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Executive Summary

The current macroeconomic projections are more favourable than the previous ones on account of the improvement in the health situation. Economic growth is expected to reach 5.2% this year, 4.8% next year and 3.1% in 2023. According to current estimates, the pre-crisis level of GDP from 2019 will be reached at the beginning of next year.

Following the outbreak of the Covid-19 pandemic, the health situation has become one of the key drivers of global economic developments. With the availability of effective vaccines towards the end of last year and the steadily increasing share of vaccinated population, the spread of infections has started to slow down, at least in Slovenia and its main trading partners. Nevertheless, a great deal of uncertainty remains regarding the ongoing evolution of the pandemic. To address this, the baseline projection is accompanied with alternative scenarios that reflect the possible deterioration of the health situation. The latter could be influenced by several factors such as an insufficient share of vaccinated population and the emergence of new strains of the virus against which currently available vaccines and the immune protection of persons who have already recovered would be ineffective.

The baseline macroeconomic projection is based on an epidemiological scenario without major waves of infections that would require non-pharmaceutical containment measures such as a broader and more protracted lockdown. We also assess economic growth will continue to be supported by monetary and fiscal policy measures. Already last year, they significantly mitigated the adverse effects of the pandemic and the associated containment measures, which while helping maintain the stability of the healthcare system, simultaneously inflicted adverse economic effects. We estimate that, in the absence of economic policy measures, economic activity would have contracted by close to one-tenth last year. Economic policy measures continue to remain supportive this year as well, mitigating the adverse consequences of the crisis on both firms and households.

Economic growth will be driven by both domestic and foreign demand. Namely, we expect a recovery in household spending and higher private-sector and government investment activity, underpinned by investment co-financed with sources from the Next Generation EU fund. Over the entire projection horizon, growth will also be supported by government spending. With the recovery in the economic activity of trading partners, encouraging growth in exports of goods and services is also expected.

The favourable developments on the labour market will strengthen household spending on account of improving epidemiological situation and the gradual dissipation of economic uncertainty. We expect that the revival in economic activity will lead to additional hiring by firms as early as this year. This will be reflected in the unemployment rate, which will remain similar to that of last year. With the continued economic recovery, a relatively favourable employment growth and a gradual decline in the unemployment rate are also expected in the coming years, with the latter expected to fall to a historically low level at the end of the projection horizon. Consequently, the pre-crisis challenges related to shortages of qualified labour will once again become more pronounced. As a result, wage pressures are expected to intensify towards the end of the projection horizon. Temporary emergency measures will have a significant impact on wage developments, particularly this year and the next. During the epidemic, these measures were mainly aimed at preserving jobs and the purchasing power of households, especially the most vulnerable groups of the population.

Growth in consumer prices will strengthen over the projection horizon. In addition to external factors linked to growth in the prices of oil and other commodities on the global markets, domestic inflation factors will also strengthen. With the recovery in domestic demand, supported by targeted economic policy measures, and rising cost pressures in the context of favourable conditions on the labour market, we expect a considerable rise in core inflation. Due to the technical effect of the change in weights as a result of altered consumer purchasing habits during the epidemic last year, average core inflation will be relatively low this year, but will rise to 1.6% next year and 1.7% in 2023. Following last year's drop in consumer prices, we expect

inflation to reach 1.3% already this year, driven primarily by energy prices. The latter will be higher this year on account of base effects, underlining the sharp drop in global oil prices following the outbreak of the epidemic last year. In Slovenia, the decline in energy price inflation last year was also driven by the government's excise duty policy and the measure aimed at reducing electricity prices during the first wave of the epidemic. Over the remainder of the projection horizon, we expect the growth in the prices of services and non-energy industrial goods to strengthen, and together with the rising food prices to drive up headline inflation.

Uncertainty associated with the epidemic is accompanied by other risks that are still prominent and the materialization of which could have a significant impact on economic growth and inflation. In addition to geopolitical tensions in the Middle East, risks stemming from challenges in global supply chains are increasing. For now, the shortage of certain raw materials and intermediate products, reflected in the high growth in their prices underlining the rapid growth in demand following the lifting of containment measures and the launch of the investment cycle, is assessed as a temporary challenge expected to subside in a few months. Should the challenges persist, they could be reflected in slower growth in economic activity and faster growth in prices. The latter could also increase should households' marginal propensity to consume rise more significantly following the epidemic, which would at the same time further accelerate growth in GDP. This would also be facilitated by the historically high savings accumulated by households during the period of stringent containment measures. On account of the latter, consumption patterns also changed significantly last year, which represents an additional (technical) challenge related to the measurement and projection of inflation in the current juncture.

Table 1: Macroeconomic projections for Slovenia, 2021-2023

								Projections					
	2015	2016	2017	2018	2019	2020		2021		2022		2023	
							Δ	Jun.	Δ	Jun.	Δ	Jun.	Δ
Prices	*annual average % changes*												
HICP	-0.8	-0.2	1.6	1.9	1.7	-0.3	-0.1	**1.3**	0.4	**1.6**	0.3	**1.7**	0.1
HICP excluding energy	0.4	0.6	1.1	1.4	1.8	1.3	-0.1	**0.5**	-0.6	**1.8**	0.4	**2.0**	0.2
HICP energy	-7.8	-5.1	4.7	6.1	0.8	-10.8	0.0	**7.3**	7.6	**0.3**	-0.3	**-0.6**	-1.1
Economic activity	*y-o-y growth rates in %*												
GDP (real)	2.2	3.2	4.8	4.4	3.2	-5.5	2.1	**5.2**	2.1	**4.8**	0.3	**3.1**	0.0
Private consumption	2.0	4.4	1.9	3.6	4.8	-9.7	1.2	**4.8**	0.5	**6.2**	1.8	**3.1**	0.1
Government consumption	2.3	2.4	0.4	3.0	1.7	1.8	-2.0	**2.4**	0.4	**1.7**	0.4	**1.6**	0.1
Gross fixed capital formation	-1.2	-3.6	10.2	9.6	5.8	-4.1	7.5	**10.7**	3.4	**8.4**	-0.7	**4.9**	-0.5
Private gross fixed capital formation	0.1	6.0	12.2	6.8	5.7	-5.9	9.1	**5.5**	3.2	**7.0**	-3.0	**5.0**	-2.7
Government gross fixed capital formation	-4.7	-31.7	1.0	23.9	6.6	4.0	1.2	**31.1**	5.8	**12.8**	6.5	**4.7**	6.3
Exports (goods and services)	4.7	6.2	11.1	6.3	4.1	-8.7	2.7	**11.1**	3.9	**7.7**	0.9	**4.8**	-0.2
Imports (goods and services)	4.3	6.3	10.7	7.2	4.4	-10.2	3.0	**11.6**	2.4	**8.7**	1.4	**5.0**	-0.2
Contributions to real GDP growth	*in GDP percentage points*												
Domestic demand (excluding inventories)	1.3	2.2	2.9	4.2	4.0	-5.7	1.8	**5.1**	1.1	**5.2**	0.8	**2.9**	-0.1
Net exports	0.6	0.4	1.2	-0.2	0.1	0.5	0.1	**0.6**	1.4	**-0.1**	-0.3	**0.2**	0.0
Changes in inventories	0.3	0.6	0.7	0.3	-0.8	-0.4	0.2	**-0.4**	-0.4	**-0.2**	-0.2	**0.0**	0.0
Labour market	*y-o-y growth rates in % (unless stated otherwise)*												
Survey unemployment rate (in %)	9.0	8.0	6.6	5.1	4.5	5.0	-0.4	**4.9**	-0.7	**4.7**	-0.1	**4.3**	0.0
Total employment	1.3	1.8	3.0	3.2	2.5	-1.0	0.5	**0.7**	1.0	**1.6**	0.2	**1.4**	0.5
Compensation per employee	1.5	3.1	3.0	3.9	4.9	2.3	0.3	**3.8**	1.4	**2.5**	-0.1	**3.3**	-0.1
…Productivity	0.9	1.3	1.8	1.1	0.7	-4.6	1.5	**4.5**	1.0	**3.2**	0.1	**1.8**	-0.4
…Unit labour costs (ULC)	0.6	1.8	1.2	2.7	4.2	7.2	-1.4	**-0.7**	0.4	**-0.7**	-0.2	**1.5**	0.3
Balance of payments	*y-o-y growth rates in % (unless stated otherwise)*												
Current account: in bn EUR	1.5	1.9	2.7	2.7	2.7	3.3	0.6	**3.3**	0.9	**3.1**	0.5	**3.2**	0.4
in % GDP	3.8	4.8	6.2	5.8	5.6	7.1	1.2	**6.6**	1.6	**5.9**	0.7	**5.7**	0.4
Terms of trade*	1.3	0.8	-0.6	0.0	0.5	1.0	0.8	**-0.9**	-0.9	**0.0**	-0.3	**0.0**	-0.2

**Based on deflators from National Accounts data.*
Δ: Difference between current projections and projections in Macroeconomic Projections for Slovenia, December 2020.
Source: Banka Slovenije, Eurostat, SORS, ECB.

1 International Environment and External Assumptions

Following last year's sharp drop due to the pandemic, global economic activity is expected to make a relatively strong recovery already this year, while encouraging GDP growth is expected over the medium term. Economic growth in the euro area is expected to reach 4.6% this year, which is slightly higher than in the December projections. With the successful implementation of the medical solution, especially the distribution of effective vaccines, which will facilitate a faster recovery in economic activity as early as the second half of this year, GDP growth is expected to reach 4.7% in 2022 and 2.1% in 2023. The baseline projection for the euro area is accompanied with two alternative scenarios, which reflect different epidemiological assumptions. Under the severe scenario, this year's growth in GDP is expected to reach 2.9%, compared with 6.2% under the mild scenario. The technical assumptions for the projection horizon suggest an average Brent crude oil price of around USD 64.1 per barrel and an appreciation of the euro exchange rate, and are based on information available by the cut-off date of 18 May 2021.

Global economic activity is expected to recover relatively strongly already this year, with encouraging GDP growth expected to be maintained over the medium term. The development of global economic activity over the projection horizon will depend primarily on how well the pandemic is managed, the scope of international trade and additional fiscal stimuli, at this time especially in the US. Outlooks for global economic growth remain encouraging until the end of projection horizon, despite the risks associated with the pandemic and the potential longer-term consequences of disrupted international supply chains. The gradual stabilisation of conditions is also reflected in economic activity in the euro area, which entered this year in relatively weak conditions. The recovery in private consumption, together with a stronger external environment, and a revival in investment activity, supported by fiscal measures and sources from the Next Generation EU (NGEU) fund are going to be the primary factors strengthening the economic growth. According to the current baseline Eurosystem/ECB Staff projections for the euro area, real GDP growth is projected to reach 4.6% this year, before slowing to 2.1% by the end of the projection horizon. This means that real GDP should reach its pre-epidemic level from 2019 already at the beginning of next year. Improved conditions in the external environment are also reflected in the higher assumption for Slovenia's foreign demand growth, which is expected to strengthen relatively quickly already this year and support growth in Slovenia's exports of goods and services over the entire projection horizon.

As the epidemiological situation remains uncertain, two alternative scenarios (mild and severe) were prepared in the current projections of economic activity in the euro area. The scenarios differ from the baseline projection mainly in terms of epidemiological assumptions. The mild scenario envisages the lifting of stringent measures to contain the virus by the end of this year, resulting in the more rapid and broad-based economic recovery. The severe scenario, on the other hand, assumes a less successful implementation of the medical solution due to potential problems related to the supply of vaccines and their effectiveness against new strains of the virus, and the diminishing willingness of people to get vaccinated. Certain restrictive measures could thus remain in place throughout the first half of 2023, which would result in more sustained economic losses. Should

the severe scenario be realised, the pre-crisis level of euro area economic activity from 2019 would not be reached until the end of the projection horizon. In accordance with the alternative scenarios, this year's euro area GDP is expected to strengthen between 2.9% (severe scenario) and 6.2% (mild scenario).

The technical assumptions over the projection horizon reflect a sharp increase in US dollar prices of Brent crude and a somewhat stronger euro exchange rate. The assumptions for developments in commodity prices are based on market expectations on futures markets over a two-week period ending on the cut-off date.[1] After falling by more than 30% last year, the price of crude oil is expected to rise to USD 65.8 per barrel this year and fall slightly in 2022 and 2023 (to USD 64.6 and USD 61.9 per barrel, respectively). In line with the ECB methodology, which takes into account futures contract prices, growth of non-energy commodities' prices is expected to reach 39% this year. The latter is expected to slow noticeably next year, before falling by 8.0% in 2023. The technical assumption for the euro exchange rate against the US dollar remains unchanged over the projection horizon and stands at the average levels prevailing in the two-week period ending on the cut-off date. This entails an average exchange rate of USD 1.21 to the euro.

Table 2: Assumptions for factors from the international environment

							Assumptions		
	2015	2016	2017	2018	2019	2020	**2021**	**2022**	**2023**
World (excluding Euro Area) real GDP growth (in %)	3.6	3.3	3.8	3.8	2.9	-2.4	**6.2**	**4.2**	**3.7**
Real GDP growth in Euro Area (in %) – baseline projection	2.0	1.9	2.8	1.9	1.3	-6.8	**4.6**	**4.7**	**2.1**
Real GDP growth in Euro Area (in %) – mild scenario							**6.2**	**5.5**	**2.2**
Real GDP growth in Euro Area (in %) – severe scenario							**2.9**	**2.3**	**2.2**
Foreign demand for Slovenia (growth in %) – baseline projection	3.2	3.7	6.4	4.4	2.7	-9.8	**9.3**	**6.4**	**3.7**
Oil price (in USD/barrel)	52.4	44.0	54.4	71.1	64.0	42.3	**65.8**	**64.6**	**61.9**
Oil price (in EUR/barrel)	47.2	39.8	48.2	60.2	57.2	37.0	**54.5**	**53.3**	**51.1**
Oil price (in USD/barrel, growth in %)	-47.0	-15.9	23.5	30.7	-9.9	-33.9	**55.6**	**-1.9**	**-4.1**
Exchange rate (EUR/USD)	1.11	1.11	1.13	1.18	1.12	1.14	**1.21**	**1.21**	**1.21**
Non-energy commodity prices (growth in %)	-15.8	-2.3	7.7	3.8	-3.6	3.2	**39.0**	**0.1**	**-8.0**

Source: ECB, Banka Slovenije calculations.

[1] The technical assumptions are based on information available on the cut-off date of 18 May 2021. The assumptions for Slovenia's foreign demand and the external technical assumptions of medium-term projections that serve as the basis for Banka Slovenije's projections are prepared within the scope of the joint Eurosystem/ECB Staff projection exercise. For more on the methodology, see the latest release of the Eurosystem/ECB Staff projections, available on the ECB's website (link).

2 Projections

The latest projections of economic growth in Slovenia reflect the improvement in the epidemiological picture at home and in the main trading partners. The expected recovery will continue to depend on the health situation also in the future. The main epidemiological scenario on which current projections are based does not envisage any major new waves of infections that would require the reinstatement of stringent containment measures or another broader lockdown. On the contrary, with the gradual easing of containment measures, we expect that alongside the rebound in foreign demand, GDP growth will be supported also by a recovery in domestic demand. The latter will be driven in particular by private consumption, while gross fixed capital formation will also be a major factor. Investment activity by the government and the private sector will be boosted by co-financing with sources from the Next Generation EU (NGEU) fund. In addition to domestic demand, the activity of the Slovenian export sector will also be encouraging.

The labour market will see a significant recovery already this year, as observed in the favourable development in registered unemployment during the first five months of this year and the optimistic expectations of firms regarding future employment. Following last year's 1% drop, we expect employment to rise by 0.7% in the context of a rapid recovery in economic activity, while the surveyed unemployment rate will be similar to that of last year, standing at 4.9%. A broader-based recovery during the summer months will reduce firms' needs for job retention schemes, albeit, the premature withdrawal of these measures poses downside risks to projections. Wages will rise by almost 4% this year, largely on account of one-off effects linked to the epidemic and the increase in the minimum wage. In the coming years, we can expect significant growth in employment to continue, with the unemployment rate falling to a historically low level at the end of the projection horizon. Pre-crisis limiting factors will again return to centre stage, as firms will increasingly face a shortage of qualified labour, similar to the pre-crisis period. As a result, wage pressures will intensify gradually towards the end of the projection horizon. However, the effects of the lifting of emergency measures will partially mask those pressures in 2022.

Inflation will increase this year and stand at 1.3%. Despite rising domestic inflationary pressures, a more significant rise will be mitigated by relatively weak growth in the prices of domestic components. Following deflation during the first quarter of the year, core inflation will rise until the end of the year in the context of higher wage growth, a recovery in private consumption and challenges in supply and production chains, but will average just 0.2%. The weaker growth in prices will stem also from a significant change in HICP weights. As a result of the latter, this year, core inflation and headline inflation will be lower by 0.3 and 0.4 percentage points respectively. Underlining base effects and a sharp rise in global oil prices, this year's headline inflation will be driven by rising energy prices, and by rising food prices in the context of growth in food commodity prices and higher production costs. The structure of consumer price growth will change as early as next year in line with the recovery in the domestic economy and rising domestic price pressures. In particular, the contribution of services price inflation will increase, while the prices of non-energy industrial goods will also rise slightly underlining the

growth in import prices. Thus, both headline and core inflation will reach 1.7% by the end of the projection horizon. In addition to risks related to the evolution of the epidemic, the current projections are subject to risks stemming from a faster unwinding of accumulated household savings and more sustained challenges on the supply side.

2.1 Economic activity

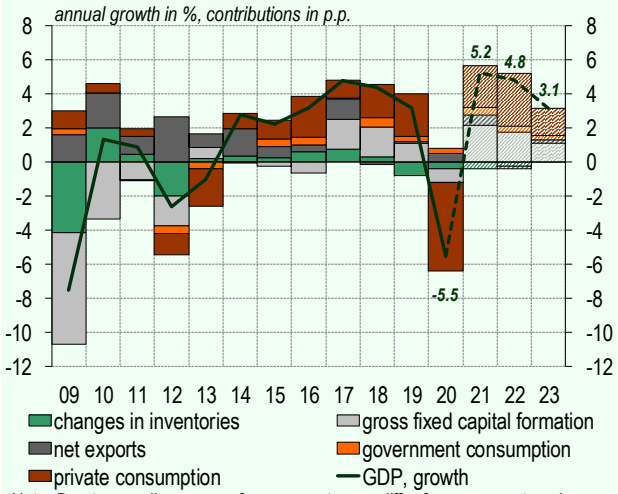
The latest projections of economic growth in Slovenia reflect the improvement in the epidemiological picture at home and in the main trading partners. This underlines primarily the availability of effective vaccines, which led to the initial lifting of enacted containment measures, which have had a significant impact on economic activity since the outbreak of the virus at the beginning of 2020. According to the latest estimates, the Slovenian economy will reach the pre-crisis level of GDP from 2019 at the beginning of next year. Economic growth will reach 5.2% this year, 4.8% next year and 3.1% in 2023.

Economic activity will continue to hinge upon the evolution of the health situation and the duration of containment measures enacted to limit the spread of infections. While these measures remain crucial to maintain the stability of the healthcare system, they simultaneously inflict adverse effects on the economy, which have nevertheless been mitigated by fiscal support and monetary policy measures at both the national and European levels. Due to prevailing uncertainty, alongside the baseline scenario we have prepared alternative scenarios for the evolution of the epidemic[2] based on various assumptions (number of persons vaccinated, the virulence of the virus, non-pharmaceutical measures, etc.), mainly in terms of the number of infections, hospitalisations and deaths. Epidemiological developments remain an important element for the projections of macroeconomic developments.

The epidemiological scenario on which the current baseline projection is based does not envisage any major waves of new infections. This scenario is based on the assumption of a sufficient share of the population vaccinated as early as the beginning of the summer and the maintenance of that share in the months that follow when the effectiveness of vaccines will gradually diminish and additional doses will be required. In this scenario, we expect the gradual lifting of containment measures in accordance with the government plan,[3] aimed primarily at tourism, arts and entertainment activities. Notwithstanding the improved epidemiological picture, we expect some containment measures (e.g. social distancing) to remain in place even in the coming years, and to partially curtail the activity of those services where direct contact between the service provider and customer is crucial. The latter is also envisaged in the government plan for the lifting of containment measures.

With the easing of containment measures, domestic demand factors will serve as the main drivers in

Figure 1: Projection of expenditure components' contributions to GDP growth



Note: Due to rounding, sums of components may differ from aggregate values.
Source: SORS, Banka Slovenije projections.

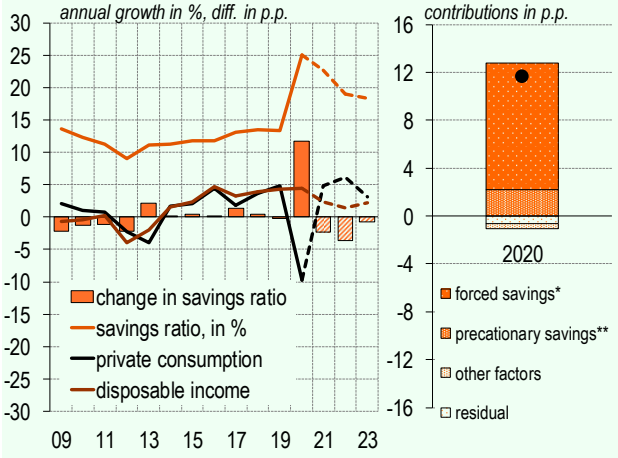
[2] The general epidemiological assumptions are harmonised within the scope of the joint Eurosystem/ECB Staff macroeconomic projection exercise. Additional detailed simulations for Slovenia have been prepared in cooperation with Professor Janez Žibert from the Faculty of Health Sciences at the University of Ljubljana and a member of the Covid-19 Tracker team, using an extended SEIR C19SI epidemiological model (V2.0) based on data from the Covid-19 Tracker. The prepared alternative scenarios for Slovenia are not part of the joint Eurosystem/ECB Staff macroeconomic projections. Details on the alternative scenarios are presented in Chapter 3 of this publication.

[3] Details regarding the government plan to lift measures to contain the Covid-19 epidemic are available on the Slovenian government website.

strengthening economic growth. Following last year's sharp drop in household consumption, which was largely due to enacted containment measures and the consequent limited activity of numerous economic sectors, growth in private consumption is expected to be temporarily higher over the projection horizon, particularly this year and the next. Growth in investment will also be relatively strong and will be further enhanced by investments co-financed with sources from the NGEU fund. Additionally, economic activity will be supported by government consumption over the entire projection horizon. With the improving health situation and the recovery in demand of the main export markets during the next three years, we expect exports to strengthen and the contribution of net trade to GDP growth to be relatively small, as growth in imports will also strengthen significantly due to the large import-intensity of exports and domestic demand components (Figure 1).

