



CENTRAL BANK OF  
MONTENEGRO

# PRICE STABILITY REPORT 2019

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## LIST OF ABBREVIATIONS

ARIMA	Autoregressive Integrated Moving Average
GDP	Gross Domestic Product
CBCG	Central Bank of Montenegro
CPI	Consumer Price Index
ECB	European Central Bank
EU	European Union
HICP	Harmonised Index of Consumer Prices
IMF	International Monetary Fund
MONSTAT	Statistical Office of Montenegro
OPEC	Organisation of the Petroleum Exporting Countries
U.S.	United States of America
FDI	Foreign Direct Investments
UN	United Nations
USD	American Dollar



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# 1. INFLATION INDICATORS

## 1.1. Inflation trend in Montenegro

Consumer prices in Montenegro, after two years of average growth above 2%, recorded significantly lower rates in 2019. Observed through annual rates, positive rates were recorded in the first five and last three months, while negative annual rates were recorded in the period June - September 2019. In December, annual inflation measured by consumer prices was 1%, while inflation measured by the harmonized index of consumer prices (HICP) stood at 1.2%. The consumer prices' growth in 2019 averaged to 0.4%.

Table 1

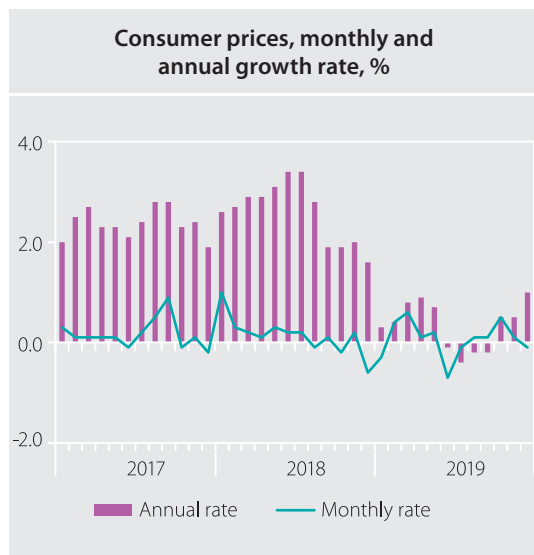
	Inflation, %							
	2018				2019			
	III	VI	IX	XII	III	VI	IX	XII
Change in relation to the previous year-end	1.5	2.0	2.2	1.6	0.7	0.3	0.4	1.0
Annual change	2.9	3.4	1.9	1.6	0.8	-0.1	-0.2	1.0

Source: Monstat

Observed by quarters, prices growth in 2019 was reported during Q1, Q4 and Q3 (0.7%, 0.6% and 0.1%, respectively), yet recording price decline in Q2 (-0.4%). Observed by months, the highest consumer prices growth was recorded in March (0.6%), while the highest price decline was recorded in June (-0.7%).

The largest contribution to the growth of the annual inflation rate (1.1 percentage points) was made by prices from the category *food and non-alcoholic beverages* with a growth of 3.2% (Table 2). The increase in prices in this category is mostly the result of an increase in prices of fruit of 12.7%, vegetables of 6.4%, bread and cereals of 4.5%, meat of 2.7%, oils and fats of 2.6%, non-alcoholic beverages of 1.1%, milk, cheese and eggs of 0.9%. The significant contribution to total inflation (0.3 percentage points) was recorded in the category of *transport* with the rise of 2.4%, mostly as the result of price increase in fuels and lubricants for personal transport equipment (3.3%). Prices also increased in the categories *furnishings, household equipment and routine household maintenance* and *miscellaneous goods and services* (1% each), as well as in the categories *alcoholic beverages and tobacco, health* and

Graph 1



Source: Monstat

education (0.1% each). The largest annual decline in prices was recorded in the category *clothing and footwear* (-2.4%), which also gave the largest negative contribution to the annual inflation rate (-0.2 percentage points). The annual fall in prices was recorded in the categories *communication* and *recreation and culture* (-1.1 each %) and *housing, water, electricity gas and other fuels* (-0.5%), while prices in the category *hotels and restaurants* remained unchanged in relation to December 2018.

Table 2

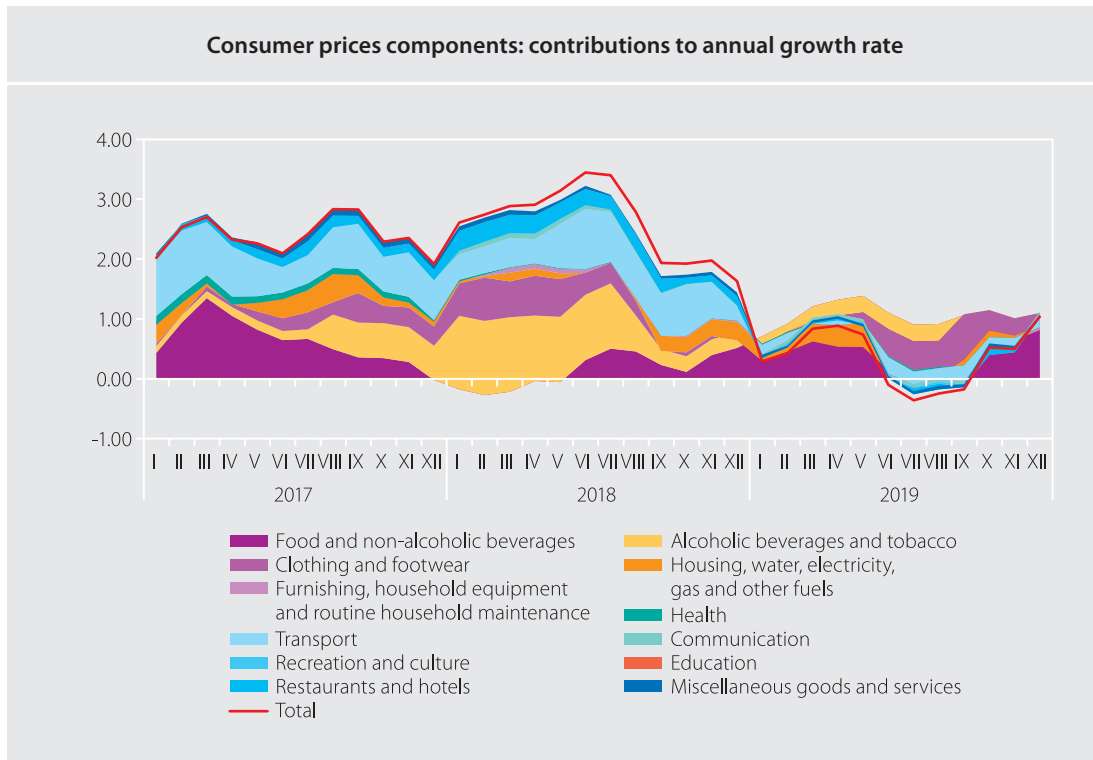
Annual growth rate and contributions of individual categories in total inflation (%) <sup>1</sup>				
	Weights	XII 2019 XII 2018	Growth rate	Contribution
TOTAL	1000	101.0	1.0	1.0
Food and non-alcoholic beverages	341.1	103.2	3.2	1.1
Alcoholic beverages and tobacco	40.4	100.1	0.1	0.0
Clothing and footwear	86.1	97.6	-2.4	-0.2
Housing, water, electricity gas and other fuels	154.0	99.5	-0.5	-0.1
Furnishing, household equipment and routine household maintenance	39.4	101.0	1.0	0.0
Health	40.8	100.1	0.1	0.0
Transport	109.4	102.4	2.4	0.3
Communication	48.5	98.9	-1.1	-0.1
Recreation and culture	32.0	98.9	-1.1	0.0
Education	18.7	100.1	0.1	0.0
Restaurants and hotels	47.6	100.0	0.0	0.0
Miscellaneous goods and services	42.0	101.0	1.0	0.0

Source: Monstat and CBCG calculations

<sup>1</sup> Regardless of the index changes, due to the weight structure, the contribution of the share of certain categories is not recorded before the second, i.e. third decimal.



