BANKA SLOVENIJE

EVROSISTEM



# MACROECONOMIC PROJECTIONS FOR SLOVENIA

DECEMBER 2020

BANKA
SLOVENIJE
EVROSISTEM

Title: Macroeconomic Projections for Slovenia
Issue: December 2020

Published by: BANK OF SLOVENIA
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The Macroeconomic Projections for Slovenia are based on figures and information available on 25 November 2020.



This publication is also available in Slovene.

ISSN 2463-9990

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# Executive Summary

*The year 2020 has been marked by the Covid-19 pandemic, which alongside a health crisis has unleashed unprecedented and difficult challenges at the global level. Slovenia too has not managed to avoid a large contraction in economic activity. The uncertainties and challenges brought by the epidemic have altered the spending habits of households, who have sharply increased their savings, while firms have significantly reduced their investment activity and have postponed investments to the following years, when the situation is expected to improve. Many sectors, most notably services, were also subject to partial or complete shutdowns for several months because of the epidemic. All the major trading partners have faced similar challenges, which has seen foreign demand decline markedly alongside domestic demand. The adverse impact of the epidemic has been alleviated by monetary and fiscal policy measures. Through the emergency measures, the latter have been a major factor in preventing a more pronounced downturn on the labour market, and have helped firms to maintain a stable liquidity position and to mitigate the decline in economic activity. Alongside the domestic measures, assistance packages have also been put in place at the EU level.*

*The epidemiological situation is changing rapidly, uncertainty in the economy is high, and this is also being reflected in the macroeconomic projections and expectations that keep changing from month to month. After the optimism of summer, when the lifting of containment measures revived economic growth and the recovery was given a major boost, a new wave of cases hit in autumn, which brought a sharp downturn in the economic outlook for the final part of this year and the early part of next year. This has been reflected in Bank of Slovenia's latest projections, which compared with June are lower for this year and next year. GDP is expected to decline by 7.6% this year, followed by 3.1% growth in 2021. Next year's recovery will thus be slightly slower than previously anticipated.*

*Given the huge uncertainty, two alternative scenarios have been drawn up alongside the baseline projections: a mild scenario and a severe scenario, which reflect differing assumptions with regard to the ongoing evolution of the epidemic. The efficacy of the rollout of a potential medical solution will have a major impact here. The latest information regarding the availability of a vaccine in the coming months is encouraging. While the mild scenario anticipates the autumn wave of the epidemic to be successfully contained this year and containment measures to be gradually lifted towards the end of this year and next year, the severe scenario envisages the deteriorated epidemiological picture to last longer. This would be reflected in the extension of stringent containment measures, which would limit the economic recovery over the projection horizon. Under the mild scenario, GDP would reach its pre-crisis level as soon as next year, while under the severe scenario it would decline further next year, and would only approach its pre-crisis level near the end of the projection horizon.*

*The economic contraction will be profoundly mitigated by economic policy stimulus. While monetary policy continues to provide for favourable financing conditions, the fiscal aid packages at the national and European level are ensuring the conditions for preserving the potential of the economy, and with it the fastest possible recovery after the end of the pandemic. The fiscal policy measures are primarily aimed at stabilising the labour market and helping firms with liquidity difficulties. Our assessment is that in the absence of these measures, this year's decline in economic activity in Slovenia would have been approximately a third larger, while there*

*would be a similar decline in economic potential, which for now is being maintained at levels that will allow for a rapid recovery when the situation normalises. Alongside the other economic policy measures, over the coming years, investment activity will be further strengthened by funding from the EU's new Recovery and Resilience Facility.*

*The epidemic's impact on the labour market is being significantly mitigated by the government's emergency job retention schemes. Despite a decline of more than 7% in the number of hours worked, employment will decline by just 1.5% this year, which is less than expected. After a sharp rise in unemployment in the first half of this year, the adverse developments slowed, but with the renewed yet less pronounced deterioration, the survey unemployment rate is expected to reach around 5.4% this year. The situation is expected to gradually ease next year. Unemployment will nevertheless rise slightly further, but the unemployment rate will remain below 6%, significantly less than during the great financial crisis. Model estimates suggest that the government*

**Table 1: Macroeconomic projections for Slovenia, 2020–2023**

| | | | | | | | | Projections | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | | 2020 | | 2021 | | 2022 | | 2023 | |
| | | | | | | | Δ | Dec. | Δ | Dec. | Δ | Dec. | Δ | Dec. | Δ |
| **Prices** | *annual average % changes* | | | | | | | | | | | | | | |
| HICP | 0.4 | -0.8 | -0.2 | 1.6 | 1.9 | 1.7 | 0.0 | **-0.2** | -0.2 | **0.9** | -0.4 | **1.3** | -0.2 | **1.6** | … |
| HICP excluding energy | 0.7 | 0.4 | 0.6 | 1.1 | 1.4 | 1.8 | 0.0 | **1.4** | 0.1 | **1.1** | 0.0 | **1.4** | 0.0 | **1.8** | … |
| HICP energy | -1.4 | -7.8 | -5.2 | 4.7 | 6.0 | 0.8 | 0.0 | **-10.8** | -2.1 | **-0.3** | -3.9 | **0.6** | -1.3 | **0.5** | … |
| **Economic activity** | *y-o-y growth rates in %* | | | | | | | | | | | | | | |
| GDP (real) | 2.8 | 2.2 | 3.2 | 4.8 | 4.4 | 3.2 | 0.8 | **-7.6** | -1.1 | **3.1** | -1.8 | **4.5** | 0.9 | **3.1** | … |
| Private consumption | 1.6 | 2.0 | 4.4 | 1.9 | 3.6 | 4.8 | 2.1 | **-10.9** | -4.3 | **4.3** | -0.1 | **4.4** | 1.6 | **3.0** | … |
| Government consumption | -0.2 | 2.3 | 2.4 | 0.4 | 3.0 | 1.7 | 0.1 | **3.8** | 0.3 | **2.0** | 1.6 | **1.3** | -0.1 | **1.5** | … |
| Gross fixed capital formation | -0.1 | -1.2 | -3.6 | 10.2 | 9.6 | 5.8 | 2.6 | **-11.6** | 2.8 | **7.3** | -0.8 | **9.1** | 2.6 | **5.4** | … |
| Exports (goods and services) | 6.0 | 4.7 | 6.2 | 11.1 | 6.3 | 4.1 | -0.3 | **-11.4** | 1.2 | **7.2** | -0.3 | **6.8** | 1.2 | **5.0** | … |
| Imports (goods and services) | 4.2 | 4.3 | 6.3 | 10.7 | 7.2 | 4.4 | 0.2 | **-13.2** | 0.4 | **9.2** | 1.5 | **7.3** | 1.7 | **5.2** | … |
| *Contributions to real GDP growth* | *in GDP percentage points* | | | | | | | | | | | | | | |
| Domestic demand (excluding inventories) | 0.8 | 1.3 | 2.2 | 2.9 | 4.2 | 4.0 | 1.7 | **-7.5** | -1.9 | **4.0** | 0.2 | **4.4** | 1.5 | **3.0** | … |
| Net exports | 1.6 | 0.6 | 0.4 | 1.2 | -0.2 | 0.1 | -0.4 | **0.4** | 0.7 | **-0.8** | -1.4 | **0.2** | -0.4 | **0.2** | … |
| Changes in inventories | 0.4 | 0.3 | 0.6 | 0.7 | 0.3 | -0.8 | -0.4 | **-0.6** | 0.0 | **0.0** | -0.4 | **0.0** | 0.0 | **0.0** | … |
| **Labour market** | *y-o-y growth rates in % (unless stated otherwise)* | | | | | | | | | | | | | | |
| Survey unemployment rate (in %) | 9.8 | 9.0 | 8.0 | 6.6 | 5.1 | 4.5 | 0.0 | **5.4** | -0.6 | **5.6** | 0.1 | **4.8** | 0.2 | **4.3** | … |
| Total employment | 0.4 | 1.3 | 1.8 | 3.0 | 3.2 | 2.5 | 0.1 | **-1.5** | 0.4 | **-0.3** | -1.1 | **1.4** | 0.0 | **0.9** | … |
| Compensation per employee | 1.2 | 1.5 | 3.1 | 3.0 | 3.9 | 4.9 | 0.4 | **2.0** | 1.1 | **2.4** | 1.1 | **2.6** | -0.3 | **3.4** | … |
| …Productivity | 2.3 | 0.9 | 1.3 | 1.8 | 1.1 | 0.7 | 0.6 | **-6.1** | -1.4 | **3.5** | -0.5 | **3.1** | 1.0 | **2.2** | … |
| …Unit labour costs (ULC) | -1.1 | 0.6 | 1.8 | 1.2 | 2.7 | 4.2 | -0.3 | **8.6** | 2.7 | **-1.1** | 1.5 | **-0.5** | -1.3 | **1.2** | … |
| **Balance of payments** | *y-o-y growth rates in % (unless stated otherwise)* | | | | | | | | | | | | | | |
| Current account: in bn EUR | 1.9 | 1.5 | 1.9 | 2.7 | 2.7 | 2.7 | -0.4 | **2.7** | -0.1 | **2.3** | -0.5 | **2.6** | -0.5 | **2.8** | … |
| in % GDP | 5.1 | 3.8 | 4.8 | 6.2 | 5.8 | 5.6 | -1.0 | **5.9** | -0.2 | **5.0** | -0.8 | **5.2** | -0.8 | **5.3** | … |
| Terms of trade* | 1.0 | 1.3 | 0.8 | -0.6 | 0.0 | 0.5 | 0.1 | **0.2** | -1.0 | **0.0** | 0.7 | **0.3** | 0.7 | **0.2** | … |

**Based on deflators from National Accounts data.*
*Δ: Difference between current projections and projections in Macroeconomic Projections for Slovenia, June 2020.*
*Source: Bank of Slovenia, Consensus Economics, Eurostat, JP Morgan, OECD Economic Outlook, SORS, ECB.*

*measures, most notably the temporary lay-off scheme and the subsidisation of short-time work, have for now succeeded in preserving approximately 16,000 jobs that would have been lost this year and next year in the absence of these measures.*

*The Covid-19 pandemic has had a profound impact on consumer prices. After rising last year, core inflation excluding energy, food, alcohol and tobacco will slow to just 0.9% this year. This will be largely driven by the contraction in the economy and the uncertainty on the labour market, which is being reflected in a sharp decline in capacity utilisation and in reduced domestic price pressures. This year's decline in private consumption has had a sharp impact on growth in prices of services related to tourism, recreation, culture and transport. Services price inflation will stand at 1.8% this year, down 1.5 percentage points on the previous year. Headline consumer prices will fall by 0.2% this year. The fall is largely attributable to energy prices, which were driven down by falling global oil prices, cuts in electricity prices during the first wave of the epidemic, and the government's excise duty policy, which held regulated prices of refined petroleum products at one euro per litre until 1 October 2020, when full price liberalisation entered into force. This year's fall in consumer prices will be mainly mitigated by food price inflation of 3%. Allowing for the changing structure of household consumption, the epidemic's negative impact on inflation would be slightly smaller. The gradual recovery in domestic and foreign demand underlining the assumed improvement in the epidemiological picture is expected to bring an increase in domestic and foreign price pressures. While this will strengthen core inflation, the latter is nevertheless not expected to exceed 1.5% over the projection horizon. Headline consumer price inflation will rise in parallel with core inflation, reaching 1.6% in 2023.*

# 1 International Environment and External Assumptions

*Global economic activity has been hit hard by the Covid-19 pandemic. In the majority of countries, the health crisis has gone hand-in-hand with stringent containment measures, which were reflected in large declines in global GDP, global investment activity and international trade, and disruptions of supply chains in the first wave of the epidemic. The latest macroeconomic projections for the euro area foresee a decline in euro area GDP of 7.3% this year, slightly less than in the June projections. With the gradual lifting of containment measures and an improvement in the health situation, economic growth is expected to reach 3.9% in 2021, 4.2% in 2022 and 2.1% in 2023, which results in this year's loss to be regained only towards the end of 2022. The baseline projection for GDP growth in the euro area is accompanied by two alternative scenarios, which reflect different epidemiological assumptions. Under the mild scenario, this year's decline in euro area GDP is expected at 7.2%, compared with 7.6% under the severe scenario, in which the recovery would also be significantly slower amid the worse epidemiological picture.*

**Global economic activity has been hit hard by the Covid-19 pandemic, but is expected to recover relatively strongly next year.** The stringent containment measures put in place by numerous countries have been reflected in a large decline in economic activity. The first wave of the pandemic hit manufacturing and services alike, but the adverse effects will be particularly long lasting in sectors where direct contact with the customer is essential. The pandemic brought changes in the spending habits of households, caused a decline in corporate investment activity, disrupted international supply chains and reduced international trade. The epidemic has also had a severe impact on economic activity in the euro area. The ECB projections foresee for euro area GDP to decline by 7.3% this year. Under the baseline projection, euro area GDP is expected to reach its pre-crisis level only in mid-2022. These developments are also reflected in the assumption for growth in foreign demand for Slovenia, which is significantly negative for this year, but is expected to strengthen relatively quickly, supporting export demand, and with it exports of goods and services.

**Given the uncertainty surrounding the ongoing evolution of the pandemic, similar to June, two alternative scenarios (a mild scenario and a severe scenario) have been drawn up alongside the baseline projection.**[1] Both scenarios entail different epidemiological assumptions from the baseline projection. The mild scenario envisages the availability of some effective medical solution/vaccines by the early part of next year and the successful rollout of this solution as early as the second half of 2021. This would allow for the relatively quick lifting of the stringent containment measures and GDP would reach its pre-crisis level towards the end of next year. By contrast, the severe scenario envisages a slightly stronger second wave, which would see the containment measures extended into next year, with the measures being gradually lifted over the remainder of the projection horizon. This would be a consequence of a less-successful rollout of the medical solution, e.g. insufficient uptake of the vaccine should a vaccine be available. Should the severe scenario be realised, losses would be longer lasting not only in services but for the entire euro area economy, and GDP would consequently be well below its

[1] Detailed economic projections for both alternative scenarios can be found in the latest release of ESCB projections, which are also available in Slovene, on the ECB website.

**Table 2: Assumptions for factors from the international environment**

| | 2015 | 2016 | 2017 | 2018 | 2019 | Assumptions 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|
| World (excluding euro area) real GDP (in %) | 3.6 | 3.4 | 3.9 | 3.8 | 2.9 | **-3.0** | **5.8** | **3.9** | **3.6** |
| Real GDP growth in Euro Area (in %) - baseline projection | 2.0 | 1.9 | 2.7 | 1.9 | 1.3 | **-7.3** | **3.9** | **4.2** | **2.1** |
| Real GDP growth in Euro Area (in %) - mild scenario | | | | | | **-7.2** | **6.0** | **4.3** | **2.1** |
| Real GDP growth in Euro Area (in %) - severe scenario | | | | | | **-7.6** | **0.4** | **3.0** | **2.9** |
| Foreign demand for Slovenia (growth in %) - baseline projection | 3.2 | 3.7 | 6.3 | 4.3 | 2.6 | **-10.6** | **6.6** | **5.7** | **4.0** |
| Foreign demand for Slovenia (growth in %) - mild scenario | | | | | | **-10.4** | **11.5** | **6.1** | **3.9** |
| Foreign demand for Slovenia (growth in %) - severe scenario | | | | | | **-11.1** | **1.0** | **3.9** | **5.3** |
| Oil price (in USD/barrel) | 52.4 | 44.0 | 54.4 | 71.1 | 64.0 | **41.6** | **44.0** | **45.7** | **46.9** |
| Oil price (in EUR/barrel) | 47.2 | 39.8 | 48.2 | 60.2 | 57.2 | **36.5** | **37.2** | **38.6** | **39.7** |
| Oil price (in USD/barrel, annual percentage change) | -47.0 | -15.9 | 23.5 | 30.7 | -9.9 | **-35.1** | **5.9** | **3.7** | **2.8** |
| Exchange rate (EUR/USD) | 1.11 | 1.11 | 1.13 | 1.18 | 1.12 | **1.14** | **1.18** | **1.18** | **1.18** |
| Non-energy commodity prices (growth in %) | -16.7 | -2.4 | 7.8 | 4.1 | -3.7 | **2.5** | **8.4** | **0.4** | **1.6** |

*Source: ECB, Bank of Slovenia.*

2019 level even at the end of the projection horizon. Under the mild scenario, euro area GDP would decline by 7.2% this year, followed by growth averaging 4.1% over 2021 to 2023. The severe scenario also envisages a contraction in the economy this year (7.6%), followed by a recovery over the remainder of the projection horizon, with growth averaging 2.1%. The alternative scenarios of growth in foreign demand for Slovenia are aligned with the aforementioned trajectories in euro area economic activity under the two alternative scenarios.

**According to the technical assumptions, after falling by more than 30% this year, prices of Brent crude are expected to gradually rise over the projection horizon, while the euro exchange rate against the US dollar is projected at USD 1.18 in the following years.** The assumptions for developments in primary commodity prices are based on market expectations on futures markets over a two-week period ending on the cut-off date.[2] The assumption for US dollar prices of Brent entails a fall of more than a third this year relative to last year. The price per barrel is expected to average USD 44 next year, before gradually strengthening to around USD 47 towards the end of the projection horizon. In line with the ECB methodology, which takes account of futures contract prices, prices of non-energy primary commodities are expected to rise by 2.5% this year, before growing by more than 8% next year. Growth will slow sharply in 2022 and 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 1.14 in 2020, and USD 1.18 to the euro over the remainder of the projection horizon.

[2] The technical assumptions are based on information available on the cut-off date of 18 November 2020. The assumptions for Slovenia's foreign demand and the external technical assumptions of medium-term projections of macroeconomic developments in Slovenia drawn up by Bank of Slovenia within the framework of the ESCB are based on the harmonised projection assumptions within the framework of the ESCB. For more on the methodology, see the latest release of ESCB projections online, which are also available in Slovene, on the ECB website.

# 2 Projections

*The latest projections for economic growth in Slovenia reflect the deterioration in the epidemiological picture at home and in the main trading partners in the final quarter of this year. The baseline projection is based on the assumption of a successful, albeit not immediate, containment of the second wave of the epidemic and persistence of some containment measures. The improvement in the epidemiological picture is expected to reduce uncertainty, and thus strengthen confidence among consumers and firms. Our projection foresees that private consumption will be the most important driver of economic recovery from next year on. Government consumption and investment will also contribute to economic growth throughout the projection horizon. Government investment will particularly increase in 2021. As the situation normalises, private-sector investment is expected to gradually recover in the second half of the projection horizon, partly prompted by the favourable financing conditions and the additional funds available from the EU's Recovery and Resilience Facility. This will also strengthen economic activity in the main trading partners, which will strengthen international trade in goods and services.*

*Thanks to the government's extensive job retention schemes, this year's fall in employment of 1.5% will be lower than projected in June, although employment will continue to fall next year amid the weaker economic outlook. The depth of the economic contraction will be most evidently reflected on the labour market in this year's 7.3% decline in the number of hours worked. The main factors in this year's wage growth according to the national accounts figures will be the strong growth in the government sector and the effects of government's job retention schemes. The latter will cause wages in the private sector to fall, as temporarily laid-off workers and employees on short-time work have significantly lower earnings. Employment and unemployment are not expected to regain their pre-crisis levels until 2023.*

*Consumer prices will fall this year, owing to the Covid-19 epidemic and the containment measures. The deflation of 0.2% will largely be driven by energy prices, as a result of falling global oil prices, cuts in electricity prices during the first wave of the epidemic, and the government's excise duty policy. Growth in prices of domestic inflation components will slow sharply, largely as a result of the contraction in the economy, the fall in private consumption, and the downturn on the labour market. Developments in services prices and prices of non-energy industrial goods will also be affected by the difficulties in collecting price data caused by the temporary restrictions on selling goods and services to consumers. Only food price inflation will be slightly higher, as a result not only of robust demand, but also of costs related to hygiene and protection measures. An effective medical solution and the gradual recovery of domestic and foreign demand over the remainder of the projection horizon will bring a slow rise in headline inflation, which will reflect the strengthening of domestic and foreign price pressures alike. Headline inflation will reach 1.6% by the end of the projection horizon.*

## 2.1 Economic activity

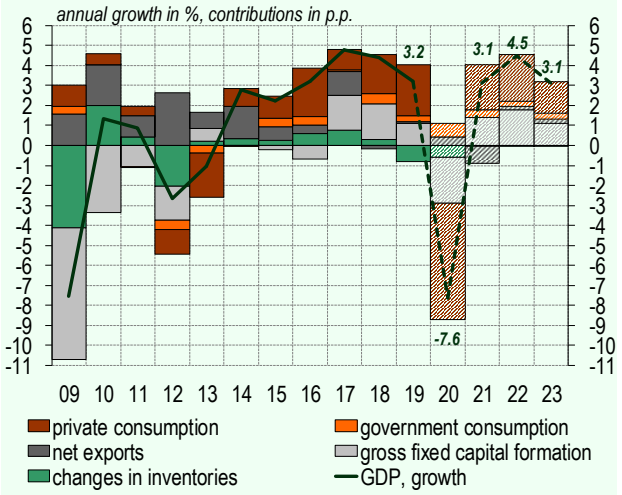
**The latest projections for economic growth in Slovenia reflect the deterioration in the epidemiological picture at home and in the main trading partners in the final quarter of this year.** The autumn wave and the reinstatement of stringent containment measures in the majority of European countries in recent weeks have again hit a significant part of the economy, services in particular, stalling the encouraging recovery seen during the summer. Restrictions of this type, which are essential to resolving the health crisis, have major adverse economic consequences, although these are being alleviated by economic policy measures.[3] The macroeconomic developments in Slovenia between 2020 and 2023 will primarily depend on the ongoing evolution of the epidemic and the success of the containment measures.

**The baseline projection for economic activity is based on the assumption of a successful, albeit not immediate, containment of the second wave, which means that some of the containment measures will be in place for longer.** After a strong recovery in the third quarter, economic activity is expected to contract again in the final quarter, most evidently in services, in particular tourism, accommodation and food service activities, personal care services and the entertainment industry. Sectors where direct contact between the service provider and the customer is essential and which cannot ensure the proper enforcement of social distancing face significant restrictions during major outbreaks. These sectors will suffer a longer-lasting adverse impact from the epidemic, and the recovery will be slower than in other sectors. The disruptions to spending caused by the partial shutdown of the economy have been evidenced in a large decline in private consumption, while the uncertainty triggered by the epidemic is also reducing corporate investment activity. The decline in domestic demand will thus account for a significant share of this year's economic contraction. Other European economies are facing a similar situation, and this is being reflected in a large decline in imports and exports of goods and services.

**The economic recovery will be heavily dependent on the further evolution of the epidemic.** Over the following years, in the wake of the improvement of the epidemiological picture in the main trading partners, export orders are expected to strengthen, which will be followed by recovery in corporate investment in machinery and equipment, and growth in employment. Over the remainder of the projection horizon, investment will also be significantly strengthened by the government's investment policy, where substantial acceleration is expected in 2021. The relatively strong government investment cycle will be partly financed by funding from European cohesion funds and from the EU's new Recovery and Resilience Facility. Amid less uncertainty, particularly on the labour market, and the lifting of the more stringent containment measures, the main engine of the recovery will be household consumption. The strengthening economies of the main trading partners in the following years will increase growth in foreign demand for Slovenia. After this year's sharp decline, foreign trade is expected to recover, and serve as a significant factor of economic growth for Slovenia's small, open economy. GDP is expected to decline by 7.6% this year, before growing by 3.1% in 2021, 4.5% in 2022 and 3.1% in 2023.

**Private consumption will be the most important driver of the economic recovery over the next three years.** This year's decline in private consumption has been largely driven by the extraordinary factors triggered by the epidemic, which will gradually dissipate later in the

**Figure 1: Projections of expenditure contributions to GDP growth**



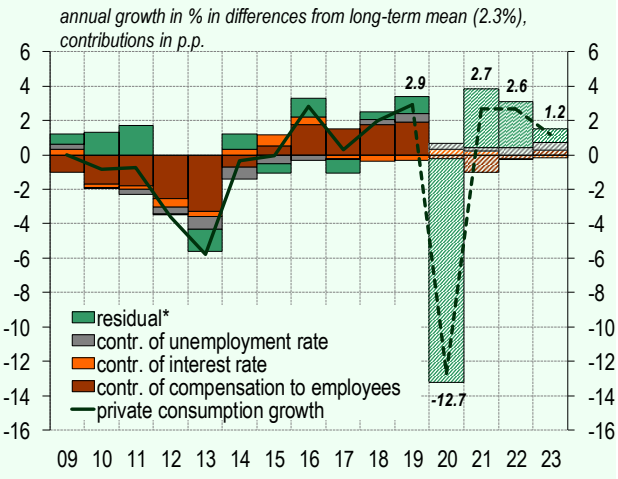

*Note: Due to rounding, sums of components my differ from aggregate values.*
*Source: SORS, Bank of Slovenia projections.*

[3] Details of the fiscal policy measures and their effects on economic growth are presented in Boxes 3 and 4, while the monetary policy measures are examined in Box 5.

projection horizon when an effective medical solution becomes available. The expected recovery in private consumption will be further supported by the relatively solid labour market. The situation on the labour market has remained relatively stable this year, thanks to fiscal measures to alleviate the impact of the epidemic, most notably the temporary lay-off scheme, the subsidisation of short-time work, and wage bonuses for workload during the epidemic. The aforementioned measures have prevented a further decline in household purchasing power, and a larger increase in unemployment. The labour market remains relatively stable for now, and household disposable income is expected to increase further over the projection horizon, driven by renewed employment growth and wage growth. This year's savings will also be an important resource in household consumption over the following years. The household saving ratio rose markedly in the first half of the year, to more than 23% of household disposable income. As uncertainty diminishes over the following years, some of the savings will be directed into private consumption, and the savings ratio will gradually decline towards its pre-crisis level.[4] The confluence of all these factors will allow for a solid growth in private consumption after the lifting of the containment measures and the stabilisation of the economy. The growth rate will average 4% between 2021 and 2023.

