



CENTRAL BANK OF
MONTENEGRO

PRICE STABILITY REPORT 2021

Podgorica, 2022

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LIST OF ABBREVIATIONS

ARIMA	Autoregressive Integrated Moving Average
GDP	Gross Domestic Product
CBCG	Central Bank of Montenegro
COVID-19	COronaVirus Disease-19 (coronavirus SARS-CoV-2)
CPI	Consumer Price Index
ECB	European Central Bank
EMU	Economic and Monetary Union
EU	European Union
FAO	Food and Agriculture Organization
HICP	Harmonised Index of Consumer Prices
IMF	International Monetary Fund
MONSTAT	Statistical Office of Montenegro
OPEC	Organisation of the Petroleum Exporting Countries
FDI	Foreign Direct Investments
UN	United Nations
USD	American Dollar

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1. INFLATION INDICATORS

1.1. Inflation trend in Montenegro

During 2021, consumer prices were affected by the growth of demand at the global level, which was due to the expansionary policies of central banks and financial assistance provided by countries to their population and economies around the world. The additional impulse to the growth in demand was given by the easing of measures to prevent the spread of coronavirus, which was recorded in most countries. However, the largest contribution to the rise in inflation was made by the global rise in energy and food prices. According to the January IMF report¹, the average oil price increased by about 67% compared to 2020, while in the comparable period, according to the UN Food and Agriculture Organization, the FAO price index, which tracks monthly changes in international food prices, increased by an average of 28%. Based on these trends, the average growth of consumer prices in 2021, according to IMF estimates, was 3.1% in advanced economies and 5.7% in emerging and developing economies.

According to MONSTAT data, in Montenegro, after a decrease in the first two months, since March, there has been an annual increase in consumer prices in all months. In December, annual inflation measured by consumer prices was 4.6%, inflation measured by the harmonized index of consumer prices (HICP) stood at 4.5%, while the average inflation amounted to 2.4%. The largest contribution to the annual growth of inflation rate of 2.44 pp was recorded by the prices of *food and non-alcoholic beverages* and *transport* 1.13 pp (Table 2). Observed by months, the highest growth of consumer prices was recorded in October by 0.7%, while the lowest growth of consumer prices was recorded in August by 0.1% (Graph 1).

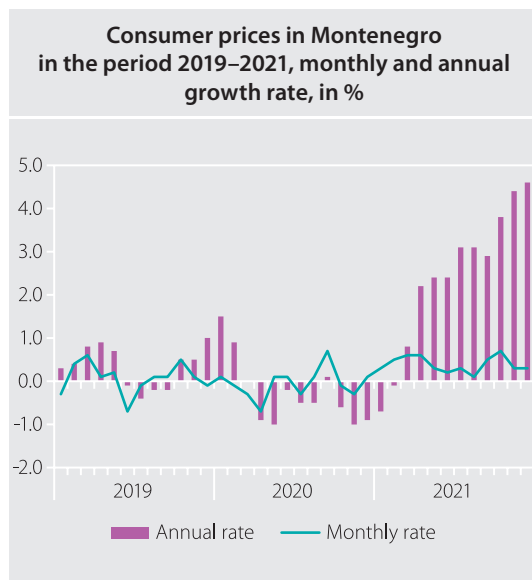
Table 1

Inflation in Montenegro in the period 2020–2021, in %								
	2020				2021			
	III	VI	IX	XII	III	VI	IX	XII
Change in relation to the previous year-end	-0.4	-0.9	-0.5	-0.9	1.4	2.4	3.3	4.6
Annual change	0.0	-0.2	0.1	-0.9	0.8	2.4	2.9	4.6

Source: MONSTAT

¹ IMF: *World Economic Outlook Update, Rising Caseloads, a Disrupted Recovery, and Higher Inflation*, January 2022.

Graph 1



Source: MONSTAT

In December, the largest contribution to the annual inflation growth rate of 2.44 pp was recorded by the prices of *food and non-alcoholic beverages* 7.2% (Table 2). The increase in prices in this category is a result of the increase in prices of most product groups: oils and fats 37%, vegetables 16.9%, sugar, jam, honey, chocolate and sweets 8.7%, bread and cereals 5.4%, milk, cheese and eggs 5%, fruit 4.8%, non-alcoholic beverages 3.2% and meat 2.7%. Significant contribution to the annual inflation of 1.13 pp was given by prices from the category *transport* with a growth of 10.3%, mostly due to the growth of prices of fuels and lubricants for motor vehicles 22.7%. Consumer prices growth was also seen in the following categories: *hotels and restaurants* 5.5%, *alcoholic beverages and tobacco* 3.3%, *furnishing, household equipment and routine household maintenance* 2.4%, *clothing and footwear* 2.1%, *health* 1.9%, *miscellaneous goods and services* 1.6%, *housing, water, electricity gas and other fuels* 1.5%, and *recreation and culture* 0.6%. A slight annual decline in prices was recorded in the categories of *communications* and *education* (0.2% each).

