
MONETARY POLICY REPORT

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* Presented by the technical staff
to the Board of Directors for its
meeting on 30 July 2021.

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Monetary Policy in Colombia

Banco de la República (the Central Bank of Colombia) is required by the Constitution to maintain the purchasing power of Colombia's currency in coordination with general economic policy¹. In order to fulfill this mandate, the *Banco de la República's* Board of Directors (hereafter BDBR) has adopted a flexible inflation-targeting scheme, by which monetary policy actions (MP) seek to lead inflation to a specific target and achieve maximum levels of sustainable output and employment.

The flexibility of this scheme allows the BDBR to maintain an adequate balance between reaching its inflation target and smoothing output and employment fluctuations around their sustainable growth paths. The BDBR has set a 3% inflation target based on annual change in the consumer price index (CPI). In the short term, inflation may be affected by factors outside of monetary policy control, such as changes in food prices due to climate-related phenomena. To factor in this reality, the BDBR has also set a ± 1 percentage point range outside its inflation target (i.e., 3.0 ± 1 pp). This range does not represent a monetary policy target, but rather reflects the fact that inflation can fluctuate around the target and will not always be equal to 3%.

The main the BDBR uses to control is the policy interest rate (overnight repo rate, or benchmark interest rate). Given that monetary policy actions take time to have their full effect on the economy and inflation², the BDBR assesses the inflation forecast and inflation expectations vis-à-vis the inflation target, as well as the current situation and outlook of the economy, in order to determine their value.

The BDBR meets once a month, producing monetary policy decisions in eight of its meetings (January, March, April, June, July, September, October, and December). In principle, no such decisions are made in the BDBR's four remaining meetings (February, May, August, and November)³. At the end of the meetings in which monetary policy decisions are produced, a press release is published and a press conference held by the Governor of the Central Bank and the Minister of Finance. The minutes of the meeting describing the positions that led the BDBR to its decision are published on the following business day. Additionally, the Monetary Policy Report (MPR)⁴, produced by the Central Bank's technical staff, is published in January, April, July, and October, together with the minutes. On the Wednesday of the week following the Board meeting, the Governor clarifies concerns about the minutes, and the Bank's Deputy Technical Governor presents the MPR. This dissemination scheme⁵ seeks to deliver relevant and up-to-date information to contribute to better decision-making by the agents of the economy.

1 Political Constitution of Colombia (1991), Article 373 and Decision C-481/99 of the Constitutional Court.

2 For further details, see M. Jalil and L. Mahadeva (2010). "Transmission Mechanisms of Monetary Policy in Colombia", *Universidad Externado de Colombia, Faculty of Finance, Government, and International Relations*, ed. 1, vol. 1, no. 69, October.

3 A Board Member may request an extraordinary meeting at any time to make MP decisions.

4 Formerly known as the Inflation Report.

5 The current communication scheme was approved by the BDBR in its August 2019 meeting.

Content

01	Summary	/9
	1.1 Macroeconomic Summary	/9
	1.2 Monetary Policy Decision	/13

02	Macroeconomic Forecasts and Risk Analysis	/14
	2.1 International Outlook	/14
	2.2 Macroeconomic Projections	/22

03	Current Economic Situation	/32
	3.1 Inflation and price behavior	/32
	3.2 Growth and domestic demand	/36
	3.3 Labor Market	/38
	3.4 Financial and money market	/40

Box 1: Characterizing and Communicating the Balance of Risks of Macroeconomic Forecasts: A Predictive Densities Approach for Colombia **/42**

Box 2: Analysis of Recent Disturbances in Global Logistics Chains and their Impact on Colombian Import Markets **/47**

Box 3: The Upward Dynamics of Food Prices **/52**

Annex 1: Macroeconomic Projections from Local and Foreign Analysts **/56**

Annex 2: Main Macroeconomic Forecast Variables **/57**

Graphs

Graph 1.1 Gross domestic product, 4-quarter accumulation /10

Graph 1.2 Consumer price index /10

Graph 1.3 CPI excluding foods and regulated items /11

Graph 1.4 Output gap /11

Graph 1.5 Benchmark interest rate, interbank rate and IBR /13

Graph 2.1 Industrial production in major economies and global trade indicators /14

Graph 2.2 Assumed quarterly GDP among trade partners (four-quarter accumulation) /15

Graph 2.3 COVID-19 vaccinated population /16

Graph 2.4 Quarantine and mobility indicators /16

Graph 2.5 Economic activity and selected regional export commodities prices /17

Graph 2.6 International food prices, global transportation costs, and Colombia's terms of trade /18

Graph 2.7 Assumed quarterly oil price /18

Graph 2.8 Headline inflation in the United States and the euro zone /19

Graph 2.9 Assumed U.S. Federal Reserve Quarterly Interest Rate /20

Graph 2.10 U.S. treasury bonds /20

Graph 2.11 Financial volatility and foreign investment flows /21

Graph 2.12 Colombia's assumed quarterly risk premium (CDS) /21

Graph 2.13 Nominal exchange rate behavior and selected Latin American risk premiums /22

Graph 2.14 CPI /22

Graph 2.15 Quarterly RER inflationary gap /23

Graph 2.16 CPI for foods /23

Graph 2.17 CPI excluding food and regulated items /24

Graph 2.18 CPI for regulated items /24

Graph 2.19 Bank and stockbroker inflation forecast /24

Graph 2.20 Quarterly GDP /25

Graph 2.21 Total ISE and by sector /25

Graph 2.22 Total monthly energy demand, national interconnected system /25

Graph 2.23 Total goods exports (FOB) /26

Graph 2.24 Total goods imports (CIF) /26

Graph 2.25 GDP, four-quarter accumulation /27

Graph 2.26 GDP, four-quarter accumulation /27

Graph 2.27 Output gap /28

Graph 2.28 Annual current account /29

Graph 2.29 Average observed quarterly interest rate and rate expected by analysts /30

Graph 3.1 CPI and core inflation indicators /32

Graph 3.2 CPI for goods and services, excluding food and regulated items /33

Graph 3.3 CPI for services, excluding food and regulated items and their components /33

Graph 3.4 CPI for regulated items and its components /34

Graph 3.5 CPI for foods by group and components /35

Graph 3.6 PPI by origin /35

Graph 3.7 Quarterly gross domestic product /36

Graph 3.8 Gross domestic product and quarterly domestic demand /36

Graph 3.9 Domestic demand and its components relative to Q4 2019 /36

Graph Quarterly gross fixed capital formation /37

Graph 3.11 Exports, imports and trade balance /37

Graph 3.12 Sector-level value added in Q1 2021 relative to Q4 2019 /37

Graph 3.13 Employment performance /38

Graph 3.14 Jobs by type of employment /38

Graph 3.15 Unemployment rate by location /39

Graph 3.16 Beveridge curve for seven largest cities /39

Graph 3.17 Benchmark rate (MR), interbank rate (IR) and benchmark banking indicator (IBR) /40

Graph 3.18 Sight deposits /40

Graph 3.19 Term deposits /40

Graph 3.20 Gross national currency portfolio /41

Graph 3.21 Real commercial credit interest rates /41

Graph 3.22 Real household credit interest rates /41

Charts

Chart 2.1 Economic growth among main trade partners /15

01 / Summary

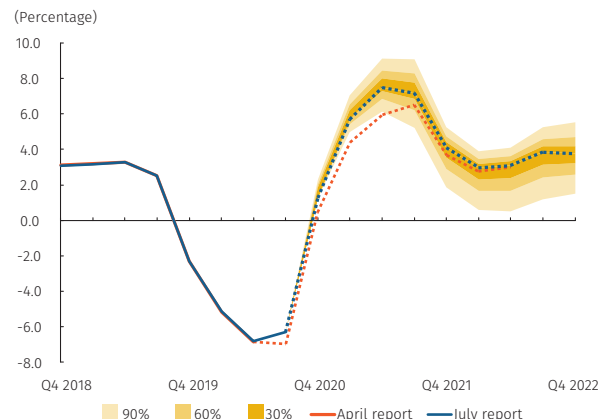
1.1 Macroeconomic summary

The Colombian economy sustained numerous shocks in the second quarter, primarily related to costs and supply. The majority of these shocks were unanticipated or proved more persistent than expected, interrupting the recovery in economic activity observed at the beginning of the year and pushing overall inflation above the target. Core inflation (excluding food and regulated items) increased but remained low, in line with the technical staff's expectations. A third wave of the pandemic, which became more severe and prolonged than the previous outbreak, began in early April. This had both a high cost in terms of human life and a negative impact on Colombia's economic recovery. Between May and mid-June roadblocks and other disruptions to public order had a significant negative effect on economic activity and inflation. The combination and magnitude of these two shocks likely led to a decline in gross domestic product (GDP) compared to the first quarter. Roadblocks also led to a significant increase in food prices. The accumulated effects of global disruptions to certain value chains and increased international freight transportation prices, which since the end of 2020 have restricted supply and increased costs, also affected Colombia's economy. The factors described above, which primarily affected the consumer price index (CPI) for goods and foods, explain to a significant degree the technical staff's forecast errors and the increase in overall inflation above the 3% target. By contrast, increases in core inflation and in prices for regulated items were in line with the technical staff's expectations, and can be explained largely by the elimination of various price relief measures put in place last year. An increase in perceived sovereign risk and the upward pressures that this implies on international financing costs and the exchange rate were further considerations.

Despite significant negative shocks, economic growth in the first half of the year (9.1%) is now expected to be significantly higher than projected in the April report (7.1%), a sign of a more dynamic economy that could recover more quickly than previously forecast. Diverse economic activity figures have indicated higher-than-expected growth since the end of 2020. This suggests that the negative effects on output from recurring waves of COVID-19 have grown weaker and less long-lasting with subsequent outbreaks. Nevertheless, the third wave of the coronavirus, and to an even greater degree the previously mentioned roadblocks and disruptions to public order, likely led to a decline in GDP in the second quarter compared to the first. Despite this, data from the monthly economic tracking indicator (ISE) for April and May surpassed expectations, and new sector-level measures of economic activity suggest that the negative impact of the pandemic on output continues to moderate, amid reduced restrictions on mobility and improvements in the pace of vaccination programs. Freight transportation registers (June) and unregulated energy demand (July), among other indicators, suggest a significant recovery following the roadblocks in May. Given the above, annual GDP growth in the second quarter is expected to have been around 17.3% (previously 15.8%), explained in large part by a low basis of comparison.

The technical staff revised its growth projection for 2021 upward from 6% to 7.5%. This forecast, which comes with an unusually high degree of uncertainty, assumes no additional disruptions to public order and that any new waves

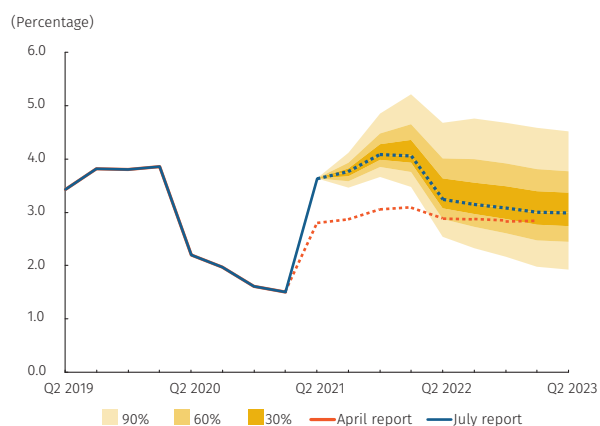
Graph 1.1
Gross domestic product, 4-quarter accumulation^{a/, b/, c/}
(annual change)



a/ Seasonally adjusted and corrected for calendar effects
 b/ This graph presents the probability distribution of the forecast and its most likely path on an 8-quarter time horizon. The density characterizes the prospective balance of risks with areas of 30%, 60% and 90% probability surrounding the central forecast (mode), through a combination of the densities of the Patacon and 4GM monetary policy models.
 c/ The probability distribution corresponds to the forecast exercise in the July report.
 Source: DANE; calculations and projections by Banco de la República.

of COVID-19 will not have significant additional negative effects on economic activity. Recovery in international demand, price levels for some of Colombia’s export commodities, and remittances from workers abroad have all performed better than projected in the previous report. This dynamic is expected to continue to drive recovery in the national income over the rest of the year. Continued ample international liquidity, an acceleration in vaccination programs, and low interest rates can also be expected to favor economic activity. Improved performance in the second quarter, which led to an upward growth revision for all components of spending, is expected to continue, with the economy returning to 2019 production levels at the end of 2021, earlier than estimated in the April report. This forecast continues to account for the short-term effects on aggregate demand of a tax reform package along the lines of what is currently being proposed by the national government. Given the above, the central forecast scenario in this report projects growth in 2021 of 7.5% and in 2022 of 3.1% (Graph 1.1). In this scenario, economic activity would nonetheless remain below potential. The noted improvement in these projections comes with a high degree of uncertainty.

Graph 1.2
Consumer price index^{a/, b/}
(annual change, end-of-period)

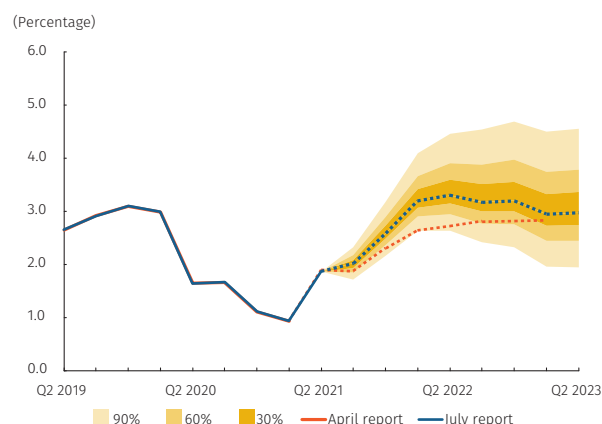


a/ This graph presents the probability distribution of the forecast and its most likely path on an 8-quarter time horizon. The density characterizes the prospective balance of risks with areas of 30%, 60% and 90% probability surrounding the central forecast (mode), through a combination of the densities of the Patacon and 4GM monetary policy models.
 b/ The probability distribution corresponds to the forecast exercise in the July report.
 Source: DANE; calculations and projections by Banco de la República.

Annual inflation increased more than expected in June (3.63%) as a result of changes in food prices, while growth in core inflation (1.87%) was similar to projections. The increased CPI for foods would be expected to persist for the remainder of the year, contributing to inflation remaining above the target. Overall and core inflation would be expected to return to close to 3% at the end of 2022, amid a deceleration in growth in the CPI for foods and reduced excess productive capacity. Recent increases in international freight and agricultural goods prices, as well as the livestock cycle and increased meat exports, have exerted upward pressure on food prices, primarily in processed foods (see Box 2¹). In addition to these persistent factors affecting prices, national roadblocks and related disruptions to public order in several cities throughout May and parts of June were reflected in a significant restriction of supply and an unexpected annual increase in the CPI for foods (8.52%). Inflation in regulated items (5.93%) also accelerated, due to a low basis of comparison on gasoline prices and the partial lapse of relief measures on utility rates that were put in place in 2020. Inflation excluding food and regulated items recovered in line with projections to 1.87%, due to the reinstatement of indirect taxes on certain goods and services that had been temporarily eliminated in 2020, and to upward pressures exerted by prices for foods away from home (FAH), among other factors. The increase in perishable foods prices is expected to be reversed over the course of the year, assuming an absence of additional, long-lasting

1 This supplement will be made available on Wednesday, August 4, 2021.

Graph 1.3
CPI excluding foods and regulated items^{a/, b/}
(annual change, end-of-period)



a/ This graph presents the probability distribution of the forecast and its most likely path on an 8-quarter time horizon. The density characterizes the prospective balance of risks with areas of 30%, 60% and 90% probability surrounding the central forecast (mode), through a combination of the densities of the Patacon and 4GM monetary policy models.

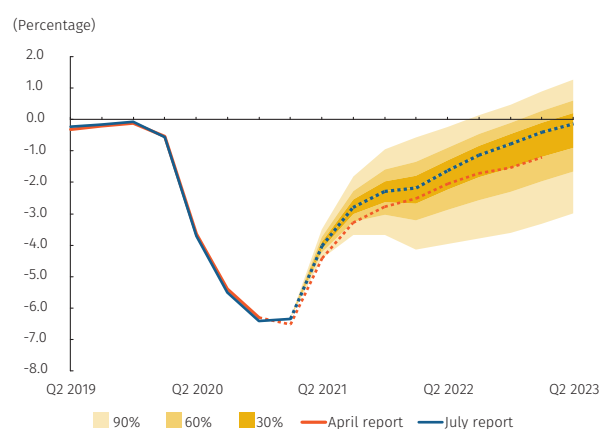
b/ The probability distribution corresponds to the forecast exercise in the July report.

Source: DANE; calculations and projections by Banco de la República.

blockades of national roads. Increased processed food prices would be expected to persist and contribute to keeping inflation above the target at the end of the year. Inflation excluding foods and regulated items is expected to continue to exhibit an upward trend, as excesses in productive capacity continue to close, and register a temporary increase in March 2022 largely due to the reinstatement of the FAH consumption tax. Given the above, overall year-end inflation is expected to be 4.1% in 2021 and 3.1% in 2022 (Graph 1.2), and core inflation is expected to be 2.6% in 2021 and 3.2% in 2022 (Graph 1.3).

The technical staff has interpreted the overall behavior of prices in the CPI excluding food and regulated items, alongside continued unexpected increases in economic activity, as signs of more ample excess productive capacity in the economy. This would be expected to persist over the next two years, with the output gap closing at the end of that period. Increased economic growth suggests a less negative output gap than estimated last quarter. Nevertheless, the behavior of core inflation, especially in services, suggests that potential GDP has recovered to an unanticipated degree and that ample excess capacity continues, with a persistent effect on aggregate demand. Labor market observation supports this interpretation, with persistent high levels of unemployment and stagnation in the recovery of jobs lost as a result of the pandemic. Increased inflation can be explained largely by shocks related to costs and supply, and by the dissolution of some price relief measures put in place in 2020. The growth and inflation forecasts described above would be consistent with a less negative output gap closing more quickly across the forecast horizon compared to the projection from the April report. Nevertheless, uncertainty surrounding excess capacity is very high and constitutes a risk to the forecast (Graphic 1.4).

Graph 1.4
Output gap^{a/, b/, c/}
(4-quarter accumulation)



a/ The historical output gap estimate is calculated as the difference between observed and potential (trend) GDP based on the 4GM model; the forecast gap is calculated as the difference between the technical staff's GDP estimate and potential (trend) GDP based on the 4GM model.

b/ This graph presents the probability distribution of the forecast and its most likely path on an 8-quarter time horizon. The density characterizes the prospective balance of risks with areas of 30%, 60% and 90% probability surrounding the central forecast (mode), through a combination of the densities of the Patacon and 4GM monetary policy models.

c/ The probability distribution corresponds to the forecast exercise in the July report.

Source: DANE; calculations and projections by Banco de la República.

The fiscal accounts outlook deteriorated, Standard and Poor's Global Ratings (S&P) and Fitch Ratings (Fitch) downgraded Colombia's credit rating, roadblocks and disruptions to public order affected output, and the country faced a third wave of COVID-19 that was more severe and prolonged than the previous outbreak. These factors were reflected in an increased risk premium and depreciation of the peso compared to the dollar. This occurred in a favorable context in regard to foreign income, as international prices for oil, coffee, and other Colombian export goods increased. This contributed to a recovery in the terms of trade and in the national income and mitigated upward pressures on the risk premium and the exchange rate. Expected oil prices in this report are USD 68 per barrel (previously USD 61/bl) for 2021 and USD 66/bl (previously USD 60/bl) for 2022. This increased trajectory shows convergence to oil prices below recently observed levels, as a result of

increased global supply that would more than offset increased demand. As a result, the recent price increase is expected to be temporary.

International financial conditions are expected to become somewhat less favorable in the current macroeconomic context, despite the improvement in foreign income due to increased demand and some higher prices for oil and other export products. Growth in foreign demand was better than expected in the previous report, with projections for 2021 and 2022 increasing from 5.2% to 6.0% and from 3.4% to 3.5%, respectively. For the year to date, figures for economic activity suggest more dynamic foreign demand than previously expected. Output recovery has been faster in the United States and China than in Latin America, as economic reactivation in the latter has been limited by outbreaks of COVID-19, restricted vaccine supplies, and a lack of fiscal space to confront the pandemic, among other factors. The positive dynamic in foreign goods trade has come amid a deterioration in value chains and a significant increase in commodities and freight prices (see Box 3). Inflation in the United States has been unexpectedly high, with observed and expected values remaining above the target, while growth forecasts have been revised upward. As a result, the beginning of a normalization in monetary policy in the U.S. could come earlier than previously projected. This report estimates that the U.S. Federal Reserve's first rate increase will come at the end of 2022 (before the first quarter of 2023). Colombia's risk premium is projected to be higher than forecast in the April report, and is expected to remain on a growth trajectory given the country's accumulation of public and external debt. This would be expected to contribute to an increase in international financing costs on the forecast horizon.

An expansionary monetary policy stance continues to support favorable domestic financing conditions. The interbank rate and the reference banking indicator (IBR) remained consistent with the policy interest rate in the second quarter. Average deposit and credit rates continued at historical lows, despite some observed increases at the end of June. The peso-denominated credit portfolio continued to decelerate in annual terms and, between March and June, growth in the household credit portfolio accelerated, primarily related to housing purchases. Disbursements and recovery in the commercial credit portfolio were significant, returning to high levels observed one year ago, when businesses required significant levels of liquidity to confront the economic effects of the pandemic. Meanwhile, credit risk increased, liability provisions remained high, and some banks withdrew from the balance of their past-due portfolios. Nevertheless, financial system earnings have recovered, and liquidity and solvency levels remain above regulatory minimums.

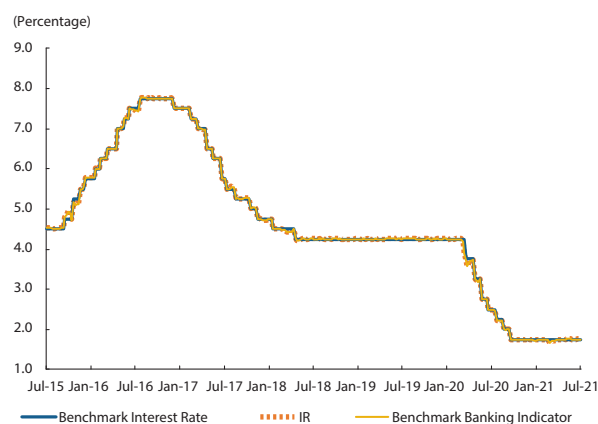
Beginning with this report, a new methodology will be used to quantify and communicate the uncertainty surrounding central macroeconomic forecasts in the context of an active monetary policy. The new methodology, known as predictive densities (PD), will be explained in detail in Box 1. PD methodology provides probability distributions of the main forecast variables (e.g. growth, inflation) based on the balance of risks of key factors that, in the technical staff's judgment, could affect the economy on the forecast horizon. These distributions reflect the result of possible shocks (to external variables, prices, and economic activity) that the economy could sustain and the transmission effects considering Colombia's economic structure and anticipated monetary policy responses. As a result, PD allows

for the quantification of uncertainty around the central forecast and of its bias.

In this report, the PD exercise shows a downward bias for both economic growth and output gap, while the opposite is shown for headline inflation (Graphs 1.1, 1.2 and 1.3). The balance of risks indicates more complex monetary policy dilemmas than previously expected.

The most significant anticipated risk regarding external financing would be a return to less favorable conditions in a scenario in which the U.S. Federal Reserve promptly raises interest rates. Such a decision could come as the result of current levels of economic growth and higher-than-expected employment generating significant inflationary pressures on that country. Uncertainty regarding Colombia's fiscal outlook and the subsequent effects on the risk premium and external financing costs represent additional considerations. The risks to economic growth are mainly downside risks, relating especially to the effects of political and fiscal uncertainty on consumption and investment decisions and the potential for additional waves of COVID-19 and the subsequent effects on economic activity. Inflation risks take into account the potential for more persistent shocks associated with disruption to value chains, higher international commodity and food prices, and a slower-than-expected recovery in the national agricultural chain as a result of the recent roadblocks. These would represent upward risks primarily to food and goods prices. The main downside risk to the inflation forecast would come from an increase in rental housing prices below the central scenario projection. This would be explained by weak demand and increased supply in 2022 as a result of high observed housing sales this year. All told, the PD exercise reveals a downward bias for economic growth forecast, with 90% probability of growth between 6.1% and 9.1% for 2021 and between 0.5% and 4.1% in 2022. The output gap also exhibits a downward bias to the central forecast scenario, primarily in 2022. On the contrary, an upward bias is expected for headline inflation forecast, with 90% probability ranging between 3.7% and 4.9% in 2021 and between 2.2% and 4.7% in 2022.

Graph 1.5
Benchmark interest rate, interbank rate and IBR^{a/}
(weekly data)



a/IR: interbank rate.

IBR: Benchmark Banking Indicator.

Source: Financial Superintendent of Colombia and Banco de la República.

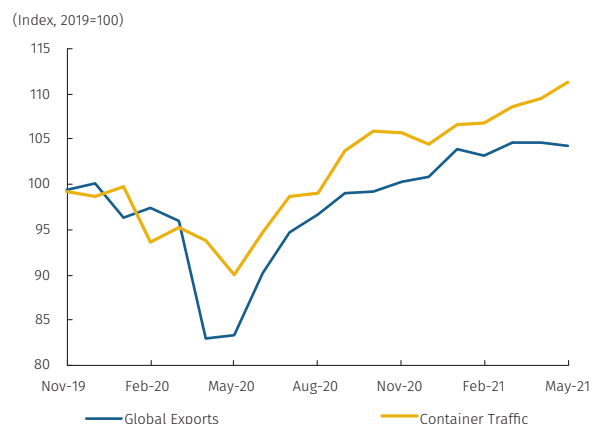
1.2 Monetary policy decision

In its meetings in June and July the BDBR left the benchmark interest rate unchanged at 1.75% (Graph 1.5).

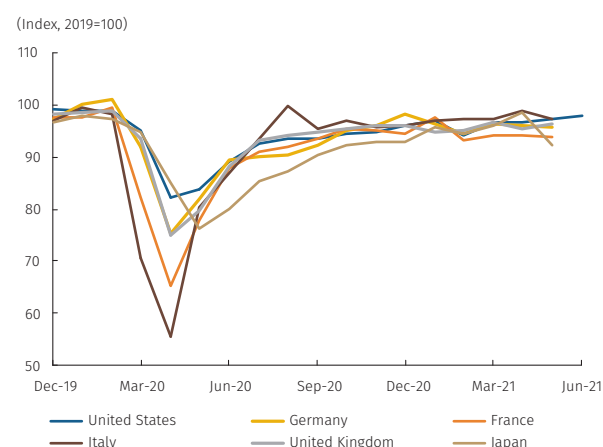
02/ Macroeconomic Forecasts and Risk Analysis

Graph 2.1
Industrial production in major economies and global trade indicators

A: Real global exports and container traffic



B: Industrial production in selected major economies



Sources: Institute of Shipping Economics and Logistics, CPB Netherlands Bureau for Economic Policy Analysis and Bloomberg

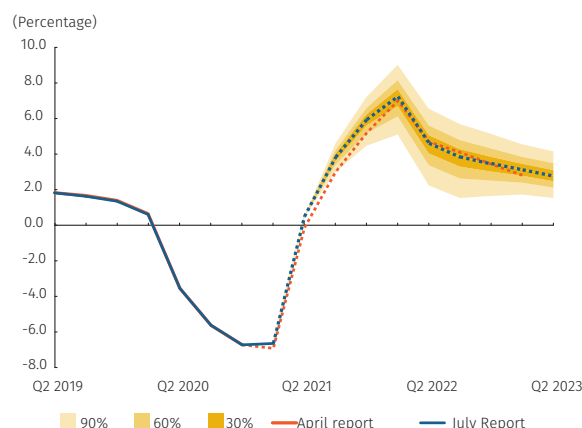
2.1 International outlook

Successful vaccination campaigns and economic recovery in advanced economies have improved the global economic outlook. However, new strains of COVID-19 continue to represent a significant risk to the international economy. The growth forecast for Colombia's major trade partners has been revised upward for 2021 and 2022, albeit with a high degree of uncertainty and mixed results among those countries both in terms of economic recovery and in addressing the effects of COVID-19. External inflation is likely to be higher over a portion of the forecast horizon than was expected in the April report, due to recovery in the global economy and the trade of goods, together with challenges to global supply chains and production bottlenecks in several sectors (Graph 2.1). This has contributed to increased international commodity, foods, and goods prices. Projected oil prices have also been revised upward, amid a sustained increase in demand, supply restrictions from the Organization of Petroleum Exporting Countries and its allies (OPEC+), and a moderate response in terms of extraction from other producing countries. As for international financial conditions, the United States Federal Reserve (Fed) interest rate is currently expected to increase at the end of 2022, rising to between 0.25% and 0.5% at the end of the eight-quarter forecast horizon. Colombia's risk premium is also expected to be higher than forecast in the April report and the expectation that it will stay on a growth trajectory remains, given the country's accumulation of public and external debt. Overall uncertainty remains high regarding international conditions. Increased volatility or the reversal of economic recovery cannot be discounted, as the coronavirus pandemic has not yet been overcome, as made clear by recent increases in global case counts with the propagation of new strains of the virus. International financial conditions could also become less favorable should a normalization of monetary policy in the United States occur more quickly than previously expected, or if the perceived risk of Colombia's economy increases further.

