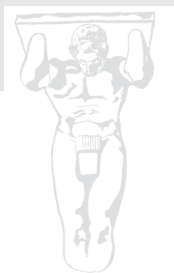


**BANKA
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EUROSYSTEM**



BANK OF SLOVENIA STAFF ANALYSIS

**ASSESSING THE IMPACT
OF THE COVID-19 OUTBREAK
ON THE SLOVENIAN
ECONOMIC OUTLOOK**

MARCH 2020

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Povzetek

Prvi primer COVID-19 je bil v Sloveniji potrjen 4. marca 2020, do 26. marca 2020 pa je bilo zabeleženih skupaj 562 primerov okužbe in 6 smrtnih primerov. Tako kot druge države je tudi slovenska vlada sprejela vrsto ukrepov za zaježitev širjenja novega koronavirusa in sploščevanje krivulje epidemije. Sicer potrebni ukrepi za zaježitev širjenja koronavirusa pa bodo imeli v Sloveniji in drugih državah po pričakovanjih izdatne negativne učinke na gospodarsko rast. Take obete že potrjujejo različni konvencionalni in nekonvencionalni visokofrekvenčni kazalniki, ki namigujejo na precejšnje zmanjšanje aktivnosti v Sloveniji in po svetu.

Za oceno učinkov epidemije COVID-19 na slovensko gospodarstvo so bili pripravljeni trije scenariji, ki se razlikujejo glede na število tednov zaustavitve (od 6 do 14 tednov) in hitrosti okrevanja po odpravi zaustavitve. Scenariji upoštevajo različne šoke po dejavnostih, njihov obseg pa je bil določen s kombinacijo mnenj strokovnjakov ter razpoložljivih informacij in študij (za Slovenijo in druge države). Trije scenariji predvidevajo, da se bo del šokov, ki so po obsegu največji v tednih zaustavitve, prenesel tudi v mesece po odpravi zaustavitve. Obseg teh prenosov se spreminja po različnih scenarijih in dejavnostih, določajo pa tudi hitrost gospodarskega okrevanja. Ocene učinkov epidemije na BDP in druge makroekonomske spremenljivke, vključno z zasebno potrošnjo, stopnjo brezposelnosti, zaposlenostjo in inflacijo, se tako med scenariji razlikujejo. Z enakimi scenariji se ocenjuje tudi učinek politike odloga odplačevanja posojil na likvidnostni položaj bank. V ocenah niso upoštevani učinki ukrepov za blažitev gospodarskih posledic epidemije, ki so napovedani ali se že izvajajo s strani denarne in fiskalne politike.

V spodnji tabeli je prikazan povzetek ocen stopenj rasti za leto 2020 za navedene makroekonomske spremenljivke in pristopov, ki so bili uporabljeni za ocenjevanje. Rezultati kažejo, da se resnost učinkov po scenarijih zaostruje in da letos obstaja velika verjetnost močnejšega padca gospodarske aktivnosti, kot smo jo doživeli na začetku prejšnje svetovne gospodarske in finančne krize. Ocenjujemo namreč, da bi se BDP letos lahko skrčil med 6,2 % in 16,1 %, medtem ko je padec gospodarske aktivnosti v letu 2009 znašal 7,5 %.

Povzetek ocenjenih učinkov epidemije COVID-19 na izbrane makroekonomske agregate

	BDP		Zasebna potrošnja		Stopnja brezposelnosti	Zaposlenost	HICP
Pristop	Proizvodna stran	Model vektorske avtoregresije	Po komponentah		Okunov zakon s statičnimi elastičnostmi	Phillipsova krivulja	
Scenarij 1	-6,2	-7,3	-2,4		6,0	-1,8	-0,1
Scenarij 2	-10,2	-10,7	-4,6		7,0	-3,0	-0,6
Scenarij 3	-16,1	-15,2	-9,0		8,5	-4,7	-1,1

Opomba: BDP in zasebna potrošnja sta merjena v konstantnih cenah z referenčnim letom 2010. Vse vrednosti v tabeli, razen za stopnjo brezposelnosti, so predstavljene kot medletne rasti v %.

Vir: Ocene avtorjev.

Prav tako bo upadla zasebna potrošnja, predvsem v delih, kjer je potreben neposreden stik med kupcem in ponudnikom storitev oz. prodajalcem, npr. v primeru gostinskih in hotelskih storitev, prevoza ter storitev povezanih z rekreacijo in kulturo. V primeru različnih scenarijev se ob pričakovanju, da se bo potrošnja v določenem delu nadomestila s spletnimi nakupi, ocenjuje, da bo ta upadla za med 2,4 in 9 %.

Ukrepi za zaježitev okužbe bodo imeli velik vpliv tudi na trg dela. Medletni padec zaposlenosti naj bi v odsotnosti ukrepov glede na različne scenarije znašal med 1,8 in 4,7 %, stopnja brezposelnosti pa bi se lahko več kot podvojila. Končni učinki na trg dela bodo še posebno odvisni od učinkovitosti predlaganih ukrepov za blaženje posledic krize, ki naj bi znatno znižali stroške dela med trajanjem epidemije in s tem prispevali k ohranitvi delovnih mest.

Negotov je tudi vpliv aktualnih razmer na inflacijo. Glede na različne scenarije bi se cene medletno lahko v povprečju znižale do okoli enega odstotka. Letos bodo rast cen ob strmoglavljenju svetovnih cen nafte v večji meri zniževali cenejši energenti, medtem ko bo medletna rast cen hrane še porasla. Ob upadu povpraševanja po storitvah osebne nege in rekreacije, počitniških paketov in nastanitev ter transporta se bo pomembno znižala tudi osnovna inflacija.

Ob negativni gospodarski rasti se bo zadolženost države povečala. Zgolj padec BDP, ki ga predvideva ta analiza, bo povečal zadolženost države na med približno 70 in 80 % BDP. V to oceno niso všteti fiskalni ukrepi države, zaradi katerih se bo na eni strani povečala raven nominalnega dolga, na drugi strani pa bodo ti ukrepi nekoliko ublažili padec gospodarske aktivnosti.

Zagon ponovnega investicijskega cikla bo odvisen od sposobnosti tako podjetij kot bank, da preživijo obdobje trajanja omejitev. V zagotavljanje preživetja podjetij je usmerjen tudi interventni ukrep odloga plačila obveznosti kreditojemalcem. Po oceni Banke Slovenije bo ta ukrep ob upoštevanju nekaterih predpostavk in omenjenih scenarijev banke prikrajšal za denarni tok med 0,9 in 1,6 milijarde EUR. V najbolj neugodnem scenariju, kjer vsa podjetja pod vplivom šoka koronavirusa zaprosijo za odlog odplačil, pa bo izpad denarnega toka znašal 2 milijardi EUR. Banke imajo tudi po tem scenariju dovolj likvidnih sredstev – izpad denarnega toka znaša 35 % primarne likvidnosti – in bi, v odsotnosti bankrotov podjetij in kopičenja izgub s tega naslova, morale biti sposobne zagotavljati gospodarstvu sredstva za ponoven zagon aktivnosti.

Na podlagi do zdaj razpoložljivih podatkov tudi druge institucije predvidevajo, da se bo gospodarska aktivnost v Sloveniji letos močno zmanjšala. Napovedana rast BDP za leto 2020 v Sloveniji v obdobju od 18. do 23. marca 2020 znaša od –2,4 % do –6,3 % v blagih (osnovnih) scenarijih in od –7,8 % do –14,0 % v ostrejših (pesimističnih) scenarijih.

Izbruh novega koronavirusa predstavlja zelo resen izziv za slovensko gospodarstvo, kar potrjujejo tudi prve ocene. Izvedeni in napovedani ukrepi (podrobno razloženi v 6. poglavju) slovenske vlade, Evropske unije, MDS in ECB, ki v oceno učinkov niso bili vključeni, bi lahko pomembno ublažili njihov obseg in omejili trajanje šokov po tem, ko bo epidemija izzvenela.

Executive summary

Since the first confirmed case with COVID-19 on 04 March 2020 until 26 March 2020, Slovenia has recorded a total of 562 cases and 6 case fatalities. Similar to other countries, the Government of Slovenia has enacted sequential mitigation measures to contain the spread of the novel coronavirus and to, consequently, “flatten the epidemic curve”. While necessary, the enacted mitigation measures, in Slovenia and other countries, are expected to inflict adverse impacts on the economy at large. Such an outlook is already signalled by various conventional and unconventional high-frequency indicators, which hint to a substantial drop in activity, in Slovenia and globally.

To estimate the impact of the recent COVID-19 epidemic on the Slovenian economy, three scenarios have been designed internally which vary with the number of lock-down weeks (ranging from 6 to 14 weeks) and speed of recovery following the lock-down lift. The scenarios account for different shocks to the various GDP activities, the sizes of which has been internally specified using a combination of expert judgment and currently available information. While all three scenarios foresee for a share of the shocks, which are by construction largest during the respective lock-down periods, to drag into the coming months following the lock-down withdrawal, the magnitude of these transmissions varies across scenarios and activities, consequently driving the expected recovery in each scenario. These scenarios serve as the basis for the analysis undertaken to assess the impact of the epidemic on GDP, and then feed into the analyses undertaken to assess the adverse impact of the COVID-19 related adversities on other variables, including private consumption, unemployment rate, employment and inflation. Last but not least, the same scenarios are accounted for to assess the effect of loan repayment deferral policy on liquidity position of banks. Across all the analyses presented in this report, the baseline pertains to the December 2019 BMPE projections. Moreover, no policy intervention is accounted for in any of the estimations.

A summary of estimated 2020 growth rates for mentioned macroeconomic variables and respective estimation approaches is depicted in the table below. As observed, while the severity of the impact deepens as we move along the scenarios, the results suggest that the toll on the Slovenian economy stemming from the novel coro-

Summary of estimated impacts of the COVID-19 epidemic on considered macroeconomic variable						
Variable	GDP		PCR	Unemployment rate	Employment	HICP
Approach	Production Side	VAR	Component Based	Static Okun's Law elasticities	Static Okun's Law elasticities	Phillips Curve
Scenario 1	-6.2	-7.3	-2.4	6.0	-1.8	-0.1
Scenario 2	-10.2	-10.7	-4.6	7.0	-3.0	-0.6
Scenario 3	-16.1	-15.2	-9.0	8.5	-4.7	-1.1

Note: GDP and private consumption (PCR) in constant prices, reference year 2010. All figures are in year-on-year growth in %, with the exception of unemployment rate.

Source: Authors' estimations.

navirus outbreak may outweigh that of the Great Financial Crisis, in particular for GDP, with an estimate range of -6.2% to -16.1% year-on-year (y-o-y) growth rate for 2020.

Based on figures available thus far, other institutions also suggest a significant drop in Slovene activity. Projected 2020 GDP growth estimates for Slovenia undertaken by domestic institutions in the period 18 – 23 March 2020, range from -2.4% to -6.3% in the mild (base) scenarios and from -7.8% to -14.0% in the severe (pessimistic) scenarios. Compared to these, our estimations fall between the upper bound of the mild scenario and outweigh the one of the severe scenario.

While the severity of the novel coronavirus outbreak is estimated to be substantial, the already enacted and announced policy measures (explained in detail in Section 5), by the Government of Slovenia, the European Union, the IMF and the ECB, may mitigate the extent of these effects and curtail the lingering of shocks in the periods following the dissipation of the epidemic.

1 | Epidemiological developments and containment measures in Slovenia

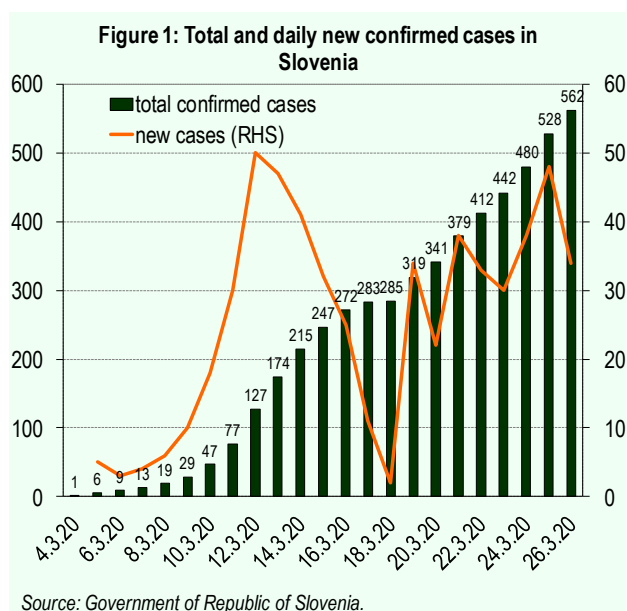
Slovenia confirmed the first case with COVID-19 on 04 March 2020. As of 26 March 2020, there are a total of 562 confirmed cases and 6 case fatalities, resulting in a case mortality rate of 1.1%. Since the first confirmed case and until 26 March 2020, the number of newly confirmed cases per day peaked on 12 March 2020 with 50 new cases, and has thereafter been lower, with the number of newly confirmed cases in the last week (20 – 26 March 2020) averaging 35 new infected individuals per day. In this respect, we emphasize that during this period, the testing procedures have changed, which in turn may make the comparison of the number of new cases over time less reliable. Compared to other affected countries, so far Slovenia ranks 27th (out of 184 countries) with total number of confirmed cases per 1 million inhabitants.¹

Following the first confirmed case in the country, Government of Slovenia sequentially enacted different measures to contain the spread of the novel coronavirus and to, consequently, “flatten the epidemic curve”. A timeline of key (thus far) enacted mitigation measures and announcements is listed below:

- 9 March 2020 – The National Security Council adopted several measures to contain the spread of the novel coronavirus, including: prohibition of all indoor public events for 100-plus visitors;
- 10 March 2020 – Flights to Slovenia from Italian airports located in affected areas, China, South Korea and Iran suspended;
- 12 March 2020 – Slovenia officially declares COVID-19 an epidemic and temporarily closes kindergartens and schools. Train connections between Slovenia and Italy suspended;

- 15 March 2020 – Public transportation suspended;
- 16 March 2020 – Most public places in Slovenia closed (i.e. tourist attractions, museums, libraries, galleries, restaurants and bars, lodgings and wellness centres). Only grocery stores, pharmacies, petrol stations, banks, post offices and kiosks remain open;
- 17 March 2020 – Air traffic with Slovenia suspended;
- 20 March 2020 - Public gatherings in public places prohibited.²

While such and similar containment measures, in Slovenia and other countries, are necessary to enable the health sector to provide unconstrained care to infected residents, they will simultaneously inflict adverse impacts to the economy at large.