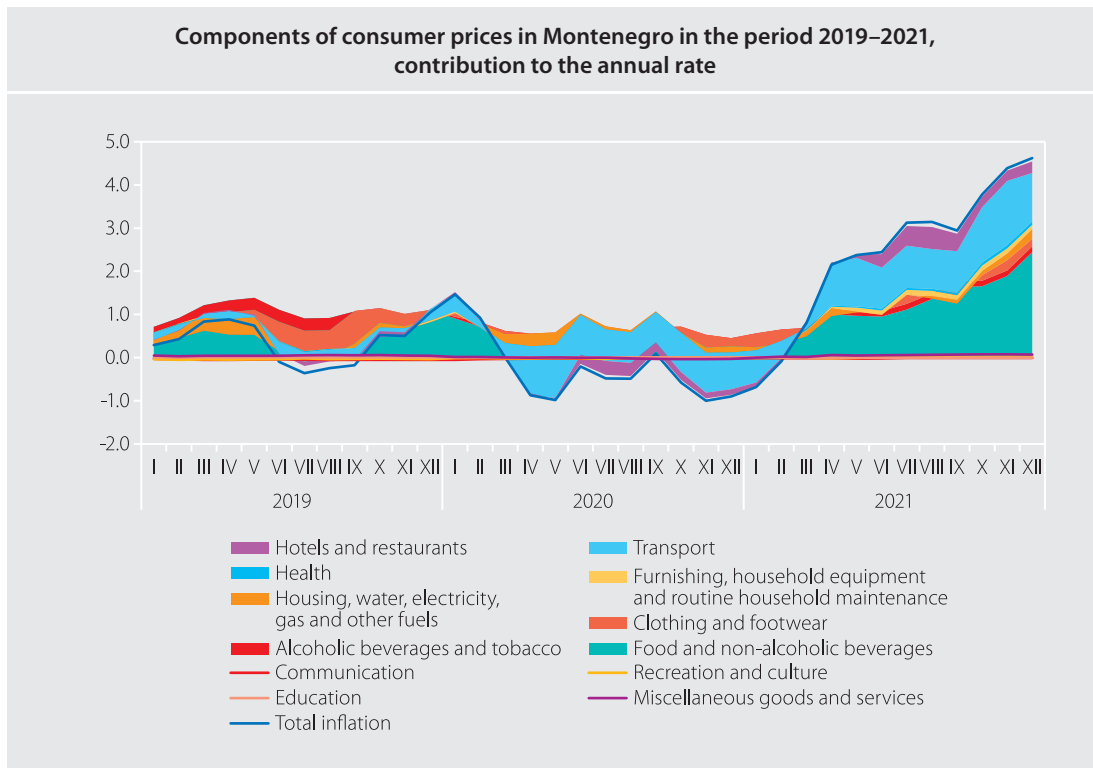
Table 2

Growth rate (annual, in %) and contributions of individual categories in total inflation² in Montenegro				
	Weights	XII 2021/XII 2020	Growth rate	Contribution
TOTAL	1000	104.6	4.6	4.6
Food and non-alcoholic beverages	341.1	107.2	7.2	2.4
Alcoholic beverages and tobacco	40.4	103.3	3.3	0.1
Clothing and footwear	86.1	102.1	2.1	0.2
Housing, water, electricity gas and other fuels	154.0	101.5	1.5	0.2
Furnishing, household equipment and routine household maintenance	39.4	102.4	2.4	0.1
Health	40.8	101.9	1.9	0.1
Transport	109.4	110.3	10.3	1.1
Communication	48.5	99.8	-0.2	0.0
Recreation and culture	32.0	100.6	0.6	0.0
Education	18.7	99.8	-0.2	0.0
Restaurants and hotels	47.6	105.5	5.5	0.3
Miscellaneous goods and services	42.0	101.6	1.6	0.1

Source: MONSTAT and CBCG calculations

² It should be noted that, 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.

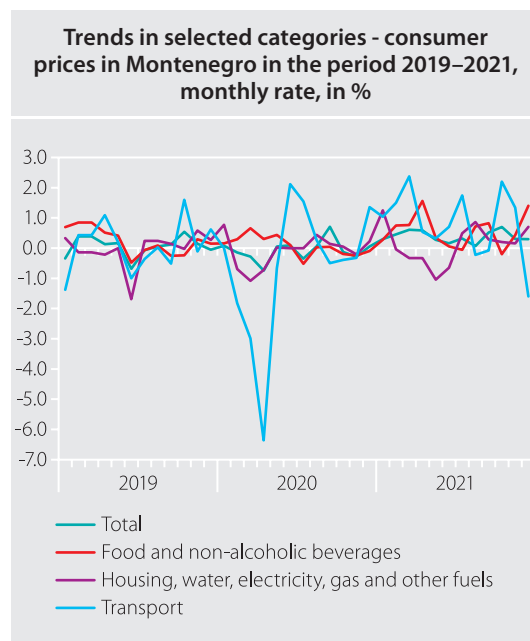
Graph 2



Source: MONSTAT and CBCG calculations

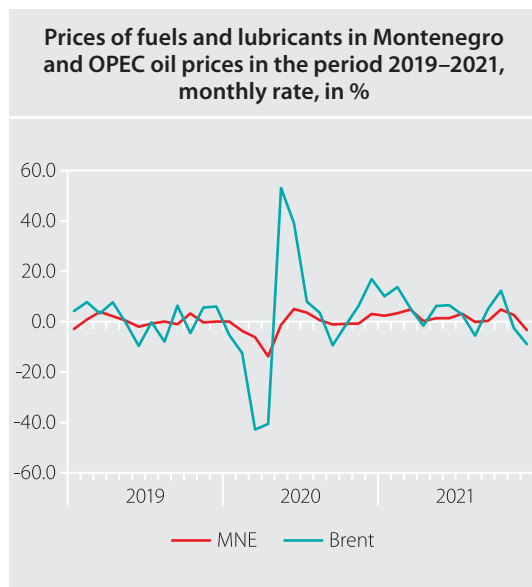
During 2021, there was a significant increase in global demand for oil, affected by the gradual economic recovery from the coronavirus crisis. On the other hand, the limited production of OPEC+ countries additionally affected the average annual price growth, while their decision to increase production by only 400 thousand barrels per day in November resulted in a slight drop in prices in the last two months. The price of the OPEC reference basket averaged to 69.72 USD/barrel in 2021, being 68.53% higher than the 2020 average. In the comparative period, the average price of Brent was 70.64 USD/barrel, or 69.81% more. Observed on a monthly basis, the highest level of the average Brent price was recorded in October (83.54 USD/barrel), which is the highest price since October 2014.

Graph 3



Source: MONSTAT

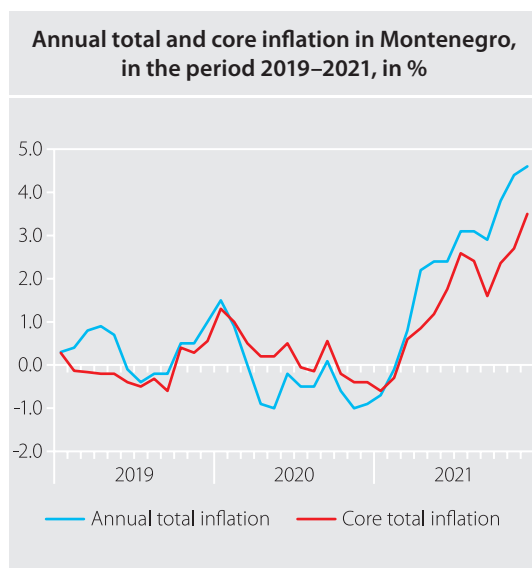
Graph 4



Source: MONSTAT and OPEC (Monthly Oil Market Reports)

The annual core inflation rate in December 2021 was 3.5%, being lower by 1.1 pp than the total annual inflation. Throughout 2021, the annual core inflation rate, with the exception of January, was lower than the total inflation (Graph 5). The largest spread between total annual and core inflation was recorded from April and May, as well as during the last four months, as a result of changes in the price of certain products that are otherwise excluded from the calculation of core inflation, e.g. prices of certain agricultural products, tobacco, fuels and lubricants and the like.

Graph 5



Source: MONSTAT and CBCG calculations

In the UN *World Economic Situation and Prospect 2022* report it is stated that inflation in developed economies amounted to 3.2%, which represents a significant growth in relation to the previous year, when it equalled 0.8%. Inflation in transition countries also increased from 4.1% in 2020 to 6.7% in 2021, especially due to rising inflation in the region of Southeast Europe, as well as Armenia, Russia and Ukraine. However, developing countries recorded inflation growth (from 5.5% in 2020 to 8.1% in 2021) due to price rises in North, East, South and Central Africa, West Asia, Mexico and Central America and the Caribbean. As the Report³ indicates, inflation in developed countries for 2022 could amount to 2.6%, 4.0% in transition economies, and 5.5% in developing countries. However, given the serious geopolitical tensions that were triggered in the first months of 2022, which will affect global supply chains, it is to be expected that all forecasts will be corrected.

³ Detailed data on inflation trends for individual regions and countries are listed in the Report Annex *World Economic Situation and Prospect 2022*, in Tables A.5, A.6 and A.7.