2.1.1 Foreign demand

Projected growth among Colombia's trade partners has been revised upward from the April report (Graph 2.2). First-quarter growth in foreign demand surpassed expectations from the April report despite an intensification

Graph 2.2
Assumed quarterly GDP among trade partners
(four-quarter accumulation) ^{a/ b/}
(annual change; projections according to full-year
assumption)



a/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode).

b/ The probability distribution corresponds to the forecast exercise in the July report.

Sources: Bloomberg, statistics offices and central banks; calculations and projections by Banco de la República

Chart 2.1
Economic growth among main trade partners ^{a/}

Trade partners	2019 (pre)	2020 (pre)	2021 (proj)	2022 (proj)
United States	2.2	-3.5	6.7	4.0
Euro zone	1.3	-6.8	4.7	4.3
China	6.0	2.3	8.5	5.5
Ecuador	0.0	-7.8	3.1	2.4
Brazil	1.4	-4.4	4.9	2.3
Peru	2.2	-11.1	10.5	4.3
Mexico	-0.1	-8.5	6.0	3.1
Chile	1.1	-6.0	7.8	3.1
All trade partners ^{a/}	1.4	-6.7	6.0	3.5

(pre): preliminary, (proj): projected

a/ Projection calculations based on contribution of non-traditional trade
Sources: Bloomberg, statistics offices and central banks (observed data); Banco de la República (projections and calculations)

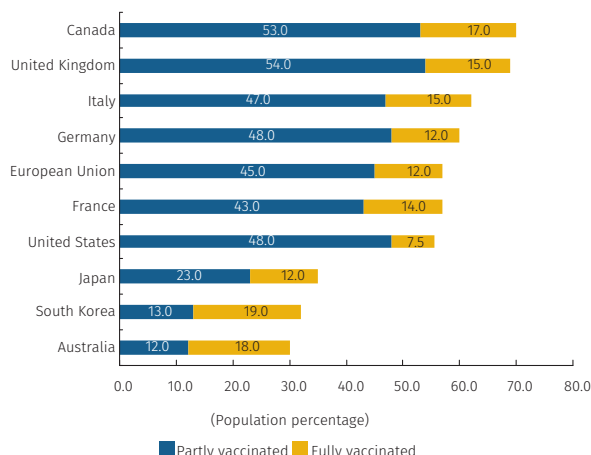
of COVID-19 among some of Colombia's main trade partners. This appears to be reflected in reduced economic impacts from the pandemic, due in part to economic agents' ability to adapt to subsequent waves of the virus and more targeted health measures. Economic recovery in the second quarter is likely to have continued, notably in the United States and the euro zone given the degree of economic opening in those countries. The recovery of average GDP among Colombia's trade partners is expected to consolidate in the second half of the year, as vaccination programs progress and population mobility rises. Expansive monetary and fiscal policy in advanced economies and a favorable international context for countries in the region are further considerations. All told, average growth among Colombia's trade partners is now projected to be 6.0%, compared to 5.2% in the previous report (Chart 2.1). For 2022 this figure is now 3.5%, slightly higher than forecast in April (3.4%), in part thanks to a more rapid dissipation of supply and demand shocks associated with COVID-19. This would represent a deceleration in annual terms after the recovery registered this year, and also accounts for mixed economic results among trade partners and between economic sectors due to differences in the effects and evolution of the pandemic. Uncertainty continues to be high, and short-term risks are biased downward largely due to the propagation of new variants of the virus and the concern that these could lead to setbacks or delays in economic reopening. Longer-term downward risks include larger and longer lasting disruptions to global supply chains (see Box 2), political uncertainty in parts of the region, and international trade tensions. Upward risks include the possibility that the pandemic and related restrictions have a less significant impact on economic activity than expected, that the pace of vaccination in the region accelerates quickly, or that bottlenecks in global industrial production are resolved faster than previously anticipated.

The United States is expected to lead the recovery of advanced economies in 2021 and 2022. First-quarter GDP results were surprisingly positive in the U.S., where growth surpassed expectations, and in the euro zone, where quarterly growth fell less than anticipated. COVID-19 case counts in advanced economies fell in the second quarter alongside significant progress in vaccination campaigns (Graph 2.3, Panel A), contributing to economic reopening and increasing population mobility (Graph 2.4). As a result, GDP in the United States is expected to have surpassed pre-pandemic levels in that period², and euro zone growth appears to have improved compared to the

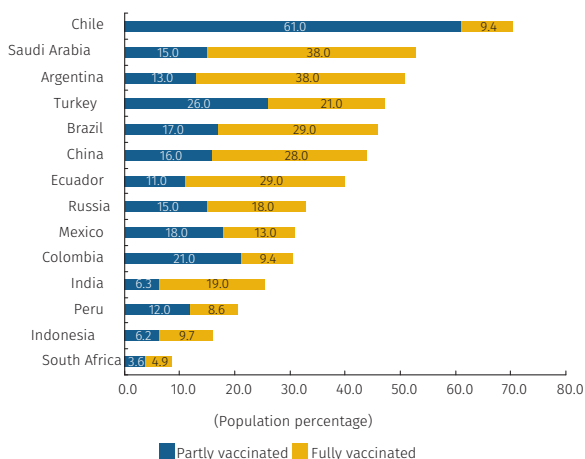
² On publication of this report, preliminary GDP figures from the U.S. showed annualized quarterly growth of 6.5% in the second quarter, and growth of 12.2% year-over-year.

Graph 2.3
COVID-19 vaccinated population

A: Advanced economies (G20)



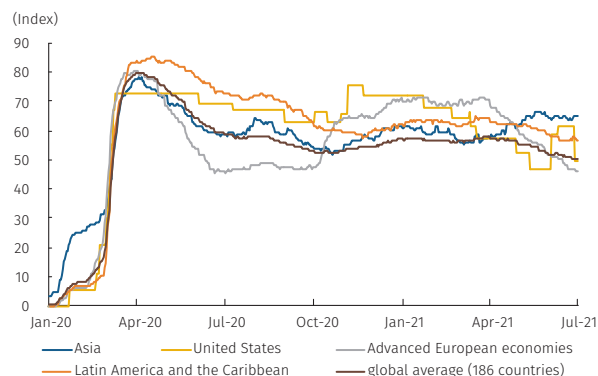
B: Emerging economies (G20) and Latin America



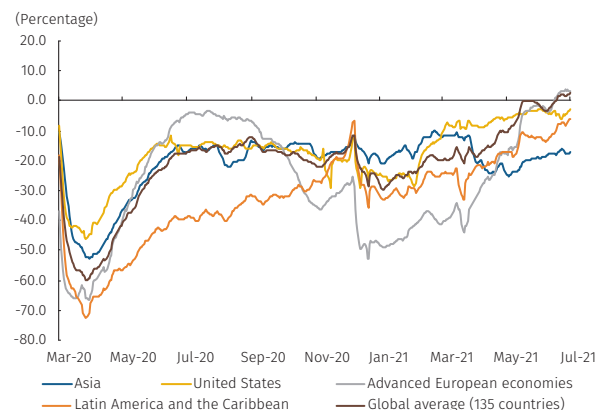
Note: Accessed July 23, 2021
Source: Our World in Data

Graph 2.4
Quarantine and mobility indicators

A: Index of quarantine and social distancing measures



B: Mobility to restaurants, shopping malls, cinemas, etc.

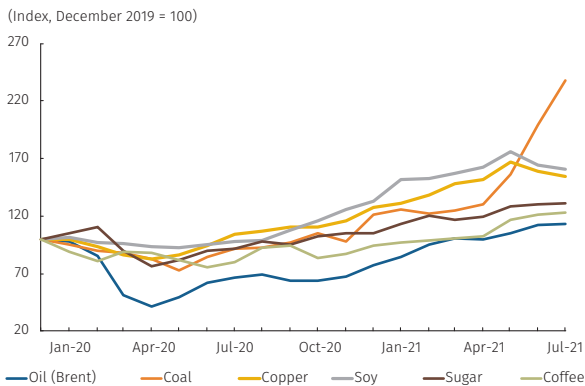


Note: quarantine and social distancing data to July 12. Mobility indicators to July 18.
Source: Google and Hale, Thomas, Sam Webster, Anna Petherick, Toby Phillips, and Beatriz Kira (2020). Oxford COVID-19 Government Response Tracker, Blavatnik School of Government. Use Policy: Creative Commons Attribution CC BY standard; calculations by Banco de la República

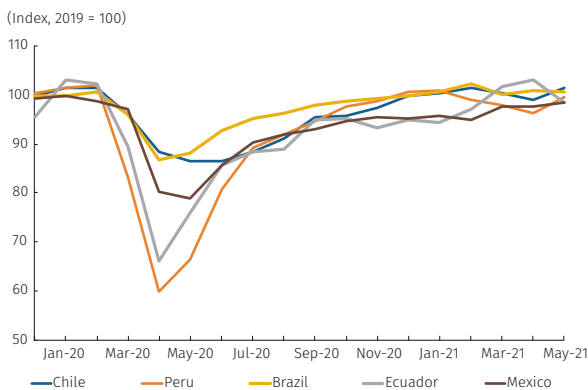
previous quarter. High vaccination coverage is expected to allow for continued reopening of these countries moving forward, and higher global demand for exports alongside fiscal and monetary stimulus should contribute to economic recovery. These measures may gradually be reduced over the forecast horizon. Meanwhile, increased savings rates and an improved labor market outlook could favor domestic demand. Business conditions, both in manufacturing and in services, are above benchmark baselines. However, global supply chain challenges could place limits on growth in industrial production, while high inflation in the United States represents a possible concern regarding real household income. The propagation of the delta variant of COVID-19 could create new pressures for health systems and set back economic recovery. International political and trade tensions are a further risk. In China, quarterly GDP growth in the second quarter was 1.3%, close to the technical staff's expectations. Global economic recovery will likely favor Chinese exports moving forward, while consumption spending is expected to continue to increase with improvements in the labor market. As a result, China's growth prospects on the forecast horizon are favorable.

Graph 2.5
Economic activity and selected regional export commodities prices

A: Export commodities prices



B: Monthly economic activity indicator



Sources: Bloomberg and Datastream; calculations by Banco de la República

Risks to the forecast, in addition to those associated with the pandemic, would include increases in public and private debt, the latter of which would include a significant number of high credit-risk agents.

Economic performance in some of Colombia's main regional trade partners surpassed expectations in the first quarter. However, the challenges of bringing COVID-19 under control cast some uncertainty over the prospects for economic recovery. Growth surpassed expectations in the first quarter alongside unanticipated positive global performance, with notably strong growth rates in the United States and China and higher export commodity prices (Graph 2.5, Panel A). Meanwhile, major economy central banks have maintained low interest rates and kept unconventional policy measures in place, with a positive effect on international financial conditions. Alongside the expectation that advanced economies will continue to reopen in the second half of the year, this has led to an upward revision in the 2021 growth forecast for some of Colombia's main regional trade partners. The case of Chile, home to high vaccination rates (Graph 2.3, Panel B) and significant government measures to support economic recovery, is particularly noteworthy. However, short-term GDP growth in some of these countries could be limited by difficulties in controlling the pandemic and the continued need for social distancing measures. Observed and expected inflation are likely to rise, reducing the space available for these countries to maintain expansive monetary policies and leading several central banks to increase policy interest rates³. Fiscal space is also limited in some countries in the region due to high debt levels. Overall, Colombia's regional trade partners face significant economic uncertainty, driven by the potential for additional waves of the pandemic or the propagation of new strains of the virus amid vaccination campaigns that continue to lag (Graph 2.3, Panel B), as well as by political and social uncertainty, the possibility of tighter international financial conditions in the event of an early and unanticipated normalization of U.S. monetary policy, and other factors.

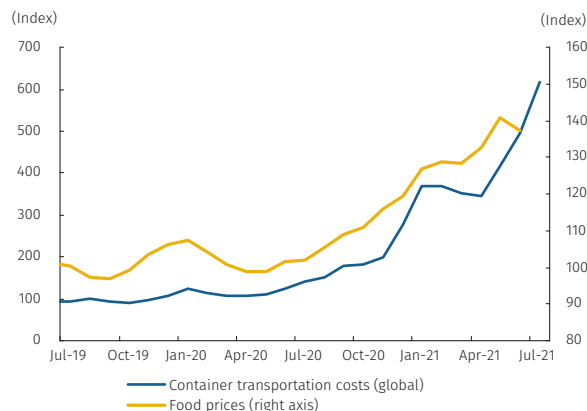
2.1.2 International prices

Colombia's terms of trade have recovered after a significant decline in 2020, amid a generalized increase in international input and output prices. Commodities prices and maritime transportation costs have risen in the last year (Graph 2.6, Panel A), driven in part by positive dy-

³ In June the Central Bank of Brazil made a third increase to its policy interest rate, to 4.25%; Mexico registered its first increase (of 25 bp) since the start of the pandemic to 4.25%. In Chile the central bank increased the policy interest rate by 25 bp, to 0.75%.

Graph 2.6
International food prices, global transportation costs, and Colombia's terms of trade

A: International food prices and transportation costs (index, 2019 = 100)

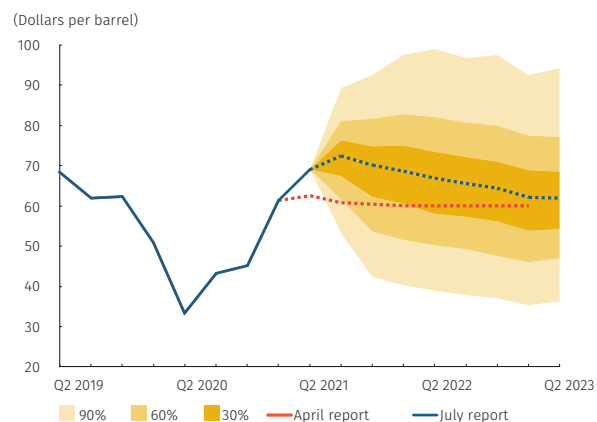


B: Colombian terms of trade index, foreign trade index (index, 2019 = 100)



Sources: Bloomberg, DANE, and Banco de la República; calculations by Banco de la República

Graph 2.7
Assumed quarterly oil price ^{a/ b/}



a/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode).
b/ The probability distribution corresponds to the forecast exercise in the July report.
Source: Bloomberg; calculations and projections by Banco de la República

namics in the global demand for goods and persistent disruptions to global supply chains and production bottlenecks. Increased export commodity prices pushed annual growth in Colombia's terms of trade to 19.6% in the period from January to May of 2021. However, this remained below levels from the same period in 2019 (Graph 2.6, Panel B), as recovery was limited by an increase in dollar prices for import goods. Terms of trade declined from April-May compared to the first quarter, due in part to a larger increases in intermediate import, capital, and consumer goods.

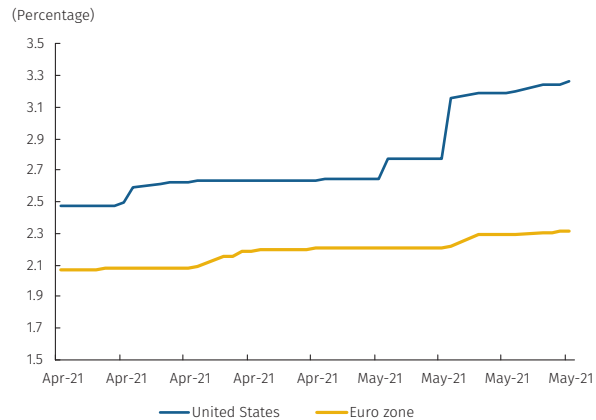
The expected trajectory for oil prices was revised upward from the previous report, due in part to a sustained increase in demand and a limited supply response (Graph 2.7). This change reflects an unanticipated price increase in the second quarter⁴. Specialized industry agencies expect global demand to continue to recover, returning to pre-pandemic levels next year. An improved international growth outlook would support this expectation, alongside continued progress in vaccination campaigns, a recovery in global trade, and widening automobile and air travel. Supply is expected to expand gradually, and would be tied to OPEC+ production agreements. More significant recovery in crude oil extraction on behalf of non-OPEC+ countries are another consideration. A tight oil market is expected in the short term, with additional inventory reductions and an average price in the third quarter near USD 73/barrel (bl). That price would be expected to fall gradually alongside a balancing of the market, converging closer to pre-pandemic price levels at the end of the forecast horizon. Given the above, assumed average oil prices in this report are USD 68/bl in 2021 and USD 66/bl in 2022. The balance of risks is biased downward in the short term, in particular given the recent propagation of new strains of COVID-19 that could significantly affect economic reopening in larger countries. The sustainability of the OPEC+ agreements amid high levels of idle production capacity, increased extraction in the United States and other countries in response to higher prices, and the removal of sanctions on Iran would all represent additional downward risks to the forecast. Upward risks would be associated with a faster-than-expected recovery in the global economy, slow increases in investment leading to more persistent supply limits, and additional OPEC+ production cuts.

Inflation has risen above expectations in the United States and expected inflation continues to increase, settling in 2021 above 4% (Graph 2.8). Total annual inflation

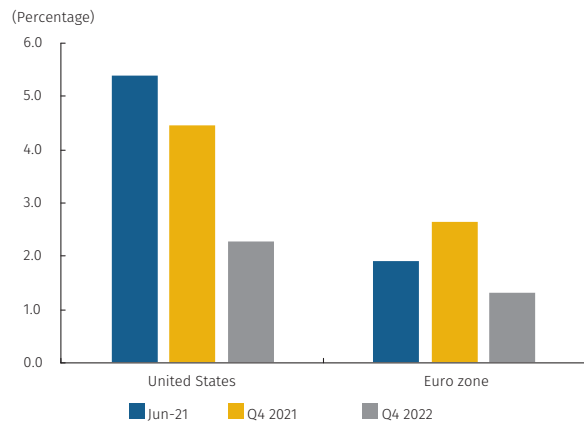
4 This was the result, in part, of positive dynamics in the demand for fuel. For its part, OPEC+ surprised the market by maintaining production cut agreements, defined in its meeting in April, for longer than expected.

Graph 2.8
Headline inflation in the United States and the euro zone

A: Change in expected Headline inflation for Q4 2021



B. Head Inflation, observed and expected



Source: Bloomberg, survey data based on average estimates on July 27.

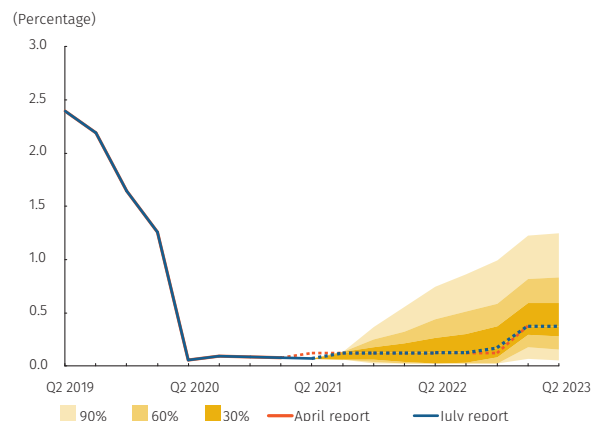
in the United States rose to 5.4% in June, exceeding market expectations, and was affected significantly by used car and truck prices, energy (fuel and energy services), transportation services, and other factors. Annual core inflation was 4.5%, its highest since 1991. High Headline inflation reflected a low basis of annual comparison, disruptions to supply chains, and increased transportation costs, as well as economic reopening and increased labor costs. Some of these factors are expected to be transitory and should moderate on the forecast horizon. Market inflation expectations have increased to above 4.0% in 2021 and close to 2.0% in 2022. Meanwhile, annual inflation fell in the euro zone in June from 2.0% to 1.9% and core annual inflation fell from 1.0% to 0.9%. Energy prices, non-energy industrial goods, and services contributed to overall inflation. As such, despite increased economic opening in the bloc, significant excesses in productive capacity appear to have been reflected in low core inflation. Expected inflation for year-end 2021 has risen above 2%, while the market expects lower inflation close to 1.3% at the end of 2022. Upward risks to this projection on the forecast horizon would include additional increases in international commodities prices (particularly in food and oil), more persistent supply chain interruptions, increased labor costs, and a faster-than-expected recovery in aggregate demand.

2.1.3 International financial conditions

Advanced economy central banks have continued to provide ample liquidity at low benchmark interest rates alongside the implementation of unconventional policy measures. On June 16, the Federal Open Market Committee (FOMC) held interest rates between 0.0% and 0.25%, in line with the technical staff's expectations⁵. No changes were made to the Fed's asset-buying program. According to New York Federal Reserve surveys, balance sheet reductions are expected to begin in the first quarter of 2022 and extend over the course of the year. Meanwhile, in July the European Central Bank (ECB) revised its monetary policy strategy to pursue an objective of symmetrical inflation of 2.0% while permitting moderate and temporary deviations above the target. The ECB's previous target called for inflation close to but below 2.0%. In its meeting on July 22, the ECB decided to leave its asset-buying program, pandemic emergency purchasing program, financing operations, and benchmark interest rates all unchanged.

⁵ At the close of this report the FOMC in its meeting on July 27 left unchanged the interest rate range on federal funds, in line with the technical staff's expectations. FOMC communications underlined that economic activity has continued to strengthen, making progress toward long-term objectives.

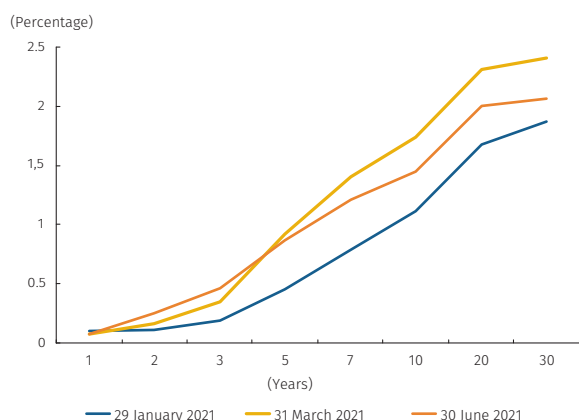
Graph 2.9
Assumed U.S. Federal Reserve Quarterly Interest Rate^{a/ b/}



a/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode).
b/ The probability distribution corresponds to the forecast exercise in the July report.
Source: St. Louis Federal Reserve; calculations and projections by Banco de la República

The U.S. Federal Reserve’s policy rate is expected to increase at the end of 2022, rising to between 0.25% and 0.50% at the end of the forecast horizon (Graph 2.9). The output gap is expected to close in 2021, though unemployment may take longer to return to long-term levels. Inflation has increased considerably and remains unexpectedly high. According to the Fed, this increase would likely be due mainly to temporary factors. Upward risks exist, however, associated with the persistence in global supply chain and labor market disruptions, as well as increasing commodities prices. In their July meeting, FOMC committee members expressed consensus over the stability of the policy interest rate through the end of this year. Seven of the 18 committee members expected an increase by the end of 2022, and survey averages anticipated two 25-basis point (bp) increases by the end of 2022, while analyst surveys indicate that this increase could come between the last quarter of 2022 and the first quarter of 2023⁶. Given the above, the U.S. policy rate is expected to remain stable in 2021 before increasing by 25 bp in December 2022, leaving the rate between 0.25% and 0.50% in the first quarter of 2023. Forecast uncertainty remains high, with the possibility of upward risks related to economic growth, employment, and inflation which could all affect the convergence of these variables with the Fed’s long-term objectives. A normalization in monetary policy (balance sheet and interest rates) that comes earlier than expected could lead to less favorable international financial conditions for Colombia. Emerging markets’ vulnerability to this risk depends on a variety of factors, including net external positions, financial structures and financing sources, fiscal positions, and inflation and economic recovery outlooks, among other factors.

Graph 2.10
U.S. treasury bonds



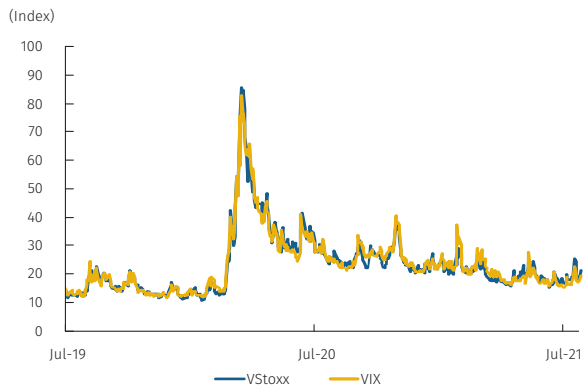
Source: U.S. Department of the Treasury

Interest rates on U.S. treasury bonds in the second quarter remained above levels from the beginning of the year, but below highs from March. Long-term rates on U.S. bonds underwent a partial downward correction following highs at the end of the first quarter (Graph 2.10). This came amid the expectation of temporary inflationary pressures, mixed labor market data (suggesting that recovery would not consolidate in the short term), and expectations of an eventual and gradual normalization of monetary policy. The Fed maintained its pace of U.S. bond purchasing and the bond issuance reduced. Global equity markets continued at high levels likely reflecting increased global economic optimism. Risk perception indices for developed countries were consistent with these

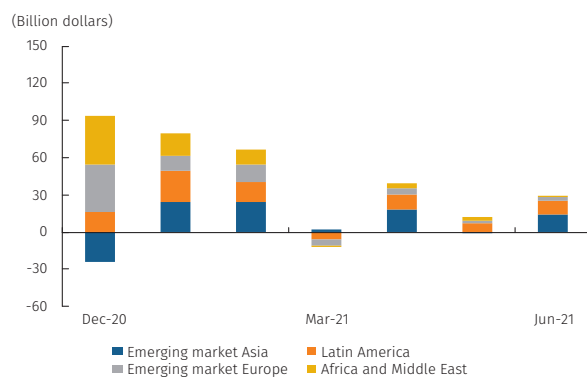
6 Bloomberg survey results averaged 0.23% for the last quarter of 2022 and 0.33% for the first quarter of 2023.

Graph 2.11
Financial volatility and foreign investment flows

A: VIX and VSTOXX^{a/}

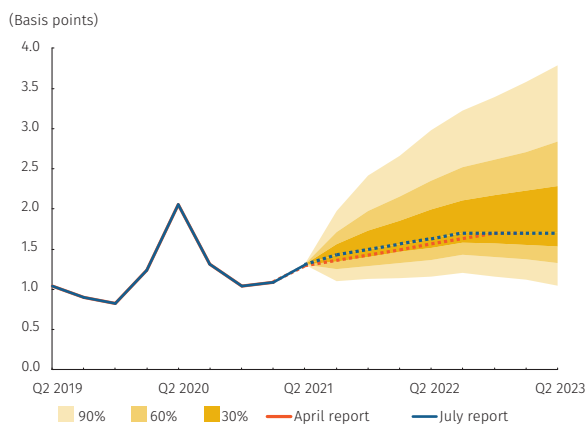


B: Net foreign investment flows to emerging economies^{b/}



a/ Figures to July 23, 2021
b/ Investment flows from debt and equity instruments
Sources: St. Louis Federal Reserve, Bloomberg, and IIF

Graph 2.12
Colombia's assumed quarterly risk premium (CDS)^{a/ b/ c/}



a/ Five-year credit default swaps
b/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
c/ The probability distribution corresponds to the forecast exercise in the July report.
Source: Bloomberg, calculations and projections from Banco de la República

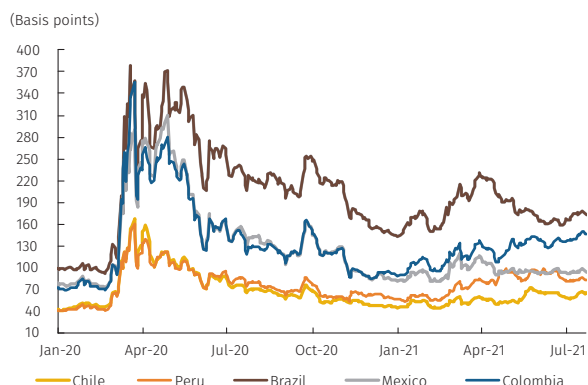
expectations (VIX and VSTOXX), registering their lowest average levels since the beginning of the pandemic (Graph 2.11, Panel A). Meanwhile, data from the Institute of International Finance (IIF) suggested that capital flows to emerging markets had increased in the second quarter from low levels registered in March (Graph 2.11, Panel B). However, inflows remained lower than levels in the same period in 2019 and 2020, amid challenges faced by some countries in the form of inflationary pressures, fiscal concerns, and managing the pandemic. According to data on the domestic exchange balance, in the second quarter Colombia saw a net influx of capital associated with foreign portfolio investment in the country of close to USD 2.408 billion. This would mark a rebound compared to the first quarter, which saw outflows of close to USD 1.029 billion.

