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MACROECONOMIC IMPLICATIONS OF THE FIGHT AGAINST COVID-19: FIRST ESTIMATES, FORECASTS, AND CONCLUSIONS[5]

The COVID-19 pandemic has triggered a massive spike in uncertainty all over the world. Bulgaria is no exception. Major uncertainties surround almost every aspect of human life: the infectiousness, prevalence, and lethality of the virus; the capacity of healthcare systems to meet the challenge; how long it will take to develop 'herd immunity'; how long and how strong should social distancing be; how long it will take to develop and deploy safe, effective vaccines etc. On top of all this comes the economic uncertainty. There is no doubt the pandemic is having immediately visible effects on economic activity. The rapid contraction in economic activity, the collapse of trade, and the dramatic increase in the unemployment rate are without precedent. Our goal here is to assess the near-term macroeconomic effects of these COVID-induced uncertainties. To this end, we look at the measures taken worldwide and in the EU in particular, focusing on Bulgaria's main trading partners. We develop three different scenarios for the economic development by the end of 2020 based on different assumptions with regard to the severity of the external shock as well as the duration of the social distancing.
JEL: E27; E60; I15; I18

1. Socio-Economic Nature of the COVID-19 Problem

At present, there is not enough mass testing for the population to effectively isolate people that have been affected by the virus. This finding is valid not only for Bulgaria but also for countries that are in a much more advanced stage in their economic development. For this

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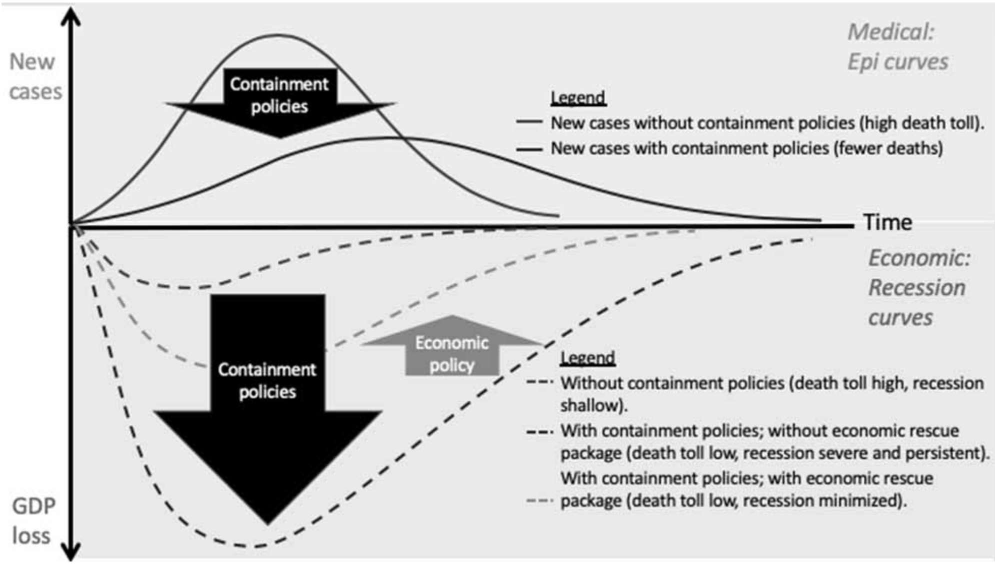
reason, the only possible way to physically separate the healthy from the sick is through the introduction of serious restrictive measures. With regard to the economy, this requires the closure of a number of manufacturing plants, shops, hotels, restaurants, etc., which inevitably leads to a deep economic crisis. Moreover, the longer and more restrictive the measures are, the longer and deeper the economic recession will be. The figure below gives a clear idea of the current processes.

Figure 1

The spread of the infection and the effects on economic activity



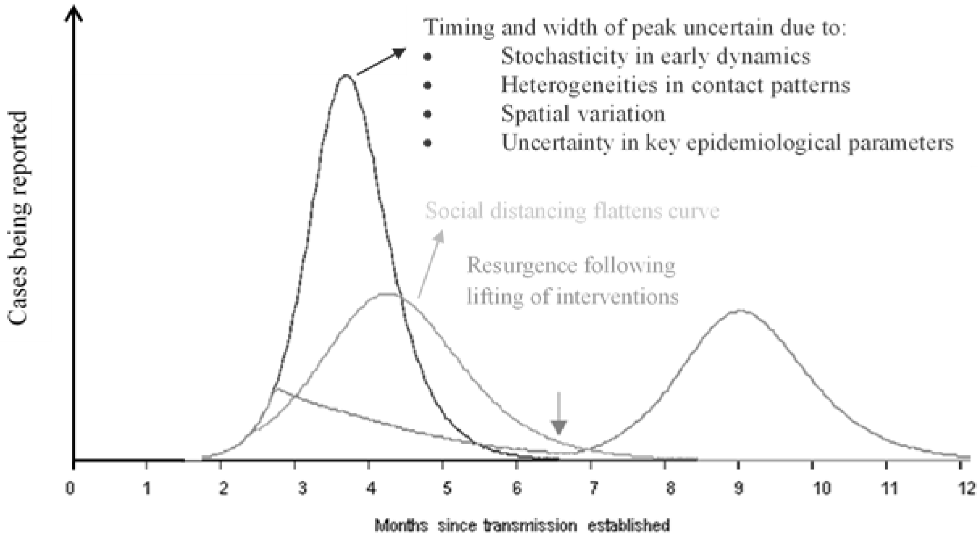
Source: Baldwin, March 22, 2020.

So far, the only infection control measure, that has proved effective, is the so-called ‘social distancing’, which severely restricts people's daily lives. Indeed, restrictions lead to fewer people being infected, which prevents undue pressure on the health system. From an epidemiological point of view, in the absence of a vaccine, at least two-thirds of the population needs to be immune for the epidemic to abate. The alternative is to look for some cyclicality in the severity of restrictions, alternating cycles of tightening and loosening of measures until herd immunity is attained (Figure 2). At this stage, there is insufficient information on how long these cycles can last.

Obviously, the government faces the difficult dilemma of choosing between a healthy population and a healthy economy. Given the priority of preserving as many lives as possible, a key challenge is devising adequate economic and social measure (in terms of size, structure, and duration) to minimize the economic damage.

Figure 2

Possible reaction models



A baseline simulation with case isolation only (red); a simulation with social distancing in place throughout the epidemic, flattening the curve (green), and a simulation with more elective social distancing in place for a limited period only, typically followed by a resurgent epidemic when social distancing is halted (blue). These are not quantitative predictions but robust qualitative illustrations for a range of model choices.