Export producers' prices of manufactured products⁴ recorded the year-on-year increase of 33.3% in December 2021, while the average annual price growth was 17.1%. Prices in both sectors recorded average growth, namely: mining and quarrying 12.4% and manufacturing industry 17.9%.

Import prices of industrial output⁵ recorded year-on-year growth by 12.7% in December 2021, and the average annual growth rate was 8.6%. Average annual growth was recorded in prices from both sectors: mining and quarrying 6.0%, and manufacturing industry 8.6%.

1.2. Inflation trends in the region and in the EU

Inflation growth was recorded in all countries of the region and the EU. The highest annual consumer price rate in December 2021 was recorded in Serbia 7.9%, followed by Bosnia and Herzegovina 6.4%, Slovenia 5.1%, The Republic of North Macedonia 4.9% and Albania 3.7%.

The annual inflation rate in the euro area in December 2021 was 5% being 5.3 pp higher than the annual rate recorded in December 2020, while the largest contribution of 2.46 pp and 1.02 pp was recorded by the annual price growth of energy generating products by 25.9% and services by 2.4%. The average annual rate in 2021 was 2.6%, while the European Commission in its February report⁶ for 2022 expects inflation of 3.5%, and 1.7% in 2023, but it is evident that this forecast will be adjusted upwards.

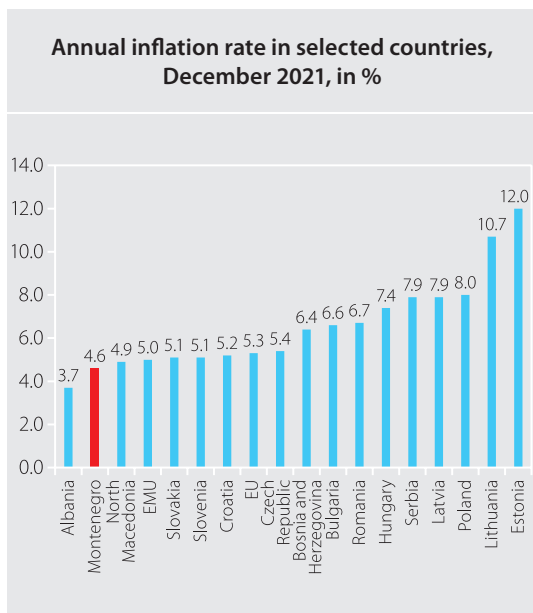
The annual inflation rate recorded in the EU, measured by the Harmonized Index of Consumer Prices was 5.3% in December 2021. Of the EU member states, the highest annual rate was recorded in Estonia 12% and Lithuania 10.7%, and the lowest in Slovakia 5.1%.

⁴ The exports prices index represents monthly changes in the prices of industrial output 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.

⁵ Import price index refers to the monthly change in prices of imported industrial output. 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.

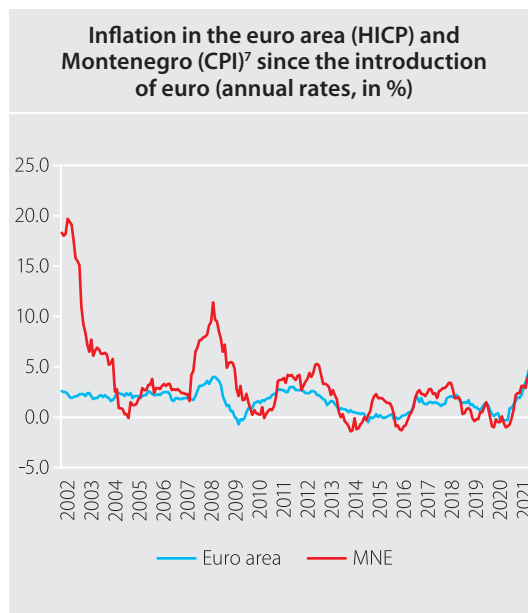
⁶ Source: European Commission: *European Economic Forecast, Winter 2022*, February 2022.

Graph 6



Source: National Statistical offices and Eurostat

Graph 7



Source: MONSTAT and Eurostat

⁷ Cost of living were used for measuring inflation in Montenegro until 2009, after which consumer prices were introduced.

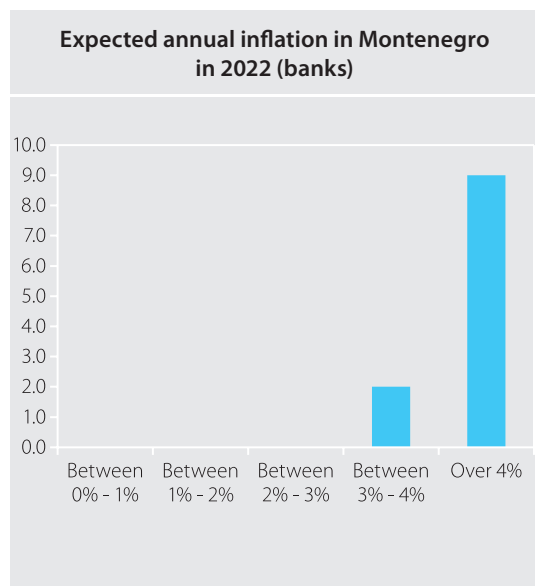
2. INFLATION EXPECTATIONS OF THE BANKING AND CORPORATE SECTOR

2.1. Banks' expectations

When it comes to inflation expectations of banks, according to a survey conducted in February 2022⁸, two banks expect inflation in 2022 to range between 3% and 4% (Graph 8), while nine banks expects inflation to be higher than 4%. No bank expects inflation between 0% and 1%, between 1% and 2% and between 2% and 3%.

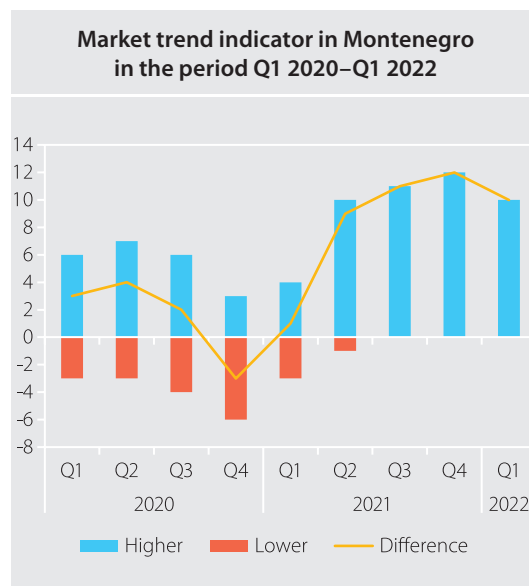
For the purpose of calculating inflation forecasts we use the market trend indicator (line in Graph 9). It is calculated as the difference between the number of banks expecting inflation growth and the number of banks expecting inflation decrease. If the market trend indicator has a negative value, a decrease in the inflation rate is expected in the upcoming period. If its value is positive, 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 expectations are and vice versa, higher positive value means higher inflation level expectations. A survey conducted in Q1 2022 indicates an increase in banks' inflation expectations for the level of inflation in 2022.

