3%	Final consumption of households 47.6%	Compensation of employees 39.2%
		Final consumption of general government 23.0%	Gross operating surplus and mixed income 50.3%
		Gross fixed capital formation 9.9%	
		Increase of stock 48.9%	
	Taxes on products less subventions 17.7%	Net exports -29.3%	Taxes on production and imports 10.5%

Source: Own calculations according to Eurostat data.

The pandemic recession affected household consumption and investment (the two largest components of domestic demand) differently. Slovakia is among the economies that kept the level of household consumption at an almost unchanged level, but with a significant decrease in investments. For the period 2020 – 2021, the decline in the gross fixed capital formation in the Slovak Republic was extremely significant compared to European economies (Figure 1.4).

Figure 1.4

Combinations of Changes in Household Consumption and Gross Fixed Capital Formation in the Period 2020 – 2021



Note: Horizontal axis: Change of real final consumption of households in % (average of the years 2020 – 2021). Vertical axis: Change of real gross fixed capital formation in % (average of years 2020 – 2021).

Source: Own calculations according to Eurostat data.

The combination of consumption and investment development in Figure 1.4 shows that:

- In the Slovak Republic, the level of consumption and thus the current level of the material standard of living has been preserved.
- A dramatic drop in investments (the most pronounced in the examined set of European economies) may limit the possibilities of overcoming the shock, recovery and adaptation in the long term, especially since even before the 2020 recession investment activity was relatively weak (Morvay, 2021).

Changes in the Structure of the Real Economy

It is natural to expect that a shock in the economy (in the form of a pandemic recession) will change the structure of the economy in the short and long term. At this moment, only immediate, rapid changes can be evaluated. However, we assume that it will not stay only with them.

The impact of the pandemic economic crisis on the sectors of the economy was less differentiated than is commonly perceived by the public. The attribution of dramatic impacts to certain industries (the so-called gastro sector, hotel industry, tourism), which we normally encounter in the media space, only partially corresponds to reality.

Already in the previous edition of our publication, we made the assumption (based on the data available at the time) that the effects of the recession are less sector-specific than is generally presented. The impacts are even more widespread than when overcoming the previous recession (2009/2010). Negative impacts affected certain types of activities (e.g. requiring interpersonal contact, meeting in a team) across branches. Currently, we can confirm this assumption.

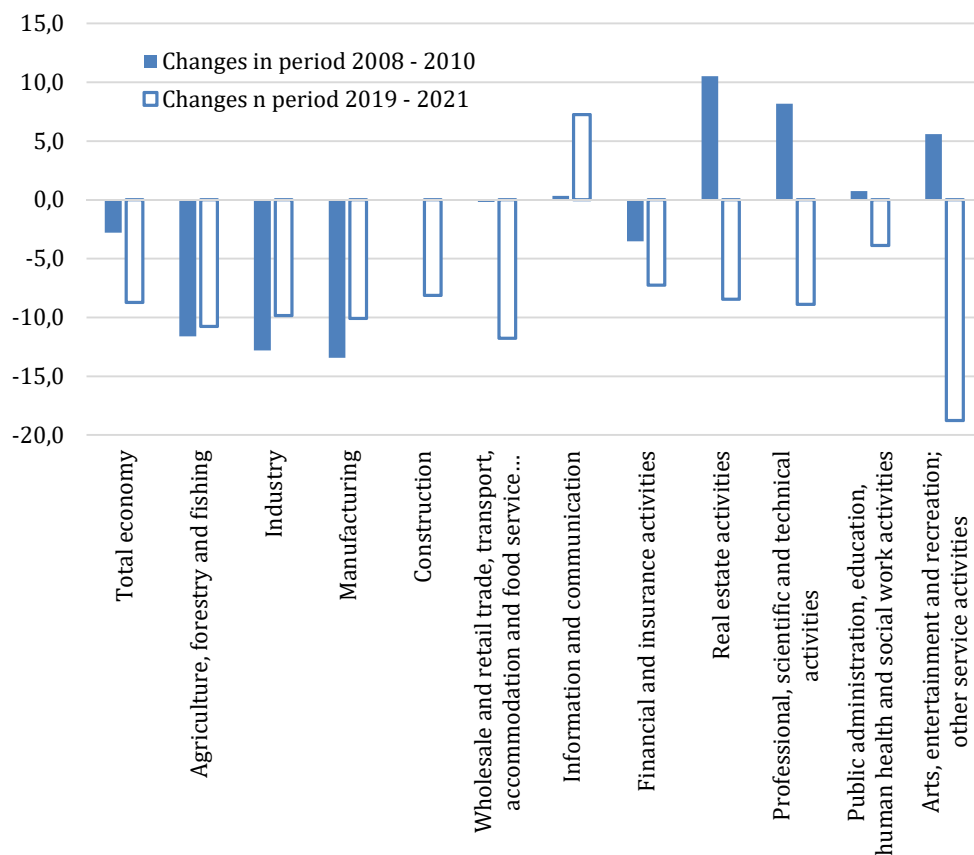
When assessing inter-industry differences, we take into account changes during the period of the onset of the recession and its overcoming. Therefore, we compare the data from the year after the recession with the data from the year before it. In the 2009 recession, the impact was more differentiated by sector: a significant decline in manufacturing

sector² with continued growth in several service sectors (Figure 1.5 and 1.6 and deviations indicated in the notes below the figures). The pandemic crisis has had a negative impact on the economy relatively widely – across sectors. This, of course, does not mean that the branches would be affected equally.

Figure 1.5

Different Impact on Sectors: Changes in the Number of Hours Worked in the Sectors of the Slovak Economy

(changes in %, post-recession period/pre-recession period)



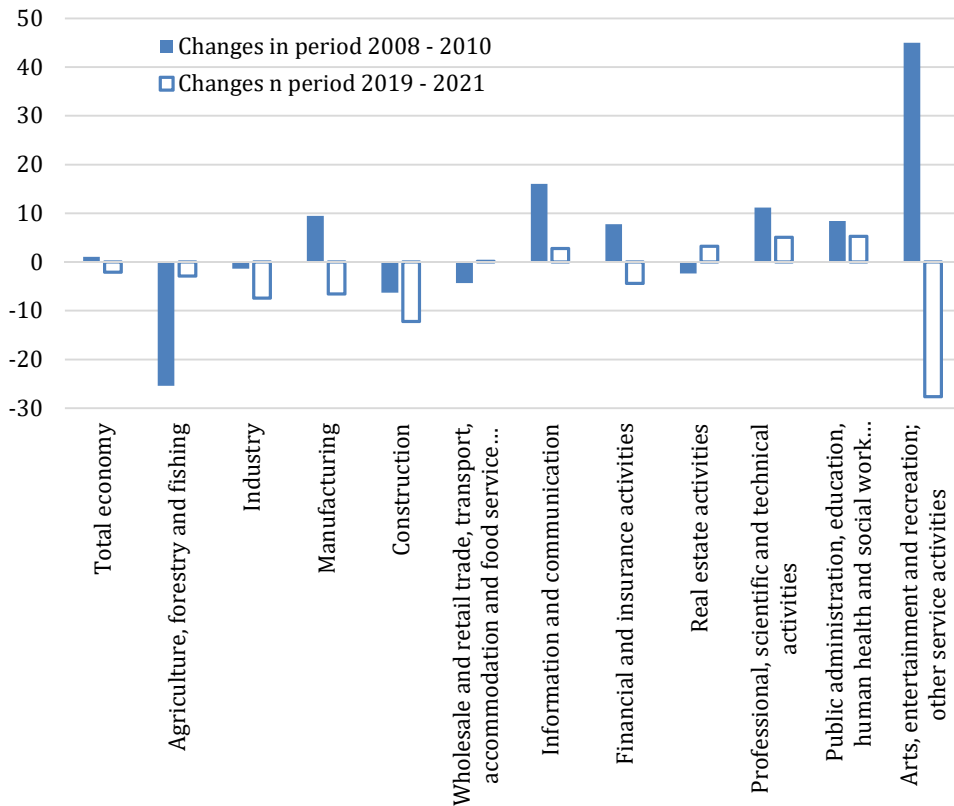
Note: Average deviation of values in 2020: 3.5. Standard deviation: 6.3. Average deviation of values in 2009: 6.0. Standard deviation: 8.3.

Source: Own calculations according to Eurostat data.

² The significant decline in manufacturing during the 2009 recession was related to the fact that it was a massive drop in external demand. The export-oriented manufacturing sector of the Slovak Republic therefore suffered significantly. The service sector was not directly affected in this way.

Figure 1.6

Differential Impact on Industries: Changes in Value Added across Industries (changes in %, post-recession period/pre-recession period)



Note: Real changes (calculated from chain – linked volumes). Average deviation of values in 2020: 6.5. Standard deviation: 9.6. Average deviation of values in 2009: 11.4. Standard deviation: 11.4.

Source: Own calculations according to Eurostat data.

We also express the extent of structural changes as the sum of the absolute values³ of changes in the shares of industries. The sum of the absolute values of structural changes in 2020 reached 4.3 percentage points, during the recession in 2009 it was 6.9 percentage points (when calculating the changes in the shares of sectors in the total hours worked in the economy and when dividing industries according to the two-digit NACE code). This also indicates that the short-term effect of the recession was less differentiated by sector in 2020 than during the previous economic downturn (medium-term effects cannot yet be evaluated).

³ Absolute values are used so that positive and negative changes do not cancel each other out.

Labor Market without Consequences? Only Apparently

One of the undeniably interesting moments of the pandemic crisis and the subsequent recovery is the fact that there is a "missing" fluctuation in the labor market – the unemployment rate has not changed significantly. In the past there were slowdowns or declines in the economy associated with a significant rise in the unemployment rate (with an increase in the unemployment rate even in the year after the recession). Such a peculiar course of recession and recovery – with an apparent absence of impact on the labor market – has two main causes:

1. Reducing the workload of the workforce. The decrease in the volume of work is significant: when expressed by the volume of hours worked, it is a decrease of up to approximately 9% during the recession in 2020 and stagnation during the recovery in 2021. This is a significantly more unfavorable development than when overcoming the previous recession in 2009/2010.

However, the dramatic decrease in the volume of hours worked was reflected in a decrease in the average length of working time and not in a decrease in the number of working persons (Table 1.2). In this, the current development is fundamentally different from the previous recession (compare according to Table 1.3). During the 2009 recession, the decrease in volume of hours worked (as a measure of the volume of labor used) was associated with an almost identical decrease in the number of working persons. The decrease in the volume of work was thus directly transmitted to the decrease in the number of employed persons. During the last recession, this relationship was disrupted: the decrease in the volume of hours worked was reflected in a decrease in the average number of hours worked by a working person.⁴ Only to a limited extent did the negative development translate into a decrease in the number of employed persons. Such development was aided by labor market policy tools (the policy of sharing labor costs between employers and the state, limiting the range of hours worked, etc.).

⁴ Experiences with such a policy of mitigating the effects of the recession on employment were analyzed, for example, by Casey and Mayhew (2022).

Table 1.2

Breakdown of Changes in the Volume of Hours Worked

	Index of changes in the volume of hours worked	=	Index of changes in the number of workers	X	Index of change in average number of hours worked by one worker
2018	1.0142	=	1.0201	X	0.9942
2019	1.0034	=	1.0105	X	0.9930
2020	0.9116	=	0.9811	X	0.9291
2021	1.0013	=	0.9942	X	1.0071

Source: Eurostat and own calculations.

2. The supply side is shrinking on the labor market. The number of people of productive age is decreasing. Since 2017, the number of working age population has been decreasing every year by approximately 30,000. Reducing the population in productive age, who forms the supply of labor force on the labor market, prevents an increase in the unemployment rate even with a less favorable development of the demand for labor. The demographic factor thus contributed to the labor shortage before the pandemic recession and prevented the unemployment rate from growing during it. And in the coming years, it will probably contribute to the labor shortage again – but that is beyond the scope of this chapter.

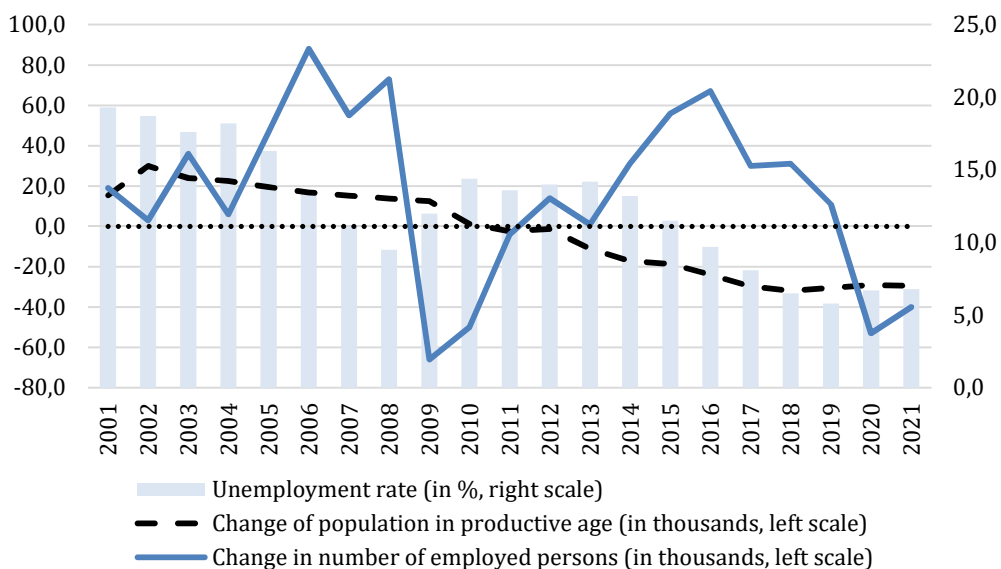
Why do we use the term *apparently* in the heading of this subsection? Because the turbulence of 2020/2021 had a significant impact on the labor market. It just didn't manifest itself more significantly in the parameter of the labor market that is most sensitively perceived by society – the unemployment rate. However, it manifested itself in the degree and method of the use of labor forces. And part of the impact on unemployment was blocked by demographic factors. At the moment, these demographic factors had a positive effect (they did not allow unemployment to increase), but in the long term, they have a dampening effect on the economy (decrease in the workforce).

A significant change in the rate of utilization of the time capacities of the workforce also brought about changes in labor productivity. Here, we assess the cumulative change in labor productivity in 2020 and 2021 compared to the state before the recession (2019). The volume of hours worked developed significantly less favorably than the created added

value (see the lower part of Table 1.3). This results in an unusually strong growth in hourly labor productivity. Not because of strong output growth, but because of a decrease in the volume of hours worked. Cumulative growth of hourly labor productivity by 7.3% means significantly better dynamics compared to the results in the last decade. Productivity calculated per worker developed completely differently. Its cumulative change is rather stagnation (compare in the lower rows of Table 1.3). Thus, we note a significant increase in hourly labor productivity while per worker productivity stagnates (together during the period of the onset and overcoming of the recession, i.e. two consecutive years). This results in more efficient use of work (fewer hours are needed for a given output).

Figure 1.7

Changes in Supply and Demand in the Labor Market



Note: The supply side of the market, the labor supply, is represented by the population of productive age (15 – 64 years). The demand side, employers' demand for labor, is represented (albeit imperfectly) by the number of employed persons.

Source: Eurostat and own calculations.

The growth of labor productivity has been weak in the past longer period, it is one of the longer-term problems of the Slovak economy. In the past two years, productivity growth has accelerated, but only in the case of hourly productivity (and even then mainly due to the decrease in

the number of hours used, as shown in Table 1.3). Therefore, it is not yet appropriate to draw significant conclusions from such a fluctuation about overcoming the longer-term problem of weakly growing productivity.

Table 1.3

Changes in Labor Productivity in Periods of Overcoming Economic Recessions

	Period of 2009 recession			Period of 2020 recession		
	2008	2009	2010	2019	2020	2021
Value added (billion euro)	63 278.1	60 068.4	63 935.6	79 576.7	76 119.4	77 933.6
Volume of hours worked (thous.)	4 029 924	3 922 370	3 916 851	4 137 228	3 771 291	3 776 022
Number of employed persons (thous.)	2 247.1	2 203.2	2 169.8	2 445.2	2 399.1	2 385.1
Hourly LP (euro per hour worked)	15.7	15.3	16.3	19.2	20.2	20.6
LP calculated per person (euro per employed person)	28.2	27.3	29.5	32.5	31.7	32.7
<i>Change of value added (%)</i>	6.2	-5.1	6.4	2.2	-4.3	2.4
<i>Change in volume of hours worked (%)</i>	3.3	-2.7	-0.1	0.3	-8.8	0.1
<i>Change in number of employed persons (%)</i>	3.2	-2.0	-1.5	1.0	-1.9	-0.6
<i>Change of hourly LP (%)</i>	2.8	-2.5	6.6	1.9	4.9	2.3
<i>Change of LP (calculated per person, %)</i>	2.9	-3.2	8.1	1.1	-2.5	3.0
Hourly LP after recession/before recession (change in %)*	4.0			7.3		
LP per person after recession/before recession (change in %)*	4.6			0.4		

Note: Value added calculated from chain-linked volumes (2015 constant prices). Employment data based of national accounts methodology. * This is the change in level between the year after the recession and the year before it (2021/2019, respectively 2010/2008). LP – labor productivity. All productivity indicators are calculated from value added.

Source: Eurostat and own calculations.

Macrostability Threatened Again after a Longer Time

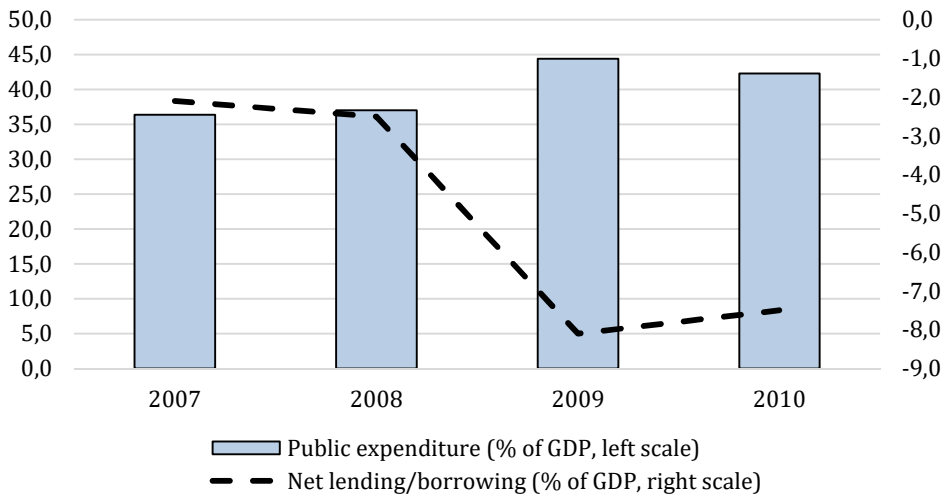
Disruption of macroeconomic stability is an expected side effect of recessions. After the 2020 pandemic recession, this was manifested primarily in the unfavorable development of the balance of public finances and – atypically – also in the rising rate of inflation.

Figure 1.8

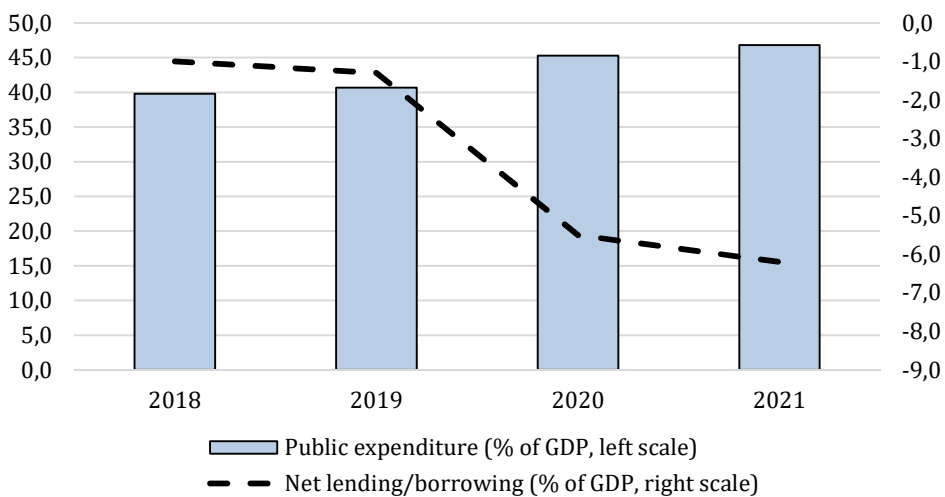
Change of Public Finance Parameters

(public expenditure and fiscal balance, in % of GDP)

a) Period of 2009 recession



b) Period of 2020 recession



Source: Eurostat.

In response to an economic downturn, the ratio of public expenditure to GDP usually increases. It is a manifestation of the anti-cyclical effect of public finances. The ratio of public expenditure to GDP rose in the recession in 2020, but also after it. This was in line with expectations, as measures to mitigate the effects of the pandemic inevitably increased

public spending. And since those measures had to continue in 2021, a further increase in the ratio of public expenditure to GDP is not surprising either. However, the balance of public finances did not deteriorate as dramatically as during the previous recession (compare Figures 1.8a, 1.8b, more details in the chapter devoted to public finances).

A characteristic feature of the development was the revival of inflation. During the economic downturn in 2020, the rate of inflation initially developed as it is common in downturn phases: it gradually declined and did not give signals of any significant reversal. Subsequently, however, an acceleration can be seen during 2021 (Figure 1.9), the inflation rate increased every month. At the end of the year, it was obvious that the acceleration will continue in 2022; and a new substantial inflationary factor in the form of a war conflict was not yet known.

The renewal of inflationary tendencies was perceived with all the more attention, since the society was no longer confronted with it in the past years. The policy-makers have been trying to revive inflation for a long time, and the monetary policy of the ECB focused on this goal. After a long-term absence of a significant rise in the price level, the acceleration of inflation was a phenomenon that the society no longer seemed to expect. The society in the Slovak Republic repeatedly confronted with double-digit inflation in the last three decades (but not after 2000).

However, the causes of the acceleration of inflation were different than in previous cases. The concurrence of inflationary factors was original:

1. Due to the significantly differentiated revival of various industries in different countries, supply networks have been disrupted. The result was missing components, their increasing scarcity and increasing price.
2. Increased scarcity of energy, associated with pressure on climate sustainability. Geopolitical factors did not yet play a central role (a war in Ukraine was not yet perceived as a likely scenario).
3. Recovery of demand after the recession, also supported by a long-term significantly expansionary monetary policy.

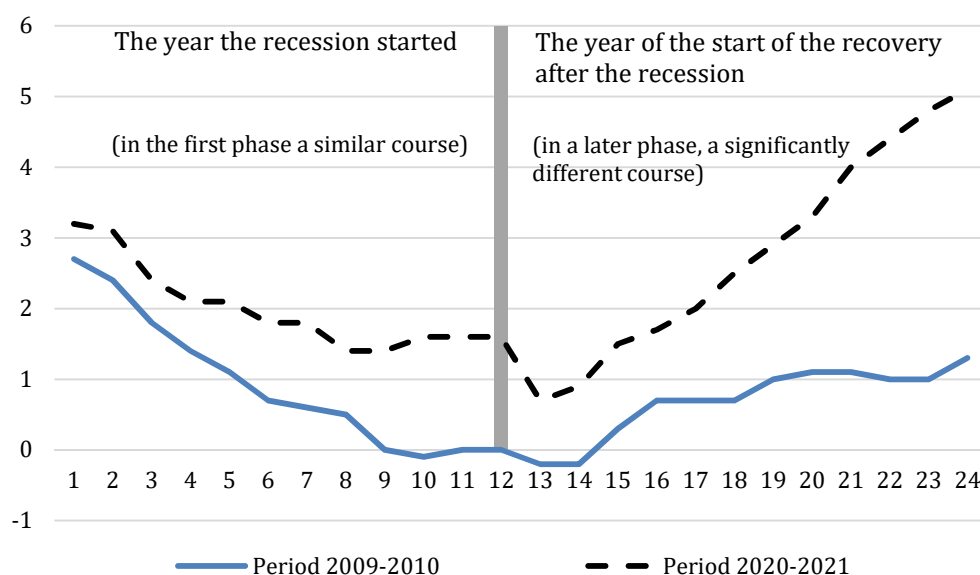
In the past, cases of high inflation in the Slovak Republic were associated with administrative adjustments in regulated prices, indirect taxes or the currency exchange rate (devaluation), or with serious economic

and social events (the creation of an independent state associated with monetary separation from the Czech Republic, fundamental economic reforms and price liberalization etc.). Therefore, inflation in 2021 is interesting not because of its level, but rather because of the original confluence of its causes.⁵

Figure 1.9

Comparison of the Course of Price Changes

(year-on-year changes in consumer prices in %, by months in the year the recession started and in the following year)



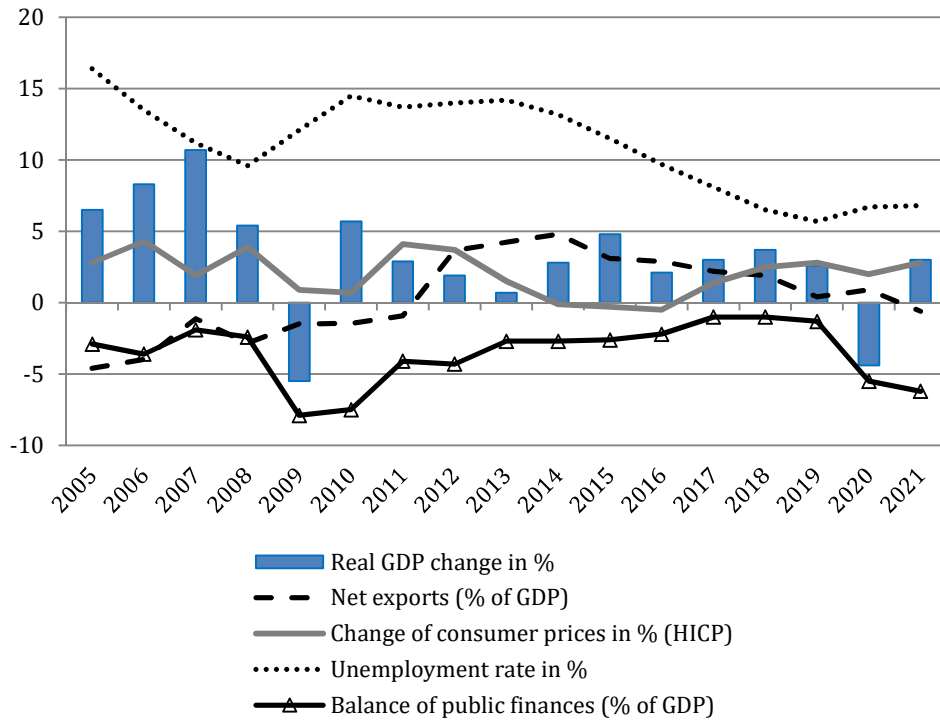
Note: Period of 24 months (the year the recession started and the following year).

Source: Eurostat; own design.

The trend of strengthening the macroeconomic balance, which we observed between 2011 and 2019, has been disrupted (Figure 1.10). More serious manifestations of imbalance are associated only with the rate of inflation (although this is not yet quite evident from the value in 2021) and with the deficit of public finances. The economy will face the new phase of macroeconomic stabilization: anti-inflation policy and consolidation of public finances. It is the kind of challenge that policy-makers have not faced for a long time.

⁵ See more details in the chapter devoted to price level development.

Figure 1.10

Development of Basic Performance and Stability Parameters

Note: Unemployment rate according to labor force survey methodology.

Source: Eurostat; ŠÚ SR and own calculations based on these data.

* * *

The period of 2020 and 2021 was a period of non-economically determined economic development. Although the economy overcame the shock of the pandemic recession, the induced changes will take longer. The economy needs a new stage of stabilization, and it is complicated by new factors of instability (about them in the final chapter).

We focused on several selected phenomena that were particularly interesting and characteristic in the period in which the economy is coming out of recession. A much more thorough analysis of these and other phenomena follows in the next chapters.

2. QUALITATIVE FACTORS OF ECONOMIC DEVELOPMENT

The Slovak economy is constantly searching for qualitative factors 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 the role of domestic research and development (R&D), innovation development and digitalisation. As in 2020, a key event in 2021 was the continuation of the COVID-19 pandemic and the regulatory measures triggered, which shaped the behaviour of actors and changed the conditions for R&D, innovation and digitisation in Slovakia. In this context, Slovakia's Recovery and Resilience Plan plays a key role in economic policy, which, as the EU's response to post-pandemic economic recovery, concentrates public investment of EUR 6.575 billion, mainly in science, research and innovation, digitalisation, education and the green economy. These areas of support focus the attention of European and, consequently, national economic policies on the qualitative factors of economic development.

In this chapter we briefly analyse the development of R&D over the last period. In the second part we pay attention to the analysis of the innovative development of the business sector, the third part describes the current development of the digital society and economy.