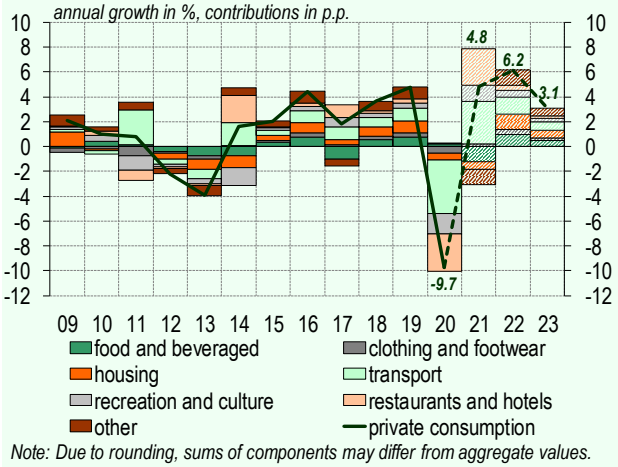
Private consumption will be the most important driver of economic growth. Following last year's sharp drop, primarily on account of enacted containment measures and higher level of uncertainty, the recovery in private consumption is expected to accelerate, albeit temporarily, underlining the stabilization of the health situation and the easing of containment measures. The recovery will be further supported by relatively favourable labour market developments reflected in a historically low unemployment rate, further growth in gross disposable household income enhanced by growth in both wages and employment, and higher consumer confidence on account of dissipating economic uncertainty. In the context of a recovery in hardest-hit economic sectors, we also expect an increase in the purchasing power of households that are dependent on those sectors, given that the compensation received by workers on temporary lay-offs and those on short-time work was smaller than their regular earnings. Growth in private consumption, which is expected to average 4.7% over the projection horizon, will be further supported by favourable financing conditions on account of enacted monetary policy measures.

Figure 2: Projection of growth in private consumption, growth in disposable income and household savings ratio



*Note: Data on the right graph is presented in deviation from the long-term average (13.2%). *Based on mobility index. **Based on expected unemployment.*
Source: SORS, Google Mobility, Banka Slovenije estimations and projections.

Figure 3: Projection of components' contributions to private consumption growth



Note: Due to rounding, sums of components may differ from aggregate values. The "housing" component includes rents, running/utility costs and maintenance, and purchases of household equipment and furniture.
Source: SORS, Banka Slovenije calculations and projections.

The household saving's ratio will fall gradually in the coming years, but remain somewhat above the pre-crisis level. The inability to spend during last year's lockdown was reflected in a sharp rise in the household saving's ratio (Figure 2). That rate rose by more than 11 percentage points to nearly 25% of disposable income. The main driver of the unprecedented increase in the household's savings ratio is attributed to forced savings, while precautionary savings by households also played a role underlining the elevated economic uncertainty caused by the outbreak of the epidemic.[4] According to Eurostat survey figures,[5] the increase in savings was driven primarily

[4] More details on the drivers of the household savings ratio and heterogeneity amongst households following the outbreak of the Covid-19 epidemic are presented in Boxes 1 and 2 in the December 2020 issue of Macroeconomic Projections for Slovenia.

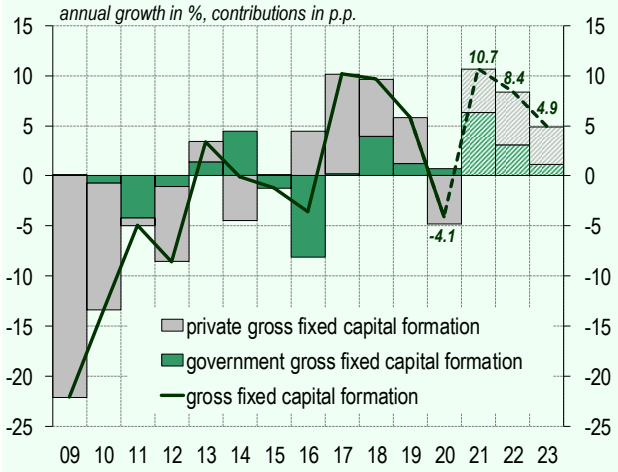
[5] DG-ECFIN Consumer survey.

by households with higher income, where the proportion of expenditure on goods and services that were not available during the lockdown is highest on average. On the other hand, individuals employed in the hardest-hit sectors, which pay below-average wages, recorded a drop in income. The household saving's ratio was, in fact, negative for some of these households, despite numerous fiscal measures that greatly mitigated the consequences of the epidemic. With the stabilisation of the situation, we expect the main drivers behind the increase in savings to gradually fade, which will be seen over the projection horizon in higher growth in household consumption relative to disposable income and thus a lower household saving's ratio, which will remain somewhat higher than the pre-crisis level.

The structure of household consumption will gradually return to that of the pre-crisis over the projection horizon. The consumption decisions of households changed on account of measures to contain the spread of the virus. The reduced mobility of the population, work from home, the limited functioning of a large fraction of services activities, in particular accommodation, catering, recreation, culture and personal care, were all reflected in a different structure of consumption (Figure 3). With the normalisation of the health situation, we expect the structure of consumption to gradually return to that of the pre-crisis. Relatively high growth in consumption is expected this year and the next, primarily in those categories of consumption that were precluded last year and deferred due to increased uncertainty. We expect stronger growth in the consumption of non-essential durables and semi-durables, such as cars, and strong demand for accommodation and food services. Contributing to the latter will be the utilisation of holiday vouchers. We estimate that consumers will utilise close to one-half of previously unused holiday vouchers.

Gross fixed capital formation will provide a strong boost to economic activity. The gradual normalisation of the health situation at home and abroad is reflected in strengthening demand, an increase in the number of new orders and the increased utilisation of production capacities. At the same time, economic uncertainty is waning and the confidence amongst firms improving. Such conditions are strengthening expectations regarding a revival in private-sector investment in machinery and equipment, which will accelerate the automation of production processes and increase the production capacities of the Slovenian economy. Growth in investment over the projection horizon will also be strengthened by private-sector housing investment. Despite a significant number of new buildings in recent years, there is still a major shortage of housing on the real estate market, particularly in larger cities, which is reflected in developments in residential real estate prices. Favourable financing conditions, the level of household savings and the gradual stabilisation of conditions on the labour market will continue to stimulate demand for new housing and thus drive investment in residential buildings, observed also in the growth in the number of building permits issued. Over the next three years, we thus expect close to 6% growth in private-sector investment, with housing investment contributing close to one percentage point to that growth (Figure 4).

Figure 4: Projection of components' contributions to gross fixed capital formation growth



Note: Due to rounding, sums of components may differ from aggregate values.
Source: SORS, Banka Slovenije projections.

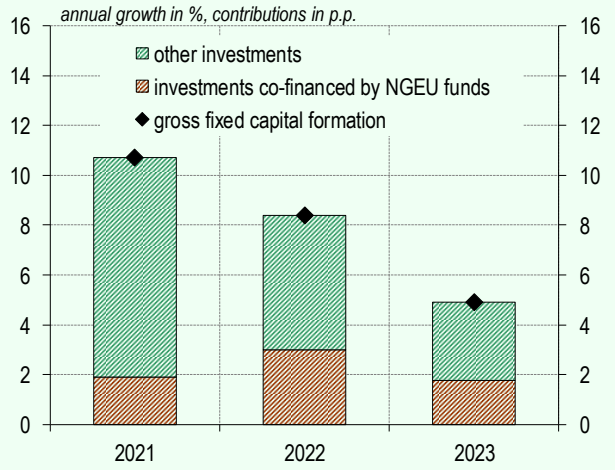
The contribution of government investment to economic growth will be above average on account of both domestic investment and European funding. The contribution of government investment to GDP growth will be more than two percentage points over the next three years, and will be more evident this year when the allocation of sources from the NGEU fund is expected to begin (Figure 6). Coming to an end during the projection horizon is the current EU financial perspective, which will underpin an accelerated allocation of remaining available

funds, while certain major infrastructure projects that are being financed primarily from domestic funds (e.g. the second track of the Divača-Koper line and the purchase of new multiple train units) are also being implemented. Projected growth in government investment is higher than in the December projection, while its share to total investment is also higher. This stems primarily from the national recovery and resilience plan approved at the end of April, with a major share of the funds from that plan earmarked for the government sector. Estimates surrounding investment are extremely uncertain, as their implementation depends not only on the provision of domestic sources of funding and the allocation of EU funds, but also on other factors (e.g. the protracted process of obtaining authorisations, the selection of contractors, etc.).

Government and private-sector investment activity will be stimulated by the use of available sources from the NGEU fund.[6] Available European funds will be an important source for the financing of corporate investment in the digitalisation of production processes, the modernisation of technological equipment, the introduction of new technologies and the gradual transition to a more energy efficient economy. The fund also facilitates development investment in more carbon-friendly technologies in the area of transport, in particular the railway infrastructure, and the improvement of the energy efficiency of buildings, the introduction of new public administration e-services, and other social areas, including healthcare. A major fraction of these funds will be earmarked for government investment. Based on government plans, we estimate that investment co-financed with the aforementioned funds will contribute between 0.3 and 0.4 percentage points to overall GDP growth, and an average of around two percentage points to growth in gross fixed capital formation per year (Figure 5).

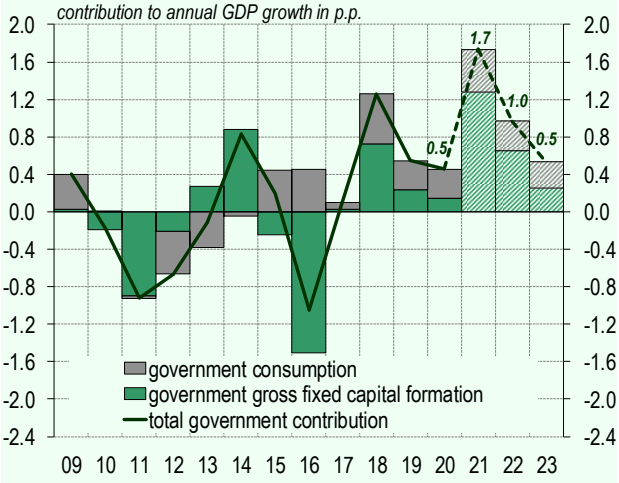
Growth in final government consumption over the projection horizon will be similar to the average growth of the last five years, albeit slightly higher than envisaged in the previous projections (Figure 6)**.** Real growth in government consumption over the projection horizon has been revised slightly upwards, to 2.4% this year. In the context of the continuing adverse epidemiological situation during the first half of the year, the official state of the epidemic was extended until the middle of June, which led to an increase in epidemic-related expenditure. Growth in compensation of employees, in particular, is higher than in the previous projections. The main factor in the latter pertain to bonuses paid to public-sector employees in connection with the epidemic. This year's bonuses are expected to exceed last year's amount slightly.[7] Another factor affecting growth in aver-

Figure 5: Contribution of investments co-financed by NGEU funds in 2021-2023 to total projected investment growth



Note: Due to rounding, sums of components may differ from aggregate values.
Source: SORS, MF, SVRK, Banka Slovenije estimations and projections.

Figure 6: Projections of government components' contribution to GDP growth



Note: Due to rounding, sums of components may differ from aggregate values.
Source: SORS, Banka Slovenije projections.

[6] Details regarding the use of sources from the NGEU funds are presented in Box 2.

[7] The bonus for work in high-risk conditions in accordance with Article 39 of the collective agreement for the public sector in the amount of 65% of the hourly base wage for a public servant and various other bonuses (e.g. a bonus for temporary reassignment due to urgent work tasks and a bonus for direct work with patients and/or users infected with Covid-19, both in the amount of 30% of the hourly base wage for an employee).

age wages this year is the implementation of the agreement on wages and other labour costs in the public sector reached at the end of 2018.[8] Rising employment continued in the government sector at the beginning of the year, with human health and social work activities recording the highest growth. This year's growth in government sector employment is expected to be similar to that of last year and slightly lower over the next two years. Certain epidemic-related payments for goods and services, in particular in human health and social work activities (protective equipment, vaccines, microbiological tests, etc.) will continue over the projection horizon. The upward revision in government consumption reflects also the inclusion of sources from the NGEU fund in projections, in the part earmarked primarily for intermediate consumption.

In addition to domestic demand, economic growth will be boosted by exports of goods and services. International trade is strengthening with the improving epidemiological situation across the world. The second half of last year saw a recovery in global industrial production and the relatively rapid strengthening of exports of goods. We assess that Slovenian exporters will further improve their market position in the coming years in the context of the continuation of their relatively favourable competitive position. International merchandise trade, in particular, has improved in recent months, while a gradual revival in trade in services is expected in the future, in particular in the tourism sector, which was hit hardest by the epidemic. These activities will record the slowest recovery as the effects of the epidemic will be longer lasting. We therefore expect pre-crisis levels of this part of the economy to be achieved towards the end of the projection horizon. In line with the upward revision to the assumption regarding growth in foreign demand for Slovenia, average growth in exports of goods and services is expected to be around 8% over the projection horizon, while growth in imports is expected to be around one-half

Figure 7: Projections of export and import growth and the current account balance

Source: SORS, Banka Slovenije projections.

of a percentage point higher. This will be the result of relatively strong domestic consumption, in particular investment. The contribution of net exports to GDP growth will be relatively small over the projection horizon, with the current year accounting for the highest contribution of 0.6 percentage points. Such developments will be reflected in the gradual narrowing of the current account surplus, which remains at around 6% of GDP (Figure 7).[9]

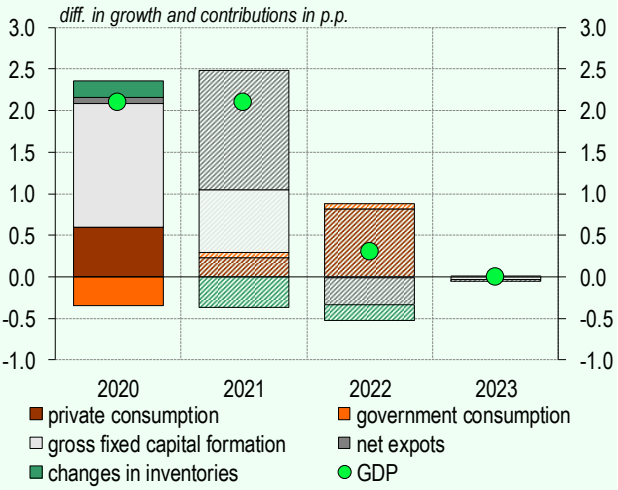
The latest projections of macroeconomic developments are more favourable than the previous ones. We are expecting higher growth relative to December's projection, especially this year. Revised GDP growth is largely the result of the more significant contribution of the carry-over effect from last year to this year's annual growth. The latter stems from more favourable developments during the second half of last year compared to previous projections.[10] In addition to the latter, the more favourable projection of economic recovery is a reflection of the relatively rapid availability of vaccines, which already at the end of December last year were available in smaller quantities in Slovenia. The availability of vaccines and the vaccination of the most vulnerable groups of the population led to the gradual lifting of the most stringent

[8] The average wage is calculated as compensation per employee on the basis of national accounts figures. Affecting the average wage this year are certain adjustments made last year, including the reinstatement of payments for ordinary work performance and increased workload since the middle of last year, and September's wage increase of one wage grade for positions that require a doctorate, a master's degree or a specialisation (with the exception of physicians, function holders and directors). As usual, civil service promotions will also contribute to growth in the average wage.

[9] The deterioration in terms of trade will also contribute to a reduction in the surplus.

[10] Details regarding deviations in Banka Slovenije's projections from December 2020 and the contribution of the carry-over effect to this year's annual growth are presented in Box 1.

Figure 8: Revision to GDP growth projection by components



Note: Due to rounding, sums of components may differ from aggregate values.
Source: SORS, Banka Slovenije projections.

containment measures and the reopening of a large number of economic activities, at least to a limited extent, during the first months of this year, which is largely in line with the assumptions of the mild scenario from last December. The new growth projection remains lower than the alternative mild scenario prepared in December, which envisaged 7.1% growth in economic activity this year. The slightly revised projection of growth in investment and the structure thereof over the projection horizon reflects the government plan to use sources from the NGEU fund, while the revision to the projection of trade in goods and services is primarily the result of a change in the assumption regarding growth in foreign demand for Slovenia. Compared to December's projection, the projection of GDP growth is 2.1 percentage points higher this year and 0.3 percentage points higher next year, while the projection for 2023 remains unchanged (Figure 8).

The projections are surrounded with a great deal of uncertainty and more pronounced risks that could have a significant impact on macroeconomic developments at home and abroad. In addition to the epidemiological situation, which represents the most prominent risk to current projections of economic activity and inflation, geopolitical tensions have intensified recently in the Middle East and in oil-producing countries, posing a considerable impact on developments in the prices of oil and other primary commodities on the global markets should the situation deteriorate further. At the same time, firms have been facing significant challenges in recent months with global production and supply chains, in which the Slovenian economy is strongly integrated. Such problems can be observed in the large gap between demand and the availability of certain raw materials and components, such as semiconductors, which has lead to supply delays and even the halting of production, particularly in the automotive industry. This is also being seen in the high growth in the prices of such commodities and intermediate products. Currently, these challenges are expected to be temporary and conditions are expected to stabilise in a few months.

Box 1: Explanation of deviations in Banka Slovenije's projection for 2020 from realisations and assessment of the carry-over effect to annual growth in 2021

The year 2020 was characterised by the Covid-19 epidemic. The majority of countries, including Slovenia, adopted stringent measures to contain the spread of infections. These measures, while maintaining the stability of the healthcare system, adversely affected economic activity. Consequently, economic growth last year depended primarily on the severity of containment measures, which were tightened and loosened depending on the epidemiological picture.

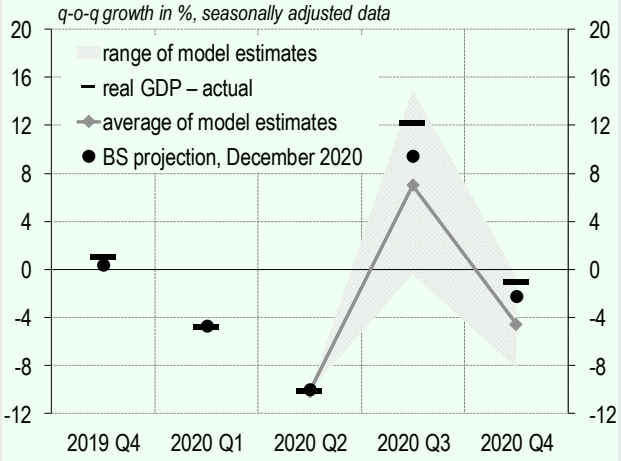
The Covid-19 epidemic was declared in Slovenia on 12 March 2020. During the first months of the spread of the SARS-CoV-2 virus, which was accompanied by a great deal of uncertainty because of a lack of knowledge about the new virus, stringent measures were adopted to contain the spread of infections, including a general lockdown of several economic sectors. These stringent measures significantly mitigated the consequences of the first wave of the epidemic in Slovenia. The drop in economic activity was the most severe during the second quarter when the quarterly decline exceeded 10%.

Containment measures were eased during the summer in the context of an improved epidemiological picture and the slower spread of infections. At the same time, the economy experienced a revival, including the tourism sector. Contributing significantly to this were weather-related factors, as during the summer numerous service activities are provided outdoors where somewhat milder containment measures were in place, particularly in the areas of catering and recreation. The rebound in the third quarter was extremely strong and outpaced the short-term assessments of GDP developments that were taken into account in Banka Slovenije's December projection. Quarterly growth exceeded 12%, while Banka Slovenije's projection for growth in the third quarter was 9.5% (Figure 1).[1]

The epidemiological situation deteriorated at the end of the summer. Despite the re-declaration of the epidemic and restrictions on the functioning of mostly services activities in the autumn, economic activity slowed to a lesser degree than in the second quarter. The decline in the final quarter of last year was thus less severe than previous assessments that were based primarily on experience from the spring when the nature of the lockdown was considerably different: measures were more targeted in the autumn, while firms and households adapted well to the new situation. According to current estimates from the Statistical Office of the Republic of Slovenia (SORS), the Slovenian economy recorded a 1% decline during the final quarter of last year, while Banka Slovenije short-term projections envisaged a fall of 2.2%.

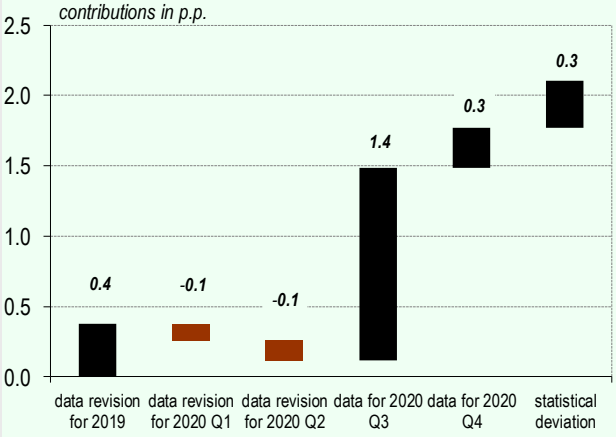
The availability of data during the preparation of projections has a significant impact on their accuracy. This is even more important during periods of elevated uncertainty when economic fluctuations are higher. In the case of Banka Slovenije's December projection, the deviation from realisation was more marked (Figure 2). According to figures from the SORS, last year's drop in economic activity was 2.1 percentage points lower than projected by Banka Slovenije, with a significant fraction of that deviation accounted for by the markedly lower estimate of the economic recovery during the third

Figure 1: Short-term model estimates, projections and realization



Note: Model estimates are based on a short-term forecasting infrastructure that includes approximately 70 different models.
Source: SORS, Banka Slovenije estimations.

Figure 2: Deviations of Banka Slovenije's December projection from the realized GDP growth in 2020



Note: Due to rounding, the sum of individual contributions may differ from the aggregate deviation of the projection from the realized growth.
Source: SORS, Banka Slovenije calculations.

quarter of last year (around 1.4 percentage points). The deviation was also influenced, albeit to a lesser degree, by the SORS data revisions to figures for 2019 and the first half of 2020 (around 0.2 percentage points) and a less severe than expected drop in activity in the final quarter (around 0.3 percentage points).

