



TOPICAL RESEARCH AND HIGHLIGHTS

MAIN TRANSMISSION CHANNELS OF THE COVID-19 PANDEMIC TO ECONOMIC ACTIVITY IN BULGARIA

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BULGARIAN NATIONAL BANK

Main Transmission Channels of the COVID-19 Pandemic to Economic Activity in Bulgaria

The spread of the coronavirus (COVID-19) across the world has required measures of unprecedented magnitude and stringency to be taken by many countries, including Bulgaria, to contain the pandemic. The introduced extraordinary measures aimed at protecting public health through social distancing. Global containment measures led to temporary closures of commercial premises and public establishments, disruption of business activities in a number of enterprises, travel restrictions, heightened uncertainty, a deterioration of economic sentiments and a fall in prices of commodities and most financial assets. In Bulgaria, the first case of COVID-19 can be traced back to 8 March 2020. On 13 March the National Assembly decided to introduce a state of emergency followed by a series of measures and actions to contain the spread of the virus. On 13 May the state of emergency was lifted, giving rise to a stepwise easing of measures and a gradual recovery of economic activity in most enterprises affected by the measures.

COVID-19 pandemic effects and containment measures create simultaneous negative shocks to both aggregate demand and aggregate supply. Measurement of these shocks, including their size, duration and profile, may differ strongly across countries, even if the pandemic develops similarly¹ in them. These differences arise mainly from the initial conditions in each economy prior to the COVID-19 crisis, such as the level of indebtedness of the public and private sectors and the availability of fiscal buffers, as well as certain structural factors related to the degree of integration in GVCs and the size of the tourist sector. The purpose of this analysis is to present country-specific channels through which containment measures will impact the economic activity in Bulgaria. The analysis focuses on developments in main GDP components by element of expenditure. Given the global nature and specific characteristics of the economic shock caused by the spread of COVID-19, we expect all major components of domestic demand and net exports to be affected negatively.

Household Consumption

The containment measures introduced to deal with the spread of COVID-19 are expected to have a strong negative effect on final consumption expenditure of households. On the one hand, this will be driven by the nature of introduced measures which are aimed at restricting social interaction and the mobility of people, limiting possibilities for consumption of certain categories of goods and services. These measures affect directly catering and accommodation services, entertainment and cultural activities, as well as transport services, which comprise in total around 22.2 per cent of household final consumption expenditure and 14 per cent of GDP (see Table 1).

Worsening labour market conditions and increased uncertainty will further affect negatively private consumption dynamics. Declines in economic activity and labour productivity are likely to force enterprises to optimise labour costs by reducing working hours, lay-offs and/or wage cuts thereby decreasing consumption capacities of households and increasing the uncertainty about their financial position. NSI data on the structure of household budgets for 2019 suggest that remuneration and self-employment income represents around 63 per cent of total income (see Chart 1). As a result, it can be expected that households will decrease their final consumption expenditure due to reduced consumption possibilities. In addition, the enhanced uncertainty in the economy is the reason for households to be cautious and postpone planned purchases, even if they face no financial difficulties (especially regarding durable goods) which will further limit the size of final consumption expenditure and is likely to decrease demand for loans. Possible tightening of credit standards by banks is another factor that is likely to adversely affect consumer demand.

¹ With respect to indicators, such as number of COVID-19 cases/deaths *per* one million people, duration and stringency of imposed containment measures.

The effect of deteriorating macroeconomic environment on private consumption will largely depend on duration and stringency of the containment measures, the efficiency of government measures to support household income and the speed at which firms are able to resume business activity after lifting of containment measures.

Private Investment

Decreased external demand for Bulgarian goods and services, shrinking consumption of households, the uncertainty about the size and duration of containment measures, worsening financial position of firms in the sectors most severely hit by the lockdown and potential liquidity constraints are the main factors which are expected to hinder economic activity and force part of corporations to postpone their investment projects.² Consumers will also react to negative economic developments by postponing purchases of houses, durable goods and refurbishments. In the context of an enhanced uncertainty, a possible decline in credit supply by banks, especially long-term loans and investment loans, appears to be another channel through which the investment activity in Bulgaria can be affected.