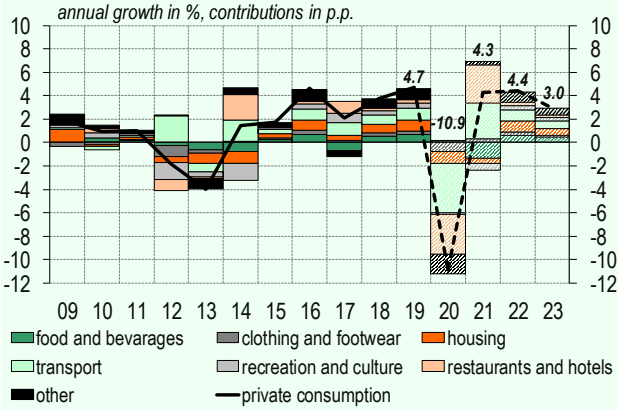
**The containment measures have brought major changes to the structure of household consumption, which in the future will also depend on the epidemiological situation.** Household consumption was subject to significant constraints this year. The imposition of the lockdown and containment measures, the closure of non-essential shops, the shutdown of many services such as personal care, recreation and culture, and reductions in public transport services made it impossible for households to maintain regular spending patterns. Stringent containment measures were in place between March and May, and some have been reinstated in autumn. Even during the summer, hygiene and protection recommendations and requirements were enforced in sectors where the intensity of contact is higher, which prevented such services from being provided in full. The organisation of mass sporting and cultural events was hit particularly hard. The sole increase in spending compared with 2019 was on food and beverages, as a result of the increase in working from home and the reduced availability of food services during the lockdown. Alongside spending on accommodation and food services, there was also a significant decline in spending on transportation, while average car sales over the first ten months of the year were down approximately 25%, with a particular decline in sales of higher-category cars.[5]

**Figure 2: Decomposition of private consumption growth**




*Note: *The residual represents the impact of variables, which are not included in the estimated equation.*
*Source: SORS, Bank of Slovenia estimations and projections.*

**Figure 3: Projection of component' contributions to the growth of private consumption**




*Note: Due to rounding, sums of components my differ from aggregate values. The calculations make use of weights from the SORS survey "Household budget survey". The "housing" component includes rents, running/utility costs and maintenance, and purchases of household equipment and furniture.*
*Source: SORS, Bank of Slovenia calculations and projections.*

[4] Details of the factors driving household savings ratio after the outbreak of the Covid-19 epidemic are presented in Box 1.

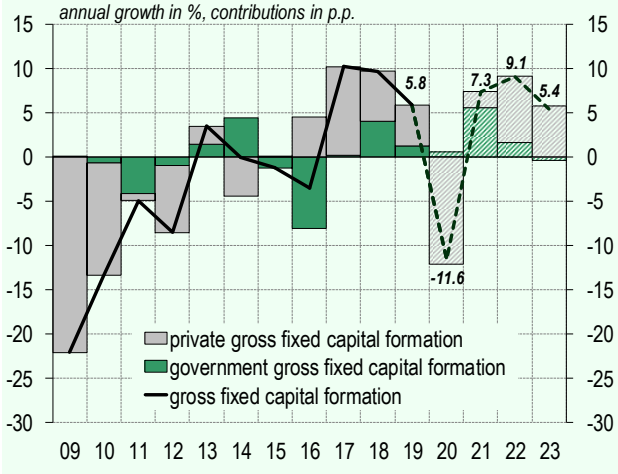
[5] Data on car sales over the first ten months of the year (in Slovene) can be found in the website of the cars section of the Chamber of Commerce and Industry (http://www.ads-slo.org/home).

**After the economy stabilises, in particular the labour market, the structure of consumption towards the end of the projection horizon is expected to become more similar to its pre-crisis structure.** As a result of the epidemic, 2020 has seen reduced spending, in particular on non-essential durables, including furnishings and household equipment, clothing and footwear, and cars. This was partly attributable to the aforementioned containment measures, which made it impossible to purchase certain goods and services, and partly attributable to increased uncertainty, which triggered precautionary savings by households. This has been reflected in the postponement of major purchases until a time of greater stability, particularly on the labour market. Another significant factor in the decline in private consumption is the decline in the purchasing power of households that are dependent on sectors hit hardest by the epidemic, as the compensation received by temporarily laid-off workers and those on short-time work is less than their usual earnings. When the situation stabilises, households are expected to undertake the major purchases that they have postponed for now. Moreover, significant demand for accommodation and food services is expected next year. This will also be encouraged by the extension of the holiday voucher scheme. As the health situation gradually improves, the structure of consumption towards the end of the projection horizon is expected to be similar to that before the epidemic.

**As the situation normalises at home and abroad, private-sector investment in construction and in machinery and equipment is expected to gradually strengthen.** Corporate investment activity has stalled this year amid the huge economic uncertainty triggered by the epidemic, as firms have largely decided to postpone investment until a time of greater stability in the economy. In addition, export-oriented firms in particular have faced other challenges in recent years that have hindered their performance, such as the imposition of new protectionist measures by major global economies, which brought changes to trade flows, and the major uncertainty associated with Brexit. All of this was holding back corporate investment in new production capacity even before the outbreak of the epidemic. The epidemic has only amplified the adversities of the situation, which will be reflected in the largest decline in investment since the end of the great financial crisis. The decline in investment is expected to exceed 11% this year. Under the assumption that the stringent containment measures are lifted and the epidemiological situation improves as soon as next year, economic uncertainty would be reduced, firms' confidence would strengthen and export orders would increase. This is expected to give new impetus to investment in machinery and equipment and in new production capacity, as the adverse experience of the current crisis is expected to see shorter production chains, increased robotisation and greater digitalisation. The rebooting of investment will be a gradual process; firms will remain cautious in their investment decisions next year, and investment is not expected to lift off until 2022. Amid an improving labour market, and good access to favourable housing loans, demand for newly-build housing is expected to increase over the coming years. Despite several major investments in recent years, particularly in the larger towns and cities, there is still a severe shortage, which will be reflected in further growth in housing investment. Growth in private sector investment will average close to 7% over the next three years, but it will only reach its pre-crisis level towards the end of the projection horizon.

**Investment activity will also be supported by the favourable financing conditions, and funding from the EU's new Recovery and Resilience Facility.** Although financing difficulties are not cited by firms among the

**Figure 4: Projection of component' contributions to the growth of gross fixed capital formation**

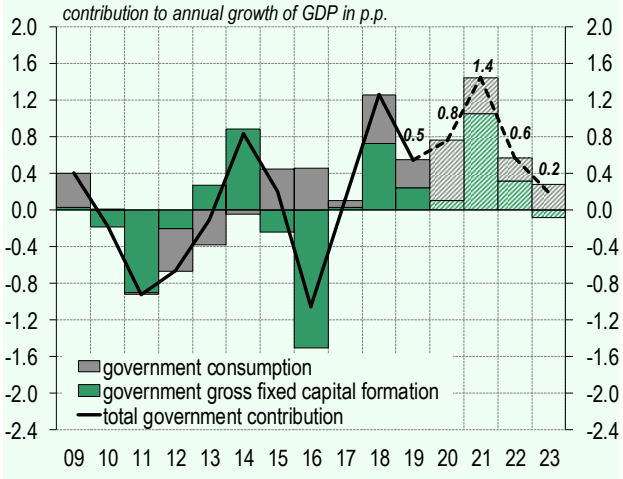



*Note: Due to rounding, sums of components my differ from aggregate values.*
*Source: SORS, Bank of Slovenia projections.*

most prevalent limiting factors for this year's performance, investment will be further encouraged by monetary policy, which is ensuring that the financing conditions remain favourable, and by funding from the EU's Recovery and Resilience Facility, which is aimed specifically at projects focusing on introducing new technologies and modernising machinery and equipment to increase the energy efficiency of plants (green transition). Funding from the Recovery and Resilience Facility will further strengthen private sector investment in machinery and equipment and in construction, and will account for more than 2 percentage points of their annual growth on average between 2021 and 2023.

**Government investment will increase significantly over the projection horizon and is expected to help support economic growth particularly in 2021.** There will be several factors contributing to the high growth: a) strengthening investment from domestic budgetary resources, b) increased utilisation of EU funds in connection with the completion of the current financial framework, and the beginning of disbursement from the Recovery and Resilience Facility, and c) major infrastructure projects (e.g. a second railway track on the Divača-Koper line, fleet modernisation of Slovenian Railways). The upward revision to the government investment projection primarily reflects the significant increase in investment funding in the state budget revision for 2021, and the state budget plans for 2022. The government investment projection is exposed to considerable uncertainty, underlining the economic and epidemiological situation, the pace of the actual implementation of investment plans (obtaining permits, selecting contractors), and the public finance position.

**Figure 5: Projections of government components' contribution to GDP growth**




*Note: Due to rounding, sums of components my differ from aggregate values.*
*Source: SORS, Bank of Slovenia projections.*

**Final government consumption will show somewhat higher growth in 2020 due to measures related to the epidemic, but growth will slow again in the following years.** Real government consumption growth has been revised slightly upwards for 2020, to 3.8%. Measures related to the epidemic are increasing general government expenditure, including compensation of employees and intermediate consumption. The main factor in the nominal growth in government consumption is compensation of employees, which amid a rise in the number of employees similar to previous year is mainly a reflection of a significant increase in the average wage,[6] estimated at just over a tenth. The main factors in wage growth in the government sector in 2020 are the agreement on wages and other labour costs in the public sector reached in late 2018,[7] and the higher payments in connection with the epidemic, which are also the reason for the upward revision to growth in the average wage.[8] The epidemic brought increased expenditure on protective equipment and medical devices, but revenues from

[6] The average wage is calculated as compensation of employees per employee on the basis of national accounts figures.

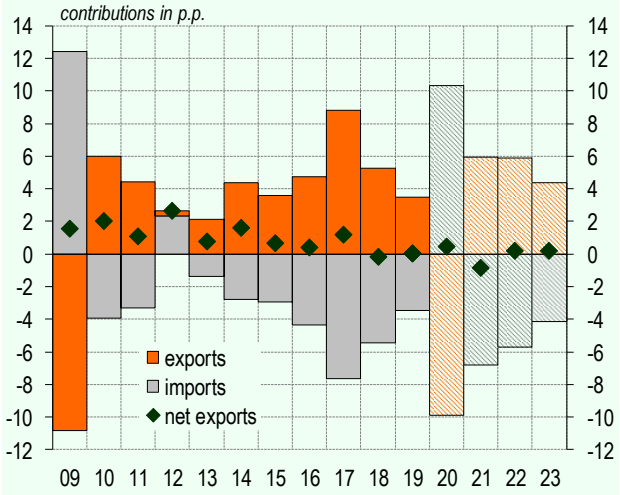
[7] This year has seen a wage rise of one wage grade for positions that require a doctorate, a master's degree or a specialisation (with the exception of physicians, state officials and directors), while the constraints with regard to payments for regular on-the-job performance and for increased workload were lifted as of the middle of the year. Growth in the average wage will also be affected by civil service promotions.

[8] The first wave of the epidemic, during which civil servants were entitled to a bonus for working in high-risk conditions and for special workload under Article 39 of the collective agreement for the public sector, and the bonus for heavy workload under the Act Determining the Intervention Measures to Contain the COVID-19 Epidemic and Mitigate its Consequences for Citizens and the Economy, was followed by a second wave in autumn and the re-declaration of the epidemic. This means that civil servants are again entitled to bonuses under the collective agreement during the second wave of the epidemic. For the second wave of the epidemic, the anti-coronavirus legislation also introduced a bonus for working with Covid-19 patients, in the amount of 30% of the hourly base salary, and a bonus for temporary reassignment to another provider for urgent work, in the amount of 20%.

the sale of goods and services are contrastingly expected to be lower. Employment in the government sector is continuing to rise. Growth is highest, and also up most on previous year, in the human health and social work sector, where given the epidemiological situation, needs are currently the greatest. The projection for government consumption in 2021 has also been revised upwards, for similar reasons to the projection for 2020.

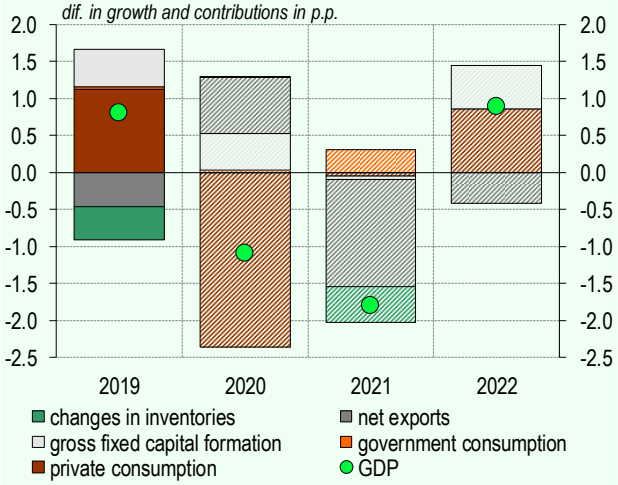
**As the global epidemiological picture improves, the recovery in international trade in goods and services is expected to be relatively swift.** The outbreak of the epidemic disrupted existing global trade and supply chains. In the early part of this year, the shutdown of manufacturing in China and in the countries where most of the imported value-added in export products of the Slovenian economy is created[9] caused a supply-side shock, which then led to a fall in demand as a result of the increased uncertainty in all global economies. The epidemic hit services the hardest. The decline in services trade was thus significantly larger than the decline in merchandise trade. As the situation eased, particularly in China, the supply-side shock largely dissipated, and the relatively successful containment of the epidemic after the spring lockdowns in the majority of northern hemisphere countries saw industrial production revive. This allowed for a relatively good recovery in international merchandise trade. By contrast, growth in services trade remained modest, despite the lifting of containment measures during summer. In the first wave of the epidemic, containment measures had significantly restricted the movement of goods and people between countries, which hit the transportation and tourism sectors particularly hard. There has been a large fall in the numbers of foreign visitors, despite the containment measures being lifted in summer. Urban tourism, which accounts for a significant part of Slovenia's tourism services, was particularly badly hit. Air traffic remains modest, services at Ljubljana Airport have been sharply cut back until further notice and in recent weeks, public passenger transport has again been shut down, with restrictions imposed on border crossings. The recovery of sectors linked to tourism over the following years is also expected to be more gradual, with longer-lasting effects from the crisis. The epidemic also brought a sharp decline in foreign demand this year, which has been reflected in a significant reduction in trade in merchandise and services compared with previous years. Imports will be down around 13% this year, and exports down more than 11%. In line with the assumption of growth in foreign demand, the recovery in exports is expected to be relatively solid. Given the strength of backward participation (foreign value-added in the pro-

**Figure 6: Projection of net exports' contribution to GDP growth**




*Note: Due to rounding, sums of components my differ from aggregate values.*
*Source: SORS, Bank of Slovenia projections.*

**Figure 7: Revision to GDP projection by components**




*Note: Due to rounding, sums of components my differ from aggregate values.*
*Source: SORS, Bank of Slovenia projections.*

[9] Details of Slovenia's exposure from the perspective of global value chains is available in Assessing the impact of the Covid-19 outbreak on the Slovenian economic outlook, March 2020, published in a collection of analyses by Bank of Slovenia staff, and available at https://bankaslovenije.blob.core.windows.net/publication-files/prikazi-in-analize-marec-2020.pdf. The figures for analysing global value chains were obtained from the OECD Trade in Value-Added (TiVA) database, which is available at https://www.oecd.org/sti/ind/measuring-trade-in-value-added.htm.

duction of exported products), this will also strengthen growth in imports, which will slightly outpace growth in exports over the following years amid the recovery in domestic demand. The contribution of trade balance to GDP growth will therefore be relatively small. Growth in exports will average approximately 6% over the next three years, while growth in imports will average 7%. These developments will also be reflected in the current account surplus, which will narrow next year, and will then remain at just above 5% of GDP over the remainder of the projection horizon.

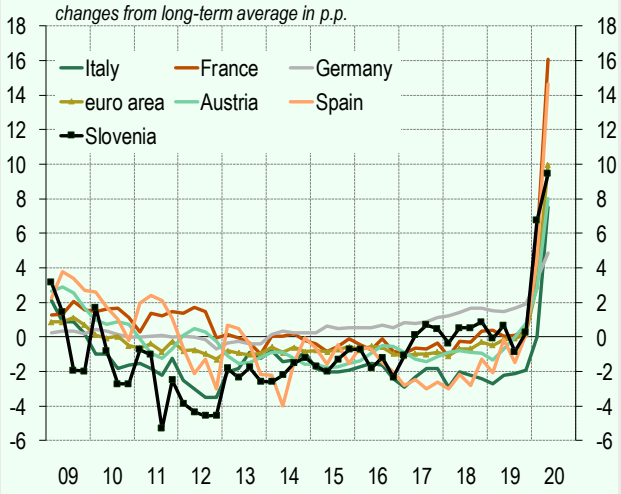
**The second wave has significantly altered the economic growth projections for this year and next year.** The projections for this year and next year have been revised downwards compared with Bank of Slovenia's June projections. The revision was attributable to a stronger-than-expected second wave, and the reinstatement of stringent containment measures in recent weeks, both in Slovenia and in most other European countries. Although less extensive than in the spring, the renewed lockdown with the closure of shops selling non-essentials and some services will be reflected in a significantly larger decline in private consumption this year than expected in the previous projections. Spending will be considerably restricted as the stringent containment measures remain in place. The revision to the projections for next year is mainly attributable to reductions in the expected contribution by net exports, primarily on account of stronger growth in imports of goods and services, which will outpace growth in exports in the wake of the recovery in domestic demand. This will be slightly lower than previously projected. Given the large import content of exports of goods and services and in domestic demand components, the trade balance contribution to GDP growth will be significantly smaller than in previous years.

## Box 1: Household savings ratio: drivers and projections

In the first half of 2020, household savings ratio increased swiftly in Slovenia and other euro area countries, exceeding the rates recorded during the Global Financial Crisis and the Sovereign Debt Crisis (see Figure 1).[1] This was strongly correlated with the decline in private consumption, which in the vast majority of euro area countries was the most important factor in this year's contraction in economic activity (see Figure 2).

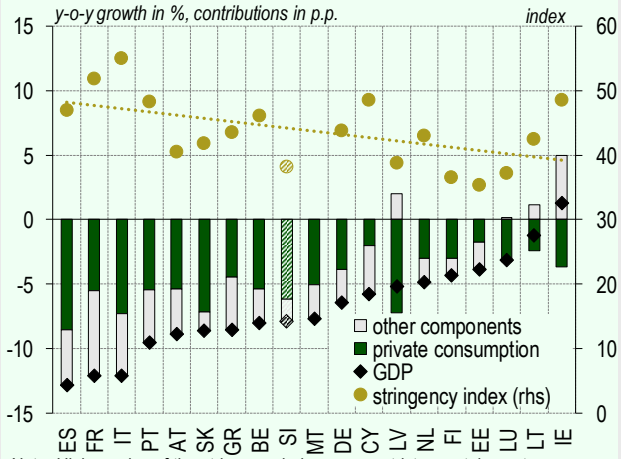
The surge in savings across households in the first two quarters of the current year can be predominantly attributed to a combination of two main factors: 1) the inability of households to regularly consume non-essential goods and services due to enacted containment measures, and 2) the elevated level of uncertainty associated with the volatile outlook in the economy, particularly on the labour market. The first factor constitutes "forced savings", which reflect the involuntary savings accumulated by households as a result of the inability to spend due to containment measures (e.g. closure of shops selling non-essentials, closure of restaurants, unavailability of numerous services), while the second constitutes "precautionary savings", which reflect the traditionally recognized precautionary motives of households under periods of elevated uncertainty. To assess the contribution of these factors to the increase in the household savings ratio up to and including the second quarter of this year, a simple econometric model for the savings ratio in Slovenia was developed in line with the analysis presented in Dossche and Zlatanos (2020), using the methodology of Mody et al. (2012).[2] In the model, the savings ratio appears as the dependent variable, while the explanatory variables include the expected growth in household income (measured by the quarterly growth rate of real disposable income), financial net worth as a share of disposable income (lagged), and a measure of uncertainty that reflects the precautionary behaviour of households. Different from Moody et al. (2012) and similar to Dossche and Zlatanos (2020), we approximate uncertainty by the unemployment expectations in the next 12 months (retrieved from Consumer Survey for Slovenia).[3] However, different from both studies, we further augment the model with a measure of stringency of containment measures, proxied by the Google Mobility Index, in order to disentangle the forced component of savings within the model.[4]

**Figure 1: Household savings ratio in Slovenia and euro area countries**




*Source: ECB, Bank of Slovenia calculations.*

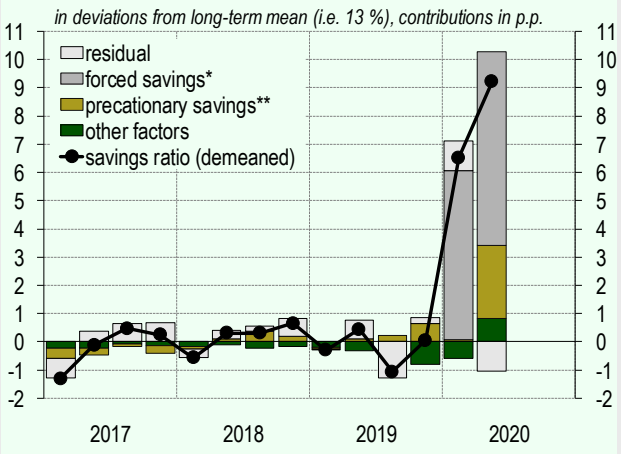
**Figure 2: GDP, private consumption and the stringency index in the first half of 2020**




*Note: Higher value of the stringency index means stricter containment measures.Stringency index is not available for Malta.*
*Source: Eurostat, Oxford Economics, Bank of Slovenia calculations.*

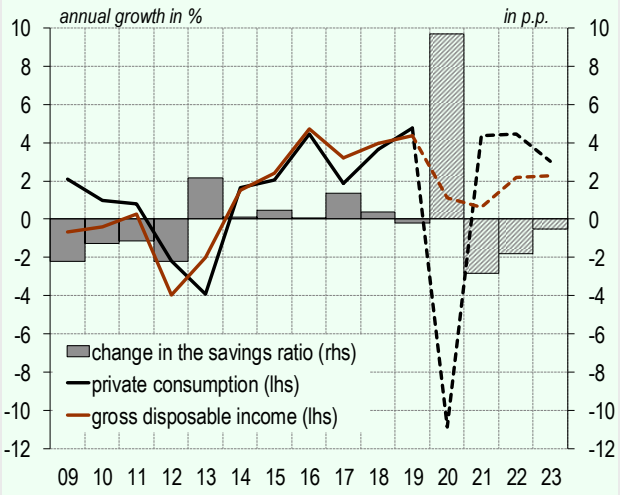
The results of the model are depicted in Figure 3, where "precautionary savings" reflect the contribution stemming from uncertainty as proxied by unemployment expectations, "forced savings" reflect the contribution stemming from the stringency of containment measures, as proxied by the Google Mobility index, other components reflect the contribution of income and financial wealth, while the residual pertains to factors not accounted for in the model. As highlighted initially and as observed in Figure 3, the savings ratio increased sharply in the first half of this year. Relative to the long-term average of 13.4% of disposable income, the savings ratio was 6.5 percentage points higher in the first quarter and 9.2 percentage points higher in the second quarter. The results suggest that "forced savings" served as the main factor in the increase in the savings ratio, in particular for the second quarter when measures were the strictest and consequently consumption was constrained the most. For the second quarter, a significant share of the increase in the savings ratio is

**Figure 3: Drivers of household savings ratio in the first half of 2020**




*Note: *Proxied by Google Mobility index.**Proxied by unemployment expectations.*
*Source: SORS, Google Mobility, Bank of Slovenia estimations.*

**Figure 4: Projections of private consumption growth, disposable income and savings ratio**




*Source: SORS, Bank of Slovenia projections.*

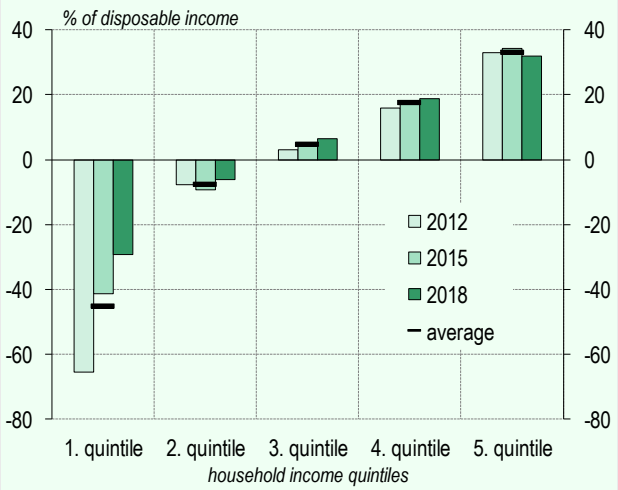
also attributed to the prevalence of ”precautionary savings”, suggesting elevated uncertainty on the side of households regarding job and income security in the periods to come. The results show that for the first half of this year, enacted lockdown measures, which constrained the regular consumption of households, in particular for non-essential goods and services, prevailed as the main driver to the increase in the savings ratio, even though the elevated uncertainty also gained traction in the second quarter as suggested by the increase in “precautionary savings”. These results are consistent with the findings at the euro area level (see Dossche and Zlatanos (2020)).

In line with the developments in the household savings ratio in the first half of this year and the deteriorating epidemiological situation in the final quarter, the savings ratio is expected to remain relatively elevated in the second half of the year. Consequently, the average savings ratio for this year is expected to reach a record high reflected in turn in the slump of private consumption for the same period (see Figure 4). Underlining the expected improvement of epidemiological developments for the rest of the projection horizon and the gradual recovery in private consumption, savings ratio is expected to gradually moderate but to remain at high levels at the end of the projection horizon. The rationale behind a very gradual moderation in the savings ratio over the projection horizon underlines, among others, two main factors: 1) the prevalence of some degree of containment measures for contact-intensive sectors over the projection horizon, and 2) the heterogeneity in saving ability across the different types of households.[5]

Regarding the first factor, services sectors, in particular those characterized as high contact-intensive (i.e. accommodation and food services, recreation, personal care), have been the most prone to lockdown and containment measures, thus resulting in the inability of households to regularly consume these services. Based on the Household Budget Survey,[6] on average, households in Slovenia allocate about 15% of their resources to the consumption of these services.[7] The baseline projection assumes that these sectors will continue to be subject to some level of containment measures throughout 2021, but despite their gradual easing thereafter, some changes in consumer behavior are also expected to prevail and be maintained to a certain extent (i.e. maintenance of social distancing), resulting in a slow recovery of consumption and a relatively high rate of the savings ratio over the projection horizon.