The approach[2] that provides an estimate of annual GDP based on quarterly (current) growth is used to break down the deviation in the projection from realisations, according to the following formula:

$$y_t = q_{2,t-1} * 0.25 + q_{3,t-1} * 0.5 + q_{4,t-1} * 0.75 + q_{1,t} * 1 + q_{2,t} * 0.75 + q_{3,t} * 0.5 + q_{4,t} * 0.25$$

where y_t represents annual growth in year t (2020 in the case in question), and $q_{i,t-1}$ and $q_{i,t}$ represent quarterly growth during quarter i in year t (2020 in the case in question) and year $t-1$ (2019 in the case in question).

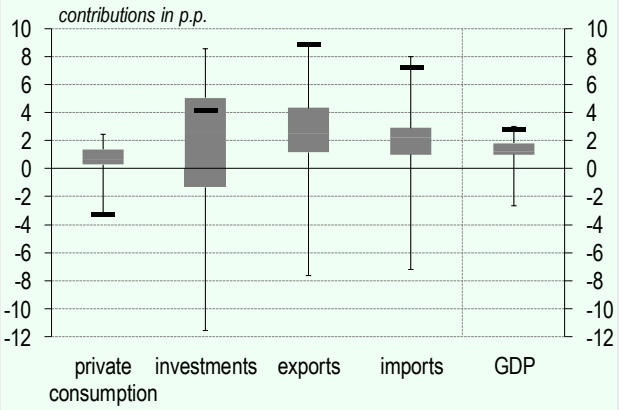
We can simplify the equation as follows:

$$y_t = CO_{t-1} + q_{1,t} * 1 + q_{2,t} * 0.75 + q_{3,t} * 0.5 + q_{4,t} * 0.25$$

where CO_{t-1} represents the carry-over effect from the previous year[3] (2019 in the case in question). Such an estimated breakdown results in a statistical deviation that amounts to around 0.3 percentage points in this case.

From a technical point of view, a higher than previously estimated quarterly growth towards the end of last year will have a significant impact on annual growth in macroeconomic aggregates in 2021. The carry-over effect from the previous year to annual growth in GDP and individual components, such as private consumption, investment, and exports and imports of goods and services, will be significant this year (Figure 3). In the case of GDP, exports and imports, the effect will be strongly positive. It will contribute 2.8 percentage points to annual GDP growth, which is just 0.2 percentage points less than the highest-recorded value from 2007, while the contribution by exports of goods and services of 8.8 percentage points will be the highest to date. The carry-over effect will contribute 7.2 percentage points to growth in imports, which is only slightly less than in 2006 and 2007. The aforementioned effect will contribute slightly more than 4 percentage points to annual growth in investment, which is around the mean of historical values. On the contrary, the carry-over effect on private consumption will be strongly negative, at -3.3 percentage points, the lowest value recorded in the period 1997 to 2021, due to a significant fall in household spending in the autumn when more stringent containment measures were in place.

Figure 3: Contribution of carry-over effect to annual growth in GDP and individual components



Note: The interval shows the maximum and minimum contribution of the carry-over effect to the annual growth over the period 1997-2021. The gray colored part shows values between the 25th and 75th percentile, and the black line highlights the carry-over effect to the annual growth in 2021.
Source: SORS, Banka Slovenije calculations.

Due to historically strong carry-over effects from the previous year, potential subsequent revisions of figures for 2020 could result in significant changes in estimates and projections of annual growth in GDP and individual components thereof for 2021. Potential, more significant revisions to figures for 2020 are expected this autumn when the first estimate of GDP for 2020 will be published based on annual data sources.

References:

Cross, P., & Wyman, D. (2011). The relationship between monthly, quarterly, and annual growth rates. Catalogue no. 11-010-X. Statistics Canada. Accessible at: The relationship between monthly, quarterly, and annual growth rates (statcan.gc.ca).

Tödter, K.-H. (2010). How useful is the carry-over effect for short-term economic forecasting? Discussion Paper Series 1: Economic Studies. No. 21/2010. Deutsche Bundesbank. Accessible at: How useful is the carry-over effect for short-term economic forecasting? (bundesbank.de).

[1] The cut-off date for the preparation of Banka Slovenije December projections was 25 November 2020, when figures regarding national accounts for the third quarter of 2020 were not available. Those figures were published on 30 November 2020. The cut-off date is set within the joint Eurosystem/ECB Staff macroeconomic projections.

[2] See Cross & Wyman (2011) and Tödter (2010).

[3] The concept of the carry-over effect was presented in detail in Box 1 in the June 2018 issue of Macroeconomic Projections for Slovenia.

Box 2: Projections of the general government balance and debt, and assessment of the effect of fiscal policy measures on economic activity

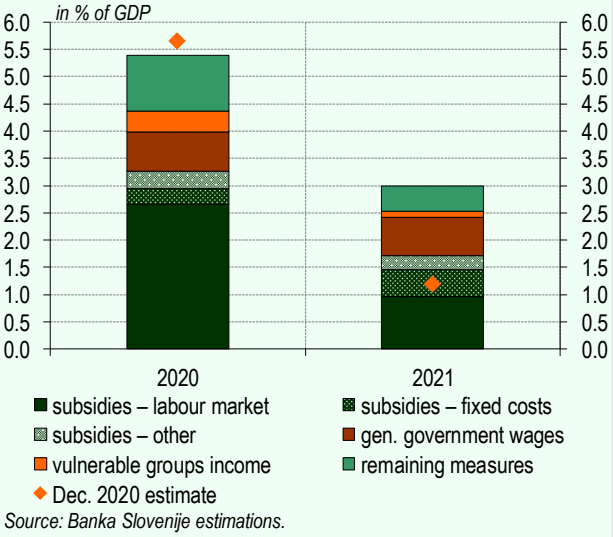
The government deficit will remain high this year, but will be lower than last year. According to available information and estimates, the deficit will amount to 7.3% of GDP. One key reason for the lower deficit relative to last year will be the lower costs of measures in connection with the Covid-19 epidemic. In the context of the expected strengthening of economic activity, to which household spending will contribute significantly, and favourable conditions on the labour market, the revenue will increase in cyclical terms. The narrowing of the deficit will continue in the coming years as economic growth strengthens and temporary measures in connection with the Covid-19 epidemic are lifted. According to current estimates, the deficit will amount to 3.3% of GDP at the end of the projection horizon, and thus exceed the reference value slightly.

The estimated general government deficit is worse relative to previous projections for this year, while we expect a more favourable than previously estimated position for the next two years The deterioration in the position this year relative to the projections from December 2020 is one percentage point of GDP, despite the favourable result last year (by 0.5 percentage points of GDP) and an improved economic situation. The main factor in the revised estimate for this year is a higher level of anti-coronavirus measures than previously expected, as the seventh package of anti-coronavirus measures was adopted at the end of last year following the completion of the December projections, while the eighth package was adopted this February. The validity of certain measures was extended as well. Also contributing to the deteriorating position relative to previous projections were changes in pension legislation adopted in March of this year, which relate to an increase in the minimum and guaranteed pension and the guaranteed amount of disability pension. In contrast to the temporary effects of anti-coronavirus measures, the aforementioned changes have a longer-lasting impact on public finance developments.

Fiscal measures to mitigate the consequences of the Covid-19 epidemic are extensive again this year, but are lower compared to the level of last year's measures (Figure 1). We estimate the measures in 2021 at 3.0% of GDP (December's estimate was 1.2% of GDP).[1] The main changes from the previous estimate derive from the increase of estimates regarding the temporary lay-off scheme, basic monthly income, the financing of fixed costs and bonuses for public-sector employees. This year again, a significant share of measures relates to labour market subsidies (these include the temporary lay-off scheme, the financing of short-time work, and the basic monthly income and contributions of self-employed persons; a very extensive measure during the first wave of epidemic was also the payment of pension and disability insurance contributions for those who worked) and bonuses in the public sector. In addition to measures adopted on the basis of anti-coronavirus legislation, sources available in the scope of the NGEU fund will also contribute to the economic recovery, where grants from the Recovery and Resilience Facility[2] will be crucial.

Consolidated government debt will remain at around 80% of GDP this year, similar to last year, as a fraction of the funds originating from pre-financing will be spent, despite the high deficit. Pre-financing entails borrowing for liabilities that are not yet due for payment, therefore the growth of nominal debt is partly contained this year due to the expected reduction in

Figure 1: Estimate of Covid-19 related measures with impact on general government budget in 2020 and 2021



Source: Banka Slovenije estimations.

Table 1: General government balance and debt, 2015-2023

	2015	2016	2017	2018	2019	2020	**2021**	**2022**	**2023**
	in % of GDP								
Surplus/deficit	-2.8	-1.9	-0.1	0.7	0.4	-8.4	**-7.3**	**-4.0**	**-3.3**
Debt	82.6	78.5	74.1	70.3	65.6	80.8	**80.5**	**79.8**	**79.2**

Source: SORS, Banka Slovenije projections.

accumulated pre-financing funds. On the contrary, the stock of those funds rose last year due to favourable borrowing terms and uncertainty regarding the amount of funds required to finance measures aimed at containing the spread of the virus. The government can also use accumulated funds gradually over several years. Nominal debt will continue to rise in the future due to high deficits. However, the debt to GDP ratio will gradually fall due to higher growth in nominal GDP than debt. Interest expenditure will continue to contribute to the consolidation of public finances due to low interest rates.

Estimates of the general government position are more favourable than the estimates in the April Stability Programme and the estimates of other institutions (e.g. the EC, OECD and IMF), while the majority of available estimates of general government debt from other institutions indicate falling debt and a level close to 80% of GDP. The more gradual strengthening of government investment relative to government plans has a significant impact on the lower estimated general government deficit in 2021.[3] Developments in key macroeconomic categories for general government revenue (e.g. household consumption and labour market indicators) are also more favourable in Banka Slovenije's projections. Despite the assumption of higher economic growth, debt as a share of GDP will fluctuate over the projection horizon at the levels presented in the Stability Programme as we are assuming lower use of pre-financing as a way to reduce debt. This year's deficit in Slovenia will be slightly higher than in the euro area, where the deficit will be 7.1% of GDP according to the ECB's June projections, while general government debt will remain well below the level of the euro area.

Projections of the general government deficit and debt are exposed to numerous risks. In addition to the macroeconomic situation, the epidemiological picture and the associated needs for further fiscal support, estimates are also subject to the potential adoption of other legislative changes that are not linked to the crisis. The current projections do not yet include the ninth anti-coronavirus law that was announced prior to the cut-off date for the completion of projections, as no detailed information regarding planned measures was available. The projections also do not take into account proposed changes to tax legislation (personal and corporate income tax and VAT) or the draft act on de-bureaucratisation (the introduction of social security cap), which could undergo significant changes during the adoption of legislation by the National Assembly. Also in the process of adoption is the arrangement of the long-term care, while an extraordinary pension increase is also possible at the end of the year. On the other hand, strict fiscal rules will gradually be reapplied following the end of the coronavirus crisis, which will mean the need for fiscal consolidation. There is also uncertainty as to what extent and how fast the government and private sector will implement investments from the recovery and resilience plan, albeit some delay in implementation was already taken into account in the baseline scenario. Risks related to the projection of debt primarily relate to the potentially more extensive and faster use of the considerable liquid assets that the government has accumulated via pre-financing, meaning that the debt could be lower than projected.

Fiscal measures have significantly mitigated the economic consequences of the epidemic and the associated measures to contain the spread of infections.[4] In the absence of these measures, the drop in economic activity would have been close to 10% last year. Fiscal policy will continue to support economic activity. We estimate that the emergency measures in force in 2021 will contribute close to 2 percentage points to this year's economic growth.[5] Investments co-financed with sources from the NGEU fund will further boost economic activity over the projection horizon, and will contribute in cumulative terms one percentage point to GDP growth during that period.

[1] In the April Stability Programme, the Ministry of Finance estimated last year's discretionary measures on the expenditure side at 5.2% of GDP. Taking into account measures on the revenue side that relate primarily to unsettled and unpaid tax prepayments and to deferrals and instalment payments of taxes, the Ministry of Finance estimated last year's discretionary measures at 6% of GDP. The Ministry of Finance estimates this year's measures in response to the Covid-19 epidemic at 2.7% of GDP. Those measures are primarily financed by domestic funds and only to a lesser degree by EU funds.

[2] More information regarding sources from the NGEU fund is presented at: https://www.eu-skladi.si/en/post-2020-1/recovery-and-resilience-plan. In the current projections, we assumed the use of grants and loans from the NGEU fund in the amount of EUR 1.6 billion for the period until 2023, with close to 80% of that amount earmarked for the government sector (primarily for investment purposes) and the remainder earmarked for private-sector investment.

[3] While the government expects government investment to be by more than one-half higher this year relative to last year, our projections assume more moderate growth of slightly more than one-third. Annual nominal growth would thus be higher than ever before, while government investment is also expected to increase in the coming years.

[4] A more detailed presentation of the methodology for estimating the impact of the fiscal measures on economic activity was given in Box 3 of the June 2020 issue of Macroeconomic Projections for Slovenia. The estimate of measures does account for any major losses in economic capacity, as emergency measures are maintaining it at levels that will allow for the rapid recovery of the economy when the epidemiological situation improves.

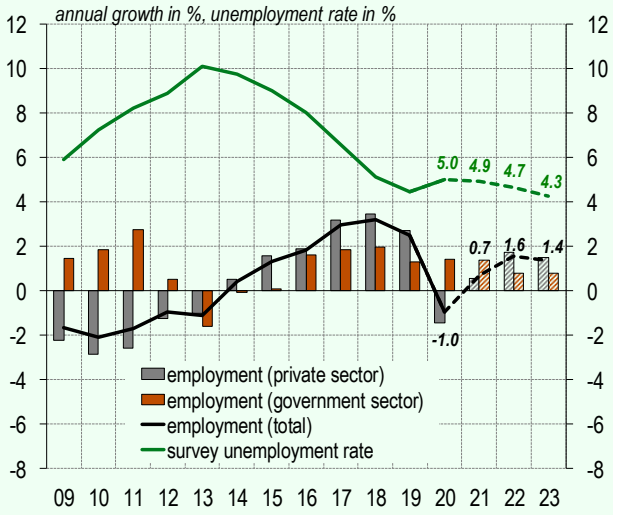
[5] The estimated contribution of fiscal measures to GDP growth does not include the negative technical base effect due to the lower amount of measures relative to last year.

2.2 Labour market

In the context of a more rapid recovery in economic activity, conditions on the labour market will improve significantly as early as this year, as employment will rise by 0.7% this year after last year's 1% decline (Figure 9)**.** The improved outlook for the first half of the year is supported by a rapid decline in registered unemployment, which was down by 15 thousand people at the end of May in year-on-year terms.[11] A rapid recovery in employment is also expected during the second half of the year, as the May value of the aggregate employment expectations indicator was well above the long-term average and higher than almost 90% of past values since 2004 (Figure 10).[12] With the lifting of the majority of containment measures and the reopening of activities, we expect the recovery on the labour market to be broader-based during the second half of the year, which will reduce firms' demand for job retention schemes.[13] To date, these measures have successfully attenuated the need of firms to lay off workers in response to the drop in economic activity. In the context of the recent extension of the temporary lay-off scheme until the end of June, we expect that the majority of employees participating in job retention schemes will gradually return to the workplace during the second half of the year, and that there will be no major longer-term inflow into unemployment. The surveyed unemployment rate will thus fall slightly this year and stand at 4.9%. To that end, targeted support measures will likely be required during the second half of the year as well, due to the expected slower recovery of certain services activities hit hardest by the epidemic (e.g. tourism and catering). Therefore, we associate the potential rapid withdrawal of the aforementioned measures with the risk of an increase in the unemployment rate this year. Due to a decrease in the number of employees participating in job retention schemes relative to last year, the growth in the number of hours worked at 5.4% will significantly outpace growth in employment this year.

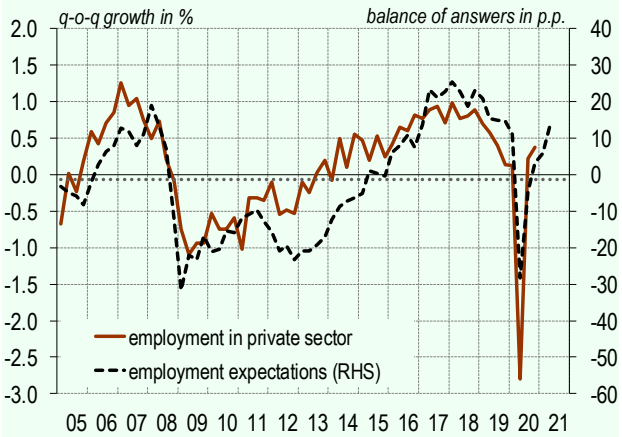
Favourable developments on the labour market will continue in the coming years, when limiting factors from the pre-epidemic period will re-emerge. In the context of rapid economic growth, employment is expected to increase by 1.6% and 1.4% in 2022 and 2023 respectively. Consequently, at the end of the projection horizon, the number of persons in employment will be up by almost 30 thousand relative to the pre-crisis year of 2019. With strong growth in economic activity, accelerat-

Figure 9: Employment and unemployment



Source: SORS, Banka Slovenije projections.

Figure 10: Short-term employment growth prospects



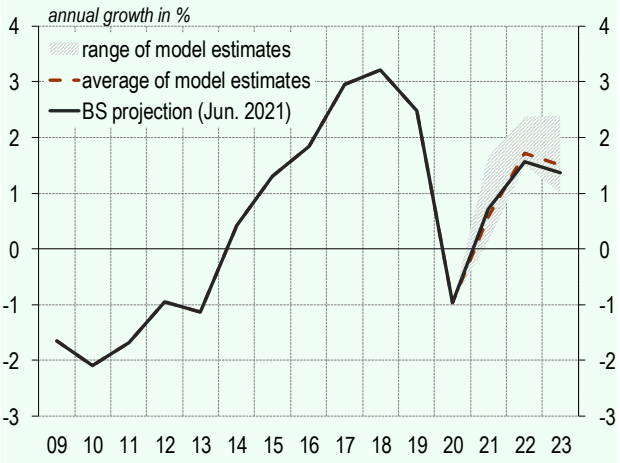
Note: The aggregate indicator of expected employment is calculated using shares in value added, with the horizontal line showing the value of the long-term average. Data are seasonally adjusted.
Source: SORS, Banka Slovenije calculations.

[11] According to unofficial daily figures, there were 75,454 unemployed persons registered with the Employment Service of Slovenia on 26 May this year, compared with 90,415 at the end of May last year.

[12] Positive outlook for employment growth can also be seen in the results of the Employment Service's Employment Preview survey and in the results of the survey conducted by the ManpowerGroup HR agency.

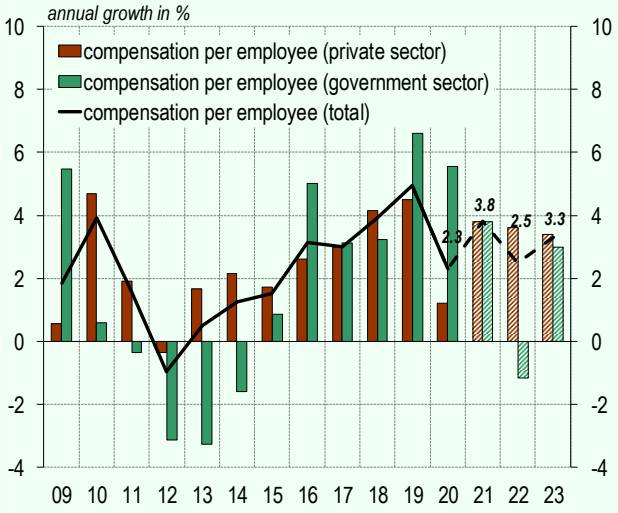
[13] According to figures from the Employment Service on 16 May, there were 44 thousand temporarily laid-off workers in February, while 19 thousand persons were included in the measure to subsidise short-time work.

Figure 11: Model estimates of employment growth



Note: Conditional model estimates are based on a suite of dynamic econometric models of employment growth, where GDP growth, world demand growth and past employment growth are used as explanatory variables.
Source: SORS, Banka Slovenije estimations and projections.

Figure 12: Nominal growth of compensation per employee

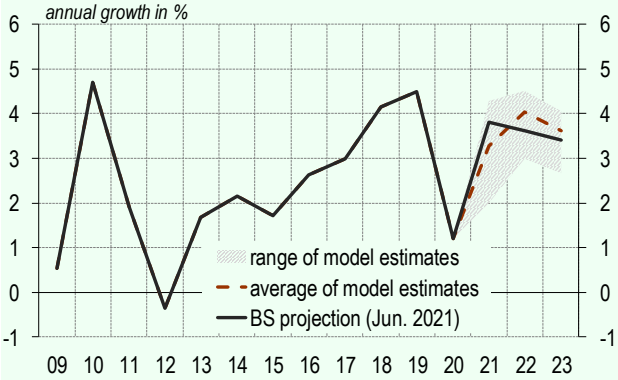


Source: SORS, Banka Slovenije projections.

ed growth in labour demand is also implied by models based on the historical correlation between developments in employment and GDP (Figure 11). Although growth in employment will remain higher in the public sector than in the private sector this year, private-sector firms are expected to become the drivers of employment growth in 2022 and 2023. Similar to the period before the epidemic, employers will increasingly face shortages of qualified labour.[14] As full employment is approached and underlining unfavourable demographic developments and structural imbalances on the labour market, rising employment will be largely based on the employment of foreign labour, similar to the period prior to the epidemic. Accordingly, the decline in unemployment will be slower than employment growth. At 4.3% at the end of the projection horizon, the surveyed unemployment rate is expected to approach historically low levels.

While wage growth will be high this year, at close to 4%, it will largely result from one-off effects in connection with the epidemic (Figure 12).[15] Key to the continuation of high growth in the government sector will be the still-present official epidemic and the associated payment of crisis bonuses to public-sector employees, particularly in human health and social work activities.[16] Mean-

Figure 13: Wage Phillips curve model estimate of compensation per employee growth in private sector



Note: Conditional model estimates are based on a suite of econometric models of the wage Phillips curve, where the unemployment rate, inflation rate, GDP growth rate and past wage growth are used as explanatory variables. Model estimates do not include the mechanical effect of job retention schemes that stems from lower compensation that workers receive while not working.
Source: SORS, Banka Slovenije estimations and projections.

while, wage growth in the private sector reflects the lifting of job retention schemes and the increase in the minimum wage. Due to the reduced number of employees included in temporary lay-offs and short-time work schemes, average employee earnings will rise mechanically, as the employees who are included in these measures receive lower earnings while they are absent from the work process. We estimate that the aforementioned effect will increase this year's growth in private-

[14] In some sectors, in particular in human health and social work activities, firms are already facing a shortage of qualified labour.