Despite the announced intention of the government to continue implementing already launched investment projects, total gross fixed capital formation for the economy is expected to decline due to the deterioration in domestic economic conditions. This will reflect the high share of households and corporations in total investment in Bulgaria (around 81 per cent). In terms of asset type, almost 14.5 per cent of investments is related to purchases of houses whose demand is tightly linked to the financial position and expectations of households about the development of the labour market. With regard to the sectoral breakdown of gross fixed capital formation, the sectors which have been directly affected by the coronavirus crisis (transport, hotels and restaurants, arts, entertainment

Table 1. Composition of Household Expenditure by Consumption Purpose

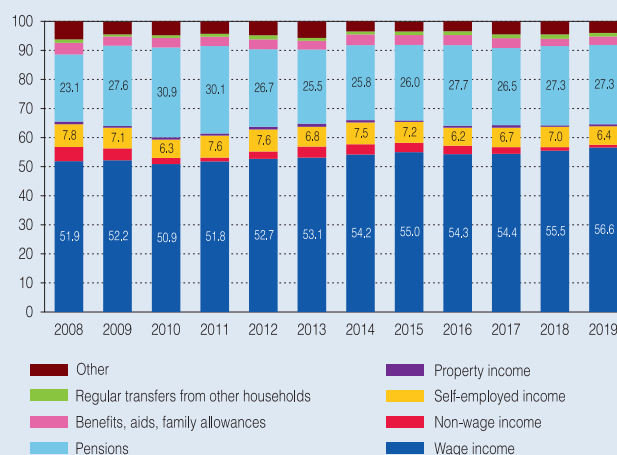
	Share of total expenditure	Share of GDP
Food and non-alcoholic beverages	19.1	12.0
Clothing and footwear	3.2	2.0
Housing, water, electricity, gas and other fuels	19.9	12.6
Furnishing, household equipment and routine household maintenance	5.1	3.2
Healthcare	6.3	4.0
Transport	13.3	8.4
Purchase of personal transport equipment	1.7	1.1
Operation of personal transport equipment	7.4	4.7
Transport services	4.2	2.6
Communications	4.8	3.0
Entertainment and arts	7.8	4.9
Education	1.2	0.8
Restaurants and hotels	7.0	4.4
Catering services	4.5	2.8
Short-stay accommodation services	2.5	1.6
Miscellaneous goods and services	7.1	4.5
Final consumption expenditure	100.0	63.1

Note: Data refer to 2018.

Source: Eurostat, BNB calculations.

Chart 1. Structure of Total Household Income

(per cent)



Source: Eurostat, BNB calculations.

² Studies for Bulgaria show that in addition to the uncertainty, expectations of external demand for Bulgarian goods and services, the financial position of firms and financing conditions also weigh significantly on investment decisions of corporations. For more details, see: Ivanov, E., N. Ivanova, D. Kasabov and K. Karagyozeva, 2018, 'Determinants of Investment in Bulgaria', BNB Discussion Paper series, DP/110/2018.

and recreation activities) form nearly 9.5 per cent of total investment in the economy, which represents around 2.0 per cent of GDP in 2018 (see Table 2).

Government Consumption and Fixed Capital Investment

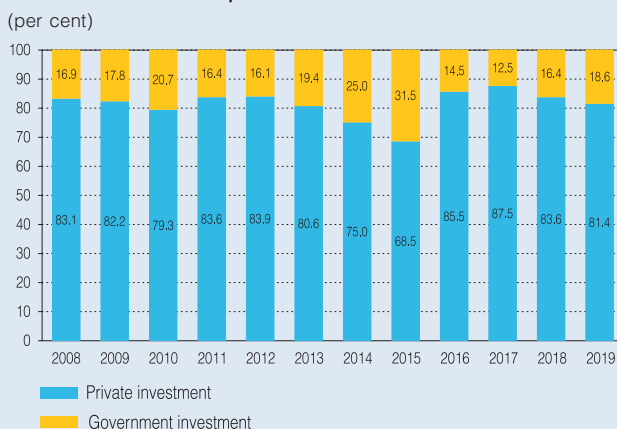
Additional funds approved by the government to support the healthcare system and other key systems, such as the internal security, in the context of a pandemic are expected to affect positively government consumption through higher wages, healthcare and operating expenditure. Public investment is subject to a high degree of uncertainty. Restrictions imposed on some businesses in relation to the state of emergency declared by the National Assembly on 13 March 2020 are unlikely to have a strong dampening effect on the progress of running investment projects of the government. At the same time, the Law amending the State Budget Law of the Republic of Bulgaria for 2020 imposes a prohibition on new expenditure commitments which could postpone in time the launch of new investment projects. This restriction could reduce government's investment activity towards the end of the current and the beginning of the next year.