Source: (Atkeson, March 2020)

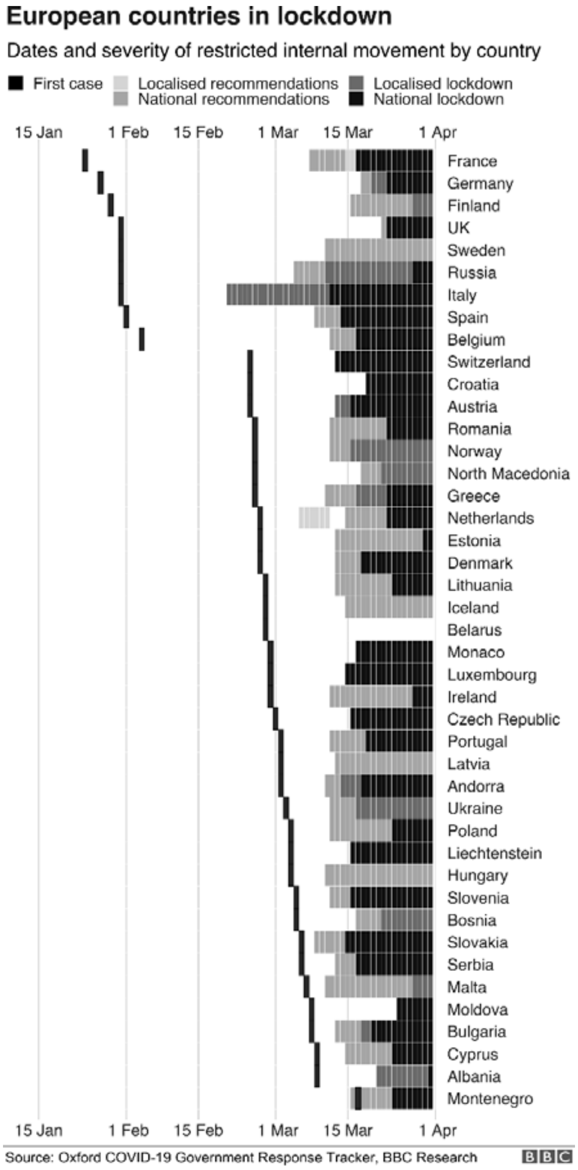
The purpose of this analysis is to assess as accurately as possible the negative consequences for the economy as a whole and (at a later stage) for the main sectors and industries. We share the understanding that the coming recession is unusual because it is not triggered by a downturn in demand (countered by appropriate policies aimed at increasing it), but rather by supply problems that lead to a secondary effect in demand. Emergency quarantine and social exclusion impede or even halt the activities of significant economic sectors, reducing both demand and supply. This leads to rising unemployment, falling incomes, depreciation of capital assets and real estate. There are certainly other negative effects that go beyond economic analysis.

2. The Spread of the Infection in Bulgaria

Although the emergence of the new virus has been reported since late 2019, the first proven case of infection in Bulgaria was in early March. Despite the relatively late appearance of the virus, some precautions, including the creation of a special headquarters, were taken in advance. Figure 3 clearly shows that in countries where the time between the first proven case and the imposition of restrictive measures is shorter, there are significantly fewer cases of infected and deceased. In this regard, it should be emphasized that Bulgaria is one of the countries in Europe that imposed extraordinary measures very early (just five days after the first case). It is also evident that countries such as Italy, Spain, France, Germany, and especially the UK delayed those measures and the spread of the infection in these countries is proceeding at a faster rate and with more deaths.

Figure 3

Time to detect the virus and introduce restrictive measures



3. Economic Consequences of the Infection

What is unique about the current situation is that the underlying recession is based on the vulnerability of the human factor. From this point of view, it can be assumed that, with regard to aggregate supply, sectors in the economy where the human factor is dominant (e.g. national and international tourism, transport, retail trade, parts of healthcare, culture and art, sports) will be affected more severely. Sectors with a high degree of automation, robotics and digitization have the capacity to be less affected. However, in a number of them, the activity is vulnerable to interruption of the relevant production and technological chain (e.g. in the field of the auto industry). Other sectors can be quickly reconfigured and should not experience supply pressure (services, administration and management, education). Finally, there are activities and industries that will reap benefits (pharmacy, certain sectors of the food industry, production and trade in essentials, manufacturing of protective clothing and protective equipment). This said, all of the above applies to supply only, and just to the first stage of the recession. Much of the upcoming issues will be related not only to aggregate supply but also to aggregate demand. The mechanism is very simple – a more significant contraction of the labour force from the most endangered sectors will lead to a permanent shock on aggregate demand with a probable secondary effect on supply and subsequent downward pressure towards further reduction of an even greater share of the labour force. In this way, the primary effects of the reduced demand are reproduced and amplified in the supply side, and the openness of the Bulgarian economy is an additional aggravating factor in this case. Without adequate intervention (by the state, employers, and trade unions), a 'vicious circle' can occurs. Escaping such a cycle will be more difficult if measures are delayed, and the recession can quickly develop into depression.

4. Measures Adopted for Crisis Consequences

4.1. Measures, taken by the EU

- The Commission created SURE (**S**upport mitigating **U**nemployment **R**isks in **E**mergency), a new EU solidarity instrument to help workers keep their income and help businesses stay afloat and retain staff. SURE will provide financial assistance up to €100 billion in EU loans and will be an EU-wide scheme to mitigate unemployment risks;
- The Fund for European Aid to the Most Deprived is adapted to ensure that food deliveries can continue going to where they are needed, while making sure those delivering and those receiving stay safe;
- Specific measures are introduced to support Europe's fishermen and farmers. An additional set of measures is expected to ensure that farmers and other beneficiaries can receive the support they need from the common agricultural policy;

- All available resources from the European Structural and Investment Funds to be used on the response to the Coronavirus, i.e. no limit on transfers between funds or between regions, no limits on spending per policy objective, no requirements on co-financing;
- Redirection of all funds from the 2020 EU budget to help save lives through a new EU solidarity instrument. This will ensure that €3billion is directed to supporting member states to manage the public health crisis.
- The European Regional Development Fund, the European Social Fund and the Cohesion Fund will be mobilized to deal with the effects of the public health crisis. Transfers between the Funds as well as between the categories of regions and between the policy objectives will be possible. Co-financing requirements are eliminated;
- The Emergency Support Facility is targeted to support health facilities, equipment, support for mass tests, medical research, new treatments and production, purchase and distribution of vaccines across the EU. The emergency support instrument will include €3 billion, of which €300 million will be made available to RescEU in support of total equipment stocks.

4.2. Measures, taken by ECB

The ECB clearly stated that its short-term goals are to support employment and to mobilize the banking system to provide firms with working capital to keep paying staff and bills. To this end, two types of measures were introduced.

- First, targeted measures on a massive scale to make sure that liquidity gets through to those that need it the most. The new targeted lending facility provides up to around €3 trillion in liquidity to banks at a negative rate, which can be as low as -0.75%. To ensure that banks make full use of this new facility, the ECB has also introduced a targeted collateral easing package, with a special focus on smaller businesses, the self-employed and private individuals.
- Second, the ECB has started buying public and private sector bonds in large volume to ensure that all sectors of the economy can benefit from easy financing conditions. The PEPP (Pandemic emergency purchase programme), together with other asset-buying programmes, allows purchasing more than €1 trillion of bonds until the end of this year.

4.3. Measures, taken in Bulgaria and some systemically important countries

The overview of the measures taken shows that a mix of fiscal and monetary measures is in place in the countries concerned. With regard to Bulgaria, however, it must be stressed that restrictions stemming from the currency board arrangement make it impossible for the central bank to conduct active monetary policy to maintain a stable money supply. The same applies to interest rates which are not set in a discretionary manner, but closely follow those of the ECB. The lack of monetary instruments for macroeconomic management puts an additional burden on fiscal ones. From the perspective of the banking system as a whole, there are no grounds for concern at this stage. Problems could arise in particular banks with lower levels of capital buffers and/or with large exposures to threatened sectors of the economy.

