MONETARY POLICY REPORT

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MONETARY **POLICY REPORT**

* Presented by the technical staff to the Board of Directors for its meeting on 29 January 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 policy[1]. 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 inflation[2], 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 scheme[5] seeks to deliver relevant and up-to-date information to contribute to better decision-making by the agents of the economy.

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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.

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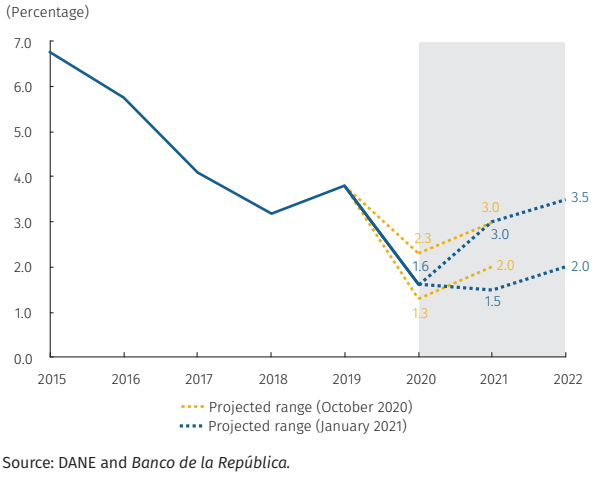
01 / Summary

1.1 Macroeconomic Summary

Headline inflation (1.61%) and core inflation (excluding food and regulated items) (1.11%) both declined beyond the technical staff's expectations in the fourth quarter of 2020. Year-end 2021 forecasts for both indicators were revised downward to 2.3% and 2.1%, respectively. Market inflation expectations also fell over this period and suggested inflation below the 3% target through the end of this year, rising to the target in 2022. Downward pressure on inflation was more significant in the fourth quarter than previously projected, indicating weak demand. Annual deceleration among the main groups of the consumer price index (CPI) was generalized and, except for foods, was greater than projected in the October report. The CPI for goods (excluding foods and regulated items) and the CPI for regulated items were subject to the largest decelerations and forecasting discrepancies. In the first case, this was due in part to a greater-than-expected effect on prices from the government's "VAT-free day" amid weak demand, and from the extension of some price relief measures. For regulated items, the deceleration was caused in part by unanticipated declines in some utility prices. Annual change in the CPI for services continued to decline as a result of the performance of those services that were not subject to price relief measures, in particular. Although some of the overall decline in inflation is expected to be temporary and reverse course in the second quarter of 2021, various sources of downward pressure on inflation have become more acute and will likely remain into next year. These include ample excesses in capacity, as suggested by the continued and greater-than-expected deceleration in core inflation indicators and in the CPI for services excluding price relief measures. This dynamic is also suggested by the minimal transmission of accumulated depreciation of the peso on domestic prices. Although excess capacity should fall in 2021, the decline will likely be slower than projected in the October report amid additional restrictions on mobility due to a recent acceleration of growth in COVID-19 cases. An additional factor is that low inflation registered at the end of 2020 will likely be reflected in low price adjustments on certain indexed services with significant weight in the CPI, including real estate rentals and some utilities. These factors should keep inflation below the target and lower than estimates from the previous report on the forecast horizon. Inflation is expected to continue to decline to levels near 1% in March, later increasing to 2.3% at the end of 2021 and 2.7% at year-end 2022 (Graph 1.1). According to the Bank's most recent survey, market analysts expect inflation of 2.7% and 3.1% in December 2021 and 2022, respectively. Expected inflation derived from government bonds was 2%

Graph 1.1
Consumer Price Index (CPI)
(end-of-period; annual change)