[15] The projection for wage growth relates to average compensation per employee based on the national accounts definition.

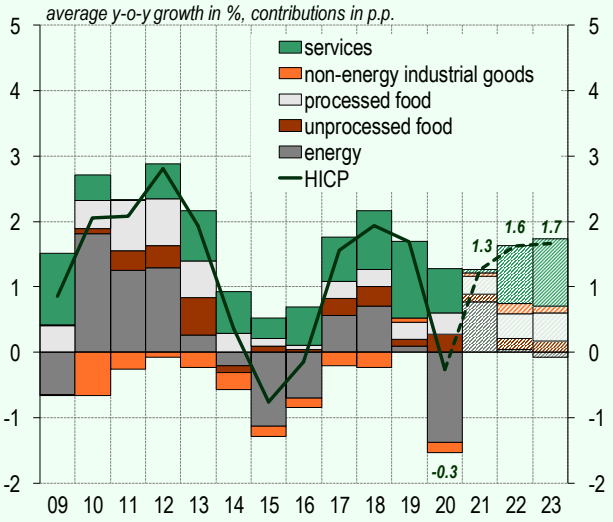
[16] According to national accounts figures (published on 31 March 2021), compensation per employee rose by 5.6% in the government sector, while growth in OPQ activities (public administration and defence, compulsory social security, education, human health and social work activities) was 11.1%. Such a discrepancy in wage growth according to both series deviates from the historically close correlation between those series, and indicates the possibility of major future revisions in the sectoral breakdown of wage growth for 2020.

sector wages by slightly more than one percentage point.[17] A somewhat less positive effect in wage growth is also expected in connection with this year's 8.9% increase in the minimum wage, although temporary government wage subsidies will significantly mitigate, by nearly one-half, the pass-through of that increase to growth in labour costs.[18] Overall wage growth will slow down considerably in 2022 due to a drop in government sector wages that will derive primarily from the termination of the payment of epidemic-related bonuses. In the context of relatively rapid growth in employment, the growing challenge of labour shortages in certain sectors, and rising inflation, we expect underlying wage pressure to strengthen gradually in 2022 and 2023, which is also evident from model estimates based on the wage Phillips curve (Figure 13). Wage growth will thus stabilise at over 3% at the end of projection horizon.

2.3 Inflation

Despite strong external price pressures, inflation will be relatively weak this year and highly volatile due to technical effects. Following a year of deflation as a result of the outbreak of the epidemic, price growth will strengthen this year and reach 1.3% (Figure 14). Due to the base effects of last year's fall in fuel and electricity prices and this year's growth in global oil prices, inflation will be driven primarily by energy prices, while growing external inflationary pressures will also contribute to higher growth in food prices. Despite recovering demand and cost pressures, annual growth in domestic components of inflation will remain relatively weak this year, in part due to the slowdown at the beginning of the year when more stringent measures to contain the spread of the virus were still in place. Core inflation, i.e. growth in prices excluding energy and food, will thus average just 0.2% this year (Figure 15). The change in weights for calculating the price index also contributes to relatively low inflation. Weights for products and services in the consumer price basket changed more than usual due to last year's change in consumption patterns. We therefore expect for this year's inflation and core inflation to be 0.4 and 0.3 percentage points lower respectively.[19] The impact of the change in weights, which is presented in more detail in Box 3, will also be reflected in the increased volatility of year-on-year inflation this year. Due to a lower weight of package holidays, the strongest effect of the change in weights is expected in the third quarter when headline inflation is expected to be as much as 0.8 percentage points lower than if the change had not occurred.

Figure 14: Projection of contributions to inflation by components



Source: SORS, Eurostat, Banka Slovenije projections.

[17] The lifting of job retention schemes will have a positive effect on private-sector wage growth also next year.

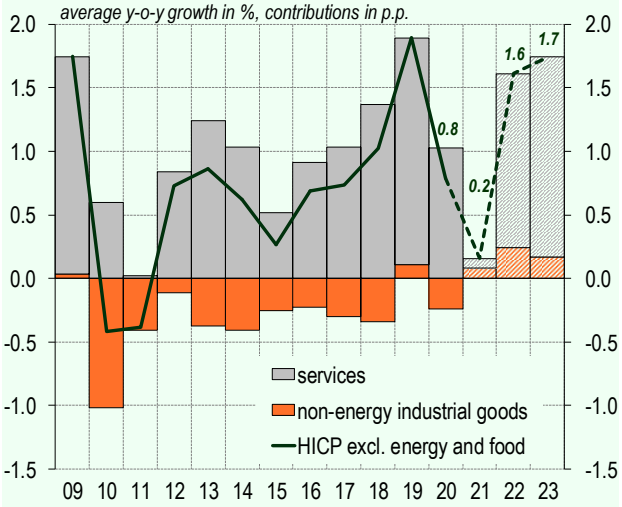
[18] Since January this year, the calculation of the minimum wage is based on a formula whereby the minimum net remuneration for full-time work will have to be 20% higher than the minimum costs of living. In accordance with that provision, the gross minimum wage increased by 8.9% in January this year, to stand at EUR 1,024.24. In order to mitigate growth in labour costs, the government stipulated in the eighth package of measures to mitigate the consequences of the epidemic (ZDUOP) that employers will be entitled to a monthly subsidy of EUR 50 during the first half of the year for every worker whose wages excluding bonuses are lower than the minimum wage. During the second half of the year, employers' burden in terms of the payment of social security contributions will be partly reduced, as the lowest basis for the calculation of contributions from wages will be lowered from 60% of the average wage to the level of the minimum wage. We estimate that the aforementioned measures will mitigate the increase in labour costs for workers on minimum wage by one-half during the first half of the year, and by just over one-third during the second half of the year. On account of the national accounts methodology, we also expect that only the reduction of the lowest basis for the calculation of contributions will have a limiting effect on growth in compensation per employee. According to our estimates, raising the minimum wage could contribute close to one percentage point to growth in compensation per employee in the private sector.

[19] The impact of updated weights on the year-on-year growth in consumer prices is expressed as the difference between the official year-on-year growth in the HICP calculated using 2021 weights and the hypothetical year-on-year growth in the HICP as proceeds from the calculation of the index with no change in weights, i.e. the 2020 weights.

Inflation will rise in the coming years, largely as a result of accelerated growth in the prices of domestic components. With the lifting of measures to contain the spread of the epidemic and in accordance with the closure of the output gap, core inflation will begin to rise faster towards the end of the year, reaching 1.6% already next year and standing at 1.7% in 2023. Underlining the growth in domestic components of inflation, overall price growth will also rise to 1.7% by the end of the projection horizon. With the gradual normalisation of the situation, the sharp rise will be the result of cost pressures as well as the recovery of private consumption, which will be driven by favourable labour market conditions and wage growth. Despite productivity growth, unit labour costs will fall until 2022 and will contribute positively to core inflation only during the last year of the projection horizon (Figure 16),[20] while inflationary pressures will be driven higher by the profit margin, which will gradually recover over the projection horizon after falling last year. The analysis of the pass-through of labour costs to core inflation is currently somewhat difficult due to a number of one-off factors that affect various macroeconomic statistics. This includes wage reimbursements of temporarily laid-off workers and the subsidisation of short-time work, which have been available since last year, and the partial subsidisation of minimum wage increase from this year on, which are, on the one hand, included in compensation of employees, i.e. labour costs, and as subsidies in net taxes on the other.

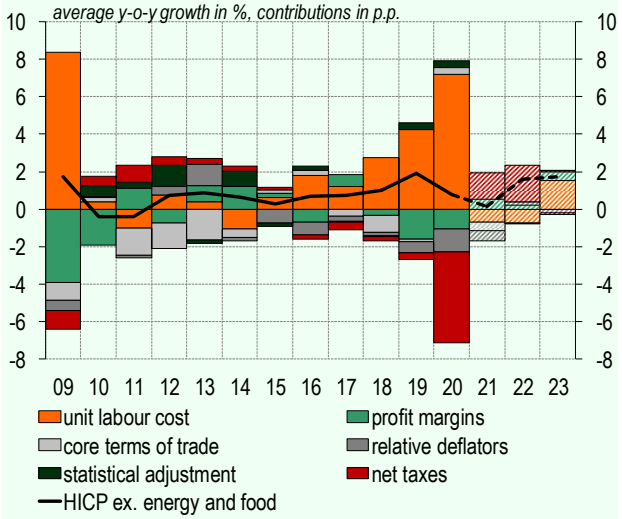
On account of base effects and higher global oil prices, energy price inflation will reach 7.3% this year. Last year's drop in prices of more than 10% was primarily the result of cheaper liquid and motor fuels due to the sharp fall in global oil prices and the government's excise duty policy, while the decline in energy prices was also exacerbated by temporarily reduced electricity prices during the first wave of the epidemic. Due to last year's fall in prices, the base effects, which were strongest in the spring, will thus contribute significantly to higher year-on-year growth this year. After June when last year's cut in electricity prices will no longer have an effect on year-on-year growth, the effect will diminish somewhat in cumulative terms, but will remain significant until the end of the year (Figure 17).[21] The increase in oil prices is another contributor to the stronger growth in energy inflation this year, as the euro price of Brent crude was up by

Figure 15: Projection of contributions to core inflation by components



Source: SORS, Eurostat, Banka Slovenije projections.

Figure 16: Decomposition of core inflation

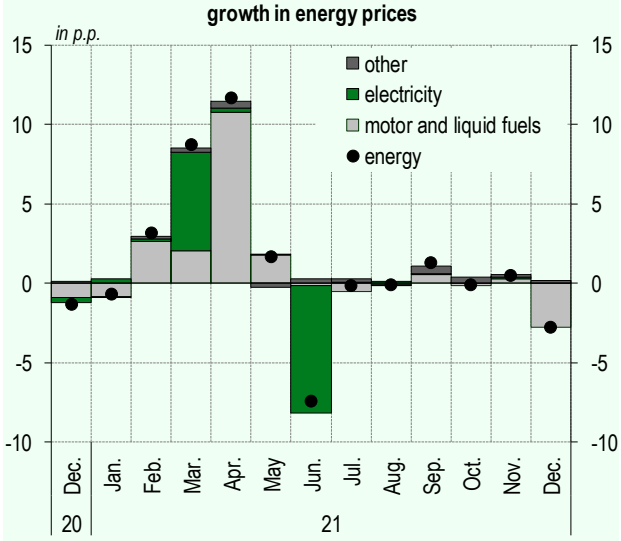


Source: SORS, Banka Slovenije calculations and projections.

[20] A more detailed analysis of the pass-through of labour costs to core inflation was presented in Box 8 in the June 2020 issue of Macroeconomic Projections for Slovenia.

[21] Base effect, which affects the change in year-on-year growth rate, results from an unusually large monthly change 12 months earlier dropping out of the price index. The stronger base effects led to a significant increase in year-on-year growth in energy prices in March and April. It was up by 11.1 percentage points in March relative to the previous month, with close to 80% of the increase being the result of the base effect associated with last year's fall in electricity prices. Similarly, year-on-year energy inflation was up by 13.8 percentage points in April relative to March, with the base effect related to plummeting prices of motor and liquid last April contributing around 85% to higher growth. The rest of the increase in year-on-year growth primarily stemmed from recent increases in liquid and motor fuel prices driven by growth in oil prices.

Figure 17: Contribution of base effects to the change in year-on-year growth in energy prices



Source: Eurostat, Banka Slovenije estimations and calculations.

close to one-third in April relative to last December underlining the recovery in global demand. At an average price of EUR 54.5 per barrel, the price of oil is expected to increase by 57.1% in year-on-year terms, which will be reflected in higher motor and liquid fuel prices. In line with the assumption regarding the development of the euro price of oil, which is expected to decline gradually over the remainder of the projection horizon, and the negative base effect related to this year's rise in motor and liquid fuel prices, growth in energy prices will ease already next year.

Growth in food prices will strengthen throughout the year due to rising cost pressures. Rising prices of food commodities, oil and other raw commodities, which are driving up transport and packaging costs, are already reflected in this year's higher import prices of food in year-on-year terms, while growth in producer prices of food and retail prices will strengthen over the remainder of the year. In addition to higher global food commodity prices, growth in wages will also drive the expected strengthening of price growth, where wage pressures will be present due to the labour intensity and lower average wages in the food industry and retail sector, relating in part to the minimum wage increase. In addition to cost pressures, the curtailed supply of domestic fruit due to April's frost could also affect this year's growth in prices. Food prices will rise by an average of 1.6% this year, to which last year's increase in tobacco prices due to higher excise duties will continue to contribute more than one-half of a percentage point, and growth in food prices will strengthen slightly in the coming years and exceed 2%.

Competition within the sector will continue to prevent stronger growth in the prices of non-energy industrial goods despite the challenges on the supply side. The shortage of commodities on the global markets, the sharp rise in the prices thereof, and the extension of supply deadlines was not reflected in the growth in producer prices and import prices of consumer goods by April. In addition, even retail selling price expectation indicators do not point to major price increases in the short term.[22] Therefore, we do not expect a significant growth in non-energy industrial goods prices this year. We assess that rising production costs will be reflected in higher growth next year when increased demand will also drive price increases. More significant growth will continue to be limited by competition, on account of which higher costs will be passed through to consumer prices to a lesser degree. Over the longer term, cost pressures could also be mitigated through the optimisation of production processes and increased productivity.

Despite the strengthening of domestic inflationary pressures, services price inflation will remain weak this year and will rise more sharply in the coming years. After falling further due to certain constraints on consumption during the first months of the year, we expect services price inflation to rise during the second half of the year as the result of the further lifting of measures to contain the spread of the virus and the increase in private consumption. Despite inflationary pressures related to higher wage growth and rising prices of services, services price inflation will be just 0.2% this year due to a change in HICP weights. We expect that the different structure of weights will reduce growth in the prices of services by an average of close to one-half of a percentage point, most notably in the summer (by 1.6 percentage points). Services price inflation will thus strengthen more markedly next year, while price growth is expected to reach 3% by the end of the projection horizon. The projection for this year is accompanied

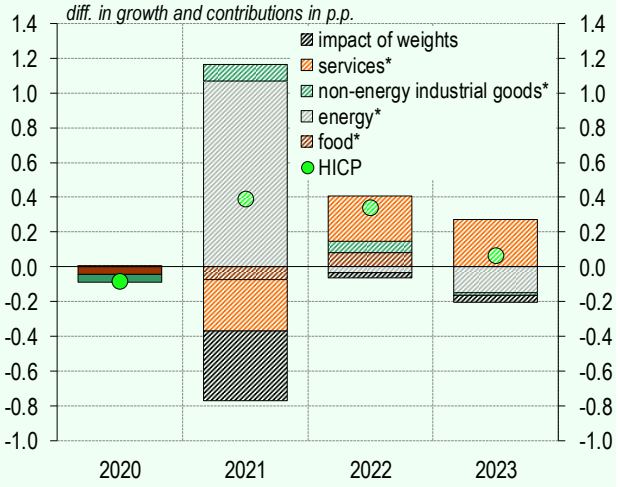
[22] Selling price expectations indicators rose sharply in May among producers of consumer goods, in particular among producers of durable goods. However, this is not yet reflected in retail sector expectations due to the more protracted pass-through of costs into retail prices.

by significant risks, as the deterioration of the epidemiological situation would again limit the functioning of certain services, difficulties in price collection would continue or increase, and higher price increases would be limited by weaker demand.

The upward revision to the projection of price growth this year is offset by the negative impact of the change in weights. Compared with the December projections, the inflation projection is slightly higher this year (0.4 percentage point) due to the assumption of higher global prices of oil and commodities and stronger domestic inflationary pressures. However, the revision is offset by the impact of the change in weights in the amount of -0.4 percentage points (Figure 18). The change in weights also reduces the projection of core inflation, which in the context of the extension of certain containment measures is lower this time also due to a stronger drop in prices in the first quarter. In line with a more rapid recovery in private consumption and more favourable conditions on the labour market, core inflation is slightly higher over the remainder of the projection horizon than in previous projections, meaning headline inflation is also higher (by 0.3 percentage points in 2022 and by 0.1 percentage points in 2023).

The risks surrounding the inflation projection are on the upside. In addition to risks associated with the evolution of the epidemic and uncertainty regarding the impact of the change in weights, the current inflation projection is also subject to risks regarding the duration of limitations in production and supply chains, and the pace of unwinding of household savings accumulated last year. In the event of more sustained difficulties on the supply side, which are reflected this year in a shortage of input materials and an increase in the prices thereof, rising production costs could pass through to final prices to a greater extent. On the other hand, the increased marginal propensity of households to consume following the end of epidemic, in particular due to the considerable stock of savings that households accumulated last year due to the limited functioning of numerous activities, could result in stronger price increases.

Figure 18: Revision of inflation projections



*Note: *Contribution without the impact of updated HICP weights.*
Source: SORS, Eurostat, Banka Slovenije projections.

Table 3: Inflation projections

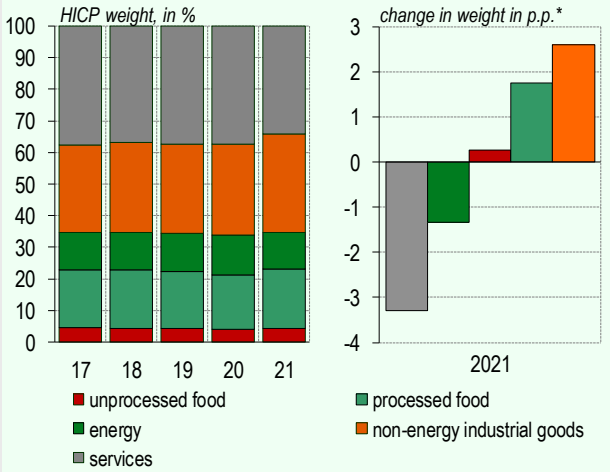
	2016	2017	2018	2019	2020	2021		2022		2023	
						June	Δ	June	Δ	June	Δ
	average y-o-y growth in %										
Consumer prices (HICP)	-0.2	1.6	1.9	1.7	-0.3	**1.3**	0.4	**1.6**	0.3	**1.7**	0.1
food	0.5	2.2	2.4	1.6	2.8	**1.6**	-0.4	**2.3**	0.2	**2.6**	0.0
energy	-5.1	4.7	6.1	0.8	-10.8	**7.3**	7.6	**0.3**	-0.3	**-0.6**	-1.1
non-energy industrial goods	-0.5	-0.7	-0.8	0.3	-0.5	**0.2**	0.3	**0.5**	0.2	**0.4**	0.0
services	1.6	1.8	2.4	3.1	1.8	**0.2**	-1.3	**2.6**	0.7	**3.0**	0.7
Core inflation indicators (HICP)											
excluding energy	0.6	1.1	1.4	1.8	1.3	**0.5**	-0.6	**1.8**	0.4	**2.0**	0.2
excl. energy and unprocessed food	0.6	0.9	1.1	1.8	1.0	**0.4**	-0.7	**1.7**	0.4	**1.9**	0.2
excl. energy, food, alcohol and tobacco	0.7	0.7	1.0	1.9	0.8	**0.2**	-0.6	**1.6**	0.4	**1.7**	0.2

Δ: Difference between current projections and projections in Macroeconomic Projections for Slovenia, December 2020.
Source: SORS, Eurostat, Banka Slovenije calculations.

Box 3: Impact of the change in HICP weights on the inflation projection

The outbreak of the epidemic and the associated containment measures affected consumer price statistics already last year. Since measures have been in place to contain the spread of the virus, the SORS has faced difficulties in the collection of price data, which were inaccessible due to the lockdown of certain activities or problems in data collection fieldwork. Consequently, such data were imputed in accordance with Eurostat's recommendations.[1] While the problem of missing data has diminished considerably this year due to the lifting of measures, the changes in HICP weights, which reflect last year's change in consumption patterns, have affected year-on-year inflation since January. As a measure of inflation, the HICP does not reflect merely price change but also changes in weights on account of the index's nature. These changes have made the analysis of inflation difficult this year, while changes in the weighting scheme have also affected the current projections. Due to these changes, we estimate that headline inflation and core inflation will be 0.4 and 0.3 percentage points lower this year respectively.

Figure 1: HICP weight by special aggregates

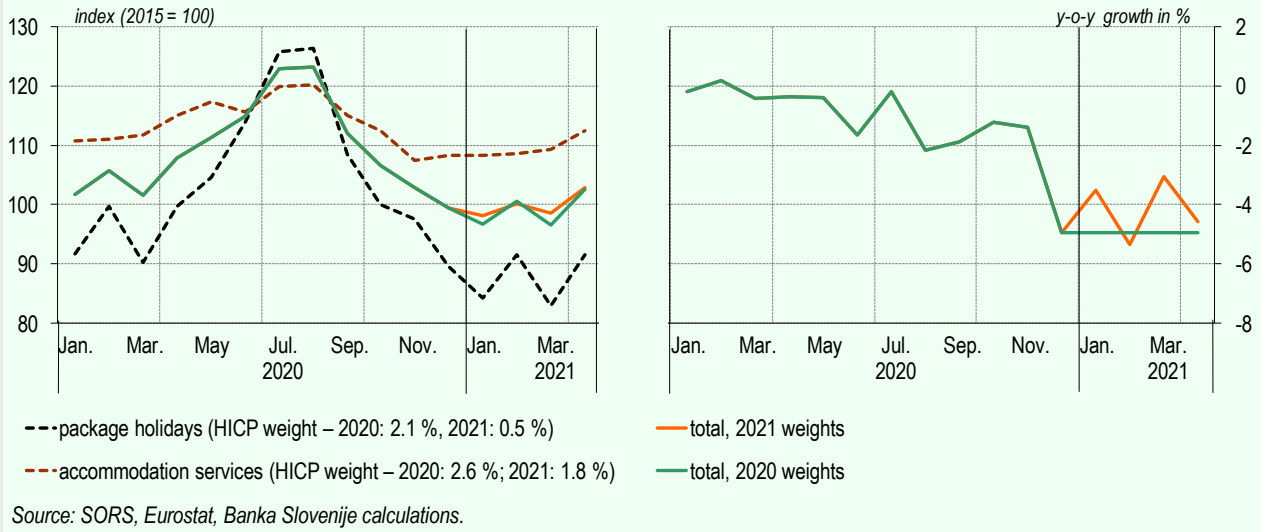


*Note: *The change is calculated as the difference between the 2021 weight and 2020 weight.*
Source: Eurostat, Banka Slovenije calculations.