Table 1

Review of measures, taken by country

% of GDP 2019	Fiscal	Monetary and Macro-Financial
	Bulgaria	
~ 2%	• Coverage of 60% of the wages and the social security contributions of the employees in affected sectors • Deferment of the payment of corporate taxes until June 30. • Additional salary for directly involved medics and police officers; • Possibility for registered unemployed to sign labour contracts with agriculture producers without losing their unemployment benefits.	• Capitalization of the 2019 profit in the banking system; • Increase in the liquidity of the banking system by EUR 3,5 million; • Cancellation of the increase of the countercyclical capital buffer; • Capital increase of the Bulgarian Development Bank (BDB) by EUR 350 million; • Voluntary (for banks) moratorium up to 6 months on credit contributions for regular payers; • Up to EUR 2250 interest-free loan for each unemployed due to COVID-19; • Allowing for a budget deficit of EUR 1.75 million and increased ceiling on newly incurred public debt of EUR 5 million for 2020
	USA	
~ 11%	• Transfers for hospitals • Provide one-time tax rebates to individuals; • Expand unemployment benefits; • Provide a food safety net for the most vulnerable • Prevent corporate bankruptcy by providing loans, guarantees, and backstopping • Forgivable Small Business Administration loans and guarantees to help small businesses that retain workers • For international assistance	• Reducing the federal funds rate • Reduced cost of swap lines at major banks and extension of foreign exchange maturity • Facilitate the issuance of securities by companies • Provide liquidity for lending to depository institutions • Suspension of foreclosures/expulsions and plan for reduction/suspension of mortgage payments up to 12 months
	China	
2.5%	• Increased costs for prevention and control of epidemics; • Manufacture of medical equipment; • Tax relief and cancelled social security contributions; • Greater investment in public health emergency management.	• Increasing liquidity in the banking system • Support for manufacturers of medical supplies, micro, small and medium-sized enterprises and the agricultural sector at low-interest rates • Delayed payments on loans • Facilitating housing policy by local authorities
	Italy	
1.4%	• Funds for health and civil protection systems	*From ECB*:

% of GDP 2019	Fiscal	Monetary and Macro-Financial
+ECB	• Measures to preserve jobs and support the income of laid-off workers and self-employed persons • Deferral of taxes and utilities • Measures to support the supply of credit aimed at improving liquidity	• Additional asset purchases • Providing temporary auctions for the temporary liquidity facility • Permission to work temporarily under the Pillar 2 Guidelines, the capital buffer and the liquidity coverage ratio • Flexibility in classification requirements and expectations for provisioning for non-performing loan losses *Government*: • State guarantees for loans to SMEs • Moratorium on mortgage and overdraft payments for some households and SMEs
Spain		
1% +ECB	• Budget support from the Ministry of Health's reserve fund; • Transfer for regional health services; • Funding research related to the development of drugs and vaccines; • Employment benefits for temporary workers; • Funding the nutrition of children affected by school closures; • 50% exemption from social security contributions from February to June for workers in the tourism sector and related activities;	*From ECB*: • Additional asset purchases • Providing temporary auctions for the temporary liquidity facility • Permission to work temporarily under the Pillar 2 Guidelines, the capital buffer and the liquidity coverage ratio • Flexibility in classification requirements and expectations for provisioning for non-performing loan losses *From government*: • Government loan guarantees for companies and self-insured persons • Government guarantees for exporters through the Spanish export credit insurance company • Extension of the deadlines for repayment of loans to farmers. • Introduction of a special credit line for the tourism sector • Moratorium on mortgage payments for the most vulnerable population groups • Postponement of the disbursement of loans granted to enterprises from industry, trade and tourism; • Prohibition of short selling of Spanish stocks on the stock market. • Resolution on special government screening of foreign direct investment in strategic sectors
France		
4% +14% +ECB	• Increasing the level of health insurance for patients • Increase in health insurance costs • Postponement of social security and company	*From ECB*: • Additional asset purchases • Providing temporary auctions for the temporary liquidity facility

% of GDP 2019	Fiscal	Monetary and Macro-Financial
	tax payments • Direct financial support for affected SMEs and independent workers • Postpone rental payments and utilities for affected SMEs • About 14% of GDP government guarantees for bank loans to companies	• Permission to work temporarily under the Pillar 2 Guidelines, the capital buffer and the liquidity coverage ratio • Flexibility in classification requirements and expectations for provisioning for non-performing loan losses *From government*: • Decrease in the countercyclical buffer • Prohibition of short selling of shares • Support for renegotiation of SME bank loans
Germany		
4,9% +ECB	• Expenditure on medical equipment and development • Subsidies to preserve jobs and workers' incomes • Extension of childcare benefits for low-income parents. • EUR 50 billion in the form of grants to small business owners and self-employed persons • Tax deferral until the end of 2020 • Extending access to public guarantee loans for companies	*From ECB*: • Additional asset purchases • Providing temporary auctions for the temporary liquidity facility • Permission to work temporarily under the Pillar 2 Guidelines, the capital buffer and the liquidity coverage ratio • Flexibility in classification requirements and expectations for provisioning for non-performing loan losses *From government*: • Decrease in the countercyclical buffer • Acquisition of shares of larger than the affected companies and strengthening of their capital positions
Austria		
9% + 8,5% +ECB	• Financing the healthcare system • Financing short-term work and compensation for self-employed, family and micro-enterprises that have lost income due to illness • Guarantee system established for exporting companies • Financing of companies in the export sector and tourism • Deferral of income tax on natural and legal persons • Allowing companies to compel workers to take up to two weeks of leave accumulated in previous years • With reduced working hours, employers will only pay the hours worked and the rest will be paid from the budget	*From ECB*: • Additional asset purchases • Providing temporary auctions for the temporary liquidity facility • Permission to work temporarily under the Pillar 2 Guidelines, the capital buffer and the liquidity coverage ratio • Flexibility in classification requirements and expectations for provisioning for non-performing loan losses *From government*: • Willingness to provide liquidity • Prohibition on short-selling of shares
Hungary		
NA	• Expenditure on the health sector • Employers' contributions will be eliminated in the most affected sectors	• Advanced access to liquidity • Introduce long-term unlimited secured credit lines

% of GDP 2019	Fiscal	Monetary and Macro-Financial
	• Health care contributions will be reduced • About 80,000 SMEs (mainly in the services sector) will be exempted from small business tax • Payment of taxes in the sectors concerned will be postponed until after the state of emergency • Contributions to tourism development will be suspended • The media service providers will receive tax relief due to the loss of advertising revenue • Tax collection procedures will be suspended	• Suspension of penalties for failure to comply with the required reserves • Provide financial assistance to home and corporate borrowers • Moratorium on the repayment of all current loans by the end of this year • Limiting the average annual interest rate on new unsecured consumer loans
Romania		
3%	• Additional healthcare • Partial coverage of the salaries of parents who stayed home during school closure • Partial coverage of workers' salaries at risk of redundancies • Guarantees and subsidized interest on working capital and investments of SMEs • Accelerated VAT refund • Stopping the collection of arrears • Delaying the payment of real estate tax for three months	• Reduction of the basic interest rate • Ensure the liquidity of credit institutions • Acquisition of government securities on the secondary market.
Serbia		
7%	• 10% increase in public health wages • Increasing healthcare costs • Lump-sum payment for all pensioners • New investments in public infrastructure projects • Additional measures to support private sector activities and employment	• Reduction of the basic interest rate • Building of banks' liquidity • Purchase of government securities • 3-month moratorium on all payments on bank loans and finance leases
Greece		
7.5% +ECB	• Increase in health care costs • The hiring of 2000 new doctors and nurses • Transfers of vulnerable persons, including a financial stipend of EUR 800 to 30 April for employees working in highly affected companies • Extension of unemployment benefits • Paid leave for parents whose children do not attend school • Support for the liquidity of heavily affected businesses through subsidized loans, credit guarantees, interest subsidies and late payment of taxes and social security contributions	*From ECB*: • Additional asset purchases • Providing temporary auctions for the temporary liquidity facility • Permission to work temporarily under the Pillar 2 Guidelines, the capital buffer and the liquidity coverage ratio • Flexibility in classification requirements and expectations for provisioning for non-performing loan losses *From government*: • Subsidies for interest payments • Postponement of large payments on existing loans for severely affected individuals and companies by the end of September

% of GDP 2019	Fiscal	Monetary and Macro-Financial
Turkey		
2%	• Doubling the credit guarantee fund • Raising the minimum pension and financial support for families in need • Reduction/deferral of taxes for the industries concerned (especially tourism) • Direct support for Turkish Airlines and other organizations involved • Extending the deadlines for filing personal and corporate tax returns • Increasing the flexibility of work	• Reduction of the basic interest rate • Liquidity assurance • Decrease of reserves on foreign currency deposits for some banks • 3-month moratorium on repayment of bank loans (principal and interest) for the affected companies. • Support for lending to export companies • Debt and bankruptcy proceedings have been suspended.