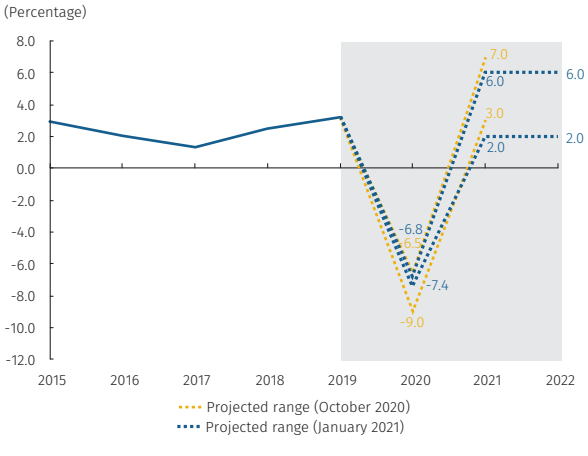


Source: DANE and *Banco de la República.*

for year-end 2021, while expected inflation based on bonds one year forward from that date (FBEI 1-1 2022) was 3.2%.

Indicators of economic activity from the last quarter of 2020 suggest a larger recovery in output than anticipated in the previous report, and would imply a fall in gross domestic product (GDP) for the year around 7.2% (previously -7.6%). This improvement in the path of economic recovery in 2021 would likely be somewhat offset by new restrictions on mobility, which have been necessary to address the ongoing COVID-19 pandemic. Given the above, the technical staff has revised its growth forecast for 2021 to 4.5% (previously 4.6%), with a range between 2% and 6%. Third-quarter GDP performance in 2020 was in line with expectations, though with some variations for large spending groups. Domestic demand over this period was better than expected, thanks to the performance of private goods consumption and investment in machinery and equipment. Meanwhile, public spending, public works, and exports were weaker than anticipated. The revised growth forecast for GDP in the fourth quarter of -4.4% (previously -5.5%) supposes that these broad trends will have continued, though new monthly figures from the economic tracking indicator (ISE), from retail commerce, and from the *Monthly Manufacturing Survey* suggest that both spending on durable goods and industrial performance could be more dynamic than suggested in this forecast. Public works, which was less dynamic in 2020 than expected, should perform better in 2021. An expected recovery in terms of trade, ample external financing, improved consumer and business confidence, and low interest rates should also contribute to a recovery in economic activity. Nevertheless, new restrictions on mobility put in place in Colombia at the beginning of this year could affect aggregate supply and demand, which would moderate the recovery in economic activity registered at the end of 2020. As was the case previously, the most recent mobility restrictions are expected to have more significant negative effects on aggregate demand than on supply. Given the above, this report estimates a smaller decline in GDP in 2020 (-7.2%) and a marginally reduced growth projection for 2021 (4.5%). This forecast supposes an absence of any further significant acceleration in COVID-19 cases or tightening of quarantine measures that would significantly affect economic activity for the remainder of this year or in 2022. It also does not anticipate any abrupt changes in the sovereign risk premium. The growth forecast for 2022 (3.5%) suggests a return to 2019 GDP levels at the end of next year, and accounts for the effects of a fiscal adjustment in line with the *Medium-Term Fiscal Framework*. Nevertheless, there remains a significant degree of uncertainty around the speed of recovery, primarily associated with the evolution of the COVID-19 health emergency. The pandemic represents a downward risk on the growth forecast in the short term, while an acceleration in the vaccination plan would represent an upward risk on growth in the medium term. Given the above, growth projection intervals are now

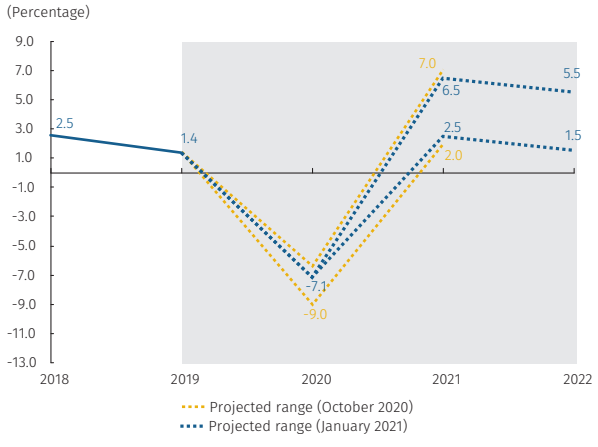
Graph 1.2
Annual Gross Domestic Product
(annual change)



Source: DANE and *Banco de la República.*

between -7.4% and -6.8% for 2020, and between 2% and 6% for 2021 and 2022 (Graph 1.2).