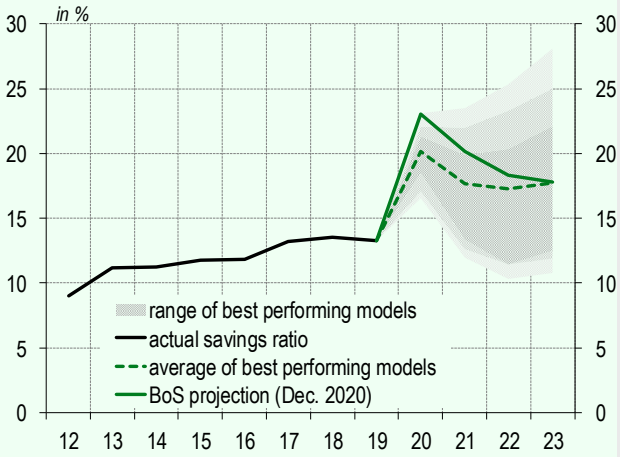
Regarding the second factor, according to SORS figures[8] the savings ratio (the share of savings to disposable income) increases with household income, and is actually negative for the bottom two quintiles of the income distribution (see Figure 5). Although the situation in the lowest-income quintiles has improved over the years (i.e. between 2012 and 2018), the figures show that savings increase as we move up the income distribution. This is confirmed by empirical research, which shows that consumers with the highest income have a lower marginal propensity to consume than those at the lower end of the income distribution.[9] Based on these findings, over the projection horizon, households (higher-income households in particular) are not expected to fully direct their savings made in the first half of the year during the epidemic into consumption.

**Figure 5: Household savings as a percentage of disposable income by income quintiles**




*Source: SORS, Bank of Slovenia calculations.*

**Figure 6: Household savings ratio – a "thick-modelling" approach**




*Note: The shaded areas represent the range of estimates of 5%, 2.5% and 1% of best performing models.*
*Source: SORS, ECB, Bank of Slovenia estimations and projections.*

Given the considerable uncertainty accompanying the projection for the household savings ratio over the projection horizon, additional cross-checks were undertaken to assess the consistency of the household savings ratio projections within the baseline macroeconomic projections. A "thick-modelling" vector autoregression (VAR)-based approach was used, which entails reduced-form VAR models estimated on a quarterly frequency.[10] The range of variables used in the "thick-modelling" approach is guided by the different drivers of consumption-saving behavior of households identified in the literature.[11] The majority of the variables used are already part of the macroeconomic projections drawn up by Bank of Slovenia, while for the other variables, such as survey indicators, separate ad hoc model-forecasts were drawn up using standard autoregression models.[12] Because the analysis makes use of real and nominal variables, the set of models using the thick-modelling approach is assessed in two separate groups. Variables that do not belong to either of the groups in terms of the type of data (e.g. survey indicators, terms of trade, household forecasts) are included in both groups. For each group, several reduced-form VAR specifications are considered. Whereas disposable income enters all model specifications, the latter differ from one another with regard to the number of other variables included (from one to a maximum of four different variables), the number of lags (up to two lag), and the inclusion (or exclusion) of a trend component in the model. The set of best-performing models is assessed by means of the root mean square error (RMSE) within the sample for the period of the first quarter of 2017 to the second quarter of this year. The best-performing models entail those in the top 5% with the lowest RMSE. These models are then used to draw up conditional forecasts for the period of the third quarter of 2020 to the end of 2023. The results from this set of models are presented in Figure 6, and are broadly consistent with the baseline projection for the household savings ratio, as the latter falls within the range of forecasts by the top 5% best-performing models. The model-estimated savings ratio for 2020, computed as the average of the best-performing models, is somewhat lower than the projected increase in the baseline projection (20% instead of 23%), but the dynamics for the remainder of the projection horizon are broadly consistent and aligned.

The detailed analysis and the baseline projections for the household savings ratio over the projection horizon show that the savings ratio is expected to peak in 2020, before gradually declining over the following years. The analysis indicates that this year's increase is primarily attributable to "forced savings", underlining constrained consumption of certain goods and services due to enacted lockdown measures, followed by "precautionary savings" underlining the elevated uncertainty, particularly on the labour market. While with the expected improvement in the epidemiological picture and reduced uncertainty on the labour market and in the economy in general, the impact of "precautionary savings" is expected to gradually dissipate, our assessment is that the unwinding of "forced savings" over the projection horizon will be limited underlining some prevalence of containment measures for contact-intensive sectors, such as hygiene recommendations. These will remain in place even in the following years, and will place certain constraints on businesses in sectors where adequate social distancing between service providers and consumers cannot be properly ensured. The pace of the decline in the savings ratio will also be influenced by the hete-

rogeneity of households; empirical analysis suggests that the marginal propensity to consume/save is significantly dependant on the income level of the individual/household. Further evidence for the baseline projections comes from the model estimates using the "thick-modelling approach".

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Dossche, M. and Zlatanos, S. (2020). COVID-19 and the increase in household savings: precautionary or forced? ECB Economic Bulletin, Issue 6/2020.

Granger, C.W. and Jeon, Y. (2004). Thick modelling. Economic Modelling, 21(2), pp. 323-343.

Krusell, P. and Smith, A.A. (1998). Income and Wealth Heterogeneity in the Macroeconomy. Journal of Political Economy, 106(5), pp. 867-896.

Mody, A., Ohnsorge, F. and Sandri, D. (2012). Precautionary Savings in the Great Recession. IMF Economic Review, 60(1), pp. 114-138.

[1] For brevity, Figure 1 highlights only the big four euro area countries, Austria, the euro area average and Slovenia. Similar dynamics prevail for the rest of the euro area countries.

[2] At the time of writing, non-financial sectoral accounts data and financial accounts data for Slovenia was available up to and including the second quarter of 2020.

[3] In their specification, Mody et al. (2012) approximate uncertainty using the time-varying conditional variance of real GDP growth rate estimated through a GARCH (1,1) model. Comparing the performance of this model with the model that takes unemployment expectations over the next 12 months as an approximation for uncertainty (as in Dossche & Zlatanos (2020)), the results are largely comparable.

[4] The model has also been estimated using the Stringency Index of Oxford Economics and the results are broadly comparable to the ones obtained using Google Mobility data. The latter is deemed more appropriate as it entails a separate series, which approximates the impact of lockdown measures on mobility to retail stores and recreational locations, which is assumed to approximate changes in spending on non-essential goods and services.

[5] For more on the heterogeneity of households and exposure to income risk, see Box 2.

[6] Available online at SiStat.

[7] The average is computed from shares spanning period 2000 – 2018.

[8] Available online at SiStat.

[9] See for example one of the early studies by Krusell and Smith (1998).

[10] See Granger and Jeon (2004).

[11] The variables included in the dataset and their respective sources are as follows: disposable income (which enters all model specifications) is retrieved from SORS with projections from December projections; short-term interest rates, long-term interest rates, oil prices and exchange rate come from ECB assumptions; loans to households are retrieved from Bank of Slovenia with projections from December 2020 BMPE; private investments, government balance, private consumption deflator, GDP deflator, HICP, HICP excluding energy, HICP excluding food and energy and terms of trade (ratio of export and import deflator) come from SORS with projections from December 2020 BMPE; share of population over 65 years old is estimates using EUROPOP projections; consumer confidence indicator, unemployment expectations in the next 12 months and savings expectations in the next 12 months come from SORS with forecasts undertaken using autoregressive time-series models; and lastly the measure of macroeconomic uncertainty (proxied by the time-varying unconditional variance of GDP growth rate as modelled through a GARCH(1,1) model), takes into account the GDP series of SORS with projections from December projections.

[12] Data for survey indicators is available up to November 2020, hence the indicators are projected starting from December 2020 onwards. The series are then transformed into quarterly frequency.

## Box 2: Income inequality and differences in income risk

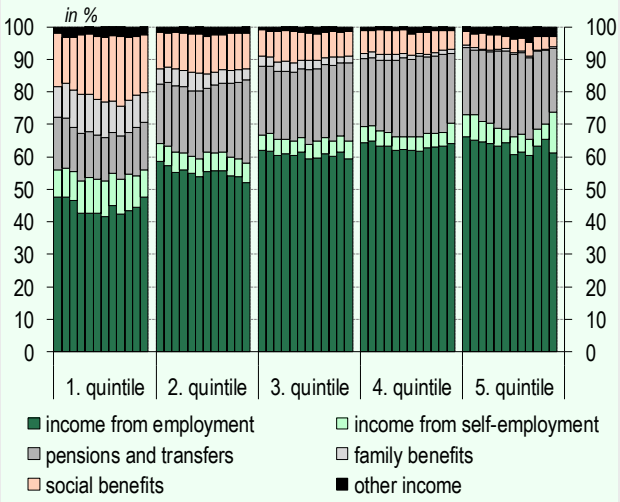
A significant part of the government's anti-crisis measures consisted of measures to preserve jobs and to ensure as much stability as possible in household income. The temporary lay-off scheme and the subsidisation of short-time work, which reduced the risk of job loss in particular in sectors with below-average wages and the emergency bonuses for vulnerable population groups (pensioners, students, claimants of cash social assistance and income support, large families), largely alleviated the impact of the epidemic on low-income households. The fiscal measures' targeting of vulnerable groups was even more important from the perspective of their greater exposure to income risk, which is examined in this box.

During periods of economic expansion, demand for labour is stronger, which is generally reflected in falling unemployment. The simultaneous decline in the pool of available labour also increases the pressure on wage growth. Growth in household income, which largely consists of income from employment, is therefore significantly correlated with the economic cycle, as illustrated in Figure 1. Nevertheless, a more detailed analysis shows that the overall pattern of income sensitivity to economic growth conceals major differences across households belonging to different income quintiles. Such aggregate dynamics mask a significant level of heterogeneity, with the income of workers in lower-income quntiles much more dependent on the economic cycle.

Because income from employment accounts for the majority of total household income, the risk associated to it, before accounting for any transfers and/or benefits from the government and family, can be considered as the most direct type of household income risk stemming from changes in the economic cycle (Dossche & Hartwig, 2019). Income from employment, i.e. compensation to employees according to the national accounts, accounts for more than 60% of household disposable income at the aggregate level. This is also confirmed by detailed data at the household level from the survey of income and living conditions (SILC), according to which income from employment accounts for the largest share of household income in all income quintiles, albeit marked heterogeneity prevails in the composition of total income across the different groups (see Figure 2).

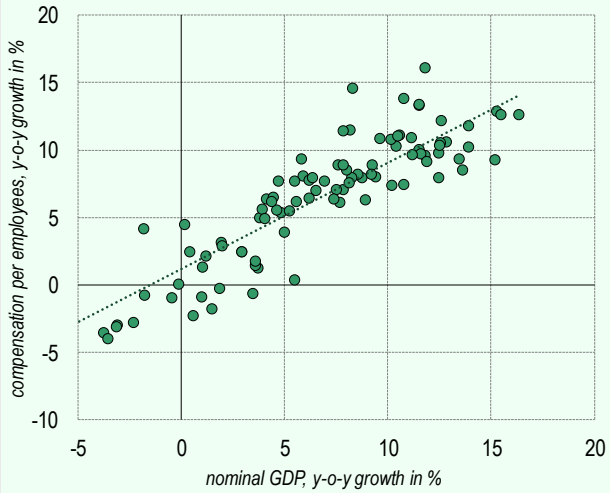
To assess income risk across households belonging to the different income quintiles, we make use of the same disaggregated data from Income and Living Conditions (ILC)

**Figure 2: Decomposition of disposable income of households by type of income (2008 – 2019)**



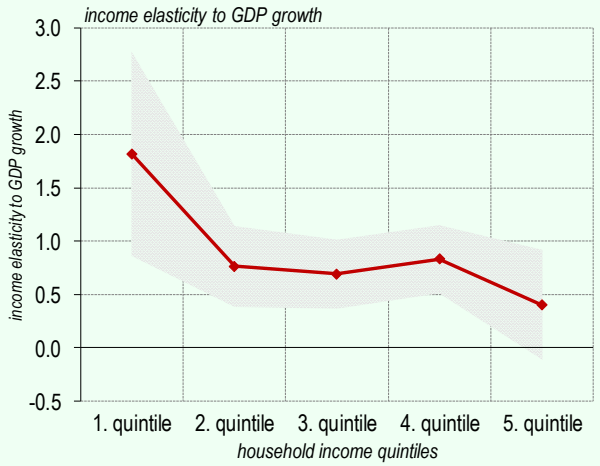

*Source: Living Conditions (SILC) - SORS, Bank of Slovenia calculations.*

**Figure 1: Compensation per employees and GDP**




*Note: Data reflect period from first quarter of 1995 to second quarter of 2020.*
*Source: SORS, Bank of Slovenia calculations.*

**Figure 3: Income risk across household income quintiles**

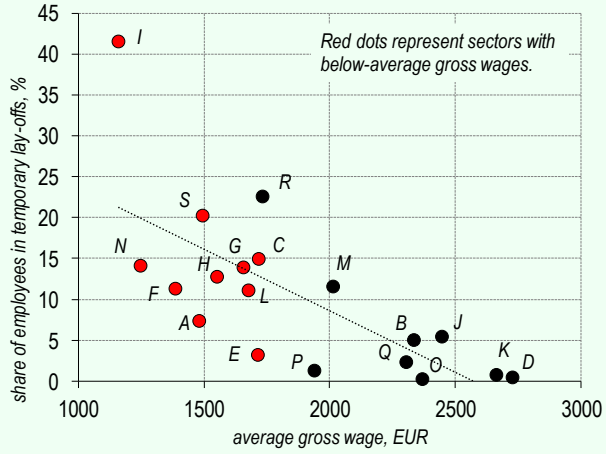



*Note: The shaded area represents 95% confidence interval.*
*Source: Living Conditions (SILC) - SORS, Bank of Slovenia estimations.*

survey from SORS available from 2008 until 2019[1] and estimate the elasticity of growth in income from employment to growth in GDP for each income quintile over the same period.[2] As observed in Figure 3, income risk, as measured by the income elasticity to GDP growth, is largest for households belonging to the lowest income quintile. This suggests that during recessions, disposable income declines most sharply in the 20% of households with the lowest income. Although households belonging to higher income quintiles are also affected during times of economic contraction, the sensitivity of their income is lower, in particular for the highest income quintile.

While the lack of data availability prevents us from making definite conclusions about the distribution of income risk in the current crisis, several facts suggest that the uneven distribution of income risk across households belonging to different income quintiles may have become even more prevalent as a result of the epidemic. The first and most important reason for this assessment pertains to the enacted containment measures, which hit contact-intensive services the hardest.[3] In recent months the largest adverse impact (see Figure 4)[4] was incurred by services sectors classified with below-average wages (G: wholesale and retail trade; H: transportation and storage; I: accommodation and food service activities; N: administrative and support service activities; and S: other service activities). Under the realistic assumption that, on average, workers employed in sectors with below-average wages belong to the lower income quintiles, the illustrated differences in income elasticity to GDP growth suggest that employees in these sectors have become prone to a significantly higher income risk than those with higher incomes even before the outbreak of the crisis. The second reason is that these contact-intensive sectors, which were both hit the most in the current crisis and entail below-average wages, also account for the largest share of employees in temporary lay-off schemes (see Figure 4). While the enacted job retention schemes to maintain stability in the labour market have significantly reduced unemployment risk for workers employed in these sectors, insofar as their income was above the minimum wage, it has been only partially insured against the adverse impact of the epidemic. Employees included in the temporary lay-off scheme are entitled to 80% wage compensation, albeit not lower than the minimum wage, but not entitled to allowances for meals and transport.

**Figure 4: Share of employees in temporary lay-offs and average wages by sectors**




*Note: The share of employees on temporary lay-offs and the average gross wage by activity represent the averages between March and August.*
*Source: SORS, Employment Service of Slovenia, Bank of Slovenia calculations.*

The illustrated asymmetry of household exposure to the economic consequences of adverse economic developments carries important implications for the expectations and projections of private consumption growth and developments in the household savings ratio over the projection horizon. The household savings ratio increased sharply during the epidemic. In light of the assessment that income fell most sharply in the lower income quintiles as a result of the epidemic, it can be concluded that it was mainly higher-income households that increased their savings, while the forced savings effect was substantially lower in lower-income households. This is also confirmed by the empirical research, which indicates that marginal propensity to consume falls as income rises (households with the highest income have the lowest marginal propensity to consume, and vice-versa for propensity to save).[5] This is an additional argument for our expectations under the baseline projection that the household savings ratio will remain higher than before the crisis even at the end of the projection horizon, and the savings accumulated as a result of forced savings amid the shutdown of a significant number of services sectors while the most stringent containment measures were in place will not be spent in full.

Notwithstanding the above, our assessment is that fiscal policy measures to maintain stability on the labour market are of key importance in reducing the long-term effects of the epidemic on incomes of workers as most of temporarily laid-off workers are expected to retain their job following the unwinding of support measures and after the epidemic has been contained. Given the substantial uncertainty at present, income risk to workers belonging to lower income quintiles and employed in the most severely hit services sectors remains profoundly elevated and government support in this area remains crucial to ensure the rapid recovery of the economy following the end of the epidemic. The government' efforts are focused on this, which is confirmed by the latest measures to preserve jobs and household income.

References:

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Guvenen, F., Schulhofer-Wohl, S., Song, J. and Yogo, M. (2017). Worker Betas: Five Facts about Systematic Earnings Risk. American Economic Review, 107(5), pp. 398-403.

Krusell, P. and Smith, A.A. (1998). Income and Wealth Heterogeneity in the Macroeconomy. Journal of Political Economy, 106(5), pp. 867-896.

[1] Income and Living Conditions (ILC) data for a given year reflect income data from the previous year. As such, while ILC data are available from 2008 until 2019, data on income reflect information for the period 2007 to 2018. For more on the data and the survey, see the SiStat website.

[2] Gueven et al. (2017) and Dossche and Hartwig (2019) use micro data to estimate income risk across income quintiles for the US and the euro area respectively. Both studies make use of pooled OLS regressions, where the growth rate of real GDP is regressed on the growth rate of real income from employment across individuals from different income quintiles, and the estimated coefficients measure the income elasticity, i.e. income risk, for each individual. In absence of granular micro data for Slovenia, we use the aggregate data available at the quintile level and estimate the approximate income elasticities at this level. The results for Slovenia and those for the US and the euro area are broadly comparable, with the income elasticity to GDP growth highest for the lowest income quintile and declining as we move along the income distribution.

[3] In particular G: wholesale and retail trade; H: transportation and storage; I: accommodation and food service activities; M: professional, scientific and technical activities; N: administrative and support service activities; R arts, entertainment and recreation; and S: other service activities, such as personal care services. See Analysis of the decline in GDP in the second quarter: output side on page 21 of the October 2020 issue of Economic and Financial Developments.

[4] See Box 2 on page 16 of the December 2018 issue of Macroeconomic Projections for Slovenia, and Box 3.1 on page 34 of the April 2018 issue of Economic and Financial Developments.

[5] See for example one of the early studies by Krusell and Smith (1998).

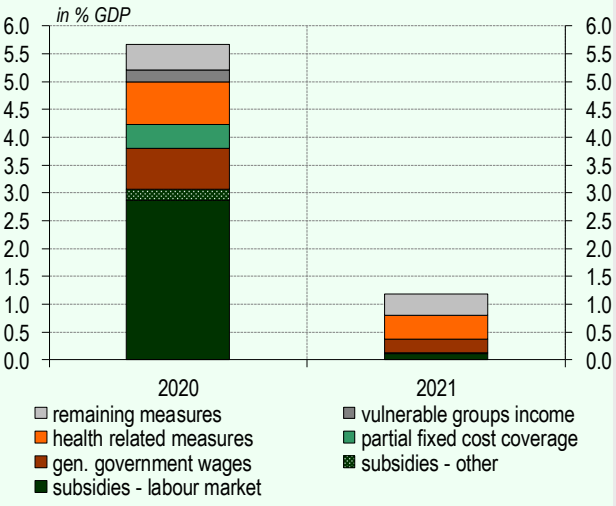
## Box 3: Projections of general government balance and debt

The government sector will record a large deficit this year, on account of the significant decline in economic activity and the numerous measures enacted to alleviate the impact of the epidemic. According to the available information and projections, after two years of surplus, the deficit could amount to 8.9% of GDP, close to the European Commission's most recent for the euro area (8.8% of GDP). Amid the economic contraction, in which low household consumption is playing a significant part, revenues will undergo a cyclical decline. They are also being reduced by changes to direct taxation (lower taxation of personal income, and only partial coverage by the anticipated increase in revenues from corporate income tax), and by lower revenues from dividends on account of previous privatisations and this year's policy of (non)payment of dividends. The deficit will gradually narrow over the coming years, partly as a result of the strengthening economy, and partly as a result of the withdrawal of the temporary measures related to Covid-19.

The public finance outlook, especially for the next two years, has deteriorated. Compared with June projections, there is a pronounced deterioration in the general government position in 2021 in particular, but also in 2022. There are several reasons for this. First, the macroeconomic situation has deteriorated further, and with it the tax base, which leads to lower revenues. Second, the situation is being exacerbated by various measures, most of which were put in place to alleviate the economic impact of the epidemic. While the June projections assumed that measures related to the epidemic would have no impact in 2021, the impact is currently estimated at approximately 1.2% of GDP. Other factors depressing revenues are the planned cut in tax on motor vehicles, which the government has now confirmed, and the significant reduction in excise duties on motor fuels after the June projections had been completed.[1] Meanwhile expenditure will also be higher, with the irregular increase of pensions by 2% in December 2020, while the regular increase in pensions in 2021 will also be higher than previously anticipated, at 2.5%. Third, an extremely large increase in government investment is planned.

According to the latest estimates, the size of the fiscal measures in response to the epidemic in Slovenia exceeds the euro area average. The government modified the existing measures and put in place additional measures to aid businesses and households, with regard to the evolution of the epidemiological picture and the economic situation over summer and autumn. The fourth, fifth and sixth packages of measures have been adopted since the previous projections. The most recent was adopted in late November, and has been taken into account in the assessment of the measures in its proposed form. The measures are projected to have an impact of 5.7% of GDP on the general government position in 2020, compared with the 5.0% of GDP estimated in the spring projections.[2] The majority of measures (just over a half) relate to support for businesses, including co-financing temporary lay-offs, payment of social security contributions for those still in work, and financing of short-time work, and a basic income and contributions for the self-employed (labour market subsidies). There are also measures affecting social benefits for various vulnerable population groups (e.g. the solidarity bonus for pensioners with low pensions, students, and claimants of cash social assistance and income support). Other measures concern wages in the public sector, allowing bonus

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




*Source: Bank of Slovenia estimations.*

**Table 1: General government balance and debt, 2015–2023**

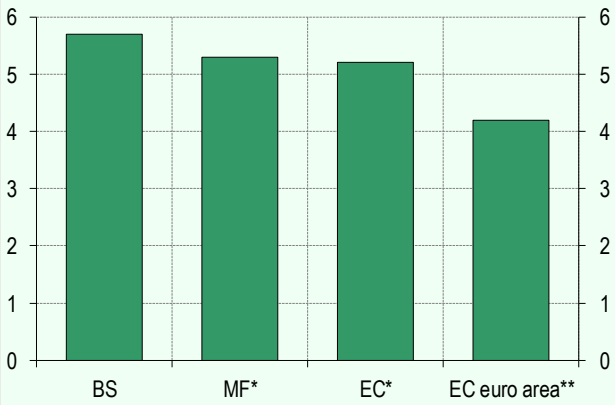
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|
| | *in % of GDP* | | | | | | | | |
| Surplus / deficit | -2.8 | -1.9 | -0.1 | 0.7 | 0.5 | -8.9 | -6.3 | -4.5 | -3.8 |
| Debt | 82.6 | 78.5 | 74.1 | 70.3 | 65.6 | 83.0 | 85.4 | 85.2 | 85.0 |

*Source: SORS, Bank of Slovenia projections.*

payments to be made to those most exposed to the virus and facing the heaviest workload. The other larger-scale measures include the holiday vouchers to encourage tourism (illustrated in Figure 1 in the package of other measures, where holiday vouchers account for more than two-thirds of the total), and the latest partial reimbursement of fixed costs. According to estimates, the measures put in place by Slovenia are larger than the euro area average (according to estimates from the draft budgetary plans of euro area countries, they will amount to 4.2% of GDP in 2020).[3] Compared to the estimates for Slovenia, the Bank of Slovenia's estimate is higher than the estimates of other institutions, as they do not yet include the impact of the sixth anti-coronavirus package.[4]

As a result of the large deficit, and also precautionary borrowing in part, the general government debt will increase sharply this year to reach around 83% of GDP. It will increase even further next year, before beginning to gradually decline. The debt projected for this year takes account of the government borrowing undertaken by the cut-off date of projections. The debt increases significantly in nominal terms over the following years as a result of the persistently high deficits. The borrowing undertaken this year exceeds the projected deficit, which entails an increase in the government's cash holdings that may be used to fund future financial liabilities (pre-financing). In the present extreme uncertainty, surplus borrowing is also necessary for precautionary reasons, as it is difficult to precisely foresee how much money will be needed to fund containment measures. Furthermore, the terms of borrowing are favourable, given the low interest rates. The utilisation of funds for future government liabilities, which primarily consist of debt refinancing and financing of the deficit, is taken into account in the projections in line with the adopted budget documents, and reduces the level of debt. The projected nominal GDP growth also has a significant impact on the ratio of debt to GDP.

**Figure 2: Fiscal measures in Slovenia and euro area in 2020 in % of GDP**




*Note: *Without estimate of the 6th anti-corona legislation package. **Based on euro area countries Draft budgetary plans.*
*Source: Bank of Slovenia (December 2020), Ministry of Finance (October 2020), European Commission (November 2020).*

Other institutions are projecting similar deficit and debt levels at the end of this year, and expect both to fall in the future. The projections for the general government deficit in the government's Draft budgetary plan from mid-October and the European Commission's November projections are similar to those of Bank of Slovenia, at just under 9% of GDP, although the sixth package of measures had not yet been included in those projections. In its Draft budgetary plan from October, the government was projecting debt to stand at close to 82.4% of GDP, while the European Commission projection is similar. Over the following years, both institutions expect a gradual narrowing of the deficit as a result of the withdrawals of measures related to Covid-19, and the improvement in economic activity. The projections also see a decline in the ratio of debt to GDP, although the debt level differs from Bank of Slovenia's projection, primarily on account of differences in the projections for nominal GDP and the assumptions with regard to the utilisation of pre-financing. Despite the rise, debt will remain below the euro area average: according to the European Commission projections, debt is projected to reach around 100% of euro area GDP by the end of the year, and will exceed this level in seven countries (four of whom will pass the mark this year).