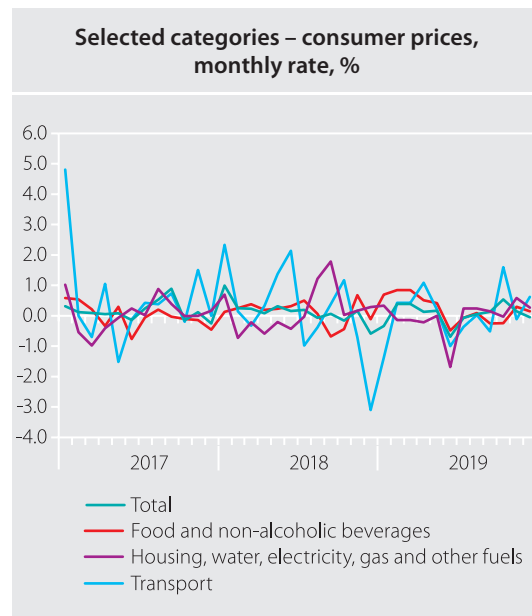
**Graph 2**



Source: Monstat and CBCG calculations

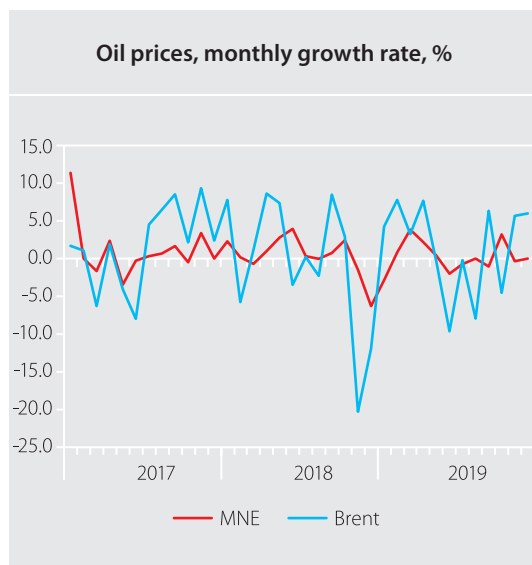
In the global market in 2019, the price of oil fell compared to the previous year, after the growth in the price of this fuel in the period 2017 - 2018. The drop in oil prices is mostly the result of trade tensions between the U.S. and China, of slowing global economic growth and a slowdown of demand for oil. The price of the OPEC reference basket averaged to 64.1 USD/barrel in 2019, being 7.9% lower than the 2018 average. The price of Brent averaged to 64.2 USD/barrel, being 9.5% lower than the previous year average. Observed at the monthly level, the lowest level of the average Brent price was recorded in August 2019 (58.83 USD/barrel). The last two months of 2019 saw a rise in oil prices as a result of easing trade tensions between the U.S. and China and continued activities to stabilize the oil market, in line with the Agreement on the Reduction of Oil Production.

**Graph 3**



Source: MONSTAT

Graph 4

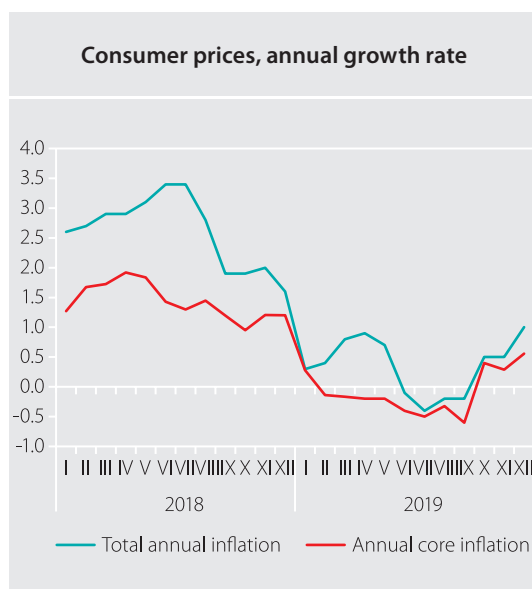


Source: Monstat and “Monthly Oil Market Reports”, OPEC

According to the latest IMF report<sup>2</sup>, the average oil price will continue the downward trend in 2020 and 2021 and will amount to 58.03 USD/barrel and 55.31 USD/barrel, respectively, while the European Commission in its report<sup>3</sup> for 2020 expects average oil price to reach 60 USD/barrel in 2020, and 57 USD/barrel in 2021.

The annual core inflation rate in December 2019 stood at 0.6% or by 0.48 percentage points below the total annual inflation. Throughout 2019, the annual core inflation rate was lower than the total inflation (Graph 5). The largest spread between total annual and core inflation was recorded from March to May, due to changes in the prices of certain products that are otherwise excluded from the calculation of core inflation, e.g. prices of certain agricultural products, tobacco, etc.

Graph 5



Source: Monstat and CBCG calculations

In the UN *World Economic Situation and Prospect 2020* report it is stated that inflation in developed economies amounted to 1.6% in 2019, which was lower than in the previous year, when it equalled 2%. However, developing countries recorded inflation growth (from 5.2% in 2018 to 5.4% in 2019) due to price rises in South Asia, South Africa, Central Africa, and South America. In the transition countries, a higher level of inflation than the inflation recorded in 2018 (from 4% to 4.9% in 2019) was also recorded, especially after an increase in the level of inflation in Azerbaijan, Russia Moldova, and Georgia. As the Report indicates<sup>4</sup>, the inflation in the developed economies for 2020 could amount to 1.7%, 5.1% in developing countries and 4.3% in transition economies.

<sup>2</sup> IMF: *World Economic Outlook Update* – January 2020

<sup>3</sup> European Commission: *European Economic Forecast*, Winter 2020

<sup>4</sup> Detailed data on inflation trends for individual regions and countries are listed in the Report Annex *World Economic Situation and Prospect 2020*, in Tables A.5, A.6 and A.7.

**The producers' prices of manufactured products** in December 2019 recorded y-o-y increase of 2.3%. Growth in prices was as recorded in all three sectors: mining and quarrying by 6.1%, electricity, gas and steam supply by 3.8, and manufacturing industry by 0.1%. The average growth in the producers' prices of manufactured products amounted to 2.4% in 2019, whereby an average growth in prices was recorded in mining and quarrying (5.2%) electricity, gas and steam supply (2.2%), and manufacturing industry (1.4%).