The central forecast scenario assumes a higher risk premium in 2021 and 2022 compared to the April report, maintaining an upward trajectory expected to converge to levels somewhat above the average from the last 15 years (Graph 2.12) at the end of the forecast horizon. The peso registered average quarterly depreciation in the second quarter of 4%, and five-year credit default swaps (CDS) increased to 131 bp on average, similar to the technical staff's April projection and higher than observed in the previous two quarters (Graph 2.13). Through July 23 there were additional deteriorations of the average risk premium and exchange rate to -143 bp and COP 3,813 to the dollar (MRR: market representative rate), respectively. The increase in the risk premium came alongside ratings downgrades and the loss of Colombia's foreign exchange investment grade by S&P and Fitch⁷, and in light of the economic effects of roadblocks in the second quarter, an intensification of the pandemic in that period, and a deterioration of Colombia's fiscal accounts. Stronger economic growth observed and expected increases in international oil prices, and favorable financial conditions in advanced economies were among the factors that helped to mitigate these upward pressures on Colombia's risk premium. Given the above, and increases in Colombia's public and foreign debt, the risk premium is expected to remain on a growth trajectory on the forecast horizon, stabilizing at 170 bp in the second half of 2022. This would represent an increase compared to the previous report. The risks to this forecast are biased upward, and would include a regression in international oil prices, a faster normalization of monetary policy in the United States than previously anticipated, a worsening of Colombia's recovery outlook with regard to the pandemic, social and

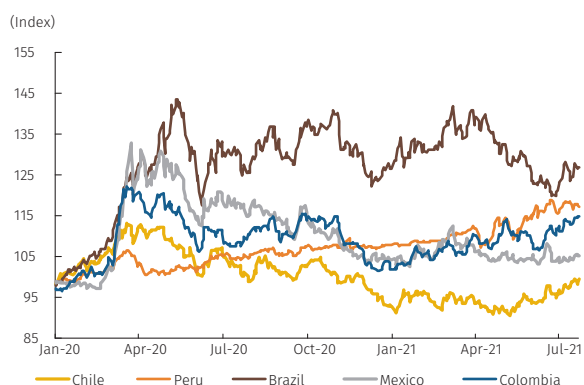
7 On May 19 S&P downgraded Colombia's foreign-currency denominated debt to BB+ (outlook stable). On July 1 Fitch Ratings downgraded foreign- and domestic-currency long-term debt from BBB- to BB+ (outlook stable).

Graph 2.13
Nominal exchange rate behavior and selected Latin American risk premiums

A: Five-year credit default swaps

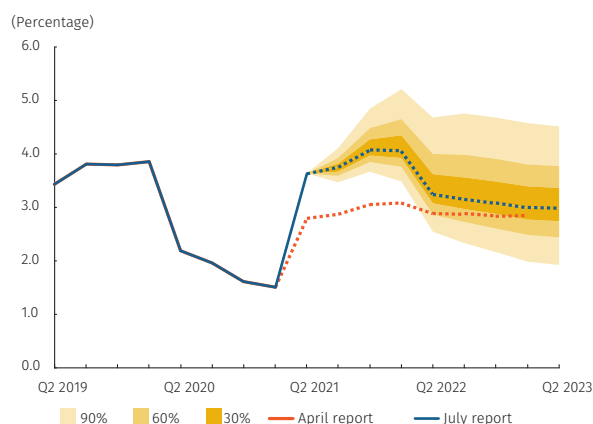


B: Nominal exchange rate (index, December 2019 = 100)



Note: figures to July 23
Source: Bloomberg; calculations by Banco de la República

Graph 2.14
CPI^{a/ b/}
(annual change; end-of-period)



a/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
b/ The probability distribution corresponds to the forecast exercise in the July report.
Source: DANE; calculations and projections by Banco de la República

political factors, delays in vaccination campaigns, and uncertainty over the country's fiscal accounts.

2.2 Macroeconomic projections⁸

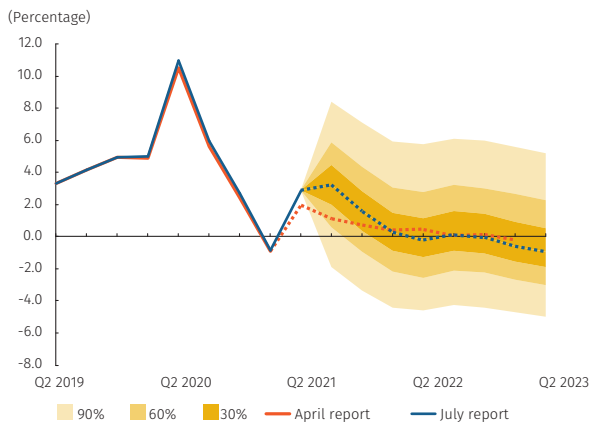
2.2.1 Inflation

The forecasts for overall inflation in 2021 and 2022 increased from the previous report to 4.1% and 3.1%, respectively. The revisions were the result of inflationary risks related to international economic conditions and the effects of the supply shock from roadblocks earlier this year, among other factors (Graph 2.14). Certain commodities prices that remained at higher levels for longer periods of time than previously anticipated, alongside increased international production and commercialization costs due to global supply chain disruptions, affected the forecast of overall annual inflation in this report. These pressures, however, are expected to be temporary and concentrated in the CPI for foods and the CPI for goods excluding food and regulated items. Food prices may also be affected by supply limitations, which could extend for several months, in large part the consequence of roadblocks in the second quarter that affected production cycles in various regions of the country. Meanwhile, inflation is expected to sustain fewer downward pressures due to a lower output gap on the forecast horizon. Recent exchange rate behavior suggests an estimated exchange rate gap that would be somewhat more positive in 2021 (Graph 2.15) than previously expected, and which could eventually translate into upward pressures on domestic prices.

Overall and core inflation are expected to converge to the target on the forecast horizon, as upward pressures from supply and cost shocks are expected to be transitory and begin to fade in the middle of 2022. Core and overall annual inflation are expected to recede toward the target at the beginning of 2023, as cost and inflationary pressures fade alongside an output gap that is expected to remain in negative territory and moderated exchange rate pressures in 2022 (Graph 2.15). There are multiple risks to the inflation forecast and current projections are surrounded by a higher level of uncertainty than normal. Upward risks would include the persistence of shocks from logistics costs and value chain disruptions that have affected food and goods costs and supply. Downward risks would include smaller increases in rental prices given weak demand, possible effects on

8 The results assume an active monetary policy in which Banco de la República's benchmark rate is adjusted to guarantee compliance with the inflation target.

Graph 2.15
Quarterly RER inflationary gap^{a/ b/}



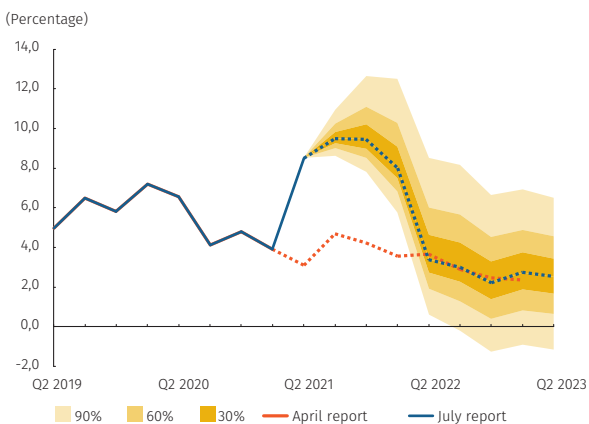
a/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
b/ The probability distribution corresponds to the forecast exercise in the July report.

Source: Banco de la República

telecommunications and air transportation prices due to the entry of new players into the market, and the effects of free public education for Colombia's lowest income levels at least in 2021. The degree to which price relief measures are reversed with the end of the pandemic and the size of the output gap represent further sources of uncertainty. In sum, the risks to the central forecast scenario for core and overall inflation are in their majority biased upward. This is reflected by a predictive densities exercise presented in more detail in Box 1.

External pressures associated with supply chains, together with roadblocks in the second quarter, primarily affected the forecast of the CPI for foods, which would be expected to return to levels more consistent with the target starting in the middle of 2022, when the effects of the shocks are diminished. The international price of various commodities used in Colombian food production, increased transportation costs, and global supply chain difficulties are all upward forces that are expected to have larger and longer lasting effects on processed foods prices than considered in the previous report. These circumstances, in addition to the effects of the roadblocks that would primarily have affected perishable foods, are primary drivers of annual change in the CPI for foods to above 8.0% in the second quarter (see Section 3 and Box 3). Nevertheless, it is expected that external pressures would begin to fade in the first half of 2022. The impact of roadblocks in May was likely partially reversed in June. However, the full normalization of productive capacity in the foods sector would only be expected to happen at the beginning of next year, with prices staying at relatively high levels in this period. As a result, annual change in the CPI for foods would close 2021 close to 9.5%, falling rapidly in the second quarter of 2022 to 3.4% (Graph 2.16). In subsequent quarters it would be expected to fall below 3%, allowing for relative food prices to return close to pre-pandemic levels. This comes under the assumption of favorable climate conditions in coming years.

Graph 2.16
CPI for foods^{a/ b/}
(annual change; end-of-period)



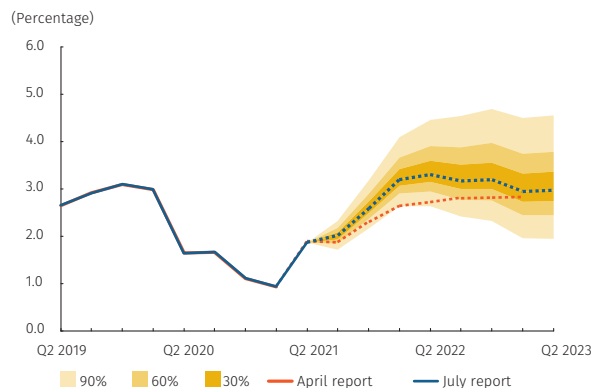
a/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.

b/ The probability distribution corresponds to the forecast exercise in the July report.

Source: Banco de la República

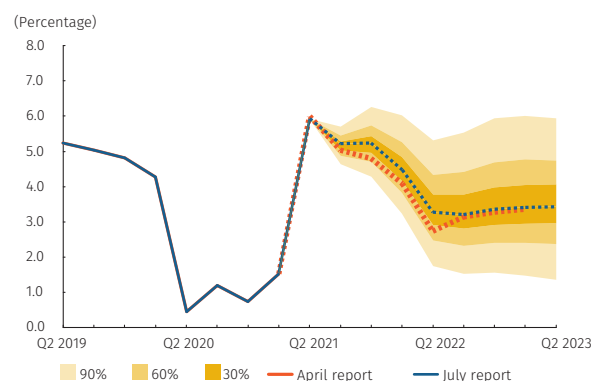
External supply shocks, a gradual tightening of the output gap, and the re-establishment of indirect taxes are likely to exert upward pressures on core inflation, increasing its annual trajectory above the forecast from the previous report. External shocks are expected to be temporary and affect primarily the CPI for goods excluding foods and regulated items. Services have been affected due to higher food prices and their knock-on effects on food away from home (FAH). The persistence of these shocks is expected to push a continued annual increase in the CPI excluding food and regulated items until the middle of 2022, to levels somewhat above 3%. However, this is expected to be temporary and would not be expected to prevent a convergence of core inflation to

Graph 2.17
CPI excluding food and regulated items^{a/ b/}
(annual change; end-of-period)



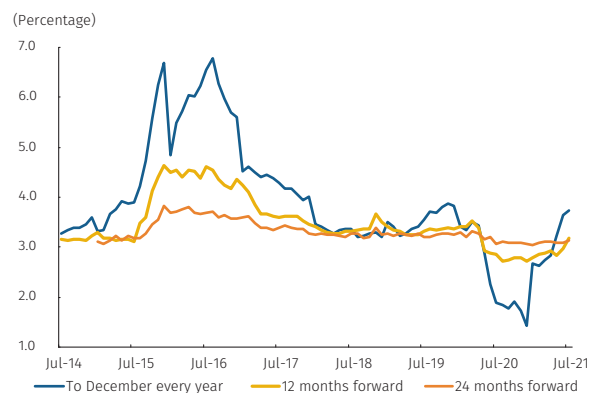
a/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
b/ The probability distribution corresponds to the forecast exercise in the July report.
Source: DANE; calculations and projections by Banco de la República

Graph 2.18
CPI for regulated items^{a/ b/}
(annual change; end-of-period)



a/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
b/ The probability distribution corresponds to the forecast exercise in the July report.
Source: DANE; calculations and projections by Banco de la República

Graph 2.19
Bank and stockbroker inflation forecast



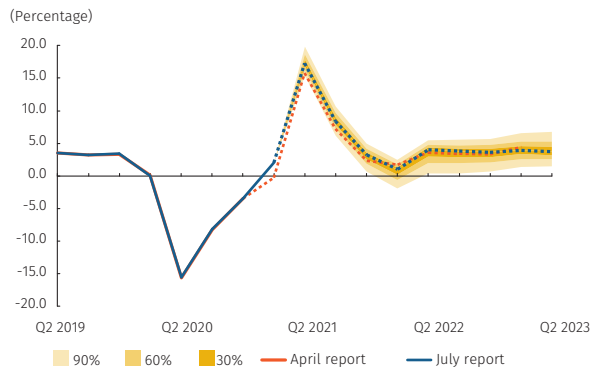
Source: Banco de la República (Monthly analyst survey)

the target in 2022 (Graph 2.17). This forecast accounts for some transitory price increases associated with the lapse of pandemic relief measures put in place in 2020. For the CPI for goods excluding foods and regulated items, this would take into account an extension of the health emergency to August 31, 2021, when the re-establishment of the VAT on various personal health and hygiene products would be expected. In the case of the CPI for services excluding food and regulated items, the forecast would take into account a reinstatement of the VAT for tourism and hotel services, as well as a consumption tax on FAH, beginning in the first quarter of 2022. Given the above, core inflation is expected to close 2021 at 2.6% and 2022 at 3.2%. Part of the increase in this projection compared to the previous report is consistent with the expectation of lower and less long-lasting excesses in capacity.

Annual change in the CPI for regulated items is expected to be relatively high in coming quarters, as the result of expected increases in utility rates and a low statistical basis of comparison due to the implementation of pandemic-related price relief measures in 2020. Increased utility rates, especially in water, sewage, and electricity services, are expected to result from pending adjustments from 2020 that were postponed in response to the shock to household income as a result of the pandemic. These are, however, expected to be greater than forecast in the previous report. Electricity rates are also expected to rise as increased investment costs taken on by some companies are passed through to consumers. Meanwhile, the increase in the CPI for fuels is expected to moderate, in line with projections from the April report, but could involve the incomplete transmission of pressures projected in the international oil price and the exchange rate. Given the above, the annual change in the CPI for regulated items is expected to continue at high levels in 2021, closing the year around 5.2% before falling in 2022 to slightly above 3.0% (Graph 2.18).

Market inflation expectations have increased since the April report, slightly exceeding the target. Economic analysts' expectations as measured by the Bank's monthly survey in July suggest average expected Headline inflation for the end of 2021 and 2022 of 3.7% and 3.3%, respectively (Graph 2.19), an increase from the April survey (3.1% and 2.8%). Expected inflation excluding foods suggested faster convergence to the target compared to April at 3.0% at the end of 2021 (previously 2.5%) and 3.1% at the end of 2022 (previously 2.9%).

Graph 2.20
Quarterly GDP^{a/ b/ c/}
(annual change)

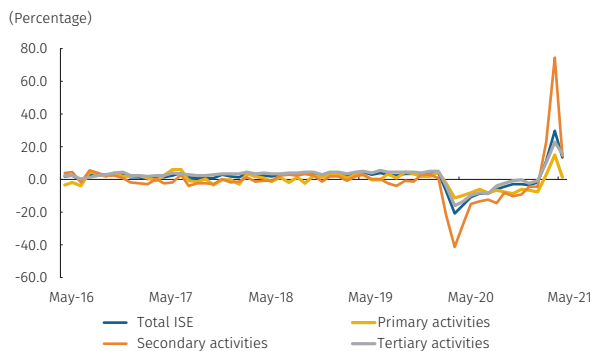


a/ Seasonally adjusted and corrected for calendar effects
 b/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
 c/ The probability distribution corresponds to the forecast exercise in the July report.
 Source: Banco de la República

2.2.2 Economic activity

Roadblocks and other public disturbances and a third wave of COVID-19 appear to have disrupted Colombia's recovery in the second quarter. Economic activity was unexpectedly strong in the first quarter, growing annually at 2.0% (seasonally adjusted and corrected for calendar effects, SACE), above the technical staff's expectations (-0.3%) (see Section 3). Nevertheless, sector-level indicators through May suggest that GDP likely contracted in the second quarter, primarily as a result of roadblocks put in place during the national strike. The quarterly decline in economic activity was not uniform across the country, and was much more pronounced in the southwest where mobility disruptions were most notable. This came in the middle of a third wave of COVID-19, which, while more severe than previous outbreaks from a public health perspective, does not appear to have had as significant an impact on economic activity.

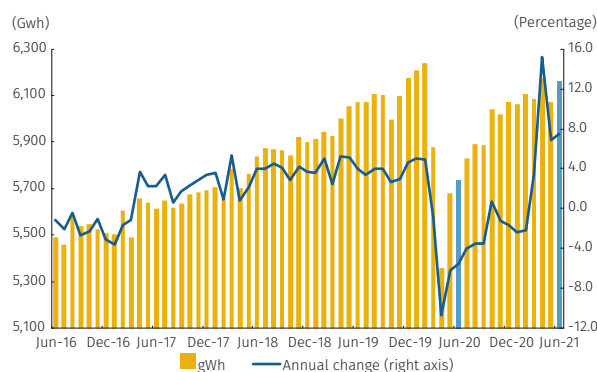
Graph 2.21
Total ISE and by sector^{a/ b/}
(annual change)



a/ Primary activities: agriculture, hunting, forestry and fishing, mine and quarry exploitation. Secondary activities: manufacturing industries and construction. Tertiary activities: electricity, gas, and water supply; commerce, repairs, transportation, and lodging; information and communications, financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support services; public administration and defense, education and health; arts and entertainment
 b/ Seasonally adjusted and corrected for calendar effects
 Source: DANE; calculations by Banco de la República

Sector-level indicators suggest annual growth of 17.3% in the second quarter (Graph 2.20), which would translate to a quarterly contraction of 1.8%. Diverse economic sectors registered significant monthly contractions in May. Seasonally adjusted data suggest that industrial manufacturing fell by -22.1% and retail sales (excluding the "other vehicles" category) fell by -13.1%. According to the ISE (SACE), overall economic activity contracted 5.8% monthly in May, with secondary segments being the most affected (-16.9% month-on-month), suggesting an interruption to the recovery of this indicator after eight consecutive months of growth (Graph 2.21). However, indicators from June such as energy demand (Graph 2.22), non-residential mobility rates, highway freight transportation, and certain commercial banking transactions point to a recovery in economic activity. Given the above, the technical staff estimates a quarterly contraction of GDP in the second quarter that, nevertheless, would mark a historically high growth rate in annual terms (17.3%), due to a low basis of comparison from the second quarter of 2020 and recovery registered until the first quarter of 2021. Isolated by economic activity, the forecast suggests that the most significant quarterly contraction would have come in ground transportation, sales and vehicle maintenance, industrial manufacturing, and the agricultural sector.

Graph 2.22
Total monthly energy demand, national interconnected system^{a/}
(gWh and annual change)

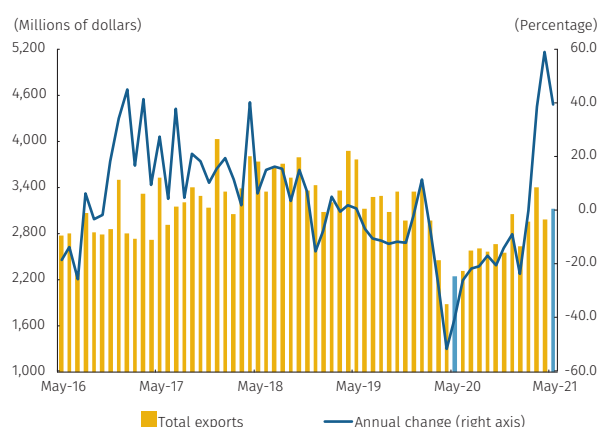


a/ Seasonally adjusted and corrected for calendar effects
 Source: XM; calculations by Banco de la República

Spending side indicators suggest a decline in the components of domestic demand compared to the first quarter. While private consumption and investment appear to have registered significant annual growth in the second quarter as the result of a low basis of comparison, the roadblocks related to social unrest and a third wave of COVID-19 beginning in April likely affected their performance significantly.

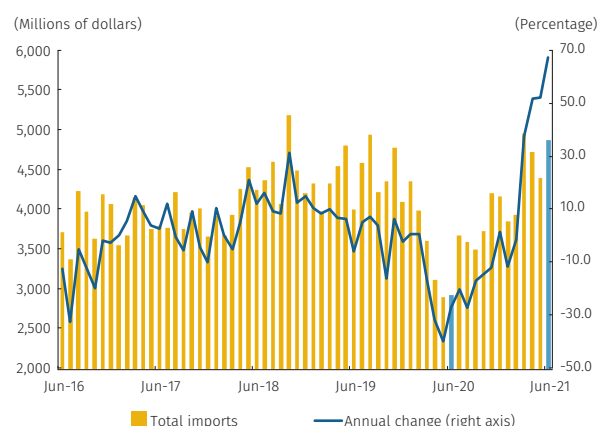
Recovery in private consumption was likely interrupted in the second quarter, to below pre-pandemic levels. However, several indicators including retail sales in May, commercial bank transactions, and vehicle matriculations in June suggest that the third wave of the pandemic and disruptions in public order may have been less impactful than initially expected. Meanwhile, the counter-cyclical objectives laid out in the government's *Medium Term Fiscal Framework* allow for the expectation of significant annual and quarterly growth in public consumption in the second quarter. Finally, capital goods imports to date suggest a contraction in investment in machinery and equipment, which could be attributed to blockades at ports of entry. By contrast, housing sales and the secondary ISE suggest that levels of investment associated with construction likely did not contract compared to the first quarter.

Graph 2.23
Total goods exports (FOB)
(dollars, annual change)



Source: DANE; calculations by Banco de la República

Graph 2.24
Total goods imports (CIF)
(dollars, annual change)

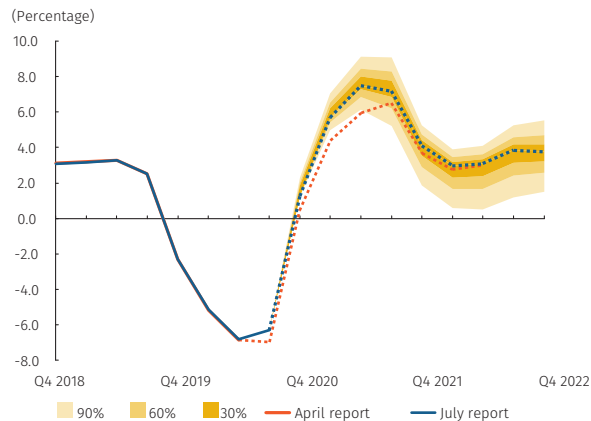


Sources: DANE and DIAN (advance results from foreign trade); calculations by Banco de la República

Imports and exports appear to have slowed in the second quarter after significant signs of recovery in the first. This may be attributable to the aforementioned roadblocks and to problems associated with global supply chains. Monthly export figures to May and advance information from the national customs agency (DIAN) from June suggest a contraction in this component of aggregate demand, likely explained, above all, by weak performance in international sales of coffee, coal, and services (Graph 2.23). The same figures for imports suggest sustained levels close to those of the first quarter (Graph 2.24). However, these estimates are subject to a higher degree of uncertainty than normal, due to the difficulties in translating nominal dollar figures in real peso terms, above all amid the potential for significant changes in relative prices in the economy.

The economy appears to have recovered significantly in the first half of the year despite the effects of the pandemic and disturbances to public order, exceeding projections from previous reports and leading to an increase in the growth forecast for the year as a whole. This has been possible in part because adverse economic shocks associated with the pandemic have continued to moderate. As a result, assuming an absence of additional roadblocks in the second half of the year and a lack of any new major mobility restrictions, it can be expected that in the second half the economy would return to a pace of recovery similar to that observed at the end of 2020 and the beginning of this year. A reduction in COVID-19 cases, thanks to progress in vaccination campaigns, alongside economic agents' ability to adapt to the effects of the pandemic should allow for increased consumer and business confidence and a wider opening of diverse economic sectors. This would be expected to cause consumption and investment to regain their dynamism. High oil and other export goods prices compared to previous reports, as well

Graph 2.25
GDP, four-quarter accumulation^{a/ b/ c/}
(annual change)

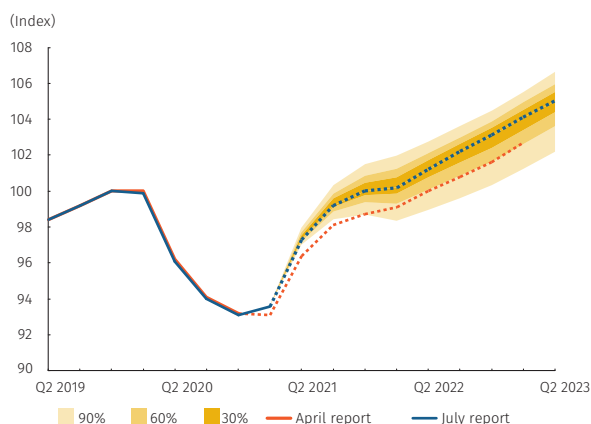


a/ Seasonally adjusted and corrected for calendar effects
b/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
c/ The probability distribution corresponds to the forecast exercise in the July report.
Source: DANE; calculations and projections by Banco de la República

as continued counter-cyclical public sector efforts in infrastructure and consumption, should contribute to this recovery. Given the above, the GDP growth forecast for 2021 has been revised upward to 7.5% (Graph 2.25).

The Colombian economy is currently expected to return to pre-pandemic levels at the end of 2021 (Graph 2.26), consolidating economic recovery beginning in 2022. The upward revision to the growth projection for 2021 suggests a return to pre-pandemic levels of annual economic activity at the end of this year, rather than the middle of 2022 as expected in previous reports. Growth in the central forecast scenario is expected to be 3.1% in 2022, taking into account the short-term effects on aggregate demand of a fiscal reform along the lines of the national government's current proposal and growth in sovereign risk premiums as a reflection of higher levels of public debt. The economic growth trajectory for this report assumes no significant new negative effects on output from COVID-19, with growth supported by monetary policy that would remain in expansive territory (under ample international credit conditions), favorable terms of trade, and the consolidation of economic recovery among Colombia's trade partners.

Graph 2.26
GDP, four-quarter accumulation^{a/ b/ c/}
(index, Q4 2019 = 100)



a/ Seasonally adjusted and corrected for calendar effects
b/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
c/ The probability distribution corresponds to the forecast exercise in the July report.
Source: Banco de la República

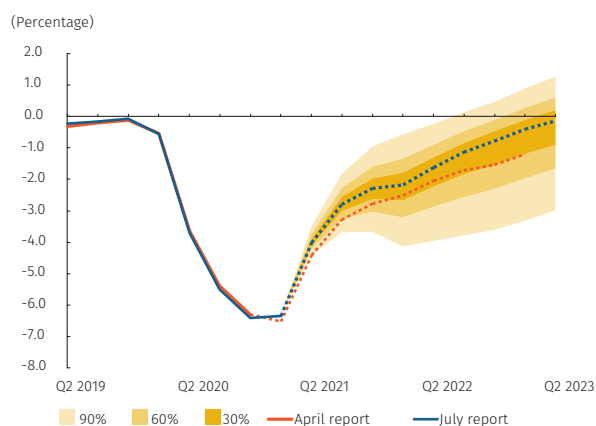
Both the short- and medium-term forecasts of economic activity face significant uncertainty, especially related to the pandemic and progress implementing a required fiscal adjustment. The technical staff's second-quarter forecasts come with some upward risks, as the ISE in May suggested better-than-expected results that were not fully incorporated into the current projection. By contrast, downward risks predominate over the remainder of the forecast horizon, especially as the possibility of new waves of COVID-19 cannot be discarded, which would delay the full return of economic activity and lead to lower growth than projected in the central forecast scenario. This could be the case even when accounting for economic agents' growing ability to adapt to the effects of the pandemic on economic activity. Other significant downward risks that could affect the central forecast scenario include the high degree of uncertainty surrounding the composition of the supply and demand shocks generated by the pandemic, the possible implications of that uncertainty on future economic growth, the potential for future disruptions to public order, and the possibility of tighter international financial conditions in the event of a faster-than-expected normalization of monetary policy in the United States. Colombia's public debt trajectory also represents a significant risk to the macroeconomic forecast. The forecast supposes that the required fiscal adjustment will come into force starting in 2022, in line with government announcements in the most recent *Medium Term Fiscal Framework*. It also assumes that the country will re-

tain access to external financing, though at higher costs. A closer look at the balance of risks on the forecast horizon can be found in Box 1 of this report.

The national unemployment rate is expected to average 14.4% in 2021, ranging between 13.7% and 15.0%. This accounts for reduced dynamism in the labor market and the current expectations regarding economic activity.