As mentioned above, in combating the consequences of COVID-19, the ECB has taken unprecedented measures. Unfortunately, access to this liquidity will be for the euro area member states only. This reminds us once again that any delay in applying for the ERM II furthers Bulgaria away from full membership in the euro area, which means a continued absence of a ‘lender of last resort’. In crisis times, the lack of such a lender feels very acute.

5. Global Consequences

5.1. The global economy in stress

The coronavirus attacks the global economy in a period of weak economic growth, high recession risk, oil wars, high levels of sovereign debt in many of the world's leading economies, and depleted monetary instruments to promote growth. All this happened in the first quarter of the year, which is traditionally less dynamic economically.

At the beginning of March, there were still analysts who thought that the spread of the coronavirus was more of a temporary shock, which could be offset at least partly during the rest of the year. These hopes were also based on the experience of the other epidemics like bird flu and SARS, whose economic consequences were local, short-term, and weak. The virus itself surprised the economies not prepared to face its spread and persistence. It has produced an economic contagion that spans the world, regardless of how widespread the virus is in one country or another.

There is no doubt that the global economy will enter a recession this year. What is not known is how deep and how long it will be.

5.2. China: The first sick economy

Total production in China (including industry, mining, and utilities) fell by 13.5% in the first two months of 2020, while analysts had forecasted a decline of 3%. Retail sales declined by 20.5% in the first two months, while projections before were for 4%. Although

95% of large companies outside the most contaminated region returned to normal operation in March as well as 60% of small and medium-sized enterprises, the Chinese economy is expected to decline at an unprecedented rate since WWII. The service sector is recovering but very slowly. More than 60% of restaurants and hotels operate at reduced capacity. About 70% of large import and export companies resumed work in March, according to the Chinese Ministry of Commerce.

The extent to which the next quarters will offset the first-quarter decline remains unclear, as the Chinese economy is yet to experience external shocks from the collapse of the European and American economies. The Chinese economy will likely experience an additional economic shock from the crisis in countries affected by the virus after China. By breaking the value chains, the collapse of China's imports of important goods is creating new shocks for the economy. Direct investment in China collapsed due to the virus by 15% and particularly in the industry by 34%. The return of confidence of investors will take time.

China's economic measures are rather modest at this stage, targeting small and medium-sized businesses. However, it is envisaged to extend the deadlines for loan repayment, tax cuts, social security contributions, and rent payment assistance.

The Chinese government still has not (by early April) reformulated its economic target for 2020, which was to reach 6% GDP growth for this year. The political message is that during the rest of the year, the economy will be able to compensate the decline from the first two months. Despite Chinese leadership's assurances that the Chinese economy is recovering, EU and US data show that China's orders have not yet been restored, meaning the shock of the Chinese economy's collapse will continue to unbalance the economies of the rest of the world.

5.3. The European economy

The European economy is highly vulnerable. Against the background of anemic economic growth, the difficulties that the ECB is experiencing to revive growth and delayed measures at a supranational level, it may prove that there will be many physical casualties as well as large and long-lasting economic losses.

The biggest losses for the European economy will come from tourism, which has a high share of GDP and is the third largest sector in the European economy, generating 10% of European GDP with 27 million employed, which is nearly 12% of the European workforce.

The package of measures under the Green Deal is being implemented and as expected, the first important documents have already been published, requiring prompt and firm reaction from state institutions, businesses, academia, and the non-governmental sector.

- On 4 March, the EC published the draft Regulation on the European Climate Law. This is the first of a set of EU acts to implement the Green Deal. The public consultation is open until 27 May. The project defines the basic obligations of the member states in fulfilling the ambitious objectives of the agreement.

- The Circular Economy Action Plan was published on 11 March.
- The Farm-to-Table Strategy is also published.
- A 2030 Biodiversity Strategy is underway.

Developing national positions and organizing a public debate on these fundamentally important issues requires the investment of huge administrative resources, which are not available in the coming months due to the focus on the pandemic and its economic effects. **Therefore, delaying the Green Deal initiatives is crucial to preventing the European economies from new regulatory risks in the current crisis situation.**

6. The Economic Consequences for Bulgaria

6.1. State of the economy before the onset of the virus

In assessing the economic effects from the pandemic, the starting point of the Bulgarian economy must be taken into account. Despite the slowdown in 2019, it managed to achieve relatively high growth of 3.1%. Unlike other European economies, the Bulgarian economy was not expected to have a recession in 2020, although the trend was down. A number of internal factors have a downward pressure on growth, which, even without external shocks, would have significantly slowed down the economy.

The macroeconomic framework remained stable in January and February. The restrictive measures regarding the movement of people imposed came into force in the second half of March, so the first quarter is unlikely to see a very large economic decline. The question is how the second quarter will end, given that during the first two months, the economy developed normally, and whether this normality will be sufficient. According to preliminary data, in January 2020 the seasonally adjusted index of industrial production registered a growth of 1.6% compared to December 2019 but compared to the average monthly value for 2019 a decrease of 0.7% was observed. The trend is expected to continue in February with a slight decrease.

- Tourism started successfully at the beginning of the year. In January 2020, the total number of nights spent in all accommodation establishments was 19.8% higher than in the same month of the previous year. Since mid-February, the tourism sector started experiencing a severe decline.
- According to preliminary seasonally adjusted data in January 2020, the turnover in ‘Retail trade’ at constant prices decreased by 0.4% compared to the previous month. Turnover increased by 3.2% in January 2020 compared to the same month of the previous year.
- In January, the Production Index in the Construction Sector was 0.8% above the level of the previous month and 1.7% higher than the same month of 2019. Construction's contribution to GDP in the first quarter of the year is usually around 3.7%.

- Inflation in the first two months of the year was low – in January it was 0.9% and in February it was 0.1%. However, for foodstuffs, there was not only a seasonal but also a permanent trend of a rapid price increase. The inflation of these goods accelerated since mid-February due to the consumers' behaviour to build reserves.
- The Unemployment Fund has faced a difficult financial crisis. It has been operating at a deficit of more than 25% in recent years, despite high economic growth and close to full employment rates.

A good macro framework in the first two months of the year may reduce the negative effects of the closure of entire sectors of the economy in March, but the inability of social funds to encounter a recession of this magnitude poses serious challenges. At the end of 2019, the labour market looked relatively good and several improved labour market indicators were recorded.

- Employment is increasing and the target of 75% employment of the population aged 20-64 set in the 2020 Strategy has been reached.
- The number of unemployed persons sharply decreased in absolute numbers and as a relative share of the labour force. In 2019, historical lows of these indicators were reached 140,000 and 4.1% respectively.
- The number of discouraged persons and economically inactive people of working age who want to work is greatly reduced.

6.2. Initial effects of the crisis on the economy

It is too early to assess the economic effects of the crisis. The lack of recent data makes this exercise rather theoretical, given all the uncertainties involved. The impact will vary across the sectors. Two major groups of factors will determine the impact of the epidemic on the economy – internal and external. That is, the economy faces external shocks (contraction of the global economy and that of the EU) and internal shocks (closure of sectors and industries). The combination of these two groups outlines not only a fast and significant, but also a prolonged period of deterioration of the economic environment and the Bulgarian economy.