The Harmonised Index of Consumer Prices (HICP) is a price index that aggregates the prices of products and services in the consumer basket in an aggregate index according to fixed weights. The latter are derived from the structure of household expenditure earmarked for the purchase of consumer goods, and are updated every January with the aim of capturing consumption patterns observed in the previous year. The outbreak of the epidemic and measures adopted to contain it were reflected in a major change in the structure of consumption last year due to the limited ability to spend and changing consumer habits. Accordingly, HICP weights for 2021 were updated (Figure 1). In the context of a drop in spending on catering and tourism-related services, the largest downward revision in weight in the aggregate price index pertains to services (from 37.3% in 2020 to 34.1% in 2021), while the weight for energy is also lower this year (11.4% in 2021 compared with 12.8% in 2020) due to restrictions on movement during the period of stringent measures to contain the spread of the virus and the reduced use of motor and liquid fuels. At the same time, the weight for non-energy industrial goods rose from 28.8% to 31.4%, while the weight for food rose from 21.1% to 23.2%.

On account of the methodology used to compile the HICP, the major change in weights is reflected in year-on-year inflation, as the HICP is compiled as an annual chain-linked index

Figure 2: Package holidays and accommodation services



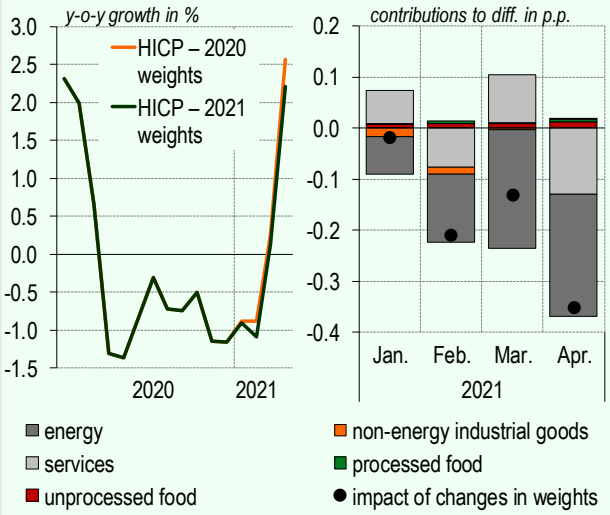
Source: SORS, Eurostat, Banka Slovenije calculations.

due to the annual updating of weights. This means that the calculation of year-on-year price growth always compares the values of the index calculated using different weights. Year-on-year inflation therefore reflects the change in weights in addition to price changes.[2] Thus, both relative changes in the weights of categories of products and services with differing price trends and the change in the seasonality of the aggregate index affect measured growth. Seasonality changed considerably this year, as particularly weights for tourism-related services with a strong seasonal pattern (package holidays, international flights, etc.) were lower. Due to the redistribution of weight in favour of categories of products and services with a lower seasonal pattern, the seasonality of the overall price index is less-pronounced this year than last year, which is reflected in the increased volatility of the measured year-on-year growth rate.[3] The impact in the case of the *package holidays and accommodation* aggregate price index is illustrated in Figure 2. This year, the weight of components with a strong seasonal pattern was halved (domestic and international package holidays accounted for 44.8% of the aggregate last year compared with 22.1% this year) while the weight of less seasonal components rose (the proportion of hotels, camps and other accommodation services was 55.2% last year and is 77.9% this year). Consequently, the seasonal fluctuation of the aggregate price index is less pronounced this year than it would have been had the weights not changed. Due to the change in the seasonal pattern, aggregate year-on-year growth was more volatile during the first four months of this year; in the context of fixed weights, growth would have been unchanged at -5.0%.

The significant change in HICP weights has already had an impact on the measured growth in consumer prices this year. The impact can be expressed as the difference between the official year-on-year growth in the HICP calculated using the 2021 weights and the hypothetical year-on-year growth in the HICP resulting from the calculation of the index with no change in weights, i.e. the 2020 weights. A comparison of both year-on-year growth rates indicates that average headline inflation was 0.1 percentage points lower during the first quarter of this year and 0.4 percentage points lower in April due to the change in weights (Figure 3). Contributing in particular to the negative effect of the change in weights were services and energy products, where growth in the prices of motor fuels contributed less to headline inflation than it would have due to a lower weight. While the change in weights for energy products resulted in increasingly lower inflation, the impact of services inflation was highly volatile due to the change in seasonality.

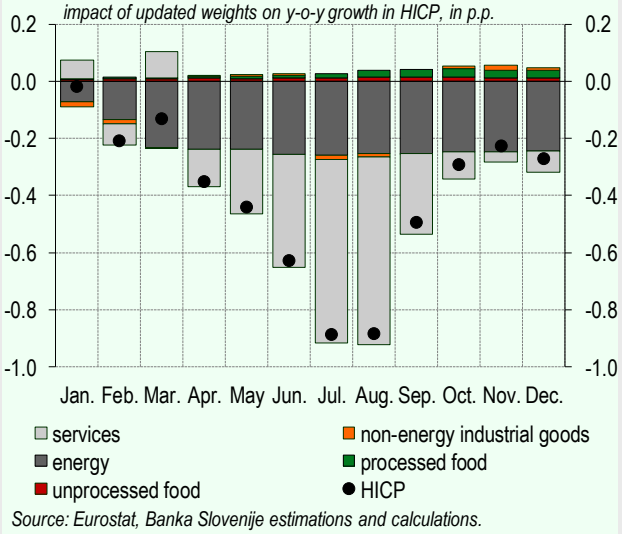
The change in weights is also reflected in the inflation projection. The impact of weights, which depends on the already known change in weights and on future growth in the prices of individual categories of products and services, will continue to deepen until August.[4] Due to the update of weights, we expect that headline and core inflation will be 0.4 and 0.3 percentage points lower this year respectively (Table 1). Taking into account the assumed euro price of oil, which is expected to fluctuate at around EUR 56 per barrel, energy products will continue to contribute to the negative effect. Due to a lower weight for motor and liquid fuels, energy inflation will be one percentage point lower than it would have been had the weights not changed. Services inflation will also be one-half of one percentage point lower on average this year, reaching its peak in the summer when it will be 1.6 percentage points lower. The pronounced impact in the summer is linked to the

Figure 3: Impact of changes in weights on inflation



Source: Eurostat, Banka Slovenije calculations.

Figure 4: Assessment of the impact of change in weights on inflation in 2021



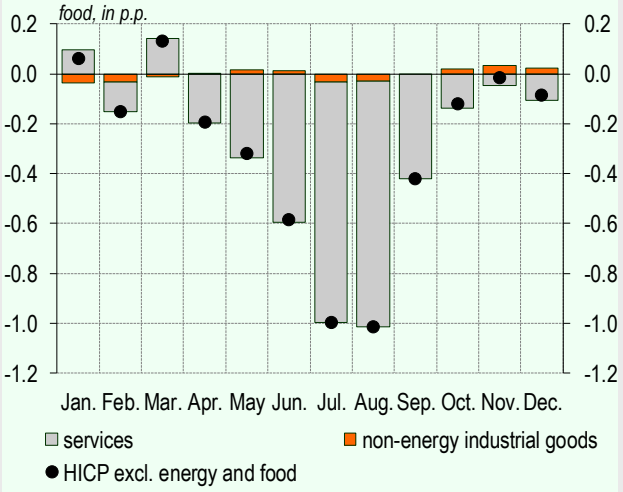
Source: Eurostat, Banka Slovenije estimations and calculations.

reduction in the weight for tourism services, the prices of which rise sharply in the summer in line with the usual seasonal pattern. Due to the reduction in weights, however, that price increase will contribute less to services price inflation. Meanwhile, the impact of the change in weights in the categories of food and non-energy industrial goods will be less pronounced, since the relative importance of individual products has not changed much and impacts from individual components are expected to balance each other out. In line with the impact on services price inflation, the effect of the change in weights will also be strongest in the summer in the case of headline and core inflation (Figures 4 and 5). Headline inflation could be 0.9 percentage points lower in July and August, while core inflation could be one percentage point lower. The strong effect of updated weights, which will result in both lower and more volatile inflation this year, is largely the result of the less pronounced seasonal pattern of the HICP due to the lower weights for products and services with a stronger seasonal component.

In accordance with the established approach, the inflation projection for the entire 2021-2023 period is drawn up on the basis of the latest weights, i.e. 2021 weights. Because it is assumed that the weights will be unchanged next year, not even the seasonal pattern of headline inflation, which could affect the variability of year-on-year growth, will change. On the other hand, the use of this year's weights is reflected in the revision of December projections, as compared to 2020 the weight for non-energy industrial goods was increased and the weight for services decreased over the projection horizon due to last year's change in the structure of consumption. Because the prices of services will grow considerably faster than the prices of non-energy industrial goods in 2022 and

Figure 5: Assessment of the impact of change in weights on core inflation in 2021

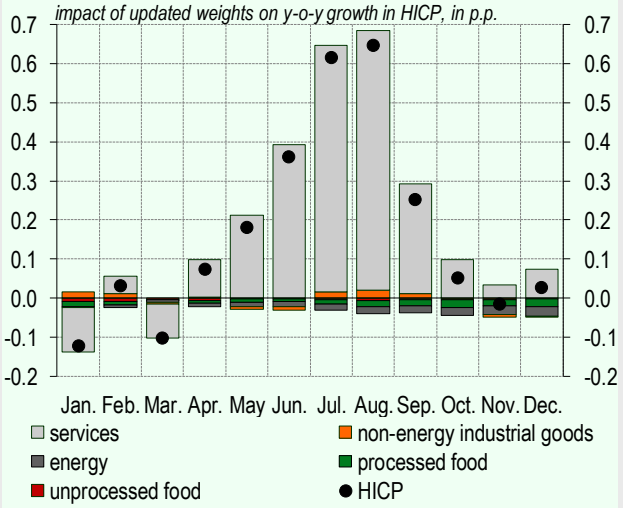
impact of updated weights on y-o-y growth in HICP excl. energy and food, in p.p.



Source: Eurostat, Banka Slovenije estimations and calculations.

Figure 6: Assessment of the impact of changes in weights on inflation in 2022 assuming normalization of consumer patterns

impact of updated weights on y-o-y growth in HICP, in p.p.



Source: Eurostat, Banka Slovenije estimations and calculations.

Table 1: Impact of changes in weights*

	Unprocessed food	Processed food	Energy	Non-energy industrial goods	Services	HICP excl. energy and food	HICP
	impact on y-o-y growth in p.p.						
January 2021	0.0	0.0	-0.3	0.1	0.1	0.1	0.0
February 2021	0.0	0.0	-0.6	0.1	-0.2	-0.2	-0.2
March 2021	0.0	0.0	-1.1	0.1	0.2	0.1	-0.1
April 2021	0.0	-0.1	-1.1	0.0	-0.4	-0.2	-0.4
2021	-0.2	-0.1	-1.0	0.0	-0.5	-0.3	-0.4
	contribution to the impact on y-o-y growth in p.p.						
2021 – HICP excl. energy and food				0.0	-0.3		
2021 – HICP	0.0	0.0	-0.2	0.0	-0.2		

*Note: *The difference between the year-on-year growth in the HICP computed using 2021 weights and year-on-year growth using 2020 weights.*
Source: Eurostat, SORS, Banka Slovenije calculations and estimations.

2023, the projection of core inflation is 0.1 percentage points lower in both years than if last year's weights had been used.

In the current situation, the approach of using the latest available weights over the entire projection horizon represents an additional challenge, in particular when taking into account the expected normalisation of consumption patterns. Despite stringent measures to contain the spread of the virus at the beginning of the year, purchasing habits could gradually return to their pre-crisis framework as early as this year, which would lead to additional changes to weights for calculating the HICP in 2022. Since those weights will be known at the beginning of next year, the current projections could only be revised with the June 2022 projections. Due to the significant risk that accompanies the current inflation projection, we present the assessed impact of weights in 2022 assuming the complete normalisation of the structure of consumption already this year. If this year's consumption patterns are the same as those in the year prior to the crisis, seasonal fluctuations in the aggregate price index would become more pronounced again in 2022. This would affect the year-on-year price growth, which would be higher by around 0.2 percentage points, on average, due to a change in weights (Figure 6). In the context of a change in the seasonal pattern, the prices of services would again affect headline inflation. This effect would be positive and most pronounced in the summer due to the normalisation of the seasonal pattern. The estimates are however very uncertain due to their dependence on both weight changes and growth in the prices of individual components. Likewise, the hypothetical scenario of the complete normalisation of consumption patterns merely presents a borderline case, the realisation of which is very unlikely due to the inability to spend during the period of stringent measures at the beginning of the year and restrictions that are still in place for the consumption of certain services. The normalisation of consumer habits will be conditional on the evolution of the epidemic and will likely be protracted. We can thus expect a less pronounced effect in measured year-on-year inflation, at least in terms of the impact of the change in weights via modified seasonal patterns.

[1] In line with the scope and stringency of measures, the problem of missing data was most evident in April last year, when imputed data accounted for 22.7% of all data included in the calculation of the HICP. That proportion averaged less than 4% over the first four months of this year.

[2] The impact of this year's change in weights on growth in the consumer price index was addressed in detail in the Economic and Financial Developments publication issued in April 2021.

[3] The technical impact of weighting and aggregation, which is not related to changes in the seasonality of components at the lowest, five-digit level of the European Classification of Individual Consumption According to Purpose (ECOICOP).

[4] Because the assessment of the impact of weights over the projection horizon requires a projection of components of inflation at a minimum at the fourth level of the ECOICOP, the impact of weights is assessed using simulations for the main aggregates of inflation where projections are drawn up at a higher level. To that end, we assume that monthly growth in the prices of individual categories of products and services is the same over the projection horizon as the average monthly growth between 2017 and 2019. In doing so, we preserve the pattern of price movements in seasonal products, and exclude from the computation the atypical price developments seen last year as a result of the crisis conditions. The impact of weights is represented by the difference between simulated price growth for the aggregate price index, compiled with the help of this year's weights, and simulated growth in that index assuming unchanged weights.

3 The Covid-19 Epidemic and Alternative Scenarios[23]

The health situation continues to cause considerable uncertainty in the preparation of macroeconomic projections. The key factors determining the future evolution of the epidemic pertain to the share of the population vaccinated and the potential outbreak of new strains of the virus, against which existing vaccines and the immune protection of persons who have already recovered might not be effective. Should an insufficient share of the population be vaccinated or a new strain of the virus emerge, strict non-pharmaceutical measures, including a partial lockdown, would have to be reintroduced to contain the spread of the virus. The effects of such measures on economic activity would depend on the ability of firms and households to adapt to new circumstances and restrictions. Given the still high level of uncertainty surrounding the key baseline assumptions, the baseline macroeconomic projections for Slovenia are complemented with three alternative scenarios for economic activity, which vary on the underlying epidemiological assumptions, the stringency and evolution of containment measures as well as the ability of households and firms to adapt to new circumstances (so-called learning effects). In the mild scenario, real GDP would reach the pre-crisis level (i.e. from 2019) as early as the middle of this year underlining strengthening confidence and the more rapid adaptation of the economy to the new conditions than envisaged in the baseline projection. In the moderate scenario, which assumes that an insufficient share of the population would be vaccinated in the autumn, it would be necessary to reintroduce stricter non-pharmaceutical measures towards the end of this year and beginning of next year. This would be reflected in a slower recovery in real GDP, which would remain 1% below the baseline projection in 2022 and 2023. In the severe scenario, which assumes the outbreak of a new strain of the virus against which currently available vaccines would be ineffective, a new larger wave of the epidemic would follow in the autumn. This would have to be contained through more protracted non-pharmaceutical measures, which would further slow the recovery in economic activity, with the pre-crisis level of GDP reached in early 2023.

Uncertainty regarding the evolution of the epidemic is linked in particular to the effectiveness of the vaccination process in the coming months and the potential outbreak of new strains of the virus, against which existing vaccines and the immune protection of persons who have already recovered might not be effective. Similar to last year, the current baseline projection and alternative scenarios are based on epidemiological assumptions that differ in terms of the success of the vaccination process, the emergence of new strains of the virus, the need for additional non-pharmaceutical measures with adverse effects on the economy, and the ability of households and firms to adapt to new circumstances. Should an insufficient share of the population be vaccinated or a new strain of the virus emerge, strict non-pharmaceutical measures, including a partial lockdown, would have to be reintroduced to contain the spread of the virus. The effects of such measures on economic activity would depend on the ability of firms and households to adapt to new circumstances and restrictions. Given the still high level of uncertainty surrounding the key baseline assumptions, the baseline macroeconomic projections for Slovenia are complemented with three alternative scenarios for economic activity. The alterna-

[23] Alternative scenarios for economic activity in Slovenia were drawn up outside of the scope of the joint Eurosystem/ECB Staff macroeconomic projection exercise. Only general epidemiological assumptions for the baseline projection were harmonised within the scope of the joint exercise.

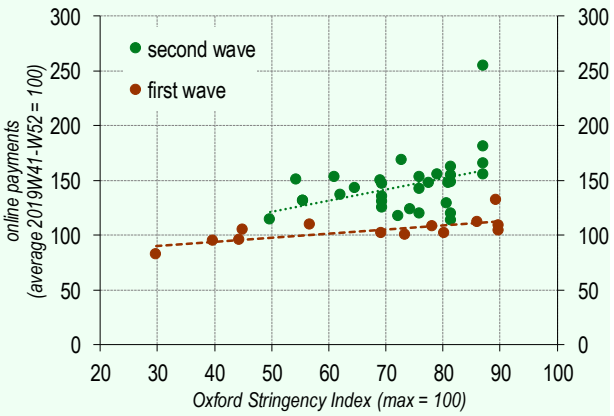
tive scenarios for economic activity are prepared in three steps. In the first step, we analyse how firms and households have responded to containment measures since the onset of the epidemic and what effect those measures have had on economic activity. The second step entails the projection of the Oxford Stringency Index (OSI) of containment measures[24] based on epidemiological scenarios prepared for the period until the end of 2021 by Professor Janez Žibert[25] from the Faculty of Health Sciences at the University of Ljubljana using an extended SEIR epidemiological model (V2.0). Alternative scenarios of economic activity over the projection horizon are constructed in the third step by taking into account the expected evolution of the epidemic and the past response of the economy to containment measures.

3.1 The relationship between containment measures and economic activity

The enacted stringent measures to contain the spread of the epidemic had a significant impact on the functioning of the Slovenian economy in the last year. Analysing the relationship between containment measures and economic activity is crucial to better understand how households and firms have adapted to the changing environment following the outbreak of the Covid-19 epidemic (so-called *learning effects*) and to more precisely assess the impact of non-pharmaceutical measures (so-called *containment measures*) on the economy. Data indicate that the negative correlation between containment measures and economic activity weakened during the second half of 2020. This was particularly notable in the strong rebound in GDP in the third quarter, and the small contraction in the final quarter of the year, despite the persistence of relatively strict containment measures that were adopted in mid-October when the Covid-19 epidemic was declared again in Slovenia. These measures prevailed also at the beginning of this year, and were not lifted until February when the majority of regions transitioned to the orange phase of containment measures, which among others, included full opening of primary schools, opening of retail stores and some services activities and lifting of the ban on crossing municipal borders. The process of easing of containment measures was interrupted by an eleven-day lockdown at the beginning of April, but thereafter continued with an increasing pace, pointing to the beginning of a more broad-based post-pandemic recovery. While there exist numerous factors influencing the relationship between containment measures and developments in economic activity, the following two stand out: 1) the ability of households and firms to adapt to the changing environment following the outbreak of the epidemic; and 2) the more targeted nature of containment measures in Slovenia during the second wave of the epidemic.[26]

Consumers adapted to the new situation to a greater extent during the second wave of the epidemic. The adaptation of the purchasing habits of households is illustrated in Figure 19 and presents the relationship between the stringency of adopted containment measures and the value of online card payments. The latter were significant-

Figure 19: Containment measures and online payments



Note: Data in weekly frequency. First wave refers to the period 13 March 2020 - 18 May 2020, and second wave to the period from the declaration of the epidemic on 18 October 2020 onwards (the cut-off date for the preparation of projections in 26 May 2021), as the epidemic was extended by the Government of Slovenia on 12 May 2021 at least until 15 June 2021.
Source: Oxford Economics, Bankart, Banka Slovenije calculations.

[24] Details can be found in subsection 3.3.

[25] Professor Janez Žibert is a member of the Covid-19 Tracker team, which developed a tool for the transparent and continuous publication of information in connection with the Covid-19 epidemic in Slovenia. Additional details can be found on the website.

[26] The first wave relates to the period from 13 March 2020 to 18 May 2020, while the second wave relates to the epidemic in the period from 18 October 2020 on (the cut-off date for the preparation of projections is 26 May 2021), as on 12 May 2021 the Slovenian government extended the epidemic until at least 15 June 2021. This coincides with the period of more stringent measures, which are reflected in the OSI.

ly higher during the second wave of the epidemic than in the first wave. Despite the still relatively low volume of online purchases, growth in the latter indicates a certain level of adjustment of consumers' purchasing habits, which prevented an even greater contraction in private consumption during the final quarter of last year.[27] These findings are also supported by the results of a regression analysis,[28] in which the value of payments (via POS and online payments) serve as the dependent variables, followed by the OSI and the daily number of confirmed cases of infection with Covid-19 as explanatory variables (Table 4).[29]

The results of the regression analysis confirm the negative correlation between household consumption and containment measures. The estimated coefficients indicate that the impact of containment measures on payments via POS terminals was strongly negative during both waves and somewhat greater during the first wave**.** The sharp drop in such payments during both waves of the epidemic is in line with the significantly negative trend in private consumption during the second and fourth quarter of last year. On the contrary but in line with the initial observations, the impact of containment measures on online payments was positive during both waves of the epidemic and significantly greater during the second wave. This is confirmed in part by the adaptation and adjustment of households' consumption modalities during the period of strict containment measures. The coefficients linked to the scope of the epidemic during both waves generally confirm the above-described findings, although their interpretation is not entirely unambiguous, as the number of daily cases of infections with Covid-19 varied significantly during the two waves of the epidemic.[30]

The contraction in industrial production was not as severe during the second wave as it was in the first wave, which reflects both the increased flexibility of the economy and the more targeted nature of containment measures (Figure 20)**.** A similar dynamic also prevailed in other industrial sectors (BDE), in construction and in services sectors such as financial and insurance activities in which direct contact between the customer and service provider is not necessary. The prevalence of more targeted containment measures where possible, thus allowed regular economic activity in sectors where distance could be ensured, appropriate preventive measures could be implemented (i.e. social distancing, wearing of masks, other hygiene requirements) and remote work was possible. The above findings are supported by a similar regression analysis, as in the case of the analysis of the learning effects, but now with Google mobility data (average mobility,[31] workplace mobility, retail and recreational mobility and transit station mobility) utilised as a dependent variable in the regression, proxying economic activity. The two explanatory variables (the OSI

Table 4: Regression results based on POS and online payment data

	First wave		Second wave		First wave		Second wave	
	POS payments	Online payments	POS payments	Online payments	POS payments	Online payments	POS payments	Online payments
	1 p.p. higher OSI index				1 additional Covid-19 case			
Coefficient	-108.9	12.1	-47.8	21.3	-93.6	-7.3	-4.7	-0.3
95% confidence interval (lower bound)	-132.0	9.4	-87.4	10.9	-119.0	-10.2	-5.8	-0.6
95% confidence interval (upper bound)	-85.9	14.7	-8.2	31.6	-68.3	-4.4	-3.6	-0.1

Note: Bankart payment data presented in EUR 1000.
Source: Oxford Economics, Bankart, Banka Slovenije estimations.