Graph 1.3
Assumed Trade Partner GDP
(annual change)



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

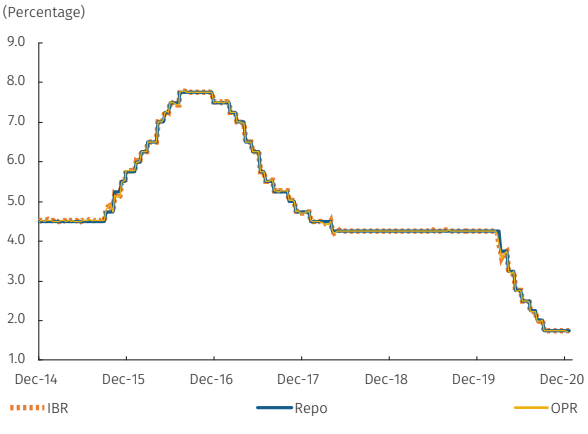
Foreign demand likely fell by 7.1% in 2020 and is expected to recover in 2021 and 2022 by 4.4% and 3.5%, respectively. Nevertheless, there remains a high level of uncertainty surrounding the pace of the expected recovery in foreign demand and in oil prices, given the contrast between the challenge of new waves of COVID-19 and optimism over vaccine deployment. The global economy registered an observable recovery in the third quarter of 2020 following the unprecedented decline in economic activity over the preceding period. However, COVID-19 cases have intensified since the end of the year in various countries, particularly the United States and the euro zone. As a result, the subsequent tightening of quarantine measures has had a negative effect on economic activity. All this has come as COVID-19 vaccination campaigns get underway in several developed countries, with the potential for a positive effect on recovery in the global economy in 2021. In Latin America and the Caribbean, significant effects of the pandemic persist and vaccine deployment lags behind, leading to expectations of a slow recovery of growth. Overall, improved expectations for global economic activity, together with the extension of supply cut agreements by the Organization of Petroleum Exporting Countries (OPEC) and its allies, have favored oil prices after significant deterioration at the end of October. Moving forward there remains a high degree of uncertainty over the evolution of the international economic environment, which is also being affected by high levels of public debt, the deterioration of labor markets, the closure of businesses, and political and commercial tensions, among other factors. Given the above, this report projects growth in foreign demand for 2021 (4.4%) and 2022 (3.5%) to be between 2.5% and 6.5% and 1.5% and 5.5%, respectively (Graph 1.3). In 2021 the oil price is projected to be USD 52.8 (between USD 38 and USD 64) per barrel, and USD 56.4 (between USD 41 and USD 70) per barrel in 2022.

International financial conditions have improved amid high levels of global liquidity, low central bank interest rates, and optimism over the deployment of the first COVID-19 vaccines. This has been reflected in a reduction of global risk indicators, a recovery in stock indices, increases in long-term interest rates in the United States, and the appreciation of currencies against the dollar. The approval of the first COVID-19 vaccine toward the end of 2020, the early stages of vaccine deployment, and the potential arrival of additional vaccines, as well as the end of the election cycle in the United States, are likely significant factors favoring an improvement in international financial markets. Risk indicators for developed countries (VIX and VSTOXX) fell in the fourth quarter and by the end of 2020 returned to near pre-pandemic levels, while several major stock indices climbed above pre-pandemic levels. Over the same period, long-term interest rates on U.S. treasury bonds increased amid rising public debt and the expectation of additional

fiscal stimulus. In emerging market economies, net capital inflows continued to recover, risk premiums fell, and currencies appreciated against the dollar, though they remained above pre-pandemic levels. So far in January international financial conditions have remained relatively favorable. The main credit-ratings agencies maintained Colombia's investment grade rating, and as of January 22 credit default swaps (5-year CDS) averaged 97.9 basis points, while the exchange rate was COP 3,462 per dollar. Despite this, it is assumed that increased public debt and the accumulation of external deficits could exert upward pressure on Colombia's risk premium on the forecast horizon. The evolution of global liquidity and its impact on access to international financing by emerging markets, as well as the effects of a possible change in the fiscal policy stance of the United States, are potential sources of risk on future financing costs.