Research and Development in Slovakia

Research and development in Slovakia according to the basic indicators (which we present in Table 2.1) remains in the period 2016 – 2020 at values that do not create sufficient preconditions for domestic R&D to become a potential engine of economic development. We see some positives in the slight increase in R&D intensity (gross R&D expenditure as % of GDP), which has reached 0.92%. The average R&D intensity over the last 5 years is 0.85% of GDP, which, like the 0.92% in 2020, is still below the target level of 1.2% to which Slovakia has committed itself in strategic documents (Partnership Agreement for Slovakia 2014 – 2020 or the Draft Research and Innovation Strategy for Smart Specialisation of the Slovak Republic 2021 – 2027). In 2020, we see an increase in the

share of foreign sources in R&D funding, which can be attributed to the final phase of the EU funds of the 2014 – 2020 programming period. EU sources account for a substantial part of the foreign resources spent on R&D. For example, a similar trend was also observed in 2015, when R&D intensity reached a record level of 1.18% of GDP so far, with foreign funding reaching a share of up to 38%.⁶

Table 2.1

Selected R&D Indicators 2016 – 2020

	2016	2017	2018	2019	2020
Funding R&D:					
Gross expenditures on R&D (% GDP)	0.79	0.88	0.84	0.83	0.92
Government appropriations or spending on R&D (% public expenditure)	0.87	0.92	0.92	0.94	0.92
Business expenditures on R&D (% GDP)	0.40	0.48	0.45	0.49	0.45
Divided by sector of performance (% GDP):					
Government	50.4	54.1	54.1	54.8	54.1
Business	21.4	20.8	21.2	20.0	19.7
Higher education	27.7	24.7	24.3	25.2	26.2
Divided by source of funds (% of total):					
Government	41.0	35.5	38.0	40.5	39.6
Business	46.2	49.0	48.9	46.8	43.7
Other national sources	2.1	1.7	1.9	2.1	2.4
Abroad	10.7	13.8	11.2	10.7	14.3
R&D personnel (persons as of 31st December)	33 252	33 467	35 770	36 309	37 189
Outputs of R&D:					
Domestic patent applications ²	220	183	217	206	206
Number of domestic patent applications ² per 1 000 R&D employees	6.6	5.5	6.0	5.7	5.5
Number of EPO applications ³	44	41	51	42	55
Number of EPO applications per 1 000 employees R&D	1.3	1.2	1.4	1.2	1.5

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

³ European patent applications per country of residence of the first-named applicant.

Source: ÚPV SR (2021); ŠÚ SR (2021); EPO (2022).

We assume that with the approaching end of the program period and the beginning of the withdrawal of funds from the *Recovery and Resilience Plan*, R&D expenditures will increase in the coming years. Considering the ongoing risks and barriers both on the side of the providers (political cycle and administrative complexity of processes in the state administration)

⁶ See Chapter 3 in Morvay et al. (2017).

and on the side of the recipients (limited absorption capacity and administrative burden), we do not expect that this growth will be significant or sustainable in the long term. The future growth of R&D expenditure will probably mainly concern the public sector, while this public expenditure will have the character of one-time capital investments. We believe that the long-term structural problems of the Slovak R&D sector, such as the persistent low quality of public research, its limited cooperation with the corporate sector and the low rate of commercialization (patents), will have a limiting effect on the evaluation of future growth of R&D expenditures.

Innovative Performance of Enterprises in Slovakia – A Static but In-depth View

Public expenditure, whether from European structural and investment funds (ESIF) or within the framework of the Recovery and Resilience Plan, is largely aimed at kick-starting the innovative development of the Slovak economy. The expenses of research or innovation policies are mostly directed to the public sector through the support of public research infrastructure, education, digitization of public administration and ultimately (indirectly) to the support of the business environment. Even if the efforts of economic policies are directed primarily to the public sector, the "engine" of the innovative progress of the Slovak economy will inevitably be the business sector. In this part of the chapter, we evaluate the state of innovative development of enterprises in Slovakia based on the latest statistical survey – Innovative activity of enterprises in the Slovak Republic 2016 – 2018 and the European Community Innovation Survey 2016 – 2018.⁷

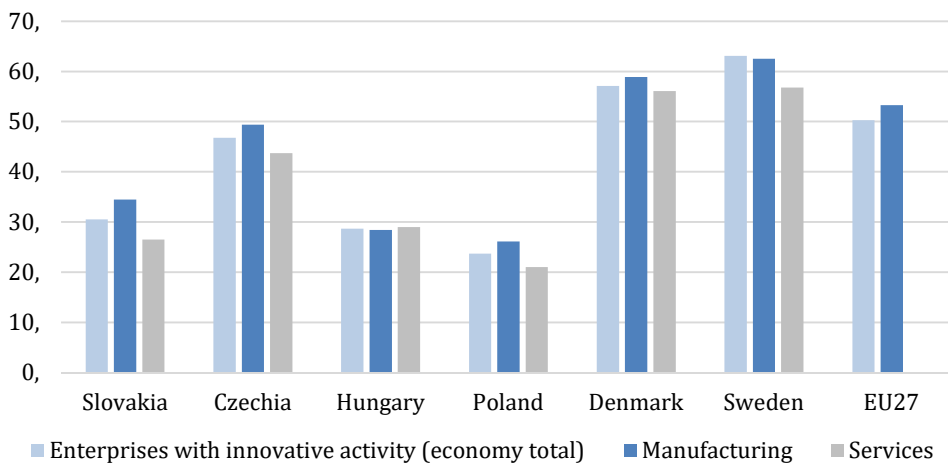
As a starting indicator of the innovation level of Slovak enterprises, we can use the indicator – the percentage of enterprises with innovative activity in the national economy (Figure 2.1). In Slovakia, 31% of companies innovate (in 2018), which places the Slovak economy among the

⁷ It is a regular statistical survey in EU member states. The last survey for the period 2016 – 2018 was published in December 2020. Despite a certain time delay, which does not play a big role in innovative activities, the survey provides valuable and still up-to-date results.

"better" economies within the V4, but compared to the EU27 average or advanced EU innovation economies (we chose Denmark and Sweden), the lag is still evident. Within the entire EU27, according to this indicator, we are in 23rd place (Eurostat, 2022). Slovakia also belongs to the group of economies in which the difference between innovativeness in industry and services is higher (8 p.b.).

Figure 2.1

Enterprises with Innovative Activity in Slovakia and Selected EU States
(% of enterprises, 2018)



Source: Eurostat (2022).

Several factors can hinder innovative activities. In the case of businesses in Slovakia, financial factors are among the most frequent obstacles to innovation. Among the three biggest obstacles to business innovation are the high costs of innovation, which is attributed high importance by up to 26% of enterprises in Slovakia (the EU27 average is 19%). The second most important factor is the lack of own finances (25% of enterprises in Slovakia and 16% in the EU27). Difficulties in obtaining public grants and subsidies are the third most important barrier to innovation (23% of enterprises in Slovakia compared to 14% in the EU27). On the other hand, companies in Slovakia and the EU27 identified the lack of partners and insufficient access to external knowledge as the smallest problem when innovating (in both cases, only 7% of companies in Slovakia and the EU27 attach great importance).

An important aspect of innovation processes in the national economy is the networking and cooperation of various actors of the national innovation system. In advanced economies, innovating enterprises are characterized by a higher degree of cooperation within the corporate sector, with customers or the public research sector, etc. Table 2.2 presents the rate of cooperating companies with different types of actors.

Table 2.2

Collaborating actors with Innovative Companies in Slovakia and in Selected EU Countries (% of innovating enterprises, 2018)

	All types of cooperation	Enterprises within the enterprise group	Companies outside the corporate group	Consultants or commercial laboratories	Suppliers of equipment, components, material or software	Customers or clients from the private sector	Competitors from the same sector	Other private enterprises outside the corporate group	Universities	Public, government or private research institutions	Clients or customers from the public sector	Non-profit organizations
Czechia	28	10	23	8	16	9	1	3	11	4	2	0
Hungary	36	10	34	17	26	18	7	14	11	4	4	3
Poland	21	9	15	9	10	8	3	6	10	6	2	1
Slovakia	31	13	28	12	24	18	8	7	10	3	5	3
Finland	47	19	44	29	28	23	8	15	24	14	6	5
Sweden	25	15	25	18	24	25	5	9	13	7	6	4
Austria	28	13	24	16	14	10	4	5	17	7	4	2

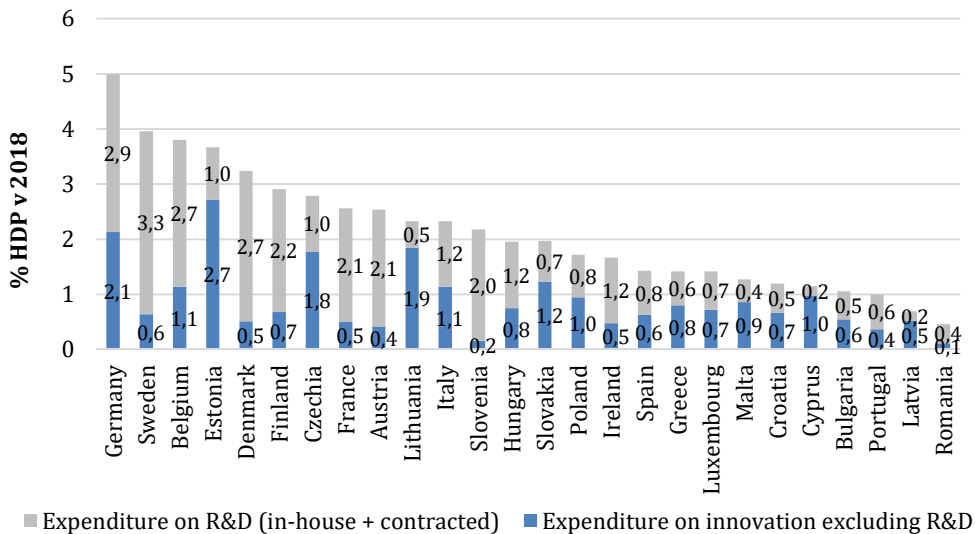
Source: Eurostat (2022).

We have already mentioned the weak links between the business sector and public research in Slovakia. For the evaluation of this type of cooperation, we can use the data from the highlighted columns, in which the university and public, governmental or private research institutions appear as cooperating actors. In this respect, innovative companies in Slovakia are at a comparable level to the V4 countries, but they lag behind advanced economies. However, the presented data do not tell about the frequency or intensity of the company's cooperation with that actor. Cooperation with public research includes a wide range of forms from short-term "soft" forms such as testing, measurement, testing, consultations up to joint research and development resulting in a joint patent or prototype, etc.

The source of corporate innovation is not only own R&D, but also other activities – for example, obtaining R&D results through contracted R&D or procurement of final technologies through the purchase of new machines, equipment, software, etc. From the point of view of financing innovations in the business sektor, Slovakia belongs to the EU countries with a medium level of development (see Figure 2.2 or Table 2.3) – although it has low business expenditures on R&D (in-house as well as contracted R&D), but relatively high expenditures on innovations that are not based on R&D.

Figure 2.2

Business Expenditure on Innovation and R&D in EU Countries
(% of GDP in 2018)



Source: Eurostat (2022).

We can see a similar structure of innovation expenses of companies in other economies of Central and Eastern Europe. This group of expenses primarily includes innovative capital expenses for the purchase of equipment, machines and devices, software, intellectual property rights, and buildings. Such a model of corporate innovation in Slovakia persists and has practically not changed for the second decade and is related to the arrival of foreign investments and the position of foreign-controlled enterprises in Slovakia in global production chains.

Table 2.3

Types of Business Spending on Innovation or R&D (% of GDP, 2018)

	Expenditures on innovation (including R&D)	Expenditure on R&D activities	Expenditure on in-house R&D	Expenditure on contracted R&D	Expenditure on innovations (excluding R&D)	Expenditure on capital goods*
	(1)	(2)	(3)	(4)	(5)	(6)
Czechia	2.79	1.01	0.69	0.31	1.78	n/a
Hungary	1.97	1.21	1.00	0.21	0.75	0.37
Austria	2.54	2.12	1.91	0.21	0.42	0.13
Poland	1.72	0.77	0.68	0.09	0.95	0.72
Slovakia	1.97	0.74	0.46	0.28	1.23	0.84
Finland	2.91	2.23	1.91	0.31	0.68	0.19
Sweden	3.95	3.32	2.43	0.88	0.64	0.26

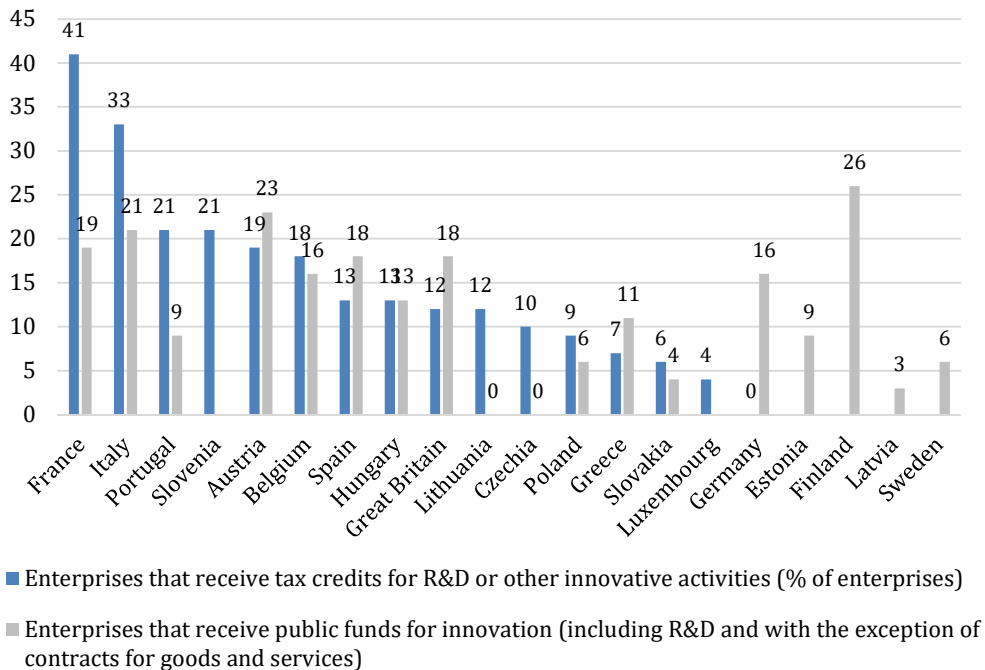
Note: * Purchase of equipment, machinery, software, intellectual property rights, buildings.

Source: Eurostat (2022).

Support for business innovation and R&D is part of public policies in EU countries. It is basically implemented in two forms; as indirect and general support through tax policy instruments and as selective support through direct grants or subsidies.

In Figure 2.3, we present the percentage of enterprises that (i) use tax credits for R&D or innovation and (ii) use public resources for R&D or innovation. In the case of both groups of support, Slovakia is among the countries with the lowest level of support. In Slovak conditions, the so-called super deduction for R&D expenses, companies (from 1 January 2022) can deduct up to 100%. The last known figure for 2017 shows that companies in Slovakia used this option in the case of 163 research projects and the deduction was realized in the amount of 40.118 million euros (Finančná správa SR, 2022). Finally, the weak position of R&D policies within public spending is also documented by the indicator that we listed in Table 2.1 at the beginning of the chapter – the share of government appropriations or spending on R&D as a % of total government spending. This value was 0.92% in 2020 (19th place in the EU, the average for the EU27 is 1.44%).

Figure 2.3

Support of Public Policies for R&D and Innovation in EU Countries

Source: Eurostat (2022).

At the end of this part of the chapter, we presents a few more output indicators of the innovation capacity of enterprises in Slovakia. The result of business R&D can be any of the forms of intellectual property (listed in Table 2.4). The most frequently used indicator is patent applications, which, together with industrial designs, mainly apply to the processing industry. Other, "softer" forms, such as copyright or trademarks, are also applied in the service sector. The low patent activity, which reflects the weak level of Slovak business research, is also evident from the data in Table 2.4. Only 1.4% of enterprisises report that they filed a patent application in 2018. This data ranks companies in Slovakia in the group of the least efficient countries in the EU in terms of patents. In the case of registered forms of intellectual property, such as industrial design, copyright or trademarks, the position of businesses in Slovakia is already more favorable compared to other EU countries. We can attribute this to the lower financial demands of this form of innovation.

Table 2.4

% of Companies that Apply Some form of Intellectual Property Protection

	Patent application	Industrial designs	Copyrights	Trademarks
Czechia	4.0	2.1	3.1	7.4
Germany	12.1	6.0	8.7	16.8
Estonia	0.1	0.1	1.1	3.7
Greece	2.8	2.6	7.2	16.4
Spain	1.8	2.1	0.5	6.8
France	7.0	5.9	6.2	19.9
Croatia	1.0	1.8	2.0	5.4
Italy	5.9	2.1	1.7	10.8
Cyprus	0.7	0.6	2.7	7.4
Latvia	1.6	0.9	1.2	6.0
Lithuania	2.7	0.5	0.6	11.1
Hungary	1.8	0.7	2.0	4.0
Malta	2.6	1.7	1.7	8.4
Austria	7.4	2.5	4.0	10.5
Poland	2.5	0.7	:	3.7
Portugal	3.4	2.3	1.2	10.9
Romania	0.7	0.5	0.7	2.4
Slovenia	3.6	0.9	1.7	7.1
Slovakia	1.4	1.1	4.0	5.1
Finland	7.4	2.1	0.4	11.6
Sweden	6.2	4.4	2.8	10.6

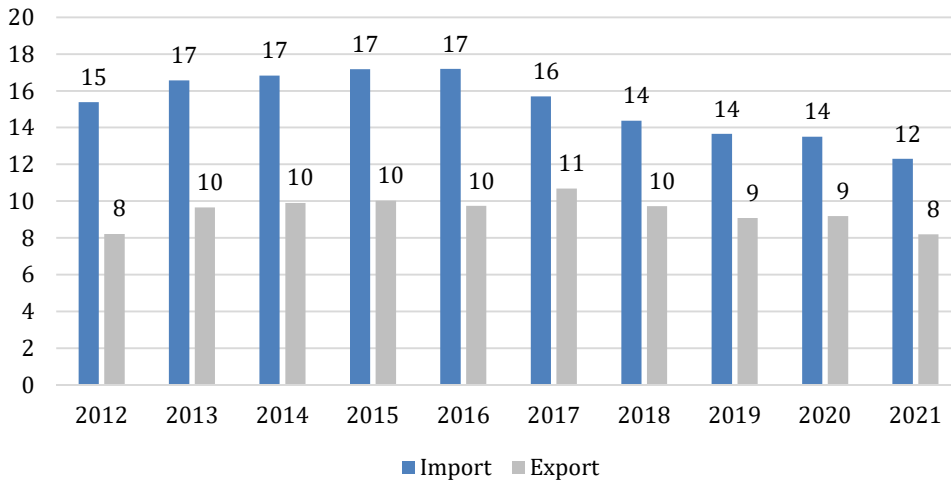
Source: Eurostat (2022).

As an output indicator of the innovativeness of enterprises, we can consider the technological complexity of foreign trade, especially the share of exports of high-tech commodities.⁸ In this direction, we see (Figure 2.4) a slight decrease in the share of high-tech commodities in the total value of Slovak exports. Within this group of commodities, goods in the electronics and telecommunications category clearly have the largest share, making up a total of 68% of high-tech commodities in 2018 (7.6 billion euros). The smallest share was weapons (0.7%), which were exported for 67 million euro in 2018.

⁸ High-tech commodities according to the classification of SITC rev. 4: computer technology, electronics and telecommunications, electrical engineering, scientific instruments and devices, aeronautical technology, non-electrical machines, pharmacy, chemistry, weapons.

Figure 2.4

Development of Slovak Export and Import of High-tech Commodities
(% of total)



Source: Eurostat (2022).

Digitization in Slovakia

At the time of the introduction of extraordinary measures, which we have witnessed in the past two years, and which limit the work and social mobility of people, the rate of development of the digital economy and society is proving to be a key factor in adaptation. The necessary or voluntary limitation of immediate social contacts, the transition of part of the service sector to home office, the use of distance forms in education, changes in purchasing behavior and business models, as well as the use of free time represent a positive external shock not only for the information and communication technology sector (ICT), but also for the public sector (education, healthcare, public administration), households and the business sphere.

A key prerequisite for the successful digitization of a company is access to basic digital infrastructure. In Slovakia, in 2021, 90% of households had access to broadband Internet, which is a value at the level of the EU average and is a good prerequisite for the use of commercial or public online services (Table 2.5). In this context, it is also necessary

to look at the polarization in the field of availability and use of digital technologies (the so-called digital divide) in society. The limiting factor in Slovakia is the still lower availability of the Internet for households with medium-low and low income (80% of households) or in rural areas (87% of households). In Slovakia, 7.7% of people (19 to 74-year-olds, year 2021) have never used the Internet, which is a value at the EU27 level. However, when we look at this figure by age, we see that in the case of 65 – 74-year old who have never used the Internet, this value reaches up to 27%. The lower participation of older age groups can be a significant limiting factor, especially in the use of electronic healthcare services, as well as other areas of eGovernment.

Table 2.5

ICT Indicators in Slovakia and Selected Countries

	SK	EU27	SK/EU27 (%)	EST	CZ	PL	HU
% of households with broadband (2021)	90	90	100	91	88	92	91
% of low-moderate and low-income households with internet access at home (2020)	80	91	88	94	86	92	86
% of households in rural areas with broadband (2021)	87	90	97	90	86	92	86
% of 65 – 74 year old who have never used the Internet (2021)	27	27	100	27	30	41	34
Mobile broadband coverage with 5G networks (% of households, 2021)	14	66	21	18	50	34	18
5G readiness* (% percent of allocated harmonized spectrum, 2021)	67	39	170	0	67	61	0
Digital intensity of enterprises – very high level** (% of enterprises)	2.6	3.2	81	2.3	3.6	2.4	1.6
Enterprises that internally share electronic information with ERP (% of enterprises, 2021)	31	38	82	23	38	32	21
Businesses using CRM software (% of businesses, 2021)	16	20	80	15	12	21	8
Total electronic sales of enterprises as a % of their total turnover	20	20	100	16	30	18	21
ICT university graduates (% of all, 2019)	3.9	3.9	100	8	5	3.8	4.9
Enterprises employing ICT specialists	17	19	89	17	19	29	25

Note: * The amount of spectrum allocated and ready for 5G use within the so-called 5G pioneer bands. These bands are 700 MHz (703 – 733 MHz and 758 – 788 MHz), 3.6 GHz (3400 – 3800 MHz) and 26 GHz (1000 MHz within 24250 – 27500 MHz). All three spectrum bands have equal weight. ** The company uses 10 to 12 technologies out of 12 (the list is in the footnote).

Source: EC (2022).

One of the ICT technological trends is the development of 5G networks, which, among other things, enable higher use of e.g. the so-called the Internet of Things or autonomous vehicles. As for the preparedness of the countries, only 14% of households (mostly regional cities) have mobile broadband coverage with 5G networks in Slovakia, which is currently 20% of the EU27 average level. Households in rural areas in Slovakia have only 2.4% coverage (in the EU27 it is 34%). On the other hand, however, according to the 5G readiness indicator (Table 2.5), Slovakia ranks among above-average prepared countries.

Several indicators speak about the use of ICT in companies. The digital intensity of enterprises includes the scope of use of specific 12 technologies.⁹ The share of companies that use 10 – 12 of the mentioned ICTs in Slovakia is 2.6%, which is about 80% of the EU27 level. We see a similar lagging behind companies in Slovakia in the case of using ERP (enterprise resource planning) or CRM (customer relationship management) software. In the case of university graduates in ICT fields, Slovakia is the same as the EU27 average (3.9%), but we lag behind other economies in our region. A similar, weaker position of companies in Slovakia is also in the case of the employment of ICT specialists in Slovakia. It is human capital that is proving to be a key factor in digital transformation. The state proposed implementing some tools in the adopted Strategy and Action Plan to improve Slovakia's position in the DESI index until 2025.¹⁰

A special issue is digital services of the public sector. In this area, Slovakia shows long-term lagging behind and poor progress. In 2021, according to the DESI index (EC, 2022), Slovakia reached 77% of the EU27 average level in the assessment of the level of public administration digital services (Estonia is the leader). We present the evaluation

⁹ The list of technologies includes: the use of the Internet by most workers; access to professional ICT skills; fixed broadband speed > 30 Mbps; mobile devices are used by more than 20% of employed persons; the business has a website; has some sophisticated features on the website; presence on social networks; conducts electronic sales for at least 1% of turnover; take advantage of B2C Internet sales opportunities; pays for advertising on the Internet; purchases advanced cloud computing services; sends electronic invoices (EC, 2022).

¹⁰ The position of human capital can be improved through the following instruments: education reform, financial motivation of ICT teachers at all levels, "addressing the gaping differences in the level of technical equipment of schools, the quality of their Internet connection, as well as the digital skills of their teachers", increasing the intensity of lifelong learning, the need to increase the number of women with advanced digital skills in the ICT sector (MIRRI, 2021).

of the partial indicators in Table 2.6. In many indicators, Slovakia ranks at the bottom of the EU countries.

Table 2.6

Indicators of eGovernment

	SK	EU27	SK/EU27 (%)	EST	CZ	PL	HU
Pre-Filled Forms (Score 0 – 100; 2020)	36	63	57	97	46	65	60
Digital public services for citizens (score 0 – 100; 2020)	64	75	85	91	71	65	54
Digital public services for businesses (score 0 – 100; 2020)	79	84	94	98	76	67	76
Open data (score 0 – 100; 2020)	50	81	62	94	74	95	58
Users of eGovernment (% of internet users, 2021)	28	49	57	82	58	46	74
Make an appointment with a general practitioner via a website (% of internet users, 2020)	17	24	63	26	13	11	28

Source: EC (2022).

Effective eGovernment is one of the main factors of the competitiveness of the business environment and contributes to the quality of life of the entire society. It is among the priorities of public policies and areas that are preferentially financed from EU funds practically since our entry into the EU.

* * *

Even in the last evaluated year, Slovakia did not record significant progress in R&D financing, as well as R&D results (patent activity). One of the decisive factors of economic progress is the innovative performance of enterprises. Businesses in Slovakia are still insufficiently innovative. Compared to the EU, they reach only two thirds of the level. Likewise, the funding model still persists, counting in low corporate R&D spending and high spending on non-R&D innovation (purchase of ready-made technologies). Low business R&D spending may be the result of the weak position of R&D policies within public spending; this fact is indicated by the low use of tax credits or direct subsidies for R&D and innovation activities. Low business expenditure on R&D can be attributed to still

low patent activity. During the pandemic, the digitization of the economy and society became a closely watched megatrend. Broadband Internet coverage of Slovak households is already at the EU level, but there are still some groups of households (low-income households, rural areas or seniors) that have limited digitization options. The issue of equal access to ICT is even more relevant in connection with the advent of 5G networks. The weak point of digitization in Slovakia is still eGovernment. We belong to the group of least successful EU countries in the provision of digital public services.

3. FOREIGN TRADE AND FOREIGN INVESTMENT

The development of Slovakia's foreign trade during both 2020 and 2021 was very specific due to the ongoing pandemic. The fall in foreign trade in 2020 was followed by a strong recovery in 2021 on both the export and import side, even surpassing pre-pandemic values.

In this chapter, we will look in more detail at the context in which foreign trade has developed, including its territorial and commodity structure, as well as its possible future path. In some aspects we will compare the state or development in Slovakia with the Czech Republic. In the final part, we will look at the status and structure of investment projects of the Slovak Investment and Trade Development Agency (SARIO).

Acceleration of Foreign Trade Dynamics

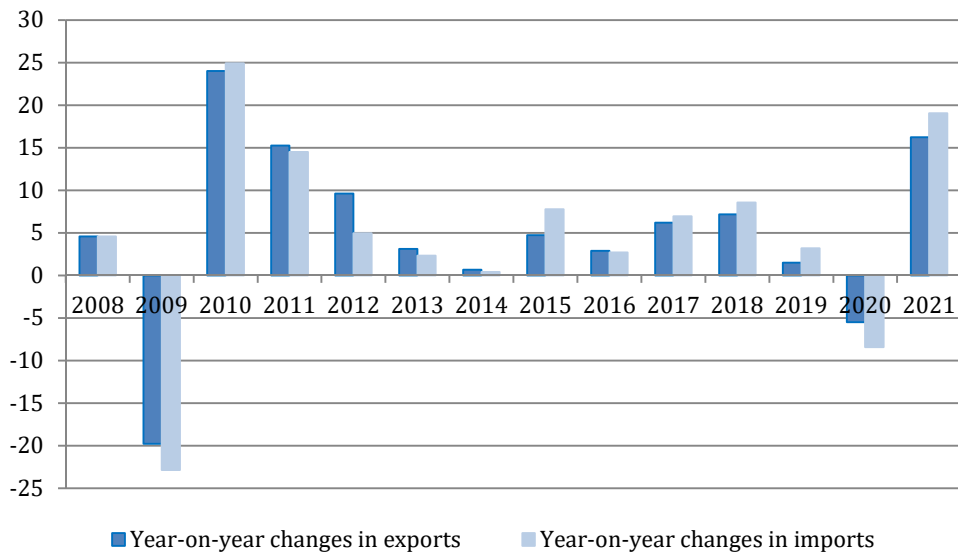
Marked by the pandemic (mainly in the form of weakened demand and production shutdowns in the automotive and electrotechnical industries), 2020 was the first year since the crisis year of 2009 to see a year-on-year decline in both exports and imports.