[27] Taking into account developments during the first half of last year, we estimate that the year-on-year drop in total card payments (at POS terminals and online payments) was around 3 percentage points lower during the final quarter of last year due to an increase in online payments.

[28] We follow the analysis by Boone and Ladreit (2021), which addresses this issue using a sample of 29 advanced OECD countries (link).

[29] The series of data regarding payments, which Bankart provides in aggregate form, and the data series regarding the daily number of confirmed cases of infection with Covid-19 have been transformed into 7-day moving averages.

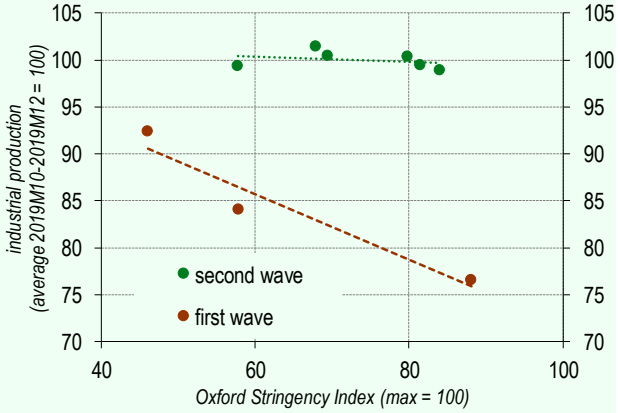
[30] While the trend in the 7-day moving average of data regarding payments was similar during both waves of the epidemic, the 7-day moving average of the daily number of confirmed cases of infection with Covid-19 was significantly higher during the second wave than in the first. This is also seen in the results of an econometric analysis, which shows a significantly higher value of coefficients with respect to additional infections during the first wave of the epidemic.

[31] Average mobility refers to the arithmetic mean of mobility in the workplace, in retail and recreational businesses and in transit stations.

and daily number of confirmed new infections with Covid-19) remain unchanged.[32] Table 5 presents results based on the two samples of observations from the first and second wave of the epidemic.

The results of the econometric analysis confirm the strong negative effect of containment measures on average mobility, which was present during both waves but slightly higher in the first wave. Such results are in line with other data which indicate that economic activity was not hit as hard during the second wave of the epidemic. A further breakdown of average mobility by individual subgroup reveals that the main reason for the less severe decline in mobility during the second wave was a significantly less severe drop in workplace mobility, which led to a less severe drop in economic activity. In addition, a somewhat less severe drop was recorded also in the case of retail and recreational mobility, while the negative impact on mobility at transit stations was similar to the first wave. What concerns the coefficients related to number of infections, the conclusions from the initial analysis on the first set of learning effects can be applied also here.

Figure 20: Containment measures and industrial production



Note: Data in monthly frequency. First wave refers to the period 13 March 2020 - 18 May 2020, and second wave to the period from the declaration of the epidemic on 18 October 2020 onwards (the cut-off date for the preparation of projections in 26 May 2021), as the epidemic was extended by the Government of Slovenia on 12 May 2021 at least until 15 June 2021.
Source: Oxford Economics, SORS, Banka Slovenije calculations.

The presented results are further confirmed by the results obtained with the time-varying parameter VAR analysis.[33] That model illustrates the relationship between the stringency of containment measures and growth in economic activity (i.e. real GDP) in eleven economic sectors.[34] This type of model facilitates the analysis of changes in the effects of containment measures on economic activity over time, which are shown to diminish due to the increasing ability of households and firms to adapt. Figure 21 presents the coefficients from the static version of the VAR model, which reflect the loss in value

Table 5: Regression results based on Google mobility data

	First wave				Second wave			
	Avg. mobility	Workplace mobility	Retail and recreational mobility	Transit station mobility	Avg. mobility	Workplace mobility	Retail and recreational mobility	Transit station mobility
1 p.p. higher OSI index								
Coefficient	-0.8	-0.7	-0.9	-0.7	-0.6	-0.2	-0.7	-0.7
95% confidence interval (lower bound)	-0.9	-0.8	-1.0	-0.8	-0.7	-0.4	-0.9	-0.9
95% confidence interval (upper bound)	-0.7	-0.6	-0.8	-0.6	-0.4	0.0	-0.6	-0.6
1 additional Covid-19 case								
Coefficient	-0.3	-0.1	-0.5	-0.2	-0.02	-0.02	-0.02	-0.01
95% confidence interval (lower bound)	-0.4	-0.2	-0.7	-0.3	-0.02	-0.02	-0.02	-0.02
95% confidence interval (upper bound)	-0.2	0.0	-0.4	-0.1	-0.01	-0.01	-0.01	-0.01

Source: Oxford Economics, Google mobility data, Banka Slovenije estimations.

[32] Google mobility data and the daily number of confirmed infections with Covid-19 are expressed as 7-day moving averages.

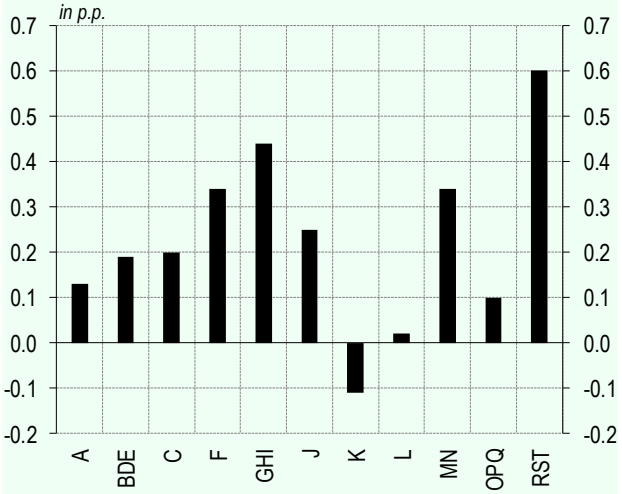
[33] When preparing our analysis, we followed the analysis of N. Battistini and G. Stoevsky, both from the ECB, which was published in the ECB Economic Bulletin, Issue 2/2021 (link) and addresses the economy of the euro area as a whole and in big five countries, i.e. Germany, France, Italy, Spain and the Netherlands. All variables used in the analysis are transformed into first differences.

[34] The following sectors are utilised in the research (capital letters refer to the NACE Rev. 2 classification): A – agriculture, forestry and fishing; BDE – other industry; C – manufacturing; F – construction; GHI – trade, transport, accommodation and food services; J – information and communication; K – finance and insurance activities; L – real estate activities; MN – professional and technical activities; OPQ – public administration; RST – arts and entertainment. In addition, net taxes on products (NDAV) are also taken into account in the VAR structure in order to cover the entire structure of GDP from the production side.

added in a specific sector in the context of a one percentage point increase in the OSI. The results of the analysis indicate that containment measures had the strongest impact on services sectors, in particular arts and entertainment (RST), as well as trade, transportation, accommodation and food services activities (GHI). The value of coefficients was the highest for the aforementioned sectors, which indicates their increased response to a change in the stringency of containment measures. The majority of these contact-intensive activities were constrained by social distancing measures, as remote work is largely unfeasible in such sectors. On average, other economic sectors, e.g. industry (BCDE) and other services activities (J, K, L, MN) demonstrate somewhat less responsiveness to a change in the stringency of containment measures, which further points to the increased adaptability of firms and more targeted containment measures during the second half of last year (Figure 22).

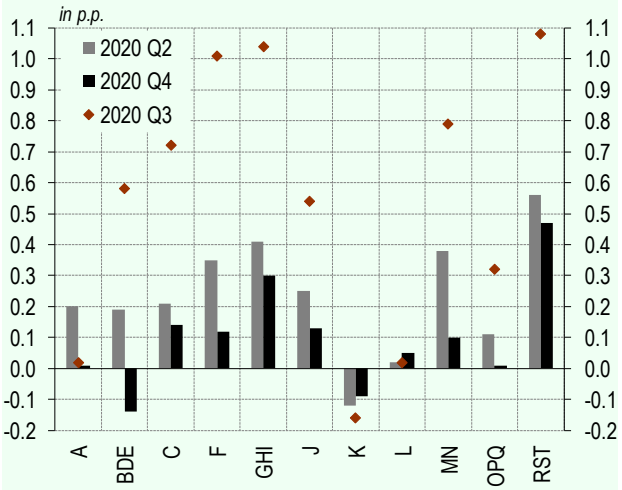
The ability to adapt to the new circumstances following the outbreak of the epidemic during the first half of 2020 was relatively limited, while the general containment measures affected practically all economic sectors. The effects of the improved ability to adapt began to be seen during the third quarter of last year when containment measures were eased slightly, which created the conditions for a strong rebound in economic activity. With the reintroduction of more stringent containment measures during the final quarter of the year, differences in the effects on value added by sector became more pronounced. In addition to the ability to adapt, more targeted containment measures, which primarily constrained the provision of contact-intensive services, also had an impact on those differences. During the first months of this year, high-frequency indicators (e.g. the industrial production index, the value of construction put in place, turnover in wholesale and retail trade and services, and merchandise trade) remained relatively favourable, despite the preserved level of containment measures until mid-February and the eleven-day lockdown at the beginning of April. This suggests that, despite the high value of the stringency index over this period, the containment measures have had a comparably smaller effect on economic activity than during the first months following the outbreak of the epidemic.

Figure 21: Static VAR model estimates of the impact of containment measures on value added loss by sectors



Source: Oxford Economics, SORS, Banka Slovenije estimations.

Figure 22: Time-varying-parameter VAR model estimates of the impact of containment measures on value added loss by sectors



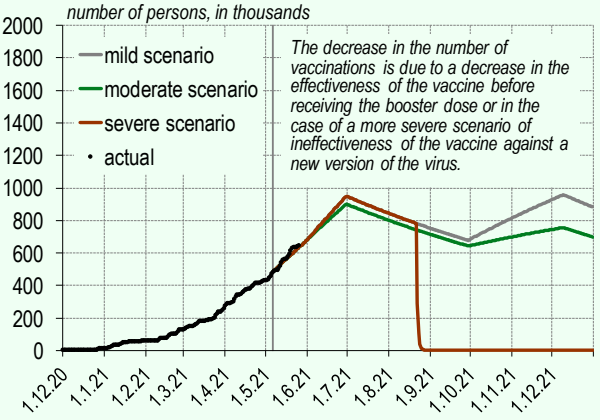
Source: Oxford Economics, SORS, Banka Slovenije estimations.

3.2 Alternative epidemiological scenarios

The epidemiological situation remains an important element for the preparation of macroeconomic projections and scenarios. The current epidemiological assumptions that served as the basis for macroeconomic projections and the accompanying alternative scenarios were prepared in cooperation with an expert in the field of epidemiological modelling. While the general epidemiological assumptions that serve as the basis for the baseline projection were harmonised within the scope of the joint Eurosystem/ECB Staff macroeconomic projection exercise, the more detailed assumptions regarding the

evolution of the epidemic in Slovenia, both for the baseline projection and alternative scenarios, were prepared in cooperation with Professor Janez Žibert from the Faculty of Health Sciences at the University of Ljubljana. The different epidemiological scenarios, on which the current baseline macroeconomic projection and alternative scenarios are based, differ primarily in terms of assumptions in connection with the success of the vaccination process (and thus the share of the population vaccinated or protected), and in terms of the possible outbreak of a new strain of the virus, against which currently available vaccines would not be effective (Figure 23). Two vaccination periods are assumed in all scenarios. The first period, which is currently in progress, and a second period in the autumn, when it is assumed that an additional booster dose will be required. The calculation of the number of vaccinated persons takes into account the first dose of the vaccination, where it is assumed that protection is achieved in 70% of those vaccinated, while the effectiveness of a given vaccine (i.e. protection) is estimated to last nine months.[35]

Figure 23: Number of vaccinations across scenarios



Note: The cut-off date for the preparation of scenarios is 6 May 2021.
Source: Scenarios prepared with an extended epidemiological model SEIR C19SI, V2.0, based on COVID-19-sledilnik.org data by assoc. prof. dr. Janez Žibert, Faculty of Health Sciences, University of Ljubljana, COVID-19-sledilnik.org.

Epidemiological scenarios have been prepared using an extended SEIR C19SI epidemiological model (V2.0), which facilitates the modelling of various groups of the population and simulations of the transitions of persons between different levels of the evolution of the disease. The SEIR model is an extended SIR model which, using differential equations, illustrates the transition of persons between various subgroups of the population: Susceptible (S), Exposed (E), Infectious (I) and Recovered (R). The model is further extended to facilitate the modelling of different additional subgroups, such as asymptomatic cases, vaccinated, hospitalised and persons requiring intensive care, and fatal cases. As mortality and spreading of disease varies across the age groups, one key advantage of this models is its ability to distinguish between five age groups (up to 24 years of age, 25-44 years of age, 45-64 years of age, 65-74 years of age and more than 75 years of age), which interact in a predetermined way. Based on scenarios that are determined by different assumptions such as the age structure of the population, the vaccination process and the virulence of the virus, such models facilitate the projection of the number of deaths, the number of infected persons and the number of those requiring hospitalisation, which is crucial to ensure the stability of the healthcare system.[36]

The epidemiological scenario behind the baseline projection, assumes that the epidemic will be successfully contained and that epidemiological tracking will be re-established. In this scenario, the vaccination process is assumed to be successful in both periods (prior to the summer and in the autumn), with around 50% of the entire population vaccinated by the end of June.[37] This share is not expected to fall below the above-mentioned threshold in the autumn months, which will ensure the successful containment of the epidemic. In the context of a drop in the number of new cases of infection, epidemiological tracking is expected to be re-established as an important tool for managing the epidemic. The success of the aforementioned activities will be reflected in the reduced number of infections, hospital-

[35] Epidemiological scenarios were prepared on the cut-off date of 6 May 2021. Close to 450 thousand people had received the first dose of the vaccination by that date.

[36] Details regarding the SEIR C19SI model (V2.0) are accessible on the website of Professor Janez Žibert.

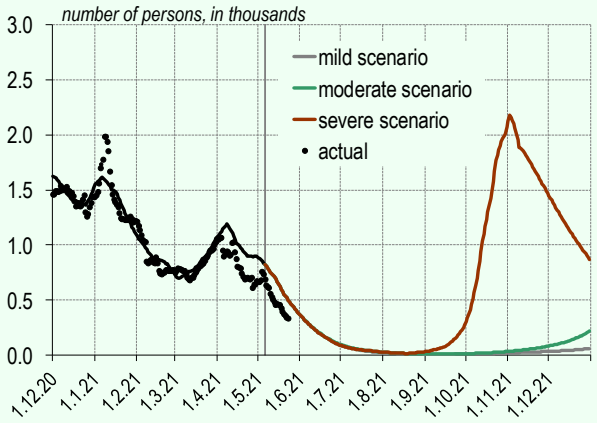
[37] The estimate is drawn up based on the progress of vaccinations until the cut-off date of 6 May 2021. The estimated herd immunity threshold for the coronavirus disease is a population vaccination rate of 60 to 70%. That is also the vaccination target in Slovenia. If that threshold is achieved, the evolution of the epidemic would be slightly more favourable than assumed in this scenario. The main focus of vaccination is the management of more severe cases of the disease that require hospitalisation. For this reason, the share of persons vaccinated in high-risk groups of the population is particularly crucial.

isations and deaths due to Covid-19. The overall reproduction number will remain low and the epidemic will remain under control. In this scenario, we thus do not expect any additional major outbreaks of infections that would require more stringent non-pharmaceutical containment measures and more broad-based restrictions on the functioning of individual economic sectors. The same epidemiological assumptions are also taken into account in the preparation of the mild scenario for economic activity.

In contrast to the baseline projection, the moderate scenario assumes a less successful period of vaccinations during the autumn. With regard to the vaccination process, it assumes that vaccinations are successful at preventing more severe cases of Covid-19 and offer 70% protection against the virus, with a booster dose required after nine months. The moderate scenario assumes that the response of the population during the autumn 'booster' vaccination period will be insufficient to ensure the successful management of the epidemic. As a result, this scenario foresees a new wave of infections that would intensify during the first months of next year, necessitating the reintroduction of targeted non-pharmaceutical containment measures during that period.

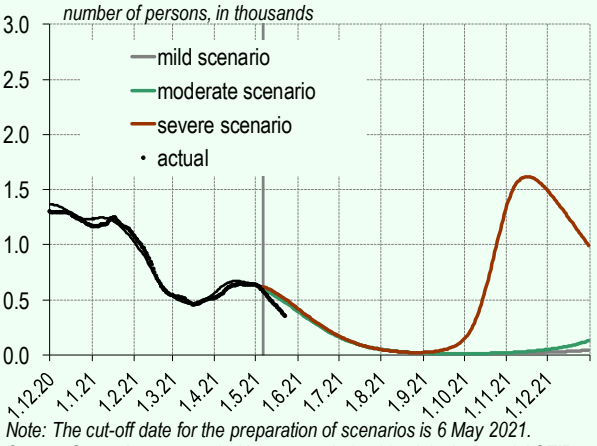
The severe epidemiological scenario assumes the outbreak of a new strain of the virus during the summer, against which available vaccines would not be effective. Although the severe scenario assume the same course of vaccination as in the baseline and mild scenario, different from the latter two, the vaccines are assumed to be ineffective in preventing the rapid spread of infections with the new strain of the virus. Assuming that part of the population that has already recovered could become reinfected, the severe scenario foresees that the reproduction number (R) will rise significantly towards the end of the summer. In the context of an increase in the number of infected and hospitalised persons, the severe scenario assumes that non-pharmaceutical containment measures similar to those adopted at the beginning of the second wave will be adopted in the autumn. Compared to the other scenarios, these measures would need to be in place for longer, in order to successfully contain the spread of infections due to the greater resurgence of the epidemic.

Figure 24: Number of new confirmed cases across scenarios



Note: The cut-off date for the preparation of scenarios is 6 May 2021.
Source: Scenarios prepared with an extended epidemiological model SEIR C19SI, V2.0, based on COVID-19-sledilnik.org data by assoc. prof. dr. Janez Žibert, Faculty of Health Sciences, University of Ljubljana, COVID-19-sledilnik.org.

Figure 25: Number of hospitalisations across scenarios



Note: The cut-off date for the preparation of scenarios is 6 May 2021.
Source: Scenarios prepared with an extended epidemiological model SEIR C19SI, V2.0, based on COVID-19-sledilnik.org data by assoc. prof. dr. Janez Žibert, Faculty of Health Sciences, University of Ljubljana, COVID-19-sledilnik.org.

3.3 Methodological approach

The methodological approach used to draw up the alternative scenarios for economic activity over the projection horizon comprises three main steps: 1) the definition and consolidation of basic assumptions behind each scenario; 2) the projection of the OSI based on epidemiological assumptions over the entire projection horizon; and 3) the estimation of losses to individual economic sectors as a result of the assessed relationship between the activities of those sectors and the OSI, adjusted for learning effects, i.e. the ability to adapt, which depends in part on the severity of a scenario.

The basic assumptions behind the alternative scenarios for economic activity comprise both epidemiological assumptions that are based on the presented epidemiological scenarios and assumptions regarding the relationship between the stringency of containment measures and economic activity, as presented in the aforementioned analysis. The consolidated assumptions are presented in Table 6. In addition to uncertainty in connection with the health situation, the ability of firms and households to adapt to the new situation will have a significant impact on the recovery in economic activity.

Based on the epidemiological assumptions for each scenario, the indicator of the stringency of containment measures was assessed for the entire projection horizon, and adjusted for learning effects of households and firms. The outbreak of the virus last year required the adoption of stringent containment measures to ensure the stability of the healthcare system. Nevertheless, these measures simultaneously inflicted severe negative effects on economic activity. The OSI,[38] developed by Hale et al. (2021) for 180 countries, has served as one of the key indicators to summarize the prevalence and stringency of containment measures across countries, allowing for timely assessment and comparability. For this reason, the OSI is also used in the preparation of alternative scenarios for economic activity over the projection horizon. The projection of the short-term development of the OSI combines the epidemiological assumptions regarding the number of confirmed new infections and hospitalisations as set forth in the epidemiological scenarios, with the plan enforced by the Government of Slovenia to lift non-pharmaceutical containment measures.[39] The government's plan to lift containment measures comprises five phases (black, red, orange, yellow and green), where the threshold for transitions between individual phases is determined by the 7-days average of the number of confirmed cases and hospitalisations. The average value of the OSI is calculated for

Table 6: Underlying assumptions of the baseline projection and alternative scenarios for economic activity

	Mild scenario	Baseline projection	Moderate scenario	Severe scenario
Epidemiological assumptions	– both vaccination periods are successful – close to 50% of the population is vaccinated and protected – the effective reproduction number remains unchanged		– less successful autumn vaccination period – only 40% of the population is vaccinated and protected in November 2021 – the effective reproduction number increases in autumn	– vaccination is ineffective due to the emergence of a new version of the virus resistant to available vaccines – the recovered part of the population becomes susceptible to infection with the new version of the virus
Other assumptions	– some containment measures prevail until the end of the projection horizon, but are significantly more targeted – strong rebound in economic sentiment/confidence – faster adaptation of businesses and households to new conditions	– some containment measures prevail until the end of the projection horizon, but are more targeted – rebound in economic sentiment/confidence	– stricter, but more targeted, containment measures reinstated over 2022; some containment measures prevail until the end of the projection horizon – rebound in economic sentiment/confidence	– stricter, but still targeted, containment measures reinstated from 2021Q4; stricter containment measures prevail until end of projection horizon – limited rebound in economic sentiment/confidence

Source: Scenarios prepared with an extended epidemiological model SEIR C19SI, V2.0, based on COVID-19-sledilnik.org data by assoc. prof. dr. Janez Žibert, Faculty of Health Sciences, University of Ljubljana, COVID-19-sledilnik.org, ECB and Banka Slovenije assumptions.