Employment recovery has been limited in recent months by outbreaks of COVID-19, which led to voluntary social distancing by some economic agents and the implementation of mobility restrictions in some cities. Employment was also affected by the aforementioned disruptions to public order. This was reflected in a slowdown in employment demand, which was partially offset by a slight downward trend in labor force participation. As a result, the national unemployment rate remained relatively stable, with slight increases in April and May reversing reductions from the first months of the year (see Section 3). The technical staff estimates that the national unemployment rate will show moderate reductions over the rest of 2021, ending the year around 13.8%. The average for the year would be between 13.7% and 15.0% as a result, with the most likely value of 14.4%, an upward correction compared to the April estimate (between 12.8% and 15.0%). Given the above, the labor market is expected to remain loose on the forecast horizon and not constitute a source of inflationary pressure via labor costs. These forecasts are marked by a significant degree of uncertainty, given that they could be affected by changes to the state of public order as well as the evolution of the pandemic, among other factors.

Graph 2.27
Output gap^{a/ b/ c/}
(four-quarter accumulation)



a/ The historical estimate of the output gap is calculated as the difference between observed GDP (four-quarter accumulation) and potential GDP (trend; four-quarter accumulation) from the 4GM model; for the forecast it is calculated as the difference between the technical staff's GDP estimate (four-quarter accumulation) and potential GDP (trend; four-quarter accumulation) from the 4GM model.

b/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.

c/ The probability distribution corresponds to the forecast exercise in the July report.

Source: Banco de la República

The Colombian economy still appears to contain significant excess productive capacity, though to a lesser degree than estimated in the April report. The output gap is expected to continue to close gradually as economic activity continues to recover.

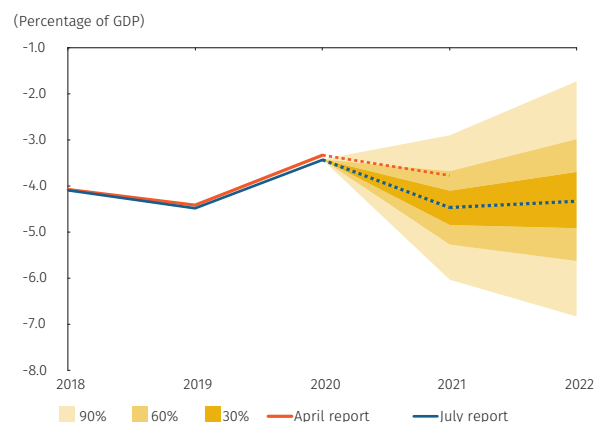
The ample excesses in productive capacity are the result of negative shocks derived from the pandemic, which affected aggregate demand more so than supply. A loose labor market and the fact that core inflation has fallen and remains below the target support this diagnosis, despite a recovery in GDP that was faster than forecast in previous reports. The improved output dynamic would be mainly associated with a recovery in potential GDP, though it could also suggest fewer negative shocks to demand than previously estimated. This together with the upward revision to the growth forecast would result in a tighter output gap that would close more quickly than expected in the previous report, but that would continue in negative territory until 2022 (Graph 2.27). As a result, the output gap is expected to be -2.3% in 2021 (compared to -2.8% estimated in April), closing gradually to -0.8% in 2022 (compared to

-1.5% estimated in April). As previously mentioned, the economy appears to have shown a greater capacity to respond to the shock of the pandemic than anticipated. This would be reflected in less negative impacts on demand and potential output than expected. Potential output is now projected to grow 3.0% in 2021, returning to above pre-pandemic levels in the second half of the year. The relative effects of the pandemic on aggregate demand and potential output continue to be the largest sources of uncertainty on the size of excess productive capacity. In particular, the balance of risks on growth reflects a downward bias on the output gap. A more detailed explanation of these risks is presented in Box 1.

2.2.3 Balance of payments

Recovery in 2021 would be expected to lead to an increase in the current account deficit, now projected at 4.5% of GDP, an upward revision from the previous report (3.8%) (Graph 2.28). This projection is consistent with the expected recovery in domestic demand, in which household consumption and investment are particularly noteworthy. Increases in spending and the public deficit also bear mentioning. In addition to driving goods and services imports, improved economic performance would also be expected to lead to increased earnings for firms with foreign capital. Cost pressures would also contribute to the current account deficit, such as those associated with maritime goods transportation, as would the general increase in global input and product prices. Increases in the price of some of Colombia's main export products such as oil, coal, and coffee would favor terms of trade and help mitigate an increase in the deficit. A recovery in foreign demand, which would drive industrial exports, as well as the positive performance of remittances from workers abroad would represent additional factors. It is worth noting that the impact on oil and coal production this year would be expected to limit the increase in Colombia's external revenues. Given all of the above, the current account deficit in 2021 is expected to be around USD 13.640 billion, equivalent to 4.5% of GDP⁹. For 2022 the current account deficit is expected to

Graph 2.28
Annual current account^{a/ b/}



a/ The graph presents the probability distribution and its most likely trajectory on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.

b/ The probability distribution corresponds to the forecast exercise in the July report.

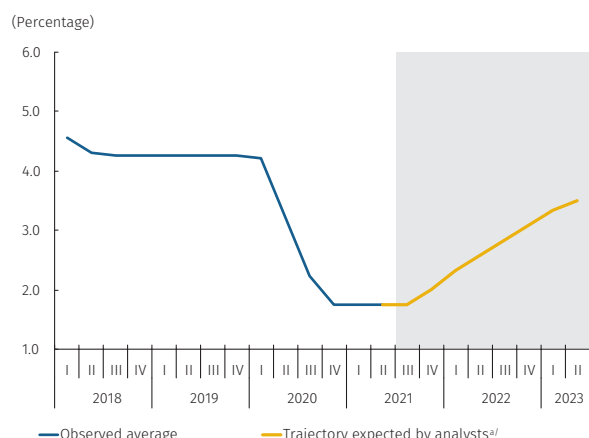
Source: Banco de la República

9 The current account deficit is expected to represent 5.5% of GDP in the second quarter, growing compared to figures from the same period in 2020 and the first quarter of the year, due primarily to a larger trade imbalance in goods and services. A reduction in export quantities due to roadblocks, the increase in prices in external purchases of goods, higher services imports associated with freight payments for merchandise transport, and Colombians' increased travel abroad have all also contributed to the deficit. By contrast, remittances appear to have reached historical highs and net spending of factor income appears to have fallen compared to the first quarter. This has come, among other reasons, due to a reduction in firms' earnings (other than those in the micro-energy sector) based on a contraction in economic activity. This also comes in the context of an increase in public spending.

be 4.3% of GDP (USD 13.834 billion), amid recovery in the national economy, a reduction of the fiscal deficit, and additional recoveries in foreign demand and in the production of some of major export goods. The uncertainty surrounding these forecasts is high, due to the complexity of anticipating the economic impact of the pandemic and uncertainty over the persistence of disruptions to global supply chains and the evolution of international input and output prices.

Colombia is expected to maintain access to the international financing required for its current operations in 2021 and 2022, though at higher costs and amid high levels of uncertainty in international capital markets. Foreign direct investment (FDI) flows are expected to finance a significant part of Colombia’s current account deficit and continue on their recovery trajectory, determined by high commodities prices and increased economic activity domestically and internationally. In line with expectations surrounding the fiscal deficit, capital flows to the public sector are expected to provide another significant source of external financing and would come primarily from an increase in debt and the emission of bonds. Additionally, and in particular in 2021, the clearing of deposits abroad is expected to support government funding. The private sector is expected to constitute assets or amortize external debts, given that FDI and public sector financing flows are expected to cover financing needs in light of the current account deficit. The expectations regarding the capital account are subject to a high degree of uncertainty, derived primarily from the risk of increased international financing costs. In particular, tighter international financial conditions could come from a faster-than-expected normalization of monetary policy in the United States or if Colombia’s risk premium is higher than projected.

Graph 2.29
Average observed quarterly interest rate and rate expected by analysts



a/ Median analyst projection. These projections are calculated taking into account the quarterly average of the responses to the Bank’s Monthly economic analyst survey from July, 2021
Source: Banco de la República

2.2.4 Monetary policy and interest rates expected by analysts

Median year-end policy interest rates expected by analysts are 2.0% for 2021 and 3.25% for 2022 (Graph 2.29). The median response to *Banco de la República’s* July survey of analyst expectations trended upward, putting the intervention interest rate at 2.0% for the end of this year, 2.5% for March 2022, and 3.25% for December 2022. The technical staff anticipates lower excess productive capacity on the eight-quarter forecast horizon and an increased inflation trajectory compared to the previous report. This would be consistent with the expected trajectory of the benchmark interest rate that is somewhat higher on average than both the forecast in the April *Monetary Policy Report* and analysts’ expectations from July. The monetary policy stance is nevertheless expect-

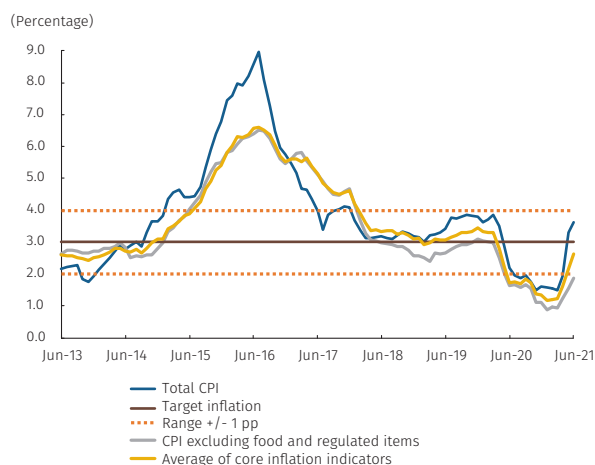
ed to continue to be expansive on the forecast horizon, as excess productive capacity is expected to persist until 2023 and as a large part of the expected increase in total and core inflation is expected to be the result of a low basis of comparison and transitory supply shocks. That said, there remains a high level of uncertainty over international financial and economic conditions, the speed of recovery of the national economy, the dynamics of aggregate supply and demand, and the size of excess productive capacity. These considerations will continue to be evaluated as more information about price behavior, the labor market, and economic activity becomes available.

03 / Current Economic Situation

3.1 Inflation and price behavior

Annual consumer inflation rose to 3.63% in the second quarter, driven in particular by an increase in food prices. After a slight decline in the first quarter (from 1.61% in December to 1.51% in March), overall inflation increased significantly in the second quarter, closing in June (3.63%) above the 3.0% target (Graph 3.1). Over the course of the year the consumer price index (CPI) accumulated growth of 3.13%. The acceleration in annual inflation from March to June can be explained, in part, to roadblocks in May and part of June, which led to a significant increase in consumer prices, especially on perishable foods. An increase in international commodities and basic goods prices due to supply chain and transportation logistics challenges¹⁰, as well as the recovery in global demand, were additional factors. Annual inflation exceeded both market expectations and the technical staff's forecasts throughout the second quarter, with forecast errors concentrated primarily in food prices.

Graph 3.1
CPI and core inflation indicators
(Annual change)



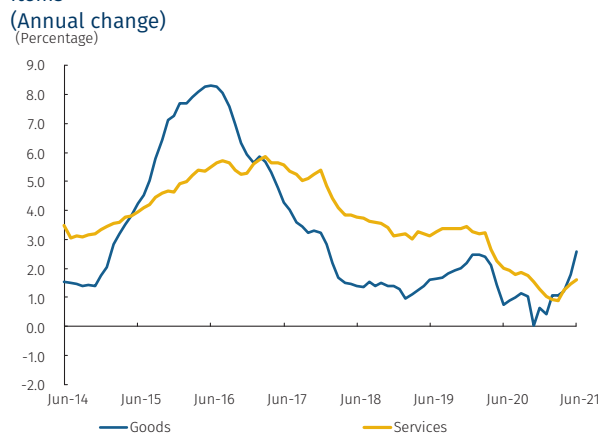
Sources: DANE and Banco de la República

Despite ample excess productive capacity, inflation excluding food and regulated items increased in line with projections, primarily as the result of the dissipation of downward shocks in the second quarter and some external pressures. Core inflation, estimated as the annual change in the CPI excluding food and regulated items, grew in the second quarter from 0.94% in March to 1.87% in June. The average of the indicators of core inflation likewise rose in this period, from 1.22% in March to 2.65% in June (Graph 3.1). This acceleration in core inflation was due in large part to a low basis of comparison and the dissipation of some temporary pandemic-related price relief measures put in place in the second quarter of 2020, which were concentrated especially in the CPI excluding foods and regulated items¹¹. Core inflation started to sustain upward pressures in the second quarter originating in diverse international supply problems, including supply chain bottlenecks, transportation logistics challenges due to COVID-19, the decision by some producing countries to restrict commodities and food exports, and elevated international prices for inputs and raw materials. The easing of mobility restrictions and expanded com-

¹⁰ Scarcity of containers, increased freight prices, export restrictions, etc.

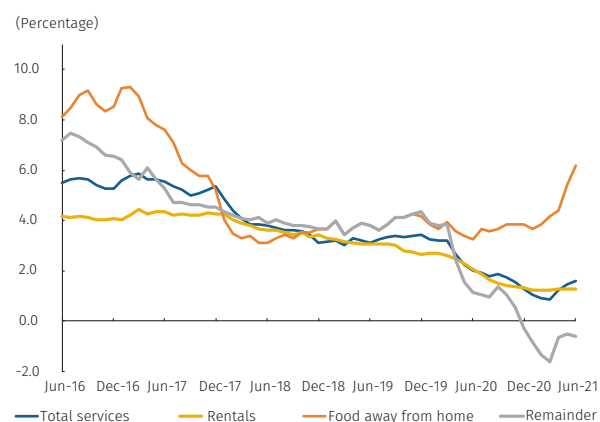
¹¹ See: Caicedo, E. and Martínez, N. (2020), "Estimación del impacto de los alivios de precios sobre la inflación," *Monetary Policy Report*, July 2020, Banco de la República

Graph 3.2
CPI for goods and services, excluding food and regulated items
(Annual change)



Source: DANE; calculations by Banco de la República

Graph 3.3
CPI for services, excluding food and regulated items and their components
(annual change)



Sources: DANE; calculations by Banco de la República

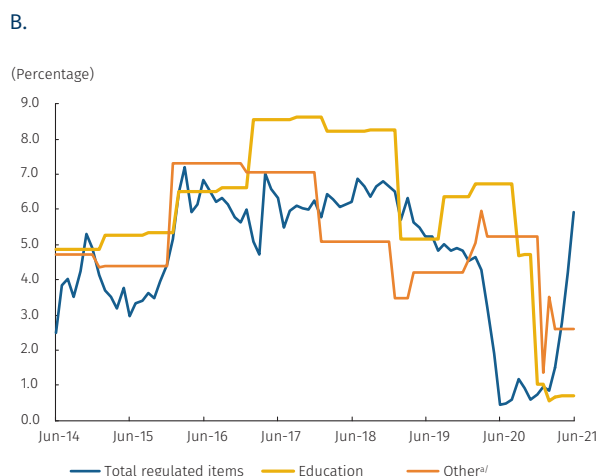
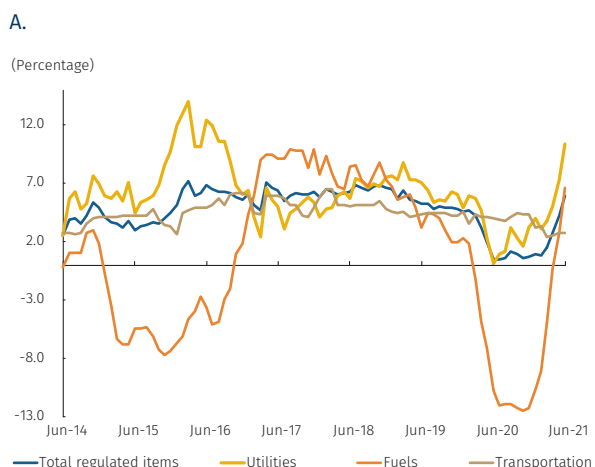
mercial reopening so far this year have driven a recovery in demand in large sectors of the economy, likely contributing to some extent to recent growth in these indicators.

The annual adjustment in goods prices rose in second quarter due to a low basis of comparison, cost pressures associated with supply chain difficulties, and specific increases in demand in some items. Growth in the CPI for goods in the second quarter accentuated a growth trend that began at the beginning of the year, closing June at 2.57% compared to 1.05% in March and 0.63% in December 2020 (Graph 3.2). The increase from March to June can be explained primarily by a low basis of comparison, given the temporary suppression of indirect taxes in 2020 for some health, cleaning, and personal hygiene products. Also of note is the fact that the first “VAT-free day” fell on June 19 last year (one of three in 2020¹²), leading to a reduction in prices for a select group of goods (clothing, shoes, sporting goods, games and toys, school supplies, and agricultural goods and inputs). These price reductions were reversed one or two months later. Additionally, cost pressures from global supply chain and transportation logistics disruptions could be affecting productive chains on some goods, such as automobiles. Demand pressures on some transportation goods (especially on motorcycles and bicycles) are another consideration.

An increase in services prices in the second quarter may be explained in part by cost pressures, in particular on foods away from home (FAH), as well as delayed increases in higher education prices and the dissipation of the downward shock of price relief measures from 2020. Annual change in the CPI for services returned to a growth trajectory in the second quarter, standing at 1.61% in June. The increase was led by the adjustment in FAH prices, where annual variation went from 4.2% in March to 6.2% in June (Graph 3.3). Prices in this component of services have been increasing, especially due to costs associated with higher food prices (as explained below) and, to a lesser extent, increased utility rates. Meanwhile, paid matriculations in higher education, which have been reincorporating discounts and rebates offered last year, drove the CPI for services during the second quarter, accumulating growth of 2.3% between March and June and 5.0% in the year to date. Services represented the component of the basic family basket most affected by a lower basis of comparison, given that in the second quarter of 2020 the level of the CPI for services fell significantly with the implementation of temporary price relief measures that eliminated or reduced VAT for low-cost mobile telephone plans, FAH, air travel, and tourism. For its part, annual change in rental housing remained

12 The other two VAT-free days in 2020 were on July 3 and November 21.

Graph 3.4
CPI for regulated items and its components
(annual change)



a/ includes moderated EPS quotas, administrative certificates and documents, and honorarium payments
Source: DANE; calculations by Banco de la República

stable between March and June at around 1.2%, helping to keep annual change in services prices low despite the upward pressures on the other components of this segment. Minimal changes registered in rental prices in the second quarter reflect ample supply of rental real estate and still somewhat suppressed demand.

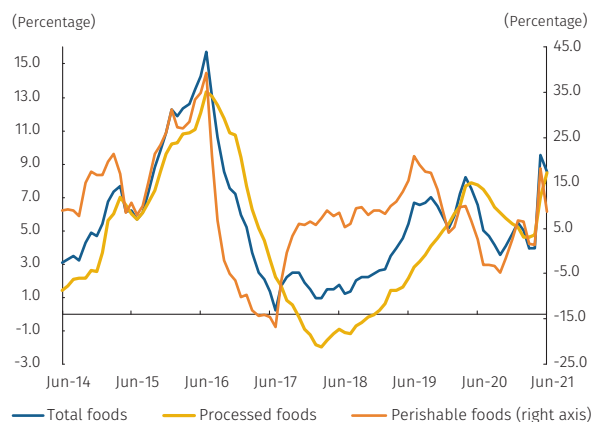
The annual change in the CPI for regulated items increased significantly between March and June, behavior attributable to the reversion of downward shocks on fuels and utilities, as had been expected, and additional pressures due to an increase in international oil prices.

In the second quarter the annual change in the CPI for regulated items drove annual consumer inflation, ending June (5.93%) well above the figure observed in March (1.52%) (Graph 3.4). The higher annual change in fuel prices from March (-4.9%) and June (6.6%) most explained the upward trend in regulated items. This increase happened primarily due to a low basis of comparison in the second quarter, caused by a reduction in domestic prices decreed by the government after a fall international oil prices. The most recent increase in gasoline prices came in the middle of March (COP 200), as the result of increasing international fuel prices, which was also reflected in part of the second quarter. Increased utility rates also contributed significantly to larger adjustment in prices of regulated items from March to June, while that for other segments that comprise regulated items did not show significant changes. Gas and energy prices were driven, in part, by an increase in international oil prices and, on the other hand, by higher consumer and producer inflation from more significant increases in costs in the tax formula (energy and water services). Additional investments to increase coverage and improve energy services passed through onto final prices, especially on the Atlantic coast. Also, a rebound in the annual change in the CPI for utilities can be explained by a low basis of comparison originating in reductions, subsidies, and even free utility rates in some cities in the second and third quarters of last year.

A significant second-quarter increase in the annual change in the CPI for foods far exceeded expectations and was reflected in multiple shocks both domestically and internationally. Some of these shocks were likely temporary, while others appear to be more long term.

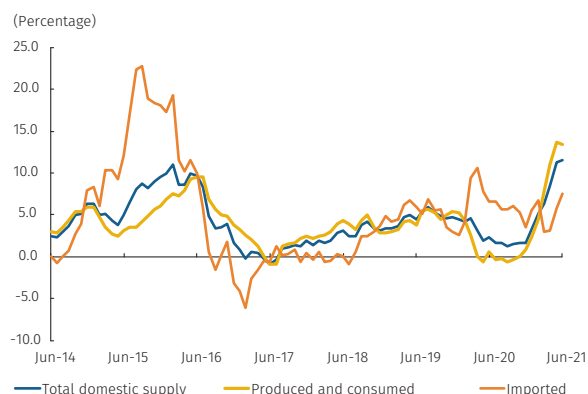
After a slight downward trend in the first quarter (Graph 3.5), growth in the CPI for foods (from 3.92% in March to 9.52% in May and 8.52% in June) was driven by temporary factors associated with protests and roadblocks in May and part of June, which significantly reduced grocery and perishable foods supply across the country (especially in the southwest). These roadblocks also led to a deterioration of the productive chain in some agricultur-

Graph 3.5
CPI for foods by group and components



Source: DANE, calculations by Banco de la República

Graph 3.6
PPI by origin
(annual change)



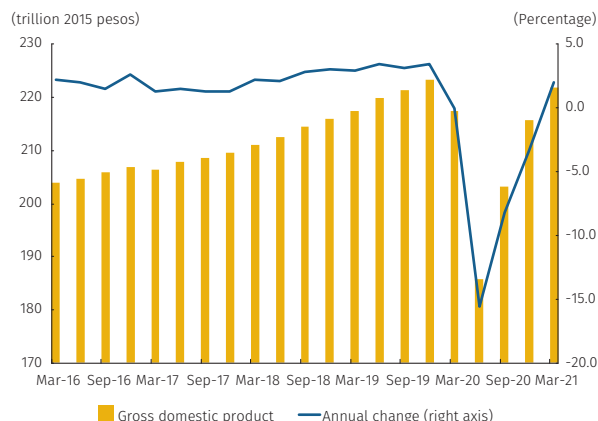
Source: DANE; calculations by Banco de la República

al sectors, in particular the poultry sector. A reduction in the supply of beef due to higher exports and reduced cattle processing accentuated this trend. Processed and perishable foods prices, meanwhile, have sustained less temporary upward pressures from international prices, including a rebound in international basic goods prices, a significant increase in freight prices, container scarcity, overages and delays caused by biosecurity measures at ports, the suspension of exports by some food-producing countries, climate disruptions that have reduced harvests in some parts of the world (especially of cereals), and more dynamic demand in China and the United States for commodities and foods (see Boxes 2 and 3).

Annual producer inflation has increased consistently since January, primarily due to a rebound in the producer price index (PPI) for oil and oil derivatives and, to a lesser extent, to scarcity in some raw materials due to global supply problems and some reductions in food supplies.

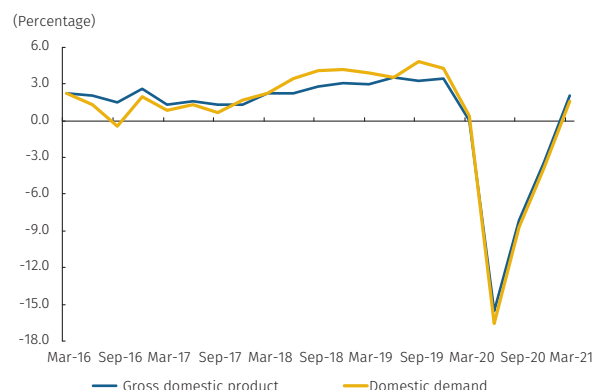
Annual producer inflation, taken as the annual change in the PPI for domestic supply, has increased consistently since the beginning of the year and closed the first half of the year (11.6%) at recent highs (Graph 3.6). This dynamic has been driven both by the domestic component of the PPI (from 7.8% in March to 13.4% in June) and imports (from 3.4% to 7.6%). These two segments of the PPI have incorporated a recent scaling in mining prices, especially in steel and iron, and in oil and oil derivatives. Growth in the imports component of the PPI has been driven by supply chain and transportation logistics challenges, and by increases in international prices for basic goods, where an upward effect on the PPI has been accentuated by accumulated depreciation of the exchange rate. Meanwhile, growth in the domestic PPI may also be associated with reduced supply of some perishable foods (in particular potatoes and some garden produce) and with a reduced supply of beef for the domestic market, as the result of increased exports and reduced livestock slaughter. Additionally, the roadblocks from May and the beginning of June damaged productive agricultural processes, especially in poultry, driving prices to historical highs.

Graph 3.7
Quarterly gross domestic product^{a/}
(level and annual change)



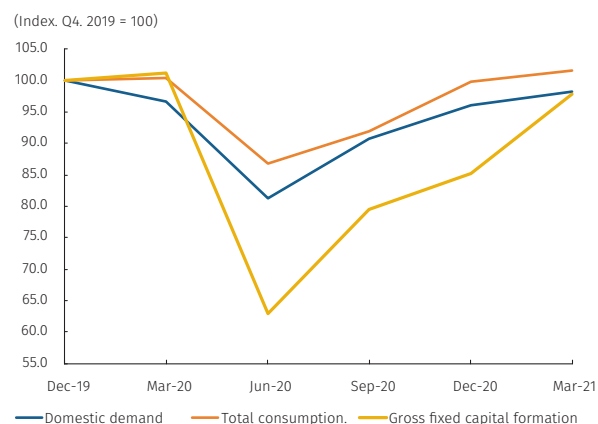
a/ seasonally adjusted and corrected for calendar effects
Source: DANE; calculations by Banco de la República

Graph 3.8
Gross domestic product and quarterly domestic demand^{a/}
(annual change)



a/ seasonally adjusted and corrected for calendar effects
Source: DANE; calculations by Banco de la República

Graph 3.9
Domestic demand and its components relative to Q4 2019^{a/}



a/ seasonally adjusted and corrected for calendar effects
Source: DANE; calculations by Banco de la República

3.2 Growth and domestic demand

3.2.1 First-quarter GDP

Despite social distancing and mobility restrictions in January, GDP grew significantly in the first quarter, nearing pre-pandemic levels. Economic activity was unexpectedly strong in the first quarter, growing at a quarterly rate of 2.9% and in annual terms at 2.0%¹³ in the SACE series (Graph 3.7). The technical staff expected annual change of -0.3% in the last *Monetary Policy Report*. This result confirms a significant recovery beginning in the second half of 2020, putting first-quarter GDP very close to pre-pandemic levels. Significant differences within economic segments and among spending components persist in terms of the degree and way in which they have been affected by the pandemic, as do significant excesses in productive capacity and levels of unemployment.

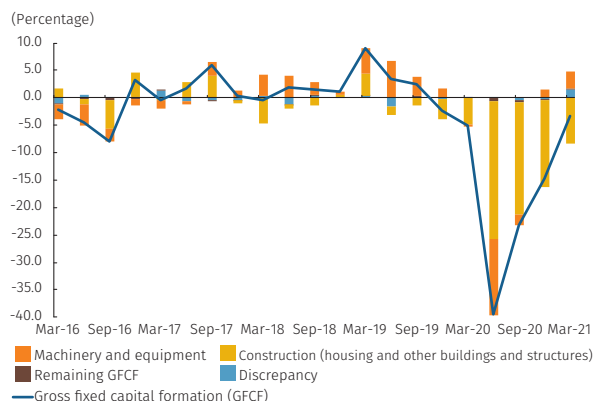
The first-quarter recovery in economic activity was reflected in domestic demand, which was more dynamic than expected. Domestic demand registered positive annual growth in the first quarter (1.6%), following three consecutive quarters of annual contraction (Graph 3.8). Demand has grown 2.3% since the end of 2020, though it continues below pre-pandemic levels. By component, gross fixed capital formation was largely responsible for the growth between quarters. Consumption also grew significantly compared to the fourth quarter of 2020 (Graph 3.9).

Total consumption was unexpectedly higher than pre-pandemic levels. Household consumption returned to positive quarterly growth and registered a positive annual growth rate of 1.0%, exceeding expectations. The continued reopening of the economy and relaxation of social distancing measures contributed to this dynamic. All components of private spending grew in quarterly terms, and those related to goods consumption (durable and non-durable) reached historical highs. This was not the case for services consumption, which grew but remained below pre-pandemic levels and continued to be the segment most affected by the shock from COVID-19. For its part, public consumption fulfilled a significant counter-cyclical function, registering positive quarterly change and growth in annual terms (5.1%) that surpassed that of GDP.