¹ Data retrieved from <https://ourworldindata.org/grapher/total-confirmed-cases-of-covid-19-per-million-people?region=Europe>.

² A detailed description of the measure is published on the website of the Government of Slovenia: <https://www.gov.si/en/news/2020-03-19-ordinance-on-the-temporary-prohibition-of-public-gathering-at-public-meetings-and-public-events-and-other-events-in-public-places-in-the-republic-of-slovenia/>

2 | Signals based on high-frequency indicators

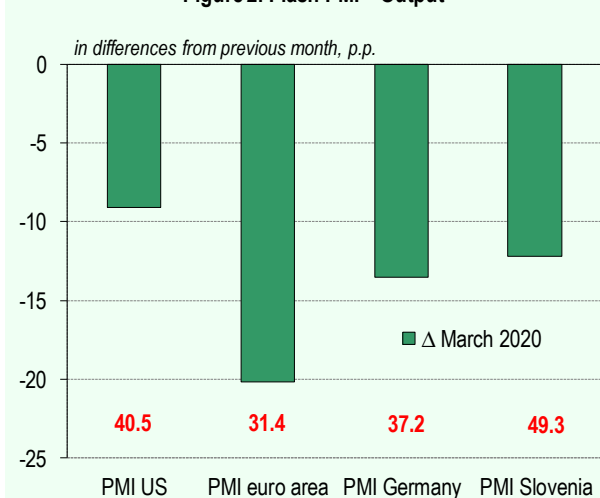
Following some improvement in the beginning of this year, currently available high-frequency indicators point to a significant drop in activity in the current quarter for the Eurozone. This underlines, primarily, adverse impact from COVID-19 related developments to the large economies, including our main trading partners, Germany and Italy. The IHS Markit Eurozone composite PMI, published on 24 March 2020, signals the possibility of a recession that outweighs that of the Great Financial Crisis (GFC). The level of the indicator dropped to its historical low of 31.4 in March 2020, surpassing the prior low of 36.2 recorded in February 2009.

Across sectors, the Eurozone PMI indicates a severe hit to services, especially travel, tourism and restaurants, which necessitate face-to-face interaction with consumers. Impact to manufacturing was less severe, but still considerable, with the monthly contraction outweighing the prior low of April 2009. Other indicators suggest adverse developments in other components as well, includ-

ing a substantial impact on employment, with services sector job cuts at the steepest rate since May 2009. Supply chains faced considerable distortions, but different from the past, resulting supply constraints saw a large fall in industrial prices also.

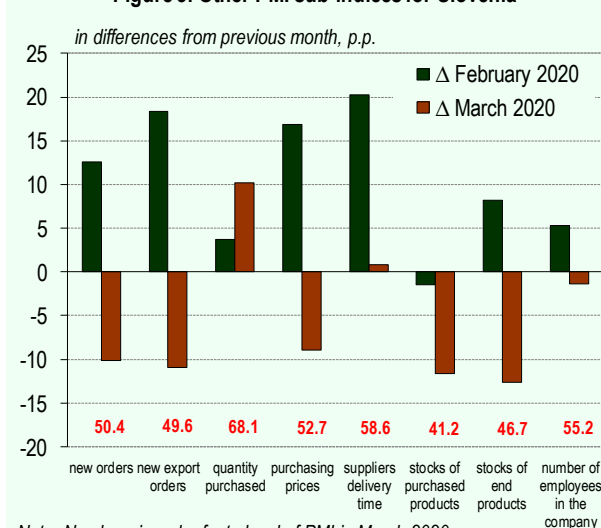
For Slovenia, while the difference compared to the previous month is also substantial, the level remains above the euro zone PMI for March. However, PMI figures for April 2020 are expected to portray a much more severe picture, as they will entail a more complete set of information available. Other PMI sub-components for Slovenia are displayed in the picture below. As observed, apart from the *quantity purchased* and *suppliers delivery time*, all other indicators have worsened, even though in levels they still remain relatively solid, with the exception of sub-components pertaining to stocks. This suggests that during March, some *stockpiling* before anticipated lock-down measures could have taken place.

Figure 2: Flash PMI – Output



Note: Numbers in red refer to level of PMI in March 2020.
Source: IHS Markit for US, Germany and Euro Zone, ZNS for Slovenia.

Figure 3: Other PMI sub-indices for Slovenia



Note: Numbers in red refer to level of PMI in March 2020.
Source: ZNS.

While other conventional high-frequency indicators for Slovenia are not yet available¹, unconventional indicators signal significant impact of the mitigation measures to contain the COVID-19 outbreak already in March. Looking at Google Trends for Slovenia until 26 March 2020, the search frequency of the term “odpoved” (“cancellation”) has spiked in the most recent period. A similar spike is observed also for the term “zdr-1” (“labour relations act”), which suggests adverse impact on employment and/or heightened uncertainty of employees about their employment contracts. This is also supported by the

number of newly registered unemployed persons at the Employment Office of Slovenia, which exceeded 2,000 applications between 09 March and 22 March; about a tenth more than in the same period last year. Nevertheless, as this number refers only to newly registered unemployed persons, it does not imply an overall effect for the total unemployment. Regarding other developments, terms such as “letalske karte” (“plane ticket”) have decreased in the recent period, suggesting an adverse impact on travel services and potentially tourism. On the other hand, frequency of searches for “spletna

Figure 4: “Cancellation” (“Odpoved”)

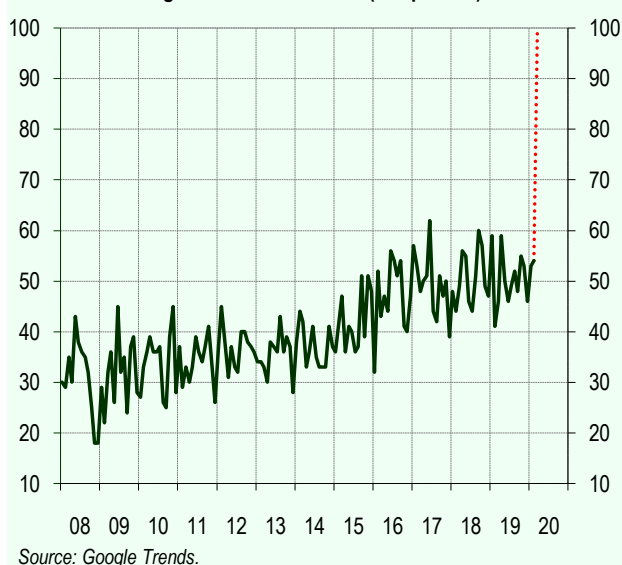


Figure 6: “Plane tickets” (“Letalske karte”)



Figure 5: “Labour relations act” (“Zdr-1”)

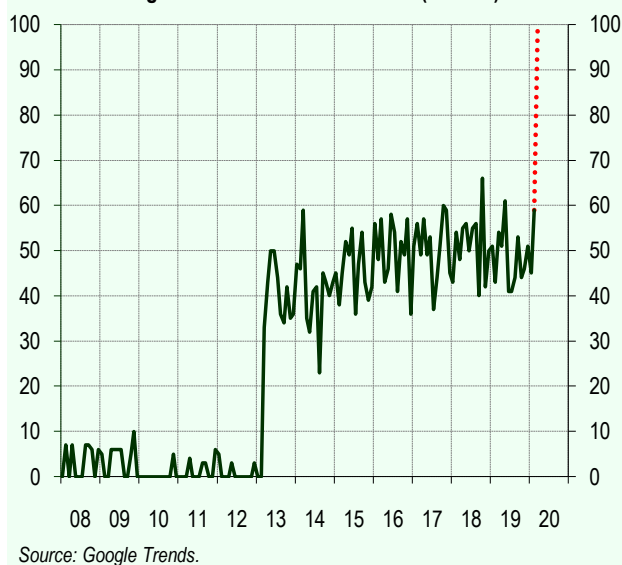
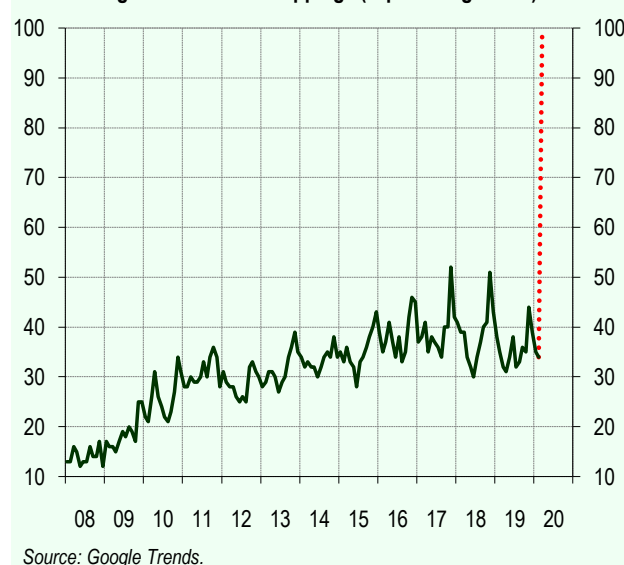


Figure 7: “Online shopping” (“spletna trgovina”)



¹ SORS has postponed the publication of relevant timely high-frequency indicators, which otherwise would have been published during the period 20 – 27 March 2020, such as: sentiment indicator for March, business tendencies for March and consumer survey for March. Announced date of publication is 30 March 2020. More information on: <https://www.stat.si/StatWeb/en/News/Index/8729>.

trgovina ("online shopping") has soared in March, suggesting that consumers are substituting face-to-face purchases with online shopping. Other indicators, such as TARGET2 payment data, which co-move very closely with y-o-y growth rate of real GDP, also suggest worsening growth dynamics of Slovenian economic activity.

Overall, given the limited set of information available thus far for Slovenia, we expect for the dual shock (i.e. supply and demand shock) stemming from the adversities due to the COVID-19 outbreak, to hit both external and domestic side of the economy. While the former has been under scrutiny in the recent period due to largely unfavourable

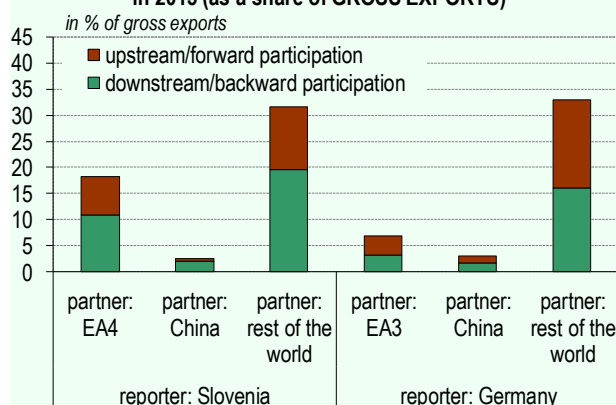
external environment developments (prior to the novel coronavirus outbreak), the latter has remained relatively solid and served as the main driver of growth. While the outbreak of COVID-19 to the euro area will worsen the external side of the Slovenian economy, the mitigation measures enacted to contain the outbreak of the novel coronavirus in Slovenia will shatter the domestic side as well, thus exhausting the main cushion and driver of Slovenian GDP in the recent period.