The epidemic makes the projections for the general government deficit and debt extremely uncertain. Six legislative packages of measures to alleviate the impact of the Covid-19 crisis have already been passed this year, and a seventh is under preparation. It is difficult to estimate what the utilisation of the measures currently available will be, as it depends on both the epidemiological and economic situation and on the tailoring of the measures to the situations of individual potential beneficiaries. New measures might also be adopted or the parameters of existing measures changed. The fiscal developments are heavily dependent on the economic situation in the country, particularly on developments on the labour market, and are also subject to risks in the current situation. A plan for the utilisation of EU funds, which are increasing sharply in the future as a result of the Recovery and Resilience Facility, is also still under preparation, and is expected to be confirmed by the government in the second half of December.

The European Commission and the Fiscal Council allow for derogations from European and domestic fiscal rules this year and next year on the grounds of the extreme magnitude of the economic crisis caused by Covid-19. The permission to dero-

gate from the fiscal rules in 2020 was granted even before the first wave of the epidemic, while permission for 2021 was granted in autumn, before the second wave peaked. The government asked the Fiscal Council for its opinion of the possibility of derogating in 2022. The latter's assessment was that it is not yet possible to say with certainty whether the conditions will be met. Eventually, the large-scale expansionary fiscal policy measures will be withdrawn, which will also be reflected in economic growth. It is therefore important for the withdrawal to be gradual, and to take place while economic growth is strengthening.[5]

[1] See Box 6.1 in the October 2020 issue of Economic and Financial Developments.

[2] In line with the ECB's guide to macroeconomic projections, the fiscal projections solely include measures that have been passed by the National Assembly, or have been defined in sufficient detail and are highly likely to be adopted in legislative procedure. The projections thus take account of the fiscal effects of all previously passed anti-coronavirus measures (Act Determining the Intervention Measures to Contain the Covid-19 Epidemic and Mitigate its Consequences for Citizens and the Economy, Act Providing Additional Liquidity to the Economy to Mitigate the Consequences of the Covid-19 Epidemic, Act Determining the Intervention Measures to Mitigate and Remedy the Consequences of the Covid-19 Epidemic, Act Determining Intervention Measures to Prepare for the Second Wave of Covid-19, Act Determining Temporary Measures to Mitigate and Remedy the Consequences of Covid-19). The projections also include an estimate of measures under the draft Act Determining the Intervention Measures to Mitigate the Consequences of the Second Wave of the Covid-19 Epidemic (the sixth package), which was passed by the National Assembly on 25 November 2020, i.e. on the cut-off date for the projections. According to the available information about the planned measures, and given the high likelihood of the law being adopted, the projection included the first rough estimate of the potential impact of these measures on the general government position and other macroeconomic variables. For the estimation of the costs of the fiscal measures certain data from AJPES, the Financial Administration of the Republic of Slovenia, the Ministry of Finance, the Employment Office, the Pension Disability Insurance Institute and the Health Insurance Institute have been used.

[3] Source: European Commission (2020): Communication from the Commission to the European Parliament, the Council, and the European Central Bank on the 2021 Draft Budgetary Plans: Overall Assessment, available online at https://ec.europa.eu/info/sites/info/files/economy-finance/dbps_overall_assessment.pdf.

[4] In October's Draft budgetary plan, the Ministry of Finance estimated the costs of the measures at 5.3% of GDP this year and 1% of GDP next year. In its November projections the European Commission stated that the forecasts took account of measures costed at 5.2% of GDP in 2020, and the same as the Ministry of Finance for 2021.

[5] Estimates of the impact of the fiscal measures on economic growth are given in Box 4, and also in Box 3 of the June 2020 issue of Macroeconomic Projections for Slovenia.

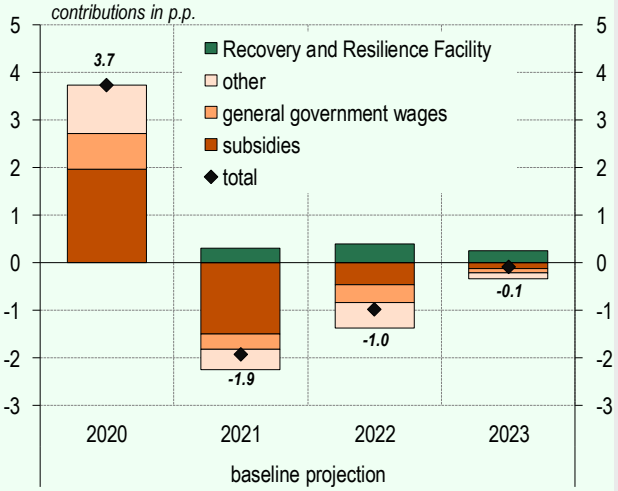
## Box 4: Impact of fiscal policy measures and the Recovery and Resilience Facility on economic activity

The fiscal measures and the Recovery and Resilience Facility, which have been taken into account in the projections, will significantly alleviate the economic impact of the health crisis. In the absence of these measures, this year's decline in GDP would be approximately a third larger.[1]

Given the specifics of the domestic fiscal measures and the Recovery and Resilience Facility and the slightly different transmission channels via which the respective supportive impact on economic activity is expected, the two groups of measures are assessed separately. Consistent with the June projections, the assessment of the impact of discretionary fiscal measures on economic activity takes into account the composition of the fiscal package, the transmission channel of the respective measures and the cyclical position of the economy under the various scenarios. The estimate of the short-term fiscal multiplier remains in line with the June estimate, and stands at 0.75 for the first year.[2] Taking into account the dynamic delayed effects of the fiscal measures in the following years, the cumulative effective multiplier over the four-year period is approximately 1.3. Based on the estimated overall effective fiscal multiplier, the impact of discretionary fiscal measures on real GDP growth for the baseline projection is assessed at 3.7 p.p. in 2020, followed by a negative contribution of 2.2 p.p., 1.4 p.p., and 0.3 p.p. in 2021 to 2023 respectively. The estimated negative contribution to the annual growth of GDP from 2021 onwards is predominantly a mechanical result of gradual unwinding of the fiscal measures and the associated base effects. In the absence of the measures, GDP would be recovering from a lower level, which would lead to higher GDP growth. Across fiscal package components, subsidies account for more than half of the overall fiscal package deployed to alleviate the impact of the epidemic. Another significant contribution to economic growth comes from the higher wages of civil servants driven by bonuses for workers facing high exposure or demanding working conditions during the epidemic. The contribution to this year's economic growth from other fiscal measures is estimated at approximately 1 percentage point according to the latest estimates.

Funds from the Recovery and Resilience Facility are taken into account in the amount planned under the government's draft budgetary plan for 2021. As these funds are expected to be deployed through government investment (approximately 16% of the funding from the RRF) and private-sector investment (approximately 84% of the funding), their impact on economic activity will be longer lasting than that of discretionary fiscal measures referred to in the previous paragraph, which primarily influence the economy via private consumption. Consequently, the cumulative effective fiscal multiplier for funds from the Recovery and Resilience Facility is higher, estimated at 1.9 over the three-year horizon. Given the high import-intensity of investment in Slovenia (evaluated at more than 40%[3]), the estimated impact of additional investment on GDP is adjusted for the consequent expected increase in imports, resulting in an average net estimated impact of 0.3 percentage points on annual GDP growth between 2021 and 2023. The impact of the Recovery and Resilience Facility funds on economic activity between 2021 and 2023 therefore imposes upward pressure on the total impact of the two groups of policy measures, which as depicted in Figure 1, stands at -1.9 percentage points in 2021, -1.0 percentage points in 2022 and -0.1 percentage points in 2023.

**Figure 1: Contribution of fiscal measures and Recovery and Resilience Facility funds on GDP growth**




*Source: Ministry of Finance, Bank of Slovenia estimation and projections.*

Over the entire projection horizon, the total impact of the emergency fiscal measures and the Recovery and Resilience Facility funds maintains real GDP at a higher level than would have prevailed their absence. As illustrated in Figure 2, while the measures reduce this year's decline in economic activity by slightly less than 4 percentage points, they also support the recovery until the end of the projection horizon, maintaining the level of real GDP approximately 1.3% higher than the level of real GDP absent policy measures. Similar dynamics prevail under the two alternative scenarios. For the mild scenario, real GDP in 2023 will be 1.2% higher than its estimated level in the absence of the measures, while for the severe scenario, where the size of the fiscal package is esti-

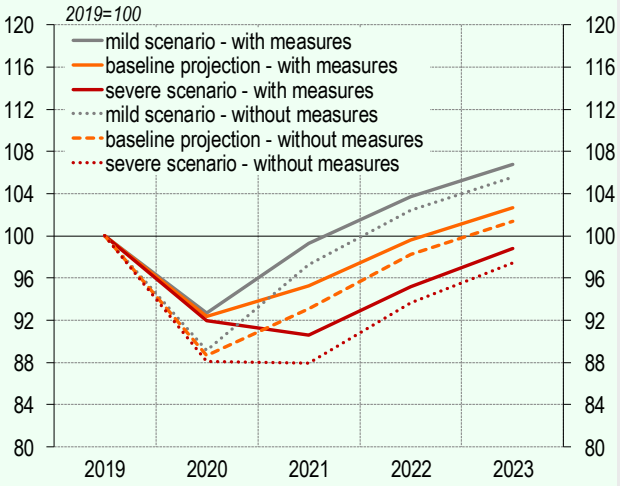
mated to be slightly larger (the expectation is that several emergency measures would be extended into next year if the epidemiological picture is bleaker), GDP at the end of the projection horizon is estimated to be approximately 1.4% higher than it would be in the absence of the fiscal measures. These estimates do not take into account any potentially larger losses in economic capacity, which for now the emergency measures are maintaining at levels that will allow for the rapid rebooting of the economy after the epidemiological situation improves.

[1] More detailed information on assessments of fiscal policy measures can be found in Box 3.

[2] A detailed description of the methodology employed to assess the impact of fiscal measures on economic activity is available in Box 3 (page 18) of the June 2020 issue of Macroeconomic Projections for Slovenia.

[3] A detailed analysis of the import shares of GDP components in Slovenia is presented in Box 2 (page 14) of the December 2019 issue of Macroeconomic Projections for Slovenia.

**Figure 2: Real GDP level with and without fiscal measures and Recovery and Resilience Facility funds**




*Source: Bank of Slovenia projections and estimations.*

**Box 5: Monetary policy response to the Covid-19 pandemic in the second half of 2020**

The outbreak of the pandemic in the euro area triggered a strong reaction on the financial markets in the early part of this year. As a consequence of the risks associated with the pandemic, the government bond spreads increased substantially, which put pressure on the favourable financing conditions in some euro area economies. At the same time, firms who were deprived of cash flow by the containment measures and whose access to market financing was impeded by the increased uncertainty, increased their demand for loans to resolve their liquidity difficulties. This adverse situation was reflected in a fall in economic activity and in a weak inflation outlook. The response from the Eurosystem was primarily aimed at calming the financial markets to continue ensuring an accommodative monetary policy stance in all euro area economies, and at preventing a liquidity crunch.[1]

The two main instruments used by the Eurosystem to respond to the pandemic in line with the aforementioned objectives are the pandemic emergency purchase programme (PEPP) and the targeted longer-term refinancing operations (TLTRO III). Both were announced in March.

The first instrument, the PEPP, has an important role in stabilising financial markets alongside its role in signalling the current monetary policy stance. The flexibility of the PEPP mitigated market fragmentation in sovereign debt markets in particular, and brought government bond spreads to a level that still allows for the effective transmission of monetary policy in all euro area economies. It thus eliminated tail risks, and reduced uncertainty on the financial markets and fragmentation in government bond markets in the euro area.

The second instrument, the TLTRO III, is contributing to maintaining the interest rates on loans at record low levels by reducing banks' borrowing costs. Under its current calibration, the instrument allows banks to borrow long-term funds at a discount of up to 100 basis points. This replaces more expensive borrowing via bank bonds and money market deposits, and helps to reduce the costs of credit risk. TLTRO III was augmented with the pandemic emergency longer-term refinancing operations (PELTRO), which makes additional liquidity available to banks without any lending activity conditions.

Despite the economic recovery, December's macroeconomic projections for the euro area foresee for inflation to be below its target level throughout the projection horizon. In addition, the second wave in the final quarter and the reinstatement of containment measures have increased credit risk in more exposed economic sectors. Should this risk be materialised, it could endanger the effective transmission of monetary policy via the banking system, triggering a downward spiral of tightening financing conditions and further increases in credit risk. With the aim of preventing such a scenario, the Governing Council of the ECB, one of whose members is the Governor of Bank of Slovenia, decided on 10 December 2020 to extend the net asset purchases under the PEPP by nine months, i.e. until March 2022, and to expand the envelope by EUR 500 billion to a total of EUR 1,850 billion. At the same time, the Governing Council also extended the favourable borrowing conditions under the TLTRO III by a year, to June 2022, and added three new tenders to the programme, which would otherwise have ended in March 2021.[2]

The monetary policy measures put in place are also having a significant impact on financing conditions in Slovenia. The PEPP has helped to drive down the interest rate at which the government can borrow to finance the state budget. The package of measures is thus making favourable financing available to businesses, and is contributing to long-term financial sustainability in the public finances. The low interest rates are also reducing credit risk at firms, and making it easier for them to survive the crisis, and to obtain favourable financing after it ends. The extension of the core programmes (the PEPP and TLTRO III) will help maintain favourable financing conditions in the future, which will support the economic recovery.

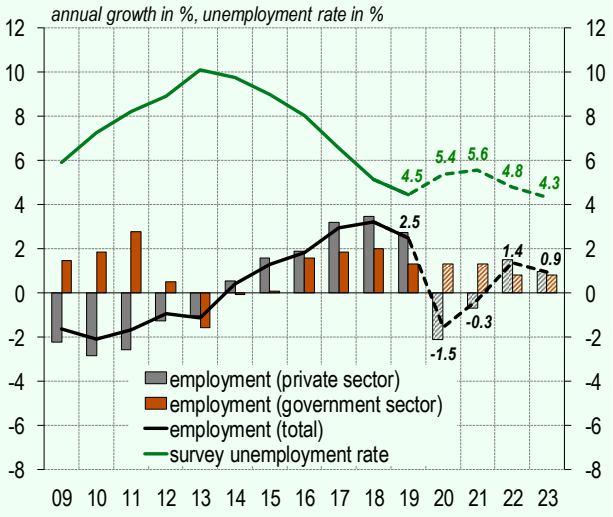
[1] A detailed overview of the ECB measures during the first wave of the epidemic can be found in the June 2020 issue of Macroeconomic Projections for Slovenia.

[2] A detailed review of the measures adopted at the meeting of the Governing Council of the ECB of 10 December 2020 can be found on the ECB website.

## 2.2 Labour market

**The impact of the economic contraction on the labour market will be most evident this year in the sharp decline in the number of hours worked, as the government's extensive job retention schemes will significantly mitigate the fall in employment.** Employment will decline by 1.5% this year and by a further 0.3% next year amid the worsening economic outlook for the final quarter of this year and next year. The fall in employment will be driven by the private sector, while employment in the government sector will continue to rise, driven by recruitment in the human health and social work sector.

**Figure 8: Employment and unemployment**




*Source: SORS, Bank of Slovenia projections.*

**Figure 9: Survey unemployment rate and GDP growth**


*Source: SORS, Bank of Slovenia projections.*

We expect that the government job retention schemes put in place earlier this year and further expanded in the final quarter of this year will prevent the tightening containment measures from being reflected in a larger fall in employment.[10] The fall in 2021 will largely be attributable to a negative carry-over effect, with employment expected to bottom out in the first half of next year. Growth during the year will remain relatively slow until mid-2021, as firms will first re-engage temporarily laid-off workers and employees on short-time work when the economy recovers. Employment growth will gradually strengthen over the remainder of the projection horizon in line with the expected economic recovery, and employment is projected to be slightly above its pre-crisis level at the end of the projection horizon. The number of hours worked will largely track the evolution of the epidemic, as it crucially depends on the number of employees included in the temporary lay-off scheme and short-time work. After a sharp year-on-year decline in the second quarter and a significant recovery in the third quarter, a significant decline is again expected by the end of the year, driven by a rise in the number of employees participating in job retention schemes. As employees return to their usual workload in 2021, growth in the number of hours worked will strongly outpace growth in employment as a result of base effects.

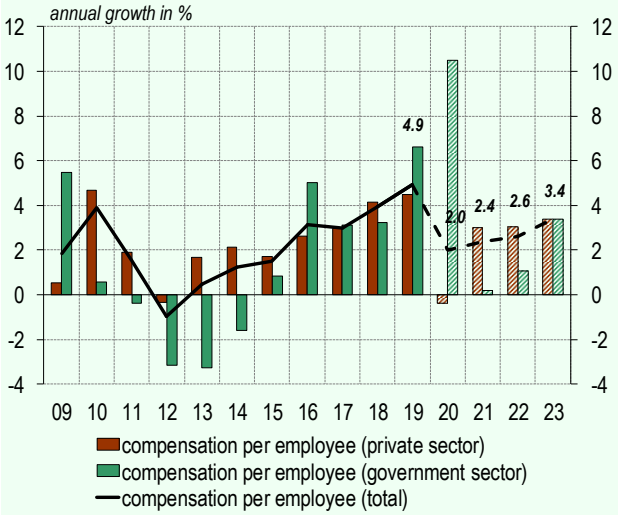
**In line with the falling employment, unemployment will rise this year and peak next year. The survey unemployment rate will stand at 5.4% this year, before rising to 5.6% next year.** Despite the rise, it will remain at historically low levels, far below the peak recorded in the aftermath of the financial crisis. This year's rise in unemployment will be smaller than the fall in employment, as a significant share of workers who lose their jobs will become inactive, and as a consequence the labour force participation rate will decline. As a result of the expected recovery due to the availability of a vaccine and thanks to the government emergency measures, which have succeeded in maintaining links between employees and employers, structural unemployment is not expected to grow significantly in the future, as it did after the financial crisis. Unemployment will gradually fall

[10] Firms' future employment expectations did not deteriorate significantly in November, despite the reinstatement of containment measures. Only retail firms were expecting a fall in employment, similarly to October.

in 2022 and 2023 in line with the recovery in employment, reaching the level of the final quarter of 2019 by the end of the projection horizon. With the exception of this year, unemployment dynamics will remain within the historical frame of Okun's law, which defines the relationship between the unemployment rate and GDP.

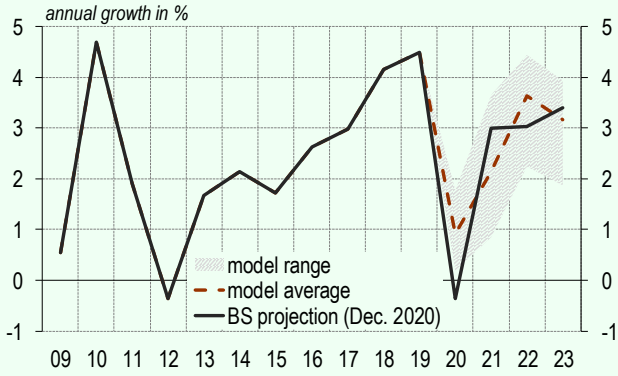
**Wage growth this year will be primarily affected by the extensive job retention schemes and by the high wage growth in the government sector.** The average wage as measured by average employee compensation per employee according to the national accounts will rise by 2.0% this year as a result of a rise of 10.5% in the government sector and a fall of 0.4% in the private sector. The fall in the private sector is attributable to the high share of employees who have been included in the government's job retention schemes this year. Temporarily laid-off workers and employees on short-time work are entitled to just 80% wage compensation when not working and also have lower allowances for meals and transport. The lower earnings of these employees will thus drive wage growth in the private sector into negative territory, although wages of employees not included in the measures will also be significantly higher this year as a result of January's rise in and redefinition of the minimum wage.[11, 12] Average wage growth in the government sector will be high this year, as a result of bonus payments related to the epidemic and the government's agreement with the public sector trade unions from late 2018.[13] Economy-wide growth in the average wage will strengthen to 2.4% next year, driven largely by a mechanical base effect in connection with the expiry of the job retention schemes in the private sector. Our assessment is that employees' return to their normal workloads next year will mechanically raise wage growth in the private sector by more than 2 percentage points. Another factor that might drive up overall wage growth next year is the rise in the minimum wage envisaged by law, which in light of the great uncertainty surrounding its actual implementation and the still-ongoing negotiations between the social part-

**Figure 10: Nominal growth of compensation per employee**




*Source: SORS, Bank of Slovenia projections.*

**Figure 11: Wage Phillips curve model estimate of compensation per employee growth in private sector**




*Note: Conditional model estimate is 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, Bank of Slovenia estimations and projections.*

[11] According to the monthly figures, year-on-year growth in the average monthly gross wage of employees of legal entities in the private sector averaged 4.7% over the first nine months of the year. The methodological reasons for the divergence in the wage dynamics according to the national accounts and the monthly figures from the survey entitled *Wages of employees of legal entities* are presented in detail in Box 3.2 of the October issue of Economic and Financial Developments.

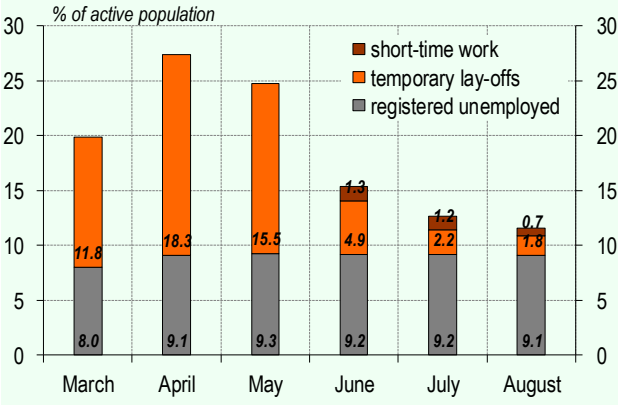
[12] The Act Amending the Minimum Wage Act saw all bonuses set out by law, other regulations and collective agreements, bonuses for on-the-job performance, and bonuses for commercial performance agreed by collective agreement or employment contract excluded from the definition of the minimum wage.

[13] The positive impact on growth in the average wage will be the result of the year-long effect of the measures carried out last year, this year's additional rise in wages for certain positions, and the ending of restrictions on the payment of ordinary performance bonuses and heavy workload bonuses.

ners, has not been taken into account in the projections.[14] Wage growth will gradually strengthen over the remainder of the projection horizon in line with the model forecasts based on the Philips curve, exceeding 3% in 2023 amid an inflation rate of 1.6% and an unemployment rate of 4.3%.

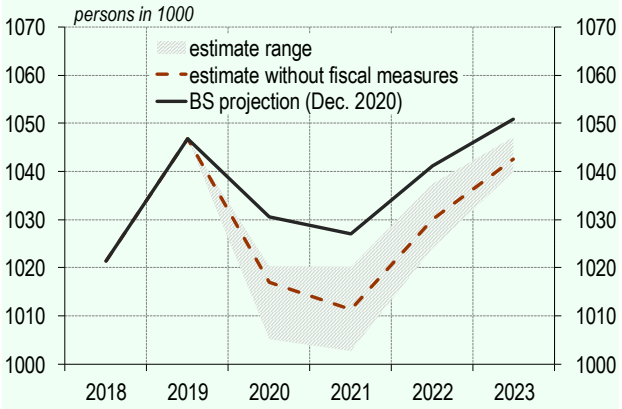
**The epidemic's adverse impact on the labour market this year will be smaller than predicted in the June projections, as the extended and expanded job retention schemes have largely successfully prevented the decline in economic activity from translating into job losses.** This year's fall in employment will be 0.4 percentage points smaller than expected in June, while the survey unemployment rate will be 0.6 percentage points lower, reaching 5.4%. The key factors here are the temporary lay-off scheme and the subsidisation of short-time work, which were well-received by firms: at the peak of the first wave of the epidemic in April, some 178,000 employees or 18% of the active population were temporarily laid off. Firms' demand for the emergency measures reduced quickly as the containment measures were lifted and the economy recovered in summer. By August merely just over 2% of the active population was included in the two measures. Amid the current deterioration in the epidemiological situation, the temporary lay-off scheme and the subsidisation of short-time work are expected to similarly mitigate the economic shock, even though the budget co-funding of the temporary lay-off scheme is slightly smaller than during the first wave. Model estimates suggest that the fiscal measures will cumulatively raise employment growth by 1.5 percentage points in 2020 and 2021, equivalent to approximately 16,000 jobs.[15] This estimate is comparable to the number of employees that were still temporarily laid off in August despite the pronounced recovery in the economy

**Figure 12: Registered unemployed persons and workers participating in job retention schemes (temporary lay-off and short-time working schemes)**




*Note: The number of workers participating in both job retention schemes takes into account apllications processed by 17 November 2020. Active population is calculated from monthly register data.*
*Source: SORS, Employment Service of Slovenia, Bank of Slovenia calculations.*

**Figure 13: Model estimate of the effect of fiscal measures on employment**




*Note: Model estimate is based on a suite of econometric models of employment growth, where GDP growth, world demand growth and past employment growth are used as explanatory variables. The effect of fiscal measures on employment growth is estimated through their effect on GDP growth.*
*Source: SORS, Bank of Slovenia estimations and projections.*

(17,000), and who would have most likely lost their jobs in the absence of the measures. Based on this conservative model estimate, it can be concluded that the government measures will almost halve the fall in employment in 2020 and 2021.[16]

[14] Under the Minimum Wage Act, from January 2021 onwards the calculation of the minimum wage will be based on a formula whereby the minimum net remuneration for full-time work will have to be 20% higher than the calculated minimum cost of living. Having regard for the most recent computation of the minimum cost of living from 2016 (EUR 613.4), the minimum wage in January 2021 would have to rise by 5.2%. With 6% of employees on the minimum wage, the resulting mechanical impact on growth in the average wage in 2021 would amount to approximately 0.3 percentage points.