Already in 2021, however, exports of goods from the Slovak Republic reached up to EUR 88 billion, the highest value in the history of independent Slovakia. Thus, year-on-year, it increased by more than 16% (Figure 3.1) and by almost 10% compared to 2019. The acceleration in export dynamics was mainly driven by higher exports of motor vehicles and manufactured goods.

Imports of goods amounted to more than EUR 86 billion, up by more than 19% year-on-year and by 9% compared to 2019. On the import side, there was a significant increase in mineral fuels due to rising gas and oil prices.

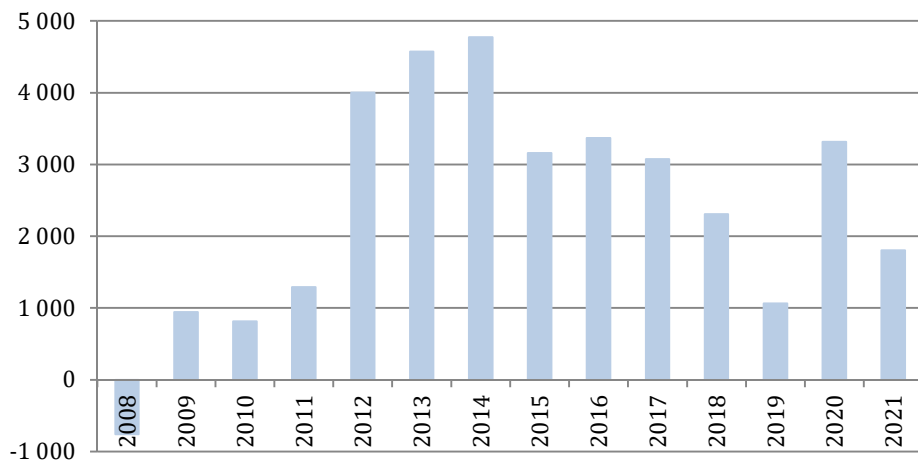
The result for the entire year 2021 was a trade surplus of EUR 1.7 billion, which, although only half the level of the previous year, was higher than in 2019 (Figure 3.2). Slovakia thus recorded a positive external trade balance for the thirteenth consecutive year.

Figure 3.1

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

Source: Based on NBS data (2022c).

Figure 3.2

Foreign Trade Balance since 2008 (million euro)

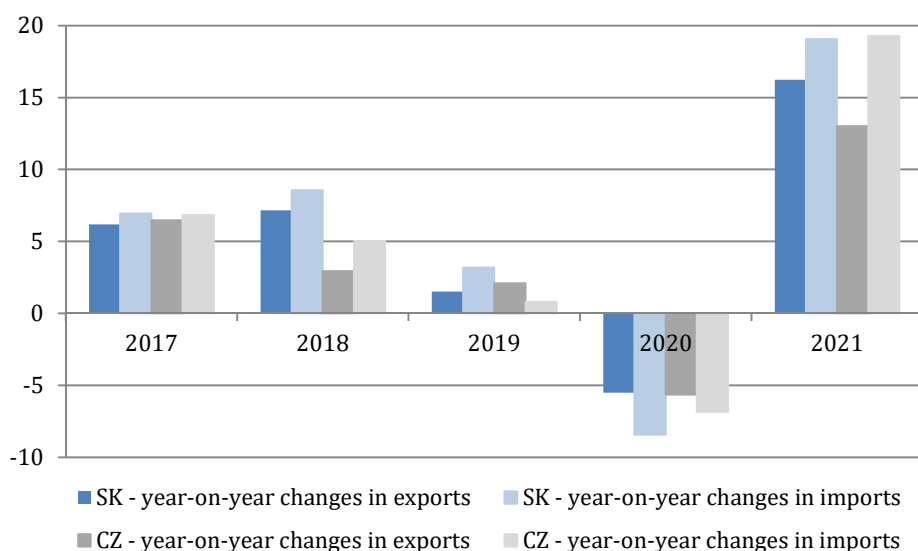
Source: Based on NBS data (2022c); own calculations.

As can be seen in Figure 3.3, the strong dynamics of foreign trade in Slovakia is not exceptional. Similar year-on-year growth in exports and imports in 2021 is also observed in the Czech Republic, where, as

in Slovakia, the automotive industry plays an important role in foreign trade. In the previous four years, year-on-year changes in foreign trade in both countries have also followed very similar paths. However, in 2021, unlike Slovakia, the Czech Republic recorded a passive foreign trade balance after eleven years, mainly due to higher prices of imported inputs as well as component shortages in the automotive industry (Ministerstvo průmyslu a obchodu ČR, 2022).

Figure 3.3

Year-on-Year Changes in Exports and Imports in the Slovak Republic and the Czech Republic since 2017 (%)



Source: Based on NBS data (2022c) and data from the Český statistický úřad (2022).

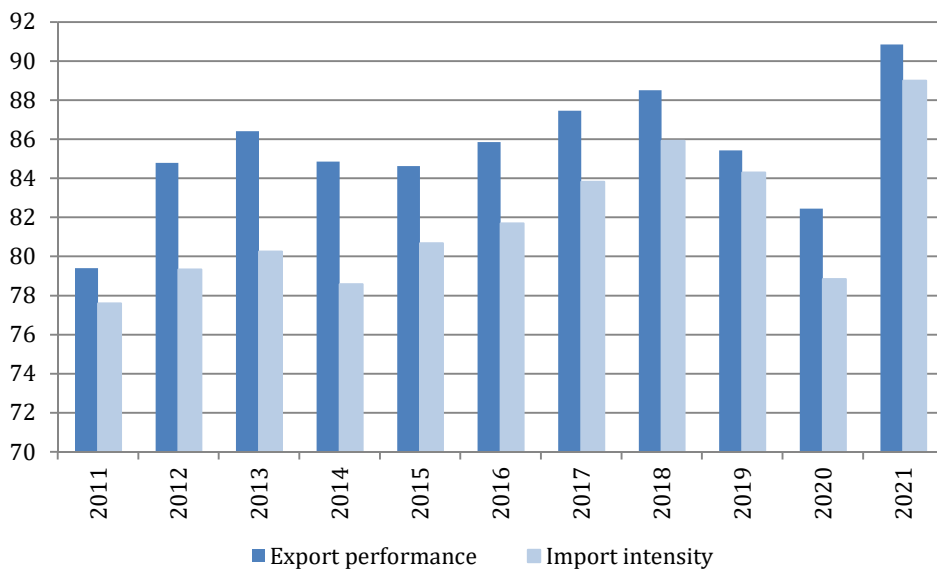
Given the strong dynamics of both exports and imports, with GDP growth at 5.5% year-on-year, the relative indicators of export performance and import intensity of the Slovak economy have also changed significantly. After a decline in export performance observed in the period from 2018 to 2020, it rose to a record level of almost 91% in the following year (Figure 3.4). Import intensity reached a similar level (89%).

Figure 3.5 presents the development of exports, imports and the external trade balance in the individual months of the last three years. In the first quarter of 2021, demand for goods produced in Slovakia, especially

automobiles, increased. At the same time, there was also a recovery on the import side, as the industry sector tended to partly oversupply to avoid problems in the context of uncertainty about future supplies. Monthly external trade balances were therefore lower than in some months of 2020, but still positive.

Figure 3.4

Development of Export Performance and Import Intensity since 2011
(% GDP)



Source: Based on NBS data (2022c); own calculations.

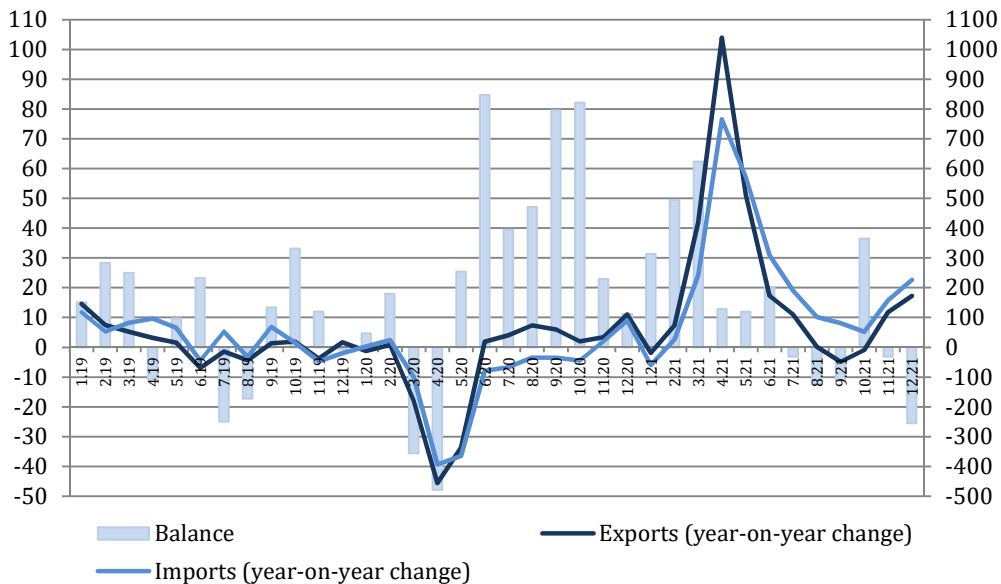
The high year-on-year growth in both exports and imports in the spring was the result of significant drops in foreign trade in the same months of the previous year. Year-on-year export growth reached more than 100% in April (import growth 76%) while in March and May it was about half of that in April. In March, the highest active balance of the whole year was also recorded (EUR 624 million).

In April, however, the Slovak industry was already facing major problems with the supply of components, which resulted in complete or partial production shutdowns, especially in the automotive industry. Monthly foreign trade balances remained positive in the second quarter, although lower than in the previous quarter.

The shortage of components in the Slovak industry was consequently reflected in lower exports during the third quarter, while at the same time stocks of unfinished production grew. There was even a year-on-year decline in exports in September. This was mainly the result of a year-on-year fall in SITC 7 – *Machinery and transport equipment*, which includes the automotive industry. In fact, in the autumn months of the previous year, automobile companies achieved record export volumes as they compensated for production gaps caused by the pandemic. On the other hand, imports of goods in the third quarter of 2021 were somewhat driven by rising consumption. Monthly foreign trade balances thus turned negative for the first time in the last fourteen months.

Figure 3.5

Year-on-Year Changes in Exports and Imports (left axis, %) and External Trade Balance (right axis, million euro) in the Individual Months of 2019 - 2021



Source: Based on NBS data (2022c); own calculations.

In October, the deficit turned back into a surplus, which was attributed to a month-on-month increase in the gap between exports and imports of motor vehicles and manufactured goods. However, in the last two months of the year, external trade again closed with a deficit.

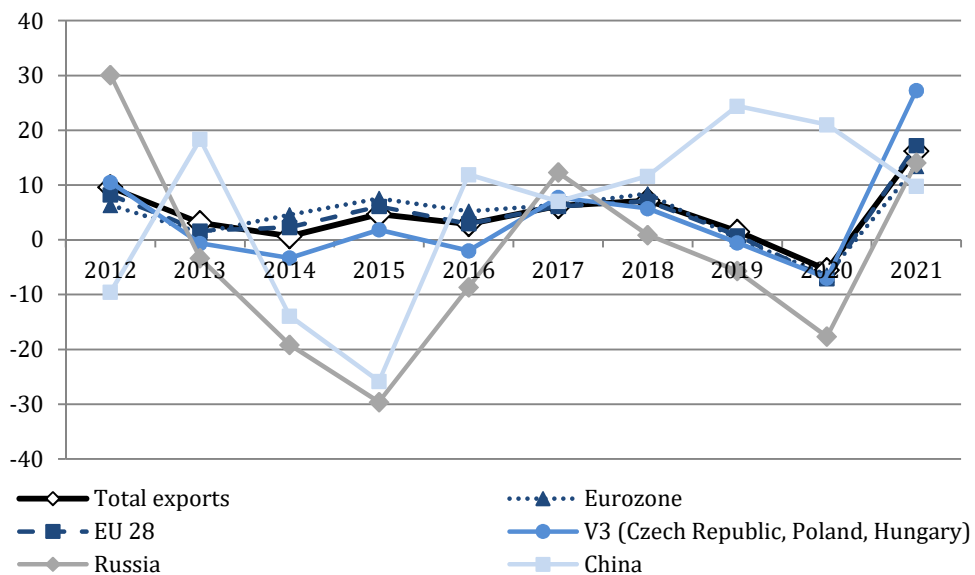
In December, even the highest deficit was recorded (EUR 255 million), mainly reflecting rising oil, gas and electricity prices. November was also a record month (not only) in 2021 in terms of the volume of goods exported and imported, both reaching around EUR 8.5 billion.

Territorial Changes in Exports and Imports

In 2021, Slovakia's exports to the other Visegrad Four countries (Czech Republic, Poland and Hungary – V3) grew significantly year-on-year by up to 27% (to the Czech Republic alone by almost 30%), which is more than 10p.p. faster than the growth of total exports (Figure 3.6). This development resulted in an increase in the share of V3 in the total Slovak exports from less than a quarter to almost 27%.

Figure 3.6

Year-on-Year Changes in Exports from the Slovak Republic to Selected Countries and Economic Groupings (%)



Source: Based on NBS data (2022c).

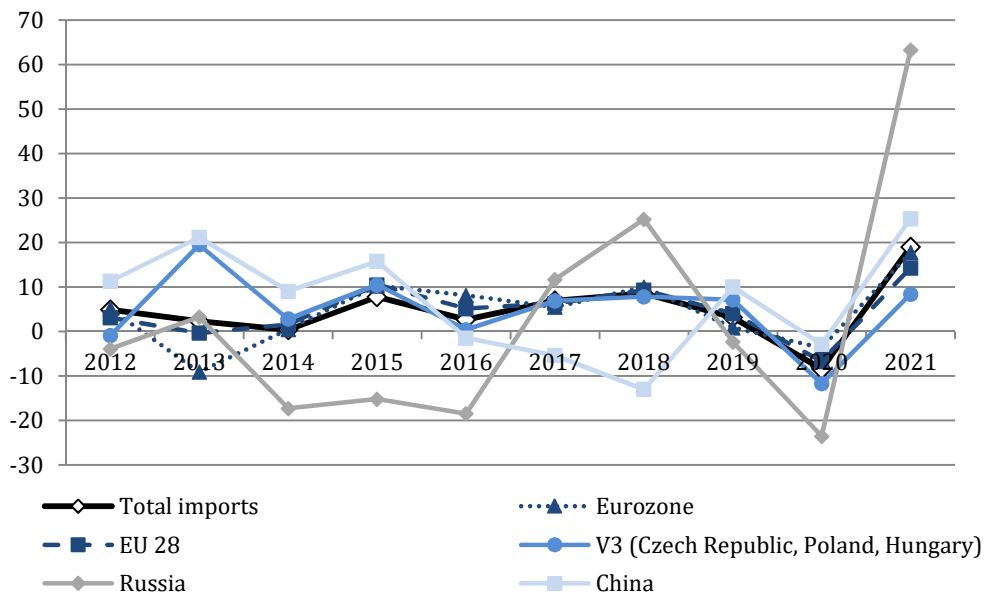
After two years of strong dynamics, export growth to China has slowed to below 10%. Exports to the euro area also showed lower dynamics compared to total exports, which can be mainly explained by the

slower year-on-year growth of exports to Germany, which has long been Slovakia's most important trading partner (with a share of 22% in 2021). Exports to Russia increased year-on-year after two years of decline.

As can be seen in Figure 3.7, imports from Russia have increased significantly year-on-year in 2021 after two years of decline, mainly due to rising commodity prices towards the end of the year. As a result of the war conflict in Ukraine, this trend intensified further in the early months of 2022. In 2021, the year-on-year change in total imports was also exceeded by the increase in imports from China. In contrast, for the V3 countries, imports (as opposed to exports) grew at a slower pace, largely affected by a fall in imports from Hungary.

Figure 3.7

Year-on-Year Changes in Imports into the Slovak Republic from Selected Countries and Economic Groupings (%)



Source: Based on NBS data (2022c).

Slovakia's exports to the United Kingdom of Great Britain and Northern Ireland, which left the European Union at the beginning of 2020 and its transition period (during which the country still remained part of the EU's common market and customs territory) ended a year later, have not

been affected in any significant way in 2021. It grew by over 5% year-on-year and reached a similar volume as three years ago. Although imports from the UK fell by 8% year-on-year, similar to the previous year, they exceeded the values of three years ago.

Slovakia achieved the highest positive trade balance with Germany in 2021 (EUR 3.1 billion), and, given the above-mentioned drop in imports, with Hungary (EUR 3.0 billion), also with France (EUR 2.8 billion) and Austria (EUR 2.6 billion). The countries with which Slovakia recorded a negative balance included, as in the previous year, three Asian economies, namely the Republic of Korea (EUR 4.3 billion), Vietnam and China (both EUR 3.9 billion). Due to the strong year-on-year increase in imports, the negative balance with the Russian Federation reached the second highest value after the Republic of Korea, up to EUR 4.2 billion, which represents a significant year-on-year increase.

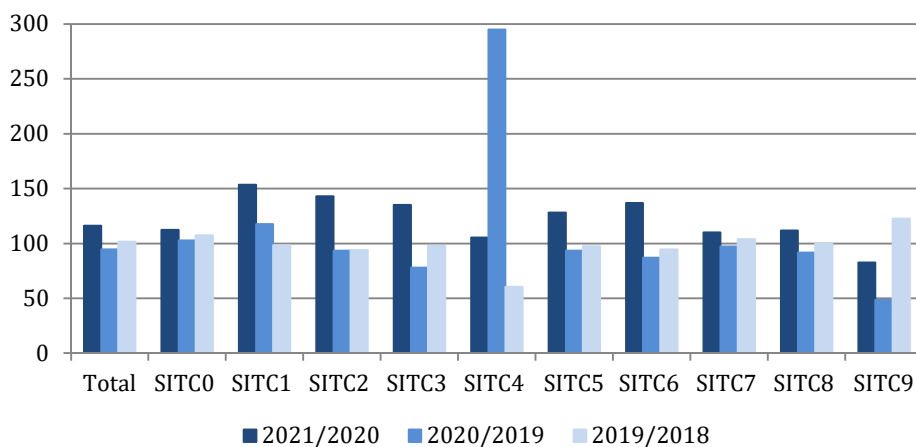
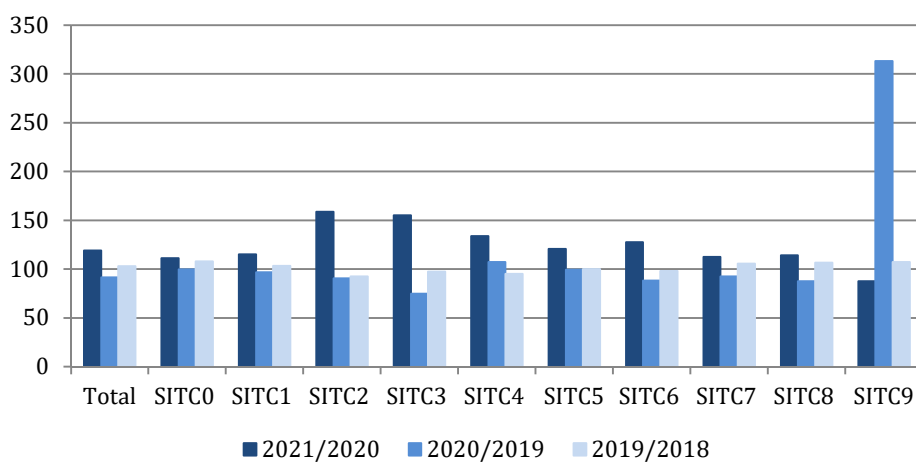
Export and Import Dynamics in Almost All SITC Classes Faster than before the Pandemic

In terms of commodity structure, SITC 7 – *Machinery and transport equipment*, which also includes automobiles, has long been the most important class in Slovakia's foreign trade. In 2021, the share of this class in total exports reached 61% and in imports amounted to almost half. It is followed by SITC 6 – *Manufactured goods*, with a share of around one-sixth of both imports and exports.¹¹ This class includes products from a number of industries, including metal manufacturing and processing, metallurgy and manufacture of rubber.

Figure 3.8 documents the year-on-year changes in both exports and imports in each SITC class over the past three years. In almost all classes except SITC 9 – *Commodities and transactions not classified elsewhere*, both export and import dynamics in 2021 reached higher values than in 2019, i.e. prior to the pandemic.

¹¹ In the foreign trade of the Czech Republic, SITC 7 and SITC 6 classes account for very similar shares of total exports and imports. In 2021, exports in SITC 7 represented 56% of total exports and 46% of total imports (own calculations based on data from Ministerstvo průmyslu a obchodu ČR, 2022).

Figure 3.8

Year-on-Year Changes in Exports and Imports by SITC Rev. 4 classes (%)**Exports****Imports***Explanatory notes:*

SITC0 – Food and live animals;

SITC1 – Beverages and tobacco;

SITC2 – Crude materials, inedible, except fuels;

SITC3 – Mineral fuels, lubricants and related materials;

SITC4 – Animal and vegetable oils, fats and waxes;

SITC5 – Chemicals and related products not classified elsewhere;

SITC6 – Manufactured goods classified chiefly by material;

SITC7 – Machinery and transport equipment;

SITC8 – Miscellaneous manufactured articles;

SITC9 – Commodities and transactions not classified elsewhere.

Source: Based on data from ŠÚ SR (2022); own calculations.

The increase in exports and imports in the most traded SITC 7 class in 2021, unlike the previous two years, lagged behind the dynamics of total foreign trade, which can be attributed to production shutdowns at auto-makers. The second most traded class, SITC 6, recorded higher year-on-year gains on both the export and import side. Even higher year-on-year dynamics were recorded in SITC 2 – *Crude materials* and SITC 3 – *Mineral fuels and lubricants*, with the high increase in imports of mineral fuels mainly driven by rising gas, oil and electricity prices. However, the share of these classes in total exports and imports is considerably lower than that of SITC 7 and SITC 6.

SARIO Investment Projects in the Period 2002 – 2021

SARIO's mission as a state agency of the Slovak Republic under the Ministry of Economy is to "*accelerate Slovakia's investment, export and innovation potential*" (SARIO, 2022a), which includes supporting the expansion of established companies, promoting foreign investments with export potential, with an focus on higher added value, diversification of sectors, as well as increasing employment in the least developed regions of Slovakia. The Agency provides a wide range of services for potential and established investors, including business environment overview, sectoral and regional analyses, identification of local suppliers, consultancy in the field of investment incentives, support for innovation, research and development activities.

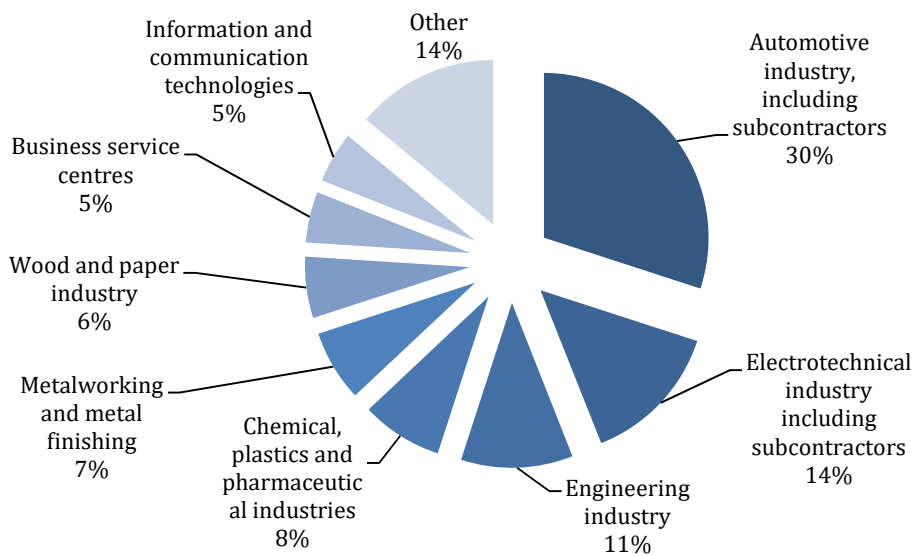
Over the past twenty years, SARIO has reported a total of 609 investment projects that have generated almost 136 000 jobs in Slovakia, with more than EUR 13.5 billion invested (SARIO, 2022b). The trend is towards an increase in the number of investments with higher added value (R&D centres, technology and design centres), as well as a higher number of large-scale investments with a consequent multiplying effect on the expansion of the subcontracting network. In 2021 alone, the Agency completed 29 investment projects, amounting to a total of EUR 464 million, generating more than 3 000 new jobs.

From a regional point of view, in the last two years (2020 – 2021) the position of the Banská Bystrica Region has weakened slightly and the position of the Trnava Region has strengthened. The Prešov Region remains the most lagging behind, both in terms of the number of completed projects and the number of jobs generated. In the structure of completed investment projects by country of origin in the period 2002 – 2021, Germany clearly dominates (19%), similar to the position in Slovakia's foreign trade. South Korea accounts for the second highest share (9%), followed by the USA (7%) and Austria (6%).

Figure 3.9 documents the structure of completed projects by sector, with the automotive industry, including subcontractors, accounting for almost a third, the electrotechnical industry, including subcontractors, for about a seventh and the engineering industry for a ninth. In the automotive industry, SARIO provided investment assistance to Jaguar Land Rover in Nitra (2015), PSA Peugeot Citroën in Trnava (currently Stellantis, 2003), Kia Motors in Žilina (currently KIA, 2004), as well as assistance to the Volkswagen Slovakia plant expansion in Bratislava (2008, 2020). In addition, the agency has also supported a range of automotive suppliers.

Figure 3.9

Structure of Completed Investment Projects in the Period 2002 – 2021 by Sector (%)



Source: Based on SARIO data (2022b).

* * *

The further development of Slovakia's foreign trade will largely depend on the situation in the automotive industry in the following years. This sector is of key importance for the Slovak economy from a number of aspects. Not only does it represent a third of industrial exports, but it accounts for 13% of Slovakia's total GDP,¹² more than half of total industrial production and employs nearly 300 000 people.¹³

In the present time, the automotive sector is facing a number of difficult challenges. One is the impact of the pandemic, which has been particularly evident in the disruption of supply chains. Another challenge is the complicated situation in the context of the war conflict in Ukraine. This will have a direct effect on Slovakia's foreign trade in the form of a reduced trade with both Russia and Ukraine,¹⁴ an indirect effect through a decline in foreign demand due to weaker economic activity in the trading partners of Slovakia, as well as a further deterioration in supply chains.

More specifically, this means shortfalls in exports from Slovakia (especially in the months of March to June 2022), deepening shortages of some components, endangering the supply of raw materials for electric vehicles (from Ukraine), as well as rapidly growing prices of commodities, especially energy commodities. Due to the persistent shortage of semiconductors as a result of the coronavirus pandemic and the current problem with the supply of cable harnesses and other components from Ukraine, some Slovak automotive companies were forced to reduce or discontinue production in April again. Already in the first quarter of

¹² By comparison, in the Czech Republic, the automotive industry accounts for around 9% of GDP.

¹³ The importance of the automotive industry will increase even more with the arrival of the fifth car company in Slovakia. Volvo Cars is expected to invest around EUR 1.2 billion near Košice, which would balance the geographical location of car manufacturers across the country. The plant will exclusively produce electric cars and its series production is to start in 2026. More than 3 000 jobs are expected to be generated directly at the plant, with another 10 000 new jobs to follow.

¹⁴ The share of exports to Russia in total Slovak exports in recent years amounted to less than 2% of total exports, and in the case of Ukraine to less than 1% (NBS, 2022c). Similar shares are reported by the Czech Republic (Ministerstvo průmyslu a obchodu ČR, 2022). On the other hand, the share of imports from Russia in total Slovak imports reached over 6% in 2021 (only 3% of Czech imports), with Slovakia being dependent on Russia for natural gas imports.

2022, lower exports due to problems in the industry, together with higher imports driven by high energy commodity prices, have resulted in a significant Slovakia's foreign trade deficit.