3 | Slovenia's exposure from a global value chain perspective

As a small and open economy, Slovenia is highly integrated in global value chains (GVC). In general, GVC participation is higher in small economies, especially as they usually do not have sufficient natural resources and are unable to exploit economies of scale due to limited size of the domestic market (Gunnella, Fidora, and Schmitz, 2017).¹ In 2019 for example, Slovenia's share of exports and imports in GDP (84.4% and 75.3%, respectively), was significantly higher than comparable average figures for the EA (48% and 44.1%, respectively) or Germany (46.9% and 40.9%, respectively).² Consequently, Slovenia's GVC participation was higher than for Germany in 2015 (52.4% and 42.9%, respectively), the last available data in TiVA database.³

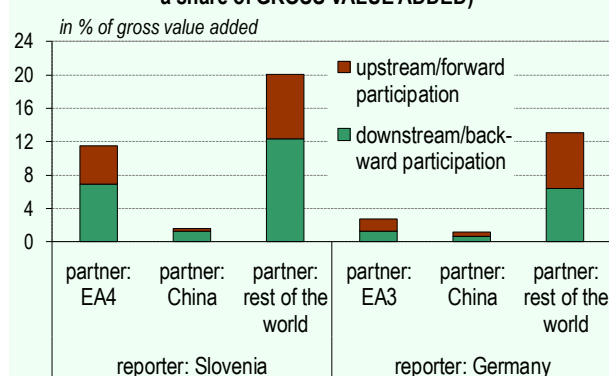
Nevertheless, the difference to countries' exposure due to GVC integration becomes more striking when comparing their backward and forward linkages as a share of value added. In this respect, backward or downstream participation denotes foreign value added embedded in inputs that are used in the production of exported outputs, while forward or upstream participation denotes value added of intermediate goods that are used as inputs in the foreign country's production of exports. In 2015, Slovenia's total exposure (backward and forward linkages combined) amounted to 33.2% of value added, while in Germany it was only 17% of value added. Consequently, Slovenian firms are expected to be more obstructed by interrupted GVCs due to coronavirus than German firms.

Figure 8: GVC participation of Slovenia and Germany in 2015 (as a share of GROSS EXPORTS)



Note: Backward or downstream participation denotes foreign value added embedded in inputs that are used in the production of exported outputs. Forward or upstream participation denotes value added of intermediate goods that are used as inputs in the foreign country's production of exports. EA4: France, Germany, Italy, and Spain. EA3: France, Italy, and Spain. Source: TiVA database, Authors' calculations.

Figure 9: GVC participation of Slovenia and Germany in 2015 (as a share of GROSS VALUE ADDED)



Note: Backward or downstream participation denotes foreign value added embedded in inputs that are used in the production of exported outputs. Forward or upstream participation denotes value added of intermediate goods that are used as inputs in the foreign country's production of exports. Value added is defined as production (gross output) minus total intermediate inputs. EA4: France, Germany, Italy, and Spain. EA3: France, Italy, and Spain. Source: TiVA database, Authors' calculations.

¹ Gunnella, V., Fidora, M., and Schmitz, M. (2017). The impact of global value chains on the macroeconomic analysis of the euro area. Economic Bulletin, Issue 8.

² Data retrieved from: <https://ec.europa.eu/eurostat/data/database>.

³ Data for the GVC analysis was retrieved from the OECD Trade in Value Added (TiVA) database, available at: <https://www.oecd.org/sti/ind/measuring-trade-in-value-added.htm>.

Going forward, we study Slovenia's backward and forward GVC linkages for estimating its exposure to disruption in GVC. Taking into account 2015 data, 20.5% of value added in Slovenia would be exposed due to backward linkages, compared to 8.3% in Germany. In Slovenia, 6.9% of value added could be affected due to exposure to EA4 (which includes Germany, France, Spain and Italy; the latter two being the most affected by the COVID-19 outbreak in the euro area), 1.3% due to China, and 12.4% due to the rest of the world. On the other hand, Slovenia's overall exposure through forward linkages

would be 12.6% of value added, while it would be 8.7% in Germany. Finally, in Slovenia, 4.7% of value-added could be affected due to exposure to EA4, 0.3% due to China, and 7.7% due to the rest of the world. As a result, while recognizing the high integration of Slovenia to GVCs and its significant exposure to countries severely affected by the novel coronavirus outbreak, we expect the latter to adversely affect Slovenian firms and curtail Slovenian activity even further.

4 | Assessing the impact of the novel coronavirus on the Slovenian economy

The impact of the novel coronavirus is expected to simultaneously affect most, if not all, dimensions of the Slovenian economy. The following sections present the various analysis undertaken to estimate this impact on the outlook of numerous important macroeconomic variables for Slovenia. The first section represents the identified scenarios, which serve as a basis for this ad-hoc analysis, comprising estimation of the COVID-19 epidemic on: i) average daily loss during the lock-down period, ii) GDP growth using production-side data, iii) GDP growth using

VAR model, iv) private consumption growth, v) unemployment rate and employment and vi) inflation. Moreover, the scenarios are accounted for in assessing the vii) effect of loan repayment deferral policy on liquidity position of banks. The identified scenarios presented hereafter do not include effects from the external factors, such as foreign demand and global commodity prices, financial conditions and potential impact of fiscal and monetary policy measures.

4.1 Scenarios and assumptions

Given the high level of uncertainty pertaining the length and severity of the COVID-19 epidemic and the associated mitigation measures enacted by the Government, we prepared three different scenarios regarding the future economic developments in Slovenia, which differ based on the number of lock-down weeks. The respective sizes of shocks, which vary across activities¹ and time, are assessed by "rule of thumb" and cross-checked with the assumptions prepared by Jože P. Damijan² for Slovenia and other relevant information. Across all scenarios, shocks are the largest during the envisaged lock-down period, with a share of the shocks dragging into the coming months following the lock-down lift. These transmitted shares of shocks, following lock-down period, also vary across activities and scenarios. For scenario 3, which

qualifies as the most severe scenario with a lock-down period of 14 weeks, the transmitted shares of shocks from the previous month are somewhat larger.

Across sectors, shocks³ are largest for GHI – Trade, transportation and storage, accommodation and food service activities, which are strongly associated with tourism. The latter is expected to be severely impacted in all considered scenarios. This expectation reflects already implemented measures by the Government of Slovenia (and other affected countries) including: closed restaurants and hotels, suspended international commercial traffic, prohibition of public gatherings, and practically closed borders. In addition, logistic activities are expected to be significantly affected by the slowdown in manufacturing due to global supply chain distortions and lower

¹ A – Agriculture, forestry and fishing, BDE – Mining and quarrying, electricity and water supply, waste management, C – Manufacturing, F – Construction, GHI – Trade, transportation and storage, accommodation and food service activities, J – Information and communication, K – Financial and insurance activities, L – Real estate activities, MN – Professional, scientific, technical, administrative and support services, OPQ – Public administration, education, human health and social work, RST – Other service activities.

² <https://damijan.org/2020/03/18/korona-kriza-utegne-biti-hujsa-od-krize-v-letu-2009/>

³ For more details see Appendix 7.1: Size of shocks to GDP in different scenarios across activities and time.

Table 4.1: Lock-down period across the scenarios

Scenario 1 (mild)	from mid-March to end-April (approx. 6 weeks)
Scenario 2 (severe)	from mid-March to end-May (approx. 10 weeks)
Scenario 3 (severe, more persistent loss)	from mid-March to end-June (approx. 14 weeks)

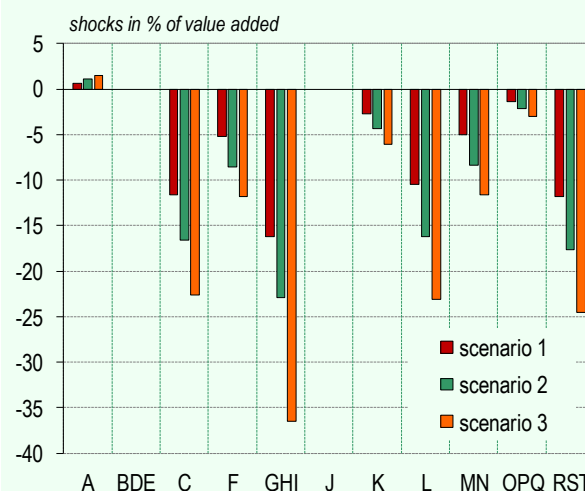
Source: Authors' estimations.

foreign demand underlining weak domestic demand in the exporting markets, which face the same economic shock. Consequently, global trade dynamics are expected to deteriorate significantly.

In line with these developments and the considered scenarios, the largest shock for GHI activities is foreseen in Q2, underlying the lock-down periods envisaged across the scenarios for this quarter, ranging from 4 to 12 weeks. Per lock-down week, we expect for the drop in GHI value added to amount to 80%. Therefore, the total shock in Q2 for this sector varies between 46% in scenario 1 and 80% in scenario 3. While the assumed loss in Q3 for scenario 1 and 2 is lower, in scenario 3, we expect for a significant fraction of the summer season to be lost, resulting in almost 50% drop of value added also in Q3. Moreover, for scenario 3, the expected recovery for GHI activities is also more gradual than in other activities.

Somewhat smaller, but still sizeable shocks, apply to activities C – Manufacturing, L – Real estate and RST – Other service activities. Regarding manufacturing, we expect a drop in value added of around 60% per lock-down week, whereas the expected recovery (similarly to GHI – Trade, transportation and storage, accommodation and food service) is more gradual than in other activities. Our justification behind the size of shocks to manufacturing, underlines global chain distortions due to the quarantine and accompanying discontinuation of production processes in several parts of China following the outbreak of COVID-19 in its Hubei province at the beginning of this year. The second reason pertains to the slump in private consumption due to more precautionary behaviour of households across main trading partners, which negatively affects global trade dynamics. Thus, shocks in this regard stem from both the supply and demand side. Moreover, an uncontrolled spread of COVID-19 among the population could significantly affect labour supply, which would additionally limit production capacity and harm

Figure 10: Size of shocks across the activities in different scenarios



Source: SORS, Authors' estimations.

production and export performance in manufacturing. The latter suggests that the shocks to manufacturing could be larger than envisaged in the current analysis.

Across the analysis, the impact is evaluated for 2020 only (unless otherwise specified). The baseline profile of GDP (and other considered variables) refers to the December 2019 BMPE projections. Since Bank of Slovenia does not undertake quarterly projections (except for HICP and components), for estimations in which quarterly profiles are considered, the corresponding annual growth rates retrieved from the December 2019 BMPE are applied equally to each quarter of the year.

4.2 Impact of lock-down period on the average nominal daily loss

In 2019, nominal gross domestic product (GDP) in Slovenia accounted for EUR 48,006.6 million. A simple calculation shows that – on average – each day (without differentiating between weekends and working days) contributed approximately EUR 130 million to total nominal GDP. The latter is an important ingredient to assess the daily loss resulting from the lock-down of a large part of the economy. As the lock-down is only partial, we expect that the daily loss will be much lower. To estimate the daily impact of a given lock-down period, it is crucial to understand the composition of GDP and value added. For Slovenia, the most important activities pertain to C – Manufacturing and GHI – Trade, transportation and storage, accommodation and food service activities, which represent around 40% of GDP and almost 45% of total value added. These activities are also those for which we expect the COVID-19 related adversities to have the largest effect. While global supply chain distortions and the resulting drop in trade dynamics are expected to mainly affect manufacturing and transportation, the mitigation measures introduced to contain the spread of the novel coronavirus should entail a severe hit to accommodation and food services.

Based on scenarios 1-3, we expect that the average daily loss will amount to around EUR 62 million during the lock-

down period, representing approximately 50% of daily GDP in 2019. The largest loss is expected in the activities of GHI – Trade, transportation and storage, accommodation and food service, C – Manufacturing and L – Real estate activities. For March, expected daily loss during the lock-down period in the second half of the month is somewhat smaller, approximately EUR 42 million, since not all activities have been discontinued immediately after the epidemic was officially declared in Slovenia on 12 March 2020.

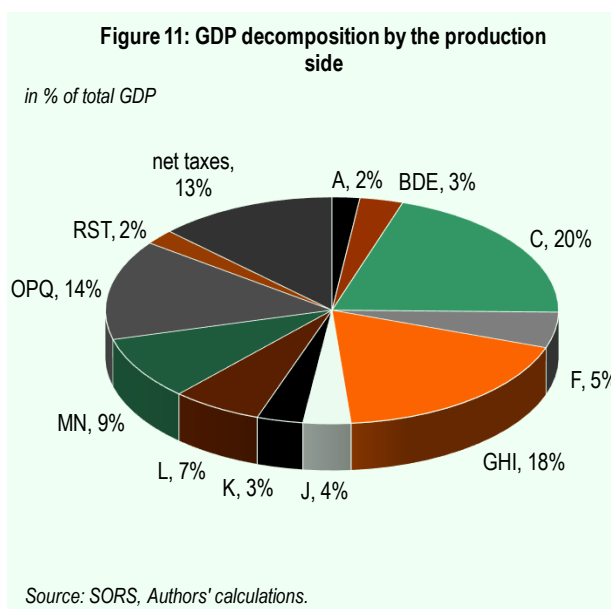


Table 4.2: Average daily loss of GDP due to the lock-down measures related to the COVID-19 epidemic

	Scenario 1	Scenario 2	Scenario 3
January	0	0	0
February	0	0	0
March	-21.0	-21.0	-21.0
April	-62.1	-62.1	-62.1
May	-26.2	-62.1	-62.1
June	-12.0	-26.2	-62.1
July	-5.7	-12.0	-35.9
August	-2.8	-5.7	-23.7
September	-1.3	-2.8	-10.6
October	-0.6	-1.3	-4.6
November	-0.3	-0.6	-2.2
December	-0.2	-0.3	-1.0

Note: original data, current prices (in EUR million).
Source: SORS, Authors' calculations.