Gross fixed capital formation recovered a significant portion of its pandemic losses, thanks in particular to an increase in housing investment, as well as in machinery and equipment (Graph 3.10). In the first quarter this

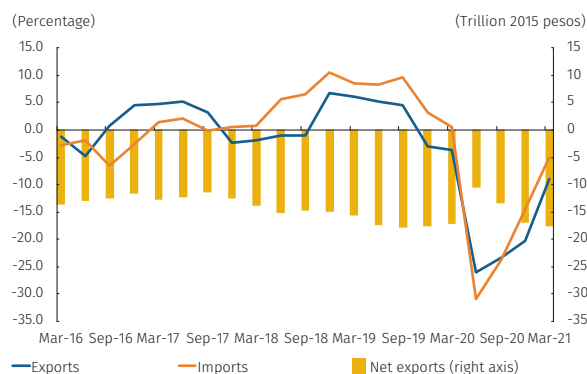
13 Annual growth in the original series was 1.1%.

Graph 3.10
Quarterly gross fixed capital formation^{a/}
(contributions to annual variation)



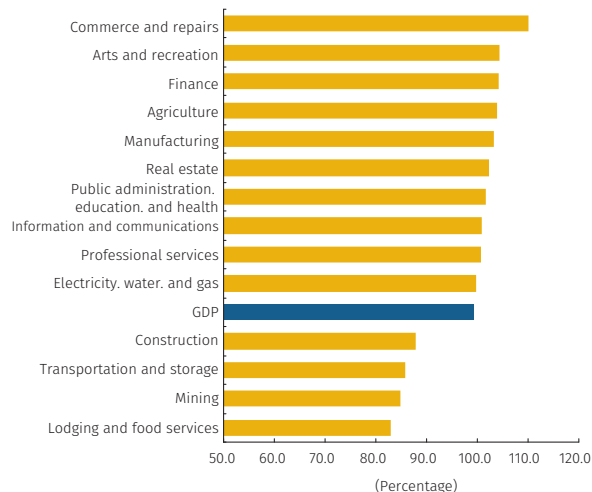
a/ seasonally adjusted and corrected for calendar effects
Source: DANE; calculations by Banco de la República

Graph 3.11
Exports, imports and trade balance^{a/}



a/ seasonally adjusted and corrected for calendar effects
Source: DANE; calculations by Banco de la República

Graph 3.12
Sector-level value added in Q1 2021 relative to Q4 2019^{a/}
(Q4 2019 = 100%)



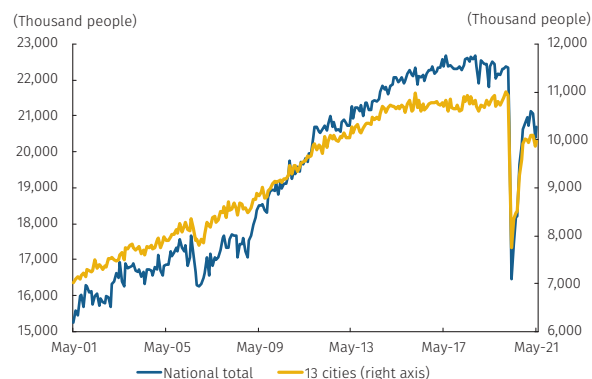
a/ seasonally adjusted and corrected for calendar effects
Source: DANE; calculations by Banco de la República

component registered significant quarterly growth and significantly moderated its annual decline, going from -14.7% to -3.4% between the fourth quarter of last year and the first of the present. By sub-component, growth in housing investment was most positive, possibly as a reflection of solid sales performance at the end of 2020. Spending on machinery and equipment also grew significantly, reaching historical highs. This was associated with transportation equipment purchases, especially in March. Despite having maintained a growth trajectory, investment in the “other buildings and structures” category continued to represent the component of gross fixed capital formation that has been most affected by COVID-19, continuing well below pre-pandemic levels and registering annual declines above 20%. Figures for the national accounts by supply suggest that this poor performance can likely be explained primarily by weakness in non-residential buildings.

For the first time since the beginning of the pandemic, real exports contributed significantly to a quarterly recovery in economic activity. However, export levels continued below pre-pandemic figures. This component of spending registered significant growth in the first quarter, and its annual change (-8.9%) amounted to a significant improvement compared to declines in the previous quarters, all of which were above 20%. Improved export performance in this period can be explained in particular by export sales of coffee, nickel (favored by a low basis of comparison), some manufacturing goods, and services. Imports also registered a considerable quarterly increase, though still with significant annual declines that were less pronounced than previous quarters. This was consistent with improved performance of domestic demand, driven in particular by purchases of capital goods and certain commodities. Given the above, the trade deficit in real peso terms grew somewhat compared to the previous quarter (Graph 3.11) and the contribution in this period to the annual change in GDP from net foreign demand was negative.

A significant number of the components of economic activity returned to pre-pandemic levels in the first quarter (Graph 3.12). Improvements in economic activity at the beginning of the year can be explained in particular by tertiary activities, where value added grew more than expected in the previous report. Within these activities, commerce and repairs were particularly of note, registering above pre-pandemic levels with annual growth of 7.1%. Meanwhile, value added from industrial manufacturing surpassed pre-pandemic levels and registered the largest annual growth among the major components of economic activity (8.4%). This drove recovery in secondary activities, despite the fact that construction re-

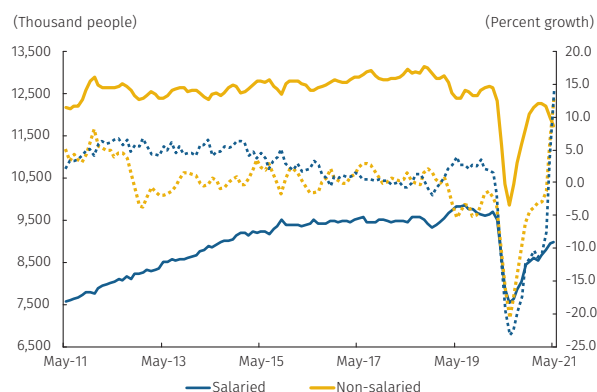
Graph 3.13
Employment performance
(seasonally adjusted monthly series)



Source: DANE (GEIH); calculations by Banco de la República

Graph 3.14
Jobs by type of employment
(seasonally adjusted moving quarter)

A: Salaried and non-salaried: national total



Notes: the dotted lines represent annual growth (right axis). The national statistics agency (DANE) officially considers workers to be informal if they do not work in business establishments or companies that have up to five total employees across all sites, including management and/or partners and excluding self-employed workers, laborers, or government employees.
Source: DANE (GEIH); calculations by Banco de la República

mained at low levels and continued to register annual declines (both in buildings and in public works). As for primary activities, growth in the agricultural sector was particularly noteworthy, with agricultural crops (excluding coffee) growing above expectations in annual terms. By contrast, mining remained at very low levels and registered a negative annual growth rate.

3.3 Labor Market¹⁴

A recovery in employment has stalled in recent months, in part due to the effects of new waves of COVID-19 and disruptions in public order. Seasonally adjusted monthly figures¹⁵ from DANE’s Large Integrated Household Survey (GEIH for its abbreviation in Spanish) suggest a labor market that continues to deteriorate and, in the first half of 2021, stopped growing (Graph 3.13). New outbreaks of COVID-19, which led to voluntary social distancing from agents and mobility restrictions in some cities, led to a contraction in overall employment in January and April. Although jobs figures returned to monthly growth in May both nationally (281,000 jobs) and in urban areas (88,000 jobs), a prolonged third wave of the pandemic and the disruptions to public order again limited recovery, as this growth did not compensate for losses in April. As a result, the total number of employed people nationally in May did not return to levels registered the end of 2020 (compared to December, it was 1.3% or 272,000 jobs lower), while employment in Colombia’s 13 largest cities was roughly similar to figures from that period. The economy thus still needs to recover 28.3% (1.7 million) of the jobs it has lost since the start of the pandemic.

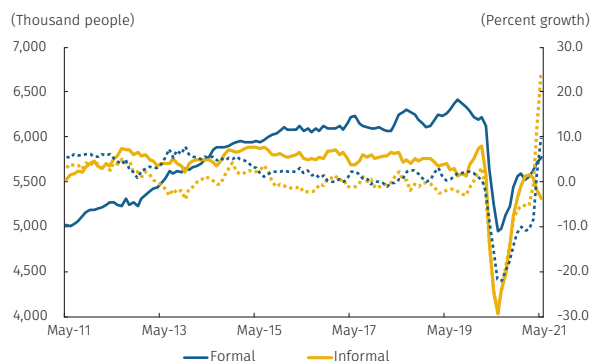
Non-salaried and informal employment became less significant as drivers of employment growth, while salaried and formal employment maintained growth trends. The recovery of national employment observed since the middle of 2020 was driven in large part by non-salaried employment. However, growth in this segment of employment has since reversed, registering consecutive monthly losses since March. By contrast, salaried employment has become more dynamic, though it remains below pre-pandemic levels. Salaried positions nationally grew 0.6% (54,000 jobs) according to moving quarter data

14 For a more detailed analysis of recent labor market performance, see Banco de la República’s *Labor Market Report*, available at <https://www.banrep.gov.co/es/reporte-mercado-laboral>

15 Labor market series are seasonal, meaning that values can be systematically higher or lower depending on the month of the year. This can be isolated through statistical techniques that allow for comparisons between months of a given year. The information presented in this section reflects the series in which these calendar effects have been corrected and is known as the seasonally adjusted series.

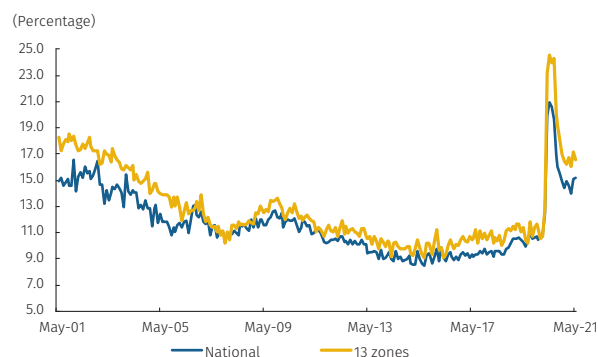
Graph 3.14 (continued)
Jobs by type of employment
(seasonally adjusted moving quarter)

B: Formal and informal; 23 cities and metropolitan areas



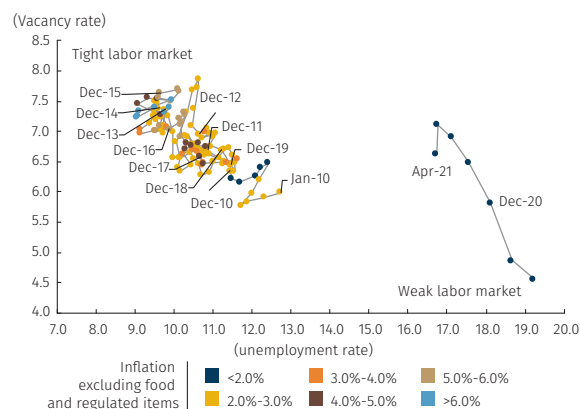
Notes: the dotted lines represent annual growth (right axis). The national statistics agency (DANE) officially considers workers to be informal if they do not work in business establishments or companies that have up to five total employees across all sites, including management and/or partners and excluding self-employed workers, laborers, or government employees.
Source: DANE (GEIH); calculations by Banco de la República

Graph 3.15
Unemployment rate by location
(seasonally adjusted monthly series)



Source: DANE (GEIH); calculations by Banco de la República

Graph 3.16
Beveridge curve for seven largest cities



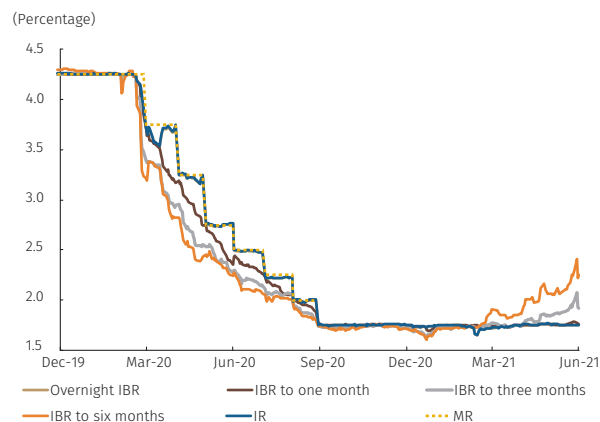
Notes: seasonally adjusted series. Moving quarter. Based on vacancy rate estimated using GEIH hiring methodology, see Morales, L.F., & Lobo, J. 2017. Estimating Vacancies from Firms' Hiring Behavior: The Case of a Developing Economy, Borradores de Economía, no. 1017. The estimate of the Beveridge curve is not available for the period between March and September 2020, due to the fact that the vacancy indicator with which it would normally be obtained could not be calculated because of a reduction in the number of questions in the GEIH.
Source: DANE (GEIH) and Banco de la República

between May and April, while non-salaried jobs fell 1.7% (199,000 jobs) (Graph 3.14, Panel A). Formal employment, meanwhile, lead recovery in urban labor demand. Compared to the moving quarter in April, jobs in this segment grew 0.9% (54,000 jobs) in Colombia's 23 largest cities in May, while informal employment contracted by 1.5% (84,000 jobs) (Graph 3.14, Panel B). This growth in formal employment can be confirmed by alternative administrative indicators, such as the number of people filing with the PILA pension system, which to April had returned to close to pre-pandemic levels.

Unemployment rates remained stable despite the slowdown in overall employment, due to reduced pressure on the labor supply. However, performance has been mixed among different population groups. Mobility restrictions and voluntary social distancing, as well as roadblocks and other disruptions of public order, led to a month-to-month increase in labor inactivity. This meant that the labor supply maintained a slight downward trajectory in recent months and partially offset reduced demand for labor. As a result, the unemployment rate in the first half of 2021 remained relatively stable, with slight increases in April and May in the national aggregate that reversed declines earlier in the year. In May the national unemployment rate and the unemployment rate for Colombia's 13 largest cities were 15.2% and 16.5%, respectively (Graph 3.15), both of which continue to be high compared to pre-pandemic levels. Even though the Colombian labor market has shown a correction compared to the deterioration observed since the start of the pandemic, unemployment behavior remains mixed among distinct population group, with significant unemployment rate gaps for women and young people.

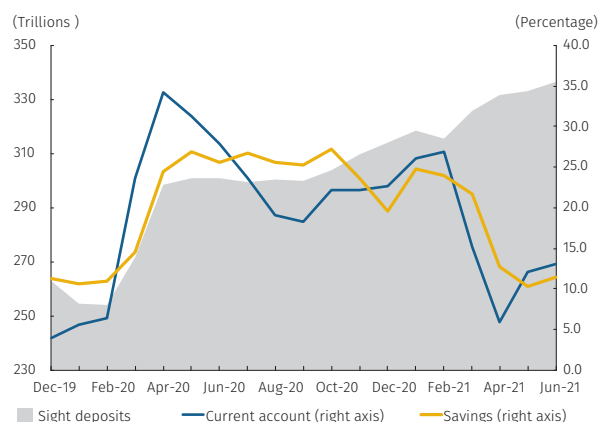
The Colombian labor market continues to be loose and is not a source of inflationary pressure via labor costs. Recent vacancy index data, based on the GEIH and the Public Employment Service (SPE for its abbreviation in Spanish), suggest significant recovery in recent months, consistent with positive performance in formal employment. Meanwhile, in the year to date, reductions in urban unemployment have been limited (compared to growth in the number of job openings). Given these two dynamics, a Beveridge curve suggests that, if this trend continues, increased hiring frictions could imply an increase in structural unemployment (Graph 3.16). While it is premature to evaluate this hypothesis, measures of non-inflationary unemployment can confirm pandemic-related increases that, though to levels that continue below observed unemployment rates, suggest a labor market that continues to be loose and that could put downward pressure on inflation via lower salary costs. This last point can be seen in labor income data from the GEIH, in particular

Graph 3.17
Benchmark rate (MR), interbank rate (IR) and benchmark banking indicator (IBR)
(daily data)



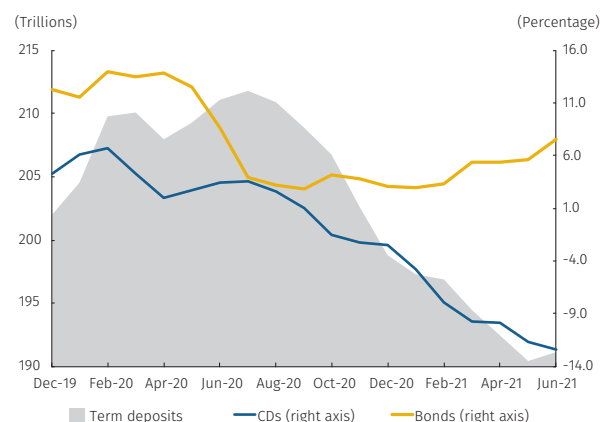
Source: Banco de la República

Graph 3.18
Sight deposits^{a/}
(monthly average balance and annual change)



a/ Sight deposits include checking accounts, savings deposits, and other sight deposits
Source: Financial Superintendent of Colombia; calculations by Banco de la República

Graph 3.19
Term deposits
(monthly average balance and annual change)



Source: Financial Superintendent of Colombia; calculations by Banco de la República

for non-salaried workers. This segment has registered a significant recovery, mainly from an increase in hours worked, but to April still would need to recover by 49% to return to pre-pandemic levels. For its part, salaried labor income continues to be relatively stable.

3.4 Financial and money market

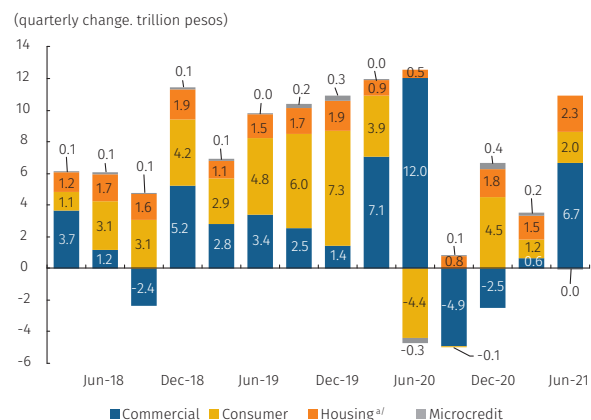
Economic recovery continues to be supported by favorable financial conditions. In the second quarter average deposit and credit interest rates continued at historical lows, despite some observed increases at the end of June. The peso-denominated portfolio stopped its annual deceleration, and between May and June consumer credit accelerated, primarily for housing purchases. The commercial credit portfolio returned to growth after relative stagnation in the first quarter. Meanwhile, the liability provisions portfolio continued to be high in April and credit establishment earnings partially recovered, after consistent declines since the end of 2019. All of this came in the context of bank and sovereign credit downgrades, and an increase in credit risk to levels similar to those registered during the international financial crisis of 2008.

Deposit interest rates continue at historical lows despite recent increases in long-term rates. Sight deposits continue to increase as a share of bank financing, but liquidity and stability indicators have remained within regulatory margins. In the second quarter the one-day interest rate (the interbank rate and the benchmark banking indicator, or IBR), remained similar to the monetary policy rate, while the IBR at three and six months, as well as interest rates on longer-term CDs at longer-terms, increased (Graph 3.17). Economic agents' expectations regarding possible increases in the monetary policy rate and increased risk perception may have contributed to this performance. Deposits grew 3.3% annually in June, the result of an 11.9% increase in sight deposits and a 9.5% contraction in term deposits (Graphs 3.18 and 3.19). Between March and June the increase in sight deposits was concentrated in savings and to a lesser extent in checking accounts. Within term deposits, CDs declined, while bonds remained relatively stable. As a result, the recomposition of banks' funding sources in the direction of sight deposits, which began in February 2020, deepened in the second quarter¹⁶. In June the short-term liquidity coverage ratio (LCR, 206%) and the net stable funding ratio (NSFR, 112%¹⁷) remained close to levels ob-

16 Sight deposits represented 55.2% of overall deposits in February 2020, before rising to 61.4% in March 2021 and 62.5% in June.

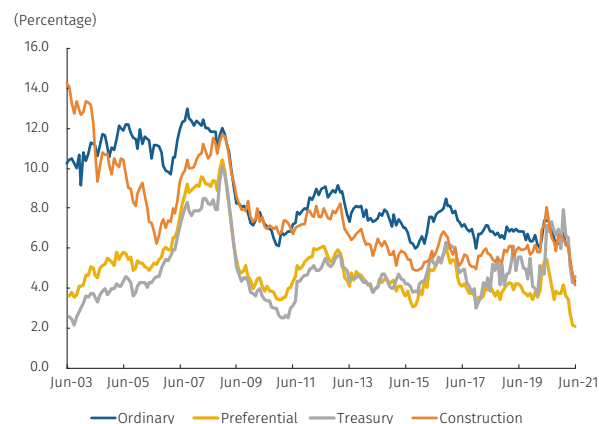
17 Figure to May 2021 corresponds to banks.

Graph 3.20
Gross national currency portfolio



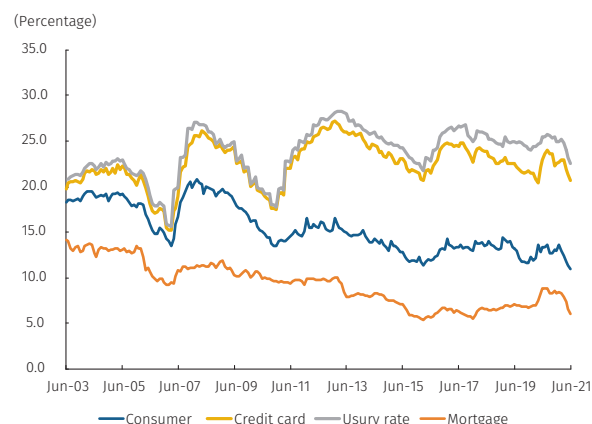
a/ includes securitizations
Source: Financial Superintendent of Colombia; Calculations by Banco de la República

Graph 3.21
Real commercial credit interest rates
(average monthly data deflated with CPI excluding foods)



Source: Financial Superintendent of Colombia; calculations by Banco de la República

Graph 3.22
Real household credit interest rates
(monthly average data deflated with the CPI excluding foods)



Source: Financial Superintendent of Colombia; calculations by Banco de la República

served at the beginning of 2020, retaining solid margins on regulatory requirements.

Credit continued to recover amid loan interest rates that stopped their decline but remained historically low alongside a materialization of credit risks. The peso-denominated credit portfolio stopped decelerating in annual terms in the second quarter, with disbursements performing similar to conditions before the pandemic. Recovery in the commercial portfolio and disbursements was significant from March to June (Graph 3.20), returning to high levels observed last year, when businesses required significant liquidity to confront the economic effects of the pandemic. The microcredit portfolio remained relatively stable, while mortgages, and to a lesser extent consumer credit, accelerated. This came in the context of credit interest rates that registered slight increases in some groups (commercial and consumer) at the end of June, but that remained historically low in nominal and real terms (Graphs 3.21 and 3.22). The performance of interest rates, the smaller differential between credit and bond rates, and the positive performance of sales in some economic sectors that usually require credit (construction, vehicles, clothing) point to positive conditions for continued recovery in credit demand.

Credit risks increased, liability provisions remained high, and some banks withdrew from the balance of their past-due portfolio. Nevertheless, earnings in the financial system have recovered and solvency levels remain above regulatory minimums. As some pandemic-related postponements and authorized deferrals from the Financial Superintendent lapse, there has been a significant increase in the past-due portfolio, to levels similar to those observed during the international financial crisis of 2008. Historically high levels in the liability provisions portfolio, which have remained relatively constant this year to date, allowed for credit establishments to respond and withdraw a part of their balance of difficult-to-collect loans. Despite this, financial system earnings recovered in April¹⁸, after persistent declines since the beginning of 2019. Overall (21.7%) and core solvency (16.9%) maintained a wide margin compared to levels required by the Financial Superintendent (9.0% and 4.5%, respectively).

18 Most recent information available.

Box I Characterizing and Communicating the Balance of Risks of Macroeconomic Forecasts: A Predictive Densities Approach for Colombia¹

Juan Camilo Méndez-Vizcaíno
César Ánzola-Bravo
Alexander Guarín
Anderson Grajales-Olarte*

Developing and evaluating macroeconomic forecasts are crucial elements of a central bank's monetary policy agenda, especially in economies operating under a target inflation scheme (Svensson, 2010). *Banco de la República's* approach in this regard consists of process that involves a qualified technical staff, modeling tools with theoretical foundations, and critical assessment of empirical features in order to forecast major macroeconomic variables over an eight-quarter policy horizon (see González et al. [2019] and González et al. [2020]). The resulting forecasts help to inform the decisions of *Banco de la República's* board of directors and are summarized in the *Monetary Policy Report*.

These forecasts are conditional to an evaluation of the current and future state of the economy, to predictions of external variables, and a view of the endogenous monetary policy response designed to move inflation to the target and stabilize output and employment. Monetary policy, however, operates in an environment with uncertainty (Friedman (1972), Batini and Nelson (2001), and Goodhart (2001)), and weighing the balance of risks to the macroeconomic forecast thus represents a key element in the policymaking process.

The balance of risks thus incorporates an assessment of the prospective shocks that the economy might face over the forecast horizon, and which might affect the expected behavior of macroeconomic variables. This is a complex task for monetary policy authorities, requiring a characterization of the potential origin of these shocks, their nature (if they are permanent or temporary), and the degree to which their effects might persist, as well as

the best manner in which these elements and their results would be communicated to the public.

The economic literature suggests that central banks use four main tools to characterize and communicate their prospective balance of risks: qualitative evaluation, symmetric fan charts, asymmetric fan charts, and predictive densities².

Qualitative evaluations offer an exhaustive description of the future state of the economy and likely risks using a narrative approach, without providing an explicit quantitative explanation about different potential sources of risk and their magnitudes.

Fan charts characterize the balance of risks to the macroeconomic forecast through a probability distribution created separately from forecasting models and then superimposed on the central forecast path. The construction of these charts follows the classic estimation of confidence intervals based on the historical volatility of forecast errors and an assumption over their density function. Symmetric fan charts (Blix and Sellin, 1999) suppose normal distributions that allow for the characterization of a balanced risk, while asymmetric fan charts (Britton et al., 1998) consider a two-piece normal distribution, allowing for the description of a skewed balance of risks.

Fan charts are the result of a statistical methodology that does not account for the economic structure of the model, nor does it consider the general equilibrium relationships on which the central forecast is based. Furthermore, the probability distributions for each variable are independent, which does not guarantee macroeconomic consistency between the fan charts for each of the variables considered in the model.

The three tools described above have been used by *Banco de la República* in its characterization and communication of forecast risks. Until 2018, the bank used an asymmetric fan chart for GDP growth and headline inflation in its *Inflation Report*, making the risk factors for these variables explicit. In 2019, with the new forecasting process reflected in its *Monetary Policy Report*, the bank adopted symmetric fan charts, reflecting the volatility of the forecast implicit in historical prediction errors. In 2020, as a consequence of the high uncertainty generated by COVID-19 and the difficulty of presenting a probability distribution that would portray the effects of this shock on the forecast, *Banco de la República* suspended the publication of its fan chart and adopted a qualitative evaluation of the risks.

Starting with the current quarterly Monetary Policy Report, the bank will now characterize and communicate the prospective balance of risks of its macroeconomic forecast using a Predictive Density (PD) approach. This supplement thus has two objectives: First, to briefly present the technical

¹ A portion of this supplement is taken from "Characterizing and Communicating the Balance of Risks of Macroeconomic Forecasts: A Predictive Density Approach for Colombia," to be published in *Banco de la República's* Borradores de Economía series.

* The authors work in *Banco de la República's* Department of Macroeconomic Modeling; the opinions expressed herein are the exclusive responsibility of the authors and do not necessarily reflect the views of *Banco de la República* or its board of directors.

² For example, the central banks of Sweden and France, as well as the European Central Bank, have adopted symmetrical fan charts, while the central banks of England, Hungary, Brazil, and Peru have preferred asymmetrical fan charts. Qualitative evaluation is used explicitly by the Bank of Japan and the U.S. Federal Reserve, and complements the analysis of central banks that use quantitative tools. The characterization of risk and its communication with predictive densities has been considered by central banks in Norway, Israel, and Canada, and by the technical staff of the New York Federal Reserve.

aspects of the PD methodology, and second to illustrate the results of the PD methodology referenced in this report.

1. Predictive densities

Predictive density methodology aims to characterize, quantify, and communicate the prospective balance of risks. This task requires generating a probability distribution of the forecasts of all economic variables included in the general equilibrium models (PATACON and 4GM). Using this methodology, the probability distribution of the forecasts preserves the transmission channels intrinsic to the economic structure of the model, and thus maintains its macroeconomic consistency and the general equilibrium dynamics.

More specifically, the probability distribution obtained using PD is based on the structure of the models and shock sequences, allowing for the inclusion of external information to guide the mode and variance of its distributions, as well as an asymmetric balance of risks. These characteristics offer a more robust macroeconomic projection, making clear the sensitivity of the forecast to future risks and allowing for the quantification of its effects, thus contributing to a more complete monetary policy recommendation.

1.1 Description of the methodology

Banco de la República's technical staff constructs its macroeconomic forecast and policy recommendation using results from the PATACON and 4GM monetary policy models. These are rational expectations models that capture transmission mechanisms for a small, open, oil-exporting economy and whose parameters are estimated using data from the Colombian economy.