Due to well-established seasonal factors, during the first quarter of the year GDP growth is weakest. The effects of the forced closure of enterprises and reduction of their activity happened in the second half of March and therefore may not have a significant impact on GDP for the entire quarter. The dynamics of internal factors during the crisis period are determined by which sectors and industries will cease operations altogether and for how long, which ones will continue at reduced volumes, and which will expand or restructure their production. With the expected shutdown of the entire subsectors of services, overall March growth will be negative, despite the inertia of the economy.

- Tourism is expected to decline significantly in the first quarter of this year. The introduction of a ban on organized tourist trips in Bulgaria and abroad on 13 May essentially closed the sector and has led to significant losses. For example, 63 million BGN of revenues from overnight stays will not be realized.

- During the first quarter of last year, in the hotel industry employed about 108,000 people, which represents about 5% of total employment. The number of enterprises in this sector is just above 27,000, 90% of which employ less than nine workers. Supporting and maintaining employment in this sector under the 60:40 scheme will be difficult to administer because of the expected large number of businesses that will become involved. On the other hand, 40% of wage costs alone will be a big burden for this sector, considering the high operating costs of the sites.
- Trade, together with tourism, make up 16.5% of GDP. Due to seasonal factors, these sectors also grow at a slow pace in the first quarter of the year. The trade sector will be affected by restricting access to retail outlets and the closure of large shopping malls. The monthly wholesale of foodstuffs is on average about BGN 2.3 billion, which is about 40% of the total wholesale trade, while the retail trade of foodstuffs is about BGN 1.5 billion a month and 37% of the total retail sales. The data show that the retail and wholesale of food must be increased more than twofold to compensate the reduction of non-foodstuffs, which is over 60% of total trade. While this may be possible in the retail sector, the drop in the wholesale trade will be significant due to the absence of the entire restaurant sector in the market. Due to its significant share of GDP, the trade will contribute to the economic downturn as early as the first quarter. As China's experience shows, trade is recovering slowly and the downturn will carry over into the second quarter even at the most optimistic end of the epidemic.
- Both the construction and agriculture sectors (again due to the seasonal pattern) have their lowest contribution to GDP growth in the first quarter. So, the effects of the decline in activity in the first quarter will be rather weak but will aggravate in the second and third quarters.
- Increased demand for food is expected to increase overall inflation in March, with speculative trends in some commodity groups also contributing to higher inflation. But this shock may be overcome in the coming months and inflation will remain moderate, driven by the reduction of incomes. After the initial mass stockpiling of food and necessities, the growth of purchases slowed. The decrease in imports is likely to be offset by a recent demand for Bulgarian food and other goods.
- In 2020, the total budget of the Unemployment Fund is about BGN 437 million with a planned deficit of BGN 94 million. After the budget revision in late March, the transfer to this fund was increased by over BGN 1 billion. It is unlikely that the fund has sufficient resources to respond to the rapid growth of registered unemployed. It is possible that a new update will be needed.

The biggest long-term risk to the economy is the high exposure of entire sectors and industries to exports (imports) to (from) some of the most affected countries – Italy, Spain, as well Germany. These countries are Bulgaria’s leading trading partners. According to NSI data, exports to Germany and Italy alone in 2019 accounted for 22% of total commodity exports, and imports from those countries accounted for 18% of total commodity imports.

Due to the key role that foreign direct investments from these economies play for the Bulgarian economy, the expected decline over the next two-three quarters will cost at least 1% of GDP growth (according to the methodology of ERI at BAS).

The high degree of openness of the Bulgarian economy creates conducive conditions for a rapid transmission of external shocks. Even if the normal pace of work of the Bulgarian enterprises closed due to the epidemic is restored in May or June, delayed and falling volumes of external orders will generate a significant downturn in the economy.

6.3. Specifying the preconditions for three possible scenarios

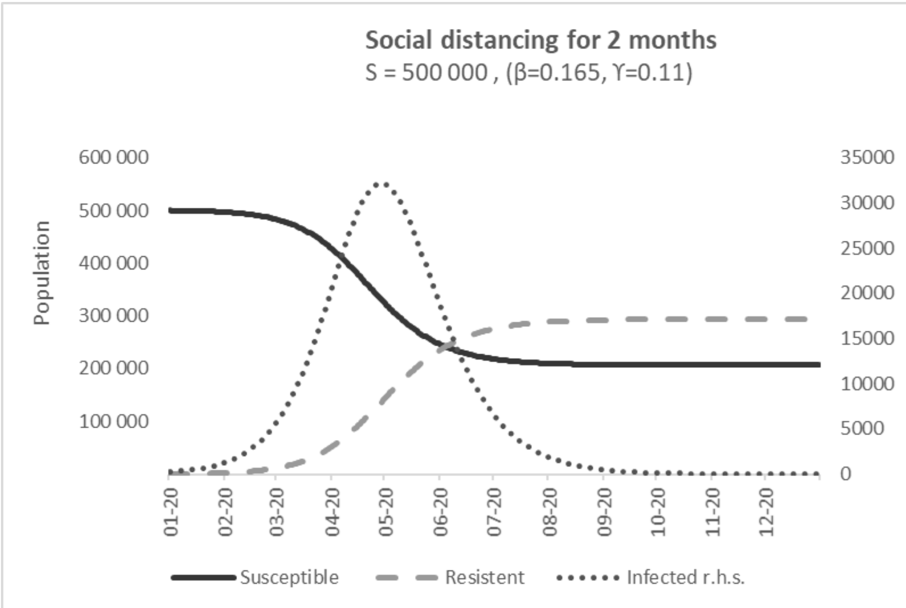
It must be acknowledged that the experience gained so far in dealing with such situations relates mainly to developing economies which have been exposed to natural disasters that have led to supply shocks. It is strange, but currently, the most affected countries are mostly large and highly developed economies with well-functioning health systems. In spite of numerous publications and all kinds of opinions from a number of experts, neither the severity nor the duration of the coming recession can be estimated at this stage. Everything will depend on the success of the health-policy response aimed at keeping the number of infected and deceased (including those of working age) as low as possible for as long as feasible. This will allow the health system to succeed in identifying and limiting the spread of the virus, treating patients and boosting immunity, and ultimately saving as many lives as possible. At the same time, as we await some more tangible progress in the medical dimension of the crisis, fear and insecurity are deepening, and the adverse effects on financial stability and prospects for economic recovery are increasingly gloomy.

The circumstances listed above make it extremely difficult to come up with a reliable forecast. The ambiguities regarding the duration of the restrictions, as well as the lack of experience in assessing the impact of such shocks, force us to develop three different scenarios based on three different assumptions for the development of the pandemic in the short term. Projections cover only the current year. As more data become available (especially for the second quarter), the forecast for 2020 will be more accurate, which will also allow us to build a longer-term macroeconomic framework.

In drawing up the different scenarios, we have used some of the conclusions made in (Eichenbaum et al., March 2020), which in turn are based on the canonical SIR model (susceptible (S), infected (I), and recovered(R)), proposed by (Kermack & McKendrick, 1927). According to this research, stopping the infection requires that about 60% of the population be eventually infected, which will ensure the creation of the so-called ‘herd immunity’. With this in mind, the different scenarios in the forecast are based on the duration of this process. As shown in Figure 1, with more active measures to contain the spread of the infection, the time to reach herd immunity is prolonged, and the recession is deepened, while the health system remains operational and there are fewer deaths. Conversely, if herd immunity were reached sooner, the recession would be shorter. However, this would come at the expense of a large number of deaths and a health system that is unlikely to be able to cope with other diseases in full, which is why deaths will not be limited only to those due to the coronavirus. Obviously, the latter scenario is not socially acceptable and should be rejected regardless of the more severe economic and possibly social problems. Instead, efforts must be made to limit the casualties from the virus, and the economic losses must be countered with an appropriate economic package.