4.3 Impact of lock-down measures on 2020 GDP growth in Slovenia (production-side approach)

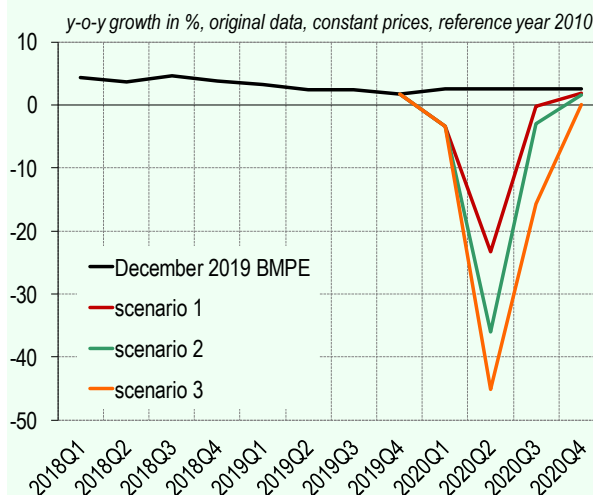
The COVID-19 outbreak and the associated mitigation measures are expected to have a significant impact on GDP growth for Slovenia. The assessment of mechanical impacts for 2020 stemming from lock-down measures suggests a loss of GDP in constant prices (reference year 2010) from EUR 3.7 billion in scenario 1 to almost EUR 8 billion in scenario 3. This implies a deviation from the baseline scenario (i.e. December 2019 BMPE with 2.5-percent growth of GDP) of 8.7, 12.7 and 18.6 p.p. for scenarios 1, 2 and 3 respectively. Therefore, estimation of GDP growth for 2020 ranges between -6.2% and -16.1%, depending on the scenario. Thus, GDP growth is expected to be in a negative territory this year, with a severity that can outweigh the significant contraction experienced in 2009.

Turning to the quarterly profile of GDP, the deviations from the baseline are the largest for the quarters during which the lock-down measures are expected to be the strictest. Therefore, as underlined in the considered scenarios, Q2 accounts for the largest loss, the severity of which deepens as we move along the scenarios. While the recovery in scenario 1 and 2 is largely V-shaped, scenario 3 entails a U-shaped recovery, driven by the same assessed recovery across C – Manufactur-

ing and GHI – Trade, transportation and storage, accommodation and food service activities.

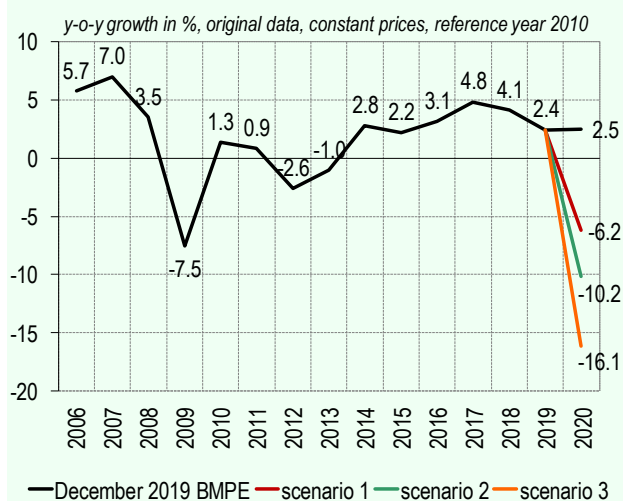
The impact on Q1 is less severe, as the lock-down measures were introduced some time in mid-March and the first two months of the quarter were characterized by encouraging developments. Since the lock-down period for March is the same across all scenarios, the estimated growth rate of -3.4% in Q1 across the scenarios is also the same. For Q2, the estimated impact varies from a y-o-y contraction of -23.3% in scenario 1 to -45.2% in

Figure 13: Gross Domestic Product Growth



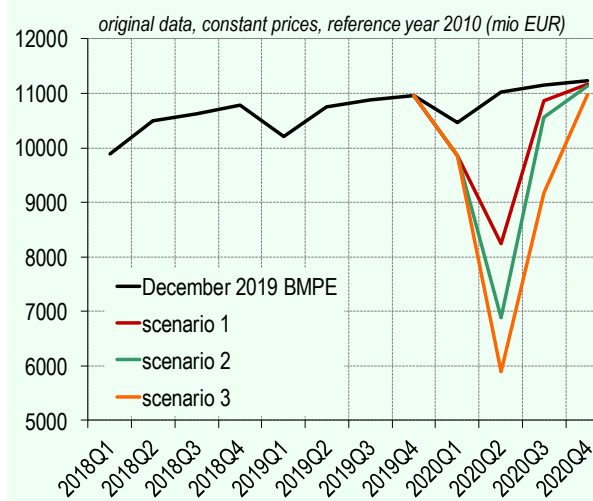
Source: SORS, Authors' estimations, December 2019 BMPE projections.

Figure 12: Gross Domestic Product Growth



Source: SORS, Authors' estimations, December 2019 BMPE projections.

Figure 14: Quarterly Gross Domestic Product



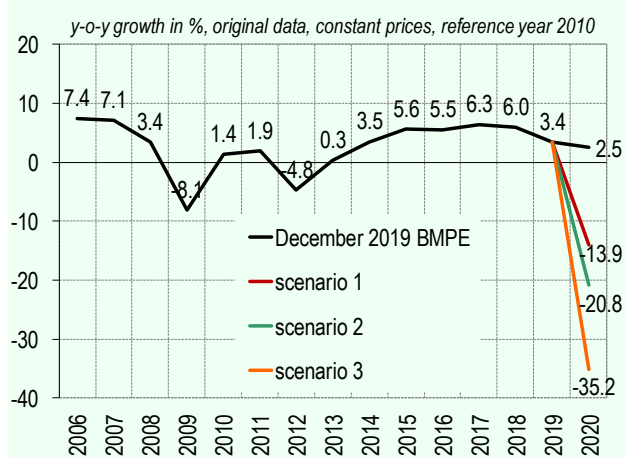
Source: SORS, Authors' estimations, December 2019 BMPE projections.

Table 4.3: Estimated growth of GDP and respective loss across scenarios

	y-o-y growth in % (constant prices, reference year 2010)			loss in billion EUR vis-à-vis baseline (constant prices, reference year 2010)		
	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
2020Q1	-3.4	-3.4	-3.4	-0.6	-0.6	-0.6
2020Q2	-23.3	-36.0	-45.2	-2.8	-4.1	-5.1
2020Q3	-0.2	-2.9	-15.7	-0.3	-0.6	-2.0
2020Q4	1.9	1.6	0.1	-0.1	-0.1	-0.3
2020	-6.2	-10.2	-16.1	-3.7	-5.4	-8.0

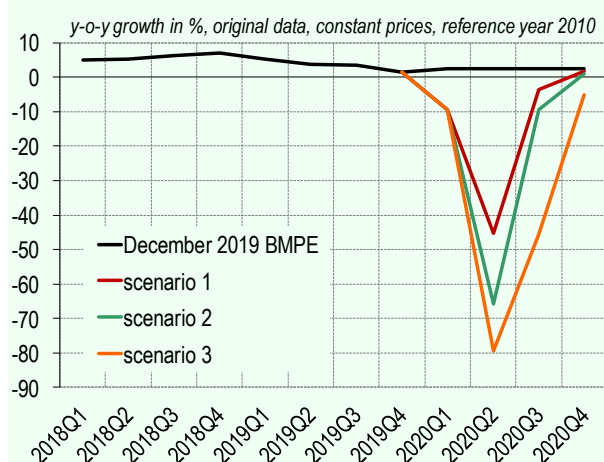
Source: Authors' calculations.

Figure 15: Value Added Growth in Trade, Transportation and Storage, Accommodation and Food Service Activities



Source: SORS, Authors' estimations, December 2019 BMPE projections.

Figure 16: Value Added Growth in Trade, Transportation and Storage, Accommodation and Food Service Activities



Source: SORS, Authors' estimations, December 2019 BMPE projections.

scenario 3. For all scenarios, we expect stabilisation to follow in the second half of the year, characterized by a pick up in activity and convergence to baseline dynamics. The latter is significantly more gradual in scenario 3, as it entails adverse effects that are more permanent and therefore a revival of economic activity that is more gradual. Expected y-o-y growth rates for Q3 and Q4 in scenario 3 stand at around -15.7% and 0.1% respectively.

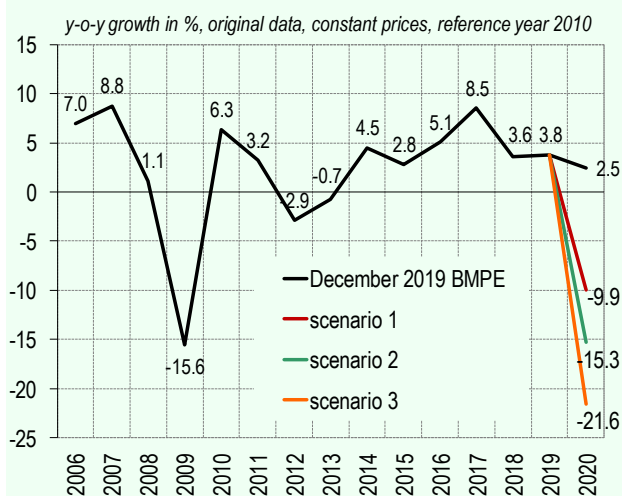
Across the activities, C – Manufacturing and GHI – Trade, transportation and storage, accommodation and food service activities, which represent the largest producers of value added in Slovenia, will be – according to our assessment of shocks – most severely hit. As with GDP, for the baseline scenario, we anticipate the same growth rate of value added in all activities, i.e. 2.5%, implying the assumption that the structure of the economy

in 2020 would remain unchanged in comparison to the previous year.

In line with the assumptions, the highest estimated contraction of value added applies to GHI – Trade, transportation and storage, accommodation and food service activities. The growth of value added in these activities is expected to shrink by -13.9% in scenario 1, -20.8% in scenario 2 and -35.2% in scenario 3. Whereas, scenarios 1 and 2 comprise a rather quick recovery in the second half of 2020, the pick-up in scenario 3 is much more gradual. Mechanical estimation of loss in these activities in constant prices (reference year 2010) ranges from EUR 1.3 billion in scenario 1 to more than EUR 3 billion in scenario 3.

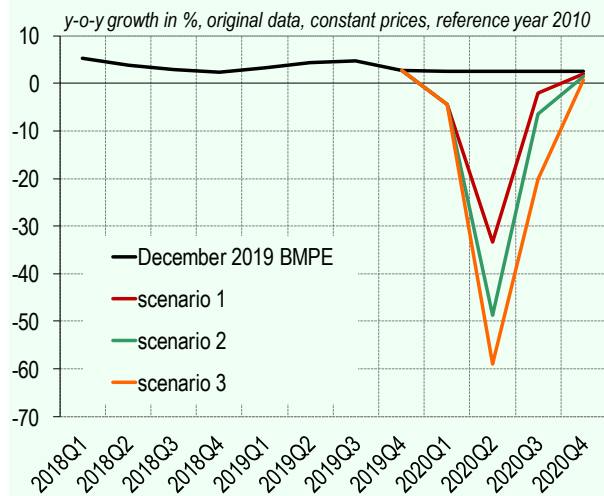
In manufacturing, the mechanical assessment of impacts points to a loss of value added in constant prices

Figure 17: Value Added Growth in Manufacturing



Source: SORS, Authors' estimations, December 2019 BMPE projections.

Figure 18: Value Added Growth in Manufacturing

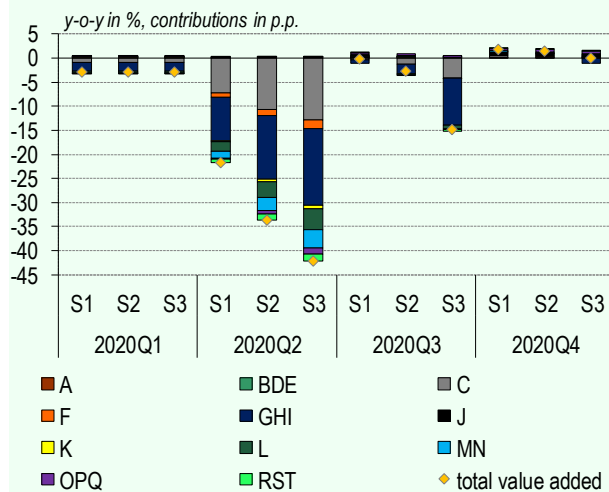


Source: SORS, Authors' estimations, December 2019 BMPE projections.

(reference year 2010) from EUR 1.0 billion in scenario 1 to almost EUR 2.0 billion in scenario 3, mostly in Q2 and Q3. In scenarios 1 and 2 we envisage a V-shaped recovery in the second half of 2020, whereas the rebound in scenario 3 has more of a U-shaped profile.

A consolidated representation of estimated y-o-y growth of quarterly GDP in 2020, decomposed by assessed contribution of all activities across all three scenarios, is depicted in Figure 19. As observed, the largest impact is expected to be concentrated in 2020Q2, during which most of the activities will contribute negatively to the value added growth in Q2 in y-o-y terms. The severity of the drop depends on the length of lock-down period (i.e. scenario). The rest of the year entails varying dynamics depending on the identified transmission shocks following the lock-down lift across activities and scenarios. In Q3, substantial impacts are expected only on the C – Manufacturing and GHI – Trade, transportation and storage,

Figure 19: Contribution of activities to total value added growth



Sources: SORS, Authors' estimations.

accommodation and food service activities. For the last three months of 2020, as observed, we expect for most of the COVID-19 epidemic effects to dissipate.