Graph 8



Source: CBCG survey

Graph 9

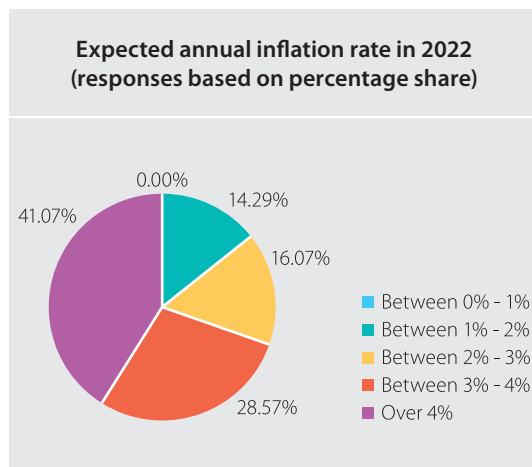


Source: CBCG survey

⁸ It should be noted that the survey was conducted before the new situation in Ukraine.

2.2. Expectations of corporate sector (except banks)

Graph 10



Source: CBCG survey

Inflation

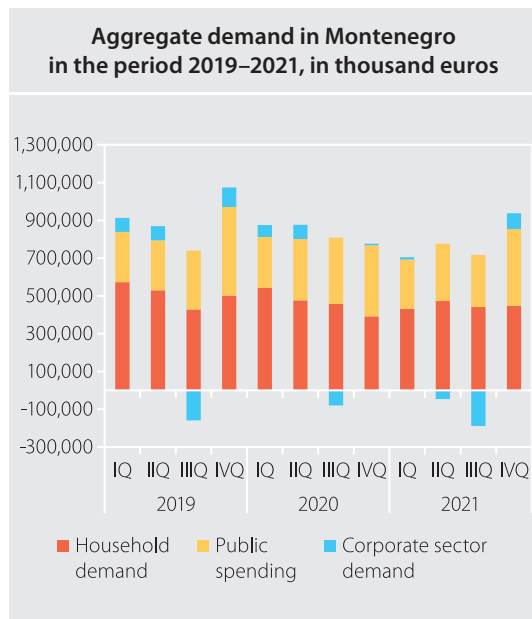
Of the total number of the surveyed economic entities, most of them (41.07%) think that the annual inflation rate in 2022 will be over 4% (Graph 10), 28.57% forecasts the annual inflation rate from 3% to 4% while 16.07% of respondents think that inflation will be range from 2% to 3%. Inflation in the range between 1% and 2% is expected by 14.29% of respondents, none of surveyed economic entities expect inflation between 0% and 1%.

3. INFLATION DETERMINANTS

3.1. Demand⁹

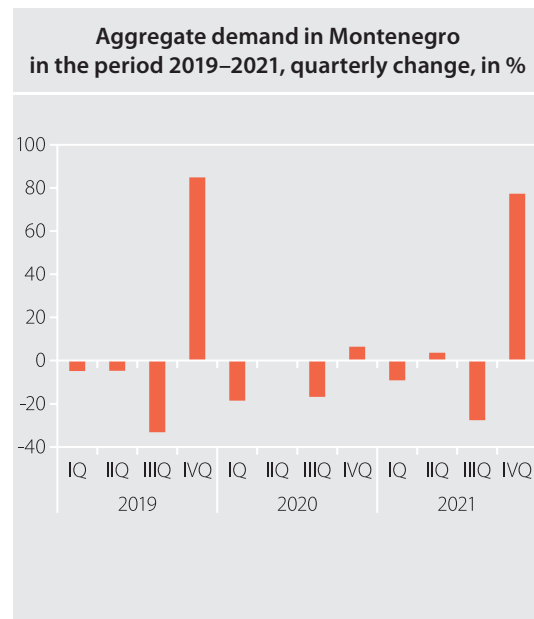
According to preliminary indicators, the total demand in the fourth quarter of 2021 is higher than demand from the other three quarters, as well as from the fourth quarter of the previous year. In the structure of total demand in Q4 2021, in relation to the same quarter of the previous year, the share of the public spending and household demand declined, while corporate sector demand increased.

Graph 11



Source: CBCG calculations

Graph 12



Source: CBCG calculations

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.

⁹ Preliminary data.

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 selling shares, non-market income, non-observed economy revenues, and the like. Methodology of calculation of the aggregate demand 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)

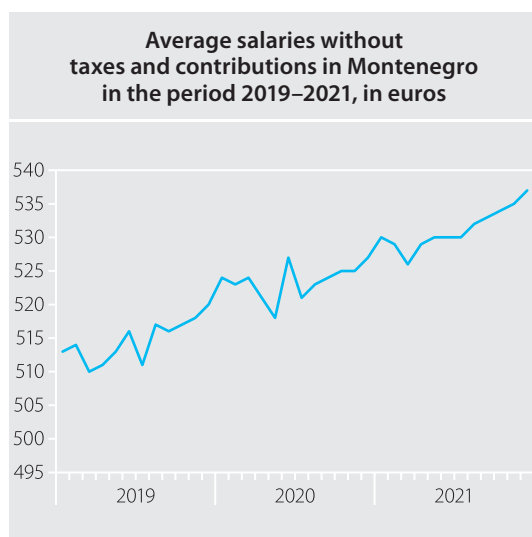
G - public spending = public spending – paid pensions – salaries paid from the budget – net Government savings (deposits – loans – Treasury bills)

3.1.1. Salaries and other available demand determinants

MONSTAT data showed that the average gross salary in Montenegro was 793 euros in 2021 and it increased by 1.28% in relation to the average in 2020. In the comparative period, the average salary without taxes and contributions amounted to 532 euros, which is 1.53% more, while the average real salary without taxes and contributions was lower by 0.85%.

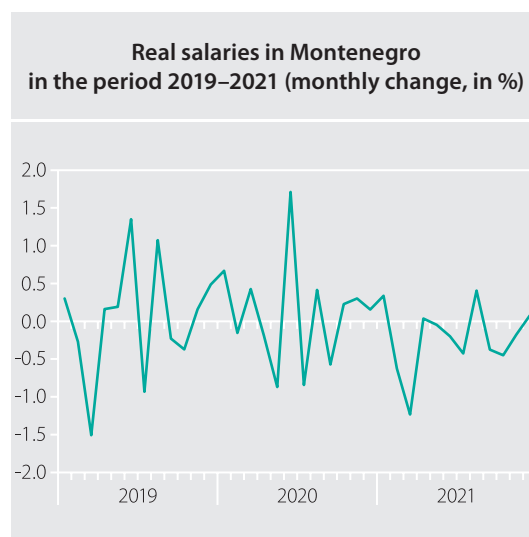
Observed by months, the highest nominal growth in salaries without taxes and contributions of 0.57% was recorded in January and April (Graph 13), while the lowest nominal growth of 0.19% was recorded in May, September, October and November. The largest nominal decline in salaries without taxes and contributions was recorded in March by 0.57%.