Exports and Imports of Goods and Services

The Bulgarian economy is characterised by a high degree of openness (in 2019 foreign trade represents 123.7 per cent of GDP) and integration in global value chains and, therefore, subdued external demand for Bulgarian goods and services as a result of the COVID-19 pandemic will have a strong negative effect on Bulgarian exports. According to the geographic structure, around 65 per cent of total nominal exports of goods and services is directed towards EU countries, as the euro area whose economies were most affected by the pandemic occupied a share of around 45 per cent of Bulgarian exports (see Chart 5). Based on data obtained from OECD international input-output tables, Bulgarian exports³ can broadly be divided into two groups according to their final destination. The first group consists of goods and services consumed directly in the country to which they are exported, and their demand is affected mainly by the disposable income and the propensity to consume of households and corporations in these countries. For Bulgaria, the share of exports intended for final consumption is around 42 per cent of total exports, with Germany, Romania, Turkey and Greece being the most important trading partners in this category. The second group includes goods and services intended for use as inputs in further stages of the production process. Demand for these goods and services depends crucially on the functioning and integrity of GVCs during the pandemic. Bulgaria is among the countries with the highest degree of integration into GVCs within the EU (see Chart 4), with the latest available data for 2015 suggesting that 58 per cent of gross exports is in the form of inter-

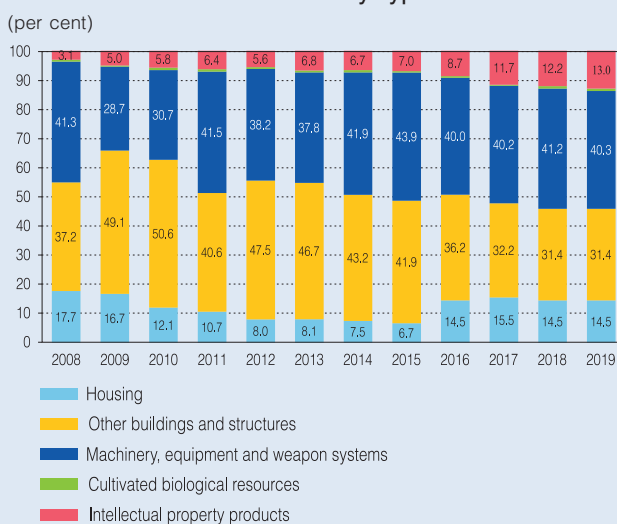
³ This refers to the total amount of gross exports of goods and services which include both Bulgarian and foreign (imported) value added.

Chart 2. Relative Shares of Private and Government Sectors in Fixed Capital Investment



Source: the NSI, BNB calculations.

Chart 3. Investment Structure by Type of Assets



Source: Eurostat, BNB calculations.