4.4 Impact of the COVID-19 epidemic on GDP growth in Slovenia (VAR approach)

In this section, we describe the Vector Autoregressive (VAR) model developed to assess the effect of COVID-19 on the GDP growth in Slovenia. These results are expected to provide a complementary assessment, which apart from the mechanical impact stemming from lockdown measures, also considers foreign demand (measured here by euro area GDP), sentiment and productivity. For consistency purposes, the effects are estimated based on VAR model forecasts, which condition on realization of previously explained scenarios (i.e. scenario 1 – 3 in section 4.1).

The set of endogenous variables (denoted by Y_t) incorporated in the VAR model comprises real GDP for Slovenia, HICP for Slovenia and the sentiment indicator for Slovenia. The exogenous part of the model (denoted by X_t) consists of the productivity index for Slovenia, euro area GDP and a dummy variable for the recession period in Slovenia. All variables are in quarterly frequency, and, except for the dummy variable, are transformed to y-o-y growth rates to attain stationarity. C represents a vector of constants. The time span of the analysis is from 1997Q1 to 2019Q4. The VAR model has the following form:

$$Y_t = C + A_1 Y_{t-1} + A_2 Y_{t-2} + \dots + A_6 Y_{t-6} + B X_t + \epsilon_t$$

As part of this analysis, we aim to forecast Slovenian GDP for 2020, conditional on assumptions, and assess what would happen with exogenous part of the model over this period. This in turn allows us to assess what would happen to the endogenous part of the model if a particular scenario realizes.

Since our scenarios are based on the shocks to value added in particular GDP sectors (i.e. economic activities), we transform them into productivity shocks and as such assume them to be exogenous in our model. The activity value added shocks are aggregated to the productivity shocks by calculating the weighted average of shocks to particular economic activity, where weights are the shares of each economic activity's value added in the total. The assumptions about the growth rates of the euro area GDP are computed from the forecasts of different institutions, as presented in the Table 6.1. In case of scenario 3, we assume the average of 8 *most* pessimistic forecasts, whereas in scenario 1, we assume realization of the average of 8 *medium* pessimistic forecasts. Finally for scenario 2 we assume the average growth rate from scenario 1 and scenario 3. We further assume that the quarterly y-o-y growth rates have the same dynamics as the productivity in Slovenia. Lastly and as already indicated, by including euro area GDP in the model, we account for the effect of foreign demand on Slovenian GDP.

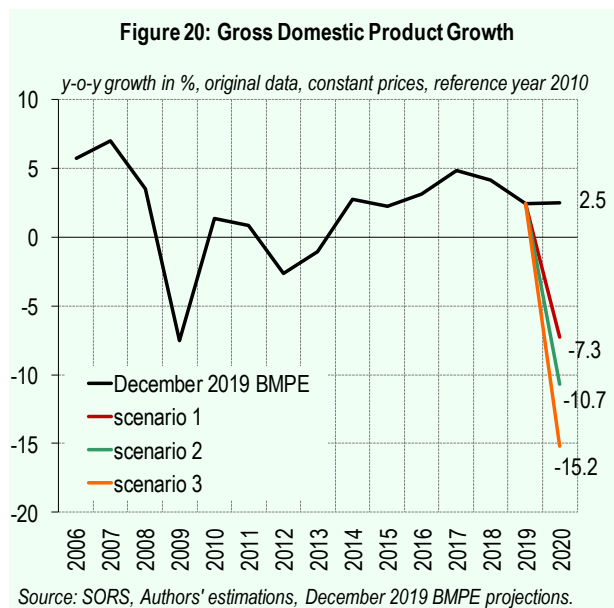
Table 4.4: Euro area GDP and Slovenian productivity across scenarios

		y-o-y growth in %		
		Scenario 1	Scenario 2	Scenario 3
euro area GDP	2020 Q1	-0.9	-1.5	-1.6
	2020 Q2	-3.9	-9.9	-13.4
	2021 Q3	-0.4	-1.3	-4.9
	2022 Q4	0.0	-0.1	-0.6
	2020	-1.3	-3.2	-5.1
Productivity	Q1 2020	-5.5	-5.5	-5.5
	Q2 2020	-24.0	-36.3	-45.1
	Q3 2020	-2.3	-4.7	-16.4
	Q4 2020	-0.3	-0.5	-1.9
	2020	-8.0	-11.8	-17.2

Source: Different institutions, Authors' calculations.

The figures of euro area GDP growth and productivity growth across scenarios and quarters, on which the model conditions upon are displayed in Table 4.4. The projected effects of the novel coronavirus outbreak and associated measures on Slovenian GDP are presented in Figure 20.

As observed, the results obtained by the VAR model are largely in line with the ones obtained using the production side approach. Similar to the latter, also the VAR model projections suggest a significant impact of the COVID-19 epidemic on GDP growth in Slovenia. The conditional projections of the Slovenian GDP show that the yearly growth rate for 2020 ranges from -7.3% in case of 6-week lock-down scenario and -15.2% in the case of scenario 3, which assumes 14-week lock-down scenario. The severity of the effect is directly dependent upon the duration of the lock-down measures in Slovenia and indirectly, through the trade channel, on the duration of lock-down in other countries in the euro zone.



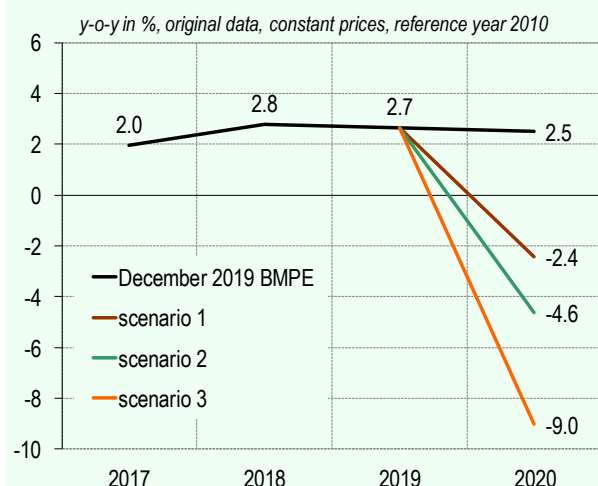
4.5 Impact of lock-down measures on 2020 real private consumption growth in Slovenia

Private consumption in Slovenia, accounting for more than 50% of its nominal GDP, is expected to be severely hit by the enacted lock-down measures, in particular for purchases that necessitate face-to-face interaction with sellers. To assess this mechanical impact, the specified lock-down scenarios in Section 4.1 and corresponding assumed shocks across GDP sectors have been matched⁴ with private consumption components. The latter are computed using the HBS shares of asset allocation to consumption expenditure for an average household in Slovenia.⁵ Appendix 7.2 depicts the matching of components to GDP sectors and the fraction of corresponding considered shocks. In line with the enacted mitigation measures, the main expenditure components, which are expected to experience the sturdiest hit are: *transport services* (0.6%), *recreational and cultural services* (2.6%), *personal care services* (2.5%), *package holidays* (1.8%) and *catering and accommodation services* (6.6%).⁶ For these categories, 100% of the shock

applied to respective GDP sectors is considered. For the rest, 50% of the shock applied to respective GDP sectors is accounted for. This distinction is based on two underlying assumptions: particular retail stores are still open to consumers (albeit, with limited number of individuals in the store at the same time) and households may substitute some forgone face-to-face consumption with online purchases (as confirmed by the observed Google Trends for online shopping in Slovenia).

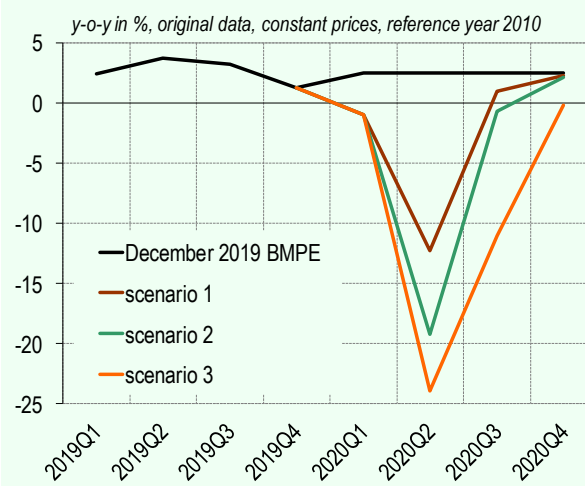
As with GDP, the baseline path of real private consumption growth reflects the December 2019 BMPE projections, which envisage an annual growth rate of 2.5% in 2020. Whereas the same growth rate is applied to all quarters of 2020 equally, the analysis does not entail any assumptions about potential overshoot in consumption or compensation of foregone consumption following lifting of lock-down measures.

Figure 21: Private consumption growth based on lock-down scenarios



Source: SORS, December 2019 BMPE projections, Authors' estimations.

Figure 22: Private consumption and lock-down scenarios



Source: SORS, December 2019 BMPE projections, Authors' estimations.

⁴ While the two categorizations are not equivalent, the underlying assumption does allow for a consistent assessment of lock-down measures to different components of GDP.

⁵ The latest Household Budget Survey (HBS) published by SORS pertains to 2018, while the two previous releases to 2015 and 2012. The shares applied to observed 2019 figures and projected 2020 figures of private consumption, apply to the HBS undertaken in 2018.

⁶ The number in brackets represent the shares to total private consumption. These selected private consumption components reflect "best guess" assessment of affected sectors from enacted containment measures by the government.

Based on the underlying assumptions and considered shocks, estimated annual growth of real private consumption in 2020 ranges from -2.4% to -9.0%, depending on the scenario. In deviations from December 2019 BMPE, the impact ranges from -4.9 p.p. to -11.5 p.p. As suggested by the size of shocks across the different consumption components, the main drag to private consumption stems from the categories that necessitate face-to-face interaction of buyers and sellers and as such are expected to suffer the most from the enacted mitigation measures. In line with the identified scenarios, while recovery of private consumption is expected in the second half of the year, it is foreseen to be gradual and the extent of it varies depending on the scenario. Across all three scenarios, the deviation from the December 2019 BMPE baseline emerges already in 2020Q1 driven by the strict measures enacted within the last 2 weeks of March 2020. This entails a y-o-y growth rate of -1.0% in 2020Q1. The most

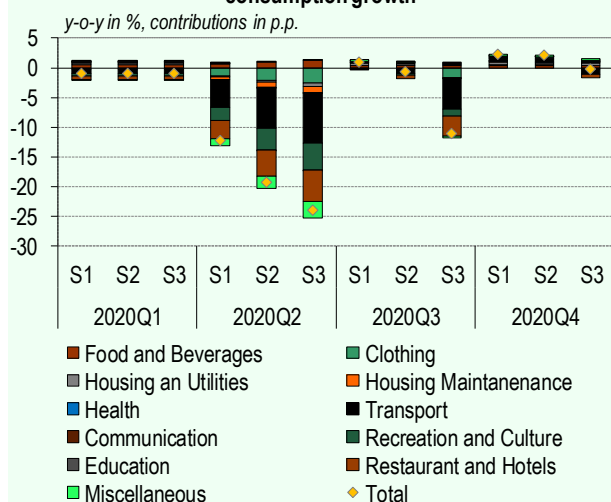
severe impact falls in 2020Q2, a period that across the scenarios is characterized by varying extensions of lock-down measures (from 4 to 12 weeks).

For the second quarter, the impact of lock-down measures accounts for a y-o-y growth rate of -12.3% in scenario 1, whereas scenario 2 foresees a y-o-y growth rate of -19.2%. The recovery in both scenarios is largely V-shaped and foresees a pick-up to the baseline already in 2020Q4. Different from scenario 1 and 2, the impact deepens and is longer-lasting in scenario 3, recording a y-o-y growth rate of -23.9% for the second quarter. Given the assumed loss of the summer season following lifting of lock-down measures in July, scenario 3, as the most severe scenario, entails a U-shaped recovery, with negative y-o-y growth rates lingering until the end of the year.

A consolidated representation of estimated y-o-y growth of quarterly private consumption in 2020, decomposed by assessed contribution of all expenditure components across all three scenarios (denoted by S1, S2 and S3 respectively), is depicted in Figure 23. As observed, the largest impact is expected to be concentrated in 2020Q2, whereas the rest of the year entails varying dynamics depending on the scenario.

While other transmission channels, such as labour market developments and consumer confidence are detrimental to private consumption dynamics, they are not accounted for in this analysis. In a situation of contained impact to labour markets, we would expect some compensation of foregone consumption following lock-down, which would in turn result in an overshoot of consumption for that period. However, contrary to this and in line with

Figure 23: Contribution of components to private consumption growth



Source: SORS, December 2019 BMPE projections, Authors' estimations.