The scenarios are as follows[6]:

- **First scenario** – Assumptions are that social distancing measures continue until mid-May, after which they are gradually phased out, with the economy functioning normally during the second half of the year. There is no second wave of contagion. The summer tourist season is moderately affected (up to 20% decline). The global economy is declining slightly, but both economic growth rates and global trade rates remain positive. External demand shrinks in the first half of the year but will offset losses (to some extent) in the second half, leaving physical volumes of exports and imports just slightly affected.



Source: Author's estimations.

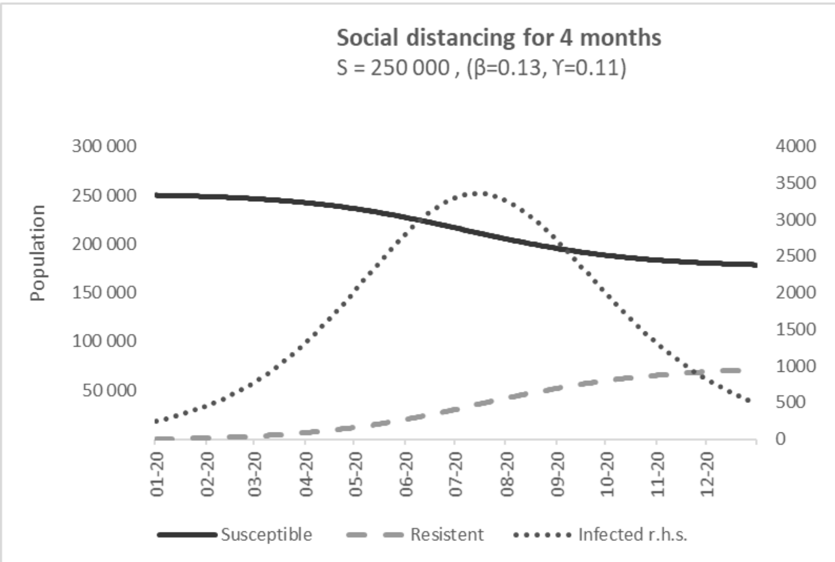
The main features of this scenario are:

- GDP falls in real terms by 2.4%. With the exception of government spending, all other final expenditure items have negative contributions to growth;
- Inflation marks only a slight increase compared to the previous year;

[6]The scenarios are not intended to accurately identify the number of infected and do not claim medical correctness. They serve as a guideline for the duration of social distancing measures. However, an attempt has been made to bring it as close as possible to epidemiological models.

- Foreign trade volumes shrink, more markedly for imports. The current account (mainly due to the weak tourist season) is deteriorating.
- The labour market experiences a modest shock, with unemployment rising to 6.9%;
- Budget revenues are lower than projected by 1.9% and expenditures are higher by 1.7%. Instead of a balanced budget, there will be a deficit of 1.5% of GDP. The deficit is covered by the issuance of new debt of BGN 2.5 billion. The fiscal and foreign exchange reserves remain at approximately the same levels.
- Government debt increases to 21.7% of GDP.

❖ **Second scenario** – Assumptions are that there will be some cyclicality in the measures introduced (tightening and relaxation periods), which will continue until the beginning of the third trimester. The summer tourist season is severely affected (a decrease of about 50%). The global economy is declining (1-3%) with negative growth rates for both global GDP and global trade volumes. All EU countries are affected, which leads to a significant decline in external demand.



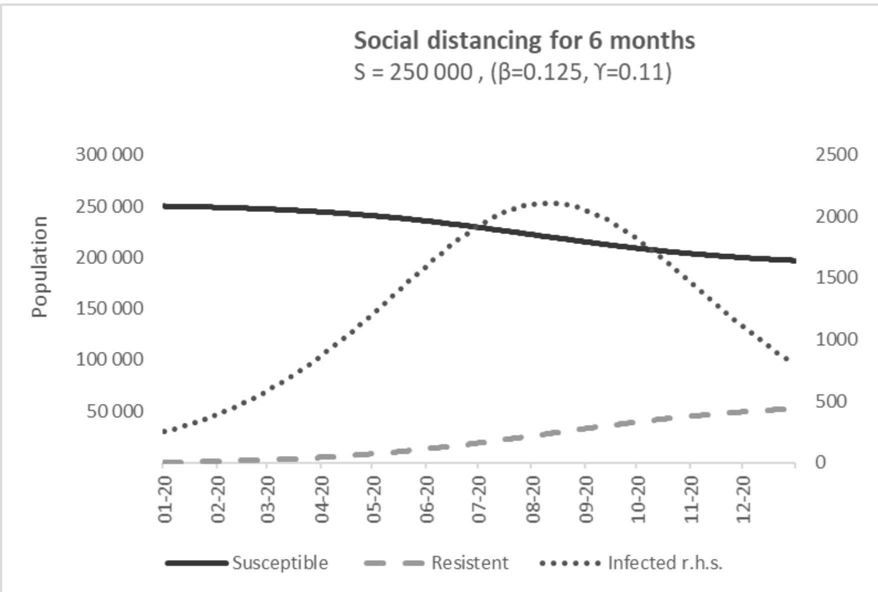
Source: Author's estimations.

The main features of this scenario are:

- GDP falls in real terms by 4.3%. With the exception of government expenditures, all other final expenditure items have a negative contribution to growth, with capital formation being affected the most severely;

- Inflation accelerates to 4.2% on an annual basis. The counteracting factor for higher inflation (caused by the possible shortage of some mainly imported goods) is the lower consumption and lower energy prices;
- Foreign trade volumes fall sharply and the current account (mainly due to the weak tourist season) has deteriorated by more than €1 billion.
- The labour market suffers a severe negative shock, with unemployment doubling from the previous year and reaching 10% of the workforce;
- Budget revenue is lower than projected by 9% and expenditure remains within the original projection made by the consolidated fiscal program. A reallocation of expenditure will be needed towards the health and social security sectors at the expense of capital expenditure. The budget deficit reaches 2.5% of GDP and is covered by the issuance of new debt amounting to BGN 3.8 billion. Foreign exchange reserves decrease by about €500 million.
- Government debt increases to 23% of GDP.

❖ **Third scenario** – The cyclical application of the measures is assumed to continue for the most part of the third quarter, alternating between tightening and loosening periods. The summer tourist season has failed (a drop of 50% to 70%). The global economy has declined sharply (3-6%), with economic growth and global trade volumes strongly negative. All EU countries are severely affected, leading to a sharp drop in external demand.



Source: Author's estimations.

The main features of this scenario are:

- GDP fall in real terms by 5.7%. Only government spending has a more favorable contribution, which cannot compensate for the huge decline in exports (8%) and consumption (3.6%);
- Inflation accelerates even higher to 5.2% on an annual basis, while the import of some basic necessities has been disrupted. A counteracting factor for higher inflation is reduced consumption and lower energy costs;
- Foreign trade volumes shrink significantly, and the current account deteriorates by more than €2 billion.
- The labour market is distressed, experiencing a strong negative shock, with unemployment reaching 350,000, about 12% of the workforce;
- Budget revenues are lower than projected by about 10%, while expenditures (mainly current expenditure supporting different programs maintained by the Ministry of Labor, the National Revenue Agency and the National Health Insurance Fund, as well as various governmental business support programs) increase by 5.5%. There will also be a reallocation of resources, with current expenditure increases at the expense of the capital ones. The budget deficit reaches 5% of GDP and is covered by an issuance of new debt of BGN 8 billion. Foreign exchange reserves decrease by about €1 billion.
- Government debt increases to 26.5% of GDP.