**Export producers' prices of manufactured products**<sup>5</sup> recorded the y-o-y increase of 0.9% in December 2019, while the average annual price decline was 2%. Manufacturing industry reported an average decrease in prices of 1.8%, while the prices in mining and quarrying declined by 3.4%.

**Import prices of manufactured products**<sup>6</sup> recorded y-o-y increase by 3.9% in December 2019, and the average annual rate showed an increase of 1.4%. Average annual growth was recorded in prices from both sectors: manufacturing industry (1.3%) and mining and quarrying (17.8%).

## 1.2. Inflation trends in the region and the EU

The annual inflation in all countries of the region in December 2019 was positive and amounted to 2% in Slovenia, 1.9% in Serbia, 1.3% in Croatia, 1.1% in Albania, 0.4% in North Macedonia, and 0.3% in Bosnia and Herzegovina.

The annual inflation rate in the euro area in December 2019 was 1.3% being lower by 0.2 percentage points than the annual rate recorded in December 2018. The annual price growth of services (1.8%), and food, alcoholic beverages and tobacco (2%) had the highest impact on inflation. The inflation recorded in the euro area was positive during whole 2019. Growth in prices of food, tobacco, fuels for motor vehicles, prices in hotels and restaurants and prices of electricity, gas and other fuels affected the highest annual price growth in 2019 to be registered in April (1.7%), while the lowest annual inflation rate was recorded in October (0.7%). The European Commission expects slight inflationary pressures in the next two years, while they forecast the average inflation in the euro area of 1.3%<sup>7</sup> and 1.4% for 2020 and 2021, respectively.

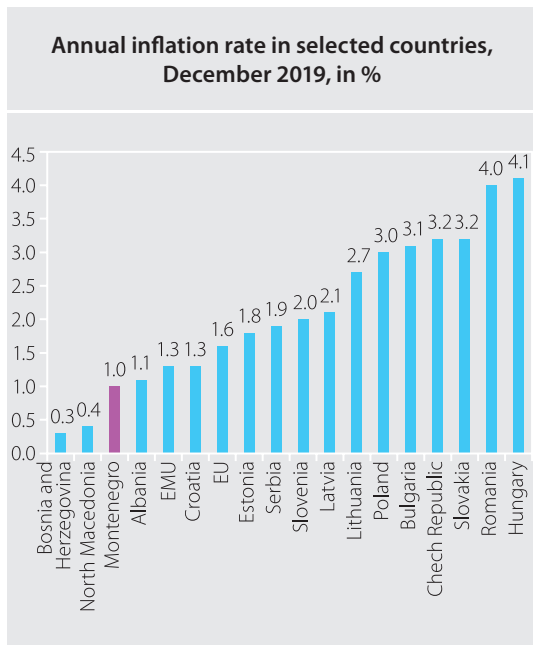
The annual inflation rate recorded in the EU, measured by the Harmonized Index of Consumer Prices was 1.6% in December 2019. Of the EU Member States, the highest annual rate was recorded in Hungary (4.1%), and Romania (4%).

<sup>5</sup> The exports prices index represents monthly changes in the prices of manufactured products made by companies and sold at foreign markets. It is an important economic indicator that can be used as time series deflator, particularly for national account purposes.

<sup>6</sup> Import price index refers to the monthly change in prices of imported manufactured products. It can be used as a time series deflator, especially for the needs of national accounts and as a means of harmonizing prices at the conclusion of different sales contracts.

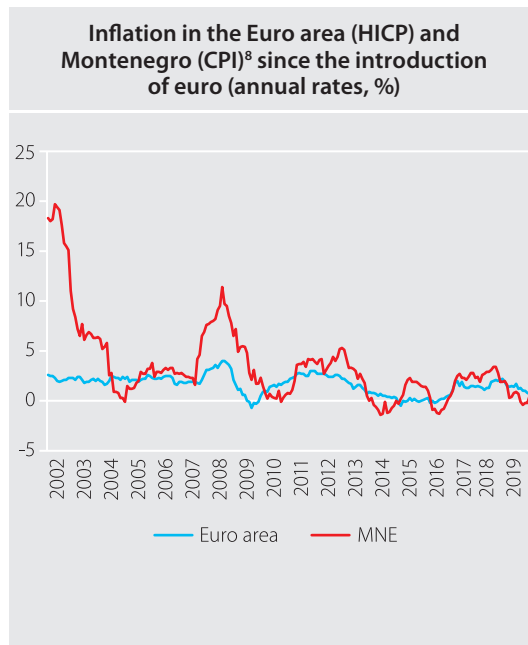
<sup>7</sup> Source: European Commission: European Economic Forecast, Winter 2020

**Graph 6**



Source: National statistical offices and Eurostat

**Graph 7**



Source: Monstat and Eurostat

<sup>8</sup> Cost of living were used for measuring inflation in Montenegro until 2009, after which consumer prices were introduced.

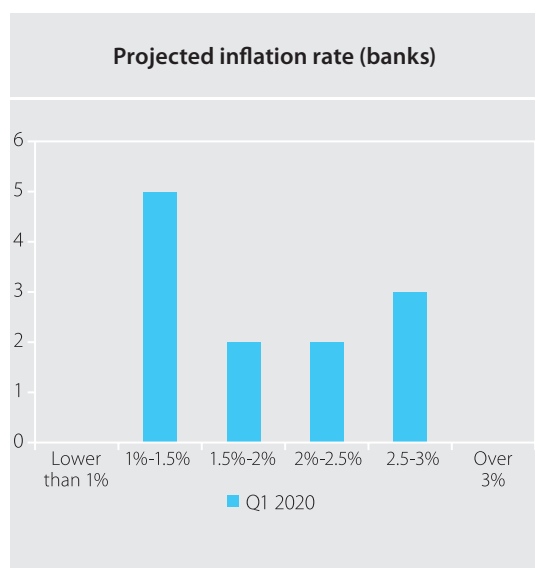
## 2. INFLATION EXPECTATIONS OF THE BANKING AND CORPORATE SECTOR

### 2.1. Banks' expectations

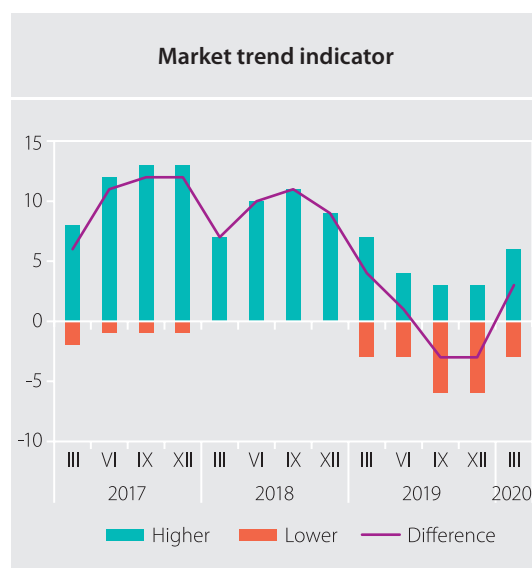
When it comes to inflationary expectations of banks, according to a survey conducted in March 2020, five banks expect inflation in 2020 to the range from 1% to 1.5%, three banks expect inflation between 2.5% and 3%, two banks expect inflation from 1.5% and 2% and another two banks expect inflation to range between 2% and 2.5%, while none of the banks expects inflation lower than 1% or higher than 3.5%.<sup>9</sup>