Graph 13



Source: MONSTAT

Graph 14



Source: MONSTAT

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

Retail sector loans¹⁰ reported positive trend in 2021. On average per month, loans in this sector grew by 0.22% during the observed period, as well as during the comparable period.

Total retail sector loans amounted to 1,431.51 million euros at end-December 2021, which indicated a growth of 37.34 million euros or 2.68% in relation to 2020 year-end (Graph 15).

*Per capita*¹¹ debt amounted to 2,306.14 euros at the end of the observed period, and increased by 60.15 euros in relation to the end of the comparable period.

Total MFIs loans disbursed to retail sector amounted to 63.03 million euros at end-2021 which was by 478,000 euros or 0.75% less than at end-2020.

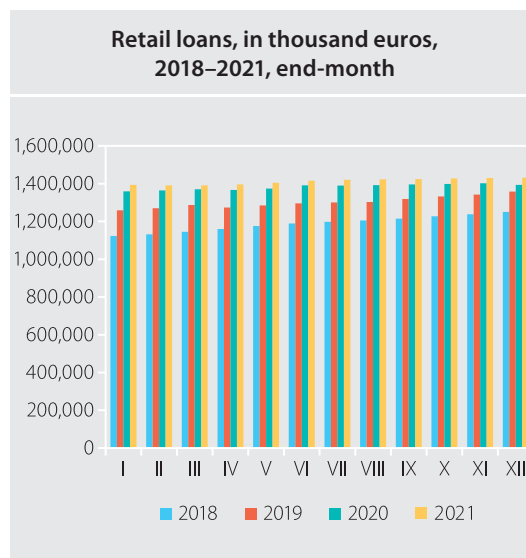
Retail sector deposits amounted to 1,442.49 million euros at end-2021, which represented a year-on-year growth of 188.46 million euros or 15.03% in relation to end-2020.

The loan to deposit ratio for the retail sector was 0.99 at end-2021, and it deteriorated relative to the 2020 year-end when it amounted to 1.11.

At the end of 2021, retail sector recorded net savings in the amount of 10.99 million euros, which is significantly more favourable compared to the end of 2020, when the net debt of this sector amounted to 140.13 million euros.

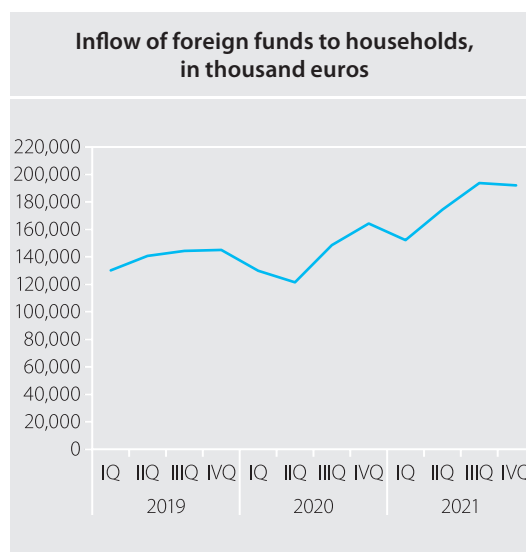
During 2021, the balance of payments statistics revealed the year-on-year increase in the inflow of monetary resources arising from compensations to employees and remittances.

Graph 15



Source: CBCG calculations

Graph 16

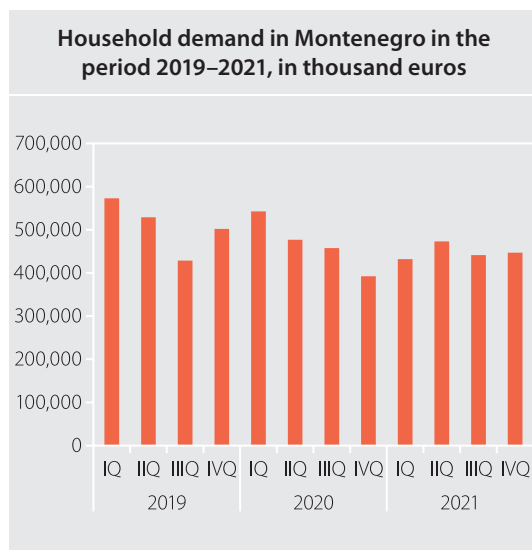


Source: CBCG

¹⁰ The retail sector includes resident natural persons and entrepreneurs.

¹¹ According to MONSTAT data, the number of residents amounted to 620,739 on 01 January 2021.

Graph 17



Source: CBCG calculations

According to preliminary figures, the total retail sector demand in Q4 2021 was higher in relation to the level of demand in the first and third quarter, as well as in relation to the fourth quarter of 2020, while it was lower relative to the second quarter of 2021.

3.1.2. Public sector demand

*Montenegro's public finance*¹²

According to the Ministry of Finance and Social Welfare preliminary data, **public spending** in 2021 amounted to 2,287.46 million euros or 46.57% of the estimated GDP¹³ for 2021. Compared to the plan, public spending was lower by 45.88 million euros or 1.97%, and compared to the previous year by 45.83 million euros or 1.96%. This was mostly due to a slight recovery of the economy affected by the coronavirus pandemic, i.e. reduced financing of costs to help the economy.

The recorded level of public spending was financed by tax revenues (1,378.54 million euros, contributions (554.48 million euros), fees (109.33 million euros), other revenues (70.86 million euros), revenues from donations (49.50 million euros), duties (16.06 million euros) and receipts from loan repayment and funds transferred from the previous year (15.21 million euros).

Current public spending (public spending reduced by capital expenditures) amounted to 2,005.21 million euros or 40.83% of GDP and it fell year-on-year by 0.65%, while capital expenditures amounted to 282.25 million euros or 5.75% of GDP.

According to individual economic classification, current expenditures accounted for the main share in the structure of public expenditures (42.32%), followed by transfers (38.70%), capital expenditures (12.34%), while 6.64% referred to other expenditures.

¹² The structure of public finances of Montenegro consists of the budget of Montenegro with state funds (Pension and Disability Insurance Fund, Health Insurance Fund, Compensation Fund, Employment Agency) and local government budgets (Royal Capital of Cetinje, Capital Podgorica and 22 municipalities).

¹³ The estimated GDP for 2021 is 4,911.62 million euros.

Preliminary public revenues amounted to 2,193.98 million euros or 44.67% of estimated GDP, being 1.76% higher in relation to the plan and 17.41% higher y-o-y. As for the structure of public revenues, tax revenues accounted for the main share of 62.83%, followed by contributions (25.27%), whereas all other revenues accounted for 11.90%.

In 2021, according to Ministry of Finance and Social Welfare preliminary data, **public spending** ran a **cash deficit** in the amount of 93.48 million euros or 1.90% of GDP, or 371.12 million euros less compared to a cash deficit recorded in 2020.

Budget of Montenegro

According to preliminary data of the Ministry of Finance and Social Welfare, total revenues¹⁴ of the Budget of Montenegro amounted to 2,039.43 million euros in 2021.