The general solution of these models can be represented by the system³:

$$Y_t = Z(\theta)S_t + H(\theta)v_t \quad (1)$$

$$S_t = T(\theta)S_{t-1} + R(\theta)\epsilon_t \quad (2)$$

where (1) and (2) are denominated measurement and transition equations, respectively. The measurement variables Y_t are informed by observable data (e.g. inflation and GDP growth), while the state variables S_t are latent (not observable) and come from the dynamics of the model itself (e.g. output gap, potential output). Equation (1) establishes a relationship between the observed variables Y_t and the state variables S_t and includes a vector of measurement errors v_t (or data revisions). Equation (2) defines the dynamic of change over the course of time for the model variables. This equation also accounts for structural shocks ϵ_t (or innovations) that are exogenous components of the models, but that affect the dynamic of its variables (e.g. a demand shock).

The system of equations (1) and (2) generates forecasts whose dynamic is explained by the economic structure of the model, its transmission channels, and the structural shocks faced by the economy (Smets and Wouters, 2003 and 2007; Christiano et al., 2003). In the Bayesian statistics context, the analysis lies on the probability distributions of the forecast, also called the predictive density. The predictive density reflects the probability assigned to each one of the future possible outcomes of a variable, conditional to a set of observable data (Geweke and Whiteman, 2006).

Following Del Negro and Schorfheide (2013), the one-period ahead predictive density quantifies the probability of having a forecast Y_{T+1} given the set of observed information Y_T :

$$P(Y_{T+1}|Y_{1:T}) = \int P(Y_{T+1}|\theta, S_{T+1})P(S_{T+1}, S_T|\theta, Y_{1:T})d(S_{T+1}, S_T) \quad (3)$$

Equation (3) captures two sources of uncertainty⁴: First, some state variables are estimated based on the structure of the model and, as a result, are stochastic variables (e.g. output gap). Second, the equation captures the uncertainty over the exogenous risk factors that would affect the economy in the future (for example, structural shocks ϵ_t).

The following illustrates the steps followed by the technical staff in the construction of the PD for macroeconomic forecasts:

- Using available data, a diagnostic of the current state of the economy is defined (e.g. output gap and real exchange rate gap) and a central forecast for the macroeconomic variables is created.
- A qualitative balance of risks to the central forecast scenario is generated. The prospective risk factors identified in this analysis are characterized by using the probability distribution (mode, variance, and skewness) of the structural shocks of the models.
- A combination of shocks is drawn from these distributions as input for the PATACON and 4GM models. Each model thus generates a forecast path consistent with these shocks. This simulation exercise is repeated a considerable number of times, resulting in a set of forecast paths for each variable.
- For each model and prediction period, the set of forecasts is represented with a distribution that assigns probabilities to the projections for each variable. The densities on the PATACON and 4GM forecasts are combined to obtain a unified predictive density. This combination is done giving equal weight to the predictive densities of each model⁵.

3 The matrices Z , H , T and R characterize the solution of the model and are a function of parameters θ .

4 A more exhaustive analysis incorporates uncertainty in the parameter θ through a probability distribution. Nevertheless, in this case a point estimate is used, as is common practice.

5 Uses a linear pooling methodology proposed by Stone (1961). The literature has shown that a combination of forecasts that assigns the same weight to its components tends to outperform the forecast capacity of more sophisticated combinations (Graefe et al., 2014).

1.2 Characterizing the distribution of shocks

The construction of the balance of risks implies the prospective identification of the factors that could affect the economy in the future and the expected performance of macroeconomic variables. In the first instance, this balance provides a qualitative evaluation that exhaustively describes each of the elements that could affect the forecast.

The characterization of the prospective risk factors is translated in terms of the distribution of shocks used in the PATACON and 4GM models and, specifically, its considerations about the mode, variance, and skewness of these shocks on the forecast horizon.

The representation of risks in terms of the distribution of shocks has at least two advantages. First, it allows for the quantification of the marginal effects of each factor of uncertainty in the construction of the predictive density. Second, it offers the possibility of including exogenous information in the forecast within the models, in such a way that the general equilibrium dynamics and the macroeconomic consistency are maintained.

1.2.1 Mode

First, we do considerations about the mode of distribution for different shocks to condition the projection models on exogenous information.

For example, assumptions about external variables on the forecast horizon, such as oil prices or the U.S. Federal Reserve interest rate, are derived from the analysis and combination of projections using different sources of information. These trajectories are included in the models through shocks, whose distribution implicitly has a non-zero mode to condition the assumed value. These shocks have their own effect on the probability distributions of the other variables through the economic structure and the implicit channels of transmission in the models.

1.2.2 Variance

Second, the variance of the distribution of the shocks is adjusted to characterize different magnitudes of risk over the forecast horizon. This characterization allows for the communication of different levels of uncertainty over the forecast horizon, in line with the prospective risk factors from the qualitative analysis.

An example of this would be the quantification of risk associated with climate factors and, in particular, the possibility of an El Niño weather pattern given exogenous information regarding the likelihood of observing this event during the forecast horizon.

Historically, El Niño weather patterns have implied increases in uncertainty associated with the dynamics of the food basket. As such, considerations of the variance of the shocks associated with prices in this basket allow for an adequate reflection of this prospective risk.

The variance of the distribution of the distinct shocks can be informed using data from external sources, or by recurring to the shocks estimated in the models.

1.2.3 Skewness

Third, the distribution of shocks is modified to characterize the asymmetry present in the analysis of the prospective risk factors. This analysis implies abandoning the assumption of symmetry of the normal distribution but allows that the Technical Staff incorporates risk elements reflecting a higher probability of obtaining macroeconomic forecast paths above (or below) the central projection. An example of this would be the characterization of risks on the future dynamic of economic activity as a consequence of the COVID-19 health crisis and subsequent social distancing measures. In this case, the distribution of the demand-side shocks would exhibit a negative skew, capturing the higher probability that GDP growth forecasts are below the central forecast than above it, consistent with a more negative output gap.

2. Characterization of the balance of forecast risks from the July 2021 report

In this section we will qualify and inform the Technical Staff's prospective balance of risks on the macroeconomic forecast of July 2021. The exercise was developed using PD methodology, allowing for the construction of a probability distribution for the forecasts of each relevant variable, incorporating risk factors considered and the transmission of its effects, in light of the economic structure implicit in the PATACON and 4GM models, their general equilibrium relationships and the monetary policy response.

In this exercise, the balance of risks accounts for external and internal factors. The latter includes shocks on prices and economic activity.

The external risk factors consider the possibility of less favorable international conditions than those reflected in the central forecast scenario. These risks can be grouped into four categories. First, in the second half of 2021 the propagation of new strains of COVID-19 and the persistence of global supply chain disruptions, represents a downward risk to the growth of trade partners. This risk would be consistent with a downward skew in the price of oil in this period. Since 2022 the risks on both variables are considered to be balanced.

Second, the uncertainty associated with the inflationary effects, to international and local level, of the disruption of global supply chains, higher transportation costs, elevated commodities and food prices, and the reopening of the economy.

Third, the possibility of a normalization of monetary policy in the United States faster than anticipated in the central projection, for example in response to persistent inflationary pressures that affect compliance with the target (2% on average) and economic growth or a recovery in employment in coming years stronger than expected. In consequence, the PD for the Fed interest rate and the natural U.S. interest rate are positively skewed.

Fourth, fiscal uncertainty in Colombia could be reflected in more restrictive international financing conditions than those considered in the central forecast, captured in upward risks to the risk premium and its medium- and long-

term components. In line with this, both the exchange rate and the real neutral interest rate for Colombia would also have a positive skewness.

This balance of external risks implies financial conditions with a higher probability of being unfavorable than presented in the central forecast, contributing to skew inflation upward and GDP growth downward.

Regarding the risk factors linked directly to prices in Colombia, elements of each of the component groups of the consumer price index (CPI) are characterized for analytic purposes. Food basket incorporates an upward risk until the fourth quarter of 2022, explained primarily by three factors. First, the probability of higher prices in commodities and inputs due to the disruption of global supply chains. Second, increased upward pressures on international food prices associated with the risk of increased demand from China. Third, the possibility of a slower recovery from the deterioration of the agricultural chain, which began during the pandemic and was accentuated by roadblocks in May.

With regard to regulated basket, the PD suggests the risk of more significant adjustment in fuel prices, added to the possibility of higher energy rates and the indexation of public services and regulated education to higher inflation than in the central forecast. These risks would be present until the fourth quarter of 2022.

For core inflation, measured as the CPI excluding foods and regulated items, associated risk factors suggest a positive skewness on the forecast horizon. This would be explained by a goods basket that is expected to have an upward bias until the middle of 2022, reflecting the possibility of interruptions in global supply chains and domestic value chains that have more persistent effects on prices of this basket. Services show a negative skewness given the risk of more pronounced negative demand pressures, lower mobile telecommunications services prices for the rest of 2021, and lower rental housing prices given the ample supply observed over the course of the pandemic and that would be expected to persist in 2021 and the first half of 2022.

The macroeconomic consistency of the PD methodology suggests a positive skewness in headline inflation. Nevertheless, despite the risk factors and the skews mentioned, both core inflation and headline inflation would be expected to remain between 2% and 4% in 2022 with a probability above 70%.

In relation to economic activity, the PD reflects a positive skewness in the GDP nowcast (second quarter of 2021) to capture the risk of an improved economic performance compared to the central forecast, in line with recent results from the monthly economic tracking indicator (ISE). For the rest of the forecast horizon the projection suggests a negative skewness in economic activity, as the consequence of a possible worsening of the health crisis due to the appearance of new strains of the virus, and from political and fiscal uncertainty and its possible effects on consumption and investment decisions.

Panels A-D in Graph B1.1 present the probability distribution for the annual GDP growth forecast, headline inflation,

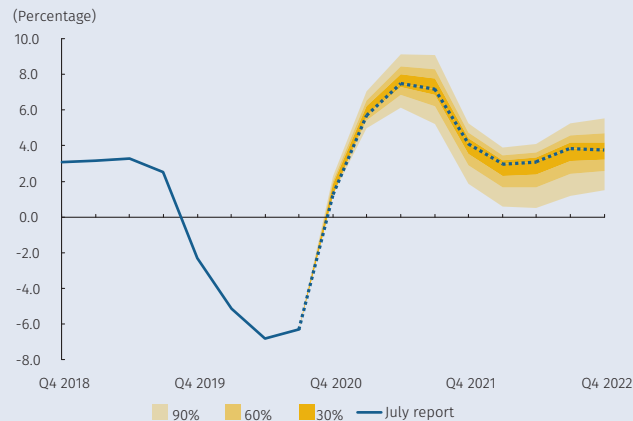
inflation excluding food and regulated items, and the output gap, respectively.

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Graph B1.1

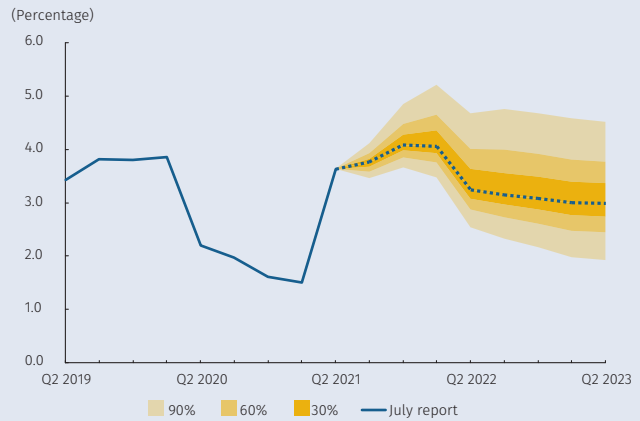
A: Gross domestic product, four-quarter accumulation^{a/ b/ c/}
(annual change)



	Growth at 12 months		
	Q4 2021	Q4 2022	Q2 2023
<2.00	0.0	37.4	10.6
2.00 to 3.50	0.0	46.7	38.5
3.50 to 5.00	0.1	13.0	38.7
5.00 to 6.50	11.8	0.6	10.7
6.50 to 8.00	54.7	0.0	0.7
>8.00	33.0	0.0	0.0

a/ Seasonally adjusted and corrected for calendar effects
b/ The graph presents the probability distribution and its most likely path on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
c/ The probability distribution corresponds to the forecast exercise in the July report.
Source: DANE; calculations and projections by Banco de la República

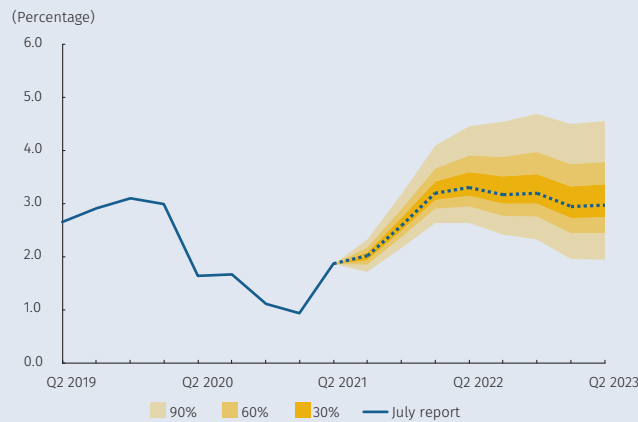
B: Consumer price index^{a/ b/}
(annual change, end-of-period)



	Headline inflation		
	Q4 2021	Q4 2022	Q2 2023
<2.0	0.0	3.2	6.0
2.0 to 3.0	0.0	26.7	32.8
3.0 to 4.0	25.3	47.8	45.1
4.0 to 5.0	72.5	19.9	14.4
>5.0	2.2	2.5	1.7
2.0 to 4.0	25.3	74.5	77.9

a/ The graph presents the probability distribution and its most likely path on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
b/ The probability distribution corresponds to the forecast exercise in the July report.
Source: DANE; calculations and projections by Banco de la República

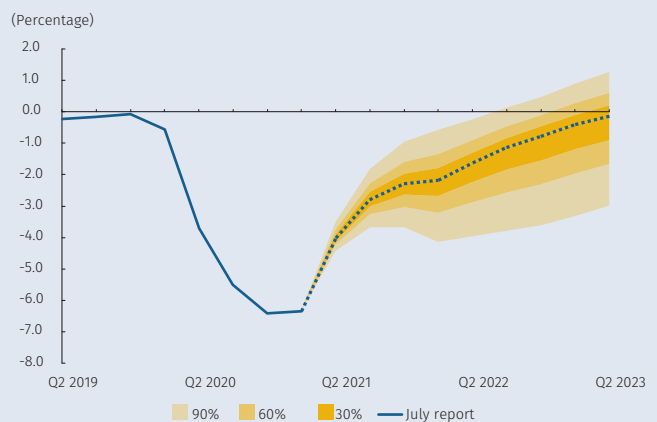
C: CPI excluding foods and regulated items^{a/ b/}
(annual change, end-of-period)



	Inflation excluding food and regulated items		
	Q4 2021	Q4 2022	Q2 2023
<2.0	1.5	1.8	5.7
2.0 to 3.0	84.0	21.7	31.7
3.0 to 4.0	14.3	51.7	45.0
4.0 to 5.0	0.0	22.7	15.8
>5.0	0.2	2.1	1.8
2.0 to 4.0	98.4	73.4	76.7

a/ The graph presents the probability distribution and its most likely path on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
b/ The probability distribution corresponds to the forecast exercise in the July report.
Source: DANE; calculations and projections by Banco de la República

D: Output gap^{a/ b/ c/}
(accumulated for 4 quarters)



	Annual gap		
	Q4 2021	Q4 2022	Q2 2023
<-3.00	21.7	12.5	4.7
-3.00 to -2.00	43.6	24.3	14.0
-2.00 to -1.00	28.4	30.7	27.4
-1.00 to 0.00	5.7	21.8	27.9
>0.00	0.1	10.0	24.7

a/ The historical estimate of the output gap is calculated as the difference between observed GDP (four-quarter accumulation) and potential GDP (trend; four-quarter accumulation) from the 4GM model; for the forecast it is calculated as the difference between the technical staff's GDP estimate (four-quarter accumulation) and potential GDP (trend; four-quarter accumulation) from the 4GM model.
b/ The graph presents the probability distribution and its most likely path on an eight-quarter forecast horizon. Densities characterize the balance of potential risks with areas of 30%, 60% and 90% probability around the central forecast (mode), using a combination of densities from the PATACON and 4GM models.
c/ The probability distribution corresponds to the forecast exercise in the July report.
Source: DANE; calculations and projections by Banco de la República

Box 2

Analysis of Recent Disturbances in Global Logistics Chains and their Impact on Colombian Import Markets

Aarón Garavito
 Juan Diego Cortés
 Stefany Andrea Moreno
 Alex Fernando Pérez
 Juan Esteban Carranza*

This box analyzes the price increase in Colombian imports during the first months of 2021, which reflects different tensions in global markets. Specifically, two sources of price pressure were identified. On the one hand, there have been extraordinary disruptions in the global logistics chains that have led to increases in transport costs. On the other hand, there have been increases in the prices of certain goods, in particular the prices of intermediate goods used by the manufacturing and agriculture sectors.

The first part of the text focuses on the global environment and discusses the various factors that have caused extraordinary increases in logistics costs. The second part examines the price increases of Colombian imports, which reflect these increases in transport costs, but also reflect substantial increases in the underlying net prices of imported goods, in particular intermediate goods. Estimates indicate that the impact of this shock on the costs of the country's manufacturing and agriculture firms lies between 3.0% and 5.0% of their production costs.

1. The Global Situation

In the past year, the increase in the volume of the international trade of goods has been accompanied by a significant increase in maritime transport costs. Graph B2.1 shows the Harpex index of global container transport costs as of June 2021. The index shows a 380% growth from its lowest point in June 2020, and a 100% growth throughout 2021. This substantial increase in maritime transportation costs has been driven by both demand and supply factors.

On the one hand, there has been an increase in the global demand for goods. According to the United Nations Conference on Trade and Development (UNCTAD, 2021) and the

* Los autores pertenecen al Departamento de Programación e Inflación y a la Subgerencia de Estudios Económicos del Banco de la República. Las opiniones son de su exclusiva responsabilidad y no reflejan necesariamente las del Banco de la República ni la de su Junta Directiva.

Graph B2.1
 Harpex Index for Global Maritime Transport Costs



Source: Harper Petersen (harpex.harperpetersen.com).

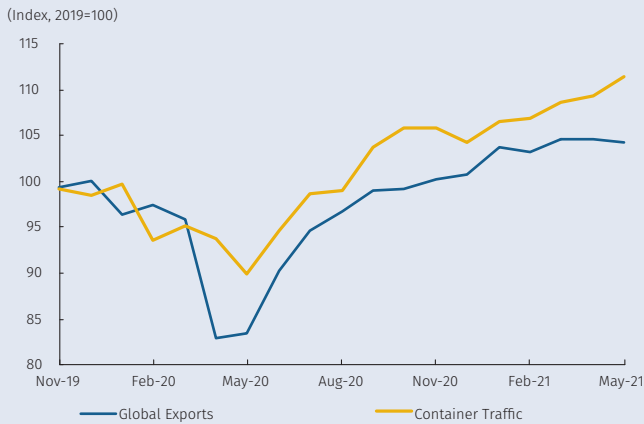
Organization for Economic Cooperation and Development (OECD, 2021), factors that could explain these dynamics include the recovery of the world economy, the recomposition of consumption patterns toward durable goods and e-commerce, the recovery of demand that was contained by quarantines, government support to household incomes, and the restoration of inventories by firms, among others. This has been reflected in the strong recovery of global trade of goods. As can be seen in Graph B2.2, real exports and global container traffic have grown steadily in 2021, in particular exports from Asia. This recovery of trade followed the sharp fall observed during the second quarter of 2020 and has taken place faster than expected. A significant part of these goods is transported by sea, leading to port congestion and shortages of containers.

On the supply side, the expansion of installed transportation capacity faces rigidities, and bottlenecks and delays have been experienced in the logistics chains due to health restrictions and measures to contain the Covid-19 virus. For example, the port of Yantian, which is very important to global trade and close to China's manufacturing center, has been affected in its operation in recent months due to outbreaks of Covid-19, which resulted in disruptions in maritime transport logistics in that country and internationally as well. Additionally, following the wave of Covid-19 infections in India, it has been reported that several ports in different countries introduced restrictions on ships and crews from that country, from where a significant proportion of crew members of transnational vessels are native. Added to this was the blockade in the Suez Canal due to the stranding of a large vessel. This, together with increased demand for shipping services, has led to increased cargo transit and waiting times at ports, delays in established timetables, and a shortage of containers. These dynamics has taken place in a highly concentrated industry, in which 80% of the market is controlled by the ten largest shipping companies through multiple commercial alliances (The White House, 2021).

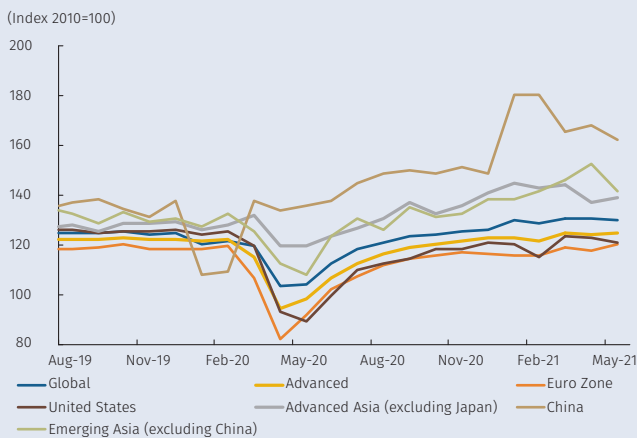
Price increases, higher demand, and supply disruptions have also been observed in the markets for manufactured goods and raw materials, including food markets (see Box 3 of this Report). The manufacturing sector has faced increased delivery times of inputs required for the production processes. According to the Institute of International Finance (IIF), in 2021 these waiting times are above their historical average and increasing, and have been accompanied by higher prices of inputs and final products. The

Graph B2.2
Real Exports and Container Traffic

A. Real Global Exports and Container Traffic



B. Real Exports by Region of Origin



Sources: Institute of shipping economics and logistics, CPB Netherlands Bureau for Economic Policy Analysis, and Bloomberg.

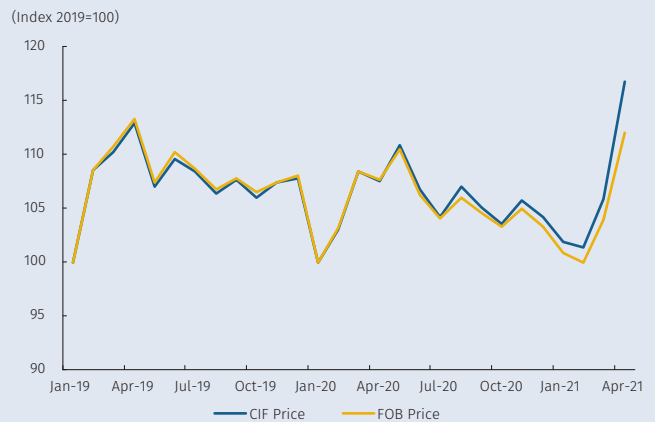
case of semiconductors (microchips), used in multiple products such as computers, cell phones and automobiles, stands out. In the case of the United States and according to analysts and specialized agencies, the scarcity of this input hinders the recovery of economic activity. Moreover, in June, insufficient production of new cars using these semiconductors would have contributed to the maximum monthly increase in all history of the CPI component associated with trucks and used vehicles (10.5%), thus contributing to more than one third of the monthly total CPI change in the United States (0.9%).

2. The Prices of Colombian Imports

The price increase of Colombian imports, caused by increases in logistics costs and international prices of intermediate goods, is shown below. Graph B2.3 shows a US dollar price index of the Colombian imports, based on their 2019 composition and using the prices implied by the CIF and FOB values per volume of the country's monthly import records until April 2021. As shown, the aggregate price of all imports is volatile and has shown a rebound so far in 2021; however, its recent increase is comparable with the increase observed early in 2019. Secondly, since 2020, there has been an increasing gap between the CIF price (which includes logistics costs to Colombian ports of entry) and the FOB price, which is the price at the port of origin.

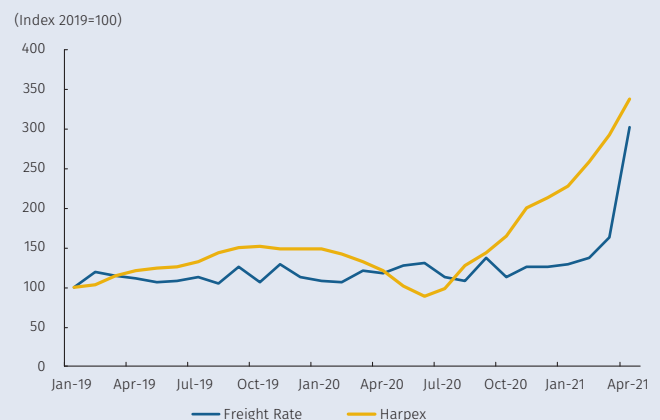
Graph B2.4 specifically shows the transport cost index (calculated as the difference in trade values by volume, CIF – FOB), using the same fixed basket of imported goods as in 2019 and the Harpex index of global logistics costs shown in the previous section. As shown, the increase in the costs of logistics for Colombian imports is similar to their global increase and should therefore be the result of the sup-

Graph B2.3
Price Indexes in CIF and FOB Dollars for Colombian Imports



Sources: DANE and DIAN; calculations by Banco de la República.

Graph B2.4
Implicit Transport Cost Index and Harpex Index of Overall Container Transport Costs



Sources: DANE, DIAN, and Harper Petersen and Co. (HARPEX); calculations by Banco de la República.

ply and demand factors discussed in the previous section. Note that, despite the increase in the costs of logistics, the bulk of the observed variation in the price of imported goods comes from their FOB values, which do not include direct transport costs from the country of origin. Moreover, it can be seen that the increase observed in the aggregate price index in 2021 reflects, in part, a reversal of declines observed in 2020, and is comparable with the increase observed in 2019.

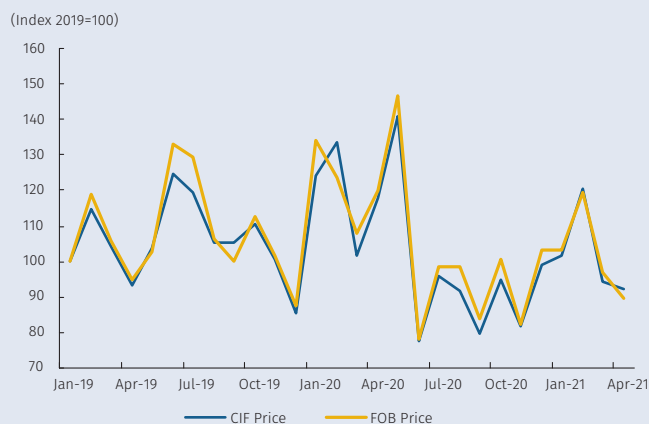
The increase in prices differs depending on the type of imported product: consumer goods, intermediate goods, capital goods, and others (labeled “miscellaneous”). As can be seen in Graph B.2.5, the phenomenon of price increases throughout 2021 is concentrated in intermediate goods, whose price index reaches a much higher level in March and April than the average of the last two years. Besides, the increase in freight costs, given by the difference between the CIF and FOB values, is much higher for intermediate goods. Consumer goods and capital goods, on the other hand, show an increase in prices in the last month of the sample, but their level remains comparable to their recent historical average.

Graph B.2.6 shows the evolution of US dollar price indexes (base 2019) for the three most important types of intermediate goods: fuel, intermediate goods for agriculture, and intermediate goods for manufacturing. Increases in fuel prices are attributable to the increase in the price of oil, and to some extent reflect a reversal of the decreases observed since 2019. On the other hand, substantial price increases in intermediate goods for agriculture and manufacturing and their recent levels (which are historically high) stand out. There is also a high increase in the transport costs of intermediate goods for manufacturing.

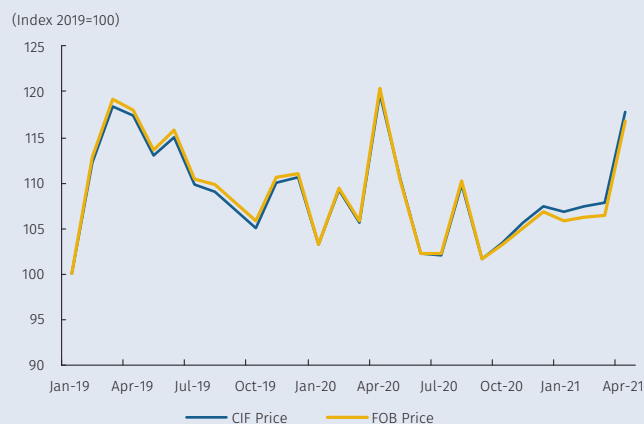
Given the price inflation of imported intermediate goods, the behavior of their prices was inspected at a two-digit product level. For this purpose, Graph B.2.7 shows, on the horizontal axis, the inflation in FOB dollars between December 2020 and March 2021 by type of input, and, on the vertical axis, its share in total imports of inputs for industry or agriculture. As shown, most of the points are located to the right of the zero-inflation level. Besides, it may be noted that this inflation is not skewed by any particular product; rather, it occurs for all types of products with different weights in total imports.