[15] The fiscal measures' impact on employee growth is estimated via their impact on economic growth, as presented in Box 2. The model estimate of the impact on employment does not include the impact of the Recovery and Resilience Facility.

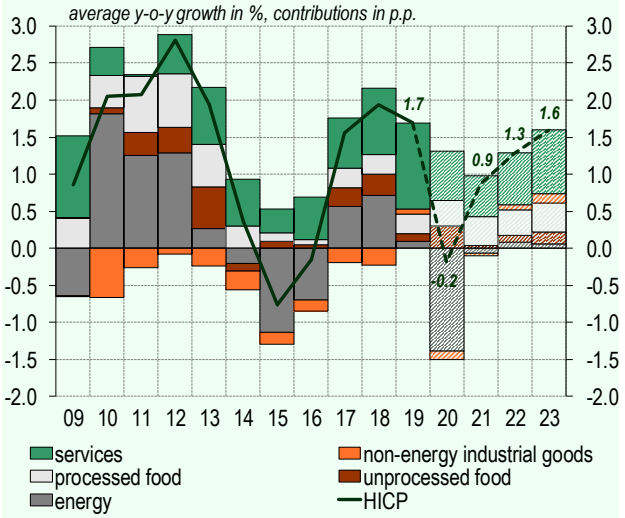
[16] The presented model estimate is conservative, having been made on the basis of historical data; consequently it does not take account of any additional non-linear amplification effects that, in the absence of the fiscal support measures, would have occurred in the event of mass corporate bankruptcies and the potential negative feedback effect of a downturn in the financial sector.

## 2.3 Inflation

**Consumer prices fell this year as a result of the pandemic and falling energy prices, and inflation will only strengthen gradually over the following years.** This year's deflation of 0.2% will be driven by falling energy prices, which will lower the headline inflation rate by 1.4 percentage points, as a result of the fall in global oil prices and domestic measures to alleviate the impact of the epidemic. The fall will be mitigated by food price inflation, which this year has been driven by the epidemic. After rising last year, core inflation excluding energy, food, alcohol and tobacco will slow markedly to 0.9% this year, in line with the contraction in the economy and the negative output gap. In the shorter term, alongside the fall in private consumption and the downturn on the labour market, this will also reflect the weakened price pressures in connection with the fall in import prices, and weaker growth in producer prices for the domestic market and in average compensation per employee. The curtailment on the supply side caused by social distancing measures, higher operating costs and liquidity constraints will however prevent an even sharper fall. With an effective medical solution and the gradual recovery of the economy, core inflation is expected to begin rising in the second half of next year, reaching 1.5% by the end of the projection horizon. Headline inflation will also strengthen in parallel with the domestic inflation components, reaching 0.9% next year amid the positive base effects caused by this year's price falls, and 1.6% by 2023.

**Two other factors in price developments are the difficulties in measuring price data and changes in excise duties.** The difficulties in price data collection in the categories of services and non-energy industrial goods initially appeared during the first wave of the epidemic. Data on prices of certain products and services was unobtainable because of the temporary restrictions in the sale of goods and services to consumers. The SORS imputed the missing data in line with the Eurostat recommendations, which resulted in a less reliable measurement of inflation. Furthermore, HICP has also been less representative because of the failure to take account of the change in the structure of consumption (for details, see Box 6). Imputed data accounted for 22.7% of the entire HICP in April, and similar difficulties are expected in the

**Figure 14: Projection of contributions to inflation by components**




*Source: SORS, Eurostat, Bank of Slovenia projections.*

**Table 3: Inflation projections**

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 Dec. | 2020 Δ | 2021 Dec. | 2021 Δ | 2022 Dec. | 2022 Δ | 2023 Dec. | 2023 Δ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *average y-o-y growth, %* | | | | | | | | | | | | |
| **Consumer prices (HICP)** | -0.8 | -0.2 | 1.6 | 1.9 | 1.7 | **-0.2** | -0.2 | **0.9** | -0.4 | **1.3** | -0.2 | **1.6** | ... |
| food | 0.9 | 0.5 | 2.2 | 2.4 | 1.6 | **3.0** | -0.3 | **2.0** | -0.4 | **2.1** | -0.4 | **2.6** | ... |
| energy | -7.8 | -5.1 | 4.7 | 6.1 | 0.8 | **-10.8** | -2.1 | **-0.3** | -3.9 | **0.6** | -1.3 | **0.5** | ... |
| non-energy industrial goods | -0.6 | -0.5 | -0.7 | -0.8 | 0.3 | **-0.4** | 0.1 | **-0.1** | -0.2 | **0.3** | 0.0 | **0.4** | ... |
| services | 0.9 | 1.6 | 1.8 | 2.4 | 3.1 | **1.8** | 0.2 | **1.5** | 0.4 | **1.9** | 0.2 | **2.3** | ... |
| **Core inflation indicators (HICP)** | | | | | | | | | | | | | |
| excluding energy | 0.4 | 0.6 | 1.1 | 1.4 | 1.8 | **1.4** | 0.1 | **1.1** | 0.0 | **1.4** | 0.0 | **1.8** | ... |
| excl. energy and unprocessed food | 0.4 | 0.6 | 0.9 | 1.1 | 1.8 | **1.1** | 0.1 | **1.1** | 0.1 | **1.3** | -0.1 | **1.7** | ... |
| excl. energy, food, alcohol and tobacco | 0.3 | 0.7 | 0.7 | 1.0 | 1.9 | **0.9** | 0.2 | **0.8** | 0.1 | **1.2** | 0.1 | **1.5** | ... |

*Δ: Difference between current projections and projections in Macroeconomic Projections for Slovenia, June 2020.*
*Source: SORS, Bank of Slovenia.*

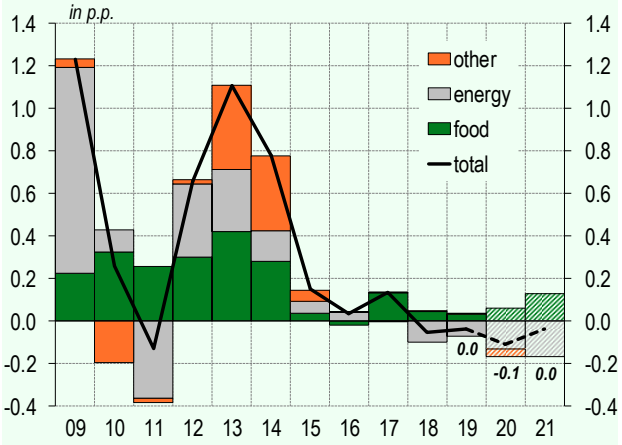
final months of this year in the wake of the reinstatement of stringent containment measures. While data collection difficulties have not arisen with energy and food products, inflation in these categories has been affected by this year's changes in excise duties. Cuts in excise duties on refined petroleum products will lower headline inflation by 0.1 percentage points this year, while next year the impact of the cuts in excise duties on refined petroleum products will be partly offset by this year's rise in excise duties on tobacco and tobacco products.

**Energy prices will fall by just over a tenth this year, as a result of the global pandemic and domestic measures.** The fall of 10.8% is attributable to the outbreak of the pandemic, which amid the contracting global economy and falling demand for oil was reflected in plummeting oil prices. The sharp fall in euro prices of Brent crude was accompanied by falls in prices of liquid and motor fuels. This year's fall in prices of the latter has also been driven by the government's excise duty policy, which adjusted excise duties on refined petroleum products to hold prices at one euro per litre despite the renewed rise in global oil prices.[17] In addition to lower excise duties, during the first wave, the government also alleviated the impact of the epidemic by cutting electricity prices, which will deepen this year's fall in energy prices by 1.6 percentage points.[18] Energy prices are expected to evolve over the projection horizon in line with the assumption for euro prices of Brent crude. Next year, when the oil price stabilises at around EUR 37 per barrel and there are positive base effects from the price falls during the epidemic, deflation of only 0.3% is expected, followed by moderate growth until 2023. In addition to the effects of the pandemic, the energy price inflation projection is subject to risks associated with the recent liberalisation of prices of refined petroleum products (for details, see Box 8).

**After rising this year, food price inflation will remain relatively high over the entire projection horizon.** Food prices will rise by 3.0% this year. The main driver of the increase pertains to prices of unprocessed food, whose high growth was attributable to the pandemic, and also to bad weather and the low level of self-sufficiency. The pandemic and the containment measures have affected supply chains and the supply of seasonal labour this year, and the higher inflation is also being driven by stronger demand and the costs related to implementation of hygiene and protection recommendations for public health purposes.[19] Food price inflation will slow slightly next year, but will remain relatively high (2%). Alongside the price pressures coming from the gradual strengthening of wage growth and higher global food commodity prices, growth in food prices will primarily be driven by this year's rise in excise duties on tobacco and tobacco products.[20]

**The decline in private consumption will lead to a fall of 0.4% in prices of non-energy industrial goods this year.** Notwithstanding the great heterogeneity in growth

**Figure 15: Impact of changes in indirect taxes on year-on-year growth of consumer prices**




*Note: Impact is calculated as the difference between the y-o-y HICP growth and the y-o-y HICP growth at constant tax rates.*
*Source: Eurostat, Bank of Slovenia projections.*

[17] Excise duty policy and its impact on inflation are presented in detail in the October 2020 issue of Economic and Financial Developments, in Box 6.1 (Excise duty policy in 2020 and its impact on inflation and the public finances).

[18] The government issued the Ordinance on the non-payment of the contribution for ensuring support for the production of electricity from high-efficiency cogeneration and renewable energy sources on 20 March 2020, and the Energy Agency announced that households and small businesses would not be charged the tariff item for chargeable demand. The emergency measures were in place from 1 March to 31 May 2020.

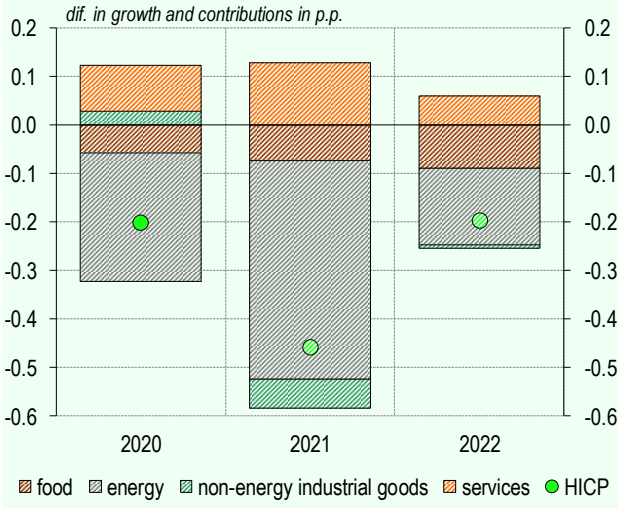
[19] Demand for food was one of the rare categories that did not decline at the outbreak of the epidemic. As a result of the build-up of supplies at the beginning of the first wave, the closure of restaurants and the increase in working from home, household spending on food and beverages increased.

[20] October's rise in excise duties raised retail prices of tobacco and tobacco products by 5.3%. The contribution to food price inflation from the rise in excise duties will average 0.2 percentage points this year and 0.6 percentage points next year.

in prices of non-energy industrial goods, this year's fall is attributable to the run-down of inventories and falling prices of non-essential goods (clothing and footwear in particular). The falling prices are driven by a decline in private consumption and weakening external price pressures. With the economic recovery and growth in global commodity prices and import prices, growth in prices of non-energy industrial goods will only strengthen slightly in the second half of next year, reaching 0.4% by the end of the projection horizon. In the absence of stronger domestic price pressures, higher growth is not expected. In an environment of weaker demand, this year's increase in unit labour costs will be offset by firms by reducing the profit margins, which will not reach the pre-crisis levels by the end of the projection horizon, despite the recovery.

**After slowing sharply in response to reduced demand, services price inflation will only strengthen gradually when the situation stabilises in the second half of 2021.** The decline in private consumption has already affected this year's growth in prices of services related to package holidays and accommodation, transport, recreation and culture, while in the final months of the year data on services prices will again be subject to imputation and will become less reliable, given that numerous services are not being provided. Services price inflation will average 1.8% this year, down 1.5 percentage points on last year. After the containment measures are lifted, the rate is expected to stabilise at its current low levels, and to only recover slowly after the rollout of an effective medical solution amid modest demand, reaching 2.3% by the end of the projection horizon. The recovery will depend on the effectiveness of fiscal measures, which through their action on the labour market will alleviate the decline in demand and will help firms to maintain supply-side capacity.[21]

**Figure 16: Revision of inflation projections**




*Source: SORS, Eurostat, Bank of Slovenia projections.*

**Compared with the June projections, the inflation projection is slightly lower, mainly on account of the revision to energy price inflation.** Despite the higher projection for euro oil prices, cuts to excise duties on refined petroleum products entail downward pressure to energy price inflation. Headline inflation this year will be 0.2 percentage points lower than projected in spring, and will average 0.3 percentage points less between 2020 and 2022. The minor revision to core inflation (the average rate over the projection horizon has been revised upwards by 0.1 percentage points) is related to the improved expectations on the labour market; thanks to the large-scale fiscal support, the rise in the unemployment rate over the projection horizon is expected to be smaller, while growth in average compensation per employee is expected to be slightly higher.

[21] Social distancing measures mean that supply will be slightly lower over the short term, which will still push service price inflation, alongside the rise in operating costs related to the implementation of protective measures.

## Box 6: Bias in the measurement of inflation during the epidemic

The outbreak of the epidemic and the containment measures had a major impact on consumer price statistics already during the first wave. Given the closure of hotels and restaurants, cultural institutions, sports centres, shops and other establishments related to personal care services, and the scaling-back of flights and public transport, certain products and services were not available while the measures were in place. The absence of a market, which caused immense difficulties in the measurement of inflation, was reflected in (i) a lack of price data for unavailable products and services, and (ii) a shift in the structure of consumption, which has affected the representativeness of the official price index, given the fixed basket. The problem of missing prices of unavailable products and services was addressed by the SORS, in line with the Eurostat recommendations, by data imputation, but the impact of the changes in the structure of consumption was not addressed, on account of the principles behind the composition of the official index.[1] Given that the failure to take account of the sudden changes in consumer expenditure patterns is reflected in a bias in inflation as measured by the HICP, this box attempts to estimate an alternative index to assess the impact of the Covid-19 epidemic and the changes in consumer expenditure patterns on inflation measured up to September of this year. The results suggest that the year-on-year fall in consumer prices during the stringent containment measures was smaller than officially measured. The difference between the official measure and the alternative measure comes from the fact that during the first wave of the epidemic consumers earmarked relatively more expenditure for consumption in categories with higher inflation, while the proportion of expenditure earmarked for products and services that fell in price during the epidemic declined. In the wake of renewed changes in the structure of consumption, and the persistent divergence in price developments in the main categories of consumption, the expectation is that the alternative measure of inflation will continue to exceed the official measure during the second wave of the epidemic.

### Methodology

The official measure of inflation, the harmonised index of consumer prices, takes the form of a Laspeyres index. It is a pure price index, which measures the change in the price of unchanged fixed basket of goods and services between two periods, and is expressed by the following equation:[2]

$$P_L = \frac{\sum_{i=1}^{n} p_i^t q_i^0}{\sum_{i=1}^{n} p_i^0 q_i^0} \quad (1)$$

where $p_i$ are prices and $q_i$ are weights (shares) of expenditure earmarked for consumption in individual categories of products and services $(i = 1...n)$ relative to total household consumption. Because the calculation is based solely on the weights of the base period $(q_i^0)$, the failure to take account of substitution means that the index is biased in its measurement of growth in households' cost of living. In ordinary circumstances, consumers adjust their spending in the wake of changes in relative prices, redirecting it into the purchase of cheaper products and services. In this case, the Laspeyres index overstates the change in consumer prices, as it fails to reflect the decline in the share of consumption accounted for by more expensive products and services. The bias in the index can be reduced by updating the weights more frequently; for the needs of compiling the HICP, they are updated annually, but remain fixed during the year.[3] The annual updating means that there is negligible bias in the official measure of inflation in the event of slower changes in the structure of consumption, but that it increases during periods of rapid and large changes in the structure of consumption, such as those triggered by the epidemic.

Given the bias in the official index, a price index that reflects the changes in the structure of consumption during the year has been constructed below. Because the official weights input into the calculation of the HICP are only available on an annual basis, the monthly weights are estimated by means of data on nominal turnover in retail and services. The categories of turnover in retail and services classified according to the Standard Classification of Activities (SKD 2008) are matched with individual categories of consumption that in the HICP are defined with regard to the European Classification of Individual Consumption according to Purpose (ECOICOP).[4] The new monthly weights for each category of consumption are constructed such that the weight of the first observation in each year is equal to the official annual weight in the HICP of the current year, and from January onwards weights are estimated by changes in consumer expenditure since January as measured by turnover in the relevant retail or service sector. The new weights are then normalised as shares of total consumption, and thus represent relative weights. The calculation of the relative monthly weights $(w^*_{i,t})$ is illustrated in equation (2), where $\Delta e_{i,t}$ represents the change in consumer expenditure (estimated by means of turnover in retail and services ($I_i$)) in the individual month relative to January of the same year:

$$(2) \qquad w_{i,t}^{*} = \frac{w_{i,0}\Delta e_{i,t}}{\sum_{i=1}^{n} w_{i,0}\Delta e_{i,t}}$$

$$\Delta e_{i,t} = \frac{I_{i,t}}{I_{i,0}}$$

In addition to the monthly weights, the calculation of the alternative index also requires the selection of an index formula. The most commonly used in practice are the Laspeyres index (equation (1)), the Paasche index and the Fisher index. While the Laspeyres index measures net price changes in the old consumer basket, the Paasche index measures changes in the price of the new basket as expressed by the following equation:

$$(3) \qquad P_P = \frac{\sum_{i=1}^{n} p_i^t q_i^t}{\sum_{i=1}^{n} p_i^0 q_i^t}$$

In contrast to the Laspeyres index, the Paasche index is based on the current structure of consumption. Because it does not take account of the base period structure, like the Laspeyres index, it is biased, although it will usually understate inflation, as an excessive weight will be ascribed to products and services that recorded a lower relative change in prices between the two periods being compared. The problem of bias is resolved by indices that take account of the weight of the base period and the current period. They thus take account of changes in the structure of consumption, and are a better measure of the inflation being faced by households. The Fisher index is an example of indices of this type, and is used here to calculate the alternative inflation indicator during the epidemic. It is calculated as the geometric mean of the Laspeyres index and the Paasche index, as illustrated by the following equation:[5]

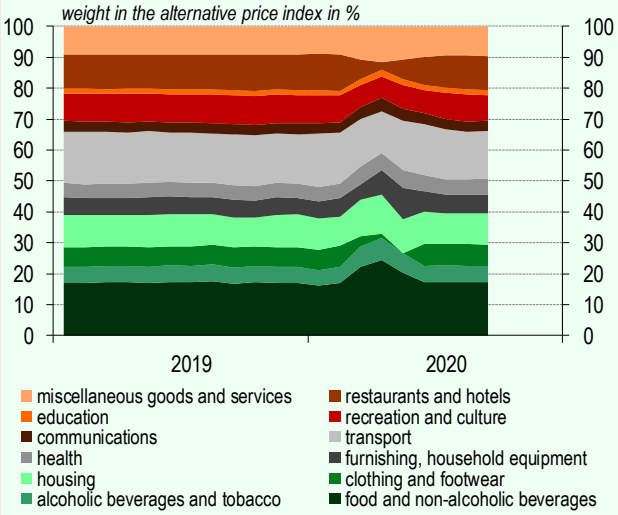
$$(4) \qquad P_F = \sqrt{P_L P_P}$$

## Results

The structure of consumption changed markedly during the epidemic, but after the lifting of the containment measures consumer expenditure patterns had largely normalised by September.[6] The first notable changes occurred as early as March, when the epidemic was officially declared. At that time, there was a significant jump in the relative consumption of food, beverages and tobacco, which alongside the reduced consumer expenditure in other categories might also be attributable to the initial build-up of stocks and more frequent dining at home while restaurants were closed. At the same time, there was an increase in the share of consumption earmarked for housing and household expenses (gas, water, electricity) and communications services, while the unavailability of certain products and services and the changes in consumer preferences meant that the stringent containment measures mainly reduced consumption in the categories of restaurants and hotels, recreation and culture, transport, and clothing and footwear. Following the gradual lifting of containment measures after the first wave of the epidemic, consumer expenditure patterns had largely normalised by September. Compared with the pre-epidemic level, it was mainly consumption of products and services in the categories of restaurants and hotels and transport that remained lower after May.[7]

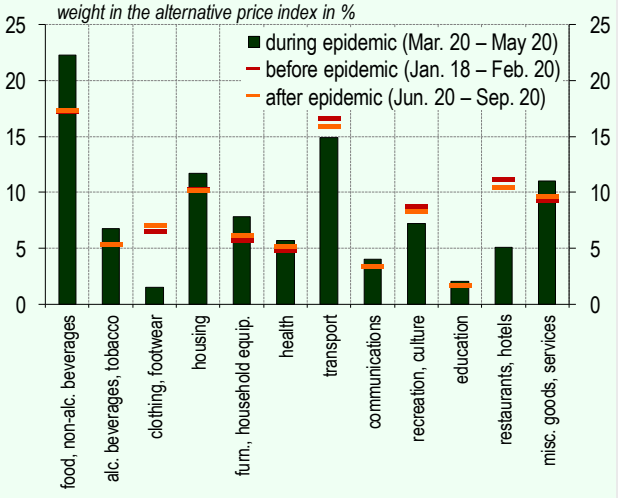
A comparison of the alternative index and HICP reveals that consumer prices fell by less during the first wave of the epidemic than suggested by the official statistics. There was practically no difference in the year-on-year rates of growth in the alternative and official price indices until the outbreak of the epidemic. The gap widened when the stringent containment

**Figure 1: Composition of an alternative consumer basket**




*Source: Eurostat, SORS, Bank of Slovenia calculations and estimations.*

**Figure 2: Changes in the estimated relative weights of alternative consumer basket**




*Source: Eurostat, SORS, Bank of Slovenia calculations and estimations.*

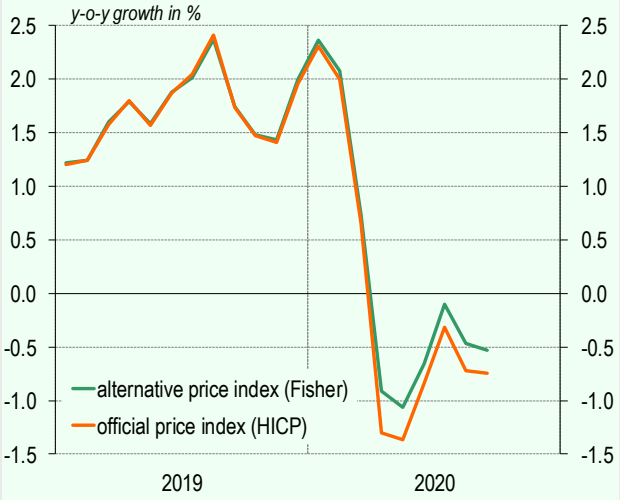
measures were put in place after the declaration of the epidemic. Prices fell by 1.3% in April according to the official indicator, but by 0.9% according to the alternative indicator, a gap of 0.4 percentage points in favour of the alternative measure of inflation. The gap began to narrow as the containment measures were gradually lifted. It stood at 0.3 percentage points in May, and around 0.2 percentage points between June and September, the narrowing being driven by the gradual normalisation of the structure of consumption.

The smaller fall in the alternative index was attributable to the change in the structure of consumption, as the alternative measure ascribes greater weight to categories of products and services seeing higher inflation, and lower weight to categories that saw price falls during the epidemic. Under normal circumstances, changes in relative prices would cause consumers to switch to cheaper products and services, as a result of which the Paasche index and thus the Fisher index would be lower than the Laspeyres index. The period of stringent containment measures is not a classical example of substitution, as certain products and services were unavailable. During that time, consumers were earmarking relatively more expenditure for categories with above-average growth in prices, while the share of expenditure earmarked for products and services with below-average growth in prices declined. Given the positive correlation between weighted price changes and quantity changes, the Fisher index exceeds the Laspeyres index in this period. The impact of the change in the structure of consumption on the measurement of price developments in April is illustrated in Table 1, which alongside the year-on-year rates of growth in prices in individual categories of consumption also gives their weights in the official and alternative indices and their contributions to year-on-year growth in each.

The results show that the main reason that the alternative measure of inflation exceeded the official measure in April was a larger contribution by food price inflation and a smaller negative contribution by the fall in transport prices. Year-on-year food price inflation stood at 4.6% in April, and food accounted for 24.3% of total consumption in the alternative index, fully 8.1 percentage points more than in the official index. Products and services in the transport category recorded a 9% year-on-year fall in prices in April. Because the weight of this consumption was reduced by the epidemic (transport accounted for 17.4% of the official basket, and 13.5% of the alternative basket), its contribution to growth in the alternative index was less negative. Similarly, April's year-on-year fall of 3.5% in prices of clothing reduced the alternative measure by less than the official measure because of the lower weight. By contrast, the gap between growth in the alternative index and the official index was mainly reduced by consumption in the category of housing and household expenses (gas, water, electricity). During the epidemic, a government ordinance cut electricity prices by almost a third for a period of three months, as a result of which prices in the housing category were down 8.4% in year-on-year terms in April. The fall in prices had a larger impact on the alternative measure of inflation, given the higher weighting in the alternative basket.