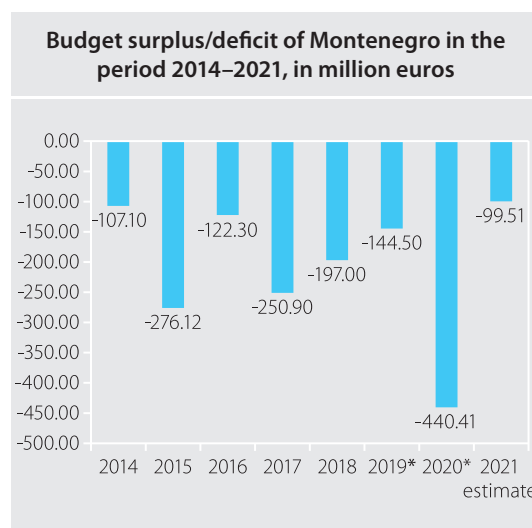
The source revenues amounted to 1,911.40 million euros or 38.92% of the projected GDP. In relation to the plan they were higher by 1.66%, compared to 2020 by 16.65%, which is a result of the growth of economic activity, successful summer tourist season, the implementation of e-fiscalization of tax registers and the like. In the structure of source revenues, tax revenues accounted for the main share of 61.94%, followed by contributions with 29.01%, other revenues with 3.10%, fees with 2.67%, donations with 2.09%, duties with 0.66%, receipts from loan repayment and funds transferred from the previous year with 0.53%.

Tax revenues amounted to 1,183.88 million euros, recording a 7.13% increase relative to the plan and a 22.54% year-on-year increase. The largest increase compared to the previous year was recorded in the collection of value added tax by 162.17 million euros (30.61%). Also, the fees category recorded a significant increase (23.28 million euros or 83.68%) due to collection under the „Economic Citizenship“ program, as well as the category of other revenues (21.70 million euros or 57.68%) due to profit payments realized in 2020 by state companies.

Revenues from contributions amounted to 554.48 million euros being 4.70% lower in relation to the plan, while recording a 4.42% year-on-year increase, which is the result of economic growth, tax debt reprogramming, the subsidies of earnings for employees in industries that were particularly affected by measures to restrict the activities due to the COVID-19 pandemic.

Consolidated budget expenditures amounted to 2,010.91 million euros in 2020, or 40.94% of the estimated GDP. Expenditures decreased by 2.17%

Graph 18



* Note: Draft Law on Annual Financial Statements of the State Budget of Montenegro for 2019 and 2020

Source: Ministry of Finance and Social Welfare

¹⁴ 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.

compared to the plan, and compared to the previous year they were lower by 2.60%. Current budget expenditures amounted to 875.79 million euros or slightly more than planned, and increased by 2.07% in relation to 2020. Social welfare transfers amounted to 567.41 million euros or 11.55% of GDP. Capital expenditures amounted to 204.17 million euros or 4.16% of GDP.

Montenegro's **cash budget deficit** is estimated at 99.51 million euros or 2.03% of GDP, being lower by 326.65 million euros than the cash deficit, and 340.90 million euros than the adjusted deficit from 2020¹⁵. Debt repayment amounted to 437.60 million euros.

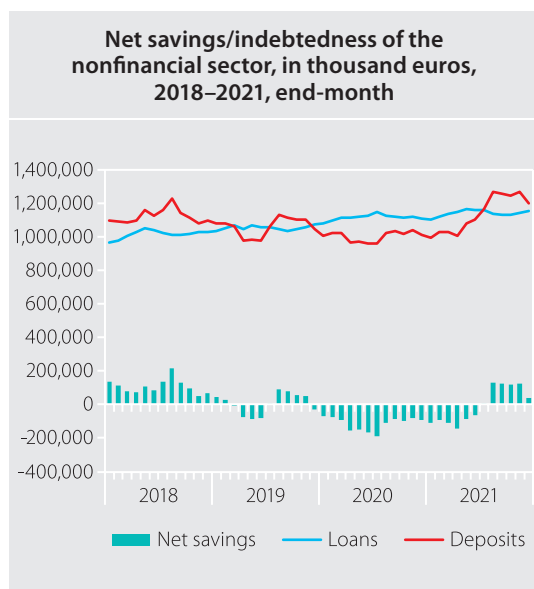
3.1.3. Nonfinancial sector

Lending to the non-financial sector¹⁶ during 2021, with certain fluctuations, recorded a positive trend. On average per month, loans in this sector grew by 0.36% during the observed period, as 0.27% during the comparable period.

Total nonfinancial sector loans amounted to 1,157.46 million euros at end-December 2021, which indicated a growth of 48.25 million euros or 4.35% in relation to 2020 year-end.

Long-term loans accounted for the main share in the structure of loans to the sector 80.72%, which indicates that the loans to corporate sector were mainly used for the increase in the volume of economic activity.

Graph 19



Source: CBCG calculations

Nonfinancial sector deposits amounted to 1,199.77 million euros at end-2021, which represented an intensive growth of 184.99 million euros or 18.23% in relation to end-2020.

The loans to deposits ratio of the nonfinancial sector was 0.96 at end-December 2021 and it decreased compared to the end of the previous year when it was 1.09.

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

At the end of December 2021, deposits of the nonfinancial sector were higher than loans, as a result of which net savings amounted to 42.30 million euros, which is more favourable relative to comparable period when net debt amounted to 94.43 million euros (Graph 19).

¹⁵ Adjusted deficit expressed in the Draft Law on Annual Financial Statements of the State Budget of Montenegro for 2020.

¹⁶ The non-financial sector includes state companies and private companies.

3.1.4. External demand and the current account

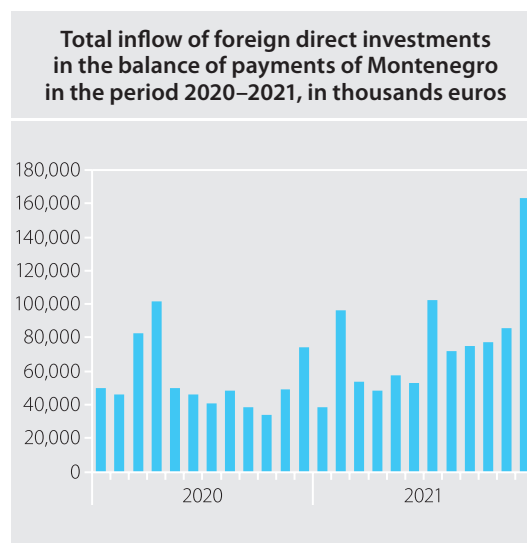
Preliminary data show that the current account deficit amounted to 454.94 million euros in 2021, which is the year-on-year decline of 58.28%. This deficit decline is a result of an increased surplus on the services account, and on primary and secondary income accounts.

In 2021, the goods account saw a deficit increase of 273.15 million euros or 16.64% in relation to a comparative period. Total visible exports stood at 525.75 million euros, increasing by 28.56%, while the value of visible imports at the same time amounted to 2,440.92 million euros, which represents a 19.01% increase y-o-y. The services account recorded a surplus of 955.80 million euros, which is about five times higher than in the same period of the previous year, as a result of an increase in revenues of 917.54 million euros on that ground. The primary income account surplus amounted to 103.59 million euros, which is the year-on-year increase of 55.53%. This trend is the result of larger inflow based on compensations to employees. The secondary income account ran a surplus of 400.84 million euros, which is 29.96% more than in the comparative period of the previous year, owing to an increase of inflows from personal transfers.