[38] OSI is a composite measure computed from nine response indicators including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100, with 100 reflecting the strictest level of measures. In the cases when containment measures vary across the regions of a given country, than the composite index for the country is shown as the response level of the strictest region (Hale , et al., 2021). While it remains useful, OSI is subject to some caveats. For example, the composite index does not reflect the types of measures enacted, which is important from the perspective of economic activity as different containment measures may have a varying impact on activity. Overall, for more details, see Covid-19 Government Response Tracker.

[39] More information regarding the phases of containment measures is available on the website of the Government of Slovenia.

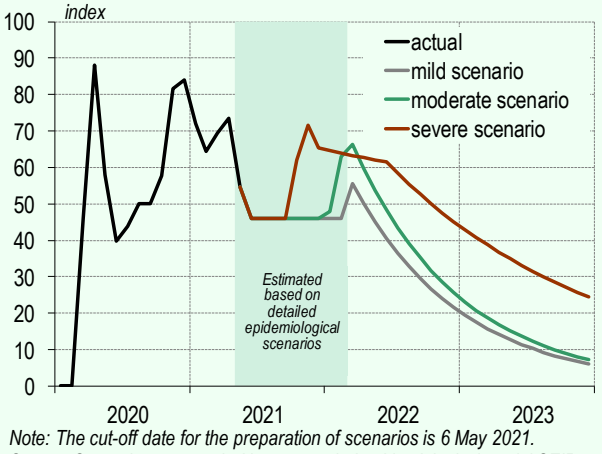
each phase of measures based on available data. The index is then calculated for the projection horizon in such a way that the past average value of the index in a given phase is attributed to the index taking into account the number of new cases of infections and hospitalisations in line with the specific epidemiological scenario and the relevant phase in the government's plan to lift measures. As SEIR epidemiological models are primarily suitable for the reliable preparation of scenarios for the next several months (i.e. the short-term), in our case, the projected evolution of the OSI over the remainder of the projection horizon is determined based on other assumptions depending on the scenario (Table 6 and Figure 26). Overall, the general assumption foresees that epidemic will gradually ease over the remainder of the projection horizon.

Economic activity during the epidemic has been strongly negatively correlated with changes in the OSI. As such, the assessment of expected losses by economic sector for each scenario is prepared on account of the time variability of that relationship. Similar to Banka Slovenije's previous analyses, the alternative scenarios for economic activity were constructed using the production side of GDP.[40] Underlining the increasing prevalence of learning effects on the side of economic agents towards the epidemic and the containment measures, for the mild scenario, which entails same epidemiological assumptions as the baseline scenario, the response of economic sectors to the projected OSI has been adjusted with a higher level of learning. In other words, compared to the baseline projection, in the mild scenario, the elasticity of activity across economic sectors to OSI is lower and diminishes faster over the projection horizon, meaning that the consequences of containment measures on economic activity are less severe.

3.4 Alternative scenarios for economic activity

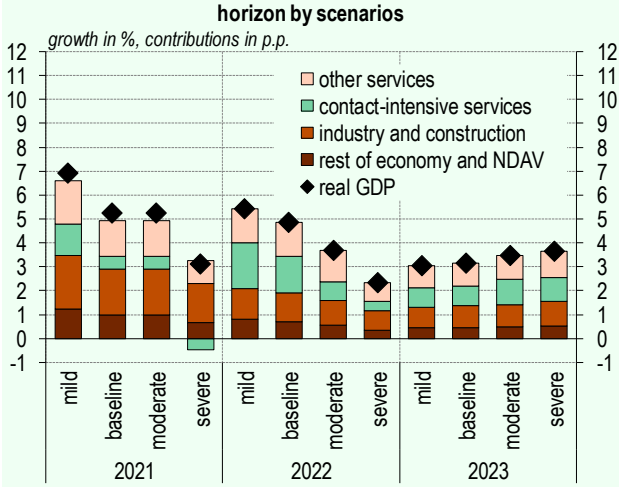
This year, real GDP is expected to strengthen to between 3.1% in the severe scenario and 6.9% in the mild scenario. Over the 2020-2023 horizon, the cumulative growth for real GDP is expected to range from 3.6% in the severe scenario to 9.9% in the mild scenario, as observed, in Table 7. The current alternative scenarios for economic activity are more favourable than those in the December projections, primarily as a result of a less severe decline in economic activity last year, prevailing learning effects of households and firms, and somewhat more favourable expectations regarding the evolution of the epidemic, associated primarily with the availability of effective vaccines. To that end and similar to the baseline projection the presented scenarios include the effect of economic policy measures which are expected to continue to be effective in ensuring the stability of the labour

Figure 26: Oxford Stringency Index across scenarios



Note: The cut-off date for the preparation of scenarios is 6 May 2021.
Source: Scenarios prepared with an extended epidemiological model SEIR C19SI, V2.0, based on COVID-19-sledilnik.org data by assoc. prof. dr. Janez Žibert, Faculty of Health Sciences, University of Ljubljana, COVID-19-sledilnik.org, Oxford Economics, Banka Slovenije estimations and projections.

Figure 27: Decomposition of GDP growth over the projection horizon by scenarios



Note: Due to rounding, sums of components may differ from the aggregate values.
Source: SORS, Banka Slovenije estimations and projections.

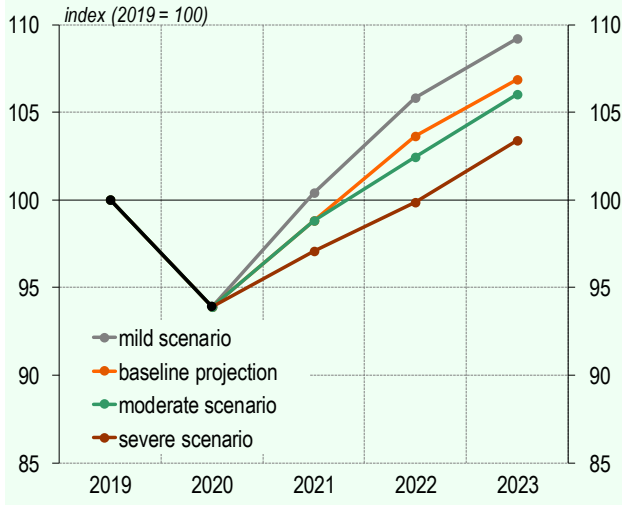
[40] The approach was used and presented in the publications Analysis of the impact of Covid-19 on the Slovenian economy, March 2020, and Macroeconomic Projections for Slovenia, June 2020 and December 2020.

market and providing support to firms that face liquidity problems due to a drop in revenues.

The mild scenario for economic activity assumes that firms and households will adapt more easily and rapidly to new conditions than in the baseline projection. Underlining the government's plan to lift measures to contain the virus, certain targeted containment measures are expected to remain in place over the remainder of the projection horizon. A more rapid, albeit still somewhat uneven recovery amongst sectors in the mild scenario is supported by a significantly higher level of confidence in the economy and a higher degree of learning of firms and households to adapt to new conditions. Services activities that necessitate direct contact between the service provider and customer and that were hit hardest during the crisis (i.e. GHI and RST) would thus recover somewhat more rapidly this year than in the baseline projection. Nevertheless, value added in these sectors would still stand about 6% below the pre-crisis level from 2019 (Figure 30). On the contrary, industry, construction and other services sectors, underlining the targeted nature of containment measures and a reviving demand, both domestically and abroad, are expected to continue their already observed recovery, and exceed pre-crisis levels of value added already this year (Figure 29). The expected evolution across sectors would see real GDP growing by 6.9% this year, and reaching its pre-crisis level already in the middle of this year. Despite the prevalence of some containment measures, in particular preventative practices such as social distancing, over the projection horizon, the continuing broad-based recovery from next year onwards, would see the level of real GDP standing 9% above what prevailed in 2019 by the end of the projection horizon (Figure 28).

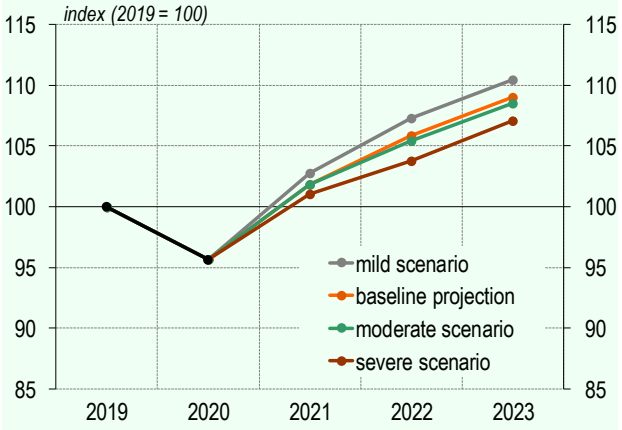
The moderate scenario assumes that the population is slightly less responsive to vaccination in the au-

Figure 28: Level of GDP over the projection horizon by scenario



Source: SORS, Banka Slovenije estimations and projections.

Figure 29: Level of value added from industry and construction over the projection horizon by scenario



Note: This group of economic sectors includes: C – manufacturing, BDE – mining and quarrying, electricity and water supply, waste management, and F – construction.
Source: SORS, Banka Slovenije estimations and projections.

Table 7: Real GDP growth across alternative scenarios

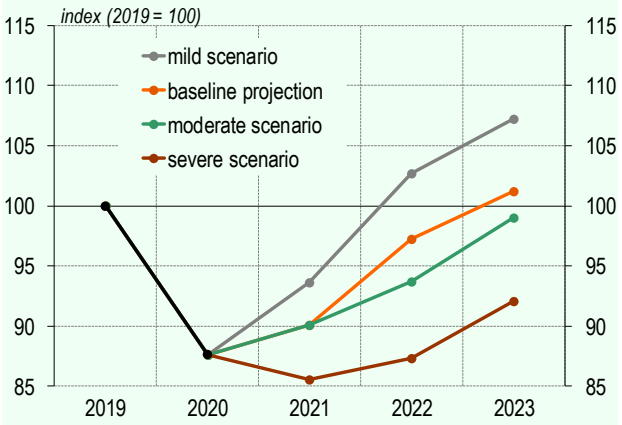
	2020	Δ	2021 June	Δ	2022 June	Δ	2023 June	Δ	*Cumulative June*	*Δ*
Real GDP	*annual growth in %*									
mild scenario	**-5.5**	1.8	**6.9**	-0.2	**5.4**	0.9	**3.1**	0.1	***9.9***	*2.6*
baseline projection	**-5.5**	2.1	**5.2**	2.1	**4.8**	0.3	**3.1**	0.0	***7.7***	*4.5*
moderate scenario	**-5.5**	…	**5.2**	…	**3.7**	…	**3.5**	…	***6.9***	…
severe scenario	**-5.5**	2.5	**3.1**	6.7	**2.3**	-1.3	**3.7**	-0.3	***3.6***	*4.3*

Δ: Difference between current projections and scenarios, and previous ones in Macroeconomic Projections for Slovenia, December 2020.
Source: SORS, Banka Slovenije calculations and projections.

tumn months than in the baseline epidemiological scenario. This is expected to result in a deterioration of the epidemiological picture towards the end of this year and primarily over the course of the first half of next year. Such a picture would necessitate the reintroduction of non-pharmaceutical measures to contain the spread of infections, which would translate into a lower economic growth next year. As these containment measures are expected to primarily affect contact-intensive services sectors, the lower growth in 2022 relative to the baseline would stem primarily from a lower contribution to growth from these sectors (Figure 27). The renewed setback to the recovery of contact-intensive services sectors would see them rebounding more gradually over the projection horizon, with levels remaining about 2% below their pre-crisis levels of value added by the end of the projection horizon (Figure 30). As the impact to other sectors of the economy is expected to be more or less contained on account of the targeted nature of containment measures, the path for the level of GDP would be broadly similar to the baseline projection, albeit about 1% lower. Consequently, by the end of the projection horizon, real GDP would stand about 6% above the pre-crisis level from 2019 (Figure 28).

The severe scenario assumes the outbreak of a new strain of the virus during the second half of this year, against which currently available vaccines would be ineffective. This would trigger a major outbreak of new infections as early as this autumn, which would necessitate reinstatement of stricter containment measures of a similar nature and degree as those observed in the last quarter of last year. This would translate into another strong hit to contact-intensive services sectors over the course of autumn and winter this year, while the rest of the economy, on account of more targeted containment measures, would continue to operate. Consequently, the curtailed activity in contact-intensive services sectors would constitute the main drag to economic growth, with real GDP growth expected to reach about 3.1% in the current year (Figure 27). As the pandemic developments would continue to remain unfavourable, containment measures would have to remain in place until an effective medical solution becomes available in order to ensure the stability of the healthcare system. As a result, the drop in value added would be more sustained in the hardest-hit contact-intensive services sectors, while the recovery would be more modest. The level of value added generated by contact-intensive services activities would stand around 8% below the pre-crisis level at the end of the projection horizon (Figure 30). The general higher level of uncertainty related to the epidemic, relative to the baseline and the previous two alternative scenarios, would also affect the rest of the economy, albeit to a smaller extent, implying a somewhat slower recovery. As the impact of the crisis would persist for longer, real GDP would recover more gradually, reaching its pre-crisis level by early-2023 (Figure 28).

Figure 30: Level of value added from contact-intensive services sectors over the projection horizon by scenario



Note: This group of economic sectors includes: GHI – trade, transportation and storage, accommodation and food service activities and RST – other service activities.
Source: SORS, Banka Slovenije estimations and projections.

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Brezigar Masten, A., Breznikar M., Caka P., Lindič M., Petriček M., Ploj G., Radovan J., Sosič N. and Zorko R. (2020). Assessing the impact of the Covid-19 outbreak on the Slovenian economic outlook. Banka Slovenije staff analysis.

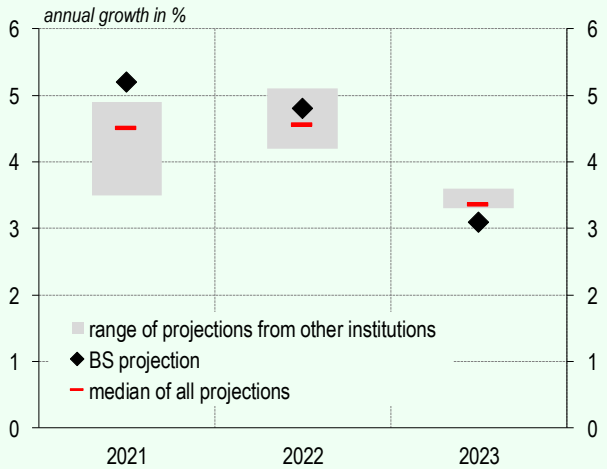
4 Comparison between Institutions

The latest projections of economic activity for the period 2021- 2023 indicate a relatively quick recovery, with the median of projections of domestic institutions (4.7%) higher than that of foreign institutions (4.2%). Encouraging economic growth is expected to continue over the remainder of the projection horizon, with the median projection of all institutions standing at around 4.0%. The recovery following the epidemic is also reflected in the projections of growth in consumer prices. The median inflation projection of all institutions in question is 1.1% for 2021, while all institutions (except the CCIS) expect a gradual rise in inflation in 2022 and 2023. Inflation is expected to remain below the ECB's medium-term inflation target. A comparison of projection accuracy between the institutions reveals that in all of the observation periods (2001-2020, the entire period excluding 2008 and 2009, and 2009-2020) Banka Slovenije was among the most accurate in the projections of growth in economic activity and consumer price inflation.[41]

4.1 Comparison of projections between institutions

The latest projections for the period 2021-2023 indicate a relatively quick recovery in economic activity: the median projection of domestic institutions stands at 4.7% and of foreign institutions at 4.2%. Encouraging economic growth is expected to continue over the remainder of the projection horizon, with the median projection of all institutions standing at around 4.0% (Figure 31)**.** Taking into account the latest available projections of the institutions in question, Banka Slovenije projects the highest economic growth in 2021, at 5.2%, followed by the projections of the EC and CCIS, while the lowest projection is expected by the OECD (3.5%). The Banka Slovenije's projection is thus 0.7 percentage points higher than the median of all projections for the current year. The highest projection of economic growth for next year is 5.1% by the EC, which is 0.5 percentage points above the median of all projections for that year, followed by Banka Slovenije at 4.8%, and the EIPF and OECD at 4.6%. At 4.2%, the CCIS is projecting the lowest growth in economic activity for 2022. Projections of economic growth for 2023 are available from four institutions, the highest of which is by the IMF at 3.6%, followed

Figure 31: Comparison of GDP projections between institutions



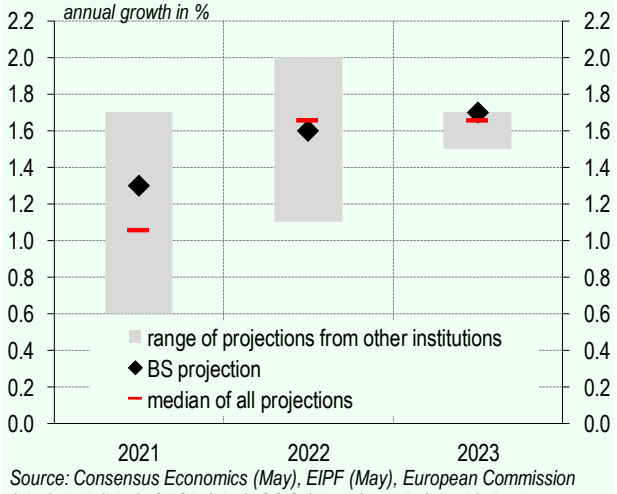
Source: Consensus Economics (May), EIPF (May), European Commission (May), IMF (May), OECD (May), CCIS (March), IMAD (March), Banka Slovenije (June).

[41] Eight institutions that prepare macroeconomic projections for Slovenia are included in the comparative analysis of current projections of real GDP growth and consumer price inflation, namely Consensus Economics, the Economics Institute of the Faculty of Law (EIPF), the European Commission (EC), the International Monetary Fund (IMF), the Organisation for Economic Cooperation and Development (OECD), the SKEP unit at the Chamber of Commerce and Industry of Slovenia (CCIS), the Institute of Macroeconomic Analysis and Development (IMAD) and Banka Slovenije (BS). In this publication, the projection of growth in real GDP prepared by the European Bank for Reconstruction and Development (EBRD) was excluded from the comparative analysis of current projections due to the postponement of the publication of the May projection until the end of June. The consumer price inflation projections by the EIPF, the European Commission, the OECD and Banka Slovenije relate to inflation as measured by the HICP, while the projections by Consensus, the IMF, the CCIS and the IMAD relate to inflation as measured by the CPI.

by the CCIS and IMAD at 3.4% and 3.3% respectively, while Banka Slovenije projects the lowest GDP growth at 3.1%. The majority of institutions expect the Slovenian economy to achieve its pre-crisis level from 2019 already next year.

The median inflation projection of all institutions in question is 1.1% for 2021, while all institutions (except the CCIS) expect a gradual rise in inflation in 2022 and 2023. Inflation is expected to remain below the ECB's medium-term inflation target (Figure 32)**.** The highest growth in prices in 2021 of 1.7% is projected by the CCIS, while the lowest growth (of 0.6%) is projected by the IMF. Banka Slovenije projects 1.3% growth for this year. The highest inflation projection for next year of 2.0% is issued by the EIPF, and is 0.3 percentage points higher than the median of all projections, while the OECD issues the lowest inflation projection of 1.1%. At 1.6%, Banka Slovenije's projection of growth in consumer prices is 0.1 percentage points lower than the median of all projections for 2022. Inflation projections for 2023 are also available from four institutions, and all reflect similar expectations with regard to the year-on-year price growth.

Figure 32: Comparison of inflation projections between institutions



Source: Consensus Economics (May), EIPF (May), European Commission (May), IMF (May), OECD (May), CCIS (March), IMAD (March), Banka Slovenije (June).

Banka Slovenije and the IMAD project inflation of 1.7%, while the CCIS expects inflation of 1.6%. The IMF projects the lowest growth in prices at 1.5%.

4.2 Comparison of projection accuracy between institutions[42]

The accuracy of the real GDP growth and consumer price inflation projections over the 2001-2020 period is measured by comparing the statistical estimate or the observed value with the projections for the variables obtained in past periods.[43] In order to assess the accuracy of projections, the following indicators are calculated: the mean error (ME), the mean absolute error (MAE), the standard deviation (STDEV), the root mean square error (RMSE) and the standardised RMSE (SRMSE).[44] Only three of the institutions in question (Banka Slovenije, the EC and the IMF) released projections for the entire observation period. For the majority of other institutions, projections are only available from 2004 (from 2009 for the OECD, and from 2011 for the EBRD). Given the great uncertainty around the outbreak of the crisis, the entire observation period excluding 2008 and 2009, and the period of 2009-2020 have been additionally included in the analysis.

In terms of the MAE and RMSE, the most accurate economic growth projections for the 2001-2020 period were from the EC, Banka Slovenije and the IMAD, while the most accurate inflation projections were provided by Banka Slovenije and the IMAD. In the projection of economic growth, MAE ranged from 0.6 to 3.3 over the entire period, while RMSE ranged from 0.7 to 4.7.[45] The institutions were slightly more accurate in their inflation projections: the aforementioned indicators had narrower ranges, namely 0.2 to 1.5 for MAE and 0.3 to 1.9 for RMSE.

[42] In addition to the projections of organisations included in the comparative analysis of current projections, the projections of the EBRD are also included in the comparative analysis of the accuracy of projections of growth in real GDP between institutions.

[43] In the examination of projection accuracy between institutions in the period 2001-2020 and in the various sub-periods, the first observed values and projections of variables are compared, while the projections of other institutions selected are those that correspond most closely in terms of time to Banka Slovenije's projections.

[44] For a detailed description of the statistical methods, see Cimperman and Savšek (2014): Accuracy of projections of macroeconomic aggregates for Slovenia.

[45] The spring and autumn projections of all the institutions for the current year and the next year are taken into account in the values given.