The extent and severity of these negative impacts in 2022 and beyond will depend on the duration of the war. The Institute of Financial Policy (IFP) of the Ministry of Finance of the Slovak Republic in its summer forecast (Dujava, Klúčik and Pažický, 2022) expects Slovak exports to fall to a lowest level in the second quarter of 2022, to recover in the second half of the year, but to regain lost market shares only in the course of the following year, given the persistent disruption of supply chains. At the same time, the risk of a possible new wave of epidemics related to new variants of the COVID-19 virus remains. According to the IFP forecast, exports of goods and services will fall by 0.6% y-o-y in 2022 and imports by 0.5%. Foreign trade dynamics is expected to accelerate in the next year.

In a more moderate scenario, the NBS (2022a) assumes a shorter duration of the war conflict (until summer) with economic impacts manifesting over a longer period. In this scenario, the NBS expects a 30% decline in Slovak exports to Russia and a short-term disruption of supply chains, as well as a short-term disconnection from Russia in imports of energy commodities. In the dramatic scenario, the NBS foresees a longer duration of the war, which would mean a permanent disruption of trade with Russia and a longer-lasting disruption of supply chains. In 2022, the NBS (2022b) projects a 0.4% year-on-year decline in exports and 0.4% growth in imports.

In addition to the pandemic and the economic consequences of the war in Ukraine, the automotive sector across Europe is facing a transformation (automation and electrification of vehicles due to decarbonisation). If Slovakia failed to cope with this, it would have a significant impact both on macroeconomic indicators and on the overall development of the regions with the largest presence of car production. On the contrary, if Slovakia successfully managed the transformation of the automotive sector, it could strengthen its position in the production of

electric vehicles.¹⁵ In this context, however, it should be remembered that the transformation should also mean a reduction in the use of individual transport in favour of public transport, which would be reflected in a decreasing demand for cars.

The fading pandemic and its impacts, the duration and consequences of the war conflict in Ukraine, the challenges arising from the transformation of the automotive sector and Slovakia's ability to cope with them thus remain important factors for the future export (and hence overall) performance of the Slovak economy in the years to come.

¹⁵ Slovakia is currently the third largest producer of electric vehicles in Europe after Germany and France. In 2021, the Volkswagen Bratislava and Stellantis Trnava plants together produced more than 77 000 of them (Elektromobilita Fontech Start It Up, 2021), but Slovakia has large gaps in investment in battery and e-car innovation projects. Slovakia also lags behind other V4 countries in battery production. The situation may be expected to change significantly over time with the planned arrival of Volvo Cars, which plans to produce 250 000 electric cars per year from 2026 in Slovakia.

4. EMPLOYMENT AND WAGE DEVELOPMENTS

This chapter focuses on key phenomena or crucial moments in the Slovak labour market in 2021, with an emphasis on the sectoral perspective, but also assesses the entire two-year period under the impact of the pandemic. It not only tracks the turn in employment trends in mid-2021, but also looks at developments in the most affected sectors during the pandemic, which is only possible with the inclusion of 2020. The data from the end of 2021 provide a more optimistic outlook for many sectors of the economy, but the situation did not improve in the largest service sector, trade, or in construction, which is the third largest sector after trade in terms of the number of working persons. A significant consequence of the pandemic is the increase in long-term unemployment, which is evidence of the persistence of the effects of the 2020 labour market developments. The employment and unemployment situation has evolved differently across Slovakia, with some regions not yet in a positive trend (not even in the last quarter of the year when employment growth accelerated slightly on average in the Slovak Republic according both, statistical reporting and the sample survey). Finally, the success in nominal wage growth also has to be relativized: the second highest growth rate of average wages after 2008 was offset by inflation – in fact, real wage growth slowed to 1.3% at the end of the year.

Employment Still under the Impact of the Pandemic Despite Recovery in Economic Activity

The pandemic interrupted a six-year trend of employment growth already in the first quarter of 2020. This rapid onset of employment decline was possible because the labour market was already cooling in the year before the pandemic – weaker demand for labour could have been seen then in both, the declining number of job offers and the slowing pace of employment growth. The adverse impact of developments in the external environment on Slovak export-oriented industries continued in early 2020, and in the second quarter of 2020, in addition to previous the effects of arrival of the new coronavirus pandemic in

Europe (and the introduction of large-scale anti-pandemic measures leading to a reduction in economic activity) were already fully reflected in the results of key indicators. The stringent measures and the initial shock of the pandemic itself had an almost immediate impact on output, sales and, of course, employment. Its slump reached a trough within 2020 in the very second quarter. The average annual decline in the number of working persons (employment according to the Labour Force Sample Survey – LFS) of two per cent was ultimately weaker than initially expected (we discuss possible factors mitigating the fall in employment in a previous volume of this publication; see Frank and Morvay et al., 2021).

Despite the recovery in activity in a number of sectors, the decline in employment persisted in 2021; nevertheless, the resulting annual decline in total employment (LFS) of 1.4% is yet lower than a year earlier. This is due to developments in the second half of the year – a reversal in the trend occurred in the third quarter, when the decline in employment stopped (in fact, a small 0.1% growth was recorded) and in the final quarter total employment grew at a 0.7% rate.¹⁶ Thus, the number of working persons in the economy rose to 2,613.9 thousand in the fourth quarter of 2021. It should be noted, however, that this figure (as well as the full-year average figure of 2 560.6 thousand working persons) cannot be compared with the time series before 2021. A fundamental change in the international labour force sample survey methodology (among other things, the definitions of both employed and unemployed persons have changed)¹⁷ means that the absolute employment and

¹⁶ Unless stated otherwise, the figures used in this chapter reflect year-on-year changes, i.e. a comparison with the same period of the previous year.

¹⁷ Since 2021, an EU-wide modification of the LFS methodology has been in force (based on Regulation 2019/1700 of the European Parliament and of the Council of the EU), which, among other things, has changed the calculation procedure and the definitions of the main indicators (employed/working persons, unemployed, long-term unemployment). For example, the modification has set the upper limit for working persons to 89 years of age; has excluded persons in paid activation jobs from the definition of working persons and included persons on parental leave; respondents are divided by sectors according to the economic activity of the local unit not the whole enterprise; new integrated weights are applied to the population adjusted by persons in collective establishments (for more details, see, e.g., the Statistical Office of the Slovak Republic's 2021 "Aktuality" – section "Labour", available on the Office's website). This fundamental change has made the data from 2021 onwards incompatible with data published before 2021, making year-on-year comparisons under the LFS impossible, except for the estimated indices for 2021.

unemployment figures are not comparable with those of previous years in terms of LFS methodology. Only year-on-year comparisons are possible (2021 versus 2020, also quarterly data) on the basis of annual indices, for which the statistical office has estimated missing data for 2020 according to the definitions of the new methodology. Estimates for older years applying the new methodology have not been made.

However, the aforementioned reversal in employment development trend in the third quarter and weak employment growth in the final quarter of 2021 is confirmed also by a different methodology (although the number of “persons employed” according to quarterly statistical reporting is a narrower category). Thus both, the data on the number of working persons (LFS) and the number of persons employed (statistical reporting) confirm the same trend: after six quarters of continuous employment decline, employment growth resumed in the second half of 2021, albeit at a very moderate pace. The recovery of the labour market was also signalled by the share of working persons in economically active persons (which reflects also the development of unemployment and eliminates possible distortions due to demographic factors), as their share gradually increased during 2021. However, the resumption of employment growth in the second half of the year was not strong enough to offset the employment losses of the first half of the year – the first quarter of 2021 even saw the bottom of the overall year and a half-long decline in both, the number of working persons and the number of employed persons (i.e. according to both methodologies).

Developments during 2021 Reflected the Different Nature of the Two Pandemic Waves

Although gross value added (in the economy in total) had already registered weak growth at that time (in the first quarter of 2021) and industrial production was also rising year-on-year, performance in most key sectors was nevertheless weaker year-on-year than in the first quarter of 2020, which was noticeably reflected in the evolution of sales. Particularly for the first two months of the year, we compare the pre-pandemic situation (January-February 2020) with the very different situation in

2021, when a vast second pandemic wave has been peaking in Slovakia, following the confirmation of the British variant of the new coronavirus in several districts of the Slovak Republic. The relaxation of coronavirus regulations over the Christmas period was replaced by a tightening of epidemiological measures (in effect from the beginning of the year), but as the situation did not improve despite the curfew and restricted travel or the unavailability of several services, the covid automaton (which came into force on 8 February 2021), in its tightened form (condition for the number of hospital admissions to fall below the 3 000 threshold), placed the whole territory of the entire country in the “black” phase. As vaccination was still unavailable to the majority of the population at that time, many non-essential establishments remained closed to customers, while a negative covid test was required for the use of others.

The critical pandemic situation in February was evidenced not only by the overloaded hospitals, but also by the fact that the Slovak Republic ranked first worldwide in both, the number of deaths and the number of hospital admissions with covid-19 per 100 000 inhabitants at that time. A dramatic drop in revenues at that time was mainly in the two most affected sectors, where the establishments were able to provide their services to a very limited extent while complying with the regulations: the sales in accommodation services fell by almost 90% year-on-year in January-February 2021, and by more than half (55%) in restaurants and hospitality establishments. However, in the first two months of the year, sales were also down by around a fifth in construction, retail trade, motor vehicle sales and repair, and selected market services; while transport and storage and information and communication also recorded year-on-year declines. Unsurprisingly, it was also the first quarter of 2021, when the employment decline hit its all-time pandemic low. Since March, the lower comparative base has played a role, as the impact of the pandemic had already begun to show up in macro indicators at this time of year also in 2020. Thus, the year-on-year decline in sales in March 2021 continued only in accommodation and food services and in selected market services. The difficult entry of several sectors into the new year was also documented by other indicators. Construction output was also down by

almost a fifth year-on-year, passenger transport output fell by more than 70% and passenger transport volume by almost 60%. The fall in passenger transport performance continued also in March. In fact, output in manufacturing was also lower year-on-year in the first two months, with only the March increase ensuring a positive result for the first quarter (the largest declines in January were recorded in the production of textiles, clothing, leather and transport equipment).

Starting in April, performance has improved in virtually all sectors, this time not only due to the lower comparative base (although performance fluctuated later in some sectors). The recovery in employment growth was only briefly delayed, it occurred in the third quarter. Still moderate employment growth sped up in the last quarter of the year, despite the fact that the epidemiological situation started to deteriorate again with the arrival of autumn (after an almost unrestricted summer), and by early December the third, so-called Delta (variant) wave of the pandemic had already peaked in Slovakia, and the more infectious variant Omikron was confirmed in Slovakia in mid-December. The situation differed from the spring wave in two key aspects: although the numbers of confirmed positive cases were even multiply higher compared to spring, fewer people were ending up in hospital (even at the peak in early December, when the number exceeded the 3000 threshold, it did not reach the March 2021 levels) and a significant proportion of the population had already been vaccinated or immunised from the previous covid-19 outbreak. Measures have adapted to this, and the response of employers has reflected the looser mood in society. Some service industries contributed to the fragile employment recovery towards the end of the year (education, information and communication, professional, scientific and technical activities, and arts, entertainment and recreation were the sectors with the fastest growing employment), moreover, in the fourth quarter employment growth was also recorded in industry for the first time and workers were also added in construction (LFS, indices calculated by the Statistical Office from comparable data adjusted to match the new methodology), signalling a recovery in employment in key sectors of the economy before the end of the year.

General Sectoral and Regional View of Developments in 2021

Based on the LFS average annual figures, the number of working persons in six (up from five a year earlier) of the 18 industries surveyed increased over the year. Of those employing more than 100 thousand workers, these were construction, public administration, education and information and communication (ranked by industry size, not by employment growth rate – the latter was fastest in the case of education). According to statistical reporting, the number of people employed in information and communication, education, and health care increased. This methodology did not confirm growth in public administration and construction (especially the result in construction was away from growth),¹⁸ but in the case of both, construction and industry, it indicated a halt in the employment decline towards the end of the year. Another important positive signal was that similarly, almost complete halt in the employment decline in accommodation and food services has been reported by the statistical surveys.

However, on annual average, accommodation and food services recorded the largest year-on-year decline in employment (–17.9% according to the LFS; weaker, but the deepest of the sectors was also according to statistical reporting) and in arts, entertainment and recreation (–11.4% according to the LFS) – in their case, therefore, employment growth before the end of the year (or a much smaller decline in case of accommodation and food services, by both methodologies) is particularly encouraging. However, the most important service component (in terms of employment size), trade, also lost workers. Here, the decline in the number of working persons (LFS) persisted before the end of the year, even relatively significant (–5.4%). A slightly weaker decline was recorded here according to statistical reporting, but this methodology also confirmed that in trade, employment growth has not resumed.

The improvement in employment trends before the end of the year could also be observed in the regional data. While on annual average the number of working persons increased only in the Prešov region and

¹⁸ Although this is a different data collection methodology and a narrower category than the number of working persons by LFS.

stagnated in the Žilina region,¹⁹ and in all other regions employment decreased year-on-year (most of all in the Banská Bystrica, Košice and Trenčín regions), in the last quarter of the year the number of people in work increased in five (and the employment rate increased in six) out of eight regions. Job vacancies have also increased significantly, with almost 30% growth in vacancies in the last quarter,²⁰ most in the Trnava and Nitra regions, where the number of vacancies increased by around 40%, and least in the Trenčín region. Even the lowest value from the Trenčín region was still about twice as high in the last quarter than the annual average rate of increase in the number of vacancies (the number of vacancies in the economy increased by 8.5%, to 17 427).²¹

Not only employment in Slovakia did fall on average over the year, but the number of people commuting abroad for work also decreased (so-called short-term migration; decline by 5.4%). However, again, regionally differentiated, the decline in the number of people working abroad occurred in five of the eight regions, with the trend rather following the development of employment in the region. Most of them commuted for work related to the construction, industry, and health and social assistance sectors. However, the share of these sectors in short-term labour migration was decreasing, while the number of Slovaks working abroad in accommodation and food services or transport and storage increased.

The Most Affected Sectors in the Two Years of the Pandemic

A more complete view of the impact of the pandemic on sectoral employment, or comparison of the relative success or failure of key sectors in overcoming employment loss, is possible when using data on persons employed from statistical reporting (labour force survey cannot be used due to a change in the LFS methodology).

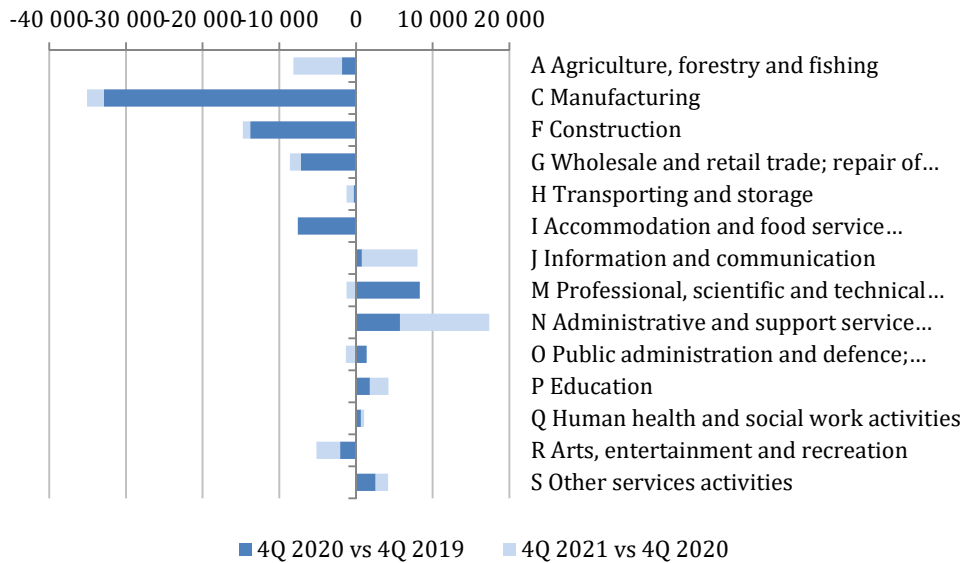
¹⁹ The positive result in the development of the employment rate indicated that, in fact, the situation has improved in the Nitra region in addition to the Prešov and Žilina regions.

²⁰ Job vacancies according to quarterly statistical reporting.

²¹ Such a strong positive result in the last quarter was also influenced by their decline in the same period of the previous year; this time (2021), unlike in 2020, the number of job vacancies has already risen continuously from quarter to quarter.

Figure 4.1

Employment Change in Key Sectors* of the Economy over the Two Years of the Covid-19 Pandemic (thousands of persons)



Note: * Sectors employing 50 thousand or more persons.

Source: According to data on the number of employed persons from quarterly statistical reporting, DataCube, ŠÚ SR (2022).

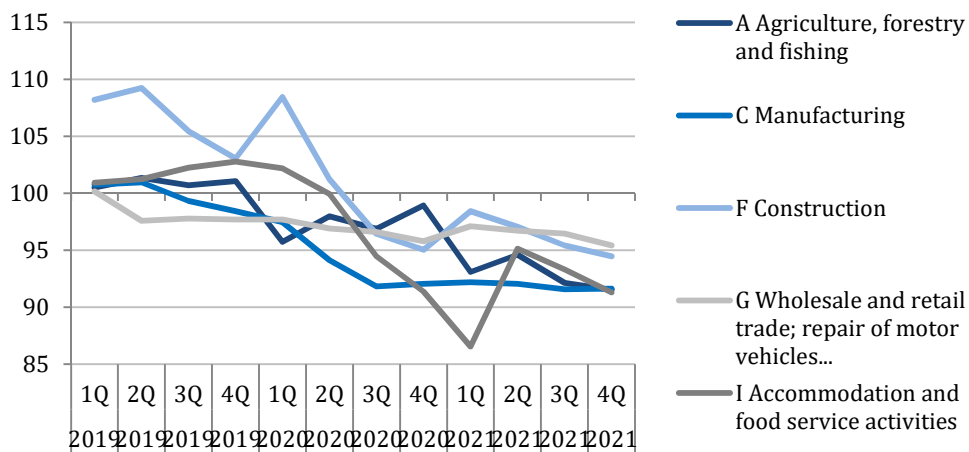
Figure 4.1 shows employment losses or gains (in thousands of persons) in industries that employ at least 50 thousand persons (14 industries) between the last quarter before the pandemic (fourth quarter 2019) and the latest available data (fourth quarter 2021). These two years, in which employment trends were marked by the pandemic, are distinguished there by a different colour. This makes it possible to see that, with the exception of agriculture, all the deepest (in terms of magnitude) employment losses were recorded already in the first year of the pandemic (2020). This is the case for the sectors with the largest employment losses, i.e. manufacturing, construction, trade, and accommodation and food services. Although the decline in employment in these sectors continued in 2021, it was on a much smaller scale, given the overall decline in employment in these sectors. The exceptions are the aforementioned agriculture, arts, entertainment and recreation, and transportation, where the employment decline in 2021 was relatively more pronounced. There was a slight decline in employment in public

administration and professional, scientific and technical activities in 2021, after employment still grew in them in the first pandemic year (this is confirmed by the average annual data as well).

The emergence of accommodation and food services among the sectors with the largest employment losses deserves special attention. While manufacturing, trade and construction (together with education and health) are among the five largest sectors in terms of the number of persons employed, accommodation and food services is almost three times smaller than the smallest of these sectors. And although the comparison with the last quarter of 2019 is partly affected by the fact that employment in this sector peaked at that time, the fall in employment in it, comparable to the largest industries, clearly documents the extent of the pandemic's impact on this, relatively smaller, sector. A look at the sequential evolution of employment in the five industries with the largest "pandemic" employment losses (i.e., employment declines over the two years of the pandemic, as shown in Figure 4.1), is illustrated in Figure 4.2. For better comparability of changes in industries of different sizes, the number of employed is fixed therein to the same period in 2018.

Figure 4.2

Quarterly Employment Development in the Sectors with the Largest 'Pandemic' Employment Losses (same period 2018 = 100)



Note: Sectors with the largest declines in the number of persons employed between Q4 2019 and Q4 2021.

Source: According to data on the number of employed persons from quarterly statistical reporting, DataCube, ŠÚ SR (2022).

The figure also shows the period of one year before the pandemic, to illustrate that while construction, accommodation and food services, and agriculture had been growing in the year before the pandemic, manufacturing and trade were already reflecting the weakening of labour demand, and employment in these sectors had already started to decline during 2019. The steeper fall in employment during 2020 in accommodation and food services and construction (which initially saw a rapid deceleration in growth), can be clearly seen in the figure. In manufacturing, the already ongoing decline in employment accelerated in the first three quarters of 2020, but since the last quarter of 2020, employment in manufacturing has stabilised and has remained at this level so far. With the exception of accommodation and food services and agriculture, which experienced one more significant deepening of the employment decline in early 2021, employment in the industries surveyed has stabilised in 2021, but in all cases at a lower level than it was in 2018 (or 2019).

Employment Recovery Lagging behind Output Recovery in Sectors

Thus, despite the improvement in the last few months of the year, employment levels remain relatively well below pre-pandemic levels²² (employment in the Slovak Republic peaked in the last quarter of 2019). Both, the onset of employment recovery and the momentum of its recovery lag behind other indicators. For example, industrial production began to grow as early as February 2021, towards the middle of the year its growth accelerated at a significant pace. Value added in manufacturing was even about one-third higher year-on-year in the second quarter (at both current and constant prices). Despite the weaker performance in the autumn months, the average quarterly result was positive throughout the year (both, in case of performance in industry and in manufacturing itself). This was matched by the development of sales, which have been growing since February (even by 35.5% in the second quarter), with only

²² Due to a change in the LFS methodology, the data on the number of working persons in the sectors before the pandemic and at its peak and end are not comparable, but this is clearly illustrated by e.g. data from the statistical reporting (enterprise data).

the exception of autumn. On the other side, according to the monthly reporting, employment in industry grew only in July and December, otherwise it continued to decline compared with the previous year. Even the improvement before the end of the year was pulled up by other industrial branches, not manufacturing, for which employment did not rise even then; its decline at least stopped in December.

In the case of the construction, where employment has been falling all year round according to enterprise statistics, output rose year-on-year in five months of the year and sales in eight months, with the summer and the end of the year growing up significantly. Employment in trade responded to the performance indicators even more weakly. In wholesale trade, sales have been rising since February, with the rate of growth being above 20% since April (with the exception of one month). Similarly, in retail trade, sales have grown continuously since March. Employment for both continued to decline throughout the year. The decline in employment despite the rising performance can be partly explained by the fact that some transactions have moved to the online space without the need for physical contact. Other service sectors – accommodation, transport, information and communication and selected market services – responded more closely to the growth (reported mainly from the second quarter to the end of the year) in value added and sales. Although for the first two the average quarterly data did not reveal employment growth, a look at the monthly statistics confirms that, at least in some months, employment recovery was already occurring in them. In fact, even restaurants and catering, where the decline in employment stopped only in September, reacted to the development of sales, because sales here, unlike in the other sectors, did not grow for most of the year. Employment in non-market services (excluding public administration) rose. The second year of coping with the impact of the pandemic has thus confirmed that employment in the manufacturing sectors responds to changes in economic conditions (in this case, to improved performance and associated growth in sales) with greater resistance than in the service sectors. The exception in this respect was the trade sector, which is, however, the most important service sector in terms of employment volume.

Developments in Early 2022 Marked By the Easing of Epidemiological Restrictive Measures

It is also important to look at the development at the beginning of 2022, as in the first half of February, the most massive (in terms of the number of positive cases) wave of SARS-COV-2 virus infection in Slovakia peaked, when the Omicron variant gained dominance in the territory, replacing the Delta variant dominance. Paradoxically, despite the record increase in the number of those tested positive on covid-19, the strongest employment growth in January was reported by the sector most affected by the pandemic and the epidemiological restrictions: but the 6.3% growth in the number of people employed in accommodation should be seen in the context of the comparative base, as in the same period in 2021, the historic fall in sales in accommodation (by almost 90%) was accompanied by the deepest fall in employment among the sectors (a quarter of the employees left accommodation services at that time). In any case, this increase in employment was a continuation of the trend seen in the last two months of 2021 – it was exactly accommodation with its growth in staff numbers that mitigated the decline in employment in the aggregate accommodation and food services sector before the end of the year. Although the decline in employment in food services slowed in December, there was no resumption of employment growth until February 2022.

Whereas in January, apart from accommodation, only employment in the information and communication sector grew significantly, by February all but one (motor vehicle sales and repair) of the sectors surveyed had already recorded employment growth.²³ Again, the hard-hit sector, restaurants and catering activities, recorded the strongest growth in February (7.5%; again, the effect of the low comparative base should be considered, as this sector registered the bottom of the decline in its employment in February 2021). It was followed by accommodation, information and communication and transport, but for the first time since

²³ A more detailed classification also reveals declines in, for example, mining and quarrying and within transport sector in postal and courier services.

January 2019, employment also increased in retail trade in February. The latter saw a significant easing of epidemiological measures just in mid-February, when all retail outlets were placed on mode “basic” (“základ”) and opening hours restrictions and other restrictions were lifted. The previous relaxation of the measures had allowed customers without proof of vaccination or of having recovered from covid-19 to enter only selected types of shops (e.g. clothing and shoe shops, shops with building materials and supplies), except for essential establishments which stayed accessible (grocery stores, drugstores, pharmacies). Before the end of the month, a similar relaxation was applied to services, when the “OP” and “OP+” regimes were lifted (covid-pass regimes; access for vaccinated and recovered from covid-19 only, in case of “+” regime also recent negative covid-19 test in addition to being fully vaccinated or recovered in last 6 months, or booster, or combination of full vaccination and being recovered in last 6 months, was required). Manufacturing also saw weak employment growth in the first two months of 2022, for the first time since the summer. Along with the lifting of the last epidemiological measures in April, a gradual improvement in the labour market situation can be expected.

Unemployment Deepened Mainly in Trade and Construction, Regionally It Developed Differently

With the arrival of the second half of 2021, as is the case of employment, we can observe a turnaround in the unemployment indicators as well. The rise in the number of unemployed, which, like the decline in the number of employed, had persisted for six quarters, has stopped and subsequent fall in unemployment accelerated further in the last quarter (from -2.9% to -3.5%). The number of unemployed thus fell to 183.4 thousand before the end of the year (LFS). However, the average for the year (187.6 thousand unemployed) is still 4.7% higher than a year earlier, despite the accelerating decline in the second half of the year. Again, this is particularly outcome of the first quarter’s increase in unemployment, when the number of unemployed rose by as much as 23% (when comparing the virtually pre-pandemic situation with the period of the full

impact of the pandemic on the labour market). The unemployment rate (according to the LFS) started to fall in the second quarter and reached 6.8% on average for the year, which, despite the downward trend, is still 0.3 percentage points higher than a year earlier (again, due to a change in the LFS methodology, this is a figure estimated by the statistical office; the results for 2021 cannot be compared with those published before 2021). It should be added, however, that given the depth of the economic downturn, this is not as significant deterioration in the unemployment rate as we know from the past.

In terms of their last employment, the largest group of the unemployed are from the industrial sectors (as they account for the largest part of employment in the Slovak Republic). An important signal is therefore that their number has fallen by 15% compared to 2020, whereas only a year earlier the number of unemployed from industry had risen by 33%. However, the situation is reversed in the second largest group of unemployed (in terms of economic activity) and at the same time the largest service sector: the number of unemployed coming from retail and wholesale trade fluctuated during the year, but remained above the 2020 level throughout. The average annual number of persons who entered unemployment from this sector was more than a quarter higher year-on-year, which is even higher rate of increase in the number of unemployed than the sector experienced in 2020. Accommodation and food services had climbed to the third place already in 2020, as a result of the most noticeable effects of the pandemic on the sector, with the number of unemployed coming from this relatively smaller industry rising by more than 100% at that time. The rise in the number of unemployed from this sector continued in the first half of 2021, with an 18% year-on-year increase in 2021 on average. However, the situation changed markedly in the second half of the year and the number of unemployed from this sector began to decline, in the last quarter with the number of unemployed even lower by 37% than a year earlier. The last group of unemployed to exceed 10 000 persons are those originally working in the construction sector. The evolution of unemployment in this sector was in line with the performance indicators discussed above (i. e. fluctuations

in construction output and sales over the year; a closer look reveals that only construction output realised abroad increased, while domestic production declined, especially in the area of new construction, reconstruction and modernisation, which was largely due to the above-average fall in construction output in the Bratislava region, where by far the largest part of it is usually produced) – the number of unemployed from the construction sector fluctuated during the year and, as a result of the developments of the first half of the year, was on average up to a third higher in the year than it was in 2020. As with trade, this is a bigger drag than in the first year of the pandemic. Interestingly, job vacancies in construction were the fastest growing in the economy, more than doubling in the last quarter compared to the same period in 2020.

During the year, the number of unemployed people who had never worked before also increased. In their case, the situation did not improve significantly in the second half of the year. On average, their number rose by 14% year-on-year, making up a quarter of the total unemployment in the Slovak Republic (25.1%). In terms of age distribution, the rate of increase in unemployment rose with increasing age. This means that the number of unemployed grew fastest in the highest age groups and vice versa. In the last quarter of the year, the number of unemployed only grew in the 50+ age groups, while younger age groups were already experiencing a decline in the number of unemployed.