Preliminary data suggests that net foreign direct investments (FDIs) inflow in 2021 amounted to 580.89 million euros, which is a year-on-year increase of 23.45%. This FDI trend is a result of much higher inflows arising from equity investments compared to the same period of the previous year. The total FDI inflow amounted to 927.33 million euros and increased by 39.23% (Graph 20). Equity investments amounted to 493.35 million euros and increased by 105.38%, while the inflow in the form of intercompany debt amounted to 322.68 million euros or 17.86% less relative to comparable period. In the structure of equity investments, investments in companies and banks amounted to 215.07 million euros (73.67% increase), while real estate investments reached 278.28 million euros (139.13% increase). The inflow arising from the withdrawal of funds invested abroad amounted to 111.30 million euros. In the structure of the total FDI inflow, the share of inflows arising from intercompany debt amounted to 34.80%, investments in real estate accounted for 30.01%, while 23.19% were invested in companies and banks. Total FDI outflow amounted to 346.44 million euros, which is 77.21% more. The outflow from residents' investments abroad amounted to 120.59 million euros, while the withdrawal of non-residents' funds invested in Montenegro amounted to 225.85 million euros.

In 2021, portfolio investments account recorded net outflow of 548.20 million euros, while the net inflow in the other investments account amounted to 158.58 million euros.

Graph 20

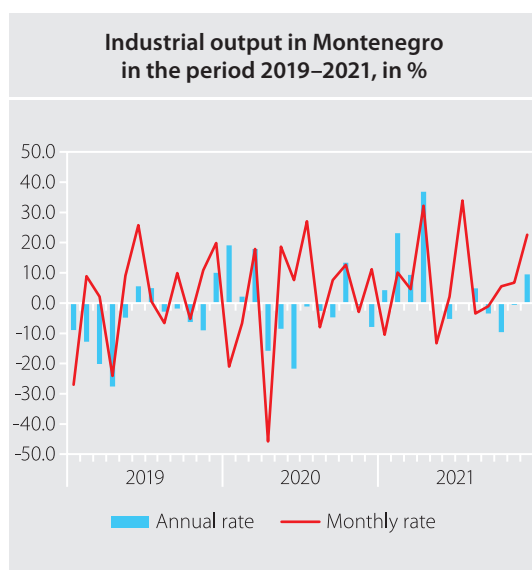


Source: CBCG

3.2. Supply and production

In 2021, industrial output recorded year-on-year increase of 4.9%. Output growth was recorded in *electricity, gas and steam supply* sector 8.5%, and in the *manufacturing industry* 9.1%, while the *mining and quarrying* sector recorded output decline 24.4%. Observing monthly data on industrial output (Graph 21), the highest monthly growth was recorded in July 33.9%, while the highest decrease was recorded in April (32.2%).

Graph 21



Source: MONSTAT

According to preliminary data from MONSTAT, in 2021 Montenegro was visited by 1.67 million **tourists**, which is 276.27% more than in the previous crisis year, and 36.83% less than the number of tourists who visited Montenegro in a record 2019. In the same period, 9.87 million overnights were realized, i.e. 281.58% more, which was mostly affected by the gradual abolition of measures for coronavirus control, implementation of open borders policy and vaccination process.

In 2021, according to MONSTAT data, a total of 155,194 m³ of **forest assortments** were produced in **state forests**¹⁷ which is a decrease of 48.5%¹⁸ compared to 2020.

According to preliminary MONSTAT data, the total value of executed **construction works** amounted to 720.73 million euros in 2021 recording year-on-year drop of 4.80%, whereas measured by the effective working hours, it increased by 0.72%.

According to preliminary data from MONSTAT, the results recorded in the sector of **transport** in 2021 show positive trends in most segments. Some 38.86%¹⁹ more passengers were transported by road than in the previous year, while freight transport increased by 5.88%²⁰. Passenger railway transport rose by 17.34%²¹, while freight railway transport dropped by 18.28%²². Some 150.84% more passengers were transported via airports, and the freight transport at airports increased by 38.28%. Total turnover in ports in 2021 amounted to 1.86 million tonnes and was lower by 9.05% compared to the previous year, where exports accounted for 52.55% and imports for 47.45%. Exports in this period declined by 14.90% while imports decreased by 1.50%.

¹⁷ MONSTAT announces the total production of forest assortments at the end of 2022.

¹⁸ Expressed by weighted index.

¹⁹ Presented as the number of passengers, while presented in passenger-kilometres, it increased by 8.50%.

²⁰ Presented through cargo transport in thousand tonnes, while it increased by 28.14% presented in ton-kilometres.

²¹ Presented as the number of passengers, while presented in passenger-kilometres, it increased by 26.20%.

²² Presented in thousand tonnes, while presented in ton-kilometres, it decreased by 2.48%.

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.

5. INFLATION FORECAST FOR 2022

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 movement 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, and the like).

Montenegro's Fan Chart for 2022 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 could hit the Montenegrin economy over a 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. This will also influence the position of the mean value of inflation distribution.

Central projection of fan chart - ARIMA model 2022

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 Index²³ was developed.

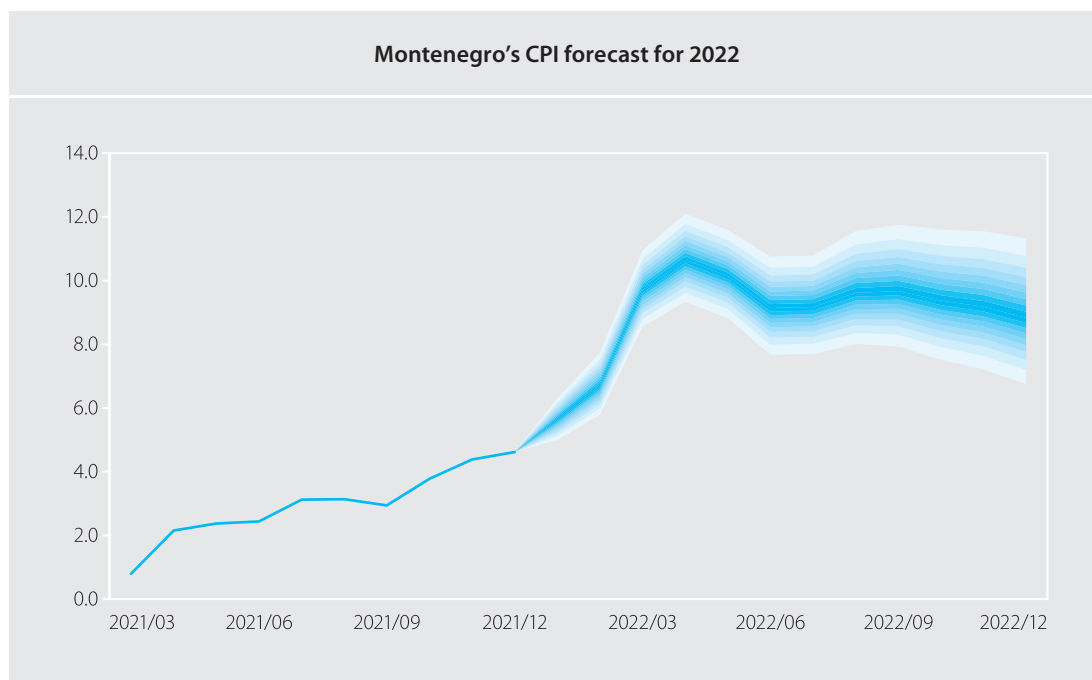
The ARIMA model was used for short term forecasts (12 months), whereby iteration of several ARIMA models was made, which were ranked based on their efficiency and diagnostics quality. The selected ARIMA model, ARIMA (1,1,6)²⁴ has sufficient confidence level for forecasts.