For the purpose of calculating inflation forecasts we use market trend indicator (line in Graph 9). It is calculated as the difference between the number of banks expecting inflation growth and the number of banks expecting inflation decrease. If the market trend indicator has a negative value, a decrease in the inflation rate is expected in the upcoming period. If it has a positive value, then an increase in the inflation rate can be expected. If it has a zero value, an unchanged inflation rate can be expected in the upcoming period. The more negative its value is, the lower the inflation forecast is, and vice versa, higher positive value means higher inflation level forecasts. Therefore, Graph 9 shows that inflation expectations were at a lower level in 2019. Inflation expectations in Q1 2020 pointed to the inflation increase.

Graph 8



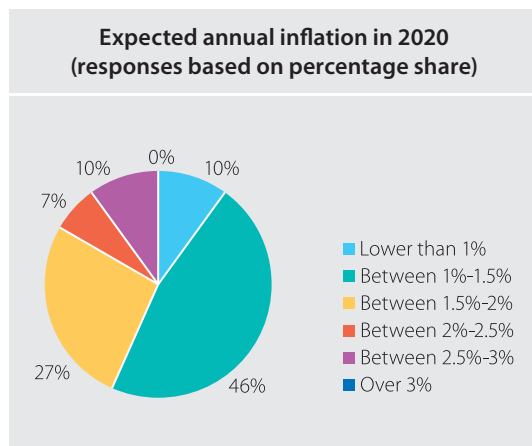
Graph 9



<sup>9</sup> The survey on inflationary expectations was conducted in early March, before the outbreak of the current crisis.

## 2.2. Expectations of corporate sector (except banks)

Graph 10



### *Inflation*

Of the total number of the surveyed economic entities, most of them (46%) think that the annual inflation rate in 2020 will range between 1% and 1.5%, 27% forecasts the annual inflation rate of 1.5% to 2% while 10% of respondents think that inflation will be between 2.5% and 3% or lower than 1%. Inflation in the range between 2% and 2.5% is expected by 7% of respondents, while none of the surveyed economic entities expect inflation higher than 3%.

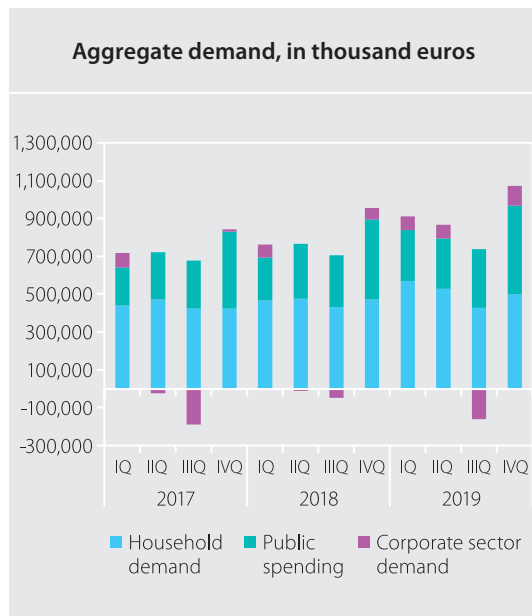
## 3. INFLATION DETERMINANTS

### 3.1. Demand

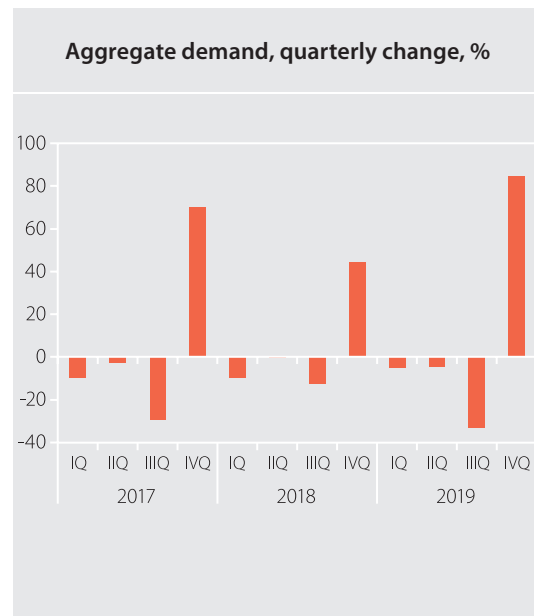
According to preliminary indicators, the total demand in the fourth quarter of 2019 is higher than demand from the first three quarters, which is the most common phenomenon given the payment of overdue liabilities by the companies and the budget, which are being conducted in this period. It is also higher than the corresponding demand from the same quarter of the previous year. In the structure of total demand in Q4 2019, in relation to the same quarter of the previous year, the share of the corporate sector demand increased, while both household demand and public spending were reduced.

The aggregate demand rate in Q4 2019 was higher than in the previous three quarters, and lower compared to the rate recorded in the last quarter of 2018.

**Graph 11**



**Graph 12**



### Box 1 - Aggregate demand calculation methodology

For the purpose of a more complete monitoring of aggregate demand as a determinant of inflation, the CBCG developed the aggregate demand calculation methodology. The starting point of this methodology states that the aggregate demand represents the sum of the demand of three sectors: personal spending (households), investment spending (corporate sector), and public spending. However, taking into account the lack of numerous data necessary for calculating the aggregate demand, the existing data should not be treated as the indicator of the exact amount of aggregate demand, but as an indicator showing the aggregate demand trend. In the existing methodology, a number of substantial data were not available, such as: corporate investments, revenues from share sales, non-market income, non-observed economy revenues, and the like. Methodology of aggregate demand calculation is expressed by the following equation:

$$AD = C + I + G$$

AD – aggregate demand

C = sum of paid salaries + sum of paid pensions + paid frozen foreign currency deposits + net compensations to households – net household savings (savings – loans granted)

I - investment spending = - corporate net savings (deposits – loans)

G - public spending = public spending – paid pensions – salaries paid from the budget – net Government savings (deposits – loans – Treasury bills)

### 3.1.1. Salaries and other available demand determinants

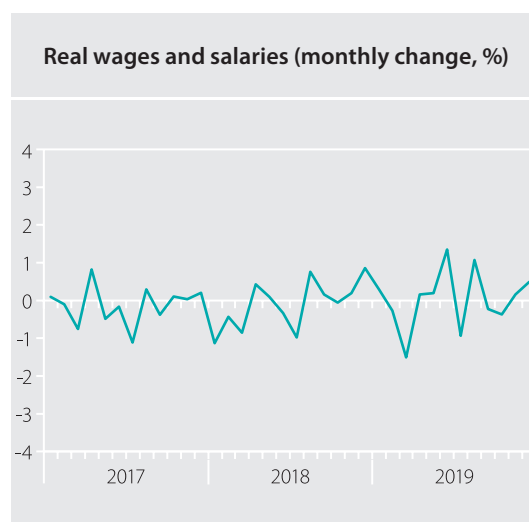
The average gross salary in Montenegro was 773 euros in 2019 and it increased by 0.9% in relation to the average in 2018. An average salary without taxes and contributions totalled to 515 euros, also showing the y-o-y increase of 0.8%. Real wages and salaries without taxes and contributions in 2019 were 0.4% higher compared to the average wages and salaries without taxes and contributions in 2018.