Table 2. Investment Structure by Economic Sector

(share of total investment, per cent)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Agriculture, forestry and fisheries	4.2	3.0	4.3	6.3	6.0	6.0	7.2	7.4	5.7	6.5	6.7
Industry	47.1	45.8	41.3	42.1	47.5	47.7	43.3	53.1	49.9	41.7	39.8
Industry (construction excluded)	31.1	26.8	26.9	30.7	36.5	36.6	33.0	41.7	33.1	28.1	25.6
Construction	16.0	19.0	14.4	11.4	11.0	11.1	10.3	11.4	16.8	13.6	14.2
Services	66.5	67.7	76.1	70.3	60.4	60.2	68.4	67.7	76.3	76.2	80.0
Wholesale and retail trade, transport, accommodation and food service activities	13.6	12.8	16.2	14.2	11.5	11.5	13.7	17.9	21.3	18.2	19.7
Information and communication	5.0	4.1	5.8	5.8	4.9	5.0	2.1	-1.2	3.3	6.2	5.6
Financial and insurance activities	0.8	1.4	1.3	2.0	1.8	1.8	1.6	0.1	1.1	1.4	1.3
Real estate activities	8.6	9.6	6.3	8.4	7.7	7.6	2.9	1.4	2.5	7.1	7.6
Professional and scientific activities; administrative and support service activities	3.5	4.4	3.3	5.0	3.6	3.7	6.4	7.3	5.6	7.5	6.0
Public administration; education; healthcare and social work activities	16.6	18.4	20.2	15.7	15.5	15.4	21.7	11.2	8.9	10.2	12.0
Arts, entertainment and recreation activities; repair of household goods; other activities	0.7	0.5	1.3	0.5	1.3	1.3	1.1	2.8	1.6	1.2	1.3
Gross fixed capital formation	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(per cent of GDP)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Agriculture, forestry and fisheries	1.4	0.8	1.0	1.3	1.3	1.3	1.5	1.5	1.0	1.2	1.3
Industry	15.5	12.7	9.2	8.8	10.1	10.1	9.2	11.1	9.2	7.7	7.5
Industry (construction excluded)	10.3	7.5	6.0	6.4	7.8	7.8	7.0	8.7	6.1	5.2	4.8
Construction	5.3	5.3	3.2	2.4	2.3	2.4	2.2	2.4	3.1	2.5	2.7
Services	9.5	7.5	7.7	6.4	4.9	4.9	6.5	9.1	9.4	7.2	8.0
Wholesale and retail trade, transport, accommodation and food service activities	4.5	3.5	3.6	3.0	2.5	2.4	2.9	3.7	3.9	3.3	3.7
Information and communication	1.7	1.1	1.3	1.2	1.0	1.1	0.4	-0.2	0.6	1.1	1.1
Financial and insurance activities	0.3	0.4	0.3	0.4	0.4	0.4	0.3	0.0	0.2	0.3	0.2
Real estate activities	2.8	2.7	1.4	1.8	1.6	1.6	0.6	0.3	0.5	1.3	1.4
Professional and scientific activities; administrative and support service activities	1.1	1.2	0.7	1.0	0.8	0.8	1.4	1.5	1.0	1.4	1.1
Public administration; education; healthcare and social work activities	5.5	5.1	4.5	3.3	3.3	3.3	4.6	2.3	1.7	1.9	2.3
Arts, entertainment and recreation activities; repair of household goods; other activities	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.5	0.2	0.2	0.1
Gross fixed capital formation	33.0	27.8	22.3	21.0	21.2	21.3	21.1	20.9	18.5	18.4	18.8

Source: Eurostat, BNB calculations

mediate goods. This structure of exports is a prerequisite for a contraction in industrial production and exports during the pandemic, even though containment measures in Bulgaria have not explicitly imposed a country-wide closure of manufacturing facilities. In addition, exporting firms could be facing difficulties regarding the import of inputs that are used in their production processes due to the disrupted cross-border trade flows. Given that Bulgaria is one of the EU countries with the largest import content of exports, this could further constrain the activity of exporting firms. BNB estimates show that production of 100 units of exports requires 38 units of imported inputs (see Table 3).

Regarding exports of goods, the major impact of the COVID-19 crisis will be in terms of the contraction in external demand. Nonetheless, export restrictions on some medical products appear to be another supply-side factor likely to affect negatively goods exports.⁴ As regards exports of services, in addition to external demand, substantial negative effects can stem from supply-side factors

⁴ World Bank data as of 2 April 2020 show that the value of Bulgarian exports subject to such restrictions amounts to USD 20.8 million (around 0.06 per cent of total goods exports in 2018, which is the last available year for Bulgaria in the database).

Table 3. Import Content of Final Demand Components (by Country of Origin)

Import content of:	Share
– household consumption	0.424
imports from the EU	0.280
imports from third countries	0.143
– government consumption	0.154
imports from the EU	0.097
imports from third countries	0.058
– gross fixed capital formation	0.548
imports from the EU	0.369
imports from third countries	0.178
– exports	0.382
imports from the EU	0.195
imports from third countries	0.187

Note: Data refer to 2014.