Similarly to employment trends, unemployment showed significant regional differences. In fact, the number of unemployed persons increased in only three of the eight regions, in Trnava, Košice and Banská Bystrica, while in the other regions unemployment decreased year-on-year. However, this increase was strong enough (e.g. the number of unemployed rose by 36% in the Trenčín region, and by 27% in the Košice region, home to the second largest number of unemployed in the Slovak Republic) to ensure a rise in overall unemployment in Slovakia. This is despite the fact that the declines in the number of unemployed in the Bratislava and Nitra regions exceeded 15% and 12% respectively, and the fact that even in the region with the highest number of unemployed in Slovakia, the Prešov region, unemployment fell by more than 5% (and

the unemployment rate there, along with the Nitra region, fell the most). The improvement in the Prešov region was also documented by the development of the number of people in employment, as this region was the only one in the Slovak Republic where the number of working persons increased on average over the year, not only at the end of the year. As a result, its first place in the number of unemployed was threatened by the Košice region before the end of the year, and its place in the unemployment rate has been overtaken by the Banská Bystrica region in the last quarter of the year, with the unemployment rate at a level of 11% (the Banská Bystrica region was the only one where the deterioration towards the end of the year continued to deepen).

The Pandemic Has Significantly Affected the Development of Long-term Unemployment

As we entered the second year of the pandemic, the biggest changes have occurred in the evolution of long-term employment, which is due to its definition (being unemployed for 12 months or more). While in 2020, as the pandemic started we saw the fastest increases in the number of unemployed in the groups with the shortest duration of unemployment (annual increase of up to 78% in unemployment lasting less than 1 month, 57% in case of unemployment lasting 1 to 3 months and 30% in unemployment of 3 to 6 months), in the second year of the pandemic (2021), the situation has reversed. The numbers of unemployed with the shortest durations of unemployment fell (in all three categories mentioned; e.g. up to 44% year-on-year decline for durations of up to 1 month, 34% decline for durations of 1 to 3 months), and the numbers of unemployed for 12 months or more grew the fastest, with the fastest growth in the 12 to 24 months category. This demonstrates that the additional (relative to pre-pandemic levels) unemployment is largely a lingering effect of the pandemic in its first year. As is the fact that unemployment in the 1.5 to 2 year category grew fastest in the last quarter of 2021 (the number of unemployed in this category rose by almost 100% before the end of the year).²⁴

Of the short-term unemployment, only unemployment lasting between 6 and 11 months recorded growth, which is further evidence of the improving labour market situation in the second half of the year. The share of long-term unemployment in total unemployment has thus been rising throughout the year, reaching more than two-thirds (68%) in the last quarter, while it was still below 45% in the first quarter. The share of long-term unemployment was at its lowest in the pandemic period in the third quarter of 2020, at 37.7%, and although the definition of long-term unemployment in the new LFS methodology is slightly different, this development documents an apparent change in the weights of short-term and long-term unemployment over the two years of the pandemic.

The pandemic effect on the growth of long-term unemployment is also captured by the statistics on registered unemployment according to the labour offices. While in the pre-pandemic year of 2019, the average length of time a job seeker was registered with the labour office was 8.85 months (an all-time low), it had already risen to 11.63 months in 2020 and increased even further to 14.04 months in the second year of the pandemic, surpassing the threshold for long-term unemployment definition. Previously, as a consequence of the 2009 recession, it remained above the 12-month threshold for seven long years; thus, the pandemic period erased the success achieved in 2017 – 2019 in shortening the average period of being registered unemployed, but also in decline in the registered unemployment rate. Similarly, the total number of registered unemployed (about 221 thousand) is close to its 2017 level (i. e. the level before the most successful period). Compared to the first year of the pandemic, this is an increase of 11,300 persons. Although the number of recipients of unemployment benefits increased significantly in April, May and June, their number decreased on average over the year, which relieved the budget of the state Social Insurance Agency by more than 39 million euros (the average unemployment benefit increased to 446 euros). On the contrary, in the first year of the pandemic, when the number of jobseekers increased by 41.6 thousand and the number of benefit

²⁴ More precisely, the unemployment duration of 18 to 23 months; the increase in the number of unemployed in this category exceeded 97%.

recipients by 16.6 thousand, the volume of unemployment benefits paid out also increased (by 115 million euros compared to the pre-pandemic year of 2019).

The registered unemployment rate reached 6.76% as of December, its average annual level in 2021 was 7.5%. Compared to 2020, this is an increase of 0.7 p.p., thus exceeding the 2017 figure (in this respect, the development under the influence of the pandemic has erased the success of 2017 – 2019, too). However, this is actually a minor increase compared to the first year of the pandemic, when the average annual registered unemployment rate rose even by 1.8 p.p. in 2020, from the historic low of 5% reached in 2019. It should be noted, that the unemployment rate before the most successful period, i.e. before the aforementioned years 2017 – 2019, was at a much higher level than now, with the exception of only one year, namely 2008, when it approached the level of the pandemic year 2021 (7.7% compared to the current increase to 7.5%).

Average Wages Have Not Returned to the Pre-pandemic Levels only in Accommodation and Food Services

Average wage developments were noticeably more favourable than employment developments. The resumption of economic growth, the recovery in output and sales growth, as well as moderate employment growth in some sectors of the economy, contributed to a year-on-year acceleration in its growth rate. On average, nominal wage in the economy reached 1 211 euros, which is 78 euros more than a year earlier – this 6.9% year-on-year increase is the second highest annual wage growth rate since 2008, when a longer period of dynamic nominal wage growth was interrupted by the global economic crisis. Only in 2019, before the outbreak of the pandemic, did average wages grow faster. Compared to that "pre-pandemic" year, the average wage grew by 11% in 2021.

The pace of real wage growth was slower due to inflation, especially in the second half of the year, rising 3.6% on average over the year. However, this was still faster real wage growth than in 2020 (1.9%), when its weaker growth had been underpinned by slower nominal wage growth. However, in the last quarter of 2021, despite the high growth

rate of nominal wages (6.9%), real wage growth slowed to only 1.3%, which was after all the worst result in terms of real wage developments since the second quarter of 2020, when for the only time during the pandemic, average wages (nominal and therefore real) fell.

Nominal wages increased year-on-year in all sectors of the economy, relatively most in health care (by 13.8%) and accommodation and food services (by 12.2%). Wages also grew at an annual rate of almost 10% in real estate activities and in arts, entertainment and recreation, but they also increased above average in manufacturing (8.8%) and trade (8.7%). Employees in the health sector benefited more than other sectors thanks to the pandemic bonuses (including overtime hours bonuses) and, in particular, the extra year-end bonuses, which made the average wage in health and social assistance in the last quarter of 2021 (EUR 1,615) 362 euros higher than in the last quarter before the pandemic (2019), which is 54% higher than the average wage increase in the economy between these two periods (in the last quarter of 2021, the average wage in the economy, EUR 1,331, was 154 euros higher than in the same period of 2019). In the case of accommodation and food services, the second fastest wage growth was also an offset to the fall in wages in this sector in 2020. However, despite the second strongest wage growth in the economy,²⁵ the wage in this sector was the only one that did not reach the pre-pandemic level of the last quarter of 2019, not even at the end of 2021 (EUR 713), lagging behind the level of the last quarter of 2019 by one euro. A comparison of the full-year average wage data reveals that the average wage in 2021 surpassed the 2019 level in all sectors, but least in administrative services and the aforementioned accommodation and food services. This is the sector with the lowest wages in a long time; already in 2019, wages in this sector were only 60% of the economy's average wage level, and in the two years of the pandemic, they have deteriorated even further relative to the rest of the economy, reaching only 54% of the economy's average before the end of 2021. In contrast, the highest wages have long been in information and communication

²⁵ In accommodation alone, the rate of growth in average wages was the highest of the sectors in all months between April and November inclusive.

sector; over the two years of the pandemic (comparing to the fourth quarter of 2019), the nominal wage in this sector have improved by 237 euros, the second highest "pandemic" wage increase after health workers. On average over the year, wages in this sector reached EUR 2,126, together with them, only wages in financial and insurance activities exceeded the two thousand mark.

* * *

The recovery of the labour market towards the end of 2021 (a halt in the decline, or modest growth, in employment, a fall in unemployment, and wage growth) has contributed to an overall improvement in consumer sentiment. The year-on-year increase in household final consumption thus became even more pronounced towards the end of the year (its largest year-on-year growth in current prices, 8.6%, was recorded in the last quarter). Since the second quarter, household consumption has been a key component of domestic demand behind the recovery in economic growth.

Together with the April's easing of the last epidemiological restrictions, the effects of the pandemic on the labour market can be expected to gradually fade in 2022 (pending the possible next dangerous mutation of the virus). Rising costs (especially energy prices) or inflation in general and its impact on input prices but also on people's incomes (domestic demand) and the risks associated with the war in Ukraine and its possible economic consequences for the European economies (external demand) are likely to dominate the factors for further development with an impact on employment.

5. PRICE DEVELOPMENT

For the second year, the Slovak economy had to deal with an uncertain economic situation given the persistent coronavirus pandemic, which caused uncertain and volatile economic developments. The development of the price level was no exception. Therefore, in 2021, after many years of static development, there was a major reversal and the inflation rate gradually became the main topic of economic discussions. However, its dramatic rise did not continue throughout the year and in the first months, there was little indication that the country would record its highest inflation rate in a decade (the last higher inflation rate was in 2012). The full-year average stood at 3.2% when measured by the national CPI methodology and 2.8% when measured by the harmonised consumption basket (HICP).²⁶ However, the inflation rate was far from calm development slightly above the inflation target.

Two Different Half-years

Similarly to the previous year, the pandemic outbreak played a key role in the evolution of demand and prices for products. In 2021, the evolution was again largely determined by the pandemic. This time, however, it was rather the recovery and fluctuations in global market sentiment. The vast majority of the factors influencing the subsequent rise in the overall price level were globally determined and imported into Slovakia.

The following factors, in particular, can be identified as important for the development of the price level, although we have no ambition to identify all of them:

- *Recovery after the temporary halt in the pandemic* – Following the first pandemic-related restrictions in the spring of 2021, there has been a global recovery in economic activity. However, broken value chains, logistics problems or the implementation of deferred consumption began

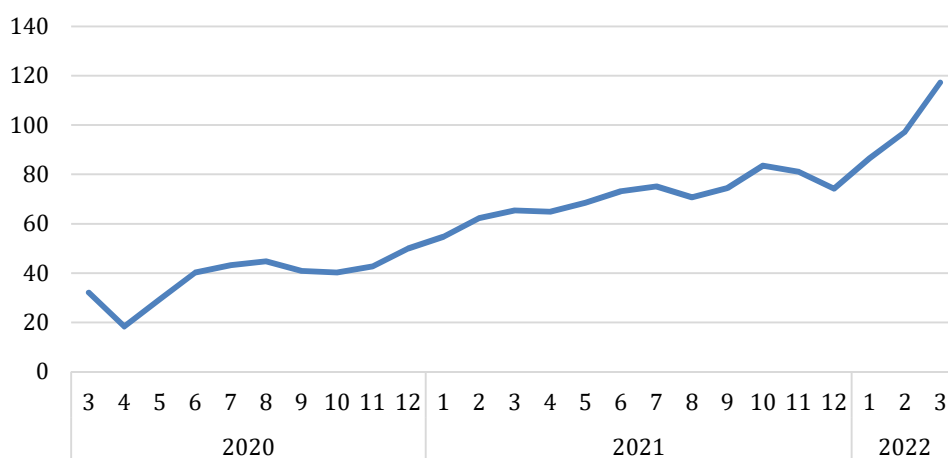
²⁶ The larger deviation measured via the CPI compared to the HICP is explained in the second part of this chapter.

to cause shortages of some goods, which, with limited production capacity and slow production recovery, began to increase prices and import inflation.

- Rising fuel prices linked to rising oil prices – fuel prices are logically linked to oil prices. After the drastic fall in oil prices in the pandemic year 2020, the opposite extreme will occur in 2021 – a rapid increase in the price of this commodity. Year-on-year in December 2021, the price of this commodity rose by almost half (48.6%). The months when the month-on-month increase reached double-digit rates were no exception, with the highest rate of increase of 13.7% in February 2021. The panic in the oil market was further exacerbated by the uncertainty surrounding oil supplies to Europe before the start of the conflict in Ukraine in 2022 when the pace of growth accelerated during this period to current levels reaching almost double the year-on-year prices. The topic of the diffusion of the inflationary shock in the energy market and its impact on price growth in different sectors of the economy is addressed in the second part of this chapter.

Figure 5.1

Oil Price Development – Europe Brent Spot Prices (in USD per barrel)²⁷



Source: EIA.

²⁷ The type of Russian URALS crude oil used in Slovakia during the period under review is identical to BRENT crude oil. The divergence of development between the two types occurred only later in 2022.

- *Growth of regulated prices in the autumn* – although the most important regulated prices are mostly adjusted for the new year, there was another inflationary impulse in the autumn in the form of the adjustment of the so-called free lunches, which contributed sharply to inflation by almost 0.5pp. Ironically, the price regulation, which adjusted prices at the beginning of 2021, acted as an inflationary dampener until the autumn, reaching negative values in the year-on-year comparisons.

- *Rising prices of housing services* – the first visible signs of accelerating inflation were in the construction sector, especially in the prices of building materials. A recovery in construction activity, a booming property market and tight raw material supplies have triggered a record increase in housing services prices. The primary driver of the rise in housing service prices was imputed rent, which will also be discussed in the second part of this chapter.

- *Food price developments in the second half of the year* – while food prices were relatively stagnant in the first half of the year, there was a sharper rebound in the second half. This increase was mainly associated with rising agricultural commodity prices on world markets, so even this part of the inflation was imported from abroad.

- *Global uncertainty* – the last important factor, but one that is difficult to quantify, is global uncertainty about future developments on several levels. Concerns about the reintroduction of stringent anti-pandemic measures, worries about the ability to supply key components from Asian countries (e.g. microchips), or geopolitical concerns have combined to create a near-perfect mix of factors that have unleashed a rise in the prices of key manufacturing inputs. Inflation was thus created mainly under the pressure of rising production inputs as prices of electricity, gas, commodities, and agri-foods gradually rose to unprecedented levels.

Individual Monetary Policy Failed to Prevent Onset of Inflation This Time

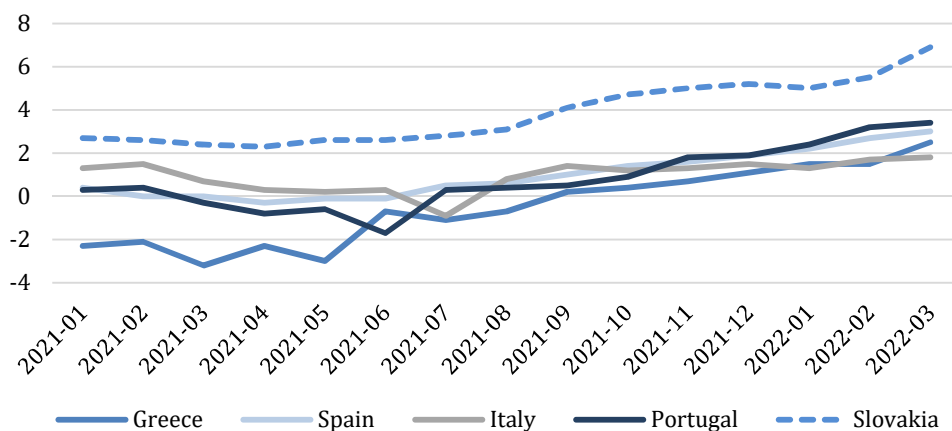
In 2021, the non-euro area countries ranked highest with inflation rates above average in the European context. The reactions of their central banks to rising inflation rates were thus swift, as they started to

raise the key interest rate very rapidly (especially in the Czech Republic, but also in Poland and Hungary). However, the length of the transmission mechanism has not yet allowed any significant consequences of such actions to be observed. On the contrary, the ECB, as the monetary policy institution for the euro area, continued its asset purchase programme despite rising inflation. This is mainly due to the nature of inflation, which is being pushed into the economy through cost-pushed inflation, and to the considerable disparity between economic developments in the central and northern parts of the euro area compared to the south. Figure 5.2 provides a partial explanation of why, despite a decade of unprecedented inflation, the ECB has decided not to end non-standard measures before the summer of 2022. If we exclude highly volatile items from the consumption basket that are not directly influenced by the central bank, we get so-called core inflation. And it evolved only very moderately for all countries in the southern euro area in 2021. In Greece, core inflation even reached negative values on average. The often-mentioned monetary policy restriction would thus, on the one hand, help countries such as Slovakia and Germany, but on the other hand, they would send inflation in the southern euro area back to stagnating or declining values.

Figure 5.2

Core Inflation in Selected Euro Area Countries

(measured by HICP, y-o-y % change)



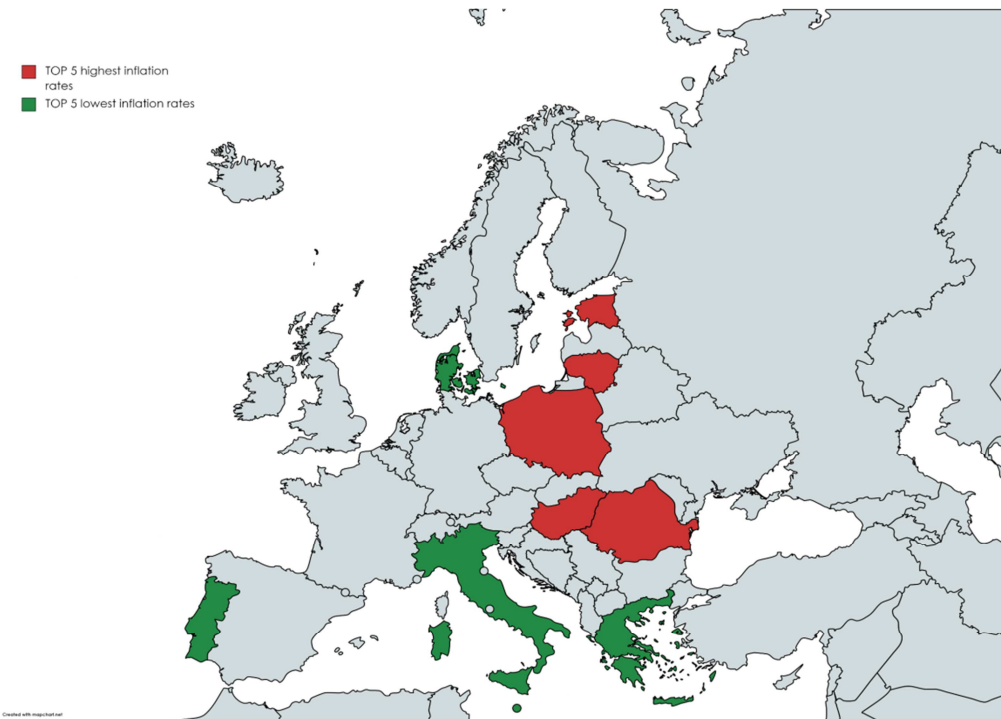
Source: Eurostat (2022); author's design.

Returning to headline inflation, the lowest levels in 2021 were reached by countries that have been struggling with low economic growth or stagnant inflation for a long time. These are in particular Greece and Portugal, where the HICP inflation rate has not even reached 1% year-on-year, and Italy, which has remained below 2%.

Although it may seem from media reports that Slovakia already had a huge problem with the inflation rate in 2021, the truth is that Slovakia has reached the median value of the whole EU with a value of 2.8%, so it is in the middle of the overall achieved values. All of Slovakia's neighbouring countries have achieved the same or higher annual inflation rate.²⁸

Image 5.1

Inflation Rates in Selected EU Countries in 2021 (HICP)



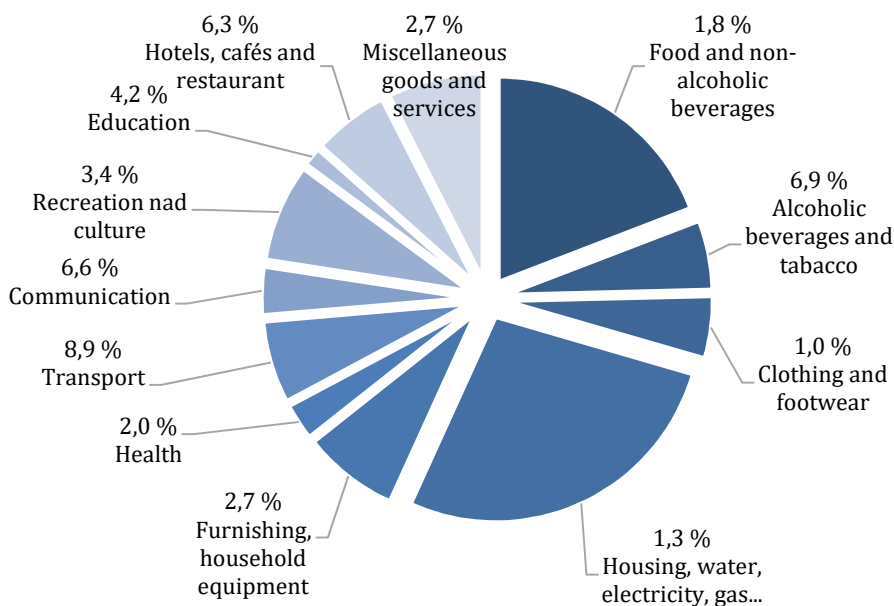
Source: mapchart.net, Eurostat (2022); author's design.

²⁸ Austria, like Slovakia, achieved an annual inflation rate of 2.8%.

In the consumer basket, there has been a rare consistency in the development of all categories after a long time. Not a single category showed a negative trend, and all contributed to a gradually accelerating inflation rate. While in the previous year, 2020, the *transport* category was the only one to see a significant fall in prices, in 2021, by contrast, it was the fastest-growing category. It is noteworthy that the two largest items by share of the whole basket – *food and non-alcoholic beverages*, together with *housing, water, electricity, gas, and other utilities* – were only below average on an annual basis. However, the average does not capture developments over time, which have been differentiated, especially for food. The latter started to pick up, especially in the second half of the year.

Figure 5.3

Year-on-year Change in Price Level in Consumer Price Index Categories in 2021 (size of categories in the chart according to weights in the consumption basket)



Source: Makroekonomická databáza NBS (2022).

In the Slovak environment, the year 2021 foreshadowed how inflation will develop for consumers in the upcoming future. As anticipated, the economic recovery also led to a rapid recovery in price growth for

final consumers as the pandemic receded. However, the overall effect of the growth was only partially reflected in consumer prices, with many factors not pointing to a rapid rise in inflation, especially in the first half of the year. This is also due to price regulation, where new trends in energy commodity prices could not be reflected in the final consumer price in 2021. In this respect, the development in 2022 is a turning point.

Table 5.1

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

	2018	2019	2020	2021
Inflation rate (HICP):				
Euro area	1.8	1.2	0.3	2.6
Slovakia	2.5	2.8	2.0	2.8
Czech Republic	2.0	2.6	3.3	3.3
Hungary	2.9	3.4	3.4	5.2
Poland	1.2	2.1	3.7	5.2
Industrial prices:				
Industrial producers' prices - total	2.5	1.9	-0.4	6.8
Industrial producers' prices - domestic	4.9	2.5	0.8	5.5
- of which: Manufacturing	3.2	0.7	-1.9	5.8
Industrial producers' prices - export	1.1	1.5	-1.1	7.6
Construction work prices	3.4	3.9	2.9	3.8
Construction material prices	4.4	1.8	-0.8	11.6
Agricultural products prices	1.9	1.8	0.5	12.3
Real estate prices - apartment - average	8.0	8.5	9.6	14.4
Real estate prices - house - average	3.3	5.1	8.1	24.1
Deflators:				
GDP deflator	2.0	2.5	2.4	2.4
Government consumption deflator	4.2	5.6	6.5	3.9
Private consumption deflator	2.3	2.7	2.2	3.3
Fixed investments deflator	2.3	1.2	0.7	2.2
Export deflator of goods and services	1.8	0.0	-2.2	5.1
Import deflator of goods and services	2.4	0.2	-1.8	6.0
Terms of trade	-0.6	-0.3	-0.4	-0.8

Source: Eurostat (2022); Makroekonomická databáza NBS (2022); MF SR (March, 2022); Databáza Datacube ŠÚ SR (2022).

Dramatic Increase in Producer Prices

While inflationary pressures have only just begun to kick in in the consumer sphere of the economy in 2021, problems with a very dramatically evolving inflation rate, especially in production inputs, have

already begun to manifest themselves fully in the productive sphere of the economy.

A look at the structure of prices of industrial producers shows that prices rose on average by almost 7% year-on-year (prices of industrial products for export rose faster than in aggregate, while those for the domestic market grew about 2 percentage points slower). On the producers' side, the price development of the *coke and refined products* sector was an outlier, with prices in this sector rising by more than 37% on an annual average basis, but by the end of the year, they had also more than doubled year-on-year (in particular, the year-on-year change was 102.5% higher in November).²⁹

Similarly, the prices of the *chemicals and chemical products* manufacturing sector also showed an unprecedented development, with an average year-on-year increase of almost a quarter (24.1%) and a year-on-year increase of more than half (50.8%) in December. Surprisingly, despite a shortage in the production of transport equipment, prices of products in the *transport equipment* manufacturing sector fell by an average of 2.1%. Thus, overall, the rise in prices was primarily reflected in a rise in the prices of industries using *petroleum products* as inputs, with this increase gradually spilling over into the economy as a second-round effect.

Construction work prices continued the trend of previous years and rose by almost 4%, while building material prices set a new record and increased by up to 11.6% year-on-year. Which materials are involved and what is their role in determining headline inflation is also discussed in the second part of this chapter.

Prices of agricultural products produced in the domestic economy have picked up again after last year's stagnation, especially in crop products. While the prices of vegetable products were stagnant in the previous year, they have now reached an increase of more than a fifth. Here too, a major influence on the development of these prices is attributed to developments in the agri-commodities market, with the rise in the prices of wheat, maize and other crop commodities hitting new price records.

²⁹ We demonstrate the importance of this sector in infiltrating inflation into the economy at the end of the chapter.

This is another unmistakable sign that higher inflation rates are yet to translate into consumer prices over time, with prices of inputs on the production side of the economy rising visibly.

House prices, although not representative of the consumption basket (in the methodology they are considered as an investment and not consumption), followed the general trend in the price level. Speculations about a reasonable evolution of prices in the property market have been increasingly frequent, with prices of flats rising by almost 15% year-on-year, and even by almost a quarter (24.1%) for detached and semi-detached houses. Arguments to explain such a development can be sought mainly on the supply side of the market when the existing demand for housing cannot be satisfied by new properties. The construction materials market is not helping the situation, as it is bringing further price rises and hence property price increases. Subjectively, we can say that there is already a price bubble in the property market, but whether it will burst at all or whether it will just adapt to developments in the economy and the more cautious conditions for granting new mortgage loans, combined with rising interest rates on them, will release excess demand from it, is still very uncertain.

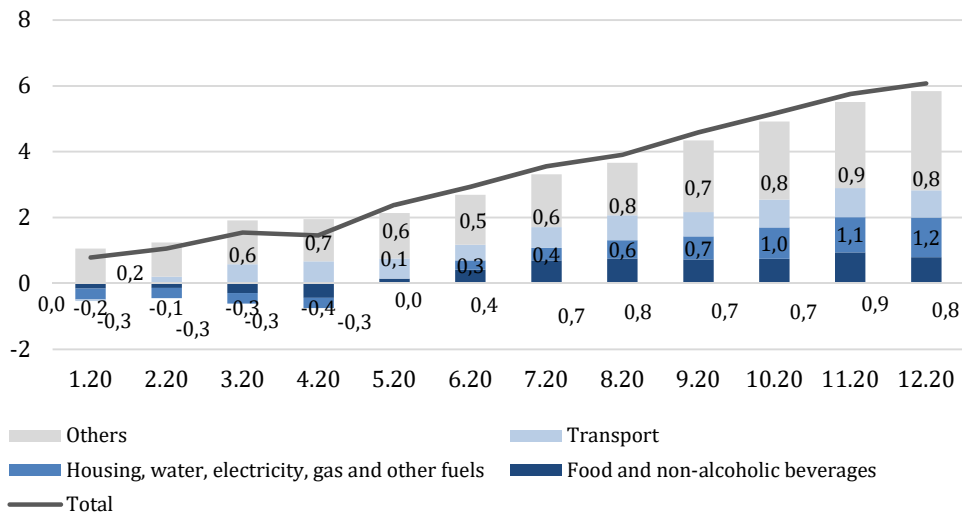
In the area of deflators, the government consumption deflator was again above average, although the prices of products consumed by the general government slightly decreased their growth rate compared to previous years. The private consumption deflator grew at a more moderate pace than consumer prices (2.4% vs. 3.2%). The export and import deflators grew faster, with prices in Slovakia's foreign trade growing faster. It was the higher dynamics of prices of industrial products for export that contributed to the growth above 5%, while imports experienced an even higher price increase and grew up to 6%. It has long been the case in Slovakia that import, and export prices do not develop favourably from Slovakia's point of view, with import prices rising faster than export prices at any stage of the business cycle. This is reflected in the country's exchange rates, which have traditionally deteriorated (by 0.8% in 2021). Thus, for the same amount of exports, it has again been possible to import a smaller amount of imports.