Graph 13



Source: Monstat

Graph 14



Source: Monstat



Observed by months, the highest nominal growth in wages and salaries without taxes and contributions was recorded in August (1.2%), while the lowest nominal growth of 0.2% was recorded in February, April, October and November. The highest nominal drop in wages and salaries without taxes and contributions was recorded in July (1%).

Taking into account the consumer prices, i.e. trends in wages and salaries in real amounts, it can be concluded that real wages and salaries reported the highest growth in August, while the highest real decline was reported in March.

Retail sector<sup>10</sup> loans reported positive trend in 2019. On average, loans to this sector grew at a monthly rate of 0.7%, which is less than the average monthly growth of retail loans of 0.9% in 2018.

Total retail sector loans amounted to 1,357.7 million euros at 2019 year-end, which indicated a growth of 107.5 million euros or 8.6% more in relation to 2018 year-end (Graph 15).

Debt per capita<sup>11</sup> amounted to 2,182.2 euros at end-2019, and it was 173.4 euros higher than at end-2018.

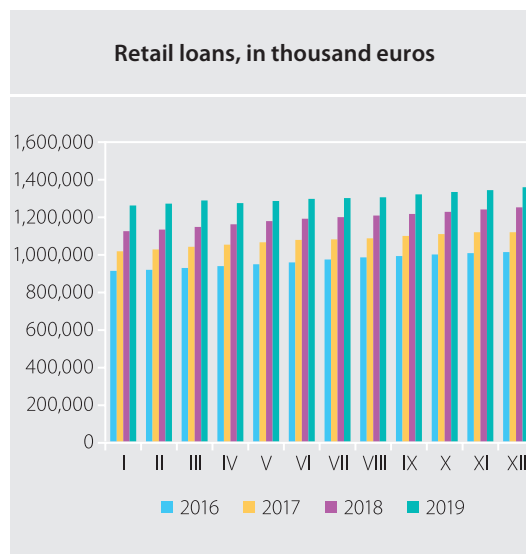
Total MFIs loans disbursed to households amounted to 65.6 million euros at end-2019 which was by 2.7 million euros or 4.4% more than at end-2018.

Retail sector deposits amounted to 1,316.5 million euros at end-2019, which represented a y-o-y decrease of 11 million euros or 0.8%.

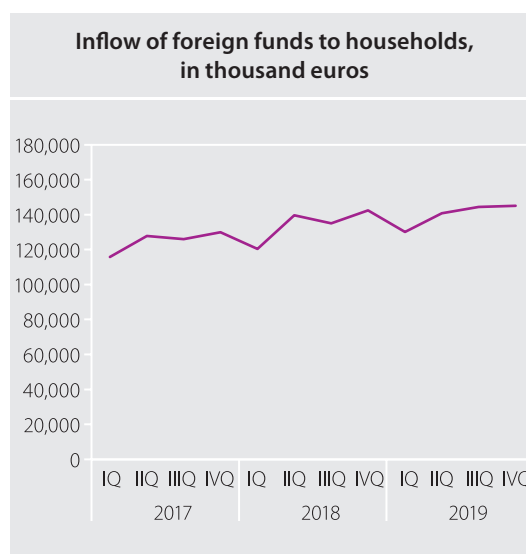
Loans to deposits ratio for this sector amounted to 1.03 at end-2019, being at a higher level year-on-year (0.94).

At end-2019, the retail sector generated a net debt in the total amount of 41.2 million euros.

**Graph 15**



**Graph 16**



Source: CBCG

<sup>10</sup> The retail sector includes resident natural persons and entrepreneurs.

<sup>11</sup> Population estimate for 2019: Estimate as at 1 January 2019 amounts to 622,182. Source: MONSTAT

Graph 17



Source: CBCG

The balance of payment statistics showed that the y-o-y increase in 2019 was recorded in the inflow of cash based on compensations to employees and household remittances from abroad.

According to preliminary figures, the total retail sector demand in Q4 2019 was higher compared to the level of demand for the same quarter in 2018, as well as in relation to the level of demand in the third quarter of 2019, while being lower in relation to the retail sector demand in the first and second quarter of 2019.

### 3.1.2. Public sector demand

#### *Montenegro's public finance*

According to the Ministry of Finance preliminary data, **public spending** in 2019 amounted to 2.25 billion euros or 45.8% of the estimated GDP<sup>12</sup> for 2019. Compared to the previous year, public spending was higher by 96 million euros or 4.5%, whereas the planned amount was exceeded by 79.2 million euros or 3.6%. The main reason for the deviation compared to 2018 is the increase in capital budget by 42.1 million euros and in guarantees repayment by 38.7 million euros. The recorded level of public spending was financed by tax revenues (1.35 billion euros), contributions (546.3 million euros), other revenues (93.7 million euros), fees (93.4 million euros), revenues from donations (43.2 million euros), duties (21.1 million euros), and receipts from loan repayment and funds transferred from the previous year (8.1 million euros).

Current public spending (public spending reduced by capital expenditures) amounted to 1.91 billion euros or 38.9% of GDP and it grew y-o-y by 2.9%, while capital budget amounted to 338.8 million euros or 6.9% of GDP.

According to individual economic classification, current expenditures accounted for the main share in the structure of public expenditures (43.9%), followed by transfers (36.9%), capital expenditures (15.1%), while 4.1% referred to other expenditures.

**Preliminary public revenues** amounted to 2.15 billion euros or 43.8% of estimated GDP, being 9.2% higher y-o-y, yet 4.1% higher in relation to the plan. As for the structure of public revenues, tax revenues accounted for the main share of 62.5%, followed by contributions (25.4%), whereas the all other revenues accounted for 12.1%.

<sup>12</sup> The estimated GDP for 2019 equals 4.91 billion euros.

In 2019, according to Ministry of Finance preliminary data, **public spending** ran a **deficit** in the amount of 97.6 million euros or 2% of GDP, or 85.4 million euros less compared to a cash deficit and 115.7 million euros compared to adjusted deficit from 2018.<sup>13</sup>

### Budget of Montenegro

According to Ministry of Finance preliminary data, total revenues<sup>14</sup> of the Budget of Montenegro amounted to 2.90 billion euros in 2019.

**The source revenues** amounted to 1.89 billion euros or 38.4% of the projected GDP. Compared to the plan<sup>15</sup>, they were higher by 2.8%, and in relation to 2018, they were 8% higher. In the structure of source revenues, tax revenues accounted for the main share of 62.2%, followed by contributions with 29%, other revenues with 4%, donations with 2.1%, fees with 1.5%, duties with 0.8%, receipts from loan repayment and funds transferred from the previous year with 0.4%.