Source: the OECD.

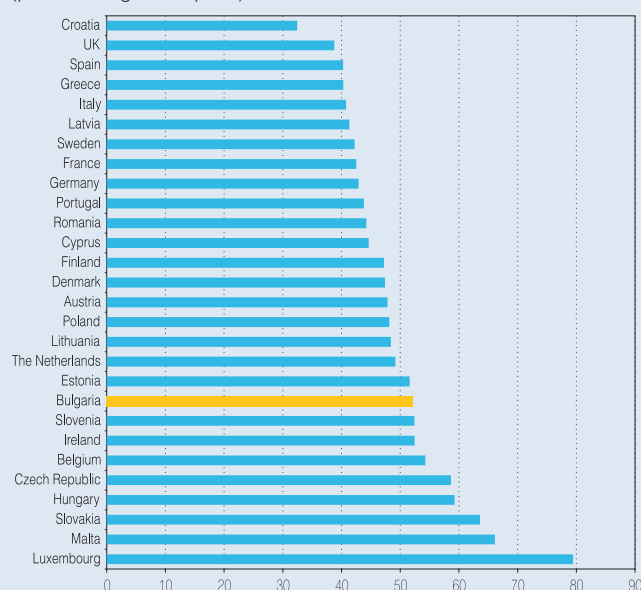
such as the COVID-19-related restrictions on travel and accommodation activities that were imposed in Bulgaria during the state of emergency. These restrictions affect directly and to the largest extent travel services and passenger transport which comprise around 46 per cent of nominal services exports, or 7.2 per cent of GDP in 2019⁵ (see Chart 7). The highest share of foreign visits to Bulgaria is attributed to holiday and recreation trips (47 per cent of all visits) which suggests that the export of these services is highly dependent on the epidemiological situation in Bulgaria, conditions under which organised visits could be made and the financial position and restrictions to households in our major trading partners.

Goods and services imports at both current and constant prices are also expected to be negatively impacted by the COVID-19 crisis, with the extent of this impact being dependent on the structure of imports and the dynamics of final demand components.

In terms of the structure, containment measures have a direct negative impact on the import of services related to travel and passenger transport which comprise 34 per cent of total services imports or 3.2 per cent of GDP in 2019 (see Chart 7)⁶.

Chart 4. Participation of EU Countries in Global Value Chains

(per cent of gross exports)



Note: The analysis employs data for 2015. Participation in GVCs measures the share of imported (foreign) value added incorporated in a country's exports (backward participation) and domestic value added of the country incorporated in the exports of the other countries as a share of total exports of this country (forward participation).

Source: the OECD.

Table 4. Trade Flows (Goods and Services) by Sector

(share of GDP, per cent)

Economic sector	Exports	Imports
Agriculture	3.8	1.3
Industry	31.8	39.1
Mining and quarrying	1.5	7.1
Manufacturing	28.6	31.5
Production and distribution of electricity and gas, water supply, sewerage, waste management and remediation activities	1.3	0.4
Construction	0.4	0.1
Services	19.5	16.0
Wholesale and retail trade, transport, accommodation and food service activities; hotels and restaurants	12.2	10.9
Information and communication services	2.5	0.9
Financial and insurance activities	0.8	2.1
Real estate activities	0.3	0.1
Other business services	2.8	1.7
Public administration; education; healthcare and social work activities	0.8	0.3

Note: Data refer to 2015.

Source: the OECD, BNB calculations.

⁵ According to NSI data on visits of foreign citizens to Bulgaria for 2019, Romania (17.2 per cent), Turkey (13.0 per cent) and Greece (10.2 per cent) occupied the largest shares in total foreign visits.