In all the scenarios, the epidemic ends when a sufficiently high proportion of the population acquires immunity[7]. At the same time, the lack of vaccine means that the only way to gain immunity is to go through an infection phase that involves multiple deaths. Given the negative effects on the economy (both demand and supply shocks), the optimal policy from the perspective of the government is to consciously limit economic activity in order to reduce the number of infected. The problem with this approach is that the achievement of herd immunity is prolonged. From this point of view, some cyclicality (Figure 2) is likely to be required in the restrictive measures imposed – weakening when there is a decline in new infections and tightening with a tendency to rise. In any case, this means that it will take a long time to tackle the infection permanently. The time interval can only be shortened in the presence of proven medication for treatment, as long as the vaccine is expected to take at least one year.

6.4. Labour market development projections

There are already unambiguous indications for the labour market turmoil at the very beginning of the second quarter of 2020. The number of people registered as unemployed at

[7] Note that an underlying assumption is that recovered individuals are immune to the disease and cannot be re-infected.

employment offices is increasing and more than half of them have lost their jobs[8]. In contrast to other periods of crises, this time, *the labour market has not responded with a delay, which is one of the unique characteristics of this economic recession.*

The subsequent scenarios for labour market developments are based on the following:

- The projection of the working-age population is according to the NSI demographic forecast;
- The projection does not consider the influx of former emigrants returning to Bulgaria[9];
- The projection does not include any speculations on eventual changes of wages and salaries in the observed period.

Scenario 1: Employment rate is 62.6%; unemployment rate is 6.9% and economic activity rate is 67.2%. This unemployment rate is similar to the one proposed by the Ministry of Finance[10] and is close to the already registered unemployment rate in 2009. According to this development, the number of unemployed at the end of the year will be 203,300 persons, or by 63,200 more than that in 2019. The number of the employed will decrease by 369,500 (Table 2).

Scenario 2: Employment rate is 60.0%, unemployment rate is 10% and the economic activity rate is 66.7%. These rates will lead to 2,651,900 employed and 294,700 unemployed. The number of unemployed will be by 154,600 more than that in 2019. The employed are expected to be fewer by 484,400. This is an option that does not imply a significant improvement of the economic and labour market situation as it is observed in April.

Scenario 3: Employment rate decreases to 58.0%, the unemployment rate goes up to 12% and the economic activity rate is 65.9%. This scenario will lead to 349,600 unemployed, or by 209,500 more than in 2019. The employment decrease will be by 572,800. This option suggests a continued escalation of unemployment in 2020.

Table 2

Labour market forecasts until the end of 2020

	2019	2020		
		Scenario 1	Scenario 2	Scenario 3
Population 15-64 years (in thousands)	4474.1	4419.8	4419.8	4419.8
Active	3276.4	2970.1	2946.6	2913.0
Employed	3136.3	2766.8	2651.9	2563.4
Unemployed	140.1	203.3	294.7	349.6

Source: NSI and author’s calculations.

8 Preliminary data.

9 Employment Agency still does not present the number of the ex-emigrants that have already registered as unemployed. It is not clear what their plans for the near future are and whether they are motivated to stay in Bulgaria.

10 This increase of the unemployment rate is in the suggested grounds for updating the State Budget (April 2020) presented by the Government at the Parliament.

Each of the proposed scenarios implies that, by the end of the second quarter of 2020, there will be a strong increase in unemployment and employment restrictions on the basis of dismissals, including mass redundancies. Also, the increasing group of unemployed will include people that lost their jobs because of (i) preventive closure of small commercial and other establishments in order to minimize losses, (ii) inactive persons that will register as unemployed with a view to preserving social rights, and (iii) ex-emigrants returning from abroad. Under these circumstances, the high number of registered unemployed at the end of March and the beginning of April is a reasonable result. It eventually can be contained in the second half of 2020.

In the third quarter, employment can be positively influenced by the seasonal factor. Sectors such as tourism, hospitality and restaurants, trade, and construction will try to compensate for losses. In May, employers in these sectors are expected to announce their intentions and start re-accepting part of already released workers, or these that were temporary out of the production process (on paid or unpaid leave and for other reasons). At the end of the year (fourth quarter), the unemployment problem can intensify in case of a compromised winter tourism and poor domestic demand.

It is necessary to underline that any of the assumption made above should take into account the already achieved control on the spread of the disease. The most important challenge and priority is preserving human lives. Any economic recovery can be expected only upon getting firm guarantees about achieving positive results in fighting the virus.

6.5. Macroeconomic forecast for 2020.

The model we use is a structural one and relatively simple. We are fully aware that we cannot cover all the effects of the epidemic. We also ignore the nominal rigidity of the economy, which in principle plays an important role in determining the short-term response of an economy to external shocks, in this case, an epidemic. We are also unable to gauge whether and how large the feedbacks are – the epidemic is causing a recession, but it is not clear what the impact of the recession is on the spread of the infection. There is reason to believe that the higher the unemployment rate (provided that restrictions are strictly observed), the slower the spread of the infection, i.e. all things equal, a greater recession would cushion the spread of the infection.