The most accurate economic growth projections over the entire period excluding 2008 and 2009 were those of Banka Slovenije, followed by the EC and IMAD, while Banka Slovenije and the IMAD stood out in terms of inflation projections. Compared with the entire period, the economic growth projections during the period in question were slightly more accurate, as the exclusion of 2008 and 2009 eliminated the impact of the increased volatility during the previous economic crisis. In the projection of economic growth, MAE ranged from 0.6 to 2.8 over the period in question, while RMSE ranged from 0.7 to 3.7. The accuracy of the projection of inflation remained relatively unchanged relative to the entire period (2001-2020), as both indicators ranged over intervals of 0.2 to 1.4 for MAE and 0.3 to 1.8 for RMSE.

The OECD and the EC produced the most accurate economic growth projections in the 2009-2020 period, followed by the CCIS, Banka Slovenije and the IMAD, while Banka Slovenije, the IMAD and the EC produced the most accurate inflation projections. The accuracy of the projection of economic growth was better compared to the entire observation period (2001-2020): the intervals in MAE and RMSE narrowed to range from 0.6 to 2.7 for MAE and 0.8 to 3.6 for RMSE. It was a similar case in the assessment of inflation projection accuracy: the intervals in the indicators were narrower than in the entire observation period, at 0.1 to 1.1 for MAE and 0.2 to 1.4 for RMSE.

The error in the projection of growth in real GDP widened considerably with last year, while the accuracy of the inflation projection remained relatively unchanged. In examining projection accuracy in all periods in question, including last year, errors in economic growth projections are more notable than before due to the increased instability following the outbreak of the epidemic. While the lower limit of the interval for MAE and RMSE in the case of GDP growth was relatively unchanged, the upper limits of the values of the aforementioned indicators were higher in all examined periods, including last year, by between 0.4 and 1.1 percentage points. On the other hand, the accuracy of projections of consumer price inflation was similar to the accuracy prior to the outbreak of the epidemic, as the intervals for MAE and RMSE remained practically unchanged.

Table 8: Basic accuracy measures of GDP growth projections, based on first available data

Real GDP	2001-2020			2001-2008			2009-2020			2008 in 2009			Brez 2008-2009			2004-2020		
	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV
spring projections																		
current year																		
BS	0.0	1.2	1.8	0.4	0.9	1.1	-0.3	1.4	2.2	-3.4	3.4	3.8	0.4	0.9	1.1	0.0	1.3	1.9
Consensus	0.0	1.4	2.0	0.4	1.1	1.3	-0.2	1.6	2.3	-3.5	3.5	3.3	0.4	1.2	1.5	0.1	1.5	2.1
EBRD							0.5	1.2	1.5									
EIPF	-0.1	1.6	2.4	0.7	1.1	1.3	-0.4	1.8	2.7	-4.1	4.1	4.4	0.5	1.2	1.6	-0.1	1.6	2.4
EC	0.1	1.2	1.6	0.3	1.1	1.3	-0.1	1.4	1.9	-2.7	2.7	2.8	0.4	1.1	1.2	0.2	1.3	1.7
IMF	0.1	1.4	1.9	0.3	1.0	1.3	0.0	1.7	2.3	-3.0	3.0	3.4	0.5	1.3	1.4	0.3	1.5	2.0
OECD							0.2	1.2	1.5									
CCIS	0.2	1.4	1.9	0.8	1.0	1.1	-0.1	1.5	2.1	-3.1	3.1	3.6	0.6	1.2	1.3	0.2	1.4	1.9
IMAD	0.0	1.3	1.6	0.2	1.0	1.2	-0.1	1.5	1.9	-2.5	2.5	2.3	0.3	1.1	1.3	0.1	1.4	1.7
next year																		
BS	-1.1	2.5	3.8	-1.2	2.5	4.6	-1.0	2.5	3.3	-6.3	6.3	8.1	-0.5	2.0	2.8	-1.2	2.8	4.1
Consensus	-1.1	2.8	4.0	-1.4	2.9	5.1	-0.9	2.6	3.4	-6.0	6.6	9.3	-0.5	2.3	3.0	-1.1	3.0	4.3
EBRD							-0.3	2.7	3.8									
EIPF	-1.3	3.3	4.6	-1.1	4.4	7.1	-1.4	2.7	3.5	-6.5	6.5	8.6	-0.6	2.8	3.8	-1.3	3.3	4.6
EC	-1.0	2.5	3.8	-1.4	2.6	4.5	-0.8	2.5	3.4	-5.6	6.3	8.9	-0.5	2.1	2.9	-1.0	2.8	4.1
IMF	-1.0	2.5	3.8	-1.2	2.4	4.4	-0.8	2.5	3.4	-5.8	5.8	8.2	-0.4	2.1	2.9	-1.1	2.8	4.1
OECD							-0.8	2.5	3.5									
CCIS	-1.0	2.8	4.1	-1.7	3.6	6.1	-0.7	2.4	3.2	-6.3	6.3	8.6	-0.2	2.3	3.0	-1.0	2.8	4.1
IMAD	-1.1	2.6	3.9	-1.4	2.6	4.6	-0.9	2.7	3.5	-5.9	6.3	8.9	-0.6	2.2	3.0	-1.2	2.9	4.2
autumn projections																		
current year																		
BS	0.2	0.7	0.9	0.2	0.6	0.7	0.2	0.8	1.0	-1.2	1.2	0.3	0.4	0.7	0.8	0.2	0.8	1.0
Consensus	0.1	0.8	1.0	0.0	0.7	0.9	0.1	0.8	1.1	-1.6	1.6	0.5	0.3	0.7	0.9	0.2	0.8	1.0
EBRD							0.6	0.9	1.0									
EIPF	0.1	0.9	1.3	0.3	0.9	1.2	0.0	1.0	1.4	-2.1	2.1	0.8	0.4	0.8	1.1	0.1	0.9	1.3
EK	0.2	0.6	0.7	0.2	0.6	0.7	0.2	0.6	0.8	-0.8	0.8	0.1	0.3	0.6	0.7	0.2	0.6	0.8
IMF	0.1	0.9	1.3	0.2	0.8	1.0	0.0	1.0	1.4	-2.1	2.1	1.8	0.3	0.8	1.0	0.2	1.0	1.3
OECD							0.3	0.6	0.8									
CCIS	0.2	0.7	0.8	0.0	0.8	1.0	0.3	0.7	0.8	-1.3	1.3	0.2	0.4	0.7	0.7	0.2	0.7	0.9
IMAD	0.1	0.6	0.8	0.0	0.6	0.8	0.1	0.7	0.8	-1.1	1.1	0.4	0.2	0.6	0.7	0.1	0.7	0.8
next year																		
BS	-0.8	2.3	3.7	-1.0	2.5	4.5	-0.7	2.2	3.2	-5.9	5.9	8.1	-0.2	1.9	2.7	-1.0	2.6	4.0
Consensus	-0.9	2.4	3.7	-1.3	2.6	4.4	-0.6	2.3	3.2	-5.5	6.2	8.7	-0.4	2.0	2.8	-0.9	2.7	4.0
EBRD							0.1	2.7	3.8									
EIPF	-1.2	2.8	4.1	-2.0	3.5	5.9	-0.9	2.4	3.3	-5.9	6.3	8.8	-0.6	2.3	3.1	-1.2	2.8	4.1
EC	-0.7	2.2	3.6	-1.0	2.4	4.3	-0.5	2.1	3.2	-5.5	5.6	7.8	-0.1	1.9	2.7	-0.8	2.5	3.9
IMF	-0.7	2.6	3.9	-1.0	2.5	4.5	-0.4	2.7	3.6	-5.5	6.3	8.9	-0.1	2.1	3.0	-0.8	2.9	4.3
OECD							-0.6	2.3	3.3									
CCIS	-0.7	2.5	3.9	-1.3	3.0	5.2	-0.3	2.3	3.3	-5.5	6.2	8.7	0.0	2.0	2.9	-0.8	2.6	4.0
IMAD	-0.9	2.3	3.7	-1.1	2.4	4.3	-0.8	2.3	3.3	-5.4	5.9	8.3	-0.4	1.9	2.8	-1.0	2.6	4.0

Source: Banka Slovenije, Consensus Economics, EIPF, EBRD, European Commission (EC), IMF, OECD, CCIS, IMAD.

Table 9: RMSE and SRMSE of GDP growth projections, based on first available data

Real GDP	RMSE						SRMSE					
	2001-2020	2001-2008	2009-2020	2008-2009	brez 08-09	2004-2020	2001-2020	2001-2008	2009-2020	2008-2009	brez 08-09	2004-2020
spring projections												
current year												
BS	1.8	1.1	2.1	4.3	1.1	1.9	0.5	0.7	0.5	0.5	0.4	0.5
Consensus	1.9	1.3	2.2	4.2	1.5	2.0	0.5	0.9	0.6	0.5	0.5	0.5
EBRD			1.5						0.4			
EIPF	2.3	1.3	2.7	5.1	1.7	2.3	0.6	0.9	0.7	0.6	0.6	0.6
EC	1.6	1.3	1.8	3.4	1.3	1.7	0.4	0.8	0.4	0.4	0.4	0.4
IMF	1.9	1.2	2.2	3.8	1.5	2.0	0.5	0.8	0.5	0.5	0.5	0.5
OECD			1.5						0.4			
CCIS	1.9	1.3	2.1	4.0	1.4	1.9	0.5	0.9	0.5	0.5	0.5	0.5
IMAD	1.6	1.1	1.8	3.0	1.3	1.7	0.4	0.8	0.5	0.4	0.4	0.4
next year												
BS	3.8	4.4	3.3	8.5	2.8	4.1	1.0	3.0	0.8	1.0	0.9	1.0
Consensus	4.1	5.0	3.4	8.8	3.0	4.3	1.1	3.3	0.8	1.1	1.0	1.1
EBRD			3.6						0.9			
EIPF	4.7	6.4	3.6	8.8	3.7	4.7	1.3	4.3	0.9	1.1	1.2	1.2
EC	3.8	4.4	3.3	8.4	2.8	4.1	1.0	3.0	0.8	1.0	0.9	1.0
IMF	3.8	4.3	3.4	8.2	2.8	4.1	1.0	2.9	0.8	1.0	0.9	1.0
OECD			3.4						0.8			
CCIS	4.1	5.7	3.2	8.7	2.9	4.1	1.1	3.8	0.8	1.1	1.0	1.0
IMAD	4.0	4.5	3.5	8.6	2.9	4.3	1.1	3.1	0.9	1.1	1.0	1.1
autumn projections												
current year												
BS	0.9	0.7	1.0	1.2	0.9	1.0	0.2	0.5	0.3	0.1	0.3	0.2
Consensus	1.0	0.8	1.0	1.6	0.9	1.0	0.3	0.6	0.3	0.2	0.3	0.3
EBRD			1.1						0.3			
EIPF	1.3	1.1	1.4	2.2	1.1	1.3	0.4	0.7	0.3	0.3	0.4	0.3
EC	0.7	0.6	0.8	0.8	0.7	0.8	0.2	0.4	0.2	0.1	0.2	0.2
IMF	1.2	1.0	1.4	2.5	1.0	1.3	0.3	0.7	0.3	0.3	0.3	0.3
OECD			0.8						0.2			
CCIS	0.8	0.9	0.8	1.3	0.8	0.9	0.2	0.6	0.2	0.2	0.3	0.2
IMAD	0.8	0.7	0.8	1.1	0.7	0.8	0.2	0.5	0.2	0.1	0.2	0.2
next year												
BS	3.7	4.3	3.1	8.2	2.7	4.0	1.0	2.9	0.8	1.0	0.9	1.0
Consensus	3.7	4.3	3.1	8.2	2.7	4.0	1.0	2.9	0.8	1.0	0.9	1.0
EBRD			3.6						0.9			
EIPF	4.2	5.6	3.3	8.6	3.1	4.2	1.1	3.8	0.8	1.0	1.0	1.0
EC	3.5	4.1	3.1	7.8	2.6	3.8	1.0	2.8	0.8	0.9	0.9	1.0
IMF	3.9	4.4	3.4	8.4	2.9	4.2	1.0	2.9	0.9	1.0	1.0	1.1
OECD			3.2						0.8			
CCIS	3.9	4.9	3.2	8.2	2.8	4.0	1.1	3.3	0.8	1.0	0.9	1.0
IMAD	3.7	4.2	3.3	7.9	2.8	4.0	1.0	2.8	0.8	1.0	0.9	1.0

Source: Banka Slovenije, Consensus Economics, EIPF, EBRD, European Commission (EC), IMF, OECD, CCIS, IMAD.

Table 10: Basic accuracy measures of inflation projections, based on first available data

HICP/CPI	2001-2020			2001-2008			2009-2020			2008 in 2009			Brez 2008-2009			2004-2020		
	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV	ME	MAE	STDEV
spring projections																		
current year																		
BS	0.1	0.4	0.5	0.3	0.5	0.6	-0.1	0.3	0.4	0.2	0.3	0.4	0.0	0.4	0.5	0.0	0.3	0.4
Consensus	-0.2	0.6	0.7	0.0	0.6	0.8	-0.3	0.5	0.6	-0.1	0.7	1.0	-0.2	0.5	0.7	-0.1	0.5	0.7
EIPF	0.1	0.6	0.8	0.4	0.5	0.6	-0.1	0.6	0.8	0.7	0.7	0.4	0.0	0.6	0.8	0.1	0.6	0.8
EC	-0.1	0.4	0.5	0.0	0.4	0.7	-0.1	0.3	0.4	0.2	0.2	0.1	-0.1	0.4	0.6	0.0	0.3	0.5
IMF	0.2	0.5	0.7	0.4	0.7	0.9	0.0	0.4	0.5	1.0	1.0	0.8	0.1	0.5	0.6	0.2	0.5	0.7
OECD							-0.2	0.4	0.5									
CCIS	-0.1	0.5	0.6	0.2	0.5	0.6	-0.3	0.5	0.5	0.1	0.2	0.3	-0.2	0.5	0.6	-0.1	0.5	0.6
IMAD	0.1	0.5	0.6	0.1	0.6	0.8	0.1	0.4	0.5	0.4	0.4	0.1	0.0	0.5	0.6	0.2	0.4	0.5
next year																		
BS	0.0	1.1	1.4	0.5	1.4	1.8	-0.4	0.8	1.0	-1.2	1.5	2.1	0.1	1.0	1.4	-0.2	1.0	1.4
Consensus	-0.5	1.1	1.5	0.0	1.5	2.0	-0.8	0.9	1.1	-1.6	1.6	1.3	-0.4	1.1	1.4	-0.5	1.1	1.5
EIPF	-0.2	1.5	1.9	0.9	2.2	2.7	-0.7	1.1	1.3	-2.1	2.1	0.0	0.1	1.4	1.9	-0.2	1.5	1.9
EC	-0.5	1.1	1.4	-0.4	1.5	1.9	-0.6	0.8	1.1	-1.2	1.3	1.8	-0.4	1.1	1.4	-0.3	1.0	1.4
IMF	-0.2	1.1	1.4	0.3	1.5	1.8	-0.6	0.8	1.0	-0.5	1.1	1.5	-0.2	1.1	1.4	-0.2	1.0	1.4
OECD							-0.4	1.0	1.1									
CCIS	-0.4	1.0	1.4	0.2	1.5	2.0	-0.7	0.8	1.1	-1.2	1.5	2.1	-0.3	1.0	1.4	-0.4	1.0	1.4
IMAD	-0.2	0.9	1.3	0.2	1.2	1.6	-0.5	0.8	1.0	-0.9	1.4	2.0	-0.1	0.9	1.2	-0.2	1.0	1.4
autumn projections																		
current year																		
BS	-0.2	0.2	0.3	-0.2	0.3	0.4	-0.1	0.1	0.1	-0.4	0.4	0.3	-0.1	0.2	0.2	-0.1	0.2	0.2
Consensus	-0.1	0.3	0.3	-0.2	0.4	0.5	0.0	0.2	0.2	-0.4	0.4	0.2	-0.1	0.2	0.3	0.0	0.2	0.3
EIPF	0.0	0.3	0.3	-0.1	0.3	0.5	0.0	0.2	0.3	-0.3	0.4	0.5	0.0	0.3	0.3	0.0	0.3	0.3
EC	-0.2	0.3	0.4	-0.5	0.5	0.6	-0.1	0.1	0.1	-0.4	0.4	0.5	-0.2	0.3	0.4	-0.1	0.2	0.2
IMF	-0.1	0.4	0.5	-0.1	0.5	0.6	0.0	0.3	0.4	0.0	0.4	0.6	-0.1	0.4	0.5	0.0	0.3	0.4
OECD							0.0	0.1	0.2									
CCIS	-0.1	0.3	0.4	-0.2	0.3	0.4	-0.1	0.3	0.3	-0.2	0.3	0.4	-0.1	0.3	0.4	-0.1	0.2	0.3
IMAD	-0.2	0.3	0.4	-0.4	0.5	0.5	0.0	0.2	0.2	-0.4	0.4	0.4	-0.2	0.3	0.4	-0.1	0.2	0.3
next year																		
BS	-0.2	1.0	1.2	0.0	1.1	1.5	-0.4	0.9	1.1	-1.0	1.6	2.3	-0.1	0.9	1.1	-0.3	1.0	1.3
Consensus	-0.4	1.0	1.4	-0.2	1.5	2.0	-0.5	0.8	1.0	-1.6	1.6	2.2	-0.3	1.0	1.3	-0.4	1.0	1.4
EIPF	0.0	1.2	1.6	0.3	1.7	2.4	-0.2	1.0	1.2	-1.2	2.0	2.8	0.1	1.1	1.4	0.0	1.2	1.6
EC	-0.4	1.1	1.3	-0.4	1.4	1.8	-0.4	0.9	1.1	-1.2	1.6	2.3	-0.3	1.0	1.2	-0.3	1.0	1.3
IMF	-0.3	1.0	1.3	-0.1	1.3	1.6	-0.4	0.8	1.0	-0.9	1.5	2.1	-0.2	1.0	1.2	-0.2	1.0	1.3
OECD							-0.3	1.0	1.2									
CCIS	-0.5	1.1	1.3	-0.1	1.3	1.7	-0.7	1.0	1.1	-1.0	1.8	2.5	-0.4	1.0	1.3	-0.4	1.1	1.4
IMAD	-0.4	1.0	1.2	-0.2	1.2	1.6	-0.5	0.9	1.0	-1.2	1.8	2.5	-0.3	0.9	1.1	-0.4	1.0	1.3

Source: Banka Slovenije, Consensus Economics, EIPF, European Commission (EC), IMF, OECD, CCIS, IMAD.

Table 11: RMSE and SRMSE of inflation projections, based on first available data

HICP/CPI	RMSE						SRMSE					
	2001-2020	2001-2008	2009-2020	2008-2009	brez 08-09	2004-2020	2001-2020	2001-2008	2009-2020	2008-2009	brez 08-09	2004-2020
spring projections												
current year												
BS	0.5	0.6	0.4	0.4	0.5	0.4	0.2	0.3	0.3	0.1	0.2	0.3
Consensus	0.7	0.7	0.7	0.7	0.7	0.7	0.3	0.4	0.6	0.2	0.3	0.4
EIPF	0.8	0.7	0.8	0.8	0.8	0.8	0.3	0.4	0.7	0.2	0.3	0.5
EC	0.5	0.6	0.4	0.2	0.5	0.5	0.2	0.3	0.4	0.0	0.2	0.3
IMF	0.7	1.0	0.4	1.1	0.6	0.7	0.3	0.5	0.4	0.3	0.3	0.4
OECD			0.5						0.5			
CCIS	0.6	0.6	0.6	0.2	0.6	0.6	0.3	0.3	0.5	0.1	0.3	0.4
IMAD	0.6	0.7	0.5	0.4	0.6	0.6	0.3	0.4	0.4	0.1	0.3	0.3
next year												
BS	1.4	1.8	1.1	1.9	1.3	1.4	0.6	0.9	0.9	0.6	0.6	0.9
Consensus	1.5	1.8	1.3	1.8	1.4	1.5	0.7	1.0	1.1	0.6	0.6	1.0
EIPF	1.9	2.6	1.4	2.1	1.8	1.9	0.8	1.4	1.2	0.6	0.8	1.2
EC	1.4	1.8	1.2	1.7	1.4	1.4	0.6	0.9	1.0	0.5	0.6	0.9
IMF	1.4	1.7	1.1	1.1	1.4	1.3	0.6	0.9	1.0	0.4	0.6	0.8
OECD			1.2						1.0			
CCIS	1.4	1.8	1.2	1.9	1.4	1.4	0.6	1.0	1.1	0.6	0.6	0.9
IMAD	1.3	1.5	1.0	1.7	1.2	1.3	0.6	0.8	0.9	0.5	0.5	0.9
autumn projections												
current year												
BS	0.3	0.4	0.2	0.4	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.1
Consensus	0.3	0.5	0.2	0.4	0.3	0.3	0.1	0.3	0.2	0.1	0.1	0.2
EIPF	0.3	0.4	0.3	0.4	0.3	0.3	0.2	0.2	0.3	0.1	0.1	0.2
EC	0.4	0.7	0.2	0.5	0.4	0.3	0.2	0.4	0.1	0.2	0.2	0.2
IMF	0.5	0.6	0.4	0.4	0.5	0.4	0.2	0.3	0.4	0.1	0.2	0.2
OECD			0.2						0.2			
CCIS	0.4	0.4	0.3	0.3	0.4	0.3	0.2	0.2	0.3	0.1	0.2	0.2
IMAD	0.4	0.6	0.2	0.5	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2
next year												
BS	1.2	1.4	1.1	1.9	1.1	1.3	0.5	0.7	1.0	0.6	0.5	0.8
Consensus	1.4	1.8	1.1	2.2	1.3	1.4	0.6	1.0	0.9	0.7	0.6	0.9
EIPF	1.5	2.1	1.2	2.3	1.4	1.5	0.7	1.1	1.0	0.7	0.6	1.0
EC	1.3	1.7	1.1	2.0	1.2	1.3	0.6	0.9	1.0	0.6	0.6	0.8
IMF	1.3	1.5	1.1	1.7	1.2	1.3	0.6	0.8	0.9	0.5	0.5	0.8
OECD			1.2						1.0			
CCIS	1.4	1.6	1.3	2.0	1.3	1.4	0.6	0.8	1.1	0.6	0.6	0.9
IMAD	1.3	1.5	1.1	2.2	1.1	1.3	0.6	0.8	0.9	0.7	0.5	0.8

Source: Banka Slovenije, Consensus Economics, EIPF, European Commission (EC), IMF, OECD, CCIS, IMAD.