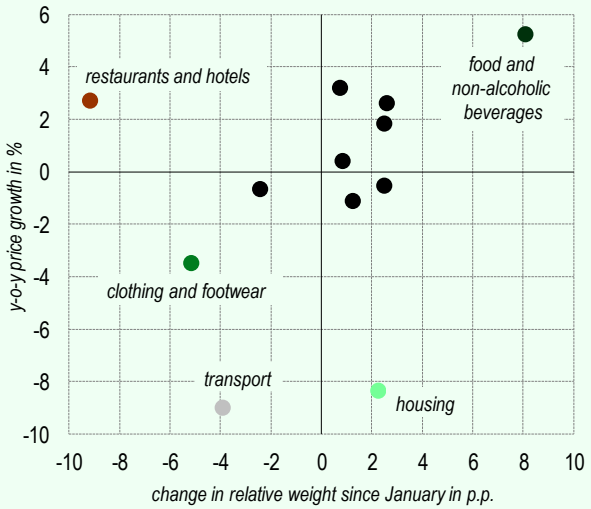
The results suggest that any attempt to estimate the impact of the epidemic on the household cost of living should take account not only of the changes in consumer expenditure patterns, but also of the divergence in price growth in individual categories of consumption. The heterogeneity of inflation rates in the main categories of consumption declined after April, but nevertheless remains high (see Figure 5). Despite

**Figure 3: Year-on-year growth of the HICP and the alternative price index**




*Source: Eurostat, SORS, Bank of Slovenia calculations and estimations.*

**Figure 4: Change in relative weights and price growth in April**

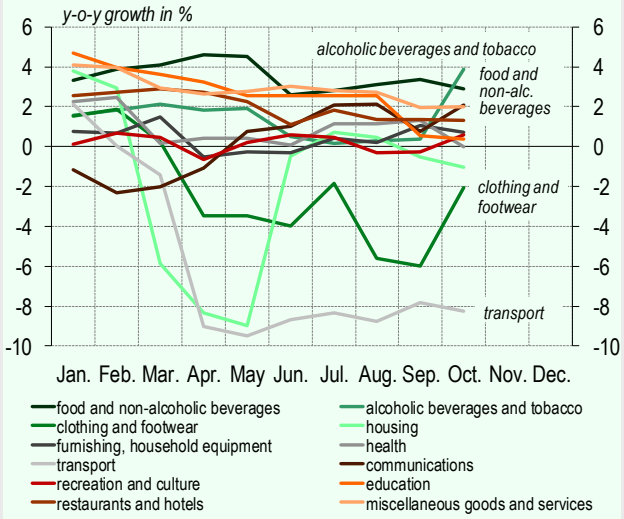



*Source: Eurostat, SORS, Bank of Slovenia calculations and estimations.*

the gradual normalisation of the structure of consumption to its pre-crisis levels, the alternative measure of inflation has thus continued to exceed the official measure since the first wave of the epidemic.[8] Since April the largest contribution to the gap, which is illustrated over the first eight months of this year in Figure 6, has continued to come from the transport category, as relative consumption in this category remains below its pre-crisis level, with deep deflation. Amid slowing inflation in the category and the gradual return of relative consumption to its pre-crisis level, the contribution by food, beverages and tobacco has significantly declined, while the contributions by housing and by restaurants and hotels have turned from negative to neutral since May.

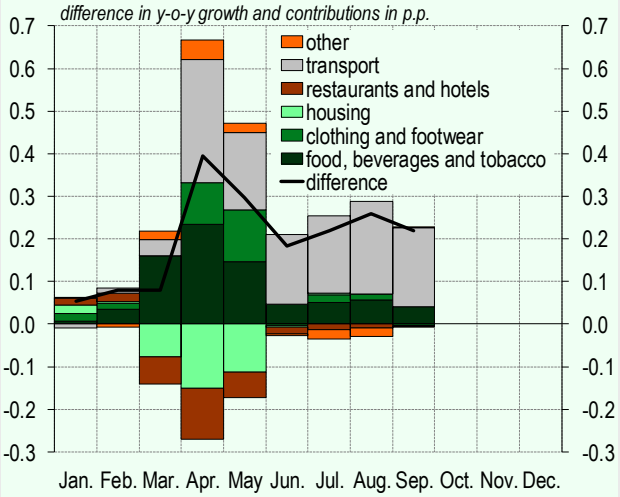
Amid the persistent divergence in price developments in the main categories of consumption and a renewed shift in its structure, the expectation is that the gap between the alternative measure and the official measure of inflation will widen again during the second wave of the epidemic. Consumer expenditure patterns are likely to have again changed profoundly with the reinstatement of stringent containment measures during the second wave of the epidemic, approaching the structure seen in the first wave. Given the persistent differences in price developments between categories, which are increasing the bias in the official measure of inflation, the gap between the alternative measure and the official measure of inflation can be expected to widen again in the final months of

**Figure 5: Year-on-year price growth by category**




*Source: Eurostat, SORS.*

**Figure 6: Difference in the year-on-year growth of the alternative price index and the HICP**




*Source: Eurostat, SORS, Bank of Slovenia calculations and estimations.*

**Table 1: Consumer price developments in April 2020 – comparison of HICP and alternative price index**

| Consumption category | Y-o-y price growth (HICP, in %) | HICP weight (in %) | Estimated relative weight (in %) | Contribution to HICP (in p.p.) | Contribution to alternative price index (in p.p.) | Difference in contributions (alternative contrib.- HICP contrib.) (in p.p.) |
|---|---|---|---|---|---|---|
| 1 **Food and non-alcoholic beverages** | 4.6 | 16.2 | 24.3 | 0.8 | 1.0 | 0.2 |
| 2 **Alcoholic beverages and tobacco** | 1.8 | 4.9 | 7.4 | 0.1 | 0.1 | 0.0 |
| 3 **Clothing and footwear** | -3.5 | 6.5 | 1.3 | -0.2 | -0.1 | 0.1 |
| 4 **Housing** | -8.4 | 10.2 | 12.5 | -0.8 | -1.0 | -0.2 |
| 5 **Furnishing, household equipment** | -0.5 | 5.7 | 8.2 | 0.0 | 0.0 | 0.0 |
| 6 **Health** | 0.4 | 4.6 | 5.4 | 0.0 | 0.0 | 0.0 |
| 7 **Transport** | -9.0 | 17.4 | 13.5 | -1.6 | -1.3 | 0.3 |
| 8 **Communications** | -1.1 | 3.1 | 4.4 | 0.0 | 0.0 | 0.0 |
| 9 **Recreation and culture** | -0.7 | 9.2 | 6.8 | -0.1 | -0.1 | 0.0 |
| 10 **Education** | 3.2 | 1.5 | 2.2 | 0.1 | 0.1 | 0.0 |
| 11 **Restaurants and hotels** | 2.7 | 11.7 | 2.5 | 0.3 | 0.2 | -0.1 |
| 12 **Miscellaneous goods and services** | 2.6 | 8.9 | 11.5 | 0.2 | 0.3 | 0.0 |

*Source: Eurostat, SORS, Bank of Slovenia calculations and estimations.*

the year. According to the October figures, year-on-year growth in prices remains highest in the categories of food (2.9%) and tobacco (3.9%), while the largest fall was in transport prices (8.3%). The cost of living for consumers will thus remain higher than estimated by the HICP, until consumer expenditure patterns normalise after the end of the crisis.

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SORS (September 2019). Indeksna števila, metodološko pojasnilo (*Index numbers, methodological note).* Available (in Slovene) at https://www.stat.si/statweb/File/DocSysFile/10569/Splosno_MP_Indeksna_stevila.pdf.

[1] At the start of the epidemic Eurostat issued recommendations for compiling the HICP during the epidemic, which set out various methods and techniques for imputation of the missing price data. According to this recommendations, national statistical institutes should continue compiling the indices of all categories of products and services irrespective of missing data, making use of supplementary data sources to minimise the amount of imputed data. The guidance also recommends that in calculating consumer price statistics statistical institutes should follow the principle of stability in the HICP weights, which should remain unchanged over the year and should not reflect the impact of the epidemic on the structure of household consumption. The recommendations are available from Eurostat.

[2] The calculation of the HICP makes use of a modified Laspeyres formula, according to which the consumer price index is expressed as an annual chain-linked index.

[3] The weights input into the HICP calculation are mainly calculated on the basis of national accounts figures for household expenditure on the structure of household final consumption expenditure. The weights for each year are based on consumption expenditure data of penultimate year, the figures then being recalculated to prices of December of the previous year.

[4] The matching will not be perfect, on account of differences in classification. When none of the categories of data on nominal turnover in retail or services can be ascribed to a particular category of consumption, the monthly weight is estimated on the basis of assumptions. An example of a category of this type is education, where the assumption is that weights during the year remain unchanged, and thus equal to the official weights. In addition to the imprecise mapping, another problem in the use of data on nominal turnover in retail and services is the broader coverage of consumption in the retail and service statistics, which include trade between firms alongside household consumption. The structure of consumption could be more accurately estimated on the basis of card payments data, which is not publicly available.

[5] Using the relative monthly weights, the Laspeyres and Paasche price indices are calculated as the weighted sum of the change in the official HICP. In light of the matching between the ECOICOP and turnover in retail and services, which for certain categories of consumption is only possible at the highest level of classification in the ECOICOP, the aggregation of the indices into an overall price index is made at the highest level of classification, which encompasses 12 main categories. This alternative indicator will thus only capture substitution effects at the highest level, i.e. the change in the shares of consumption accounted for by the 12 main categories, but not substitution between individual products and services within these categories. Consequently, the alternative index will only capture substitution effects in the wake of major changes in relative shares of consumption between main categories.

[6] The results are based on the calculation of weights in equation (2). Because these are relative weights, the weight of an individual category may change even if households continue earmarking the same amount for consumption in the category.

[7] After April, the sustained decline in the share of expenditure earmarked for transport was largely attributable to a decline in consumption of motor fuels. This declined significantly while the stringent containment measures were in place: according to the seasonally and calendar-adjusted figures, turnover from sales of motor fuels at specialist outlets in April were down 46.3% (in nominal terms) or 35.1% (in real terms) year-on-year. Turnover remained lower even after the first wave of the epidemic: in September they were down 37.9% (in nominal terms) or 26.6% (in real terms) year-on-year.

[8] The persistence of the gap after the first wave of the epidemic is largely a mechanical consequence of a sustained shift in the alternative index caused by the change in weights.

## Box 7: Inflation in the Phillips curve context

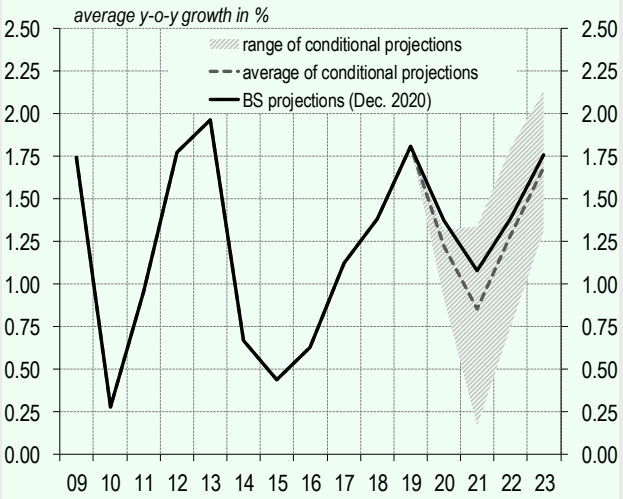
This year's inflation projections are subject to numerous uncertainties, given the complex nature of the pandemic shock. The crisis has been reflected in opposing influences from supply and demand, and great heterogeneity in the impact on different sectors, which since the outbreak of the pandemic has been evidenced in a divergence in growth in prices of individual products and services. In the short term, the price pressures coming from the disruptions to import and supply chains, the shutdown of parts of the economy and the contraction in output capacity caused by the imposition of recommendations to protect public health, mainly resulted in price rises in individual categories of products and services, whereas in a longer-lasting crisis inflationary pressures could also come from the decline in output capacity caused by a rising number of bankruptcies. By contrast, the decline in household demand is having a deflationary impact on prices, as a result of an inability to spend and precautionary behaviour by consumers. The containment measures have sharply reduced demand for certain products and services this year; in the second wave of the epidemic the largest declines can again be expected in the categories of non-essential goods, package holidays, accommodation, transport, and recreation and personal care services. Given the downturn on the labour market and an economic recovery that is gradual at best, deflationary pressures will also constrain growth in prices over the medium term amid falling demand.

In light of the huge uncertainty, we have cross-checked the projection of price developments in the context of the Phillips curve. Using a thick-modelling approach modelled on ECB, a set of conditional projections of inflation excluding energy was prepared, taking account of projections for various indicators of economic slack and external price pressures. The following variants of equation (1) were estimated:

$$\pi_t = c + \alpha\pi_{t-1} + \beta x_{t-1} + \gamma z_{t-l} + \varepsilon_t$$

where $\pi_t$ is inflation excluding energy prices, $x_t$ is the measure of economic activity or economic slack, and $z_t$ is the measure of external price pressures.[1] Lagged inflation that reflects backward-looking inflation expectations is also included in the equation. Under various combinations of measures of economic activity, which include real GDP growth, the output gap, the unemployment rate, the unemployment gap and employment growth, and measures of external price pressures (global oil prices, other commodity prices, import prices), variants of equation (1) were estimated for the period of 2004 to 2019, and conditional projections for growth in consumer prices excluding energy were produced for the projection period.[2]

**Figure 1: Conditional Phillips curve projections for HICP excluding energy**




*Source: SORS, Bank of Slovenia projections.*

The projection of growth in consumer prices excluding energy lies within the range of the conditional projections stemming from the set of Phillips curves. The broad range of the conditional projections, which is presented for the baseline projection in Figure 1, is a reflection of the huge uncertainty associated with the epidemic. The higher inflation projections come from variants of the Phillips curve that include labour market indicators among their measures of slack (unemployment rate, unemployment gap, employment growth), as these have remained relatively favourable amid the fiscal policy measures. By contrast, the projections using real GDP and the output gap are lower. The Bank of Slovenia projection lies within the range, and is consistent with the projected recovery in economic activity, the closure of the output gap and an upturn on the labour market.

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[1] The indicators of external price pressures ($z_{t-l}$) are input into the equation with various lags.

[2] The output gap represents the difference between the actual and potential GDP, while the unemployment gap is the difference between the actual unemployment rate and the NAIRU (non-accelerating inflation rate of unemployment).

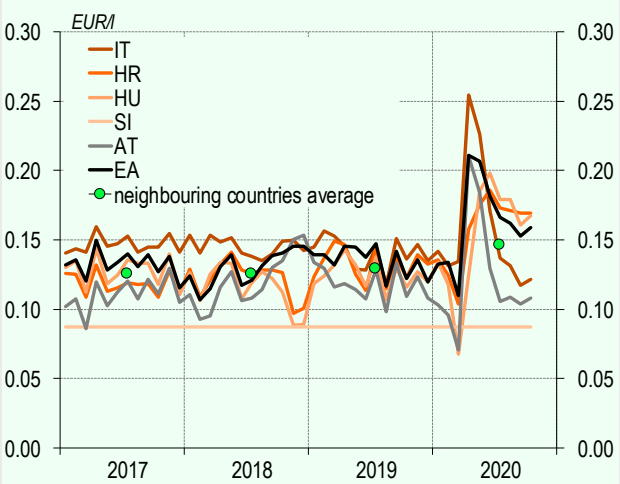
## Box 8: Assessment of the potential impact of retail fuel prices' liberalisation on inflation

With the price liberalisation of 95-octane unleaded petrol (ULP-95) and diesel fuel, the prices of all oil derivatives in Slovenia freely form on the market as of 1 October 2020. Before this date, the maximum retail prices of ULP-95 and diesel were formulated based on the Decree on setting prices for certain petroleum products.[1]

In the wake of the full liberalisation of retail fuel prices, the market is expected to react by raising margins, as those in Slovenia are among the lowest in the EU.[2] Figures 1 and 2 illustrate the estimated margins in neighbouring countries and in the euro area. The difference in retailers' margins between Slovenia and neighbouring countries is calculated as the difference in retail prices net of duties and taxes[3] relative to Slovenia. These calculations are merely an approximation, as the retail prices net of duties and taxes besides the retailers' margin comprise the purchase price, the biofuel allowance, and other possible components that account for a small share of the total retail price net of duties and taxes. The average margin in the euro area was assessed similarly, assuming the absence of any heterogeneous supply conditions between suppliers in different countries. Until deregulation, the maximum margin allowed in Slovenia remained unchanged since October 2014 and stood at 8.701 cents per litre of ULP-95, and 8.158 cents per litre of diesel fuel.[4] Slovenian retailers' margin for ULP-95 in recent years was lower than the average of neighbouring countries. This year, the margin of the latter on average stood at 14.7 cents per litre, being almost 69% higher than the one in Slovenia. The gap between the Slovenian and average margin in euro area countries was even more pronounced and amounted to 86% (the average margin in the euro area stood at 16.2 cents per litre). The gap between the diesel fuel margin in Slovenia and the euro area average was similar, while the gap between Slovenia and its neighbouring countries was even wider. The average diesel fuel margin in neighbouring countries was almost double compared to the one in Slovenia (the average diesel fuel retailers' margin in neighbouring countries stood at 16.1 cents per litre).

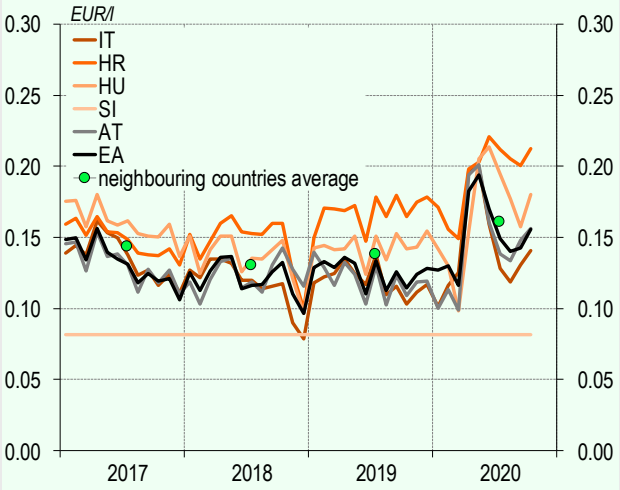
Table 1 illustrates the average margin share in retail prices in Slovenia, neighbouring countries and the euro area member states. Margins in Slovenia account for just a small part of the final retail price of oil derivatives (on average 8.1% of the retail price of ULP-95 and 7.7% of the retail price of diesel fuel this year, and around a percentage point less last year).

**Figure 1: ULP-95 petrol fuel margins (proxy)**




*Source: Weekly Oil Bulletin, MEDT, Bank of Slovenia calculations and estimations.*

**Figure 2: Diesel fuel margins (proxy)**




*Source: Weekly Oil Bulletin, MEDT, Bank of Slovenia calculations and estimations.*

**Table 1: Average retail price margin share (in %)**

| | 2017 | | 2018 | | 2019 | | 2020 | |
|---|---|---|---|---|---|---|---|---|
| | **ULP-95** | **Diesel** | **ULP-95** | **Diesel** | **ULP-95** | **Diesel** | **ULP-95** | **Diesel** |
| Slovenia | 6.8 | 6.9 | 6.6 | 6.4 | 6.8 | 6.5 | 8.1 | 7.7 |
| Neighbouring countries average | 9.9 | 12.0 | 9.3 | 10.0 | 9.8 | 10.6 | 12.6 | 14.4 |
| EA | 9.5 | 10.9 | 8.8 | 9.1 | 9.3 | 9.4 | 12.3 | 12.9 |

*Source: Weekly Oil Bulletin, MEDT, Bank of Slovenia calculations and estimations.*

The retailers' margins in neighbouring countries averaged 12.6% of the ULP-95 retail price this year, while the average margin share in the retail diesel fuel price was almost 7 percentage points higher than the average in Slovenia (14.4%). The average margin share in the retail price of oil derivatives in the euro area was slightly lower than the one in the neighbouring countries, mainly due to the higher margins in Croatia and Hungary.

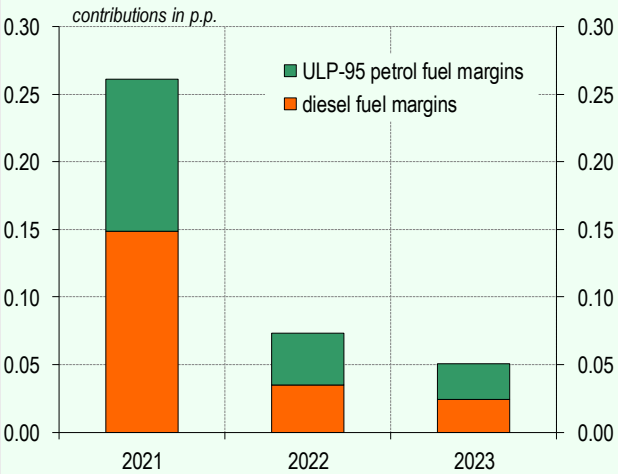
In a scenario of a potential increase in margins, the assumption is that within five years after the price deregulation of all oil derivatives, retailers' margins would reach the level comparable to that in neighbouring countries between 2017 and 2020. The potential increase in margins is estimated as the difference between average retail prices net of duties and taxes in neighbouring countries and retail prices net of duties and taxes in Slovenia. Table 2 illustrates the projection of year-on-year growth of the retailers' margins, and the projection of the absolute value of the margin measured in cents per litre of fuel. In light of the above, it also illustrates what would be, *ceteris paribus*, the resulting rise in retail prices of oil derivatives and the impact on consumer prices as measured by the HICP as well as the impact on energy price inflation over the projection horizon.[5]

Under the assumption that the margins of oil derivatives distributors would increase to the average level in neighbouring countries by 2025, margins for ULP-95 would increase by 48% or almost 13 cents by 2023, a rise of approximately 4 cents relative to the September value. This would entail a rise in the retail price of just over 5 cents, after taking account of VAT (22%). Diesel fuel margins are estimated to rise by 71% by 2023 or to 14 cents in the retail price, a rise up of almost 6 cents. Assuming no other changes, the retail price would rise by 7 cents. The estimated increase in the margins is reflected in a discernible impact on HICP and energy prices. Our assessment is that the impact of full price liberalisation could raise inflation as measured by the HICP by 0.26 percentage points in 2021, 0.08 percentage points in 2022 and 0.05 percentage points in 2023, and cumulatively by 0.4 percentage points over the projection horizon (see Figure 3). In the wake of any rise in margins on oil derivatives, the cumulative impact on energy prices between 2020 and 2023 would be approximately 3 percentage points.

To test the robustness of the results, we also estimated the potential rise in margins if by 2025 the latter were to rise to a level where the ratio to the retail price of ULP-95 and diesel would be comparable to the average share of margins in the final retail price in neighbouring countries between 2017 and 2020.[6] In this case, the estimated impact of the potential rise in margins on energy price inflation and headline consumer price inflation turns out to be similar, albeit slightly weaker compared to the results presented in Table 2. The cumulative impact of price liberalisation over the projection horizon would be just over 0.3 percentage points on HICP and 2.6 percentage points on energy prices.

The actual consequences of the liberalization of retail fuel prices on the market depend on the responsiveness of customers to differences in prices, the market structure, and the incentives for new suppliers to enter the market. Therefore, the impact of full deregulation cannot be inferred definitively.[7] The projected upward correction in retail fuel prices as a re-

**Figure 3: Impact of retail fuel prices liberalization on inflation**




*Source: Weekly Oil Bulletin, Eurostat, MEDT, Bank of Slovenia calculations and estimations.*

**Table 2: Projections of margin contributions to inflation (HICP) and energy price inflation**

| | 2021 | | 2022 | | 2023 | |
|---|---|---|---|---|---|---|
| | ULP-95 | Diesel | ULP-95 | Diesel | ULP-95 | Diesel |
| Margin (annual percentage change) | 30.0 | 50.0 | 8.0 | 8.3 | 5.2 | 5.3 |
| Retail price margin (in absolute terms, cents per liter) | 11.3 | 12.2 | 12.2 | 13.2 | 12.9 | 14.0 |
| Retail price increase (cents per liter) | 3.2 | 5.0 | 1.1 | 1.2 | 0.8 | 0.9 |
| HICP impact (p.p.) | 0.11 | 0.15 | 0.04 | 0.04 | 0.03 | 0.02 |
| Impact on energy (HICP) prices (p.p.) | 0.88 | 1.17 | 0.30 | 0.28 | 0.21 | 0.19 |

*Source: MEDT, Eurostat, Bank of Slovenia calculations and estimations.*

sult of rising margins is not large, and will not have a decisive impact on developments in consumer prices. Due to the burden of various taxes and the need to maintain a competitive position vis-à-vis neighbouring countries, it will be harder for retailers to excessively rise the margins.[8] In addition, despite price liberalisation the government will monitor the pricing of oil derivatives on the market, and will, in the case of an excessive rise in margins, start to control the prices again.[9] The potential margin increase and the consequent rise in retail prices is unlikely to be merely the result of price liberalisation, but it is also likely to be driven by higher operating costs for distributors associated with the green transition, which is an additional factor not taken into account in this analysis.[10]

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Government of the Republic of Slovenia (23 September 2020). Informacija o stanju na trgu naftnih derivatov (*Refined petroleum products market situation report).* Available (in Slovene) at gov.si.

[1] A detailed description (in Slovene) is given in the Decree setting prices of certain refined petroleum products, which is available online at: https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2020-01-0698/uredba-o-oblikovanju-cen-dolocenih-naftnih-derivatov.

[2] Available in the *Refined petroleum products market situation report*, which can be found online (in Slovene) at gov.si.

[3] The data is available online at: https://ec.europa.eu/energy/data-analysis/weekly-oil-bulletin_en#pricesover-time.

[4] The maximum margin on oil price derivatives in Slovenia was set by the Decree setting prices of certain refined petroleum products. The actual average retailers' margin was slightly higher. Available (in Slovene) at gov.si.

[5] For the other elements of the retail price the latest September data was taken into account in the calculations. The estimation of the contributions considers the impact on the HICP from the rise in margins on ULP-95, while the calculation takes account of a petrol weighting that includes unleaded petrol with a higher octane number as well. In addition, differences deriving from volumes sold along expressways and motorways are not considered for petrol and diesel alike. Notwithstanding the above, the calculation represents a good approximation, as the ULP-95 represents the majority of the weight in petrol.

[6] The potentially higher margin is estimated as a share of the retail price of ULP-95 and diesel according to the most recent data, when price controls on refined petroleum products had not yet been abolished.

[7] Concentration in the motor fuels market is high. Three distributors cover around 95% of the ULP-95 market, while four distributors cover around 90% of the diesel market. In addition, the report states that an increase in competition will be hindered (primarily in the short term) by the entrance barriers to the sector. The report is available on the SCPA website.

[8] Tax rates in Slovenia are among the highest in the EU, and will put additional constraints on any excessive rise in retailers' margins. Compared with the neighbouring countries, the share of the final retail price represented by taxes in Slovenia is the second highest after Italy. Available at: https://www.fuelseurope.eu/wp-content/uploads/SR_FuelsEurope-_2020-1.pdf.