Table 4.5: Estimated growth of private consumption and respective loss across scenarios

	y-o-y growth in % (constant prices, reference year 2010)			loss in billion EUR vis-à-vis baseline (constant prices, reference year 2010)		
	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
2020Q1	-1.0	-1.0	-1.0	-0.19	-0.19	-0.19
2020Q2	-12.3	-19.2	-23.9	-0.87	-1.28	-1.56
2020Q3	1.0	-0.7	-11.0	-0.09	-0.19	-0.79
2020Q4	2.3	2.1	-0.2	-0.01	-0.02	-0.17
2020	-2.4	-4.6	-9.0	-1.16	-1.68	-2.71

Source: Authors' calculations.

the analysis for GDP, a share of estimated consumption loss during the lock-down period is assumed to drag to the next months following the lock-down lift. Technically, this drag should account for the loss in consumption due to factors other than the mechanical impact of lock-down measures, which limit direct transaction exchanges with

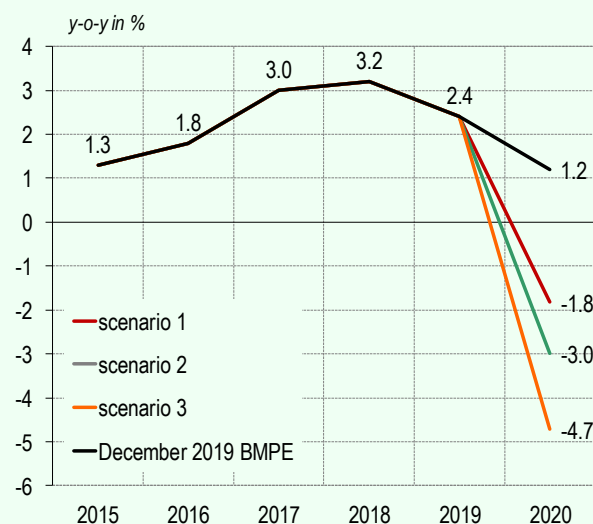
sellers. Hence, we assume that a fraction of this impact may partially account for loss in consumption stemming from deteriorated labour market conditions and/or consumer confidence.

4.6 Impact of lock-down measures on labour market

The introduction of the containment measures to mitigate the COVID-19 outbreak will have significant negative effects on the Slovenian labour market. Based on the scenarios outlined in the earlier section, y-o-y employment growth will decline, ranging between -1.8% and -4.7%, and the unemployment rate (ILO definition) will increase, ranging between 6% and 8.5% in 2020, depending on the scenario. These estimates represent a strong deterioration compared to the December BMPE projections for 2020, in which employment was projected to increase by 1.2% and the unemployment rate was projected to reach 4.0% in 2020. The current projections are, however, no-policy response estimates that do not take into account the recently proposed labour market measures that should significantly reduce the negative effect of containment measures on the labour market.

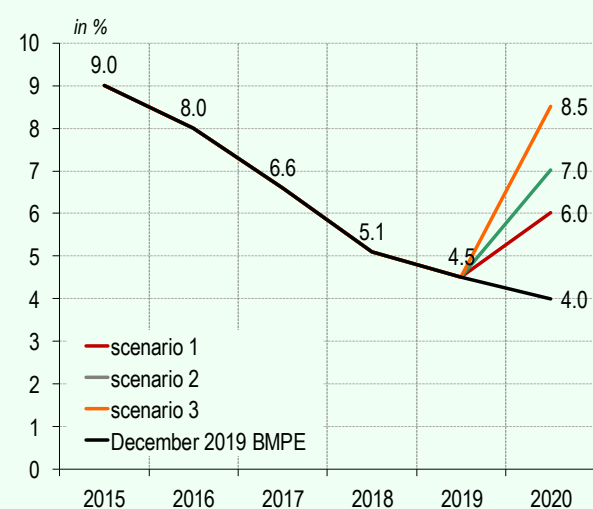
The effect of the lock-down measures on the labour market under the three scenarios is estimated using the historical relationship between value added (GDP), employment and the unemployment rate. Static Okun's law elasticities are computed based on the observed dynamics during the Great Recession and then applied to the declines in value added across all three scenarios. During the initial period of the Great Recession (2008Q3 – 2009Q3) when the Slovenian economy was subject to a sudden and unexpected negative shock, we find that the elasticity of aggregate employment with respect to aggregate value added was 0.29 and the elasticity of the unemployment rate with respect to value added was -0.25. Since these estimates do not incorporate the recently proposed labour market policies, they represent a plausible upper bound for the response of the labour market to an unexpected decline in value added.

Figure 24: Employment growth



Source: SORS, December 2019 BMPE projections, Authors' estimations.

Figure 25: Unemployment rate



Source: SORS, December 2019 BMPE projections, Authors' estimations.

4.7 Impact of lock-down measures on inflation

Future price developments are subject to great uncertainty arising from the COVID-19 epidemic and will be affected by the following factors:

- **Global oil prices:** Due to lower demand linked to the impact of the coronavirus outbreak and an increase in oil supply resulting from the price war between Saudi Arabia and Russia, global oil prices plunged in March. Standing at roughly 30 USD per barrel, they are expected to severely affect energy prices in Slovenia. The current projection of energy prices builds on the assumption that Brent crude oil prices will remain at 32 USD per barrel for half a year and increase gradually afterwards to reach 36 USD by the end of the year;
- **Supply side bottlenecks:** Import and supply chain interruptions, coupled with a drop in domestic economic activity, could lead to higher prices for specific products in the short term (such as household appliances, electronic devices, etc.), while growth of food prices could see a rise in case of import barriers;

- **Decline in demand:** Following the lock-down measures we expect a strong reduction in demand in the short run, in particular the demand for certain services. The biggest drop is expected in demand for holiday packages and accommodation, transport, and services related to recreation and personal care (including cultural services, catering, recreation, and others). Furthermore, lower demand may also affect prices of durable and semi-durable products.

Assessing the effect of lock-down measures on HICP inflation, we approach the three scenarios identified by different durations of lock-down measures by relating the GDP growth and labour market developments to core inflation (HICP excluding energy and food).⁷ Energy inflation is instead projected to follow the assumed path of Brent crude oil and stands at -7.7% in 2020, while the year-on-year growth in food prices is expected to increase further on account of increasing global food commodity prices, reaching 3.1% this year.⁸ Given the projected path of economic activity and unemployment rate, estimated core inflation in 2020 ranges from 0.4% to -1.2%. Keeping the projected path of energy and food

Figure 26: Core inflation, energy and food prices

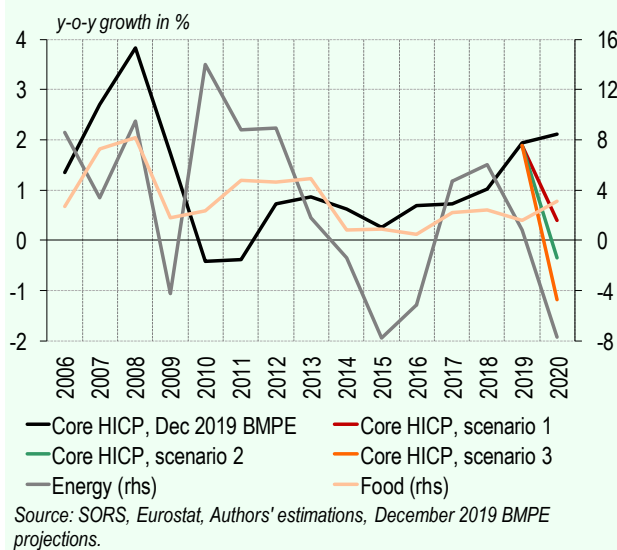
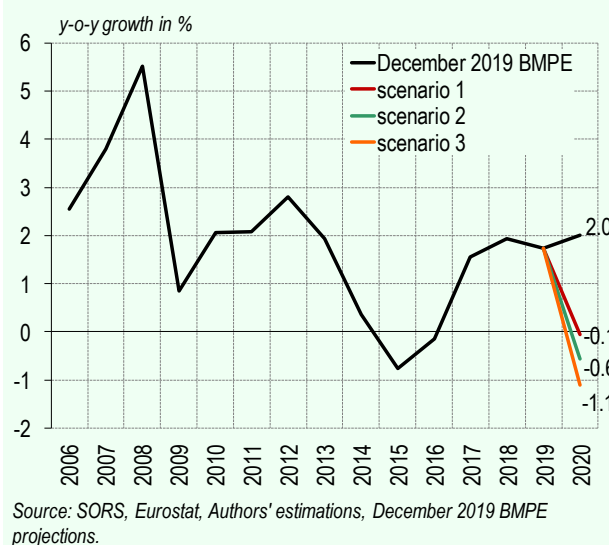


Figure 27: HICP inflation



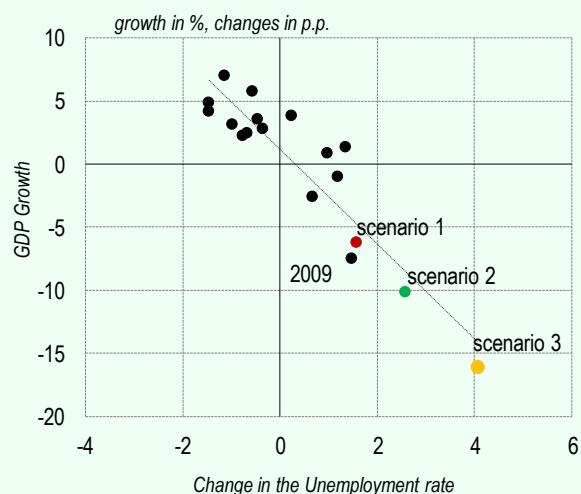
⁷ ARDL approach was adopted for estimation of the single equation model, where core inflation is explained by inertia, GDP growth and unemployment rate. Lag selection was done on the basis of Akaike information criterion. The path for core inflation was then conditioned on projected path of GDP growth and unemployment rate. For the latter an increasing profile was assumed throughout 2020.

⁸ Projected growth in energy and food prices does not take into account the measures related to these prices, such as lower electricity prices between March and May 2020, and possible regulation of food prices.

prices unchanged throughout the three scenarios, this translates into headline inflation between -0.1% in the mild scenario (scenario 1) and -1.1% in the most severe one (scenario 3). Since headline inflation was projected to increase up to 2.0% in December 2019 BMPE, the lock-down measures, as assumed in the scenarios, result in a deviation vis-a-vis the baseline ranging between -2.1 p.p. and -3.1 p.p.

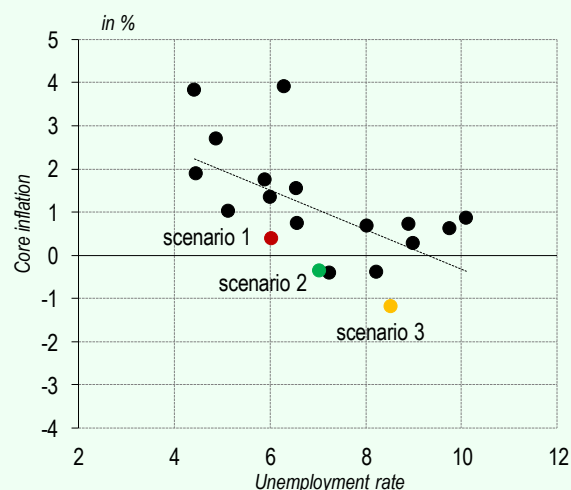
The estimations of impacts of COVID-19 epidemic on each macroeconomic aggregate, i.e. GDP growth, inflation and unemployment rate, have been done with specific and thus different econometric methodologies and approaches. Nevertheless, it seems that traditional economic relations, such as Okun's law and Phillips curve, confirm soundness of results and consistency of estimations among themselves: expected changes in GDP and HICP are – therefore – in line with anticipated increase in unemployment rate. Furthermore, these relations serve for additional cross-checks and confirmation of plausibility and credibility of the results presented in the analysis.

Figure 28: Okun's law



Source: SORS, Authors' estimations.

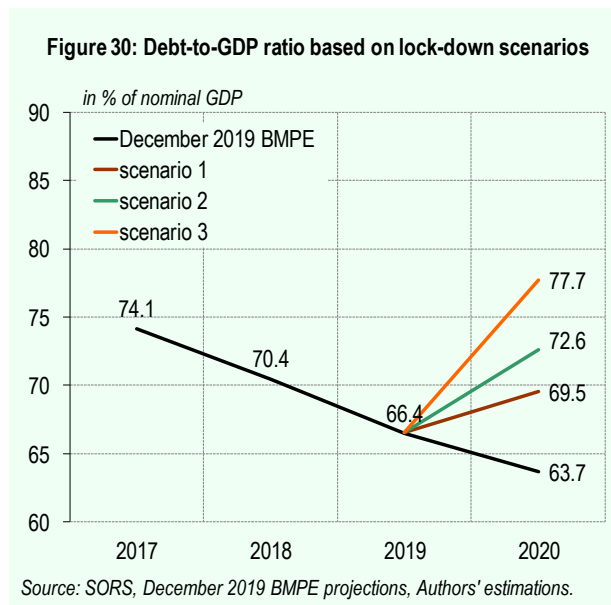
Figure 29: Phillips Curve: Inflation vs Unemployment



Source: SORS, Eurostat, Authors' estimations.

4.8 Debt-to-GDP ratio based on lock-down scenarios

Based on the description of the scenarios and assumptions in Section 4.1 we calculate debt-to-GDP ratios in three lock-down scenarios. The corresponding deviations to the baseline scenario (December 2019 BMPE) are the result of less favourable developments in the level of Slovenian nominal GDP across the three scenarios, while for the level of government debt we assume the same figures as in the December 2019 BMPE projection round (i.e. no debt financed fiscal stimulus). Assuming no-policy response to the COVID-19 epidemic (i.e. neither nominal GDP nor government debt figures include fiscal stimulus measures), debt-to-GDP ratio would range from 69.5% to 77.7%, depending on the scenario.