Financial conditions in Colombia continue to improve and reflect significant transmission of reductions in the policy interest rate on savings and borrowing rates, though there is significant variation among different segments of the credit market. The Bank's survey of the credit environment suggests an increased willingness on behalf of financial entities to provide loans, while interest rate spreads on credit compared to debt securities have fallen. Pre-payments on commercial credit have been observed over the last three months, contributing to a deceleration of growth in the commercial credit portfolio. At the same time, private bond placement by businesses has increased. The consumption portfolio in the consumer credit market has already returned to pre-pandemic levels, while growth in the mortgage portfolio has stopped accelerating. All of this comes in the context of a reduction in credit interest rates that has been more acute than for commercial loans, and less acute than for consumer and mortgage interest rates. Reduced interest rates, together with a recent recovery in portfolio levels, point toward an improvement in financing conditions.

Graph 1.4
Policy Interest Rate, Interbank Rate (IBR) and OPR[a/]
(weekly data)



a/IBR: interbank rate.
Repo: policy interest rate.
OPR: overnight policy rate.
Sources: Office of the Financial Superintendent of Colombia and *Banco de la República.*

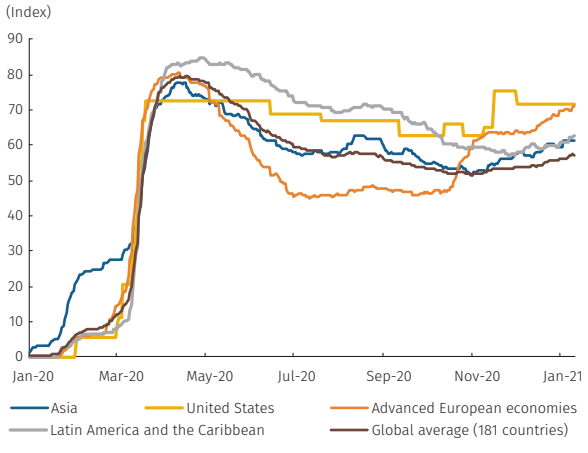
1.2 Monetary Policy Decision

In its meetings in November, December, and January the BDBR held its policy interest rate unchanged at 1.75% (Graph 1.4).

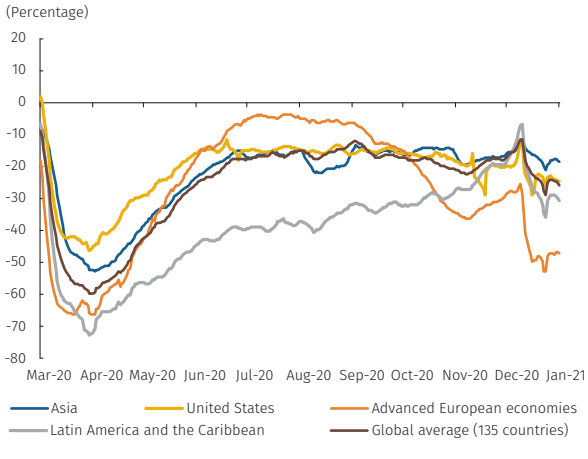
02/ Macroeconomic Projections and Risk Analysis

Graph 2.1
Confinement and Population Mobility Indicators

A. Index of social distancing and quarantine measures



B. Trips to restaurants, malls, movie theaters, etc.



Note: Confinement and social distancing measures to January 10. Mobility indicators to January 15, 7-day moving average.
Sources: Google and Hale, Thomas, Sam Webster, Anna Petherick, Toby Phillips, and Beatriz Kira (2020). Oxford COVID-19 Government Response Tracker, Blavatnik School of Government. Usage rights: Creative Commons Attribution CC BY standard; calculations by *Banco de la República*.