²³ 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 - implementation of the ARIMA model*.

²⁴ 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.

The monthly forecasts value was used as the value of central projection of the CPI graph for 2022. The obtained values represent the distribution mode, i.e. values with the highest frequency in the distribution of this time series.

Graph 22



Source: CBCG, 2022

Mean value of the obtained model is 9. The value of the coefficient of asymmetry varies in the range of 0.5 to 1, and the relative standard deviation is 0.4. Model projection of inflation is located in the upper span of the distribution. This indicates that the corresponding range of uncertainty of future inflation is set towards higher levels. The fan chart explains 90% of inflation distribution probability. The central projection is usually in the deepest shade of the Fan Chart, i.e. in the central 10% of probability²⁵. 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.

The *Fan Chart* of inflation in Montenegro, based on the ARIMA model assessment for 2022 indicates that there is a 90% probability that the CPI inflation, depending on the certain month, will range between 6.7% and 12.1%, with the central projection of 9%. At the same time, inflation for December 2022 is forecasted to range between 6.7% and 11.3%, with the central projection of 8.8%. The *Fan Chart* central projection (the darkest part) represents a 10% probability span (Graph 22).

²⁵ 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 risks related to the projected inflation rate shown on the fan chart are asymmetric upwards. Risks in terms of achieving the projected inflation rate relate to the oil and food prices trend. The situation in Ukraine could again increase supply-side constraints and further encourage new inflationary trends. Prolonged high energy costs coupled with a loss of confidence could reduce demand more than expected and limit consumption and investments. The risks associated with the coronavirus pandemic have been reduced.

The projection was based on the following assumptions:

1. High import inflation - Due to the sharp recovery of global demand on the one hand, and the presence of global bottlenecks in supply chains on the other hand, strong inflationary pressures are present in the international environment. In most countries, inflation is largely the result of rising food and energy prices. The situation in Ukraine has caused additional inflationary risks, mostly in the prices of energy, raw materials and food, the growth of which encourages the growth of prices in many other sectors.
2. According to the ECB's²⁶ March forecast, in the baseline scenario, average inflation in the euro area will be 5.1% this year. The growth of inflation in 2022, for the most part, will be stimulated by the growth of energy prices, primarily higher gas and electricity prices. According to the ECB's baseline scenario, total inflation will remain very high in the first months, only to have a declining trend later. Due to the increased uncertainty associated with the situation in Ukraine on the euro area economy, two other scenarios have been developed. According to the unfavourable scenario, the average inflation will be 5.9%, while in the pessimistic scenario it would be 7.1%.
3. Food prices will remain high throughout 2022, due to high raw material prices, but also a sharp rise in gas and electricity prices, which account for about 90% of the total energy costs of the food industry and are an important factor in fertilizer production. The projection assumes a rise in prices, expressed by the FAO²⁷ with a 15% food price index.
4. Oil prices have been on an upward trend since April 2020. After a sharp recovery in global demand and consequent supply-side disruptions in September and October 2021, oil prices are reaching their highest levels since 2014. The price of Brent is expected to rise from about 71.1 USD/barrel, which was the average in 2021, to 92.6 USD/barrel in 2022. However, the contribution of fuel should slowly weaken in 2022, due to the base effects, which were especially expressed in the second half of 2021.
5. The situation in Ukraine and economic sanctions against Russia are causing a global disturbance in the market of energy, cereals, sunflower oil, fertilizers, important metals (aluminium, nickel, rare metals for the production of sophisticated products), as well as certain components in IT industry. High participation of Russia and Ukraine in the energy and food markets, the disruption in international trade and the "melting" of the trust of international partners, could further cause prices to rise.

Finally, the situation in Ukraine could trigger new inflationary trends that take time to materialize and which this projection does not currently include. Changes in some of these assumptions would require an adjustment to the forecast.

²⁶ Source: ECB (2022): ECB staff macroeconomic projections for the euro area, March 2022.

²⁷ Food and Agriculture Organization of the United Nations.

5.2. Expert assessment

For 2022, we can state that it carries an extremely high degree of uncertainty, probably the highest since we publish Price Stability Report. The key uncertainties relate to the further course of the pandemic (although all indicators show a declining risk), the duration and impact of the situation in Ukraine and related sanctions, price trends in products such as energy generating products, food, and the like, and recovery or further disruptions in global supply chains.

Inflation has become a global phenomenon in 2022 and all indications are that in 2022 we will have the highest inflation rate since gaining independence, but it is almost entirely imported inflation. Small, highly open and euroized economies, such as Montenegro's, „take over“ prices from the international market. First of all, global inflation is a consequence of the monetary abundance created by the leading central banks in the fight against the global financial crisis and the COVID-19 pandemic. It is also a consequence of the situation in Ukraine, which affected the price of a whole range of products, and above all food and energy generating products.

The expectations of the surveyed banks and corporate sector clearly indicate a significant increase in inflation. The expected growth of aggregate demand in 2022 will certainly have an impact on inflation. The growth of prices will not be able to compensate for the solid growth of GDP that is forecasted in 2022.

Containing inflation could be affected by the ECB's decision to raise reference interest rates. For now, it is uncertain whether this will happen during 2022 or next year. For the time being, the ECB is assessing the benefits of such a decision, because although raising the reference interest rate curbs inflation, it slows economic growth and makes debt financing more expensive.

The Fan Chart of inflation indicates that there is a 90% probability that the CPI inflation will range between 6.7% and 12.1%, depending on the month with the central projection of 9%. It is expected that it will decline slightly at the end of the year, so the model projection for December 2022, projects inflation in the range of 6.7% to 11.3%, with a central projection of 8.8%. Also, the model projection clearly indicates the expressed risks towards a higher level of inflation. Our expert projection forecasts somewhat higher inflation rate for the year-end, ranging from 9% to 13%. The discrepancy between the expert and model projections is the result of high uncertainty and therefore both will be updated throughout the year.

Table 3

Inflation rate estimation for 2022		
Optimistic assessment	Central projection	Pessimistic assessment
9%	11%	13%

This inflation assessment is based on the same assumptions as the model estimation and the change of some of the assumptions would require the forecast adjustment.

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