Construction Materials, Imputed Rents and Inflation. What Is the Relationship among Them?

Looking at the evolution of inflation in terms of the contributions of individual items in the consumer basket, it can be observed that (as mentioned above) all categories contributed positively to overall consumer price inflation in the second half of the year. However, we have chosen to focus on two of them. The first is the gradual transition out of the negative contribution bands of the housing, water, electricity, gas and other fuels category. The second factor we address is how the inflationary shock in fuel price increases passes through to prices in other sectors.

Figure 5.4

Percentage Contribution to Y-o-y Growth in Individual Months for Selected Categories of Consumption Basket in 2021 (in p.p.)



Source: ŠÚ SR (2022); author's calculations and design.

An initial glance at the title of the *housing, water, electricity, gas and other fuels* category might suggest that the gradual increase in this item over 2021 was driven by the rise in the price of energy commodities such as gas and electricity. However, this is not the case. Both of these commodities are subject to price regulation, which adjusts their price to households at the beginning of the year and does not change during the year. Although there has indeed been a very rapid rise in the prices of

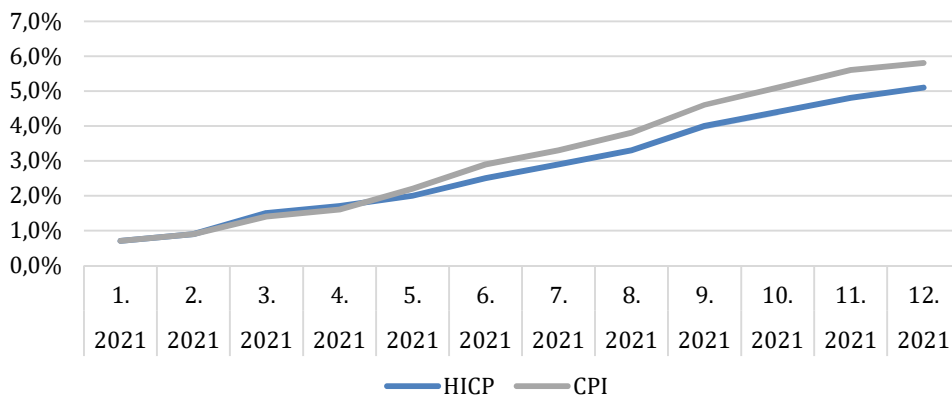
the commodities mentioned, households have not been directly affected by this rise (this sharp increase only occurred in 2022). So what caused the *housing* to be progressively inflationary, even though energy prices for households remained unchanged? The answer may be surprising to the untrained eye, but it's called imputed rent. This rent has the greatest weight in the consumer's basket (i.e. it is very sensitive to any change), yet few people know what it represents.

The imputed rent is a statistically calculated value of how the net cost of living in one's own home or apartment without utilities is evolving. Put simply, it is a representation of the value of the rent that house and flat owners would receive in rent if they chose to rent out their house instead of living in it.

At the beginning of the chapter, it was already indicated that in 2021 there would be a long-standing divergence between the two ways of measuring inflation in Slovakia. The national methodology (CPI), where the consumption basket is adapted to consumer behaviour in Slovakia, has reached higher values than the one calculated by the harmonised methodology (HICP), which uses one universal consumption basket for all EU countries. And an important detail is that while the national methodology includes imputed rent, the harmonised one abstracts from it. And it is this detail that needs to be known to be able to explain the different developments in the inflation rates shown in the following figure.

Figure 5.5

Year-on-year CPI and HICP Inflation Rates (in %)

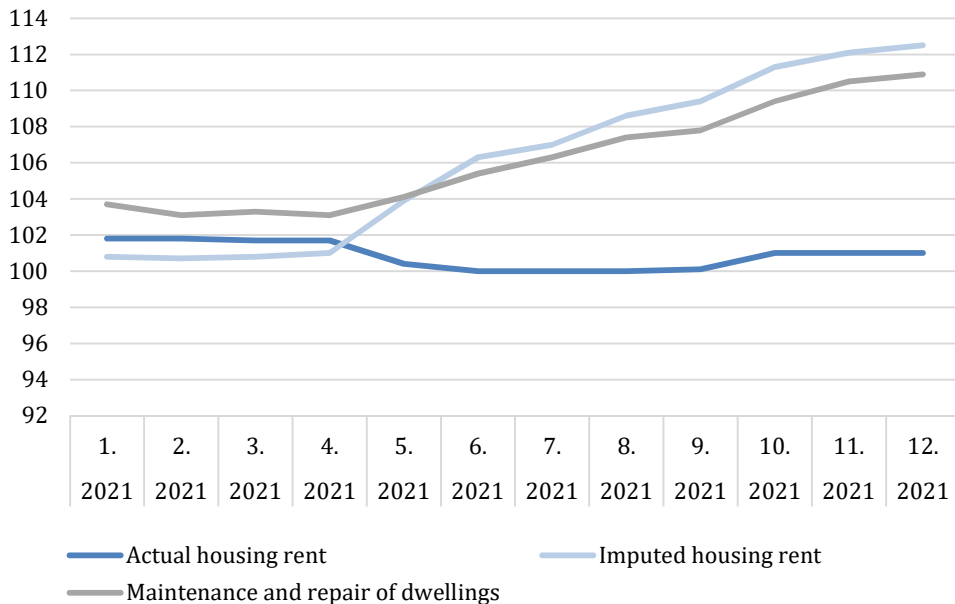


Source: ŠÚ SR (2022); author's calculations and design.

Imputed rent is only one of the three parts of the total housing category in the consumption basket (excluding utilities), but its weight is the largest. It also includes the real measured rent for living in rental dwellings and the maintenance and repair of the dwelling, taking into account the cost of construction work and especially materials. However, in the following figure (Figure 5.6), it can be seen that the individual items within the housing category (excluding energy) have a different evolution. Actual rents have only maintained a low level of growth and from April 2021 have reached zero growth until October 2021. Conversely, from the same month onwards, the maintenance and repair of the dwelling, and especially the imputed rent, start to rise. It is no coincidence that the observed divergence between the two inflation rates also starts in the same period. Imputed rent, as an item that is only found in the national methodology, has begun to contribute significantly to the rise in headline inflation. No such item is found in the European consumption basket and therefore the rate of inflation growth is lower.

Figure 5.6

Price Development of Items in the Housing Category (Excluding Energy)
(in %)



Source: ŠÚ SR (2022); author's calculations and design.

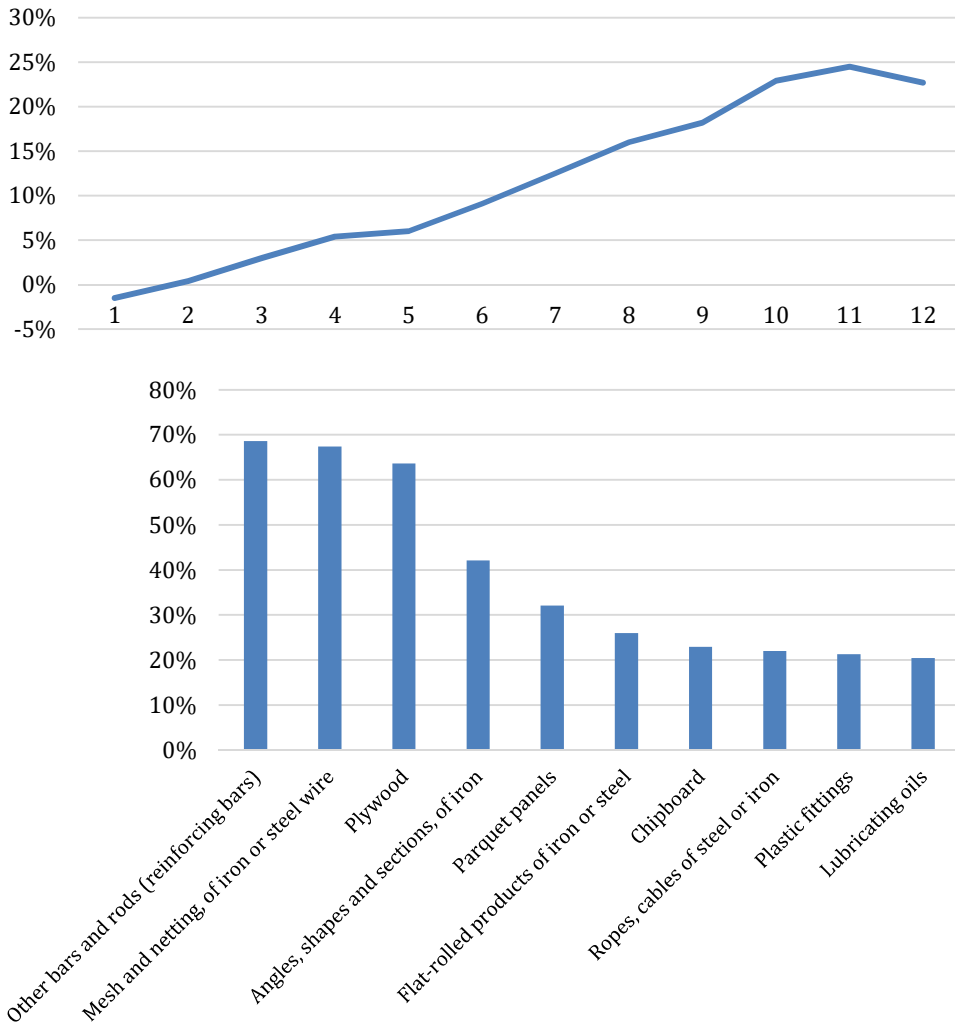
Since the hypothetical rent for owner-occupied dwellings can only be estimated indirectly, its estimation consists of deriving it from an index for rental dwellings, an index for the repair fund and an index for building materials used in the repair and maintenance of privately owned dwellings and houses. The largest contributor to the growth of the three indices, which together determine the estimate of imputed rent developments, is the construction materials price index (neither the index for rental dwellings nor the index for payments to the repair fund follows nearly as dramatic a pattern). And here we come to the connection that was hinted at in the subtitle of the chapter. Building materials caused the contribution of the statistical category imputed rent to increase because of their growth. And imputed rent, as the most important item in the consumption basket, has been able to contribute positively to overall inflation over time (despite the relatively low weight of building materials in it).

Figure 5.7 shows how building materials prices increase by almost a fifth year-on-year (18.4%) over 2021. This is a direct result of the sharp recovery during 2021, when logistical problems and limited production caused a shortage of building materials around the world, driving prices to previously unseen heights. In particular, metal, wood and refined products have seen dramatic increases, with some products registering more than 60% growth (Figure 5.7).

The difference between CPI and HICP inflation can thus be explained by the inclusion of imputed rents in the national methodology. This was mainly driven by the growth of building materials, which as products themselves are not even found in the consumer basket. However, the rise in construction materials was only the first of several signs of an incoming inflationary wave, with energy market developments (especially oil, gas and electricity prices) taking the lead in the overall price increases in the economy in the second half of the year. How the inflationary impulse in oil and gas growth is feeding through to the prices of other products is discussed in the next section.

Figure 5.7

Year-on-year Price Change of Construction Materials in 2021 (in %)
and TOP10 Construction Materials with the Highest Year-on-year Growth in 2021



Source: ŠÚ SR (2022); author's calculations and design.

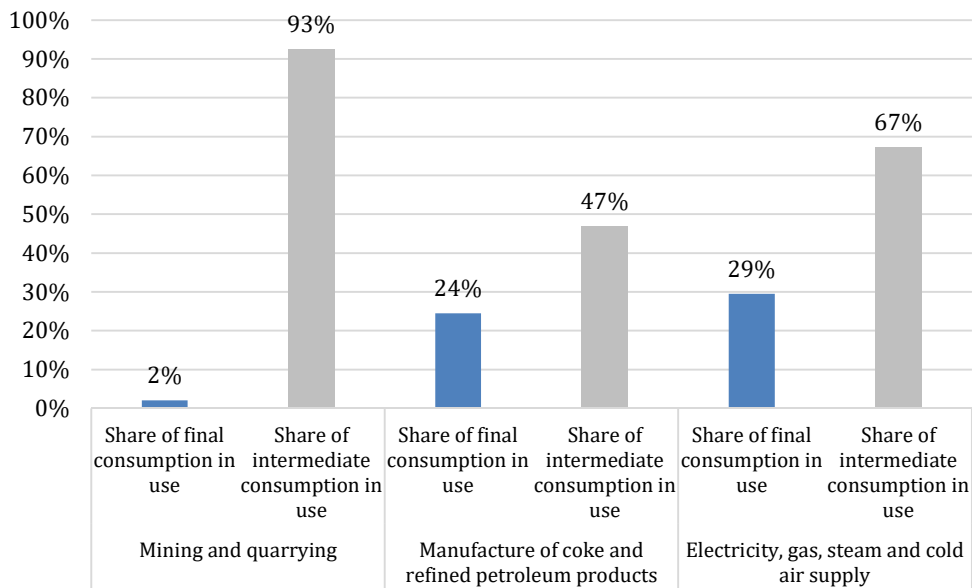
The Rise in Energy Prices Is Just the Beginning

However, the inflationary impulse, which had led to more dynamic inflation growth mainly in the second half of the year, had primarily started to show up in the rising pace of industrial producer prices. Since it is inflation that is primarily driven by rising input costs, it is they who

first felt the rising inflation. Here we will try to indicate how the diffusion of the inflationary impulse in the economy takes place across sectors. We use the 2018 supply and use tables to analyse how the inflationary impulse is transmitted across intermediate consumption, as more recent data is not currently available. However, we assume that the structural changes that were expected following the retreat of the global pandemic have not yet taken place on a large scale, and the following analysis describes, at least in a rough outline, the product flows in the economy.

Figure 5.8

Share of Uses of Selected Industries in Final Consumption and Intermediate Consumption in 2018 in Slovakia (%)



Source: ŠÚ SR (2022); author's calculations and design.

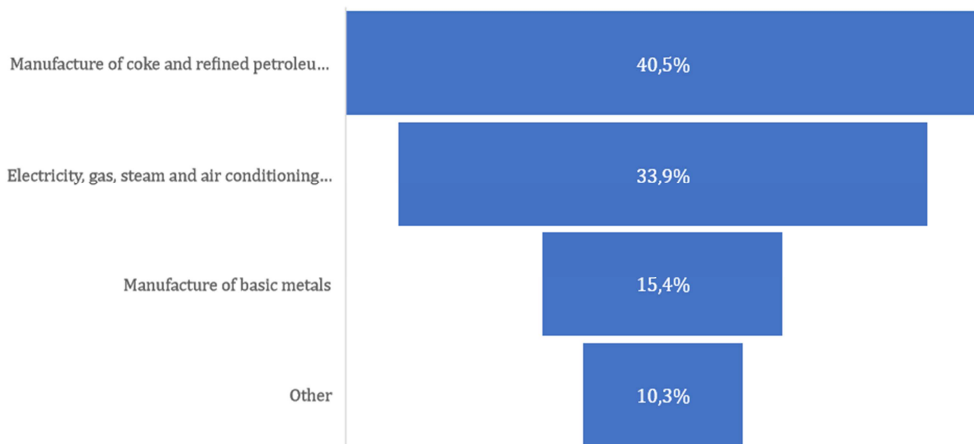
Analysing product flows concerning their use in the economy is always challenging because the relationships of the different sectors are complex and difficult to describe at the level of a conventional descriptor. However, within intermediate consumption, a special place can be attributed to energy prices, which are an essential part of any productive activity. Slovakia hardly has its own sources of these commodities and is therefore dependent on purchasing them from abroad, where their price is determined on global markets. There is thus very limited scope for

reducing the transmission of the inflationary impulse generated abroad to domestic prices. What is important, however, is the position of these types of commodities in the production chain. The primary sector where they appear is the mining and quarrying sector, where they make up the majority of imports. If the total volume of supply of these products is taken into account, only 2% of them go to final use, while the majority enter further up the production chain.

Taking a closer look at which other sectors the products of *mining and quarrying* enter as intermediate consumption, we can clearly identify that the production of *coke and refined petroleum products*, together with the supply of *electricity, gas, steam and cold air*, are the two largest sectors, taking almost 75% of the sector's total products destined for intermediate consumption (Figure 5.9).

Figure 5.4

Sectoral Structure of the Use of Mining and Quarrying Products as Intermediate Consumption (in %)



Source: ŠÚ SR (2022); author's calculations and design.

The initial inflationary impulse is thus still relatively concentrated in a narrow group of sectors. However, if we look at Figure 5.8, we find that even these two industries, which primarily draw their intermediate consumption from the *mining and quarrying* sector, do not reach even one-third of the use of their products for final consumption anyway. Their most common use is again intermediate consumption. Thus, the newly

created inflationary impulse is further multiplied across sectors of the economy in the form of rising production inputs. *Coke and refined petroleum products* further enter sectors such as *land transport, wholesale and retail trade and others*, where the initial impulse is already spilling over and further multiplying.³⁰

If we wanted to demonstrate in an unpretentious way the total range of industries that will be affected by an increase in intermediate consumption (without using the input-output method), we can use a simple indicator of the size of the median value of the share of intermediate consumption by commodity. Since the median, unlike the mean, is not sensitive to outliers, it gives us a better indication of how diversified the structure of buyers of each commodity is than the intermediate consumption. If a value close to zero is given, it means that only a small number of industries are taking the products (commodities) and the inflationary impulse would have only a limited impact on product price growth in the first round. Conversely, the higher the median value, the wider the portfolio of industries and their products will be affected already in the first round by the increase in input prices.

Unsurprisingly, it is the two sectors mentioned above (*coke and refined petroleum products* production, together with *electricity, gas, steam and cold air supply*) that are at the top of this indicator. Only *repair and installation of machinery and equipment*, which logically enters each production equally, and *furniture and other manufacturing*, which aggregates all other activities that do not have their own category, have a higher median value.

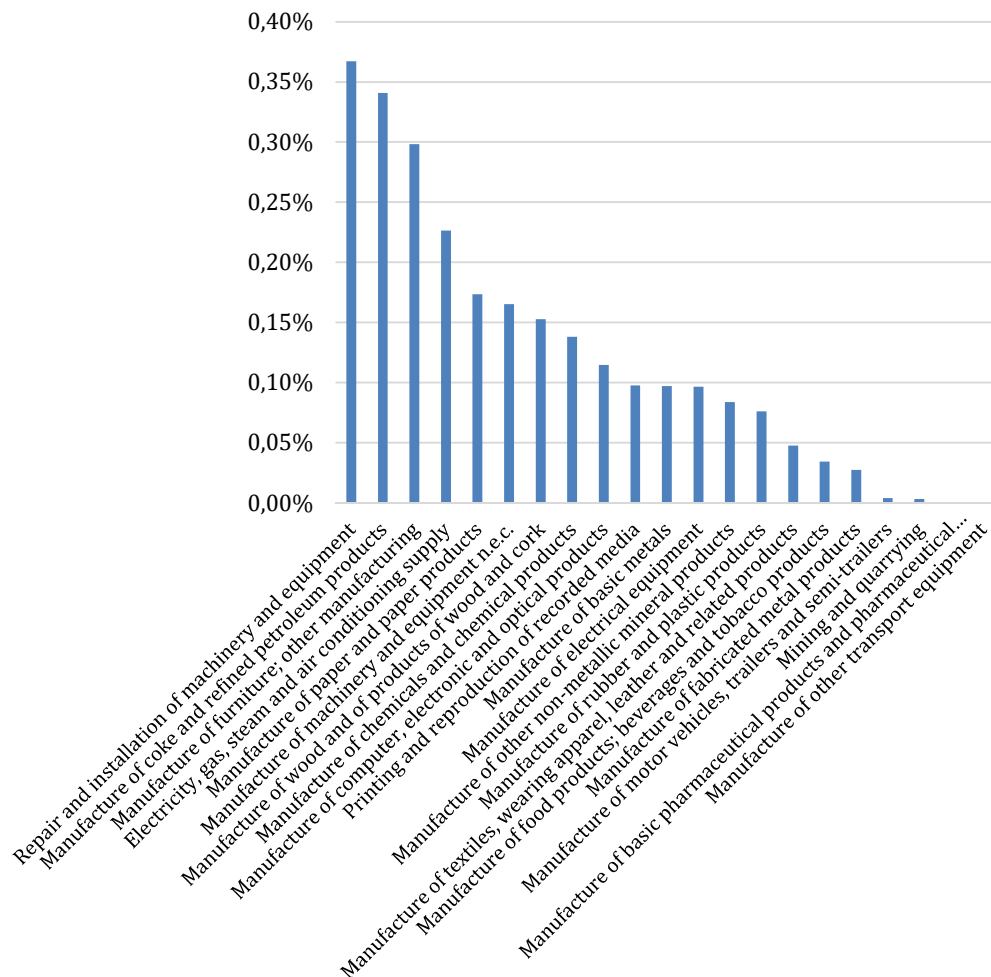
In conclusion, the rise in energy prices is thus one of the most sensitive places for the external inflationary impulse to spread throughout the economy. This is made possible by its high share of intermediate consumption in the use of the products of primary energy-intensive industries. The increase that can be observed in industrial producer prices is only subsequently passed on to final consumer prices and therefore only realised with a slight time lag in cost-push inflation. A similar

³⁰ Using the input-output method, the structure of flows of goods and services across the economy could be described in detail, but its complexity is beyond the scope of this publication.

situation can already be observed today, with a sharp and dynamic rise in consumer prices only taking place in 2022, although the first signs have already appeared in the economy in the second half of 2021.

Figure 5.10

Median Value of the Share of Intermediate Consumption in the Sectoral Structure of Industrial Production (%)



Notes: A higher value indicates a wider use of products as intermediate inputs across industries, i.e. the higher the value an industry achieves, the more the effect of the rise in intermediate inputs prices spills over to a larger number of other industries and their products.

Source: ŠÚ SR (2022); author's calculations and design.

Higher Inflation Is Here to Stay for Now

As mentioned in the previous section of this chapter, the global pandemic and the post-pandemic recovery have played a role in driving up prices in the economy, but even after these have receded and traditional supplier-customer relations have been restored, we do not foresee a stabilisation in prices for the next few years. This is mainly due to new inflationary impulses in the energy sector or due to rapidly rising food prices, which are also partly affected by new geopolitical risks. The higher values at the end of the year already largely predicted dynamic growth, which, however, only became fully apparent with the arrival of 2022 and the rise in regulated prices. Looking ahead, the inflation rate will be in double digits for at least two years, but the degree and magnitude of the expected monetary restriction by the ECB will also predetermine its subsequent development. The announced increase in key interest rates may help to tame dynamically evolving inflation, but the length of the transmission mechanism suggests that the expected effect will not be felt so soon. In addition, it is questionable whether, by the time the expected monetary policy restriction is felt in the real economy, it will no longer be operating differently from that originally initiated. However, given the nature of inflation, there is very limited scope for government intervention when the primary focus should be on protecting those most affected by inflation. Inflation has thus rightly come to the centre of attention on economic developments in the country after a decade of stagnation and unattractiveness on the part of consumers. And rightly so, it has to be added, because its impact on the living standards of the population is inevitable and affects especially the most vulnerable.

6. PUBLIC FINANCE

Public finances were also significantly affected in 2021 by the ongoing pandemic of a new coronavirus, which manifested itself in two major waves. This is illustrated by the amount of expenditure related to the pandemic, which has doubled since 2020, reaching EUR 3 billion. The total public deficit reached 6.2% of GDP, which was lower than planned, but this amount is unprecedented even in Slovak conditions. The pandemic has tested the functioning of the entire public sector, and from the point of view of public finances, there has been, above all, an increase in public debt and a deterioration in the long-term sustainability of public finances. Necessary reforms to bring Slovak public finances to a sustainable level were implemented only in 2022 (e.g. spending limits). Also, the expected and necessary reform of the pension system has not yet been approved.

Development of the General Government Budget

The impact of the novel coronavirus pandemic has naturally been reflected in a year-on-year deterioration in all basic parameters of public finances. Public revenue was EUR 41.5 billion and expenditure EUR 47.4 billion. The general government deficit was EUR 5.97 billion in ESA 2010. Compared to the previous year, it was higher by around EUR 900 million. The general government deficit was mainly negatively influenced by expenditure on health insurance, state funds and the National Highway Company. Public finances were positively affected by lower spending of the Social Insurance Agency (no fall in employment), public universities, state non-profit organisations and the Nuclear and Decommissioning Corporation (JAVYS).

On the revenue side, tax collections were higher than planned in all tax types except excise duties (fuel and tobacco taxes). The closure of the economy contributed to a lower consumption of fuels, which reduced the revenue from this tax by EUR 34.3 million compared to the planned amount. Revenue from social and health levies did not experience

a dramatic decrease due to favourable developments in the labour market and overall, more favourable macroeconomic indicators than projected in the budget's proposal.

Table 6.1

Main Indicators for Public Finances in 2018 – 2021

Indicator		2018	2019	2020	2021
Net lending (+)/borrowing (-)	mil. eur	-905	-1 219	-5 035	-5 973
Net lending (+)/borrowing (-)	% HDP	-1.0	-1.3	-5.5	-6.2
Primary balance	% HDP	0.3	-0.1	-4.3	-5.0
Structural primary balance	% HDP	-0.3	-0.8	-3.1	-4.4
Structural balance	% HDP	-1.6	-2.0	-2.4	-2.1
General government gross debt (Maastricht)	mil. eur	44 384	45 277	55 012	61 259
General government gross debt (Maastricht)	% HDP	49.6	48.1	59.7	63.1
General government net debt	% HDP	43.6	43.2	49.6	51.3

Note: 1. Net lending/borrowing for the years according to the ESA 2010 methodology. 2. The primary balance is the general government balance net of interest paid. 3. Cyclically-adjusted primary balance is the primary balance net of the cyclical component. 4. the structural balance is the general government balance net of the cyclical component and one-off effects. 5. Government net debt is government gross debt less government liquid financial assets.

Source: MF SR (2022d).

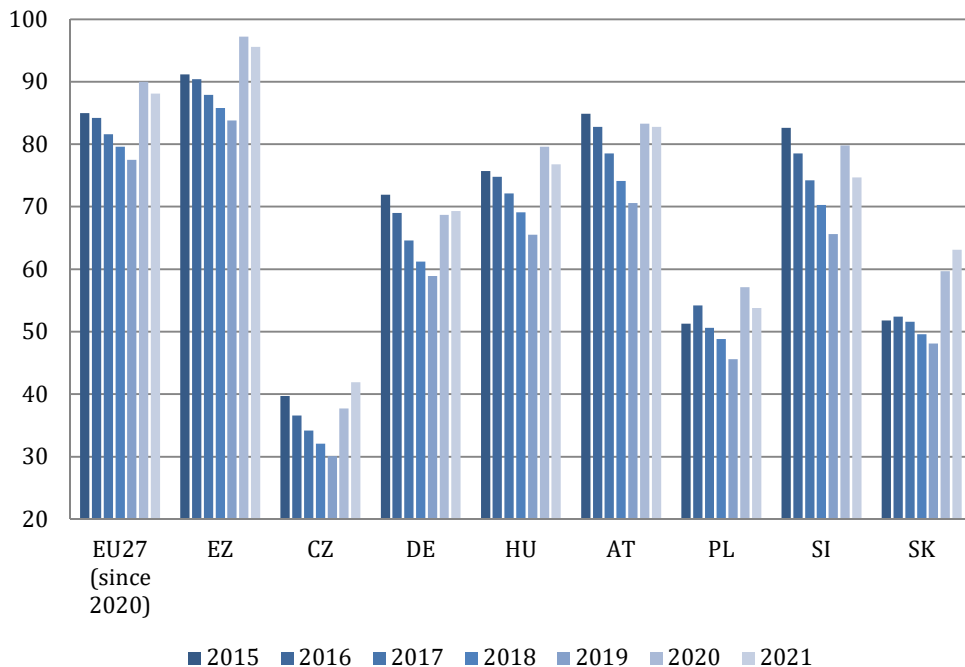
The deficit rose to 6.2% of GDP because of extra spending to support the economy. The contribution of the measures to the deficit was EUR 3.4 billion, compared to EUR 1.7 billion in 2020. In support of the economy, the European Commission temporarily relaxed the rules on the use of cohesion policy resources, allowing them to be used specifically for anti-pandemic measures. Slovakia has made only minimal use of this possibility, using only EUR 388.3 million of cohesion policy resources. Given that the level of absorption was not even half of the total allocation at that time, EU resources could have contributed significantly to a lower government deficit. This result is a combination of several causes, which we will try to briefly outline. The first is the traditional departmentalism of individual ministries, which have the status of managing authority for individual operational programmes. The second reason is that in some operational programmes a relatively high per-centage of the total allocation is already contracted and the managing authorities did not want to jeopardise future spending. It can be stated that, with half of the total

allocation unspent, the EUR 388 million provided was the absolute minimum that could be used in the current set-up of the system. The opportunity to ‘help’ domestic public finances at a time of pandemic from European funds was regrettably missed.