2.1 International Outlook

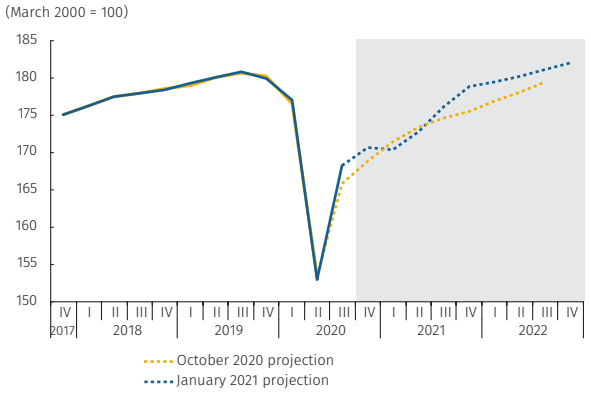
A recent exacerbation of the COVID-19 pandemic and tightening of mobility restrictions in several countries contrast with medium-term optimism over the expansion of vaccination campaigns to combat the virus. International economic conditions remain highly uncertain and potentially volatile as a result. The global economy registered an observable recovery in the third quarter after unprecedented declines in the preceding period. However, the COVID-19 pandemic grew worse in several countries beginning in the last quarter of 2020, including in the euro zone and the United States and, more recently, in Latin America and China. Quarantine measures have been tightened as a result, with negative effects on mobility and economic activity (Graph 2.1). This has come as multiple COVID-19 vaccination campaigns get underway, marking a potential turning point in the crisis. Optimism over a possible boost to the global economic recovery, together with fiscal and monetary stimulus in the world's major economies, has favored international financial markets and oil prices. However, the early pace of vaccine deployment has been relatively slow amid global supply restrictions. Global economic conditions represent a potential downside risk for the Colombian economy, at least in the short term, as international demand and terms of trade have not yet returned to pre-pandemic levels. Although medium-term prospects have improved thanks to the potential for widening access to vaccines, significant uncertainty remains over the evolution of the pandemic, it's medium-term effects on economic activity, and the speed with which the population can be vaccinated.

2.1.1 Foreign Demand

Average GDP among Colombia's main trade partners is expected to return to pre-pandemic levels in 2022 (Graph 2.2). The shock from COVID-19 and subsequent quarantine measures appears to have led to an unprecedented decline in foreign demand in 2020, estimated at -7.1%[1]. Growth for 2021 is projected at 4.4%, with the beginning of the year affected by a resurgence of the virus in several countries. The second semester will likely bring economic opening among some of Colombia's trade partners thanks to the expansion of vaccination programs, particularly in advanced economies. Foreign demand is expected to perform well in

1 This estimate represents an upward revision from the previous report (-7.7%), the result of annual growth in the second quarter that was likely better than projected.

Graph 2.2
Trade Partners' Assumed Real Quarterly GDP [/a]



a/ Main trade partners excluding Venezuela. Calculations based on non-traditional trade participation.
Sources: Bloomberg, statistics offices, and central banks; calculations and projections by *Banco de la República*.