[9] Any reinstated measures would remain in place for as long as necessary, albeit not for more than a year. Available (in Slovene) at gov.si.

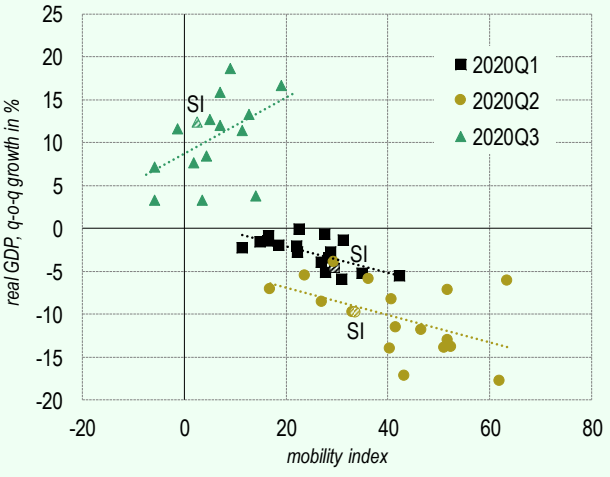
[10] As part of the commitments under the Paris Agreement with regard to reductions in greenhouse gas emissions by encouraging the transition from fossil fuels to cleaner energy, and the increased use of biofuels and other renewables.

# 3 Alternative Scenarios

*The recovery in economic growth over the projection horizon will primarily depend on the evolution of the Covid-19 epidemic and the availability of some effective medical solution. As the epidemic outlook remains highly uncertain, similar to June, two alternative scenarios have been drawn up alongside the baseline projection: a mild scenario and a severe scenario, which differ on assumptions regarding the ongoing evolution of the epidemic. While the mild scenario assumes the successful containment of the autumn wave by the end of this year, the severe scenario envisages for most containment measures to remain in place even in the early months of next year, including the more stringent measures such as shutdowns in certain services sectors. As a result, for the severe scenario, the economy is expected to continue contracting next year also. GDP would reach its 2019-level by the end of next year under the mild scenario and a year later under the baseline projection, while under the severe scenario GDP would remain below its pre-crisis level even at the end of the projection horizon.*

**The economic recovery will primarily depend on the ongoing evolution of the Covid-19 epidemic, and the availability of effective medical solutions.** The stringency of containment measures will depend on the evolution of the epidemic and the number of cases, and this holds for both Slovenia and its major trading partners. While necessary to ensure that the health system is not overwhelmed and can thus provide adequate care for patients, the containment measures simultaneously induce adverse impacts to economic activity. As such, the stringency of the containment measures, as measured by the mobility and stringency indicators among others, is negatively correlated with GDP growth.

**Figure 17: GDP and mobility index in euro area countries**



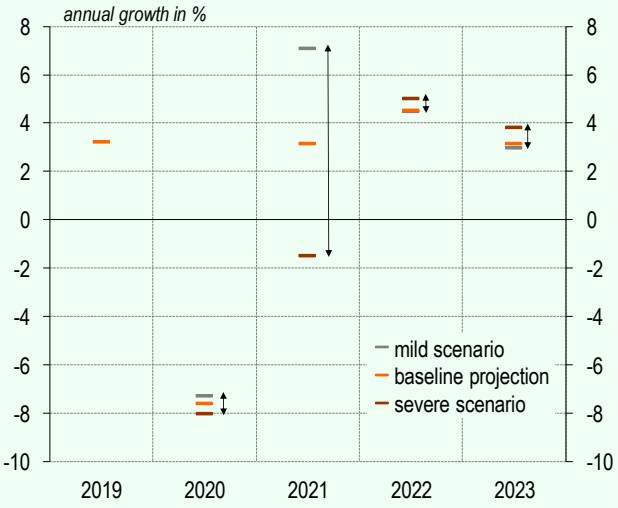

*Note: The mobility index shows the deviation in mobility from the pre-crisis levels. Higher values represent a greater decline in mobility.*
*Source: Eurostat, Google Mobility, Bank of Slovenia calculations.*

**The relatively fast recovery in economic activity over summer was followed by a new larger wave of the epidemic in autumn.** The containment measures have slowed the spread of cases in recent weeks, but are again adversely affecting economic activity. After a strong recovery in the third quarter of this year, the outbreak of the second wave has downgraded the outlook for the final quarter and the early part of next year. The final quarter of this year is expected to see another contraction in economic activity, which is nevertheless projected to be smaller than in the second quarter, in part because the containment measures are more targeted than in spring.

**Given the high level of uncertainty brought by the epidemic, two alternative scenarios have been drawn up alongside the baseline projection.** The two scenarios (a mild scenario and a severe scenario) differ on their

underlying assumptions regarding the ongoing evolution of the epidemic, which remains a key factor in determining the pace of the economic recovery over the following years. Based on our assessment, this year will see a sharp decline in GDP, of 7.3% under the mild scenario and 8.0% under the severe scenario, while the projections for the following years are much more uncertain, with significant differences prevailing between the scenarios.

**Figure 18: GDP growth in the projection period by scenarios**




*Source: SORS, Bank of Slovenia calculations and projections.*

**The baseline projection foresees that containment measures put in place will be largely successful in containing the autumn wave of the epidemic, allowing some of the measures to be lifted in the first quarter of next year.** Apart from the containment measures, the baseline projection assumes that an effective vaccine will be available in the following months. The transition period would allow for a gradual lifting of measures, as hygiene and protection recommendations such as social distancing will need to remain in place, while the sufficient uptake of the vaccine would prevent new major outbreaks in the second half of 2021. Similar situation is expected to prevail also in Slovenia's main trading partners. These circumstances would significantly reduce the uncertainty in the economy, and would allow for a solid recovery in domestic and foreign demand over the remainder of the projection horizon.

**The mild scenario assumes successful containment of the autumn wave, which would allow for the gradu-**

**Table 4: Estimated growth of GDP, unemployment rate and inflation in Slovenia in 2020–2023 by scenarios**

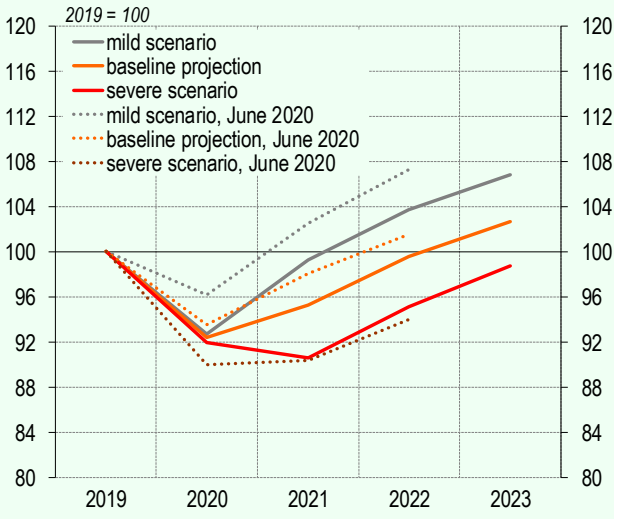
| | 2019 | 2020 | | 2021 | | 2022 | | 2023 | |
|---|---|---|---|---|---|---|---|---|---|
| | Dec. | Dec. | Δ | Dec. | Δ | Dec. | Δ | Dec. | Δ |
| **Mild scenario** | | | | | | | | | |
| GDP (real)* | 2.4 | **-7.3** | -3.4 | **7.1** | 0.4 | **4.5** | -0.1 | **3.0** | … |
| Consumer prices (HICP)** | 1.7 | **-0.2** | -0.3 | **1.0** | -0.6 | **1.5** | -0.3 | **1.8** | … |
| Survey unemployment rate | 4.5 | **5.4** | 0.0 | **5.2** | 0.5 | **4.1** | 0.4 | **3.7** | … |
| **Baseline projection** | | | | | | | | | |
| GDP (real)* | 2.4 | **-7.6** | -1.1 | **3.1** | -1.8 | **4.5** | 0.9 | **3.1** | … |
| Consumer prices (HICP)** | 1.7 | **-0.2** | -0.2 | **0.9** | -0.4 | **1.3** | -0.2 | **1.6** | … |
| Survey unemployment rate | 4.5 | **5.5** | -0.5 | **5.7** | 0.2 | **4.8** | 0.2 | **4.3** | … |
| **Severe scenario** | | | | | | | | | |
| GDP (real)* | 2.4 | **-8.0** | 2.0 | **-1.5** | -1.9 | **5.0** | 1.0 | **3.8** | … |
| Consumer prices (HICP)** | 1.7 | **-0.2** | -0.1 | **0.7** | -0.2 | **1.0** | 0.0 | **1.4** | … |
| Survey unemployment rate | 4.5 | **5.6** | -1.2 | **6.2** | -0.5 | **5.7** | -0.2 | **5.2** | … |

**Growth in %. **Average y-o-y growth in %.*
*Δ: Difference between current projections and projections in Macroeconomic Projections for Slovenia, June 2020.*
*Source: SORS, Bank of Slovenia estimations and projections.*

**al lifting of the more stringent containment measures even in the final weeks of this year.** The more favourable epidemiological situation would also allow for the slightly faster lifting (compared with the baseline projection) of the containment measures over the remainder of the projection horizon. Under the mild scenario, economic activity would rebound strongly even in the final days of this year, and especially in the early part of next year. The winter tourism season would be relatively good, in part encouraged by the extension of the holiday voucher scheme, which would at least partly compensate for the loss incurred by the fall in the number of foreign visitors. With the shorter period of active containment measures and the faster reopening of the majority of services sectors, the autumn wave would only partly offset the economic recovery seen in the summer. A renewed recovery would follow in the first months of next year. The shutdown of parts of the economy in autumn would thus not have such a long-term impact on the economy. The consequences would also be mitigated by fiscal policy measures that aim to ensure stability on the labour market, thus maintaining household purchasing power, which in turn would have a significant impact on the recovery in private consumption as the epidemiological situation improves. Moreover, monetary and fiscal policy measures (at national and EU level) would ensure that the financing conditions remain favourable and provide support to firms in dealing with liquidity difficulties, respectively. These measures would continue to alleviate the adverse impact of the economic downturn, and under the mild scenario would retain the potential of the economy at levels that will enable a relatively quick recovery after the large contraction in activity in 2020. In this event, economic growth in 2021 would exceed 7%, and GDP would reach its pre-crisis level before the end of next year. Overall, the economy would strengthen by 7.2% over the projection horizon of 2020 to 2023. This would also be facilitated by the relatively favourable situation on the labour market. After rising in 2020, the surveyed unemployment rate would fall below 4% by the end of the projection horizon. The number of (surveyed) unemployed would fall from just under 55,000 in 2020 to approximately 39,000 by the end of 2023. Amid the favourable labour market situation, the economic recovery at home and in the main trading partners would strengthen price pressures, which would be reflected in a gradual rise in consumer prices. Under the mild scenario, inflation would reach 1.8% towards the end of the projection horizon.

**The severe scenario reflects a less successful containment of the second wave, which would sharply curtail economic activity next year.** As cases spread further, the majority of the containment measures, including the more stringent measures such as shutdowns in significant parts of the services sector, will remain in place even in the early months of next year. This would be reflected in a renewed contraction in the economy, which would be followed by modest growth at best in the following quarters. Under the severe scenario, an effective vaccine is also expected by the middle of next year, although the slower rollout (lower uptake) means that individual large outbreaks would still need to be contained by reinstating stringent measures, albeit without the need for more shutdowns in the economy. Social distancing would mainly curtail services, which would continue to incur major losses. The high uncertainty in the economy would curtail corporate investment activity, and keep the household savings ratio high. The impact of the crisis would be alleviated by monetary and fiscal policy measures, but GDP would nevertheless decline next year, with the recovery only following in 2022. The impact of the crisis would be longer lasting in this event, with GDP failing to reach its pre-crisis level even by 2023. This would also be attributable to the similar situation in the rest of the world,

**Figure 19: GDP level over the projection period by scenarios**

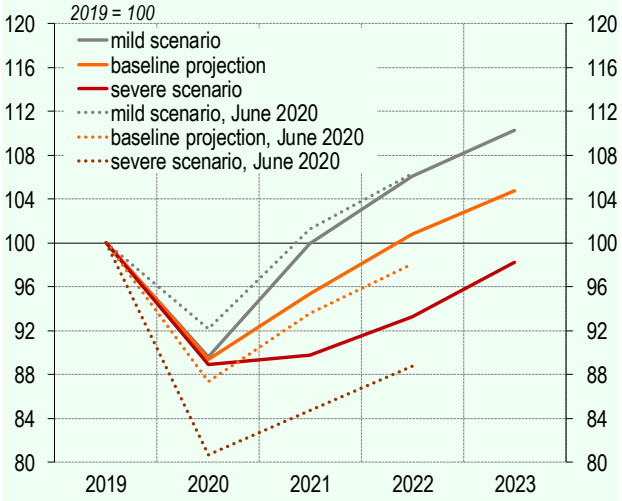



*Source: SORS, Bank of Slovenia calculations and projections.*

which would primarily be reflected in the slow recovery in foreign demand. The additional contraction in the economy would also pass through into the labour market, where the number of unemployed would pass 60,000 next year, and the unemployment rate would approach 6.2%. The situation on the labour market would begin to improve towards the end of the projection horizon with the gradual recovery of the economy, but the unemployment rate would remain higher than before the crisis. In the absence of stronger price pressures, consumer price inflation would remain low, and would average just 1% between 2021 and 2023.

**The projections for this year under the various scenarios are more concentrated than in the June projections, but there remains significant uncertainty with regard to the recovery over the coming years.** While the 2020 economic growth projections in June ranged from -3.9% under the mild scenario to -10.0% under the severe scenario, the latest projections for this year suggest a contraction in economic activity of between 7.3% and 8.0%. The slightly larger decline compared with the previous projections is primarily attributable to the more pronounced second wave of the epidemic in autumn. An even larger contraction in GDP is being averted by economic policy stimulus measures. The projections for the following years remain subject to the significant uncertainties surrounding the health crisis, resulting in significant differences between the scenarios: GDP would regain its pre-crisis level by the middle of next year under the mild scenario, in 2022 under the baseline projection, while under the severe scenario GDP would remain below its pre-crisis level even at the end of the projection horizon.

**Figure 20: Foreign demand assumption over the projection period by scenarios**




*Source: ECB, Bank of Slovenia calculations.*

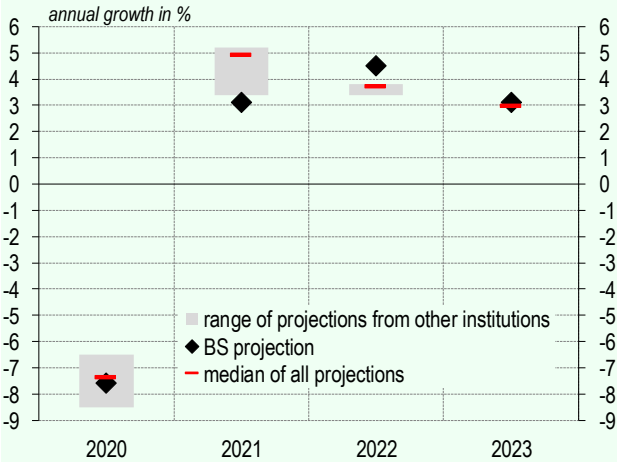
# 4 Comparison between Institutions

*A comparison of the latest projections for economic growth in Slovenia for the period of 2020-2023 reflects the significantly negative impact of the Covid-19 pandemic on this year's economic activity: the median growth projection of domestic institutions stands at -7.2%, and of foreign institutions at -7.4%. Economic growth is expected to gradually recover over the remainder of the projection horizon: the median projection of all institutions is around 3.9%. The adverse impact of the epidemic is also reflected in the projections of consumer price inflation, where the median projection for this year is 0.1% by domestic and foreign institutions alike. In the remainder of the projection horizon, the median projection by all institutions reveals a gradual increase in prices, in line with the anticipated economic recovery. A comparison of projection accuracy between the institutions shows that in all of the observation periods (2001-2019, the entire period excluding 2008 and 2009, and 2009-2019) Bank of Slovenia was among the most accurate in projections of both real GDP growth and consumer price inflation.*[22]

## 4.1 Comparison of projections between institutions

**A comparison of the latest projections for economic growth in Slovenia for the 2020-2023 reflects the significantly negative impact of the pandemic on this year's economic activity: the median growth projection of domestic institutions stands at -7.2%, and of foreign institutions at -7.4%. Economic growth is expected to gradually recover over the remainder of the projection horizon: the median projection of all institutions is around 3.9%.** According to the most recent projections available, the smallest decline in economic activity in 2020 is expected by the CCIS (-6.5%), followed by the IMF and IMAD (-6.7%). These institutions prepared their projections before the outbreak of the second wave. The Bank of Slovenia economic growth projection of -7.6% is 0.2 percentage points lower than the median of all projections for the current year. The highest economic growth projections for the next year is 5.2% by the IMF, which is 0.3 percentage points above the median of all projections for 2021. The next highest projections are by the European Commission, the IMAD and the CCIS, at 5.1% and 5.0%, respectively. The Bank of Slovenia projection is 1.8 percentage points lower than

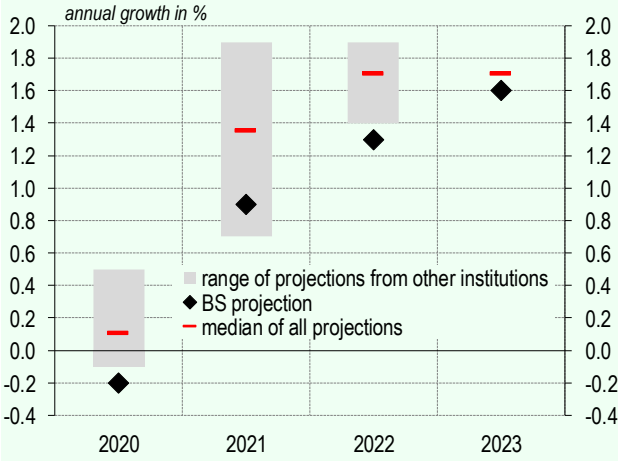
**Figure 21: Comparison of GDP projections between institutions**




*Source: Consensus Economics (November), EBRD (November), EIPF (November), European Commission (November), IMF (October), OECD (November), CCIS (October), IMAD (September), Bank of Slovenia (December).*

[22] Nine institutions that prepare macroeconomic projections for Slovenia are included in the comparative analysis of current projections of real GDP growth and consumer price inflation (eight institutions in the case of the latter): Consensus Economics, the European Bank for Reconstruction and Development (EBRD), the Economics Institute of the Faculty of Law (EIPF), the European Commission, the International Monetary Fund (IMF), the Organisation for Economic Cooperation and Development (OECD), the analysis unit at the Chamber of Commerce and Industry of Slovenia (CCIS), the Institute of Macroeconomic Analysis and Development (IMAD) and Bank of Slovenia. The consumer price inflation projections by the EIPF, the European Commission, the OECD and Bank of Slovenia are related to inflation measured by the HICP, while the projections by Consensus, the IMF, the CCIS and the IMAD are related to inflation measured by the CPI.

**Figure 22: Comparison of inflation projections between institutions**




*Source: Consensus Economics (November), EIPF (November), European Commission (November), IMF (October), OECD (November), CCIS (October), IMAD (September), Bank of Slovenia (December).*

the median of all projections for 2021, and at 3.1% is slightly below the floor of the range of other institutions. Projections for 2022 are available from five institutions. The highest economic growth projection is 4.5% by Bank of Slovenia, while the projections by the European Commission, the IMF, the OECD and the IMAD are all around the median projection for 2022 of 3.7%. Only two institutions provide economic growth projections for 2023: 3.1% from Bank of Slovenia, and 2.8% from the IMF.

**The adverse impact of the epidemic is similarly reflected in the projections of consumer price inflation, where the median projection for this year is 0.1% by domestic and foreign institutions alike. In the remainder of the projection horizon, the median projection of all institutions reveals a gradual increase in consumer prices, in line with the anticipated economic recovery.** The highest consumer price inflation rate for 2020 of 0.5% is foreseen by the IMF, while the lowest rate of -0.2% by Bank of Slovenia, which is 0.3 percentage points below the median of all projections for the current year.[23] The highest inflation projection of 1.9% for next year, is issued by the CCIS, which is 0.5 percentage points above the median of all projections for the considered year. This is followed by the rates of 1.8% and 1.7% foreseen by the IMF and the OECD, respectively, while the lowest projection for 2021 is given by the EIPF, at 0.7%. The Bank of Slovenia projection of 0.9% is 0.5 percentage points lower than the median of all projections for next year. Inflation projections for 2022 are also available from five institutions. The highest inflation projection of 1.9% comes from the IMAD, followed by 1.8%, 1.7% and 1.4% from the European Commission, the IMF and the OECD, respectively, while the lowest consumer price inflation projection is 1.3% by Bank of Slovenia. Again, only two institutions provide projections for 2023, and they reflect similar price expectations: 1.6% from Bank of Slovenia, and 1.8% from the IMF.

## 4.2 Comparison of projection accuracy between institutions

**The accuracy of the real GDP growth and consumer price inflation projections over the 2001-2019 period is measured by comparing the statistical estimate or the observed value with the projections for the variables obtained in past periods.**[24] The calculations cover the mean error (ME), the mean absolute error (MAE), the standard deviation (STDEV), the root mean square error (RMSE) and the standardised RMSE (SRMSE).[25] Only three of the institutions in question (Bank of Slovenia, the European Commission and the IMF) released projections for the entire observation period. For the majority of the other institutions, projections are only available from 2004 (from 2009 for the OECD, and from 2011 for the EBRD). Given the great uncertainty during the great financial crisis, the entire observation period excluding 2008 and 2009 and the period of 2009-2019 is additionally included in the analysis.

[23] This year's relatively large range is also attributable to the increased divergence in year-on-year growth in consumer prices measured by the CPI and the HICP. Growth in prices measured by the CPI averaged 0.2% over the first ten months of the year, while prices measured by the HICP fell by 0.1% on average. There is a similar gap between the median projections of the institutions using the CPI (0.3%) and the HICP (0.0%).

[24] In examining of projection accuracy between institutions in the 2001-2019 period and in the various sub-periods, the second observed values and projections of variables are compared, whereby the projections selected are those that correspond most closely to the Bank of Slovenia's June and December projections.

[25] For a detailed description of the statistical measures (in Slovene), see Cimperman and Savšek (2014): https://bankaslovenije.blob.core.windows.net/publication-files/PA_1_2014_Natančnost_napovedi_makroekonomskih_spremenljivk.pdf.

**In terms of the MAE and RMSE, the most accurate economic growth projections for the 2001-2019 period were from the European Commission, the IMAD and Bank of Slovenia, while the most accurate inflation projections were provided by Bank of Slovenia, the IMAD and the CCIS.** For the economic growth projections, MAE ranged from 0.6 to 2.8 over the entire period, while RMSE ranged from 0.7 to 4.2.[26] The institutions were slightly more accurate in their inflation projections than in their economic growth projections: the aforementioned indicators had narrower ranges, namely 0.2 to 1.4 for MAE and 0.3 to 1.9 for RMSE.

**Based on the MAE and RMSE indicators, the most accurate economic growth projections over the entire period excluding 2008 and 2009 were those of the Bank of Slovenia, the European Commission and the IMAD, while the best inflation projections were by the Bank of Slovenia, the IMAD and the CCIS.** Compared to the entire observation period, the economic growth projections and the inflation projections during the selected period were slightly more accurate, as the exclusion of 2008 and 2009 eliminates the impact of the greater uncertainty seen during the great financial crisis. For the economic growth projections, MAE ranged from 0.6 to 2.2 over the period in question, while RMSE ranged from 0.7 to 2.9. As in the above case, the institutions were again slightly more accurate in their inflation projections: the aforementioned indicators had narrower ranges than over the entire observation period (2001-2019), namely 0.2 to 1.3 for MAE and 0.3 to 1.8 for RMSE.

**The OECD and the European Commission produced the most accurate economic growth projections over the 2009-2019 period, followed by the IMAD and the Bank of Slovenia, while the Bank of Slovenia, the IMAD and the European Commission produced the most accurate inflation projections.** The accuracy of the economic growth projections improved in comparison to the entire observation period (2001-2019): the intervals in MAE and RMSE narrowed markedly to range from 0.4 to 2.0 for MAE and 0.6 to 2.5 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 1.0 for MAE and 0.1 to 1.3 for RMSE.