4.9 The effect of loan repayment deferral policy on liquidity position of banks

This section analyses the impact of the loan repayment deferral measure implemented by the Bank of Slovenia and the Government on the availability of liquidity within the banking sector for all scenarios. Using January 2020 balance sheet and loan composition, the measure is estimated to result in EUR 0.9 billion of deferrals of loan payments of non-financial corporates within the first scenario, EUR 1.3 billion within the second scenario and EUR 1.6 billion within the third scenario. This corresponds to 16%, 24% and 29% of total primary liquidity within the banking system, respectively. We use several assumptions in our estimates, which renders this estimates uncertain.

We use the Bank of Slovenia loan level data from January 2020 and augment the data with the economic activity classification of the recipient of all loans to non-financial corporations. For every loan we simulate the monthly annuity. Due to data availability we have to resort to several assumptions:

- The maturity of all loans is at the middle of the reported maturity class;

- All loans are repaid according to a linear amortization schedule;
- For all loans the interest rate reported in January applies for the entire deferral period.

Under the assumptions above the annual sum of annuities for loans to non-financial corporate sector amounts to EUR 3.5 billion. The total exposure to non-financial corporate sector via loans amounts to EUR 9.4 billion. The largest share in both represent loans to the economic activity of manufacturing (NACE Rev.2 classification C), 31%, and loans to trade, transportation and storage (G, H, I). Table 4.6 breaks down total estimated annual sum of annuities and total loan exposures to non-financial corporations by economic activities.

We use the scenarios from Section 4.1 to simulate the deferral amounts by banks. We aggregate the estimated annual sum of annuities at the bank-activity level. For each economic activity, we then apply the shock as estimated in section 4.1. We assume that for each economic activity the average Q2 percent shock in added value

corresponds to the share of loans which will be subject to the deferral measure. As an example, scenario 1 estimates for manufacturing account for a 60% shock to added value for April, a 30% shock for May and a 15% shock for June 2020. This then corresponds to 35% of loans to manufacturing to be subject to the deferral policy.

The simulations assume the deferral measures are all approved for the duration of one year as follows from the intervention act. We exclude all firms which on 31 December 2019 exhibited loans in arrears of 90 days or

more as follows from the act. As the intervention act prescribes a mildly costly procedure in requesting a deferral we assume that no loan with residual maturity of less than 2 months will be subject to a deferral. Table 4.7 presents the estimated share of loans which could be subject to deferral policy and total deferral sums broken by the economic activity classification. Due to both large representation of loans to firms in groups G, H and I in total loans and a large estimated shock to the group, the deferrals to these economic activities account to 50% of all deferrals. This is followed by manufacturing where the

Table 4.6: Simulated annual annuities and total loan exposure by economic activities

	Annual sum of simulated annuities (mio EUR)	Share in %	Total exposure as of January 2020 (mio EUR)	Share in %
A – Agriculture, forestry and fishing	25.98	1%	71.46	1%
BDE – Mining and quarrying, electricity and water supply, waste management	246.17	7%	836.41	9%
C – Manufacturing	1,133.66	33%	2,874.43	31%
F – Construction	178.23	5%	370.27	4%
GHI – Trade, transportation and storage, accommodation and food service activities	1,253.06	36%	3,402.83	36%
J – Information and communication	133.06	4%	378.64	4%
K – Financial and insurance activities	14.07	0%	43.59	0%
L – Real estate activities	137.04	4%	511.94	5%
MN – Professional, scientific, technical, administrative and support services	245.31	7%	661.72	7%
OPQ – Public administration, education, human health and social work	27.59	1%	122.66	1%
RST – Other service activities	53.02	2%	92.93	1%
Total	3,447.20	100%	9,366.89	100%

Source: Authors' estimations.

Table 4.7: Total deferral amounts by economic activity classification

	Scenario 1		Scenario 2		Scenario 3	
	Share of deferred loans	Total deferred amounts	Share of deferred loans	Total deferred amounts	Share of deferred loans	Total deferred amounts
A	0.0%	-	0.0%	-	0.0%	-
BDE	0.0%	-	0.0%	-	0.0%	-
C	35.0%	331.7	50.0%	473.9	60.0%	568.6
F	18.5%	27.2	30.7%	45.0	40.0%	58.7
GHI	46.7%	476.4	66.7%	680.6	80.0%	816.8
J	0.0%	-	0.0%	-	0.0%	-
K	8.3%	1.0	14.7%	1.8	20.0%	2.4
L	32.4%	40.9	53.7%	68.0	70.0%	88.9
MN	16.5%	32.7	29.3%	58.1	40.0%	79.2
OPQ	3.7%	1.0	7.0%	1.9	10.0%	2.7
RST	36.4%	18.3	56.0%	28.2	70.0%	35.3
All		929.3		1,357.5		1,652.7

Note: A – Agriculture, forestry and fishing, BDE – Mining and quarrying, electricity and water supply, waste management, C – Manufacturing, F – Construction, GHI – Trade, transportation and storage, accommodation and food service activities, J – Information and communication, K – Financial and insurance activities, L – Real estate activities, MN – Professional, scientific, technical, administrative and support services, OPQ – Public administration, education, human health and social work, RST – Other service activities.

Source: Authors' estimations.

Table 4.8: Total deferral amounts and available liquidity

	Primary liquidity (mio EUR)	Secondary liquidity (mio EUR)	Scenario 1			Scenario 2			Scenario 3		
			Total deferrals (mio EUR)	% of total deferrals in secondary liquidity	% of total deferrals in primary liquidity	Total deferrals (mio EUR)	% of total deferrals in secondary liquidity	% of total deferrals in primary liquidity	Total deferrals (mio EUR)	% of total deferrals in secondary liquidity	% of total deferrals in primary liquidity
Simulated deferrals											
Total (residual maturity > 2 months)	5,672.2	7,757.5	929.3	16.4%	12.0%	1,357.5	23.9%	17.5%	1,652.7	29.1%	21.3%
Total (all loans)			1,121.1	19.8%	14.5%	1,636.1	28.8%	21.1%	1,990.7	35.1%	25.7%

Source: Authors' estimations.

share of loans in all loans to corporates is similar, however the estimated shock to the manufacturing is lower in all three scenarios.

To put the estimated deferral amounts in perspective, we compare the total deferral amounts to the available liquidity of banks as of 31 December 2019. For every bank we use both the primary and the secondary liquidity as a benchmark. We assume liquid assets to be fixed across all scenarios. As of 31 January 2020 banks held EUR 5.6 billion in assets labelled as primary liquidity and EUR 7.8 billion in assets labelled as secondary liquidity.

According to these measures, banks have sufficient liquidity to withstand a shortfall in cash-flow due to the enacted deferral policy. The total estimated deferral amounts account for 16.4% of available primary liquidity of the banking sector in scenario 1, 23.9% in scenario 2 and 29.1% in scenario 3. When we use secondary liquidity as a benchmark these shares decrease to 12.0%, 17.5% and 21.3%.

So far in the analysis we used the assumption that loans with residual maturity of less than three months will be *dis-incentivised* from requesting a deferral. When we relax this assumption and allow all loans to be subject to the deferral policy, the total deferral amounts increase along all scenarios. In the most severe scenario 3 the total deferral amount increases to 2.0 billion EUR. Nevertheless,

this is still sufficiently covered by the available liquidity as it represents 35.1% of total available primary liquidity.

As an additional benchmark we compare the estimated liquidity shortfall due to the deferral measure to the liquidity shortfall owing to a loss of access to interbank market following the 2008 financial crisis. Between 2008Q3 and 2010Q1 banks repaid EUR 3.2 billion of loans from other banks. Furthermore, the available primary liquidity, amounted to merely EUR 0.8 billion.

Assuming the liquidity position of banks is not materially diminished by the coronavirus related shocks, banks are estimated to hold enough liquid assets to support the economy following the dissipation of the shock. This analysis does not take into account the direct effect of shocks to the stocks and bonds portfolios of banks. On the other hand, the analysis also neglects the possible additional liquidity available to banks via additional LTROs announced following the 12 March 2020 Governing Council.

There are however several assumptions used in this analysis which makes the estimated effects of the deferral policy measure on liquidity of banks subject to a large degree of uncertainty. A more conclusive analysis of the effect of shocks on lending capacity of banks would require additional estimation of the effects of the shocks on the capital position of banks and most importantly on the asset quality.

5 | Enacted and announced policy responses

5.1 Euro area (list based on information until 23 March 2020)¹

Fiscal policy:

- The European Commission (EC) announced a EUR 1 billion EU budget guarantee to the European Investment Fund (EIF) to provide EUR 8 billion of liquidity to small and medium enterprises (SMEs). The European Investment Bank (EIB) aims to create an additional EUR 20 billion investment in SMEs, partly using its own capital and partly backed by the EU budget. There will also be “credit holidays” for existing debtors, who are affected by the COVID-19 epidemic;
- EUR 37 billion of unused EU Cohesion Policy funds are being converted into a “Corona Response Investment Initiative” to provide resources for healthcare and supporting SMEs. The majority of the entire amount of resources (EUR 29 billion) is based on the “Structural Funds”;
- The EC also announced that it would accelerate the preparation of a legislative proposal for a European Unemployment Reinsurance Scheme;
- In the second half of last week, the EC approved numerous state aid requests from Member States. On 23 March 2020, the unprecedented decision to suspend the Stability and Growth Pact obligations was taken, which allows general escape clause to pause the structural adjustments that countries must implement to meet their fiscal standards.

Monetary policy:

- On 18 March 2020, the European Central Bank (ECB) launched a Pandemic Emergency Purchase Pro-

gramme (PEPP) worth EUR 750 billion (6.5% of euro area GDP). The ECB will deploy these resources in a highly flexible manner including temporary deviation from capital keys over the rest of 2020. This allows for fluctuations in the distribution of purchase flows over time, across asset classes and among jurisdictions;

- There is also additional credit easing, with non-financial commercial paper added to the list of eligible securities and an expansion of collateral to include corporate credits in order to better coordinate the current emergency phase. The ECB commitment to doing whatever is necessary to smooth the transmission mechanism was communicated very strong;
- Next decision builds on the package of measures at its 12 March 2020 regular meeting. The ECB increased the capacity of TLTRO III from 30% of eligible assets to 50% of assets. In addition, banks that maintain their level of lending outstanding unchanged over the next year will receive a 25 basis points discount below the deposit facility rate (currently -0.50%). Modification of TLTRO III was additionally accompanied by series of LTROs, designed to bridge liquidity needs until settlement of fourth TLTRO III operation in June 2020, starting from next week;
- In addition to the existing EUR 20 billion of monthly asset purchases, the Governing Council on 12 March 2020 approved a EUR 120 billion temporary asset purchasing “envelope” that can be developed flexibly. The ECB also announced relief on capital and liquidity requirement for banks;

¹ List of fiscal policy and monetary policy measures for the euro area is based on the EC documentation ([link](#)), Euractiv news ([link](#)) and the ECB press releases documentation ([link](#)).

- On 20 March 2020, together with other major central banks (CBs), the ECB further enhanced the US dollar liquidity provision by improving the effectiveness of swap lines.

5.2 Slovenia (list based on information until 23 March 2020)²

The goal of First Anti-Corona Law³ is to mitigate the adverse effects of the COVID-19 epidemic on residents and the economy (measures are expected to last until 31 May 2020). There is a plan to launch also the Second Anti-Corona Law, which is expected to focus more on improving liquidity status of firms. Currently, all the proposed measures sum up to around EUR 2 billion. In addition, according to the announcement, all the proposed measures can be extended and upgraded if necessary. Moreover, measures in the amount of EUR 1 billion were announced on 09 March 2020, which consisted mostly of credit lines (existing and new), mainly through SID bank and Slovenian Enterprise Fund.

Fiscal policy⁴:

- Job retention measures:
 - * Compensation for salary and social contributions for temporarily laid-off workers -> the State will cover 80% of net salary and all social contributions of employees that are currently on the waiting list. The rights of the insured are maintained. There is no longer a requirement (as in the recently adopted intervention law) that more than 30% of employees must be on hold for the firm to receive State subsidies;
 - * Personal income tax payment -> advance payment for everyone on the waiting list is written off for the time of the duration of the measures, which means that the employer will not pay income tax for them each month, as it is obligatory, nor will this obligation fall to the employees at the income tax payment next year;
 - * Subsidized employment -> the jobs which are already subsidized are now co-financed by the State in the amount of the difference between full co-financing and the current subsidy;
- * Sick leave allowance -> from the first lockdown day onwards, it will be covered by the Slovenian Health Insurance Institute (ZZZS) and not by the employer;
- * Employee reward system -> the rewards that stimulate workers due to extremely difficult conditions and represent a supplement of net wages over the last paycheck (paycheck received before measures were enacted), are relieved of all duties. In the time of the duration of the measures, all social contributions (both employer's and employee's) for the employees who will remain at work will be covered by the State – this is the basis for employers to be able to pay higher net wages during this time. An extra allowance is paid for hazardous work and for employees in activities such as healthcare and civil protection (where COVID-19 epidemic brought extra burdens), ranging from 10 to 200% of the basic salary. A similar approach is advised to employers in private sector with employees in more exposed economic sectors (such as merchants).
- Measures to improve the social status of people:
 - * Temporary unemployment as a result of force majeure -> the status of all those who do not work because of force majeure, such as babysitters or commuters who do not have an option to drive to work (according to the point 6 of Article 137 in the Employment Relationships Act (ZDR-1)), have the status of employees that are currently on the waiting list (with an equal cost-sharing between the State and the employer, a write-off of personal income tax and some other measure to be determined later);

² List of fiscal policy and monetary policy measures for Slovenia is based on the Government document ([link](#)) and information provided by the Finance and STA newspapers.