Compared to the average of both EU and euro area countries, gross public debt was 25 pp and 32.5 pp lower, respectively (Figure 6.1). Regionally, Slovakia had the second highest gross public debt (63.1%) among the V4 countries, after Hungary (76.8%). The Czech Republic had the lowest gross public debt (41.9%).

Figure 6.1

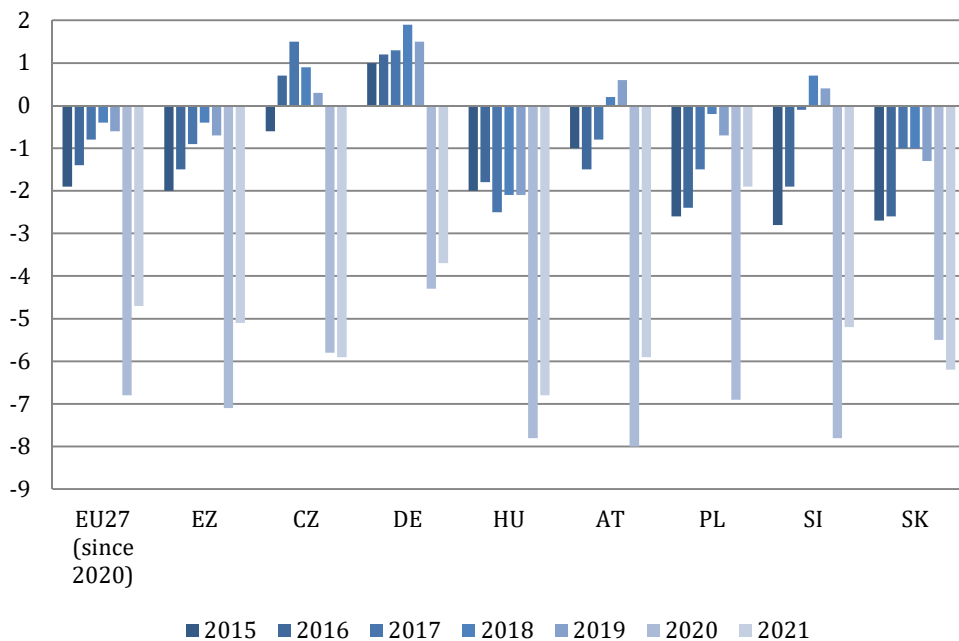
Comparison of Gross Public Debt as % of GDP (2015 – 2021)



Source: Eurostat (2022).

Taking a closer look and comparing with neighbouring countries as well as the EU and euro area averages, we can see that the deficit achieved was the second highest among the V4 countries and was also above the EU and euro area averages (Figure 6.2).

Figure 6.2

Comparison of General Government Deficits as % of GDP (2015 – 2021)

Source: Eurostat (2022).

Main Development Trends in the State Budget in 2021

The central government budget deficit reached EUR 7 billion, down by EUR 744 million compared to 2020, mainly due to higher tax revenues and lower expenditure growth (Table 6.2).

Table 6.2

Development of Central Government Budget in 2018 – 2021 (mil. eur)

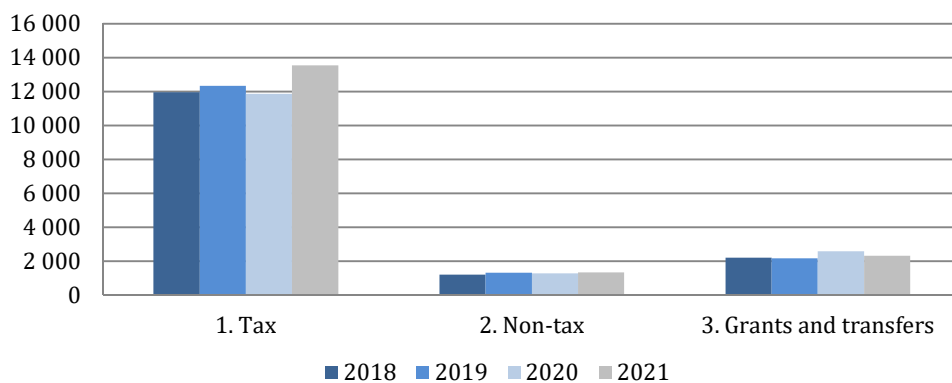
	2018	2019	2020	2021
Total revenue	15 381	15 825	15 750	17 197
1. tax	11 966	12 336	11 872	13 546
2. non-tax	1 211	1 327	1 289	1 338
3. grants and transfers	2 203	2 161	2 588	2 313
Total expenditure	16 563	18 027	23 509	24 211
Current expenditure	14 160	15 168	20 846	21 772
Capital expenditure	2 402	2 858	2 662	2 440

Source: MF SR (2022a); own calculations.

In the structure of tax revenues, we can observe a significant increase in tax revenues in 2020 and a decrease in revenues from grants and transfers to the level of 2019. The most significant part of this item is the revenue from the EU budget, which, despite the approaching end of the current programming period, does not show a significant year-on-year increase. This is confirmed by the persistent problem of absorption of policy coherence resources.

Figure 6.3

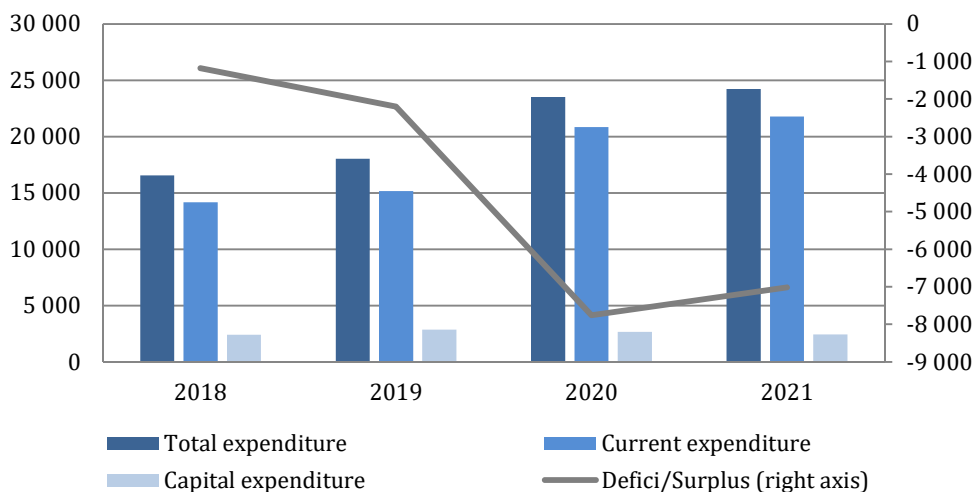
Development of Central Government Budget Revenue in 2018 – 2021



Source: MF SR (2022a).

Figure 6.4

Development of Central Government Budget in 2018 – 2021



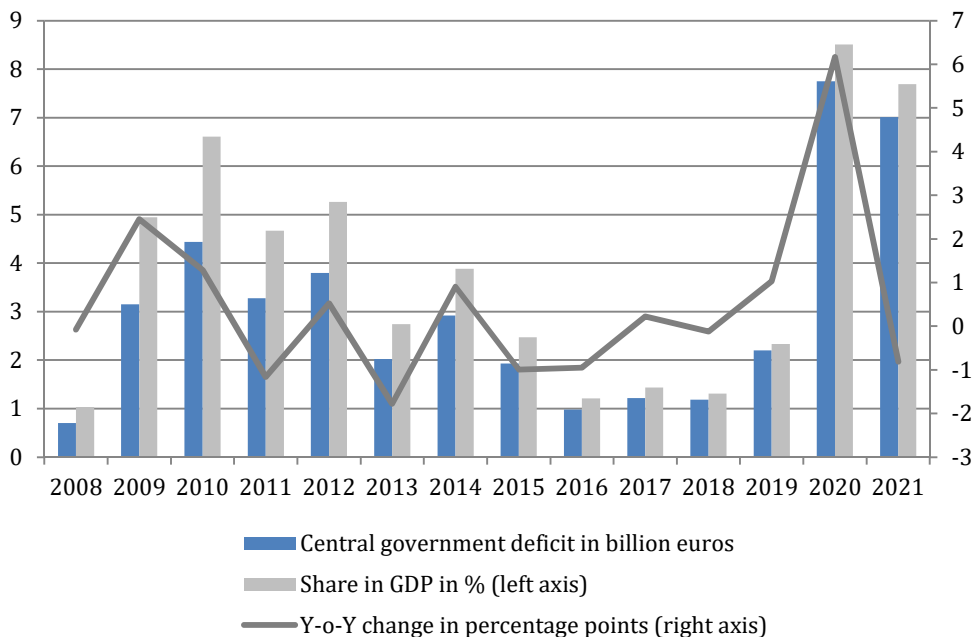
Source: MF SR (2022a).

Central Government Deficit and Debt

The two-year period, coupled with the need to stimulate the economy and help vulnerable populations, was also reflected in a high government budget deficit in 2020 and, consequently, in the debt of the central government (Figures 6.5 and 6.6).

Figure 6.5

Central Government Deficit in 2008 – 2021

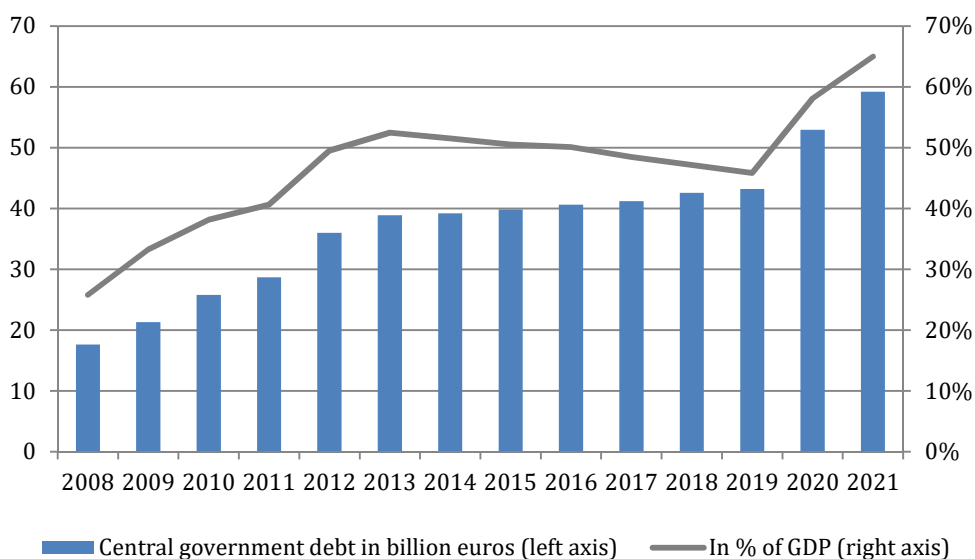


Source: MF SR (2022a); own calculations.

However, the deficit as a % of GDP fell by 0.8 p.p. year-on-year. The two-year period of the pandemic caused the central government's debt to rise from EUR 43 billion to EUR 59.2 billion.

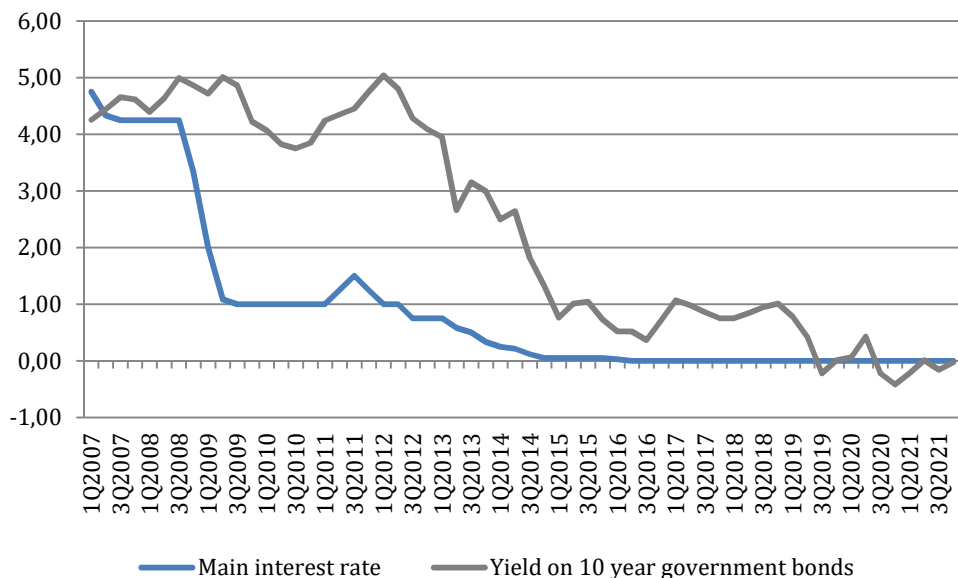
Even in 2021, yields on ten-year Slovak government bonds were low. We expect the ECB to tighten monetary policy in 2022 due to high inflation, which will be reflected in higher bond yields and overall public debt servicing.

Figure 6.6
Central Government Debt in 2008 - 2021



Source: MF SR (2022b); own calculations.

Figure 6.7
Development of Interest Rates on 10-year Slovak Government Bonds in 2007 - 2021 (%)



Source: Makroekonomická databáza NBS.

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

In 2021, the EU's common budget continued its operation, with EU budget spending reaching EUR 2.5 billion in Slovakia in 2020 (Table 6.3). The highest volume has traditionally been allocated to the Sustainable Growth chapter, which covers all major cohesion policy investments in the Slovak Republic.

Table 6.3

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

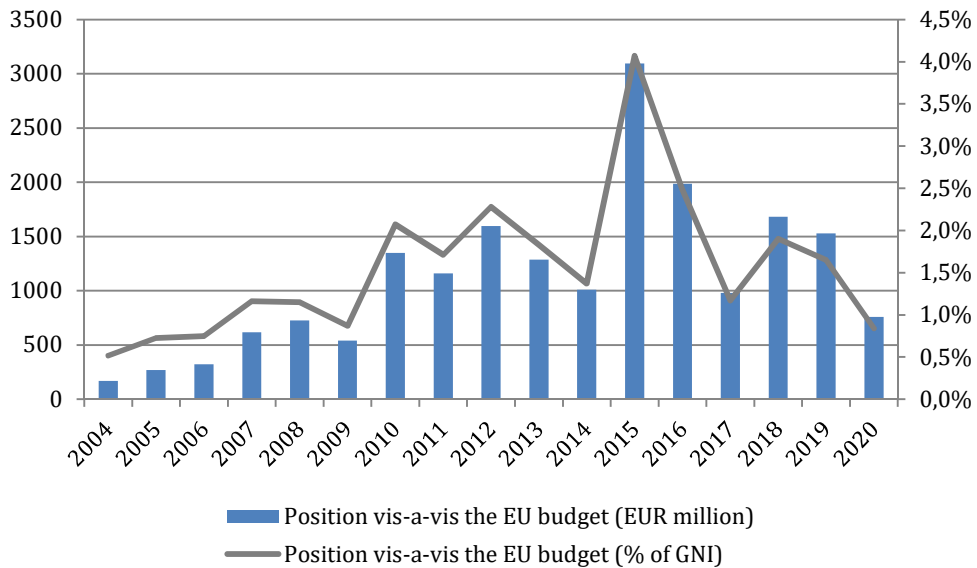
	2014	2015	2016	2017	2018	2019	2020
1. Sustainable growth	1120	3147.9	2075	1005.8	1782.6	1606.8	1911.1
1.1 Competitiveness for growth and jobs	69.2	61.6	85.5	191	168.3	129.3	95.9
1.2 Cohesion for growth and jobs	1051.7	3086.3	1989.6	814.9	1614.3	1477.5	1815.3
1.2.1 Structural Funds	1026.3	3053.6	1904.2	759.1	1544.8	1375.9	1734.4
1.2.2 Cohesion Fund	507.2	1281.1	558.2	325.7	723.9	547.7	359
2. Conservation and management of natural resources	532	566.5	566.4	616.9	653	671	658.5
3. Citizenship, freedom, security and justice	5.6	9	10.7	11.2	10.2	14.4	12.2
4. The EU as a global partner	0	0.5	0.1	0	0	0	0
5. Administration	10.2	10.9	10.6	11.3	11.4	12.2	11.7
6. Compensation	0	0	0	0	0	0	0
Total	1668.8	3734.8	2662.8	1645.2	2457	2304.4	2593.6

Source: EC (2022).

Notable is the development of the net position vis-à-vis the EU budget, which has reached an unusually low level. This is explained by the relatively slow absorption of cohesion policy resources, as the catching-up period was about 50% spent at the end of 2021 and the new programming period 2021 – 2027 did not yet have a signed the Partnership Agreement in 2021. The Partnership Agreement is the basic document that sets the objectives, the financing of individual interventions and the specific allocations to individual investment priorities.

Figure 6.8

Development of the Net Position of the Slovak Republic vis-à-vis the EU budget, 2004 – 2019



Source: EC (2022).

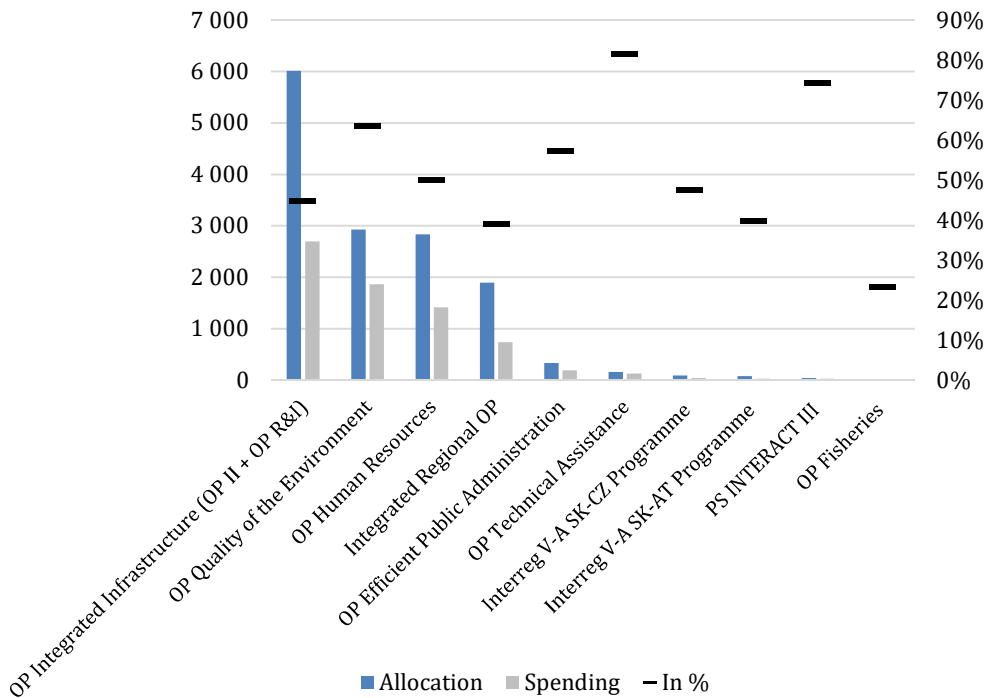
Implementation of the European Union's Cohesion Policy in the 2014 – 2020 Programming Period – the Traditionally Insufficient Pace Continues

In the previous paragraphs we have already stated in many places that the pace at which Slovakia is implementing the operational programmes is inadequate and this situation indicates that the system that was set up for this programming period was far from optimal. In 2021, negotiations on the new programming period 2021 – 2027 continued between the Slovak Republic and the EC. The new Partnership Agreement represents a significantly different document and provides the prerequisites for a more dynamic absorption of cohesion policy resources in the current programming period 2021 – 2027. We will discuss the Partnership Agreement in more detail in next year's edition of Economic Developments, as it was negotiated and signed in July 2022.

Figure 6.9 illustrates the spending by individual operational programme at the end of 2021.

Figure 6.9

Implementation of ESIF in the 2014 – 2020 Programming Period By Operational Programmes at the End of 2021 v % (EU funding)



Source: MF SR (2022c); own calculations.

Among the Operational Programmes (OPs), the OP Quality of the Environment, OP Human Resources, OP Technical Assistance, OP Efficient Public Administration are the best implemented. In 2021, corrections of EUR 140.7 million were made against the SR as a result of misuse of funds in previous years.

Pandemic Mitigation Measures – Government Support and Recovery and Resilience Plan

Even in 2021, the government had to spend relatively high volume of financial resources on compensation related to the new coronavirus pandemic. Table 6.4 illustrates, in aggregate, the different types of assistance and their associated costs. Looking at the structure of the different types of assistance, the largest amount of funding has been allocated to

support employment retention and health. Total public expenditure on measures related to the new coronavirus pandemic amounted to EUR 3.4 billion. In this context, the relatively small use of resources from the European Union to finance anti-pandemic measures is a missed opportunity.

Table 6.4

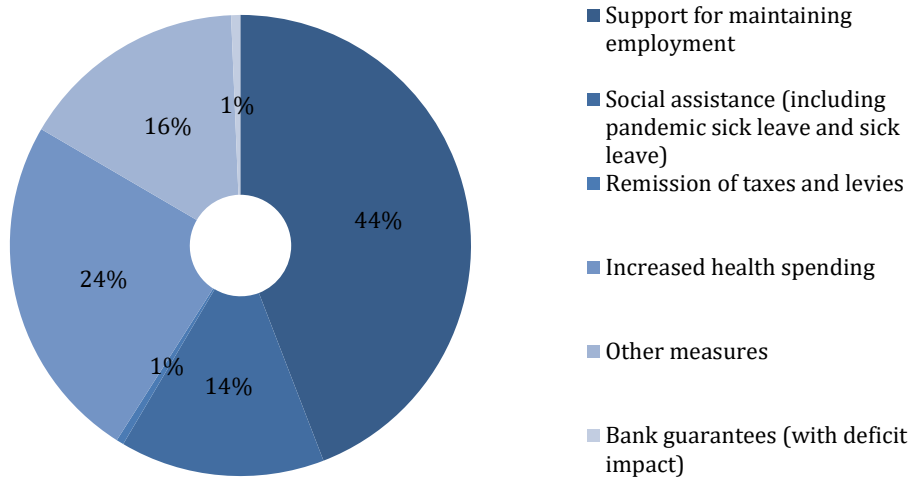
Expenditure Associated with a Novel Coronavirus Pandemic in 2021

Type of aid	In mil. eur
Support for maintaining employment	1 506
Social assistance (including pandemic sick leave and sick leave)	490.7
Remission of taxes and levies	16.9
Increased health expenditure	833.5
Other measures	543.4
Bank guarantees (with deficit impact)	22.5
Total	3 413.2
Expenditure reimbursed from EU sources	388.3
Impact on government deficit (Total expenditure)	3 024.9

Source: MF SR (2022e).

Figure 6.10

Share of Individual Measures in Total Pandemic-related Expenditure



Source: MF SR (2022e); own calculations.

Based on Regulation 2021/241 of the European Parliament and of the Council of 12 February 2021, which established the Recovery and Resilience Support Mechanism, the SR has developed a Recovery and

Resilience Plan consisting of five main areas and, in more depth, eighteen specific components (Table 6.5).

Table 6.5

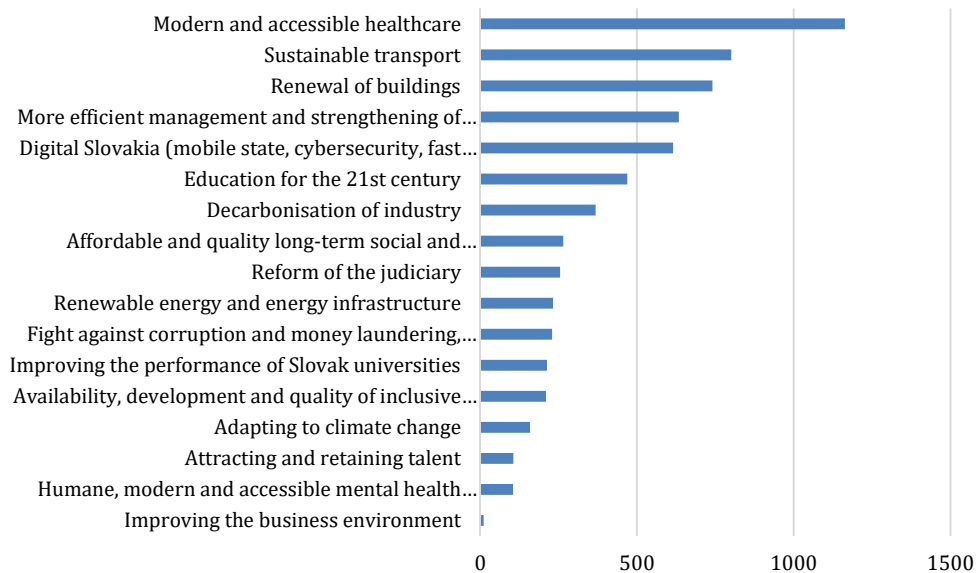
Financing of Individual Areas in the Recovery and Resilience Plan

Area	In mil. eur	Digital contribution	Green contribution
Green economy	2 301	170	2 199
Education	892	235	114
Science, research, innovation	739	156	79
Health	1 533	43	311
Efficient public administration and digitalisation	1 110	730	29
Total	6 575	1334	2732

Source: Úrad vlády SR (2021).

Figure 6.11

Overview and Funding of Individual Components in the SR Recovery and Resilience Plan



Source: Úrad vlády SR (2021).

This rather extensive document (807 pages) is a unique opportunity to change the functioning of individual areas of Slovak society and to direct it towards a greener, stronger, more educated, more innovative,

and better governed society. The Recovery and Resilience Plan covers in 18 components most of the important areas in which Slovakia needs to invest in the long term (Table 6.11). Combined with the start of the new programming period 2021 – 2027 and the ending programming period 2014 – 2020, Slovakia will have many financial resources that can significantly move the Slovak economy into the 21st century, if used effectively.

Conclusion

The development of the Slovak economy and thus public finances will be affected in the coming years by several factors that have persisted for the last two years, in particular the pandemic of a new coronavirus, the Russian war aggression in Ukraine, high inflation (caused mainly by the rise in the prices of energy carriers), disrupted supply and value chains, and the shortage of modern electronic components, especially chips. Domestically, it will be necessary to manoeuvre cautiously in the area of increased revenues due to inflation and increased demands on the expenditure side of the budget. At the same time, long-standing structural problems in expenditure persist, and the political risk of spending populism, which may generate additional and uncovered expenditure, is also an important factor. Pension reform is one of the most important instruments for the long-term sustainability of public finances, but the form in which it is adopted is critically important. The revenue side of the budget requires reform after many years, so that the tax and social systems are simpler, clearer, fairer and more solidarity based. A persistent problem is the use of cohesion policy resources, where Slovakia is still in last place among EU Member States. Despite some progress, Slovakia still faces the daunting task of spending less than half of the total 2014 – 2020 allocation in two years. Together with the funding from the Recovery and Resilience Plan and the new programming period, this will put enormous pressure on the administrative capacity, absorption capacity of beneficiaries to finance meaningful and developmental and investment projects. The reform of local government also remains an open question, particularly but not only in financing of original and decentralised competences.

7. ECONOMIC POLICY MEASURES IN 2021

Even in 2021, the economic life in Slovakia was significantly affected by the COVID-19 pandemic, the persistence of which was reflected in the adopted economic policy and legislative measures. As in previous years, legislative activity was determined by the transposition of EU legal norms into the Slovak legal order. This "Brussels effect" was strengthened in 2021 by the initial implementation of the Recovery and Resilience Plan, which becomes one of the central motives of economic public policies and the driver of reforms in the public sector. In 2021, it was the beginning of reforms in justice – a new court map, optimization of the hospital network and changes in the organization of universities. The third moment that distinguished the nature of economic policy measures from previous years was the growing geo-political tension in Eastern Europe, which was reflected in the updating of soft legislation in the field of defense policy. In this chapter, we pay attention to selected strategic documents that relate to the economy and frame the performance of economic policy in the medium-term horizon; in the second part of the text, we will describe selected and, in our opinion, relevant legislative measures (amendments to laws and new laws) that were approved in 2021.

Future Economic Policy: Some New Strategies, Action Plans or Concepts

The adopted strategic document *Stability Program for the years 2021 – 2024*, which we understand as the most important medium-term economic policy framework, defines some key aspects of Slovakia's economic policies for the coming years. Among the main policy priorities, the program includes ongoing reforms in the pension system, which are supposed to ensure its long-term sustainability, reform of public finance management, implementation of the *Recovery and Resilience Plan* funds, and which represent a tool for structural changes. The determining strategic framework of economic policies and structural changes and public investments caused by them in the next few years will be the *Slovak*

Recovery and Resilience Plan. The document *Analysis of the Recovery and Resilience Plan of Slovakia* (EC, 2021) formulates measures to accelerate progress in the field of digital and green transformation, education, health-care, childcare, research, development and innovation. The estimated costs for the implementation of the plan are estimated at EUR 6.575 billion. Climate-related measures account for up to 43% of the plan's expenditure. 21% of the funds are earmarked for the digital transformation of the Slovak economy and society (especially public administration, healthcare and justice). The implementation of the funds is governed by the extensive newly adopted *Act No. 368/2021 Coll.* on a mechanism to support recovery and resilience.