Graph B.2.5
Dollar Price Indexes of Imports by Product Type

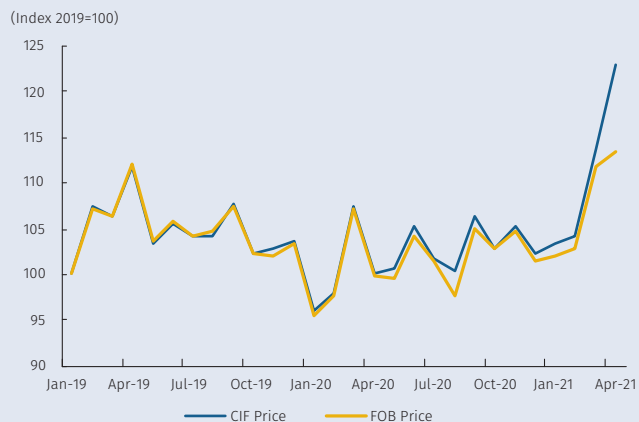
A. Miscellanea



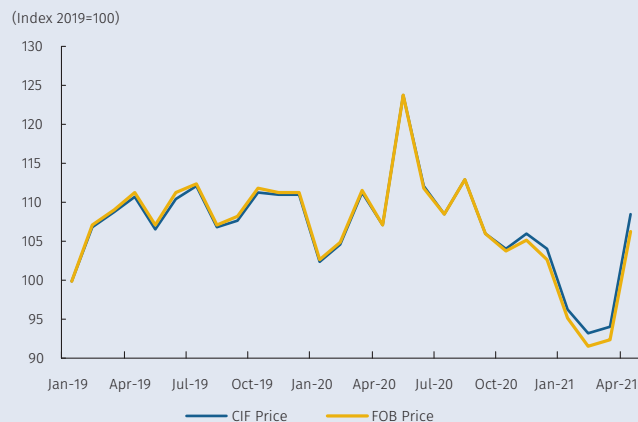
B. Consumer Goods



C. Intermediate Goods



D. Capital Goods



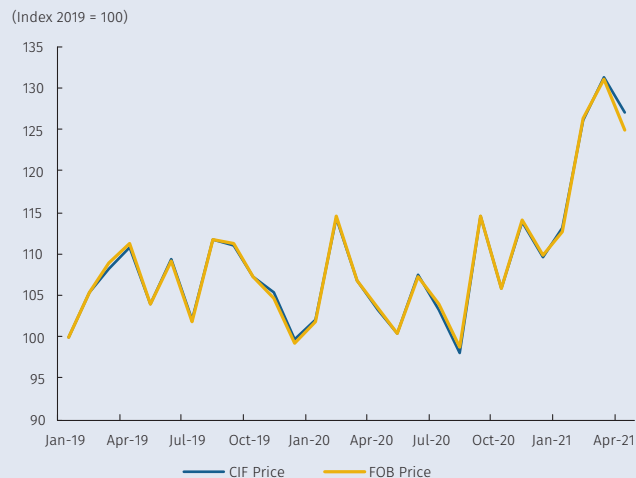
Sources: DANE and DIAN; calculations by Banco de la República.

Graph B2.6
Dollar Price Indexes of Intermediate Goods by Product Type

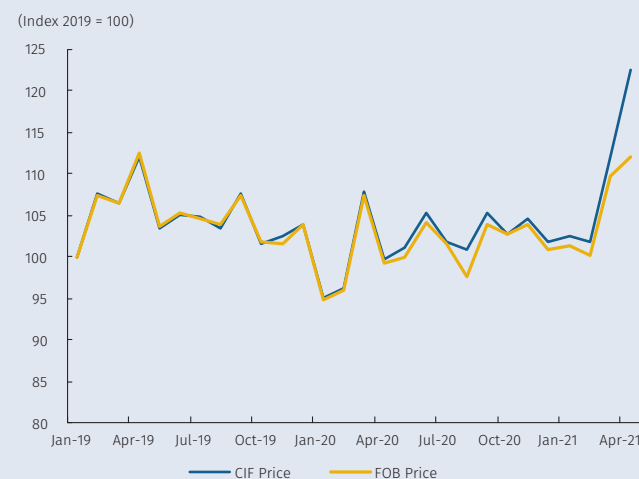
A. Fuel, lubricants, and related products



B. Raw Materials and Intermediate Products for Agriculture

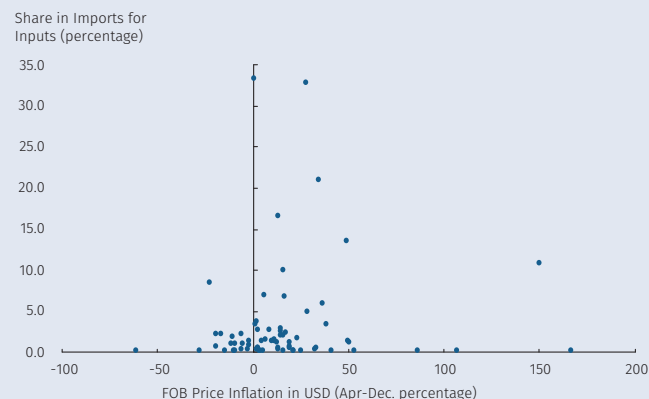


C. Raw Materials and Intermediate Products for Manufacturing



Sources: DANE and DIAN; calculations by Banco de la República.

Graph B2.7
Share of Inputs in Total Imports (from the agricultural or manufacturing sector) vs. FOB Price Inflation (USD, Dec-20 to Apr-21)

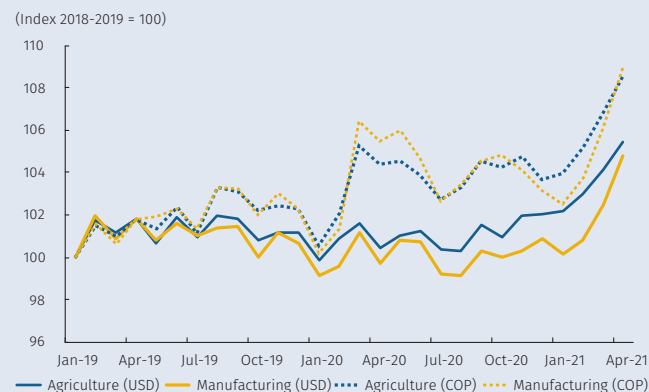


Sources: DANE and DIAN; calculations by Banco de la República.

To illustrate the potential impact of inflation on imported input prices, an index was calculated to measure the impact of the costs of imported goods on the total costs of the manufacturing and agriculture sectors (Graph B2.8). To obtain this index, domestic costs and the demand of imported inputs were assumed to remain constant, based on the 2018 national accounts 2019 imports. In other words, the index measures the average costs of agriculture and manufacturing, assuming that everything else remains constant, except for the costs of imported inputs, which are supposed to change over time according to the variation identified for the data of imported goods by product. Two versions of this index were calculated for each sector: one in which the exchange rate was assumed to be constant and another in which it was adjusted according to the representative exchange rate (TRM) for each period. This difference allows the effect of international dollar prices to be isolated from fluctuations in the nominal exchange rate.

As can be seen in Graph B2.8, the cost indexes in pesos (illustrated with dotted lines) show an increasing trend over the past two years, with an accumulated growth of more than 8.0% since January 2019. On the other hand, indexes in US dollars (illustrated with solid lines) were more or less stable until early 2021. Since then, their increase is simi-

Graph B2.8
Impact Indexes for Import Costs on the Total Costs of Agricultural and Manufacturing Firms



Sources: DANE and DIAN; calculations by Banco de la República.

lar to the increase in the international price of imported inputs described in previous graphs. That is, the cost increase observed in 2020 was mainly due to the change in the exchange rate, while the cost increase in 2021 has been due more to increases in dollar import prices.

So far in 2021, the cost indexes in pesos for agriculture and industry have grown by 4.0% and 5.2%, respectively. Please note, however, that the increase observed in the first months of this year is comparable to that observed during the first months of 2020. However, the annual inflation of this cost index for agriculture and industry from April 2020 to April 2021 is 3.2% and 2.9%, respectively. It is worth reiterating that the recent increase has been caused by the increase in global prices, and that this trend could still be prolonged over the next few months, as stated in the previous section.

3. Final Comments

So far in 2021, there has been a significant increase in the costs of Colombian imports due to increases in their prices and in international transport logistics costs. The increase in logistics costs has resulted from capacity constraints on the global cargo infrastructure as well as from demand spikes related to the recomposition of consumption of goods and services during the pandemic. On the other hand, there have been increases in net transport cost prices that reflect additional supply and demand pressures in global markets.

The increase in import prices is noticeable in the prices of inputs for agriculture and manufacturing, with an estimated impact of about 3.0% on their average production costs over the past year. This calculation does not consider any additional effects related to the law-and-order situation in the country.

The observed increase in prices and its impact on domestic production costs are not negligible and will have to be monitored in the coming months. Until now, their effect has been heterogeneous across products and sectors, but their aggregate effect will depend on their evolution in the coming months and on the transmission mechanisms to the rest of the economy.

On the other hand, the underlying component of the prices of traded goods is the result of supply and demand forces, which are subject to aggregate and policy shocks that are difficult to predict. On the supply side, economies are still exposed to uncertain pandemic developments that could continue to affect global supply chains due to the impact of the virus on workers and the imposition of health measures to contain it. On the other hand, increasing the installed capacity of the manufacturing and transport sector in order to respond to the increased demand for goods requires large investments whose results would not be fully observed in the short term.

On the demand side, there are also risks associated with the evolution of the pandemic. In terms of demand for consumer goods, the recovery observed in the short term may slow down as the relative demand for services recovers. Finally, there is also uncertainty about the persistence of the effects of fiscal support to families, which have been a key driver of recovery in some of the world's largest economies.

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Box 3 The Upward Dynamics of Food Prices

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Andrea Salazar D.
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The recent increase in consumer prices due to the Covid-19 pandemic, which has also affected Colombia in recent months, is a central theme for governments and monetary authorities worldwide. Indeed, the country has not only been impacted by an unfavorable international context regarding high transport costs, restricted access to supply chains, and higher international food prices, but also by domestic impacts resulting from low production cycles in some agricultural activities and because of the damage caused by road blockages to the production chains of some food products during May and part of June this year.

This global and local outlook led consumer inflation in Colombia to exhibit an increasing trend during the second quarter of the year. Although these circumstances pushed various goods upwards, the impact on food has been strongest, as evidenced by the increase in the annual variation of this sub-basket, from 3.92% in March to 9.52% in May and 8.52% in June. Thus, the food consumer price index (CPI) contributed to about one-third of the annual inflation increase in this period (from 1.51% in March to 3.63% in June). Besides, the price of food products accumulated a significant growth between April and June (6.48%), well above the figures observed in the rest of the CPI groupings (see section 3.1 of this Report). The main factors behind the recent increase in food prices, both domestic and external, are presented as follows.

1. Domestic Factors

On the local front, there are three inflationary pressures on the food CPI segment so far this year: 1) Unfavorable production cycles for the agricultural sector; 2) expansion of exports of bovine products; and 3) road blockages that generated scarcity and caused damages to the productive system in some agro-industrial sectors. First, the increase in food prices during much of the second quarter is explained by the contraction of supply in several items, among them perishable food items, whose prices increased 6.98% during the second quarter, on average, and their annual variation went from 1.58% in March to 18.2% in May and 8.69% in June. This performance was associated with a low cycle in the production of potato, some vegetables, and fruits during much of the semester. For

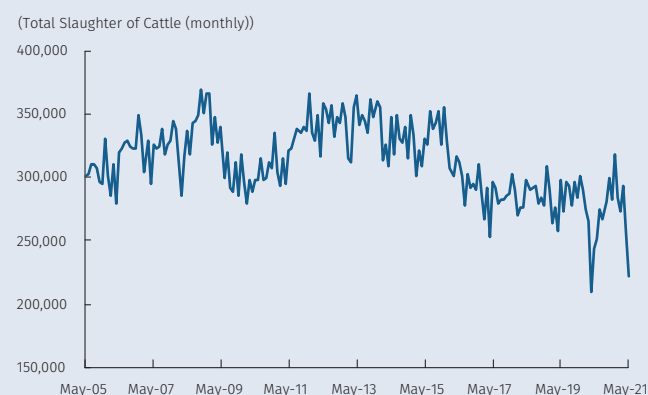
* The authors belong to the Programming and Inflation Department at Banco de la República. They are exclusively responsible for the opinions expressed herein, which do not necessarily reflect those of Banco de la República or its Board of Directors.

example, so far this year, potato prices increased by over 75%¹. Similarly, beef supply has been facing a decline resulting from the slaughter of cattle which, with the latest information available from the National Administrative Department of Statistics (DANE), has recorded historically low levels (Graph B3.1, panel A).

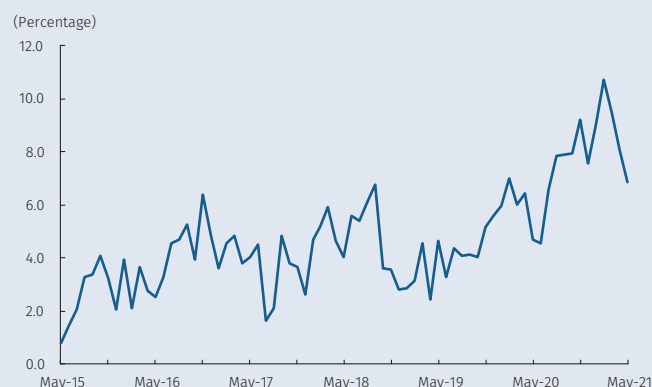
Secondly, a significant rebound in beef exports must be added to these upward pressures once Colombia regained its foot-and-mouth-free status since February last year². This would contribute to reduce the domestic supply available and boost consumer meat prices, which so far this year exhibit a 20.7% variation. As shown in Panel B of Graph B3.1, meat exports, as a percentage of total national pro-

Graph B3.1
Slaughter of Heads and Beef Exports as a percentage of National Production

A. Total Slaughter of Cattle (monthly)



B. Beef Exports / Total Domestic Production (carcass weight)



Source: DANE (Livestock Sacrifice Survey, ESAG).

- 1 The theoretical basis for the formation of prices for agricultural products is the cobweb theorem. In situations where there is a low price and high production (as was the case for potato at the end of last year), the farmers' response for the next production cycle is a reduction of the cultivated area, therefore with a lower supply and again with a rising phase of prices.
- 2 See: <https://www.ica.gov.co/noticias/colombia-recupera-estatus-pais-libre-aftosa>

duction, multiplied three times in one and a half years³. The lower supply of this type of animal protein has been accompanied by a marked shortage of its closest substitutes, such as pork, chicken, and egg. As a result, consumers have not easily replaced one animal protein with a cheaper one. In addition to the global shortage caused by the pandemic, the largest exports are being driven by growing demand and interest for healthier bovine products subject to less animal stress, such as those offered by Colombian livestock, whose main characteristic is meat from cattle grown in large areas, free of confinement and fed with natural pastures⁴. These exports are being placed mainly in countries in the Middle East (Iraq, Egypt, Jordan, and Lebanon), as well as in Hong Kong and Chile. However, the corresponding health permits to start exporting to China were recently endorsed. As a matter of fact, the first beef quota was sent to Macau in June, which could significantly boost these exports in the following quarters⁵.

Finally, from late April to mid-June, roadblocks prevented the mobility of people and goods, generating marked disruptions in the supply of inputs, goods, and food. Indeed, as illustrated in Graph B3.2, food supplies in the country fell significantly in May, and in cities such as Cali, they fell sharply, with a fall of over 70%. These restrictions on the mobility of goods and the reduced availability of products of agro-industrial origin led to a temporary and significant increase in prices, especially of perishable foods. In the case of processed foods, road blockages also favored further annual price adjustments (from 4.77% in April to 8.47% in June). However, it is important to clarify that this segment of food products has been heavily affected by other external factors, which will be detailed below.

In addition to generating lower food collection at rising prices, road blockages also resulted in losses and damage to the productive system of key agro-industrial sectors such as poultry. Egg and chicken production, which has also been affected by the increase in the international price of maize and sorghum, fell due to the road blockages and, according to the poultry guild, recovery will take them, at least, the rest of the year. These disturbances to the transit of goods also involved delays in agricultural tasks for soil preparation, pest and weed control, and the application of nutrients and fertilizers, which could lead to declines in agricultural yields for the remainder of the year, with reduced supply and upward price pressures. However, although these adverse events are expected to dissolve next year.

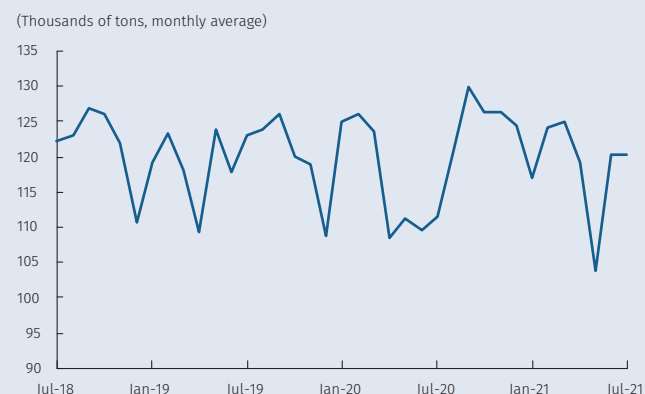
3 The volume of exports of standing livestock is still very low compared to the number of animals slaughtered. Between January and April 2021, live animals exported totaled 17,952, while the number of heads slaughtered in the same period amounted to 1,107,391, equivalent to 1.6%, according to export data and the DANE livestock slaughter survey applied in 273 municipalities.

4 At the end of 2020, a platform was implemented to boost exports of cattle products with the quality stamp of the Colombian brand, which highlights, among other qualities, production based on pastures and totally natural schemes. In this regard, visit: <https://www.fedegan.org.co/noticias/resaltamos-la-carne-traves-de-su-sello-colombian-beef-grass-fed-co-flavia-santoro>

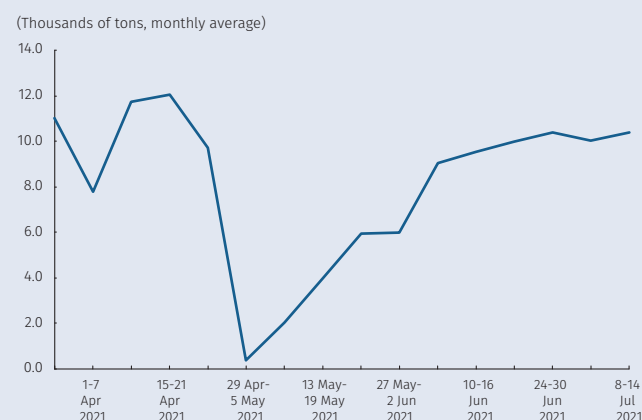
5 See: <https://www.contextoganadero.com/economia/primer-contenedor-de-carne-bovina-colombiana-zarpo-hacia-macao>

Graph B3.2
Supply at Distribution Centers, Sipsa/DANE

A. Total Supply



B. Supply in Cali



Source: SIPS/DANE.

2. External Factors

Other inflationary pressures that could have a greater upward persistence in domestic food prices come from the external front. According to the Food Organization of the United Nations (FAO), the international food price index has increased since June 2020, and in the second quarter of 2021, the average increased 7.3% *vis-a-vis* the previous quarter, recording in May the highest levels reported since September 2011 (Graph B3.3, Panel A). Although the increase in international food prices has been widespread, cereals, especially maize and soybeans, along with vegetable oils (mainly palm oil), have recorded the most significant increases (Graph B3.3, Panel B). Strong demand, limited supply, and a weakening US dollar are some factors that stand behind this upward trend in international food prices.

Particularly, demand for these foods has been linked to higher imports by China, which started taking place before the Covid-19 pandemic and that respond to different factors. According to the IMF, in 2018, the outbreak of African swine fever ended much of the pig farming production in China, a major world producer, which increased prices globally for

this product and other animal proteins. On the other hand, continued floods and grain crop impacts in this Asian country, together with the major concerns about the population's food security, which intensified with the pandemic, are other factors supporting China's high demand for food.

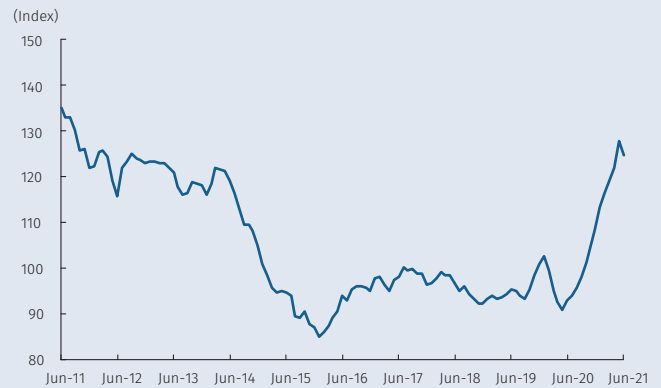
In addition, the accelerated reopening of major economies in an environment of broad global liquidity has favored the demand for commodities, including food. Also, so far this year until July, the US dollar has depreciated 6.4% *vis-a-vis* the average of 2019⁶, which has increased the demand for these products, boosting their prices upwards, as most are traded and invoiced in this currency. On the other hand, the concerns associated with the corona virus have led to the accumulation of food reserves. According to Berman *et al.* (2021), consumer behavior has shifted towards healthier products such as fruits, vegetables, healthy oils, and legumes as part of increased concern about the effect of Covid-19 on mental health.

In this context, the high demand for these products has coincided with a limited supply, thus pushing up prices. Particularly, supply shortages in some foods have been associated with climate factors and production bottlenecks resulting from the pandemic. Firstly, adverse weather conditions have worsened production prospects for some products such as corn, soybean, and sugar. According to the IMF, the *La Niña* weather phenomenon in 2020-2021 has caused dry climatic conditions for the main food-producing countries (Argentina, Brazil, Russia, Ukraine, and the United States), with Brazil standing out facing the worst drought in 41 years. Additionally, several countries have restricted their exports in the face of concerns associated with the pandemic and anticipating additional disruptions. Secondly, health measures to contain the virus have affected the production and marketing of these products. Barman *et al.* (2021) emphasize that physical distancing measures, the cases of Covid-19, and labor shortages reduced the working capacity of these sectors and disrupted the production chains for food products, which are typically labor-intensive. They also point out that the biggest problem in the supply chain has been the difficulty of transporting products from their suppliers to consumers. This is associated with the disruptions that also took place throughout the logistics transport chain during the pandemic (see Box 2 of this Report).

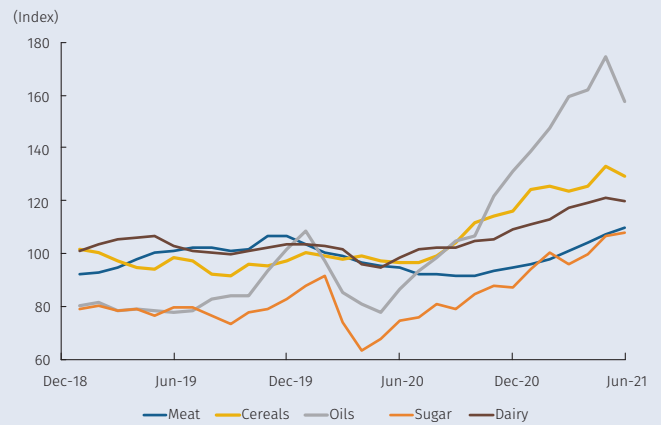
Looking forward, the duration of high food prices is uncertain and will depend, in part, on the persistence of the effects of Covid-19 on supply as well as on climatic conditions. Should this continue, the country's challenges regarding inflation will continue to be significant.

Graph B3.3
International Food Prices

A. Total Food Price Index (2014-2016 = 100)



B. Price Index by Product (2014-2016= 100)



Source: Food and Agriculture Organization (FAO).

In all, the recent increase in food prices is explained by a multiplicity of domestic and external factors. Domestic events such as national strike, road blockades, higher exports of bovine derivatives, and downward agricultural production cycles are expected, in principle, to have a shorter-term inflationary incidence, not later than this year (except for livestock exports). However, the external events driving the food CPI upwards such as the increase in global food prices, higher transport costs, and logistical difficulties in supply chains, among others, could persist longer than the domestic factors.

6 According to the DXY indicator, which compares the US currency with six major currencies. The euro (EUR), the Japanese yen (JPY), the pound sterling (GBP), the Canadian dollar (CAD), the Swedish krona (SEK), and the Swiss franc (CHF).

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Annex 1

Macroeconomic Projections from Local and Foreign Analysts ^{a/b}

	Units	Jul-21	Dec-21	Jul-22	Dec-22	Jul-23
Total CPI	Monthly Variation (average)	0.04	n. r.	n. r.	n. r.	n. r.
CPI excluding foods	Monthly Variation (average)	0.14	n. r.	n. r.	n. r.	n. r.
Total CPI	Annual Variation, end of period (average)	3.67 ^{c/}	3.73	3.18	3.27	3.14
CPI excluding food	Annual Variation, end of period (average)	2.68 ^{c/}	2.97	3.07	3.06	2.96
Nominal Exchange Rate	Pesos per dollar, end of period	3.780	3.650	3.650	3.600	3.516
Policy Rate	Percentage, end of period	1.75	2.00	2.75	3.25	3.75

	Units	Q1 2021	Q2 2021	Q3 021	Q4 2021	2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	2022	Q1 2023
GDP	Annual variation, original series	14.6	6.4	3.5	6.5	3.1	4.0	3.6	3.5	3.6	3.4	n. a.
Unemployment	Thirteen cities, average of period	16.1	15.2	14.4	n. a.	14.2	13.8	13.3	12.5	n. a.	12.8	n. a.
IBR (90 days)	Effective annual rate, end of Period	n. r.	1.8	2.1	n. a.	2.5	2.8	3.0	3.3	n. a.	3.5	3.5
DTF	Effective annual rate, end of Period	n. r.	1.9	2.2	n. a.	2.4	2.8	3.1	3.3	n. a.	3.5	3.6
Fiscal Deficit (NCG) ^{d/}	Percentage of GDP	n. a.	n. a.	n. a.	8.6	n. a.	n. a.	n. a.	n. a.	7.0	n. a.	n. a.
Current Account Deficit ^{d/}	Percentage of GDP	n. a.	n. a.	n. a.	4.0	n. a.	n. a.	n. a.	n. a.	3.8	n. a.	n. a.

n. a: not available.

n. r: not relevant given that data is already observed.

a/ Starting with the Monetary Policy Report from July 2020, the survey of foreign and local macroeconomic analysts has been suspended and data corresponding to the Central Bank's *Monthly Survey of Economic Analyst Expectations* is included.

b/ Corresponds to the median response from the Central Bank's *Monthly Survey of Economic Analyst Expectations*, except for the CPI and CPI excluding food, which correspond to averages.

c/ Data calculated based on the results of the *Bank's Monthly Survey of Economic Analyst Expectations*.

d/ Positive values represent deficit, negative values represent surplus.

Source: *Banco de la República's Monthly Survey of Economic Analyst Expectations* (July 2021).