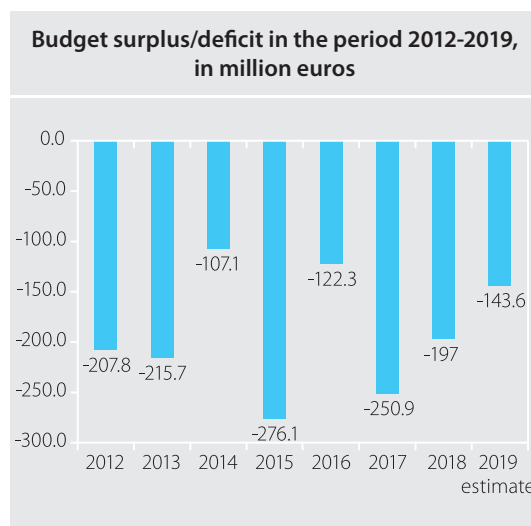
Tax revenues amounted to 1.2 billion euros, recording a 4.5% increase relative to the plan and a 9.7% y-o-y increase. The most significant positive deviations from the previous year were recorded in the collection of value added tax by 78.8 million euros (12.8%) and excise duties by 14.3 million euros (6.5%). The increase in these revenues is the result of the growth of economic activity, tax discipline and the redefinition of excise duties policy.

Revenues from contributions amounted to 546.3 million euros being 2.3% higher in relation to the plan for 2019, recording a 4.2% y-o-y increase due to rescheduling of the remaining tax debt.

**Consolidated budget expenditures** amounted to 2.03 billion euros in 2019, or 41.3% of the estimated GDP. The recorded expenditures in relation to the planned increased by 2.6%, and compared to the previous year they were higher by 5.9%. Current budget expenditures amounted to 895.4 million euros or 5.8% more than planned. Social protection transfers amounted to 554.4 million euros or 11.3% of GDP. Montenegro's capital budget amounted to 272.4 million euros or 5.5% of GDP.

**Montenegro's budget deficit** is estimated at 143.6 million euros or 2.98% of GDP, and is lower by 25.3 million euros than the cash deficit, and 53.4 million euros than adjusted deficit from 2018. Debt repayment amounted to 507.3 million euros.

Graph 18



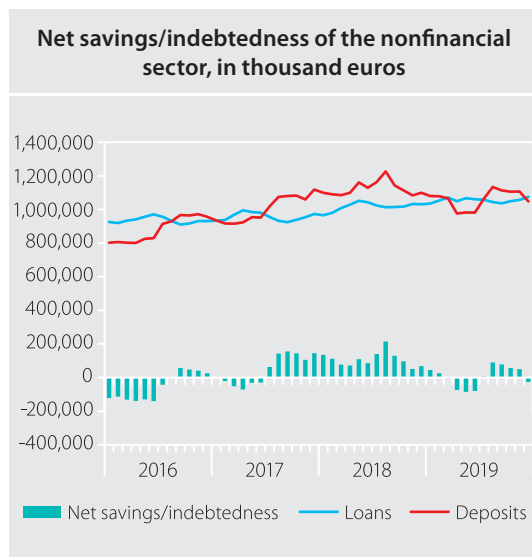
Source: Ministry of Finance

<sup>13</sup> Adjusted deficit for 2019 will be published once the Law on Budget Execution for 2019 is adopted.

<sup>14</sup> Revenues include source revenues (direct and indirect taxes and non-tax revenues), borrowings and loans from domestic and foreign sources, and revenues from sale of property.

<sup>15</sup> Plan for budget implementation according to the budget rebalance is implemented pursuant to the Law amending the Budget Law for 2019.

Graph 19



### 3.1.3. Nonfinancial sector<sup>16</sup>

Due to the lack of data on the nonfinancial sector investments, we can use the sector's net savings/indebtedness as an approximation.

At end-2019, loans to nonfinancial sector were higher than this sector's deposits. At end-2019, net indebtedness of the nonfinancial sector amounted to 26.2 million euros (Graph 19).

Long-term loans accounted for the main share in the structure of loans to the sector (77.5%), which indicates that the loans to corporate sector were mainly used for the increase in the volume of economic activity.

### 3.1.4. External demand and the current account

According to preliminary data, the current account deficit amounted to 743.6<sup>17</sup> million euros in 2019 and decreased by 6.2% compared to the previous year. The decrease in the current account deficit is the result of an increase in the surplus on the services account and the secondary income account.

The increase in the goods account deficit continued in 2019, but it is not significant (by 0.8%). Total visible exports amounted to 465.5 million euros recording an increase of 6.7% in relation to 2018. At the same time, visible imports (2.5 billion euros) was 1.8% higher than in 2018. On the other hand, the services account recorded an increase in the surplus of 8.9% (to 1 billion euros). The increase in revenues from travel/tourism, transport and other business services contributed significantly to this. Primary income account ran a surplus of 17 million euros, or 69.1% less y-o-y. This trend is the result of an increase in expenditures based on compensation to employees and interest repayments. Secondary income account ran a surplus of 284.3 million euros, or 7.3% more than in 2018.

According to preliminary data, the net FDI inflow amounted to 344.7 million euros in 2019, recording a y-o-y increase of 6.9%. Compared to 2018, such trend was caused by a slight decrease in the outflow arising from withdrawal of equity investments as well as intercompany debt repayment. Total FDI inflow stood at 769.9 million euros, with equity investments amounting to 412.3 million euros (20.7% decrease), and the inflow in the form of intercompany debt adding up to 321.7 million euros or 7.2% more y-o-y. In the structure of equity investments, investments in companies and banks amounted to 242.3 million euros (28.1% decrease), while real estate investments amounted to 170 million euros and were 6.9% lower than in the same period in 2018. The inflow arising from the with-

<sup>16</sup> The nonfinancial sector includes state companies and private companies.

<sup>17</sup> Montenegro's balance of payments' data published in accordance with the new IMF methodology (IMF Balance of Payment Manual, Sixth Edition-BPM 6).

drawal of funds invested abroad amounted to 35.9 million euros. In the structure of the total inflow of FDI, share of inflows arising from intercompany debt amounted to 41.8%, investments in companies and banks accounted for 31.5%, while 22.1% of total inflows were invested in real estate. Total FDI outflow amounted to 425.2 million euros in 2019, or 20.6% lower year-on-year. In the outflow structure, outflow from residents' investments abroad amounted to 95.7 million euros, while withdrawal of non-residents' funds invested in Montenegro amounted to 329.5 million euros.

In 2019, portfolio investments account recorded net inflow of 297.1 million euros, while the net inflow in the other investments account amounted to 555.8 million euros. The developments in the other investments account included the decrease in liabilities arising from loans taken provided that all sectors are taken into account as well as a decrease in deposits with foreign banks.