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

**Table 5: Basic accuracy measures of GDP growth projections, based on second available data**

| *Real GDP* | 2001–2019 | | | 2001–2008 | | | 2009–2019 | | | 2008 and 2009 | | | excl. 2008–2009 | | | 2004–2019 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | 1.2 | 1.8 | 0.6 | 0.9 | 1.1 | -0.3 | 1.4 | 2.2 | -3.3 | 3.3 | 3.9 | 0.5 | 0.9 | 1.1 | 0.1 | 1.3 | 2.1 |
| Consensus | 0.1 | 1.3 | 2.0 | 0.6 | 1.1 | 1.3 | -0.3 | 1.5 | 2.3 | -3.3 | 3.3 | 3.4 | 0.5 | 1.1 | 1.4 | 0.1 | 1.5 | 2.2 |
| EBRD | | | | | | | 0.7 | 1.2 | 1.4 | | | | | | | | | |
| EIPF | -0.2 | 1.4 | 2.2 | 0.9 | 1.2 | 1.2 | -0.7 | 1.5 | 2.4 | -4.0 | 4.0 | 4.5 | 0.3 | 1.0 | 1.3 | -0.2 | 1.4 | 2.3 |
| EC | 0.1 | 1.2 | 1.6 | 0.4 | 1.1 | 1.3 | -0.1 | 1.3 | 1.9 | -2.6 | 2.6 | 2.9 | 0.4 | 1.0 | 1.2 | 0.3 | 1.3 | 1.8 |
| IMF | 0.1 | 1.3 | 1.8 | 0.4 | 1.1 | 1.3 | -0.1 | 1.5 | 2.2 | -2.9 | 2.9 | 3.5 | 0.5 | 1.1 | 1.3 | 0.3 | 1.4 | 2.0 |
| OECD | | | | | | | 0.2 | 1.1 | 1.4 | | | | | | | | | |
| CCIS | 0.3 | 1.4 | 1.9 | 1.0 | 1.1 | 1.1 | 0.1 | 1.5 | 2.2 | -2.9 | 2.9 | 3.7 | 0.8 | 1.2 | 1.2 | 0.3 | 1.4 | 2.0 |
| IMAD | 0.0 | 1.2 | 1.6 | 0.3 | 1.0 | 1.2 | -0.2 | 1.4 | 1.8 | -2.4 | 2.4 | 2.3 | 0.3 | 1.1 | 1.3 | 0.2 | 1.3 | 1.7 |
| ***next year*** | | | | | | | | | | | | | | | | | | |
| BS | -0.5 | 2.1 | 3.4 | -1.0 | 2.4 | 4.6 | -0.1 | 1.8 | 2.3 | -6.3 | 6.3 | 7.9 | 0.2 | 1.5 | 2.0 | -0.6 | 2.3 | 3.9 |
| Consensus | -0.5 | 2.3 | 3.7 | -1.2 | 2.9 | 5.1 | 0.0 | 1.9 | 2.4 | -6.0 | 6.4 | 9.1 | 0.2 | 1.8 | 2.2 | -0.5 | 2.5 | 4.1 |
| EBRD | | | | | | | 0.8 | 1.9 | 2.5 | | | | | | | | | |
| EIPF | -0.7 | 2.8 | 4.3 | -1.0 | 4.4 | 7.0 | -0.5 | 2.0 | 2.5 | -6.5 | 6.5 | 8.3 | 0.2 | 2.2 | 3.0 | -0.7 | 2.8 | 4.4 |
| EC | -0.5 | 2.1 | 3.4 | -1.2 | 2.5 | 4.5 | 0.1 | 1.7 | 2.3 | -5.7 | 6.2 | 8.7 | 0.2 | 1.5 | 2.0 | -0.4 | 2.3 | 3.9 |
| IMF | -0.4 | 2.0 | 3.4 | -1.0 | 2.3 | 4.4 | 0.0 | 1.8 | 2.4 | -5.9 | 5.9 | 8.0 | 0.2 | 1.6 | 2.0 | -0.5 | 2.3 | 3.8 |
| OECD | | | | | | | 0.1 | 1.7 | 2.3 | | | | | | | | | |
| CCIS | -0.4 | 2.4 | 3.9 | -1.5 | 3.6 | 6.1 | 0.1 | 1.8 | 2.3 | -6.3 | 6.3 | 8.3 | 0.5 | 1.8 | 2.2 | -0.4 | 2.4 | 4.0 |
| IMAD | -0.6 | 2.2 | 3.5 | -1.2 | 2.6 | 4.6 | -0.1 | 1.9 | 2.4 | -6.0 | 6.2 | 8.7 | 0.1 | 1.7 | 2.1 | -0.6 | 2.4 | 4.0 |
| ***autumn projections*** | | | | | | | | | | | | | | | | | | |
| ***current year*** | | | | | | | | | | | | | | | | | | |
| BS | 0.2 | 0.7 | 0.8 | 0.3 | 0.6 | 0.7 | 0.2 | 0.7 | 0.9 | -1.1 | 1.1 | 0.4 | 0.4 | 0.6 | 0.7 | 0.3 | 0.7 | 0.9 |
| Consensus | 0.1 | 0.7 | 0.9 | 0.2 | 0.7 | 0.9 | 0.1 | 0.8 | 1.0 | -1.4 | 1.4 | 0.6 | 0.3 | 0.7 | 0.8 | 0.2 | 0.8 | 1.0 |
| EBRD | | | | | | | 0.6 | 0.7 | 0.9 | | | | | | | | | |
| EIPF | 0.0 | 0.8 | 1.1 | 0.4 | 0.9 | 1.1 | -0.2 | 0.8 | 1.1 | -2.0 | 2.0 | 0.9 | 0.3 | 0.7 | 0.8 | 0.0 | 0.8 | 1.1 |
| EC | 0.3 | 0.6 | 0.7 | 0.3 | 0.7 | 0.7 | 0.2 | 0.5 | 0.7 | -0.7 | 0.7 | 0.1 | 0.4 | 0.6 | 0.6 | 0.3 | 0.6 | 0.7 |
| IMF | 0.2 | 1.0 | 1.3 | 0.4 | 0.9 | 1.1 | 0.0 | 1.0 | 1.4 | -2.0 | 2.0 | 1.9 | 0.4 | 0.8 | 1.0 | 0.2 | 1.0 | 1.3 |
| OECD | | | | | | | 0.2 | 0.4 | 0.6 | | | | | | | | | |
| CCIS | 0.3 | 0.6 | 0.8 | 0.2 | 0.7 | 0.9 | 0.3 | 0.6 | 0.8 | -1.1 | 1.1 | 0.1 | 0.5 | 0.6 | 0.7 | 0.3 | 0.7 | 0.9 |
| IMAD | 0.1 | 0.6 | 0.7 | 0.2 | 0.6 | 0.8 | 0.1 | 0.7 | 0.8 | -0.9 | 0.9 | 0.3 | 0.3 | 0.6 | 0.7 | 0.2 | 0.7 | 0.8 |
| ***next year*** | | | | | | | | | | | | | | | | | | |
| BS | -0.3 | 1.9 | 3.3 | -0.8 | 2.5 | 4.5 | 0.2 | 1.5 | 2.1 | -6.0 | 6.0 | 7.8 | 0.5 | 1.4 | 1.9 | -0.4 | 2.1 | 3.8 |
| Consensus | -0.4 | 2.0 | 3.3 | -1.2 | 2.5 | 4.4 | 0.3 | 1.6 | 2.1 | -5.5 | 6.0 | 8.5 | 0.3 | 1.5 | 1.9 | -0.3 | 2.2 | 3.7 |
| EBRD | | | | | | | 1.2 | 2.0 | 2.4 | | | | | | | | | |
| EIPF | -0.6 | 2.3 | 3.7 | -1.8 | 3.5 | 5.9 | -0.1 | 1.7 | 2.3 | -5.9 | 6.1 | 8.6 | 0.2 | 1.7 | 2.2 | -0.6 | 2.3 | 3.9 |
| EC | -0.1 | 1.8 | 3.2 | -0.8 | 2.4 | 4.3 | 0.4 | 1.4 | 2.0 | -5.5 | 5.5 | 7.6 | 0.5 | 1.4 | 1.8 | -0.2 | 2.0 | 3.6 |
| IMF | -0.1 | 2.1 | 3.5 | -0.9 | 2.4 | 4.6 | 0.5 | 1.9 | 2.5 | -5.6 | 6.2 | 8.7 | 0.6 | 1.6 | 2.1 | -0.2 | 2.4 | 4.0 |
| OECD | | | | | | | 0.3 | 1.6 | 2.0 | | | | | | | | | |
| CCIS | -0.1 | 2.1 | 3.5 | -1.2 | 3.0 | 5.2 | 0.6 | 1.6 | 2.1 | -5.5 | 6.0 | 8.5 | 0.7 | 1.5 | 1.9 | -0.1 | 2.2 | 3.8 |
| IMAD | -0.4 | 1.9 | 3.2 | -1.0 | 2.3 | 4.3 | 0.1 | 1.5 | 2.2 | -5.4 | 5.7 | 8.1 | 0.3 | 1.4 | 1.9 | -0.4 | 2.1 | 3.7 |

*Source: Bank of Slovenia, Consensus Economics, EIPF, EBRD, European Commission (EC), IMF, OECD, CCIS, IMAD.*

**Table 6: RMSE and SRMSE of GDP growth projections, based on second available data**

| *Real GDP* | RMSE | | | | | | SRMSE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 01-19 | 01-08 | 09-19 | 08 and 09 | excl. 08-09 | 04-19 | 01-19 | 01-08 | 09-19 | 08 and 09 | excl. 08-09 | 04-19 |
| ***spring projections*** | | | | | | | | | | | | |
| ***current year*** | | | | | | | | | | | | |
| BS | 1.8 | 1.1 | 2.1 | 4.3 | 1.2 | 1.9 | 0.5 | 0.8 | 0.6 | 0.5 | 0.5 | 0.5 |
| Consensus | 1.9 | 1.3 | 2.2 | 4.1 | 1.4 | 2.0 | 0.6 | 0.9 | 0.6 | 0.5 | 0.6 | 0.6 |
| EBRD | | | 1.5 | | | | | | 0.4 | | | |
| EIPF | 2.2 | 1.4 | 2.4 | 5.1 | 1.3 | 2.2 | 0.6 | 1.0 | 0.7 | 0.6 | 0.6 | 0.6 |
| EC | 1.6 | 1.3 | 1.8 | 3.3 | 1.3 | 1.7 | 0.5 | 0.9 | 0.5 | 0.4 | 0.5 | 0.5 |
| IMF | 1.8 | 1.3 | 2.1 | 3.8 | 1.4 | 1.9 | 0.5 | 0.9 | 0.6 | 0.5 | 0.6 | 0.5 |
| OECD | | | 1.4 | | | | | | 0.4 | | | |
| CCIS | 1.9 | 1.4 | 2.1 | 3.9 | 1.4 | 1.9 | 0.6 | 1.0 | 0.6 | 0.5 | 0.6 | 0.5 |
| IMAD | 1.5 | 1.2 | 1.7 | 2.9 | 1.3 | 1.6 | 0.5 | 0.8 | 0.5 | 0.3 | 0.5 | 0.4 |
| ***next year*** | | | | | | | | | | | | |
| BS | 3.3 | 4.4 | 2.2 | 8.4 | 1.9 | 3.7 | 1.0 | 3.1 | 0.6 | 1.0 | 0.8 | 1.0 |
| Consensus | 3.6 | 4.9 | 2.3 | 8.8 | 2.1 | 3.8 | 1.1 | 3.4 | 0.6 | 1.1 | 0.9 | 1.1 |
| EBRD | | | 2.5 | | | | | | 0.7 | | | |
| EIPF | 4.2 | 6.4 | 2.4 | 8.8 | 2.9 | 4.2 | 1.3 | 4.4 | 0.7 | 1.1 | 1.2 | 1.1 |
| EC | 3.3 | 4.4 | 2.2 | 8.4 | 2.0 | 3.6 | 1.0 | 3.0 | 0.6 | 1.0 | 0.8 | 1.0 |
| IMF | 3.3 | 4.3 | 2.2 | 8.1 | 2.0 | 3.6 | 1.0 | 3.0 | 0.6 | 1.0 | 0.9 | 1.0 |
| OECD | | | 2.2 | | | | | | 0.6 | | | |
| CCIS | 3.7 | 5.7 | 2.2 | 8.6 | 2.2 | 3.7 | 1.1 | 3.9 | 0.6 | 1.0 | 0.9 | 1.0 |
| IMAD | 3.5 | 4.5 | 2.3 | 8.6 | 2.1 | 3.8 | 1.0 | 3.1 | 0.6 | 1.0 | 0.9 | 1.0 |
| ***autumn projections*** | | | | | | | | | | | | |
| ***current year*** | | | | | | | | | | | | |
| BS | 0.8 | 0.7 | 0.9 | 1.1 | 0.8 | 0.9 | 0.2 | 0.5 | 0.2 | 0.1 | 0.3 | 0.2 |
| Consensus | 0.9 | 0.9 | 1.0 | 1.5 | 0.8 | 1.0 | 0.3 | 0.6 | 0.3 | 0.2 | 0.4 | 0.3 |
| EBRD | | | 1.0 | | | | | | 0.3 | | | |
| EIPF | 1.1 | 1.1 | 1.1 | 2.1 | 0.8 | 1.1 | 0.3 | 0.8 | 0.3 | 0.2 | 0.4 | 0.3 |
| EC | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.2 | 0.5 | 0.2 | 0.1 | 0.3 | 0.2 |
| IMF | 1.2 | 1.1 | 1.3 | 2.4 | 1.0 | 1.3 | 0.4 | 0.7 | 0.4 | 0.3 | 0.4 | 0.3 |
| OECD | | | 0.6 | | | | | | 0.2 | | | |
| CCIS | 0.8 | 0.9 | 0.8 | 1.1 | 0.8 | 0.9 | 0.2 | 0.6 | 0.2 | 0.1 | 0.3 | 0.2 |
| IMAD | 0.7 | 0.8 | 0.7 | 0.9 | 0.7 | 0.8 | 0.2 | 0.5 | 0.2 | 0.1 | 0.3 | 0.2 |
| ***next year*** | | | | | | | | | | | | |
| BS | 3.2 | 4.3 | 2.0 | 8.1 | 1.9 | 3.5 | 1.0 | 3.0 | 0.6 | 1.0 | 0.8 | 1.0 |
| Consensus | 3.2 | 4.3 | 2.0 | 8.1 | 1.9 | 3.5 | 1.0 | 3.0 | 0.5 | 1.0 | 0.8 | 1.0 |
| EBRD | | | 2.5 | | | | | | 0.7 | | | |
| EIPF | 3.7 | 5.6 | 2.2 | 8.5 | 2.1 | 3.7 | 1.1 | 3.9 | 0.6 | 1.0 | 0.9 | 1.0 |
| EC | 3.1 | 4.1 | 1.9 | 7.7 | 1.8 | 3.3 | 0.9 | 2.8 | 0.5 | 0.9 | 0.8 | 0.9 |
| IMF | 3.4 | 4.3 | 2.4 | 8.3 | 2.1 | 3.7 | 1.0 | 3.0 | 0.7 | 1.0 | 0.9 | 1.0 |
| OECD | | | 1.9 | | | | | | 0.5 | | | |
| CCIS | 3.4 | 4.9 | 2.1 | 8.1 | 2.0 | 3.5 | 1.0 | 3.4 | 0.6 | 1.0 | 0.8 | 1.0 |
| IMAD | 3.2 | 4.1 | 2.1 | 7.9 | 1.9 | 3.4 | 0.9 | 2.9 | 0.6 | 0.9 | 0.8 | 0.9 |

*Source: Bank of Slovenia, Consensus Economics, EIPF, EBRD,, European Commission (EC), IMF, OECD, CCIS, IMAD.*

**Table 7: Basic accuracy measures of inflation projections, based on second available data**

| *HICP/CPI* | 2001–2019 | | | 2001–2008 | | | 2009–2019 | | | 2008 and 2009 | | | excl. 2008–2009 | | | 2004–2019 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | 0.0 | 0.3 | 0.4 | 0.2 | 0.3 | 0.4 | 0.1 | 0.4 | 0.6 | 0.1 | 0.3 | 0.5 |
| Consensus | -0.1 | 0.6 | 0.7 | 0.1 | 0.7 | 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 | 0.7 | -0.1 | 0.7 | 0.9 | 0.7 | 0.7 | 0.4 | 0.0 | 0.6 | 0.8 | 0.1 | 0.6 | 0.8 |
| EC | 0.0 | 0.4 | 0.5 | 0.0 | 0.5 | 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 | 0.5 | 0.7 | 0.9 | 0.1 | 0.4 | 0.4 | 1.0 | 1.0 | 0.8 | 0.1 | 0.5 | 0.7 | 0.3 | 0.5 | 0.7 |
| OECD | | | | | | | -0.1 | 0.4 | 0.4 | | | | | | | | | |
| CCIS | -0.1 | 0.4 | 0.5 | 0.2 | 0.5 | 0.7 | -0.2 | 0.4 | 0.4 | 0.1 | 0.2 | 0.3 | -0.1 | 0.4 | 0.6 | -0.1 | 0.4 | 0.5 |
| IMAD | 0.1 | 0.5 | 0.6 | 0.1 | 0.6 | 0.8 | 0.2 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.1 | 0.5 | 0.6 | 0.3 | 0.4 | 0.5 |
| ***next year*** | | | | | | | | | | | | | | | | | | |
| BS | 0.1 | 1.0 | 1.4 | 0.5 | 1.4 | 1.8 | -0.3 | 0.7 | 0.9 | -1.2 | 1.5 | 2.1 | 0.2 | 1.0 | 1.3 | -0.1 | 1.0 | 1.3 |
| Consensus | -0.4 | 1.1 | 1.4 | 0.0 | 1.6 | 2.0 | -0.6 | 0.8 | 1.0 | -1.6 | 1.6 | 1.3 | -0.2 | 1.0 | 1.4 | -0.4 | 1.1 | 1.5 |
| EIPF | -0.1 | 1.4 | 1.9 | 0.9 | 2.3 | 2.8 | -0.6 | 1.0 | 1.2 | -2.1 | 2.1 | 0.0 | 0.2 | 1.3 | 1.9 | -0.1 | 1.4 | 1.9 |
| EC | -0.4 | 1.0 | 1.3 | -0.4 | 1.6 | 1.9 | -0.4 | 0.6 | 0.9 | -1.2 | 1.3 | 1.8 | -0.3 | 1.0 | 1.3 | -0.2 | 0.9 | 1.3 |
| IMF | -0.1 | 1.1 | 1.4 | 0.3 | 1.5 | 1.8 | -0.4 | 0.7 | 0.9 | -0.5 | 1.1 | 1.5 | -0.1 | 1.1 | 1.4 | -0.1 | 1.0 | 1.3 |
| OECD | | | | | | | -0.2 | 0.9 | 1.0 | | | | | | | | | |
| CCIS | -0.3 | 1.0 | 1.4 | 0.2 | 1.5 | 2.1 | -0.5 | 0.7 | 0.9 | -1.2 | 1.5 | 2.1 | -0.1 | 0.9 | 1.3 | -0.3 | 1.0 | 1.4 |
| IMAD | -0.1 | 0.9 | 1.2 | 0.2 | 1.2 | 1.6 | -0.3 | 0.6 | 0.8 | -0.9 | 1.4 | 2.0 | 0.0 | 0.8 | 1.2 | -0.1 | 0.9 | 1.3 |
| ***autumn projections*** | | | | | | | | | | | | | | | | | | |
| ***current year*** | | | | | | | | | | | | | | | | | | |
| BS | -0.1 | 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 | 0.3 | -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 | 0.0 | 0.2 | 0.3 | 0.0 | 0.2 | 0.3 |
| EIPF | 0.0 | 0.3 | 0.4 | -0.1 | 0.4 | 0.5 | 0.0 | 0.2 | 0.3 | -0.3 | 0.4 | 0.5 | 0.0 | 0.3 | 0.4 | 0.0 | 0.3 | 0.4 |
| 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 | 0.0 | 0.4 | 0.5 | -0.1 | 0.5 | 0.6 | 0.1 | 0.3 | 0.4 | 0.0 | 0.4 | 0.6 | 0.0 | 0.4 | 0.5 | 0.0 | 0.3 | 0.4 |
| OECD | | | | | | | 0.0 | 0.1 | 0.2 | | | | | | | | | |
| CCIS | -0.1 | 0.3 | 0.3 | -0.2 | 0.3 | 0.4 | 0.0 | 0.2 | 0.3 | -0.2 | 0.3 | 0.4 | -0.1 | 0.3 | 0.4 | 0.0 | 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 | -0.1 | 0.9 | 1.2 | 0.1 | 1.1 | 1.5 | -0.2 | 0.7 | 0.9 | -1.0 | 1.6 | 2.3 | 0.0 | 0.8 | 1.0 | -0.2 | 0.9 | 1.2 |
| Consensus | -0.3 | 1.0 | 1.4 | -0.2 | 1.5 | 2.0 | -0.4 | 0.6 | 0.9 | -1.6 | 1.6 | 2.2 | -0.1 | 0.9 | 1.2 | -0.3 | 1.0 | 1.4 |
| EIPF | 0.1 | 1.2 | 1.6 | 0.3 | 1.8 | 2.4 | 0.0 | 0.9 | 1.1 | -1.2 | 2.0 | 2.8 | 0.3 | 1.0 | 1.4 | 0.1 | 1.2 | 1.6 |
| EC | -0.3 | 1.0 | 1.3 | -0.4 | 1.4 | 1.8 | -0.3 | 0.8 | 1.0 | -1.2 | 1.6 | 2.3 | -0.2 | 0.9 | 1.2 | -0.2 | 1.0 | 1.3 |
| IMF | -0.1 | 1.0 | 1.2 | 0.0 | 1.3 | 1.6 | -0.2 | 0.7 | 0.9 | -0.9 | 1.5 | 2.1 | 0.0 | 0.9 | 1.1 | -0.1 | 0.9 | 1.2 |
| OECD | | | | | | | -0.1 | 0.8 | 1.0 | | | | | | | | | |
| CCIS | -0.3 | 1.0 | 1.3 | -0.1 | 1.3 | 1.7 | -0.5 | 0.9 | 1.1 | -1.0 | 1.8 | 2.5 | -0.3 | 0.9 | 1.2 | -0.3 | 1.0 | 1.4 |
| IMAD | -0.3 | 0.9 | 1.2 | -0.2 | 1.2 | 1.6 | -0.3 | 0.7 | 0.8 | -1.2 | 1.8 | 2.5 | -0.2 | 0.8 | 1.0 | -0.2 | 0.9 | 1.2 |

*Source: Bank of Slovenia, Consensus Economics, EIPF, European Commission (EC), IMF, OECD, CCIS, IMAD.*

**Table 8: RMSE and SRMSE of inflation projections, based on second available data**

| *HICP/CPI* | RMSE | | | | | | SRMSE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 01-19 | 01-08 | 09-19 | 08 and 09 | excl. 08-09 | 04-19 | 01-19 | 01-08 | 09-19 | 08 and 09 | excl. 08-09 | 04-19 |
| ***spring projections*** | | | | | | | | | | | | |
| ***current year*** | | | | | | | | | | | | |
| BS | 0.5 | 0.7 | 0.4 | 0.4 | 0.5 | 0.4 | 0.2 | 0.3 | 0.4 | 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 | 0.4 | 0.4 | 0.8 | 0.2 | 0.4 | 0.5 |
| EC | 0.5 | 0.7 | 0.4 | 0.2 | 0.5 | 0.4 | 0.2 | 0.4 | 0.4 | 0.0 | 0.2 | 0.3 |
| IMF | 0.7 | 1.0 | 0.4 | 1.1 | 0.7 | 0.7 | 0.3 | 0.5 | 0.4 | 0.3 | 0.3 | 0.5 |
| OECD | | | 0.4 | | | | | | 0.4 | | | |
| CCIS | 0.5 | 0.6 | 0.5 | 0.2 | 0.5 | 0.5 | 0.2 | 0.3 | 0.4 | 0.1 | 0.2 | 0.3 |
| IMAD | 0.6 | 0.8 | 0.4 | 0.4 | 0.6 | 0.6 | 0.3 | 0.4 | 0.4 | 0.1 | 0.3 | 0.4 |
| ***next year*** | | | | | | | | | | | | |
| BS | 1.4 | 1.8 | 0.9 | 1.9 | 1.3 | 1.3 | 0.6 | 0.9 | 0.8 | 0.6 | 0.6 | 0.8 |
| Consensus | 1.5 | 1.8 | 1.2 | 1.8 | 1.4 | 1.5 | 0.7 | 1.0 | 1.1 | 0.6 | 0.6 | 1.0 |
| EIPF | 1.9 | 2.7 | 1.3 | 2.1 | 1.8 | 1.9 | 0.8 | 1.4 | 1.2 | 0.6 | 0.8 | 1.2 |
| EC | 1.4 | 1.8 | 1.0 | 1.7 | 1.3 | 1.3 | 0.6 | 0.9 | 0.9 | 0.5 | 0.6 | 0.8 |
| IMF | 1.4 | 1.7 | 1.0 | 1.1 | 1.4 | 1.3 | 0.6 | 0.9 | 0.9 | 0.4 | 0.6 | 0.8 |
| OECD | | | 1.0 | | | | | | 0.9 | | | |
| CCIS | 1.4 | 1.9 | 1.0 | 1.9 | 1.3 | 1.4 | 0.6 | 1.0 | 0.9 | 0.6 | 0.6 | 0.9 |
| IMAD | 1.2 | 1.5 | 0.9 | 1.7 | 1.1 | 1.3 | 0.5 | 0.8 | 0.8 | 0.5 | 0.5 | 0.8 |
| ***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 | 0.2 |
| Consensus | 0.3 | 0.5 | 0.2 | 0.4 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 | 0.2 |
| EIPF | 0.4 | 0.5 | 0.3 | 0.4 | 0.3 | 0.4 | 0.2 | 0.2 | 0.3 | 0.1 | 0.2 | 0.2 |
| EC | 0.4 | 0.7 | 0.1 | 0.5 | 0.4 | 0.2 | 0.2 | 0.4 | 0.1 | 0.2 | 0.2 | 0.2 |
| IMF | 0.5 | 0.6 | 0.4 | 0.4 | 0.5 | 0.3 | 0.2 | 0.3 | 0.3 | 0.1 | 0.2 | 0.2 |
| OECD | | | 0.2 | | | | | | 0.1 | | | |
| CCIS | 0.3 | 0.4 | 0.3 | 0.3 | 0.4 | 0.3 | 0.2 | 0.2 | 0.3 | 0.1 | 0.2 | 0.2 |
| IMAD | 0.5 | 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 | 1.1 | 1.4 | 0.9 | 1.9 | 1.0 | 1.2 | 0.5 | 0.7 | 0.8 | 0.6 | 0.5 | 0.8 |
| Consensus | 1.4 | 1.9 | 0.9 | 2.2 | 1.2 | 1.4 | 0.6 | 1.0 | 0.9 | 0.7 | 0.5 | 0.9 |
| EIPF | 1.5 | 2.2 | 1.0 | 2.3 | 1.3 | 1.5 | 0.7 | 1.1 | 0.9 | 0.7 | 0.6 | 1.0 |
| EC | 1.3 | 1.7 | 1.0 | 2.0 | 1.1 | 1.2 | 0.6 | 0.9 | 0.9 | 0.6 | 0.5 | 0.8 |
| IMF | 1.2 | 1.5 | 0.9 | 1.7 | 1.1 | 1.2 | 0.5 | 0.8 | 0.8 | 0.5 | 0.5 | 0.8 |
| OECD | | | 0.9 | | | | | | 0.8 | | | |
| CCIS | 1.3 | 1.6 | 1.1 | 2.0 | 1.2 | 1.3 | 0.6 | 0.8 | 1.0 | 0.6 | 0.5 | 0.9 |
| IMAD | 1.2 | 1.5 | 0.9 | 2.2 | 1.0 | 1.2 | 0.5 | 0.8 | 0.8 | 0.7 | 0.4 | 0.8 |

*Source: Bank of Slovenia, Consensus Economics, EIPF, European Commission (EC), IMF, OECD, CCIS, IMAD.*