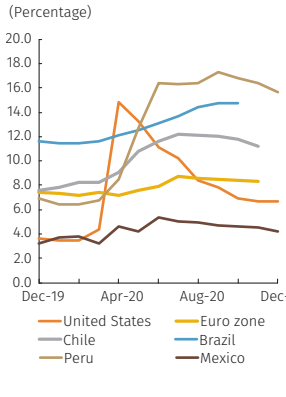
Table 2.1
Trade Partner Growth Projections[a/]

Main trade partners	2019 (pr)	2020 (proj)	2021 (proj)	2022 (proj)
United States	2.2	-3.6	4.3	3.3
Euro zone	1.3	-7.5	4.7	3.9
China	6.1	2.0	8.0	5.5
Ecuador	0.0	-8.0	2.8	3.2
Brazil	1.4	-4.7	3.3	2.6
Peru	2.2	-12.2	8.8	4.8
Mexico	-0.1	-9.0	3.4	2.8
Chile	1.1	-6.0	4.7	3.4
All trade partners[/a]	1.4	-7.1	4.4	3.5

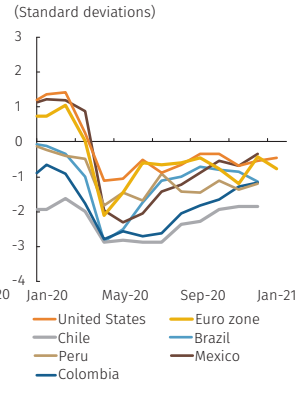
(pr): preliminary.
(proj): projected.
a/ Main trade partners excluding Venezuela. Calculations based on non-traditional trade participation.
Sources: Bloomberg, Focus Economics, statistics offices and central banks (observed data); *Banco de la República* (projections and calculations).

Graph 2.3
Unemployment Rate and Consumer Confidence for Selected Trade Partners

A. Unemployment rate



B. Consumer confidence indicators



Sources: INEGI, BIE, CIF, FVG IBRE, UDD, Fedesarrollo, APOYO, University of Michigan, European Commission, and Bloomberg; calculations by *Banco de la República*.

2022 (3.5%), in line with expectations that the pandemic will come under control. This outlook accounts for a high degree of variance among countries (Chart 2.1) due to differences in the virus' economic impact, the space available to maintain or implement measures to address the pandemic, and the speed with which it is expected that populations will be vaccinated (a measure for which Latin America's prospects appear less favorable). Wide forecast intervals[2] (Graph 1.3) reflect uncertainty over the evolution of the pandemic and the magnitude and persistence of its negative economic effects, as well the potential effects of increased public debt, business closures, deterioration in labor markets, and other considerations. Ongoing trade and political tensions could also be a factor. For at least the early months of 2021, the pandemic represents a downside risk to foreign demand due to the potential for additional social isolation measures and restrictions in vaccine supply. The rapid global distribution of one or more COVID-19 vaccines would represent a potential upside risk to foreign demand.

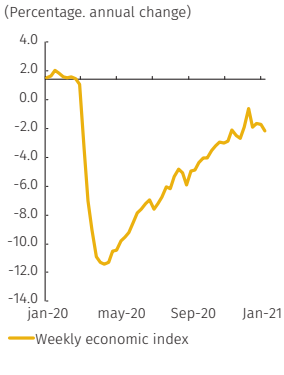
Economic recovery in the United States, and to a lesser extent in the euro zone, is expected in 2021. These economies experienced significant contractions in 2020[3], especially the euro zone. Beginning at the end of the year, new waves of contagion led to national quarantines in some countries in Europe and the re-establishment of social isolation measures in the United States. Population mobility has declined as a result (Graph 2.1, Panel B), and a recovery in consumer and labor market confidence has suffered (Graph 2.3). Some aggregated indicators of economic activity have regressed or stagnated (Graph 2.4). This comes as vaccine programs were introduced beginning in December, though at a relatively slow pace due to logistical complexity and limited immediate availability of vaccines. As a result, additional negative economic effects from COVID-19 are anticipated in the short term, particularly in Europe, amid more restrictions on mobility. A significant recovery is projected for the second half of 2021, alongside the expectation of massively expanded access to vaccines and more significant economic opening in these countries. Fiscal and monetary stimulus should continue to support economic performance, including through an as yet unapproved proposal for increased fiscal support offered by the newly inaugurated administration in the United States. The United States is expected to return to pre-pandemic levels of economic activity this year. Uncertainty remains high, however, due to remaining unknowns over the evolution of the pandemic and the speed of vaccination deployment, among other factors.