### 3.2. Supply and demand

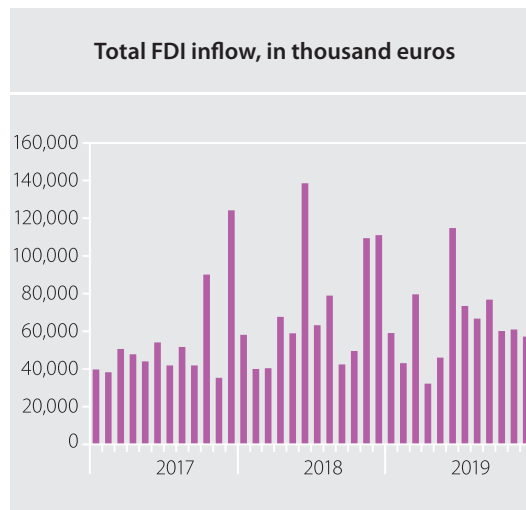
In 2019, industrial output recorded y-o-y decrease of 6.3%. Electricity, gas and steam supply and manufacturing industry sectors recorded respective output declines of -7.1% and -10%, while mining and quarrying recorded output increase of 20.8%. Observing monthly data on industrial output, the highest monthly growth was recorded in June (25.8%), while the highest decrease was recorded in January (-27%).

Some 2.6 million tourists visited Montenegro in 2019, which represented the y-o-y increase of 20.0%. The number of domestic tourists arrivals increased by 5.9%, while the number of foreign tourists grew by 20.8%. Tourist overnights amounted to 14.5 million, which is a y-o-y increase of 11.8%.

The total **production of forest assortments** amounted to 267,889 cubic metres of wood products in 2019, which is 10.8%<sup>18</sup> less than in 2018.

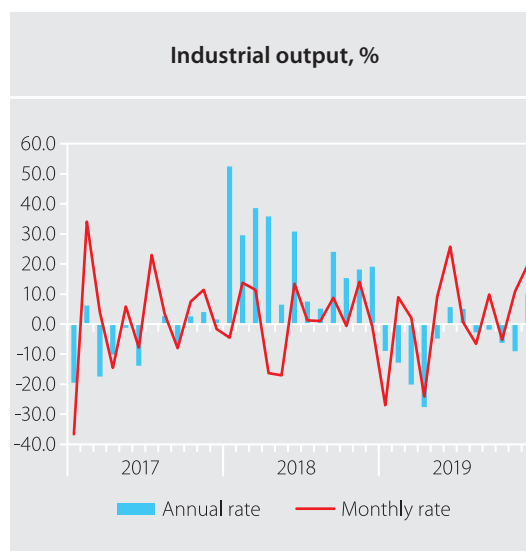
<sup>18</sup> Presented through weighted index, while presented through non-weighted index production declined by 7.2% over the same period.

Graph 20



Source: CBCG

Graph 21



Source: Monstat

According to preliminary Monstat data, the total value of executed **construction works** amounted to 801.6 million euros in 2019 recording y-o-y growth of 10.7%, whereas measured by the effective working hours, it increased by 4.2%.

Compared y-o-y, air passenger transport recorded an increase of 8.1%, road passenger transport increased by 0.8%<sup>19</sup>, while railway passenger transport declined by 0.8% in 2019<sup>20</sup>. At the same time, cargo air transport decreased by 6.4%, while it increased by 9.4%<sup>21</sup> and 17.1% in road and railway transport, respectively. Total turnover in ports in 2019 amounted to 2.1 million tonnes and was higher by 4.5% compared to the previous year, while exports accounted for 50.5% and imports for 49.5%. Exports in this period increased by 33.4% while imports decreased by 13.9%.<sup>22</sup>

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<sup>19</sup> Presented through number of passengers, while it decreased by 1% expressed through passenger kilometres.

<sup>20</sup> Presented through number of passengers in thousands, while it decreased by 0.6% presented through passenger kilometres.

<sup>21</sup> Presented through transported goods in thousand tonnes, while it increased by 3.3% presented in tonne kilometres.

<sup>22</sup> Presented in thousand tonnes, while it increased by 15.5% presented in tonne kilometres.

## 4. MONETARY POLICY

The Central Bank of Montenegro is responsible for monetary policy, encouraging and preserving the stability of the financial system, including encouraging and maintaining sound banking system and secure and efficient payment transactions. One of primary CBCG monetary policy objectives is contributing to achieving and maintaining price stability in the country.

The Central Bank of Montenegro Law lays down the following CBCG's primary monetary policy instruments: open market operations, credit operations, and reserve requirement. However, it should be stated that all available monetary policy instruments of the CBCG have very limited impact on inflation trends.

In 2019, there were no changes to the existing decisions, nor were new ones passed regarding the Central Bank of Montenegro monetary policy instruments.

### 4.1. Monetary policy measures for suppressing inflation

The Central Bank of Montenegro did not take any monetary policy measure for suppressing inflation in 2019.

## 5. INFLATION FORECAST FOR 2020

### 5.1. Model assessment

Montenegro's inflation fan chart is a graphic representation of inflation rate forecast probability distribution presented by the consumer price index. In that respect, instead of determining specific points, the fan chart also takes into account potential risks and uncertainties through probability distribution that might influence the inflation trend in the following period. The purpose of the fan chart is to indicate and consider the uncertainties in the real economy flows, which are consequently reflected in the inflation rate trend (increase in energy prices, increase/decrease in the foreign trade deficit, etc.).

Montenegro's Fan Chart for 2020 was based on the following three estimated components:

1. **Central projection values** – the values of the fan chart central projection are derived from the ARIMA model;
2. **Degree of uncertainty** – determines the fan chart width. The uncertainty degree ratios are obtained through analytical assessment and calculation of the relative impact of potential internal and external shocks that are possible in the Montenegrin economy over the one-year period and which are reflected through the “thickness” of the band around the central projection.
3. **Fan chart skewedness** – based on the level of skewedness of the distribution of inflation projection, the fan chart is adjusted to the forecast to show whether the values of the central projections have “overestimated” or “underestimated” inflation rates. The position of the mean value of inflation distribution will depend on this.

#### *Central projection of fan chart - ARIMA model 2020*

With a view to developing a fan chart, an ARIMA (Autoregressive Integrated Moving Average) model of time series of inflation of Montenegro presented via Consumer Price Index was developed<sup>23</sup>.