The areas of science and innovation policies in the medium term are shaped by the update of the national *Research and Innovation Strategy for Smart Specialisation (SK RIS3)*. The adopted document entitled *Draft Research and Innovation Strategy for Smart Specialisation of the Slovak Republic 2021 – 2027* is the basic starting point for the content orientation of the support from EU funds for the field of science, research and innovation for the period 2021 – 2027. One of the objectives is to increase the gross expenditure on R&D to 1.2% of GDP by 2024 and to 1.64% by 2030. *The Research Infrastructure Roadmap 2020 – 2030* sets out a "systemic framework for research infrastructure policies and activities at national and international level". In the context of science and innovation policy, we can also mention the *National Strategy for Open Science 2021 – 2028 and the follow-up Action Plan for Open Science 2021 – 2022*. The principle of open (free) access to publicly funded scientific results is one of the pillars of EU science policy, and in particular the Action Plan foresees the implementation of a number of changes for all actors in the Slovak R&D sector. *The Strategy for the Internationalisation of Higher Education by 2030* also concerns the research environment and universities. The aim is, for example, to significantly increase the participation in scholarship programmes of Slovak students, teachers and researchers abroad, to increase the share of foreign students in Slovakia or to increase the number of accredited full-time study programmes conducted exclusively in a language other than the national language, etc.

Security is also at the forefront of economic policy concerns in 2021, not only as a result of the pandemic threat but also as a result of rising tensions in international relations. Security and defence policy is (again after a long time) becoming a determining factor in economic policies and the regulatory function of the state. We can observe increased legislative activity in this direction. Two strategic documents have been adopted: the *Defence Strategy of the Slovak Republic* and the *Security Strategy of the Slovak Republic*.³¹ In the context of security, we can also mention the adoption of the *Concept for Combating Radicalisation and Extremism until 2024* and the *National Cyber Security Strategy for 2021 – 2025*. An amendment to the Act on Critical Infrastructure (72/2021 Coll.) has also been adopted. The amendment extends critical infrastructure to include nuclear installations, introduces exemptions in the designation of critical infrastructure elements and specifies the obligations of the critical infrastructure operator.

The state's idea of adaptation of the economy and society to the impacts of current and future climate change is formulated in the *Action Plan for the Implementation of the Strategy for Adaptation of the Slovak Republic to Climate Change*. The Action Plan defines cross-cutting measures such as the creation of a national information system for the provision of climate information, a risk management system, the building of green infrastructure and ecological networks, the creation of a functional framework for the support of science, education and awareness development on adaptation issues (e.g. strengthening the topic in domestic research grant schemes). Industrial, energy and environmental policies are addressed by the adoption of the *National Hydrogen Strategy Ready for the Future*. The strategy defines in general terms the role of the public sector in the use of hydrogen technology, especially in transport, and outlines the instruments to support it.

The Government of the Slovak Republic approved the strategic document *Housing Policy of the Slovak Republic until 2030*. The document quantifies the objectives (with reference to the Vision and Strategy for the Development of Slovakia until 2030) in the area of housing construction:

³¹ Previous versions of the defence and security strategy were adopted in 2005.

(i) increase the number of available dwellings per 1,000 inhabitants to at least the EU average (395 dwellings); (ii) increase the share of rental (including barrier-free) housing in the total volume of available housing stock to 10% by 2030; and (iii) improve the social accessibility of housing by doubling the share of rent-regulated dwellings in the total volume of dwellings from 1.6% to 3% in 2030 (MDV SR, 2021). The means to achieve the objectives are extensive legislative changes (changes in the laws on construction, spatial planning or changing the landlord – tenant relationship, etc.), the development of public and private rental housing, etc. In connection with the development of the housing stock, we should also mention the adoption of the *Long-term Strategy for the Renewal of the Building Stock*, which concerns the renovation and improvement of the energy efficiency of private and public buildings in Slovakia. The renovation of buildings is one of the components of the *Slovak Recovery and Resilience Plan* and will therefore be one of the priorities of public policies for the transition to a green economy.

The labour market is covered by the *Migration Policy of the Slovak Republic with a view to 2025*. Its main objective is "... in accordance with the national interests and international obligations of the Slovak Republic, to create conditions in the field of legal migration, taking into account the priorities, needs and reception capacities of foreigners, including their integration into society" (MPSRV SR, 2021a). The social sphere is covered by the *National Strategy for the Deinstitutionalisation of the Social Services and Foster Care System*, which aims to "create and ensure conditions for independent and free life for all people in need of assistance in a natural social environment of the community with the support of the community, professionals, family members, volunteers" (MPSRV SR, 2021b).

Selected New Legislation

In response to the need to mitigate the negative impacts of the pandemic, the state continued to take several legislative actions in 2021. The *amendment to the Labour Code (76/2021 Coll.)* clarified the legislative

regulation of homeworking (it specifies the concepts of homeworking and teleworking), as well as the employer's and employee's obligations when using the above-mentioned forms of homeworking. The amendment initially allowed employers to terminate the employment relationship with an employee who has reached the age of 65 and is also entitled to a retirement pension after 1 January 2022. However, the Constitutional Court of the Slovak Republic suspended the effectiveness of this section. The negative effects of the pandemic were to be mitigated by an *amendment to the Act on certain extraordinary measures in the financial sector in connection with the spread of the dangerous contagious human disease COVID-19 (Amendment No. 115/2021 Coll.)*. The amendment introduced a zero VAT rate for respirators, simplified the delivery of notices on the extension of the deadline for tax return submission by tax subjects, postponed the payment of gambling levies, and changed the obligations of associations of owners of flats and non-residential premises. *Amendment No. 133/2021* modified a number of laws in the field of health. This legislative change, for example, includes vaccination against COVID-19 in the scope of health care covered by public health insurance, regulates spa treatment in the case of post-covid syndrome, extends the possibilities of internships by health professionals from third countries or liability for damage to life and health caused by the nature of the vaccine. The new *Act on the Promotion of Short-Term Work 215/2021 Coll.* introduces into the Slovak labour law a short-term work regime called "kurzarbeit", a labour market policy instrument "the essence of which is the provision of legally enforceable financial support to an employer when its activities are restricted due to an external factor. The support serves to cover the employer's partial costs of replacing the wages of an employee in an employment relationship" (Puchoňová, 2022). The law defines the circumstances and situation for granting support (emergency situation, state of emergency or state of emergency and extraordinary circumstance), as well as the conditions for granting support during the period of shortened work. *The amendment to the Remuneration Act (429/2021 Coll.)* created a legal basis for the reimbursement of eligible costs or reimbursement of expenses related to the mitigation of the

negative consequences of the COVID-19 disease in civil air transport resulting from the ban on the operation of civil flights in Slovakia.

The amendment to the *Act on the Support of Least Developed Districts (356/2021 Coll.)* is intended to bring better targeting and fairness to the system of support for the least developed districts. A new model of management committees will be created, which will decide on the granting of regional allowances on the basis of development plans. New features include the fact that projects extending beyond district boundaries can also receive support, or the rule that districts surrounded by LDCs, excluding districts of regional towns, will now be included among the LDCs.

Several legislative changes have affected financial markets and investment. The new *Act on Collective Investment (221/2022 Coll.)* harmonises Slovak law with EU regulations. This extensive legislative change allows collective investment fund managers to benefit from the advantages of the internal market when distributing collective investment funds across borders. The amendment "harmonises the procedure for notifying changes to the regulatory authorities, regulates the methods of providing information to investors and introduces uniform conditions for the termination of the cross-border distribution of collective investment fund securities, thereby contributing to greater protection for investors who have allocated their funds to collective investment funds that are distributed across borders. At the same time, the Directive allows for the testing of investor interest in a particular investment strategy during the pre-marketing phase" (Pro bono, 2021). The *amendment to the Securities and Investment Services Act (209/2021 Coll.)* was adopted „to simplify the operation of smaller investment companies and at the same time to make the largest, systemic companies subject to the same regime as European banks“ (Úrad vlády SR, 2021). The changes also concern the strengthening of co-operation between supervisors and thus improving the protection of co-operation. The *new Customs Act (186/2021 Coll.)* newly regulates the transportation of cash (unaccompanied). The amendment increases the powers of the customs authorities in this respect, the purpose of which is to prevent criminal activity. The *amendment to the Toll Collection Act (404/2021 Coll.)* is intended to bring about increased interoperability of

electronic road toll systems and to facilitate the cross-border exchange of information on unpaid road tolls within the Union. The aim is to facilitate the recovery of unpaid charges for the use of road infrastructure in another Member State (tolls, vignettes, etc.). An *amendment on major investments (Act No. 371/2021 Coll.)* has been adopted. The amendment redefines the conditions, the process and the control of the issuance of certificates of significant investments. According to the previous legal norm, significant investment could be projects in the field of industrial production, services, research and development. The new law extends significant investments to public services. The amendment is intended to facilitate the implementation of industrial parks and the construction of transport infrastructure.

A major *amendment to the Public Procurement Act (365/2021 Coll.)* will have an impact on the functioning of the entire public sector. Its aim was to speed up and simplify public procurement processes. The amendment brings quite a lot of changes to public procurement. It changes the limits for contracts that do not fall within the scope of the law from the original EUR 5,000 to EUR 10,000. The lower threshold for a sub-limited contract has been increased (from EUR 70 thousand to EUR 100 thousand if it is a state contract, for goods and services from EUR 70 thousand to EUR 180 thousand and for construction works from EUR 180 thousand to EUR 300 thousand). A new institute of manifestly unfounded objections is introduced. The amendment introduces the obligation to implement sub-limit and low-value contracts through the state's so-called single electronic platform. The introduction of "a public policy of open communication, the strengthening of the independence of the Public Procurement Office, and the introduction of a stop sign on doing business with the state for specified public officials" (Vargicová, 2022) can also be considered as novelties.

The amendment to the *Commercial Code (519/2021 Coll.)* brings changes, which mainly change the functioning of the Commercial Register (change of the list of compulsorily registered entities in the Commercial Register; electronization; "cleaning" of the register from the so-called inactive or dead companies, etc. The amendment also introduced measures

to streamline the process of liquidation of commercial companies and cooperatives. A company will now enter liquidation only when the liquidator enters it in the commercial register. An *amendment to the Act on Protection of Competition (187/2021 Coll.)* was also adopted. This extensive legislative change transposes the new EU Directive (2019/1) and harmonises existing national legislation. It strengthens the competence of public authorities in competition protection, changes some established concepts in competition protection (e.g. entrepreneur to undertaking), changes the area of merger control and introduces some new institutes.

* * *

The adoption of new legislative and economic policy measures in 2021 responded to the persistence of the pandemic, although new measures were no longer adopted to the same extent as in 2020. The more significant changes have mainly affected the labour market (amendment of the Labour Code or the introduction of the „kurzarbeit“). A major amendment to the Public Procurement Act can be considered a long-awaited and significant change affecting a number of actors. This amendment is expected to speed up the absorption of EU funds. The Recovery and Resilience Plan has been added to the external sources of funding for the development needs of the Slovak economy. Its implementation will be a strong driver for the implementation of structural reforms, especially in the public sector. This was finally demonstrated by the processes of reforms of the judicial map, the organisation of higher education or the optimisation of the hospital network, which were launched in 2021. Proposals for further profound legislative changes can also be expected to provoke intense social debate. In 2022, a new external shock in the form of the war in Ukraine has been added to the need to respond to post-pandemic economic developments, to solve the "traditional" problems of the Slovak economy, and to respond to the challenges of European policies by transposing norms. We assume that future economic policy and legislative activities will concern either paradigmatic changes in energy policies or such areas as external economic relations, economic sanctions, migration and labour market or European integration.

8. EXPECTED QUALITATIVE SHIFT IN THE ECONOMY

In the final part, we provide an insight into the decisive factors that are likely to influence the near future of the Slovak economy. We have no ambition to present quantitative results of our own forecasts – those are usually offered by teams specialized in that. Rather, we are trying to indicate the qualitative side of changes in further development. Especially in areas that are currently perceived with increased attention.

In the opening chapter, it was noted that the development of the economy was determined to an unusually large extent by non-economic factors. Now we can add to that that this will be the case in the short-term, or even in the medium-term perspective. These determinants are not only non-economic, but also largely beyond the reach of public policy authorities in the Slovak Republic.

Post-covid Transformation in Geopolitical Tension

The (presumably) ended corona crisis changed the role of the state in the economy and brought a number of incentives for future structural changes. The structural changes that have been observable so far are only direct, immediate reactions to the shock. However, the change in the possibilities of using labor – the production factor – will bring about a number of structural changes in the medium and long term.

With the still-unfinished impact of pandemic restrictions on the economy (lack of components, problem with the reliability of global production chains, changed nature of work, etc.), a new unexpected determinant appeared in the form of the war in Ukraine. Such a conflict affects (or can affect) the development of the SR economy through many channels, such as:

- The countries involved in the conflict are strategically important in the process of supplying strategic raw materials (Russia as a supplier, Ukraine as a transit country). Limitation of energy consumption is one of the tools of the international community, which it wants to use to influence Russia's actions. On the other hand, the threat of stopping supplies

and manipulation of supplied quantities (especially natural gas) is also a Russian tool to influence the actions of European countries. Supply and withdrawal of the same raw materials are two-sided instruments of coercion. This inevitably leads to a sharp rise in the prices of raw materials (mainly energy) and to shortages.

- The humanitarian crisis and the wave of migration are a burden on public finances and social security systems in European countries.

- The increased need for spending on armaments and security drains resources that could be allocated more beneficially for the economy and society.

- In the event of an escalation of the military conflict in the area of Eastern Europe, the investor attractiveness of the wider region of Central and Eastern Europe may decrease. Under more favorable circumstances, however, there is an advantage in the form of the transfer of a part of entrepreneurs from the territory of Ukraine to Slovakia, as well as advantages from the expected integration process of Ukraine into the EU.

- Restrictions on international trade, isolationism and mistrust form a barrier to prosperity.

- Preferring a more expensive solution for political reasons (in order to damage the aggressor's economy) reduces the overall efficiency of economic transactions for all participants. The promotion of principled social values is inconsistent with current economic efficiency.

- The resulting situation also offers opportunities in the form of an inflow of potential workforce (probably already insufficient in the Slovak Republic) from Ukraine. Opportunities will also be offered by the expected recovery process of Ukraine.

The overall effect of the mentioned factors is the weakening of the pillars of economic growth, with the increase in the scarcity of strategic inputs, and therefore the increase in their prices.

Based on the trends observed in the first months of 2022, it can be assumed that problems with the availability of suitable labor will resume. The expected, albeit complicated, recovery of economic growth with the continued unfavorable development of the number of persons

of productive age leads to the renewal of the problem before 2020: the availability of labor will be a limiting factor for performance growth in more dynamic industries and regions. The inflow of labor force from other Eastern European countries (migration from Ukraine) can temporarily alleviate this limiting factor. However, the alternative of slipping back into recession in response to price and energy shocks is also open (at the time of preparation of this text, indications of such a development were coming primarily from the German economy). In that case, the demand for labor will weaken and the problem of labor shortage will be postponed to a later period.

During the pandemic crisis, the state was given the task of compensating entities that suffered sales shortfalls during the restrictions. This compensatory function receded with the easing of pandemic restrictions. At the same time, a new call for compensation arose: the need to compensate for the rapid increase in prices for households with lower incomes. Added to this were new challenges in the form of the need to increase wages in the public sector (as compensation for the high rate of inflation) or the need to ensure stable supplies of energy.

Public expenditures will be partially regrouped not only due to compensations, but also due to increased expenditures on security, aid and solidarity (in relation to the neighboring war-affected country and its citizens migrating to the territory of the Slovak Republic)

Economic policy is expected to have a longer-term revitalizing effect, which is based on a Recovery and Resilience Plan. Due to the very low investment activity in the Slovak Republic in the period of the last approximately five years (that is, not only during the pandemic crisis), there is a risk of building dependence on external investment sources. The resources provided to the Slovak economy from the EU as part of the Recovery and Resilience Plan are a suitable opportunity to increase the competitiveness of the economy, but they should be seen as a supplementary resource. Not as a substitute for domestic savings and investments.

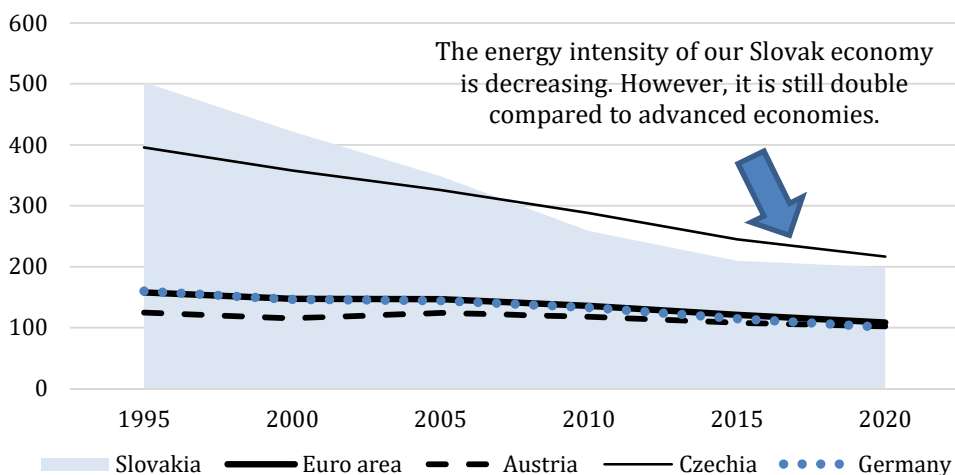
Reducing Energy Intensity with Increased Urgency

During the current, previously absent for a long time, increase in the price level, the public is asking questions about the possible reactions of policy-makers. With regard to the causes of price growth, domestic economic entities have little room for maneuver. However, one of the factors is under the influence of domestic economic subjects: the energy intensity of the economy. Since the rise in energy prices is an essential part of the problem of the rise in the price level, the decrease in energy intensity is a natural defense mechanism.

The energy intensity of the economy refers to how much energy is used to create a volumetric unit of GDP. In Slovakia, it is traditionally high, which is partly a remnant of the historically formed structure of the economy. By introducing newer technologies, changing production programs and changing the structure of the economy, energy consumption was reduced in the last three decades. However, it is still significantly higher than in the advanced economies of Europe (Figure 8.1).

Figure 8.1

Energy Intensity of GDP Creation in an International Comparison (kg of oil equivalents/thousand euros of GDP)



Note: Measured as kilograms of oil equivalents per one thousand euros of GDP generated. Energy commodities (oil, gas, electricity, etc.) are expressed in different units and cannot be simply counted. Therefore, their conversion via their energy value to the so-called oil equivalent is used. GDP data are in constant prices so that they are not affected by price changes.

Source: Eurostat; own design.

In 1995, producers needed to use energy in the volume of 500 kg of oil or other energy with the same energy value (the so-called oil equivalent) to create 1000 euros of GDP. This was up to four times what they needed in the same period in Germany or Austria (the value for the entire Eurozone was almost the same as the value for Germany). In 2020, the Slovak economy needed only less than 200 kg for the same performance, which was "only" double what is needed in the more advanced economies of the Eurozone. This is significant, but still only partial progress.

If energy plays a twice as important role in the creation of GDP in the Slovak economy as in more advanced economies, the burden of increasing energy prices is also twice as high, even in a situation where the rate of price increase is the same. Based on certain historical experience from the 1970s (from the period of dramatic fuel and energy price increases), we can also expect a positive moment – unprecedented technological changes associated with a radical decrease in the energy intensity of economies. In addition to the activity in obtaining new sources of fuel and energy, the possibility of state policies is opening up here: by supporting demanding technological changes that will further reduce the energy intensity of the economy.

Reducing energy intensity is one of the permanent needs of economies, and it has only recently gained importance and urgency. The need to reduce the degree of dependence on Russia in the supply of strategic raw materials has been perceived for a long time (we can talk about decades).

However, real diversification did not occur to a sufficient extent before the outbreak of an open military conflict in Ukraine. We assume that the current security situation will create the necessary pressure to ensure that this change is not postponed indefinitely. In last year's edition of this publication, we pointed out that every economic crisis also brings a kind of window for opportunities for favorable changes. This is one example.

***The Need for Macroeconomic Stabilization:
From Pro-inflationary to Anti-inflationary Policy***

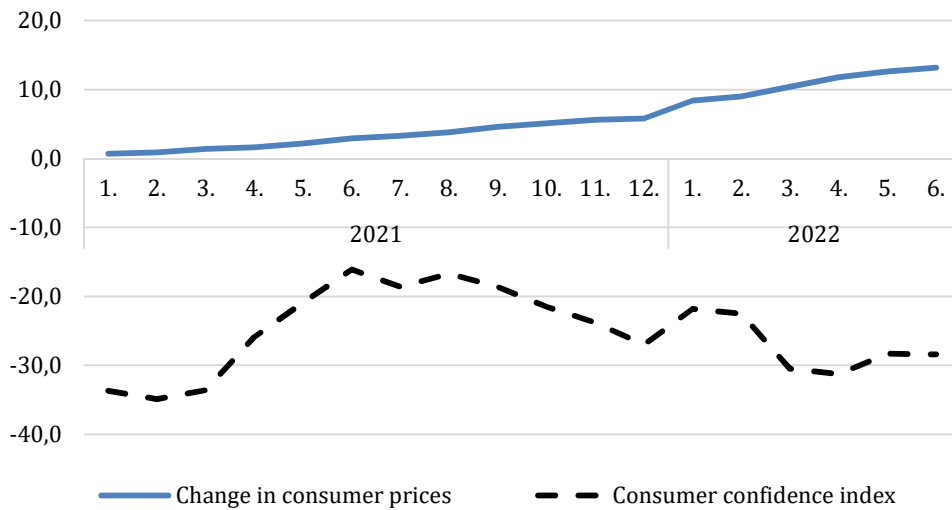
As already shown in the previous chapters, the Slovak economy is once again facing the need to restore stability. The imbalance is manifested by a high rate of inflation, significant deficits in public finances and the growth of public debt.

In society, there is a discussion about reactions to inflation: proposals for determining maximum prices alternate with proposals for compensation for certain groups of the population. Compensations for those with lower incomes are the less controversial option. Fixing prices is associated with the risk of significant distortions: price is, among other things, information about scarcity, it is an essential economic indicator. If this function is "turned off" by fixing the prices, the information about the scarcity will also be lost, the economic indicator will be lost. This can lead to a series of erroneous decisions by all subjects in the economy (if they do not know the scarcity of the goods used, they can misdirect production, consumption, investments, etc.). For example, fixing energy prices would give a false impression of the competitiveness of companies that use these energies with an "artificial" price. And the entire society would have to pay for this false competitiveness through public finances, such a price crutch has its costs (the state takes over part of the company's costs).

Therefore, price fixing should be implemented at most in the short term and as a last resort. Since current movements in the price level are determined by factors beyond the influence of domestic economic policy, it is impossible for the SR itself to implement an effective anti-inflation policy. What can be done in such a situation is to try to effectively help the weaker by means of transfers to households. And in addition to that, of course, to co-operate within the EU in the implementation of common anti-inflation measures. Among them is the already implemented termination of the policy of cheap money, with which the eurozone tried for years to revive the too stagnant price level.

Figure 8.2

Acceleration of Consumer Price Growth and Weak Level of Consumer Confidence (year-on-year changes in HICP in % and consumer confidence index)



Note: The index of consumer confidence reaches values in the interval -100 (the most pronounced pessimism) to 100 (the most pronounced optimism). It is a balance of positive and negative evaluations.

Source: Štatistický úrad SR.

The authors of the current forecasts of the development of the Slovak economy perceive the war in Ukraine as the most important (and at the same time very unpredictable) determinant of stability and growth. Despite serious restrictions, they expect the maintenance of economic growth in the Slovak Republic. Considerable uncertainty is also reflected in the fact that these organizations perceive the change in inflation dynamics differently between 2022 and 2023: while the NBS and IFP expect an acceleration in their prediction, the European Commission predicts a slowdown. Such a split was not common in recent years (forecasts of numerical values differed, but not the predicted tendencies).

The consensus prevails in the perception of real GDP dynamics (slowdown in 2022, with subsequent acceleration). At this point, we also remind again of the risk of slipping into recession, which has not yet been sufficiently reflected in the forecasts in Table 8.1. Negative signals, especially from the German economy, were accentuated after the publication of the aforementioned forecasts.

Table 8.1

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

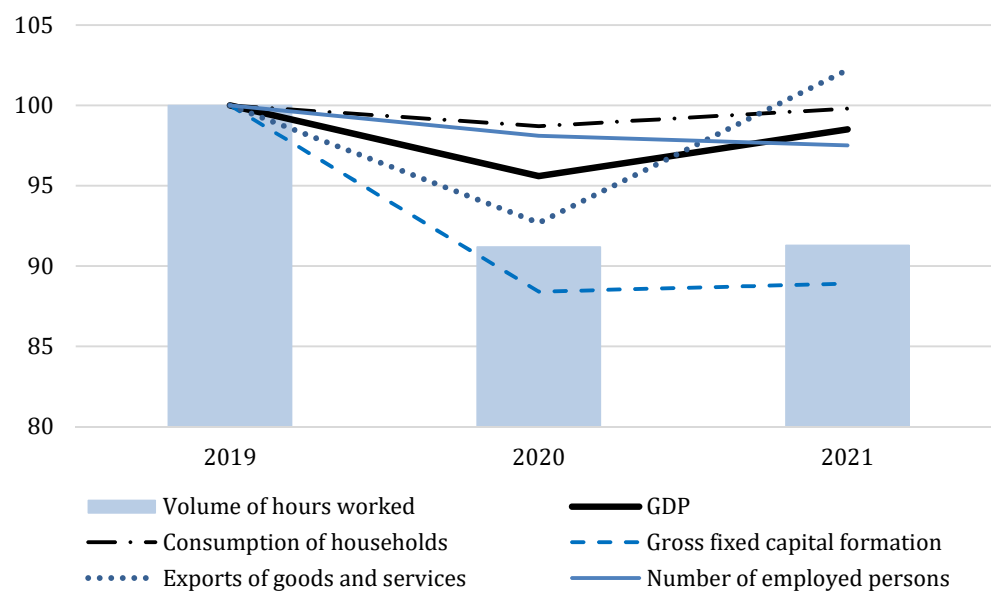
Organization	Real GDP change (in 2021: 3,0%)		Inflation rate HICP (in 2021: 2,8%)		Unemployment rate (in 2021: 6,9%)	
	2022	2023	2022	2023	2022	2023
NBS (1)	1.4	1.9	10.4	11.1	6.5	6.5
IFP (2)	1.9	2.6	10.9	11.5	6.2	5.6
European Commission (3)	1.9	2.7	10.5	8.2	–	–

Note: The forecasts were not prepared at the same time, therefore they could be based on an unequal information base.

Source: (1) Prediction of NBS, P2Q – 2022, 21. 6. 2022; (2) Macroeconomic forecast of IFP, 15. 6. 2022; (3) European Commission, Summer 2022 Economic Forecast, 4. 7. 2022.

Considering the post-pandemic development so far and the short-term forecasts, it can be expected that the levels of economic performance and the level of consumption will already reach or exceed the pre-pandemic levels in 2022 (the export level has already exceeded it, Figure 8.3).

Figure 8.3

The Position of the Values of the Selected Macroeconomic Parameters in Relation to Their Level before the Pandemic Recession (2019 level = 100)


Note: Changes in GDP and its components are based on data at constant prices.

Source: Own calculation according to Eurostat data.

The problem is a deep lag in investments (gross fixed capital formation). These will be strongly supported by the inflow of capital resources under the Recovery Plan; at the risk of unilateral reliance on such sources (as we mentioned above). The volume of used work, expressed by the volume of hours worked, lags significantly (and will continue to lag behind). A reduced number of hours on average worked by a working person means, on the one hand, relatively low unemployment, on the other hand, it can mean incomplete utilization of the working capacities of working people. This means incomplete use of their income possibilities – which in turn means unfavorable news in view of the high rate of inflation.

With the concurrence of such complicated determinants of economic development (repercussions of the pandemic shock + the war in Ukraine + the climate crisis), society must also be prepared for adverse scenarios. These include not only a slowdown in economic growth (which is commonly mentioned in the available forecasts), but also a possible recession and a decline in material well-being. The power of the negative factors at work is not under the control of public policy authorities in the Slovak Republic. But under their control can be effective assistance to weaker groups and readiness to respond to opportunities that arise in this turbulent time.

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