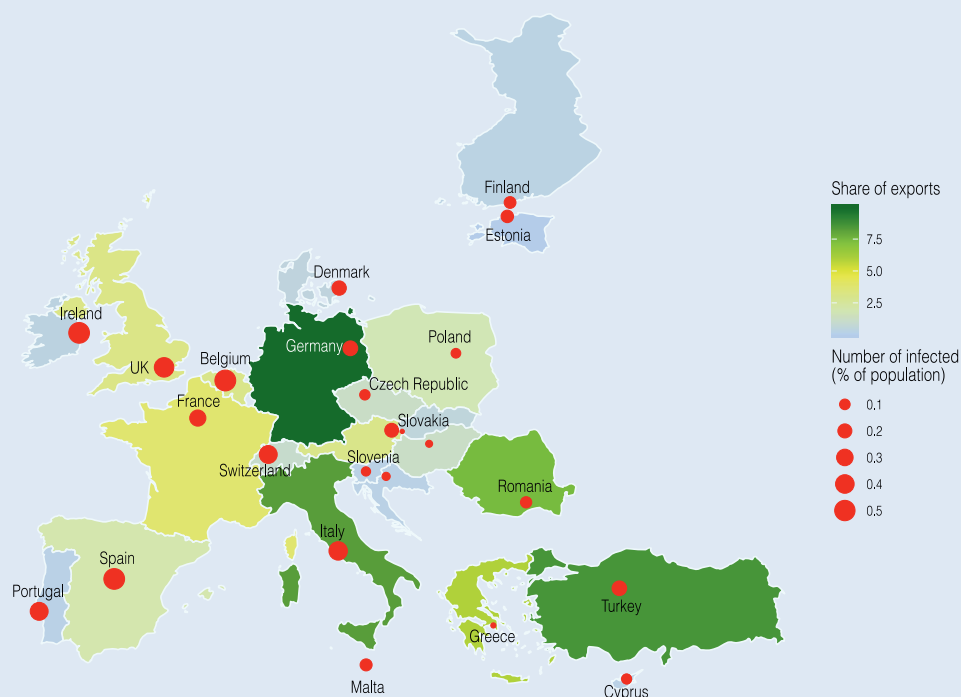
⁶ NSI data show that in terms of destination visits of Bulgarian citizens to Turkey occupied the largest share at 23.1 per cent, followed by those to Greece at 20.9 per cent, while in terms of purpose visits are dominated by those other than tourist and business.

The magnitude of the demand-side effects on Bulgarian imports of goods and services will be determined by the size of the import content of final demand components. BNB estimates on Bulgaria's economy suggest that fixed capital investment has the largest import component in domestic demand, with 100 units of investment containing 55 units of imports (see Table 3). Private consumption is also marked by a high import content.

As regards the net effect of the COVID-19 pandemic on Bulgarian trade flows, we expect a deterioration in the balance of trade in goods and services

and consequently on domestic economic activity. This will be driven by both the export oriented nature of the industrial sector in the country (see Chart 8 and Table 4) and the fact that Bulgaria is a net exporter of tourist services.

Chart 5. Geographical Breakdown of Goods and Services Exports and Extent of COVID-19 Impact



Note: Data used in the geographical breakdown of gross goods and services exports are based on OECD data for 2015. OECD data of 4 May 2020 about the number of infected people.

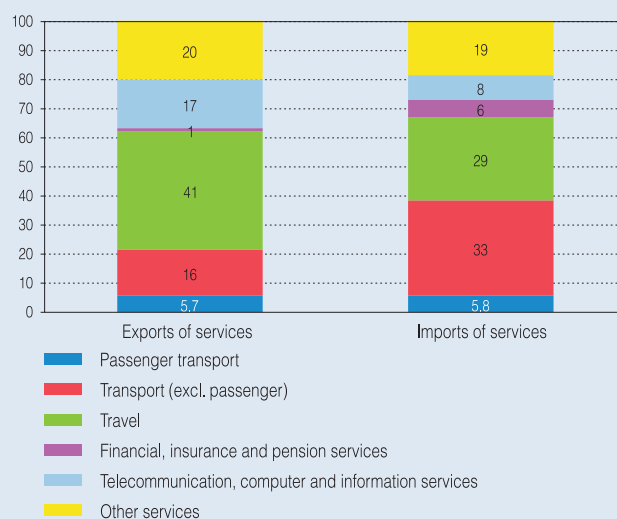
Source: the BNB, the OECD, the WHO.

Chart 6. Structure of Nominal Exports and Imports of Goods, 2019



Source: the BNB.