Table 3

Key Macroeconomic variables

		2016	2017	2018	Preliminary data	Forecast 2020		
					2019	I scenario	II scenario	III scenario
GDP, current prices	BGN mln.	94 130.0	101 042.5	109 694.8	118 668.8	119 643	118 695	118 112
Real growth rates								
GDP	%	3.8	3.5	3.1	3.4	-2.4	-4.3	-5.7
Consumption	%	3.5	3.8	4.4	5.8	-0.8	-2.2	-3.6
Gross fixed capital formation	%	-6.6	3.2	5.4	2.2	-13.9	-17.7	-20.5
Export of goods and services	%	8.6	5.8	1.7	1.9	-0.8	-4.6	-8.0
Import of goods and services	%	5.2	7.4	5.7	2.4	-1.3	-5.2	-8.5
Prices								
Average annual HICP inflation	%	-1.3	1.2	2.6	2.5	3.2	4.2	5.2
GDP deflator	%	2.4	3.7	5.3	4.7	3.3	4.5	5.5
Labor market								
Employment rate (15+ 64)	%	63.4	66.9	67.7	70.1	62.6	60.0	58.0
Unemployment rate (15+ 64)	%	7.7	6.2	5.3	4.3	6.9	10.0	12.0
Foreign sector								
Current account	EUR mln.	1 244.0	1 537.4	773.7	2 452.3	1 930.7	1 355.4	317.6
Trade balance	EUR mln.	- 984.4	- 765.8	- 1 858.0	- 1 685.7	- 1 136.9	- 1 654.2	- 2 129.0
Capital account	EUR mln.	1 070.9	530.4	789.8	891.3	988.5	988.5	988.5
Financial account	EUR mln.	4 445.6	2 324.3	3 017.1	2 562.6	2 919.1	2 343.8	1 306.1
FDI, in	EUR mln.	1 312.5	1 759.4	1 520.2	1 348.0	1 078.4	943.6	674.0
Gross external debt	EUR mln.	34 221.4	33 397.4	33 475.9	34 071.3	34 984.3	35 382.7	35 947.3
Current account	% GDP	2.6	3.0	1.4	4.0	3.2	2.2	0.5
Trade balance	% GDP	-2.0	-1.5	-3.3	-2.8	-1.9	-2.7	-3.5
Capital account	% GDP	2.2	1.0	1.4	1.5	1.6	1.6	1.6
Financial account	% GDP	9.2	4.5	5.4	4.2	4.8	3.9	2.2
FDI, in	% GDP	2.7	3.4	2.7	2.2	1.8	1.6	1.1
Gross external debt	% GDP	71.1	64.6	59.7	56.2	57.2	58.3	59.5
Financial sector								
M3	BGN mln.	79 581.5	85 727.3	93 255.7	102 469.3	107 061.8	106 390.0	105 976.8
Credit to non-financial enterprises and households	BGN mln.	51 676.3	54 025.2	58 857.8	64 589.0	72 467.1	70 403.6	70 900.5
M3 growth	%	7.6	7.7	8.8	9.9	4.5	3.8	3.4
Credit to non-financial enterprises and households	%	1.8	4.5	8.9	9.7	12.2	9.0	9.8
Foreign currency reserves	EUR mln.	23 898.6	23 662.1	25 072.2	24 835.6	24 517.6	24 263.0	23 755.6
Fiscal sector								
Budget revenues	BGN mln.	33 927.8	35 313.6	39 647.9	44 086.9	45 921	43 854	43 546
Budget expenditure	BGN mln.	32 059.8	34 441.3	39 745.6	45 386.8	47 676	46 781	49 412
Budget balance	BGN mln.	1 868.0	872.3	- 97.7	- 1 299.9	- 1 755	- 2 928	- 5 866
Budget balance	% GDP	2.0	0.9	-0.1	-1.1	-1.5	-2.5	-5.0
GDP/M3		1.18	1.18	1.18	1.16	1.12	1.12	1.11
Employed	thousand	2 954.3	3 073.4	3 068.9	3 136.3	2 766.8	2 651.9	2 563.5
Unemployed	thousand	245.3	204.1	170.7	140.1	203.3	294.7	349.6
Revenue/GDP	%	36.0%	34.9%	36.1%	37.2%	38.4%	36.9%	36.9%
Expenditure/GDP	%	34.1%	34.1%	36.2%	38.2%	39.8%	39.4%	41.8%
Public debt (domestic)	EUR mln.	3 507.6	3 899.2	3 122.2	2 983.5	3 750	3 900	4 500
Public debt (foreign)	EUR mln.	10 273.7	9 198.3	9 093.9	9 058.7	9 560	10 000	11 500

Source: NSI, BNB and author's estimations.

7. Measures, Taken in Bulgaria

There should be no doubt that ***a working economic package will be expensive, with uncertain economic effects***. It is not yet clear which economic sectors and groups of society will be most in need of support – there is no such experience. For the first time, modern humanity is confronted with such a large scale and rapidly spreading infection. The analogies with previous episodes of recession (especially the so-called 'Great Recession' of 2008-2009) are misleading insofar as they were triggered by human activity. It is more reasonable to look for analogies with natural disasters, but they are related to material destruction and are largely local phenomena, which also makes them inapt for comparisons. What is more, the situation now is quite different from previous episodes of recessions (whether they were caused by human errors or natural disasters) since, despite the desire and the opportunities for consumption, people cannot fully realize it, and are forced to forfeit their usual patterns of behaviour and spending. On the other hand, the manufacturers themselves and much of the sales network are progressively detached from both customers and suppliers. As a result, there has been a rapid contraction in economic activity and economic growth rates have fallen dramatically.

In this regard, measures taken so far should be carefully worded and viewed from different angles, using diverse criteria:

- **Speed of implementation** of ancillary measures. The revision of the state budget took place on 9 April 2020, which can be considered a relatively quick response. Other measures, mainly in the financial sector, were announced even earlier;
- **Depth of measures**. Against the background of the already announced economic packages in some of the leading countries (for example the US and Germany), which reach and even exceed 10% of GDP, the fiscal measures of the Bulgarian government (at the moment about 2% of GDP) are rather modest, but they respond to the capabilities of the country and will certainly change as the crisis progresses. At this stage, it is difficult to make an accurate assessment as a significant part of the aid will be provided on demand and only after proving some mandatory conditions were met. Here we have to appreciate the government's intentions rather than the actual support provided. ***Our understanding is that the measures taken so far can only be useful in the implementation of the first forecast scenario. From this point of view, another budget revision will likely be needed, given that neither the planned revenue nor the expenditure in the current revision would be adequate in the implementation of the other two scenarios.***
    - We welcome the decision to increase the maximum amount of the new government debt to BGN 10 billion. Although the budget deficit is unlikely to reach such levels (this is not foreseen even in the third scenario), this the provision creates flexibility, which is extremely important in times of crisis. A separate question is whether in practice this debt will be realized, in what amount and in what form it will be. Even if the whole amount were, it does not mean it will be spent altogether.
    - The forecast for the third scenario indicates that budget expenditures exceed 40% of GDP, which is a formal violation of Art. 28 (1) of the Public Finance Act. In the

event of a prolonged crisis, Art. 28 (2) would be violated as well. It may be appropriate to consider an appropriate legislative change.

  - With regard to the measures taken by the central bank (no matter how conditional they may be given the currency board arrangement), we believe that they are adequate at this stage. As the crisis deepens, the minimum required reserves may be lowered. In an extremely deep recession, it is possible to look for ways to utilize the funds of the banking department deposit (currently about BGN 6.3 billion). This may be done only if the principles of the currency board are preserved;

- **Scope of the measures.** Some of them – such as deferral of corporate tax payments – are broad and universal as they apply to the entire business sector. Others are targeting some vulnerable groups, whose scope at this stage can only be estimated (e.g. patronage care with food and medicine for tens of thousands of single adults and people with disabilities in the country; food packages for about 40,000 socially disadvantaged). The scope of other measures will manifest in the coming weeks – e.g. the '60:40' measure, by which over 2,000 applications for 30,000 workers had been submitted by 11 April 2020; interest-free loans of BGN 1500 / month for persons affected by the crisis; a lump sum of BGN 375 for single parents, etc.

- **Saving jobs**. For decades, Bulgaria has experienced a shortage of human capital, which has deepened in recent years. This means that all companies that are laying off staff are now likely to have problems recovering. Every effort should be made to retain staff, especially in small and medium-sized enterprises. In this respect, the assessment of the ‘60:40’ measure is ambiguous. It is helpful that the government is making efforts to support the business, but the measures should be bolder and more explicit. In this form, many of the most affected companies are unlikely to be able to benefit, as they will not be able to do their part, which limits the scope and impact of the scheme. It is worth assessing whether it will not be economically justifiable for the state to absorb 60% of wages without requiring business involvement. Thus, the funds that the state will have to transfer to the State Social Security at a later stage can be saved. Another point should be made with regard to the inactive population. In their past behaviour, some of those inactive in the economically active age (and especially young people) had been inclined to postpone starting work and waiting for a suitable opportunity to be employed abroad for a better pay. In the current conditions, however, they will not risk such a delay and will likely appear on the labour market, i.e. will be recognized as job seekers. A similar scenario is to be expected in the shadow economy, which is also shrinking in a crisis. These shadow workers may also prefer to register as unemployed, which will allow them to maintain social rights and access to social benefits. In this regard, the burden of public finances should be expected not only to cover the unemployment fund deficit and possible transfers to it, but also to a greater extent with increased costs of targeted social assistance. Mechanisms for this support also need quick adaptation to the new situation. The one-off social assistance, announced by the Government on 4 April 2020, of BGN 375 for single parents with an income below BGN 610 per person per family is a measure in this direction, but it should be further developed in order to ensure a higher degree of social protection of the poor and vulnerable population groups.

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