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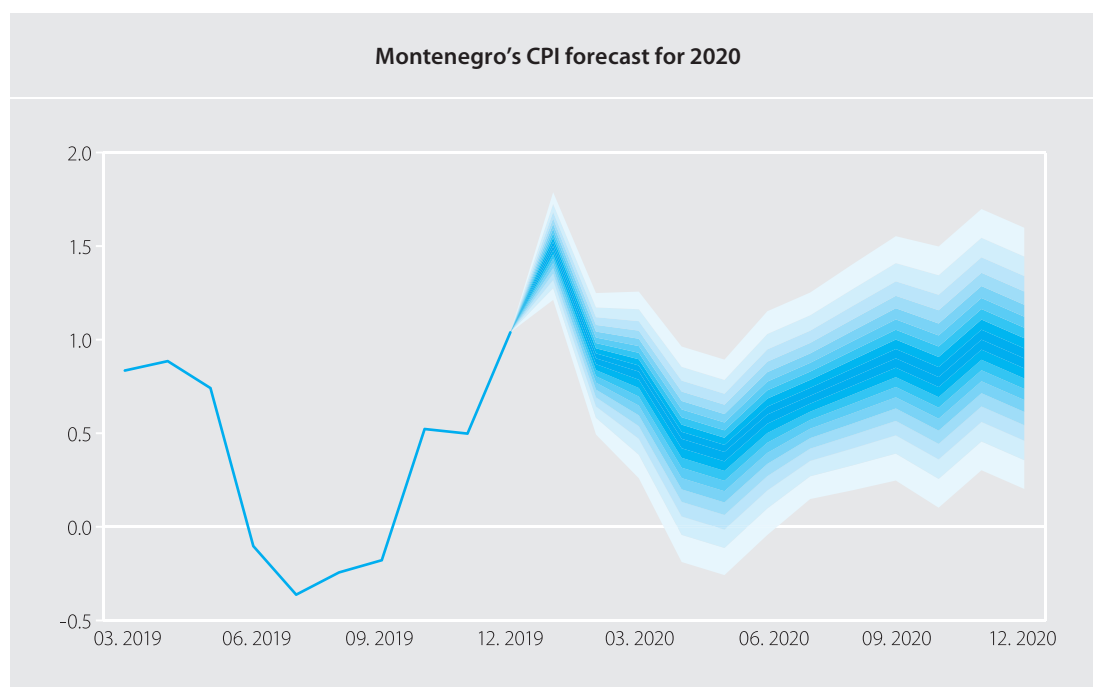
<sup>23</sup> A detailed explanation of the ARIMA model of Montenegro was presented in the working study of the Central Bank No.11 "Inflation Forecast: Empirical research on the retail price index trend of Montenegro for 2007 - applying the ARIMA model".



ARIMA model was used for short term forecasts (12 months), whereby several iterations of ARIMA models were made, which were ranked based on their efficiency and quality of diagnostics. The selected ARIMA model, ARIMA (2, 1, 2)<sup>24</sup> has sufficient confidence level for forecasts.

The monthly forecasts value was used as the value of central projection of the CPI graph for 2020. Obtained values represent the distribution mode, i.e. values with the highest frequency in the distribution of this time series.

**Graph 22**



Source: CBCG, 2020

Mean value of the obtained model is 0.8. The value of the coefficient of asymmetry varies in the range of 0.5 to 1, and the relative standard deviation is 0.25. Model projection of inflation is located in the central span of the distribution. This indicates that the corresponding range of uncertainty of future inflation is symmetrical. The fan chart describes 90% probability of inflation distribution. The central projection is usually in the deepest shade of the fan chart, i.e. in the central 10% of probability.<sup>25</sup> The fan chart has an equal number of bands (eight) on either side of the central band whereby every band of the same colour, both above and below the central band, cumulatively describes the next 10% of inflation trend probability. As uncertainty grows over time, the fan chart spreads.

<sup>24</sup> ARIMA model is generally referred to as an ARIMA (p,d,q) where p represents the number of autoregressive variables, d refers to the level of dependent variable that needs to be made stationary, and q is the number of variables, moving averages, in the certain model.

<sup>25</sup> The mode values (central projection) are usually in the deepest band shade, but in case of a significant risk level, it can happen that the central projection does not cover either of these values. (Britton, E, Fisher, P.G. and Whitley, J.D. (1998), 'The Inflation Report Projections: Understanding the Fan Chart', Bank of England, Quarterly Bulletin, 38, pp. 30–37).

The fan chart of inflation in Montenegro, based on the ARIMA model assessment for 2020, indicates that there is a **90% probability that the CPI inflation, depending on the certain month, will range between -0.3% and 1.7%, with the central projection of 0.8%. At the same time, inflation for December 2020 is forecasted to range between 0.2% and 1.6%, with the central trend of 0.9%.** The fan chart central projection (the darkest part) represents a 10% probability span (Graph 22).

The projection is based on projections of energy generating products and food prices, inflation projections in the euro area, and the announced excise duties calendar (for alcoholic beverages and coal). The risks related to the projected inflation rate shown on the fan chart are symmetrically set. Inflation rate above projected could be induced by a more vigorous growth in oil prices in the international market due to geopolitical tensions and strengthening of trade protectionism. Price growth could also be fuelled by bad weather conditions, which affect the food and electricity price growth. The growth of inflation could also be affected by the reduced production of certain categories of products under the impact of the current crisis, especially food products. On the other hand, the risks that would contribute to a lower inflation rate relate to a stronger decline in oil prices, as well as the euro area inflation growth below the projections.

***The projection was based on the following assumptions:***

1. We do not expect inflationary pressures from the euro area in the projected period. According to the ECB's forecasts<sup>26</sup> from January, inflation will be 1.2% in 2020 and will reach 1.4% in 2021. However, the coronavirus pandemic, which is also an extreme economic shock, will affect the reduction of economic activity, hence the inflation in the euro area as well.
2. Taking into account the oil futures, we have assumed a reduction in oil prices this year.
3. It is assumed that the prices of raw materials, excluding energy, will achieve a slight growth in 2020.
4. Pursuant to the Law on Excise Taxes, the excise duties trend in 2020 is determined by the increase of excise duties on tobacco and coal, while the excise duties on carbonated water with added sugar or other sweeteners or flavouring agents and excise duties on ethyl alcohol would remain as in 2019. Therefore, excise duties will be 3.9% higher in relation to 2019.
5. Fluctuation of +/-5% in the agricultural product prices, caused by weather conditions.

Deviation of any of the aforementioned assumptions would require the forecast adjustment.

## 5.2. Expert assessment

According to our survey, the expectations of both banks and the corporate sector indicated a low inflation rate. However, given that this survey was conducted before the outbreak of the current pandemic, these expectations can only be considered as an indication that a low inflation rate would be expected in stable conditions.

The current crisis has affected the revisions of all projections. Given current developments, it is realistic to expect low inflation globally, which is typical of a recession. The global output decline led to a decline in aggregate demand, which has a counter-inflationary effect. This is most noticeable when it

<sup>26</sup> Source: ECB (2020): *The ECB Survey of Professional Forecasters (SPF)*, January 2020

comes to the development of oil and oil derivatives prices. The potential risk for price growth could be an insufficient level of production in some branches, primarily as a result of the prescribed epidemic protection measures by the national authorities. We primarily think of food prices, and only in case of an extended duration of the current crisis. However, at this point, all indicators indicate a low level of inflation.

Therefore, we expect a low inflation rate in Montenegro in 2020. However, having in mind the high degree of uncertainty, as well as the fact that this type of crisis is unprecedented, i.e. there is no historical data certain legalities could be derived from, this projection has a high degree of uncertainty and should be taken conditionally.

Our expert assessment is similar to a model estimate and we expect that in 2020 inflation will range from -0.5% to 1.5%.

**Table 3**

Inflation rate estimation for 2020		
Optimistic projection	Central projection	Realistic projection
-0.5	0.5	1.5

This assessment is based on the same assumptions as the model assessment, and the deviation of the mentioned assumptions would require the revision of the forecast.

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