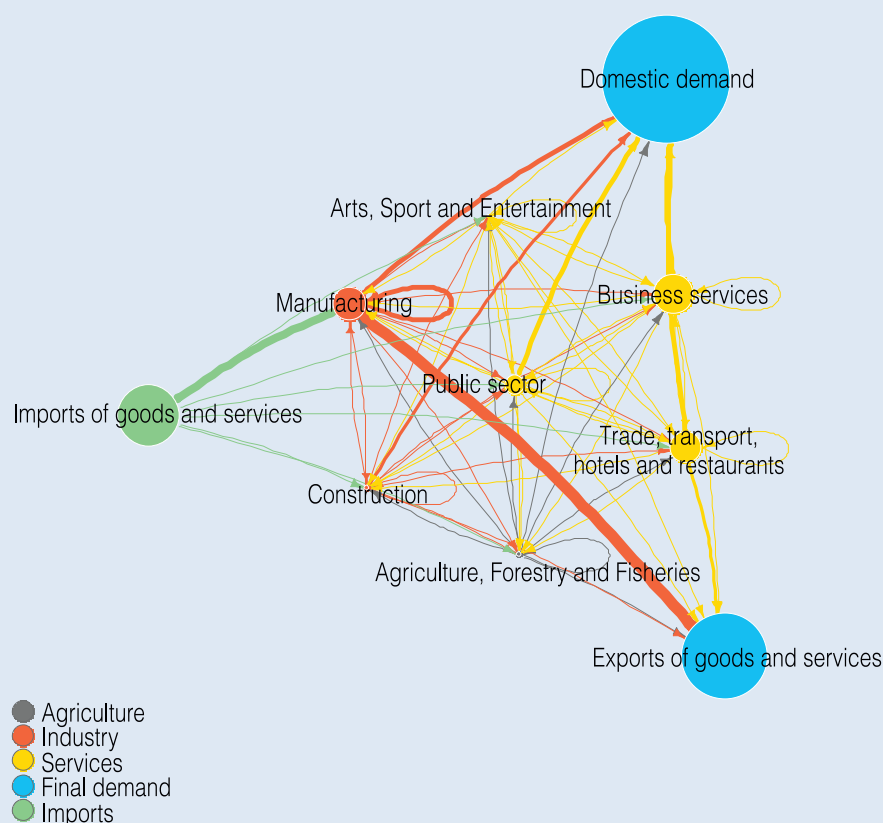
Chart 7. Structure of Nominal Exports and Imports of Services, 2019



Sources: the BNB, Eurostat.

Transmission channels of the COVID-19 crisis to the Bulgarian economy depend largely on the internal epidemiological situation, the duration and stringency of containment measures and the efficiency of the measures initiated to support firms and households. Although containment measures affect directly the operation of firms only in some services sub-sectors, negative economic effects are likely to propagate in all economic sectors in line with the worsening of the overall macroeconomic environment and interlinkages between economic agents (see Chart 8). BNB estimates of cross-sector interconnectedness show, for example, that a decline by one unit in sector accommodation and food service activities results on average in a 0.25 units decline in demand for goods and services produced by the other economic sectors, with sectors related to trade, transport, business services and entertainment being most severely affected. It should be noted that estimates based on input-output tables assume that the structure of the economy remains unchanged and, therefore, they do not account for potential restructuring of businesses toward producing high demand goods during a pandemic (for example, medical products).

Chart 8. Network Chart of Interlinkages between Main Economic Sectors in Bulgaria



Note: This chart presents a topological layout of the input-output tables for Bulgaria in 2015. Circularly arranged edges/nodes in the centre of the chart represent the main sectors of the economy. They are coloured in yellow, red and grey according to the type of the sector (services, industry and agriculture) to which they belong. The size of the nodes is proportionate to the value added created by the relevant sector. Blue nodes of the chart are the final destinations of the goods and services produced in Bulgaria, while the green node represents imported foreign value added which is used as an input in the manufacture of final goods and services. Arrows between nodes designate the direction of the movement of goods and services, with their width being proportionate to the value of cash flows.

Source: the OECD, BNB calculations.

THE SCULPTURAL COMPOSITION BY KIRIL SHIVAROV DEPICTING HERMES AND DEMETER ON THE SOUTHERN FAÇADE OF THE BULGARIAN NATIONAL BANK BUILDING IS USED IN COVER DESIGN.