Annex 2

Main Macroeconomic Forecast Variables

		Years										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Exogenous variables												
External ^{a/}												
Trade partners GDP ^{b/}	Percentage, annual change, seasonally adjusted	4,0	3,6	2,8	2,1	1,6	2,7	2,5	1,4	-6,7	6,0	3,5
Oil price (Benchmark Brent)	Dollars per barrel, average for period	112	109	100	54	45	55	72	64	43	68	66
Federal funds (Fed) effective interest rate	Percentage, average for period	0,14	0,11	0,09	0,13	0,39	1,00	1,83	2,16	0,38	0,14	0,14
Credit default swaps at 5 years for Colombia	Basis points, average for period	119	114	101	184	213	129	114	99	142	133	165
Domestic												
Colombia real neutral interest rate	Percentage, average for period	1,6	1,5	1,4	1,5	1,6	1,3	1,3	1,2	1,3	1,5	1,6
Potential (trend) GDP	Percentage, annual change	4,5	4,3	3,9	3,3	2,7	2,4	2,5	2,9	-0,7	3,0	1,5
Endogenous variables												
Prices												
CPI Total	Percentage, annual change, end of period	2,44	1,94	3,66	6,77	5,75	4,09	3,18	3,80	1,61	4,1	3,1
CPI excluding food ^{d/}	Percentage, annual change, end of period	2,67	2,46	3,28	5,25	5,51	5,03	3,51	3,45	1,03	.	.
CPI tradables	Percentage, annual change, end of period	0,56	0,86	1,75	7,27	5,91	3,24	1,40	2,18	0,63	.	.
CPI non-tradables	Percentage, annual change, end of period	3,92	3,67	3,34	4,64	5,26	5,38	3,13	3,45	1,29	.	.
CPI regulated items	Percentage, annual change, end of period	2,33	1,56	4,89	4,43	5,63	6,26	6,65	4,81	0,73	5,2	3,4
CPI food ^{d/}	Percentage, annual change, end of period	1,48	-0,23	5,24	13,08	6,65	0,48	1,87	5,80	4,80	9,5	2,2
CPI perishables	Percentage, annual change, end of period	-3,90	-0,16	16,74	26,03	-6,63	5,84	8,88	8,66	2,49	.	.
CPI processed	Percentage, annual change, end of period	2,83	-0,24	2,54	9,62	10,74	-0,91	-0,08	5,04	5,43	.	.
Core inflation indicators ^{e/}												
CPI excluding food	Percentage, annual change, end of period	2,67	2,46	3,28	5,25	5,51	5,03	3,51	3,45	1,03	.	.
Core 15 CPI	Percentage, annual change, end of period	2,67	2,47	3,19	5,59	5,98	4,21	3,22	3,78	1,88	.	.
CPI excluding food and regulated items	Percentage, annual change, end of period	2,77	2,73	2,82	5,50	5,48	4,67	2,57	3,10	1,11	2,6	3,2
Average of all core inflation indicators	Percentage, annual change, end of period	2,70	2,55	3,10	5,45	5,66	4,64	3,10	3,44	1,34	.	.
MER	Pesos per dollar, average for period	1.798	1.869	2.001	2.742	3.055	2.951	2.956	3.281	3.693	.	.
Inflation gap in the real interest rate	Percentage, average for period	-3,4	-1,0	-0,3	9,5	2,5	-1,7	-0,7	3,6	6,2	1,7	0,0
Economic activity												
Gross domestic product	Percentage, annual change, s.a.c.e.	3,9	5,1	4,5	3,0	2,1	1,4	2,6	3,3	-6,8	7,5	3,1
Final consumption spending	Percentage, annual change, s.a.c.e.	5,5	5,4	4,3	3,4	1,6	2,3	4,0	4,2	-3,9	.	.
Final household consumption spending	Percentage, annual change, s.a.c.e.	5,6	4,6	4,2	3,1	1,6	2,1	3,2	3,9	-5,6	.	.
Final government overhead spending	Percentage, annual change, s.a.c.e.	4,8	8,9	4,7	4,9	1,8	3,6	7,4	5,3	3,7	.	.
Gross capital formation	Percentage, annual change, s.a.c.e.	2,9	7,8	12,0	-1,2	-0,2	-3,2	1,5	3,8	-20,3	.	.
Gross fixed capital formation	Percentage, annual change, s.a.c.e.	3,3	8,5	9,2	2,8	-2,9	1,9	1,0	3,1	-20,6	.	.
Housing	Percentage, annual change, s.a.c.e.	-0,7	6,4	10,4	9,5	-0,2	-1,9	-0,4	-8,4	-27,5	.	.
Other buildings and structures	Percentage, annual change, s.a.c.e.	4,4	12,3	9,6	10,2	0,0	4,6	-3,5	2,9	-28,3	.	.
Machinery and equipment	Percentage, annual change, s.a.c.e.	4,0	4,8	9,2	-9,3	-7,9	1,4	8,6	12,3	-10,3	.	.
Cultivated biological resources	Percentage, annual change, s.a.c.e.	-5,7	6,6	-1,3	2,3	13,1	0,3	-3,1	4,9	0,0	.	.
Intellectual property products	Percentage, annual change, s.a.c.e.	8,0	19,6	5,1	1,3	-12,0	1,2	1,5	1,6	-7,2	.	.
Domestic demand	Percentage, annual change, s.a.c.e.	4,9	5,9	6,0	2,4	1,2	1,1	3,5	4,1	-7,2	.	.
Exports	Percentage, annual change, s.a.c.e.	4,5	4,7	-0,3	1,7	-0,2	2,6	0,6	3,1	-18,3	.	.
Imports	Percentage, annual change, s.a.c.e.	9,4	8,5	7,8	-1,1	-3,5	1,0	5,8	7,3	-17,3	.	.
Output gap ^{f/}	Percentage	0,0	0,8	1,4	1,1	0,5	-0,5	-0,5	-0,1	-6,4	-2,3	-0,8
Short-term indicators												
Real industrial production	Percentage, annual change, seasonally adjusted	-0,3	-1,3	1,6	2,0	3,7	0,0	2,7	1,4	-8,0	.	.
Retail commerce sales excluding fuels and vehicles	Percentage, annual change, seasonally adjusted	4,2	5,3	8,4	6,4	2,0	-0,1	5,4	8,1	-1,7	.	.
Coffee production	Percentage, annual change in accumulated production for the period	-0,8	40,6	11,5	16,8	0,4	-0,3	-4,5	8,8	-5,8	.	.
Oil production	Percentage, annual change, average for period	3,2	6,6	-1,9	1,6	-11,7	-3,7	1,4	2,4	-11,8	.	.
Labor Market ^{g/}												
National Total												
Unemployment rate	Percentage, seasonally adjusted, average for period	10,4	9,6	9,1	8,9	9,2	9,4	9,7	10,5	15,9	14,4	.
Employment rate	Percentage, seasonally adjusted, average for period	57,8	58,0	58,4	59,0	58,5	58,4	57,8	56,6	49,8	.	.
Overall participation rate	Percentage, seasonally adjusted, average for period	64,5	64,2	64,2	64,7	64,5	64,4	64,0	63,3	59,2	.	.
Thirteen cities and metropolitan areas												
Unemployment rate	Percentage, seasonally adjusted, average for period	11,2	10,6	9,9	9,8	10,0	10,6	10,8	11,2	18,2	16,0	.
Employment rate	Percentage, seasonally adjusted, average for period	60,1	60,3	61,2	61,4	60,7	59,9	59,2	58,6	50,8	.	.
Overall participation rate	Percentage, seasonally adjusted, average for period	67,6	67,5	67,9	68,0	67,5	67,0	66,4	66,0	62,1	.	.
Balance of payments ^{h/i/}												
Current account (A+B+C)	Millions of dollars	-11.641	-12.587	-20.233	-19.302	-12.782	-10.744	-13.669	-14.508	-9.326	-13.643	-13.834
Percentage of GDP	Percentage, nominal terms	-3,1	-3,3	-5,3	-6,6	-4,5	-3,4	-4,1	-4,5	-3,4	-4,5	-4,3
A. Goods and Services	Millions of dollars	-1.465	-3.250	-12.332	-19.004	-13.451	-8.947	-9.539	-12.982	-12.457	-15.423	-14.086
B. Primary income (factor income)	Millions of dollars	-15.008	-14.223	-12.523	-5.727	-5.229	-8.408	-11.773	-10.230	-5.601	-8.276	-9.799
C. Secondary income (current account transfers)	Millions of dollars	4.833	4.887	4.622	5.430	5.898	6.611	7.643	8.704	8.732	10.055	10.051
Financial account (A+B+C-D)	Millions of dollars	-11.553	-11.740	-19.292	-18.244	-12.273	-9.696	-12.559	-13.405	-8.631	.	.
Percentage of GDP	Percentage, nominal terms	-3,1	-3,1	-5,1	-6,2	-4,3	-3,1	-3,8	-4,1	-3,2	.	.
A. Foreign investment (i+ii)	Millions of dollars	-15.646	-8.558	-12.270	-7.506	-9.330	-10.147	-6.409	-11.160	-6.355	.	.
i. Foreign in Colombia (FDI)	Millions of dollars	15.040	16.210	16.169	11.724	13.848	13.837	11.535	14.313	8.100	.	.
ii. Colombian abroad	Millions of dollars	-606	7.652	3.899	4.218	4.517	3.690	5.126	3.153	1.744	.	.
B. Portfolio investment	Millions of dollars	-4.769	-7.438	-11.565	-9.166	-4.839	-1.613	1.297	250	-1.328	.	.
C. Other investment (loans and other credits and derivatives)	Millions of dollars	3.457	-2.690	106	-1.987	1.731	1.518	-8.635	-5.828	-5.276	.	.
D. Reserve assets	Millions of dollars	5.406	6.946	4.437	415	165	545	1.187	3.333	4.328	.	.
Errors and omissions (E and O)	Millions of dollars	88	847	941	1.058	509	1.048	1.109	1.103	695	.	.
Interest rates												
Policy rate	Percentage, average for period	5,0	3,4	3,9	4,7	7,1	6,1	4,4	4,3	2,9	.	.
Policy rate expected by analysts	Percentage, average for period	.	.	.	.	.	.	.	.	.	1,81	2,71
IBR	Percentage, average for period	5,0	3,4	3,8	4,7	7,1	6,1	4,3	4,3	2,9	.	.
Commercial interest rate	Percentage, average for period	10,3	8,7	8,7	9,4	12,8	11,1	9,3	8,8	7,4	.	.
Consumer interest rate	Percentage, average for period	19,2	17,9	17,3	17,2	19,2	19,4	17,9	16,5	15,0	.	.
Mortgage rate	Percentage, average for period	13,2	11,1	11,1	11,0	12,4	11,6	10,6	10,4	10,1	.	.

SACE: seasonally adjusted and corrected for calendar effects.

Note: values in bold represent a projection or assumption.

a/ quarterly data in bold correspond to an assumption based on the annual projection of each variable.

b/ Calculated for the largest 21 trade partners (excluding Venezuela) by non-traditional dollar exports from Colombia.

c/ Calculations by Banco de la República based on its new classification; excludes the division of the CPI for food and non-alcoholic drinks. See González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC and revisión de las medidas de inflación básica en Colombia," Borradores de Economía, no. 122, Banco de la República, available at: <https://investiga.banrep.gov.co/es/be-1122>.

d/ Calculations by Banco de la República based on its new classification; equal to the division of the CPI for food and non-alcoholic drinks produced by DANE (does not include sub-categories corresponding to food away from home). See González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC and revisión de las medidas de inflación básica en Colombia," Borradores de Economía, no. 122, Banco de la República, available at: <https://investiga.banrep.gov.co/es/be-1122>.

e/ Calculations by Banco de la República based on its new classification. See González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC and revisión de las medidas de inflación básica en Colombia," Borradores de Economía, no. 122, Banco de la República, available at: <https://investiga.banrep.gov.co/es/be-1122>.

f/ The historical estimate for the gap is calculated as the difference between observed and potential (trend) GDP resulting from the 4G monetary policy model; forecast is calculated as the difference between the technical staff's GDP estimate and potential (trend) GDP from the 4G model.

g/ The rates are calculated based on seasonally adjusted annual populations.

h/ The results presented here follow the recommendations of the sixth balance of payments manual proposed by the International Monetary Fund (IMF). See additional information and methodological changes at: <http://www.banrep.gov.co/balanza-pagos>.

i/ The results for 2019, 2020 and 2021 are preliminary.

j/ Corresponds to the median projection from analysts. These projections are calculated taking the quarterly average of the monthly responses in the survey of economic analyst expectations conducted by Banco de la República in April 2021.

k/ Average by rate amounts for ordinary, treasury, and preferential credit.

l/ Excludes credit cards.

m/ Average by rate amounts for non-social housing credit in pesos and UVR.

Annex 2 (continued)

Main Macroeconomic Forecast Variables

		2017				2018			
		T1	T2	T3	T4	T1	T2	T3	T4
Exogenous variables									
External ^{a/}									
Trade partners GDP ^{b/}	Percentage, annual change, seasonally adjusted	2.4	3.1	3.1	2.9	2.6	2.9	1.1	0.9
Oil price (Benchmark Brent)	Dollars per barrel, average for period	55	51	52	62	67	75	76	68
Federal funds (Fed) effective interest rate	Percentage, average for period	0.70	0.95	1.15	1.20	1.45	1.74	1.92	2.22
Credit default swaps at 5 years for Colombia	Basis points, average for period	145	130	127	113	99	113	110	132
Domestic									
Colombia real neutral interest rate	Percentage, average for period								
Potential (trend) GDP	Percentage, annual change								
Endogenous variables									
Prices									
CPI Total	Percentage, annual change, end of period	4.69	3.99	3.97	4.09	3.14	3.20	3.23	3.18
CPI excluding food ^{d/}	Percentage, annual change, end of period	5.55	5.40	4.86	5.03	3.97	3.73	3.67	3.51
CPI tradables	Percentage, annual change, end of period	5.69	4.28	3.46	3.24	1.67	1.39	1.39	1.40
CPI non-tradables	Percentage, annual change, end of period	5.87	5.55	5.02	5.38	4.09	3.79	3.60	3.13
CPI regulated items	Percentage, annual change, end of period	4.71	6.33	6.10	6.26	6.28	6.21	6.35	6.65
CPI food ^{d/}	Percentage, annual change, end of period	1.46	-1.21	0.59	0.48	-0.06	1.11	1.47	1.87
CPI perishables	Percentage, annual change, end of period	-13.09	-14.72	-0.32	5.84	7.13	8.47	9.51	8.88
CPI processed	Percentage, annual change, end of period	6.28	3.29	0.84	-0.91	-2.01	-0.91	-0.72	-0.08
Core inflation indicators^{d/}									
CPI excluding food	Percentage, annual change, end of period	5.55	5.40	4.86	5.03	3.97	3.73	3.67	3.51
Core 15 CPI	Percentage, annual change, end of period	5.63	5.16	4.49	4.21	3.45	3.24	3.19	3.22
CPI excluding food and regulated items	Percentage, annual change, end of period	5.81	5.13	4.50	4.67	3.28	2.99	2.87	2.57
Average of all core inflation indicators	Percentage, annual change, end of period	5.66	5.23	4.62	4.64	3.57	3.32	3.24	3.10
MER	Pesos per dollar, average for period	2,923	2,919	2,977	2,987	2,860	2,841	2,961	3,164
Inflation gap in the real interest rate	Percentage, average for period	-3.0	-3.1	-0.6	-0.1	-3.4	-3.7	-0.4	4.5
Economic activity									
Gross domestic product	Percentage, annual change, s.a.c.e.	1.3	1.5	1.3	1.3	2.2	2.2	2.8	3.0
Final consumption spending	Percentage, annual change, s.a.c.e.	1.9	2.2	2.8	2.5	3.6	4.2	4.0	4.1
Final household consumption spending	Percentage, annual change, s.a.c.e.	1.0	2.6	2.7	2.0	3.3	3.3	3.2	3.1
Final government overhead spending	Percentage, annual change, s.a.c.e.	3.1	3.2	3.5	4.8	7.6	6.5	7.8	7.6
Gross capital formation	Percentage, annual change, s.a.c.e.	-1.3	-2.3	-5.9	-3.4	-2.9	1.0	3.4	4.7
Gross fixed capital formation	Percentage, annual change, s.a.c.e.	-0.4	1.7	6.0	0.3	-0.4	2.0	1.4	1.2
Housing	Percentage, annual change, s.a.c.e.	4.7	1.6	-2.0	-11.4	-8.0	-1.3	5.6	3.2
Other buildings and structures	Percentage, annual change, s.a.c.e.	-3.6	6.0	11.2	5.3	-6.5	-1.0	-6.1	-0.5
Machinery and equipment	Percentage, annual change, s.a.c.e.	-5.0	-1.8	8.2	4.4	12.5	13.6	7.5	1.7
Cultivated biological resources	Percentage, annual change, s.a.c.e.	18.5	1.0	-10.8	-4.8	-8.9	-8.2	4.1	1.5
Intellectual property products	Percentage, annual change, s.a.c.e.	-3.2	1.8	3.7	2.7	2.5	2.3	0.7	0.6
Domestic demand	Percentage, annual change, s.a.c.e.	0.8	1.3	0.7	1.7	2.2	3.4	4.1	4.2
Exports	Percentage, annual change, s.a.c.e.	4.7	5.1	3.1	-2.4	-1.8	-1.1	-1.1	6.7
Imports	Percentage, annual change, s.a.c.e.	1.4	2.1	0.0	0.5	0.8	5.6	6.6	10.4
Output gap ^{g/}	Percentage	0.2	0.0	-0.2	-0.5	-0.6	-0.6	-0.6	-0.5
Short-term indicators									
Real industrial production	Percentage, annual change, seasonally adjusted	-0.7	-0.6	1.0	0.1	2.0	2.9	3.4	2.7
Retail commerce sales excluding fuels and vehicles	Percentage, annual change, seasonally adjusted	0.1	-0.2	-0.3	-0.2	4.5	5.6	5.3	6.3
Coffee production	Percentage, annual change in accumulated production for the period	13.0	-17.2	17.1	-10.1	-5.8	13.1	-13.8	-6.6
Oil production	Percentage, annual change, average for period	-11.6	-5.2	1.5	1.9	0.7	1.2	1.1	2.6
Labor Market^{h/}									
National Total									
Unemployment rate	Percentage, seasonally adjusted, average for period	9.4	9.2	9.4	9.5	9.4	9.6	9.5	10.2
Employment rate	Percentage, seasonally adjusted, average for period	58.4	58.8	58.3	57.9	57.8	58.1	58.2	57.1
Overall participation rate	Percentage, seasonally adjusted, average for period	64.5	64.8	64.4	64.0	63.8	64.3	64.3	63.5
Thirteen cities and metropolitan areas									
Unemployment rate	Percentage, seasonally adjusted, average for period	10.4	10.5	10.8	10.6	10.7	10.6	10.5	11.3
Employment rate	Percentage, seasonally adjusted, average for period	60.3	60.2	59.7	59.3	59.2	59.7	59.6	58.4
Overall participation rate	Percentage, seasonally adjusted, average for period	67.3	67.3	67.0	66.3	66.3	66.7	66.6	65.8
Balance of payments ^{h/i/}									
Current account (A+B+C)	Millions of dollars	-3,628	-2,597	-2,831	-1,689	-2,953	-3,426	-3,367	-3,923
Percentage of GDP	Percentage, nominal terms	-4.9	-3.4	-3.6	-2.0	-3.6	-4.1	-3.9	-4.7
A. Goods and Services	Millions of dollars	-2,706	-2,596	-2,387	-1,258	-1,598	-2,339	-2,444	-3,158
B. Primary income (factor income)	Millions of dollars	-2,343	-1,632	-2,129	-2,304	-2,978	-2,899	-2,880	-3,015
C. Secondary income (current account transfers)	Millions of dollars	1,421	1,632	1,685	1,873	1,623	1,812	1,957	2,250
Financial account (A+B+C+D)	Millions of dollars	-2,953	-2,413	-2,698	-1,633	-2,784	-2,783	-3,513	-3,479
Percentage of GDP	Percentage, nominal terms	-4.0	-3.2	-3.4	-2.0	-3.4	-3.3	-4.1	-4.1
A. Foreign investment (i+ii)	Millions of dollars	-1,797	-1,252	-4,148	-2,951	-935	-2,345	-2,469	-659
i. Foreign in Colombia (FDI)	Millions of dollars	2,513	2,526	4,992	3,805	2,007	3,846	2,799	2,883
ii. Colombian abroad	Millions of dollars	716	1,275	845	854	1,072	1,500	330	2,224
B. Portfolio investment	Millions of dollars	265	-1,983	-514	620	1,750	334	536	-1,323
C. Other investment (loans and other credits and derivatives)	Millions of dollars	-1,513	668	1,838	526	-3,737	-921	-1,749	-2,228
D. Reserve assets	Millions of dollars	93	154	126	173	137	150	169	732
Errors and omissions (E and O)	Millions of dollars	675	184	132	56	168	642	-146	445
Interest rates									
Policy rate	Percentage, average for period	7.4	6.6	5.5	5.0	4.6	4.3	4.3	4.3
Policy rate expected by analysts	Percentage, average for period								
IBR	Percentage, average for period	7.4	6.6	5.5	5.0	4.6	4.3	4.3	4.3
Commercial interest rate	Percentage, average for period	12.8	11.6	10.6	10.0	9.4	9.4	9.3	9.0
Consumer interest rate	Percentage, average for period	20.1	19.7	19.0	18.7	18.7	17.9	18.0	17.3
Mortgage rate	Percentage, average for period	12.5	12.3	11.3	10.9	10.8	10.6	10.5	10.4

SACE: seasonally adjusted and corrected for calendar effects.

Note: values in bold represent a projection or assumption.

a/ quarterly data in bold correspond to an assumption based on the annual projection of each variable.

b/ Calculated for the largest 21 trade partners (excluding Venezuela) by non-traditional dollar exports from Colombia.

c/ Calculations by Banco de la República based on its new classification; excludes the division of the CPI for food and non-alcoholic drinks. See González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC and revisión de las medidas de inflación básica en Colombia," *Borradores de Economía*, no. 122, Banco de la República, available at: <https://investiga.banrep.gov.co/es/be-1122>.

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e/ Calculations by Banco de la República based on its new classification. See González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC and revisión de las medidas de inflación básica en Colombia," *Borradores de Economía*, no. 122, Banco de la República, available at: <https://investiga.banrep.gov.co/es/be-1122>.

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k/ Average by rate amounts for ordinary, treasury, and preferential credit.

l/ Excludes credit cards.

m/ Average by rate amounts for non-social housing credit in pesos and UVR.

2019				2020				2021				2022				2023	
T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2
1.4	2.3	1.8	-2.0	-7.3	-44.0	49.0	11.3	4.1	2.9	6.6	3.7	3.0	2.8	2.5	3.0	2.3	2.3
64	68	62	63	51	33	43	45	61	69	73	70	69	67	66	64	62	62
2.40	2.40	2.19	1.64	1.26	0.06	0.09	0.09	0.08	0.09	0.13	0.13	0.13	0.13	0.13	0.17	0.38	0.38
121	104	90	83	124	206	132	104	109	131	143	150	156	163	170	170	170	170
3.21	3.43	3.82	3.80	3.86	2.19	1.97	1.61	1.51	3.63	3.8	4.1	4.1	3.2	3.2	3.1	3.0	3.0
3.27	3.22	3.37	3.45	3.26	1.40	1.57	1.03	1.06	2.7	-	-	-	-	-	-	-	-
1.09	1.60	1.83	2.18	2.41	0.73	1.15	0.63	1.05	2.57	-	-	-	-	-	-	-	-
3.01	3.10	3.37	3.45	3.22	2.00	1.86	1.29	0.89	1.61	-	-	-	-	-	-	-	-
6.33	5.24	5.03	4.81	4.27	0.44	1.19	0.73	1.52	5.93	5.2	5.2	4.5	3.3	3.2	3.4	3.4	3.4
3.24	4.96	6.49	5.80	7.19	6.55	4.13	4.80	3.92	8.52	9.5	9.5	8.0	3.4	3.0	2.2	2.7	2.5
9.98	15.46	17.50	8.66	9.79	2.52	-3.42	2.49	1.58	8.69	-	-	-	-	-	-	-	-
1.43	2.18	3.57	5.04	6.46	7.75	6.40	5.43	4.60	8.47	-	-	-	-	-	-	-	-
3.27	3.22	3.37	3.45	3.26	1.40	1.57	1.03	1.06	2.70	-	-	-	-	-	-	-	-
3.24	3.34	3.66	3.78	3.64	2.17	2.33	1.88	1.67	3.36	-	-	-	-	-	-	-	-
2.41	2.65	2.92	3.10	2.99	1.65	1.67	1.11	0.94	1.87	2.0	2.6	3.2	3.3	3.2	3.2	2.9	3.0
2.97	3.07	3.32	3.44	3.30	1.74	1.86	1.34	1.22	2.64	-	-	-	-	-	-	-	-
3.134	3.241	3.340	3.411	3.532	3.848	3.733	3.661	3.555	3.696	-	-	-	-	-	-	-	-
2.2	3.3	4.2	5.0	5.0	11.0	6.0	2.7	-0.9	2.9	3.2	1.6	0.3	-0.2	0.1	0.0	-0.6	-0.9
3.0	3.5	3.2	3.4	0.0	-15.5	-8.2	-3.4	2.0	17.3	8.4	3.2	1.0	4.0	3.8	3.6	3.9	3.8
3.7	3.9	4.4	4.7	3.8	-11.6	-7.4	-0.2	1.2	15.8	-	-	-	-	-	-	-	-
2.9	4.0	4.3	4.6	3.9	-15.0	-9.7	-1.5	1.0	18.6	-	-	-	-	-	-	-	-
5.0	6.0	5.2	4.9	3.2	3.3	3.5	4.6	5.1	4.0	-	-	-	-	-	-	-	-
6.4	3.0	5.3	0.6	-7.1	-37.7	-15.9	-20.9	1.0	47.4	-	-	-	-	-	-	-	-
9.0	3.5	2.4	-2.3	-5.1	-39.4	-23.2	-14.7	-3.4	49.9	-	-	-	-	-	-	-	-
-5.4	-9.1	-8.6	-10.5	-9.6	-42.6	-33.6	-24.4	-3.2	53.2	-	-	-	-	-	-	-	-
14.2	1.1	1.3	-3.7	-7.7	-42.2	-35.2	-28.1	-20.6	25.5	-	-	-	-	-	-	-	-
13.8	20.0	10.5	4.8	-1.0	-36.7	-5.4	4.5	8.5	58.3	-	-	-	-	-	-	-	-
2.1	9.1	8.1	0.7	2.4	1.2	-5.0	1.8	9.8	9.0	-	-	-	-	-	-	-	-
0.3	0.1	1.4	4.6	1.0	-15.0	-9.1	-5.8	1.3	20.6	-	-	-	-	-	-	-	-
3.9	3.5	4.8	4.3	0.4	-16.6	-8.7	-3.9	1.6	20.7	-	-	-	-	-	-	-	-
6.0	5.1	4.4	-2.9	-3.6	-26.1	-23.3	-20.4	-8.9	16.7	-	-	-	-	-	-	-	-
8.5	8.3	9.6	3.2	0.6	-30.8	-23.8	-14.6	-4.9	35.6	-	-	-	-	-	-	-	-
-0.4	-0.2	-0.2	-0.1	-0.6	-3.7	-5.5	-6.4	-6.3	-4.0	-2.8	-2.3	-2.2	-1.6	-1.1	-0.8	-0.4	-0.1
1.1	2.4	0.9	1.3	-1.0	-23.5	-7.4	-0.2	6.7	-	-	-	-	-	-	-	-	-
6.3	7.5	9.7	8.8	6.2	-14.9	-3.7	5.6	4.7	-	-	-	-	-	-	-	-	-
-1.9	6.6	4.9	24.1	-13.8	-1.9	-3.6	-4.6	13.3	-	-	-	-	-	-	-	-	-
5.3	3.2	1.4	-0.2	-2.1	-15.7	-15.4	-14.1	-14.6	-	-	-	-	-	-	-	-	-
10.6	10.2	10.6	10.6	11.3	20.5	17.5	15.0	14.5	15.1	14.1	13.8	-	-	-	-	-	-
57.3	56.5	56.5	56.3	55.1	43.6	48.6	51.8	52.3	-	-	-	-	-	-	-	-	-
64.1	62.9	63.2	62.9	62.1	54.9	59.0	61.0	61.1	-	-	-	-	-	-	-	-	-
11.5	11.0	10.9	11.4	11.3	23.9	21.2	17.2	16.3	16.3	15.7	15.4	-	-	-	-	-	-
58.6	58.7	58.7	58.4	57.0	44.1	48.8	53.1	53.7	-	-	-	-	-	-	-	-	-
66.2	66.0	65.9	66.0	64.3	58.0	61.9	64.1	64.1	-	-	-	-	-	-	-	-	-
-3,751	-3,013	-4,387	-3,356	-2,541	-1,701	-1,986	-3,098	-3,633	-	-	-	-	-	-	-	-	-
-4.8	-3.8	-5.4	-4	-3.5	-3.1	-3	-4	-4.8	-	-	-	-	-	-	-	-	-
-2,843	-2,651	-4,216	-3,272	-2,992	-2,416	-3,095	-3,954	-3,942	-	-	-	-	-	-	-	-	-
-2,706	-2,573	-2,484	-2,466	-1,687	-1,001	-1,311	-1,602	-2,161	-	-	-	-	-	-	-	-	-
1,798	2,211	2,312	2,383	2,138	1,716	2,420	2,458	2,469	-	-	-	-	-	-	-	-	-
-3,508	-3,304	-3,673	-2,920	-2,166	-1,884	-1,931	-2,650	-3,162	-	-	-	-	-	-	-	-	-
-4.4	-4.2	-4.5	-3.5	-3	-3.4	-2.9	-3.5	-4.2	-	-	-	-	-	-	-	-	-
-2,649	-3,684	-1,818	-3,008	-2,201	-1,713	-411	-2,030	-1,874	-	-	-	-	-	-	-	-	-
3,390	4,149	3,304	3,471	3,440	1,360	1,018	2,281	2,703	-	-	-	-	-	-	-	-	-
741	465	1,485	462	1,238	-352	607	251	829	-	-	-	-	-	-	-	-	-
-1,307	-178	268	1,466	-265	-3,142	489	1,590	742	-	-	-	-	-	-	-	-	-
-1,903	31	-2,376	-1,580	472	381	-2,214	-3,914	-2,220	-	-	-	-	-	-	-	-	-
2,351	526	254	202	-171	2,590	205	1,705	190	-	-	-	-	-	-	-	-	-
243	-290	714	436	375	-183	55	448	471	-	-	-	-	-	-	-	-	-
4.3	4.3	4.3	4.25	4.23	3.26	2.24	1.75	1.75	1.75	1.75	2.00	2.33	2.58	2.83	3.08	3.33	3.50
4.3	4.3	4.3	4.3	4.2	3.2	2.2	1.8	1.7	1.7	-	-	-	-	-	-	-	-
9.1	9.0	8.9	8.5	8.4	8.3	7.0	6.2	6.0	5.7	-	-	-	-	-	-	-	-
18.0	17.2	16.0	15.5	15.8	15.5	14.8	14.2	14.0	13.7	-	-	-	-	-	-	-	-
10.4	10.5	10.4	10.4	10.4	10.4	10.2	9.6	9.2	8.9	-	-	-	-	-	-	-	-

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