³ Guidelines for the preparation of the law were announced on 23 March 2020. The government is expected to adopt the law on 27 March 2020 and Parliament possibly by 1 April 2020.

⁴ Details remain to be seen from the law proposal.

- * Loss of employment -> all those who lose their jobs during the COVID-19 epidemic are from the first day automatically entitled to unemployment benefits. When the COVID-19 measures ceases to be valid, their rights are determined with the currently applicable law (compensation or social assistance);
- * Unavailable public services (for example kindergartens) -> households are not obliged to pay for them;
- * Retired -> those with pensions up to EUR 700 are eligible for the Solidarity Allowance, which will be paid on 15 April 2020. Beneficiaries of pensions up to EUR 500 will receive EUR 300, those with a pension between EUR 500 and EUR 600 will receive EUR 230, and those with a pension between EUR 600 and EUR 700 will receive EUR 130.
- Measures supporting the self-employed:
 - * Monthly basic income -> the self-employed who are unable to carry out their activities or perform them to a significantly reduced extent due to the COVID-19 epidemic are entitled to a monthly basic income of 70% of the net minimum wage;
 - * Write-off of contributions -> contributions to the health and pension funds for the self-employed are paid by the State. All their rights are maintained. The amount of contributions for the year 2020 will be determined on the basis of the reported profit after the end of the year;
 - * Personal income tax payment -> advance payment is postponed. Tax will be levied upon assessment in the next year (in Spring 2021);
 - * Emergency assistance -> it is available to those whose activity is affected by the COVID-19 epidemic. They have to declare it through a publicly accessible statement (via an electronic application) – thus reducing bureaucracy before determining eligibility for assistance. However, the control mechanisms will later determine the veracity of the statements – if the Government finds that their application contained false information, they will have to return the entire amount of assistance;
- * Loan repayment deferral -> the possibility of delaying the payment of all loan obligations at Slovenian banks and savings banks for up to 12 months was adopted by the Parliament on 19 March 2020.
- Measures to retain business operations:
 - * Contributions of employees who remain at work -> are paid by the State (all rights are maintained). Civil Protection, National Institute of Public Health (NIJZ) and other competent institutions provide firms that need to stay open all the necessary safeguards, the ability to buy masks, disinfectants, guidelines regarding treatment, etc. These institutions also issue guidelines for safe work and protocol in case of illnesses of employees.
- Measures to improve liquidity of firms and aid to scientific research projects investigating COVID-19 epidemic :
 - * Guarantee scheme -> guarantee scheme will be set up and the Bank Asset Management Company (BAMC) enables the purchase of claims from Slovenian firms. The State provides resources for recapitalization or guarantees. This measure would be considered for a longer period of time;
 - * Corporate profit tax payment in advance and income tax payments in advance from the sole proprietorships -> all the payments in advance are frozen. The corresponding tax will be levied upon assessment in the next year;
 - * Contractual penalties -> the enforcement of penalties for delays in the delivery of services under public sector contracts is frozen;
 - * Payment deadlines -> they are reduced to eight days for payments to private suppliers from public funds;

- * Unused funds from the European Social Fund -> they are directed to support firms and institutions involved in the research and development of vaccines, medicines and COVID-19 protective equipment.
 - Decrease of attendance fees and wages and decrease of costs of the distribution services:
 - * Attendance fees -> all attendance fees and other cash benefits of supervisors in direct or indirect majority state-owned firms are reduced by 30%;
 - * Wages and salaries -> wages and salaries of all directors at the State level are reduced by 30%. The judiciary is exempt from this, but is urged to waive such a share;
 - * Distribution of TV signal -> the distribution cost of the TV signal by the RTV Slovenia to regional and other televisions is not levied.
 - Aid to agricultural sector:
 - * Financial assistance to the sick -> farmers suffering from COVID-19 are entitled to the compensation in the amount of 80% of the minimum wage for the duration of the illness;
 - * Social security contributions -> it is allowed to reduce or write-off farmers' pension contributions (for those who suffer from COVID-19, contributions will be written-off and counted as paid) or postpone payment of all social security contributions (contributions have to be paid in the following two years);
 - * Financial support for the case of loss of revenue -> if, as a result of the COVID-19 epidemic, there is a loss of income due to price reductions, unsold inventories or unpaid claims that cannot be paid by the farmer or person operating ancillary activity on the farm, he/she is compensated for the loss incurred in the form of a flat rate per hectare of land or livestock;
 - * Cadastral income tax in 2020 -> it is reduced by 50% for owners of agricultural and forest land and beehives;
 - * Greater purchase of agricultural products and foodstuffs for legal entities -> the Government wants to oblige cooperatives and merchants to offer more products that are produced and processed in Slovenia;
 - * Food in public establishments -> at least half of the food in public establishments must be locally grown;
 - * Reimbursement of unforeseen costs to food processing firms -> costs will be reimbursed for the purchase of protective equipment, the cost of more expensive logistics and the cost of replacing labour shortages;
 - * Compensation to fishermen and shellfish farmers -> they are entitled for compensation for their inability to sell products on domestic or foreign markets;
 - * Fishing boat mooring fee -> the fee paid by the holders of commercial fishing licenses for berths in ports is 40% lower;
 - * Payment of water allowance -> it is reduced by 40% in 2020 for all breeders of aquatic organisms.
 - Measures taken in the area of public procurement:
 - * Limit values for so called procurement record orders -> for goods and services, they are increased to EUR 40,000 and for construction to EUR 80,000;
 - * Municipalities -> they are ordered to carry out public procurement independently.
- What to expect?** Some measures need more time to be properly prepared by the Government:
- * Insolvency legislation -> there is still no moratorium on bankruptcies and compulsions in Slovenia. As in Germany, it is expected that all insolvency proceedings will stay on halt;
 - * An additional guarantee scheme for ensuring the liquidity of firms -> this will be prepared in cooperation with the SID Bank, where commercial banks that are ready to take over the

realization of the measure have already submitted their proposals;

- * If needed, technical interventions in the ZDR-1 will be realized. This could temporarily delay the implementation of certain provisions, such as for example the obligation to pay severance in case of job termination for business reasons.

6 | Comparison of projections with other institutions

In the last two weeks, numerous institutions published their estimates regarding the growth rate of euro area GDP in 2020. Numbers, obtained by taking into account various scenarios regarding the development of COVID-19 epidemic, range from 0.7% to -13.0%, as displayed in Table 6.1.

In the case of Slovenia, two institutions (EIPF and IMAD) and Jože P. Damijan from the School of Economics and Business, University of Ljubljana provided first estimates of the effect of COVID-19 epidemic on Slovenian real GDP growth in 2020. As indicated in Table 6.2, numbers range from -2.4% to -14.0%.

Table 6.1: Comparison of 2020 real GDP growth projections for euro area

Institution	2020	Publication date
Barclays	-5.5	26 March 2020
Moody's	-2.2	25 March 2020
JP Morgan	-13.0	25 March 2020
EIPF (pesimistic scenario)	-4.2	23 March 2020*
EIPF (base scenario)	-1.2	23 March 2020*
BNP Paribas	-4.3	19 March 2020
Rabobank	-0.8	19 March 2020
Fitch	-0.4	19 March 2020
Deutsche Bank	-2.9	18 March 2020
Berenberg	-3.5	18 March 2020
IHS Markit	-1.5	18 March 2020
Morgan Stanley	-5.0	17 March 2020
Goldman Sachs	-1.7	16 March 2020
UniCredit (downside risk scenario)	-1.5	13 March 2020
UniCredit (baseline)	0.1	13 March 2020
European Commission (internal estimate)**	-2.5	13 March 2020
European Commission	-1.1	13 March 2020
DBS Bank	0.7	13 March 2020
Erste Group	-0.5	13 March 2020
ECB (severe scenario)	-0.6	12 March 2020
ECB (mild scenario)	0.0	12 March 2020
HSBC	-0.5	11 March 2020

*Note: *Based on the date in Finance newspaper article. **Obtained from Reuters.
Source: Different institutions.*

Table 6.2: Comparison of 2020 real GDP growth projections for Slovenia

Instituion	2020	Publication date
IMAD (pesimistic scenario)	-8.0	23 March 2020
IMAD (base scenario)	-6.0	23 March 2020
EIPF (pesimistic scenario)	-7.8	23 March 2020*
EIPF (base scenario)	-2.4	23 March 2020*
JPD (pesimistic scenario)	-14.0	18 March 2020
JPD (base scenario)	-6.3	18 March 2020

*Note: *Based on the date in Finance newspaper article.*

Source: Different institutions.

7 | Appendix

Table 7.1. Size of shocks to GDP activities in different scenarios across activities and time

Scenario 1 (Shocks in % of value added.)

	A	BDE	C	F	GHI	J	K	L	MN	OPQ	RST
January	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0
March	2.5	0	-20	-5	-35	0	-7.5	-25	-10	-5	-25
April	5	0	-60	-40	-80	0	-20	-70	-40	-10	-70
May	0.5	0	-30	-12	-40	0	-4	-21	-8	-1	-28
June	0.1	0	-15	-3.6	-20	0	-0.8	-6.3	-1.6	-0.1	-11.2
July	0	0	-7.5	-1.1	-10	0	-0.2	-1.9	-0.3	0	-4.5
August	0	0	-3.8	-0.3	-5	0	0	-0.6	-0.1	0	-1.8
September	0	0	-1.9	-0.1	-2.5	0	0	-0.2	0	0	-0.7
October	0	0	-0.9	0	-1.3	0	0	-0.1	0	0	-0.3
November	0	0	-0.5	0	-0.6	0	0	0	0	0	-0.1
December	0	0	-0.2	0	-0.3	0	0	0	0	0	0

Scenario 2 (Shocks in % of value added.)

	A	BDE	C	F	GHI	J	K	L	MN	OPQ	RST
January	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0
March	2.5	0	-20	-5	-35	0	-7.5	-25	-10	-5	-25
April	5	0	-60	-40	-80	0	-20	-70	-40	-10	-70
May	5	0	-60	-40	-80	0	-20	-70	-40	-10	-70
June	0.5	0	-30	-12	-40	0	-4	-21	-8	-1	-28
July	0.1	0	-15	-3.6	-20	0	-0.8	-6.3	-1.6	-0.1	-11.2
August	0	0	-7.5	-1.1	-10	0	-0.2	-1.9	-0.3	0	-4.5
September	0	0	-3.8	-0.3	-5	0	0	-0.6	-0.1	0	-1.8
October	0	0	-1.9	-0.1	-2.5	0	0	-0.2	0	0	-0.7
November	0	0	-0.9	0	-1.3	0	0	-0.1	0	0	-0.3
December	0	0	-0.5	0	-0.6	0	0	0	0	0	-0.1

Scenario 3 (Shocks in % of value added.)

	A	BDE	C	F	GHI	J	K	L	MN	OPQ	RST
January	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0
March	2.5	0	-20	-5	-35	0	-7.5	-25	-10	-5	-25
April	5	0	-60	-40	-80	0	-20	-70	-40	-10	-70
May	5	0	-60	-40	-80	0	-20	-70	-40	-10	-70
June	5	0	-60	-40	-80	0	-20	-70	-40	-10	-70
July	0.5	0	-36	-12	-64	0	-4	-28	-8	-0.5	-35
August	0.1	0	-21.6	-3.6	-51.2	0	-0.8	-11.2	-1.6	0	-17.5
September	0	0	-8.6	-1.1	-25.6	0	-0.1	-2.2	-0.2	0	-5.3
October	0	0	-3.5	-0.3	-12.8	0	0	-0.4	0	0	-1.6
November	0	0	-1.4	-0.1	-6.4	0	0	-0.1	0	0	-0.5
December	0	0	-0.6	0	-3.2	0	0	0	0	0	-0.1

Source: Authors' estimations.

Table 7.2: Shares, assumed shocks and matching of activities to private consumption components

Private Consumption Components	Share in %	Mirror shock to...	Size of shock accounted for
Food and Non-Alcoholic Beverages	14.4%	A	100%
Alcoholic Beverages, Tobacco and Narcotics	1.8%	A	100%
Clothing and Footwear	6.7%	GHI	50%
Housing	3.1%	L	50%
Water, Electricity, Gas and Other Fuels	10.8%	A*	50%
Furnishing, Household Equipment and Household Maintenance	5.7%	F	50%
Health	2.9%	OPQ	50%
Transport services	0.6%	GHI	100%
Other transport components	20.8%	GHI	50%
Communication	5.2%	J	50%
Recreation and Cultural Services and Package Holidays	4.4%	RST	100%
Recreational and Cultural Goods	4.7%	RST	50%
Education	1.0%	OPQ	50%
Catering and Accommodation	6.6%	GHI	100%
Financial and Insurance Services	7.2%	K	50%
Personal Care	2.5%	RST	100%
Other Miscellaneous Goods and Services	1.3%	RST	50%

*Note: While * falls under BDE, the shock applied is the same as A as we expect for households to spend slightly more on utilities during the lock-down period.*

Source: HBS - SORS, Authors' calculations.