2 Average growth among Colombia's main trade partners in 2021 is expected to be between 2.5% and 6.5%. For 2022 the range is between 1.5% and 5.5%.

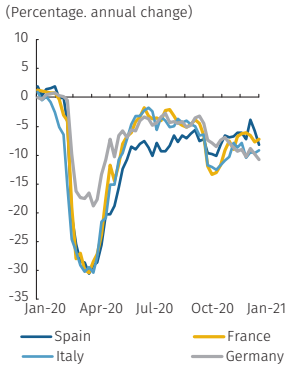
3 Upon completion of this report, preliminary GDP figures from the United States suggested an annual decline in the fourth quarter of 2.5%, putting the country's overall contraction for the year at 3.5%.

Graph 2.4
Weekly Economic Activity Indicators for Selected Major Economies

A. United States



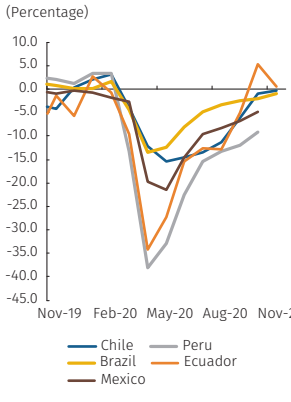
B. Selected European countries



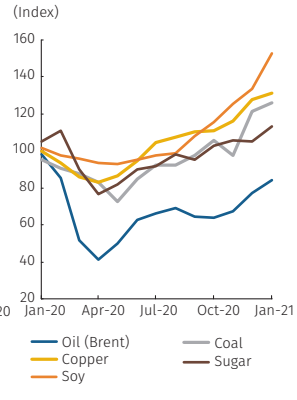
Sources: OECD, Federal Reserve of New York, and Federal Reserve of Dallas.

Graph 2.5
Economic Activity and Prices for Selected Commodities Exports for Countries in the Region

A. Monthly economic activity indicator (annual change)



B. Export commodities prices (December 2019=100)



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

Annual economic growth in China is expected to accelerate in 2021 despite uncertainty over a recent resurgence of the coronavirus. Economic activity in China continued to recover in the fourth quarter, registering 6.5% annual growth compared to 4.9% in the preceding period, though this came with signals of weakness in consumption. Meanwhile, business conditions have remained in expansionary territory for 10 consecutive months alongside a significant observable increase in capital inflows and increased participation in global trade. Despite such signs of recovery, headline inflation fell in 2020 from 5.4% in January to 0.2% in December[4], and core inflation continued to be low (0.4%). China's economy is expected to continue to improve thanks to its effective control of the pandemic, increased demand for its exports, and fiscal and monetary stimulus. Short-term uncertainty remains, however, over foreign demand amid a resurgence of COVID-19 in several countries and recent increases in cases of the virus in some Chinese regions.

Average GDP among Colombia's main trade partners in Latin America and the Caribbean is expected to return to pre-pandemic levels in 2022. Indicators of economic activity for these countries suggest that recovery continued in the fourth quarter of 2020 (Graph 2.5, Panel A), although output declines for the year would have been significant and varied widely between countries. This variation was likely due to differences regarding the impact of the pandemic, measures taken to address the crisis, and performance in terms of trade, among other factors. COVID-19 case counts in the region have risen in recent weeks, leading to additional social isolation measures and/or delays in re-opening plans. This could affect recovery, at least in the short term. Much of the region has also been delayed in starting its vaccination programs or has rolled out vaccination campaigns at a very slow pace, due to restrictions on global supply that are expected to gradually be resolved. As a result, a slow recovery is expected in 2021, supported by ample global liquidity, a recovery in some commodity export prices (Graph 2.5, Panel B), and increased foreign demand. Other factors to consider include high unemployment rates, limits on fiscal space, and policy interest rates in many countries at historical lows or near zero. Political and social tensions could also intensify as elections in much of the region take place this year.

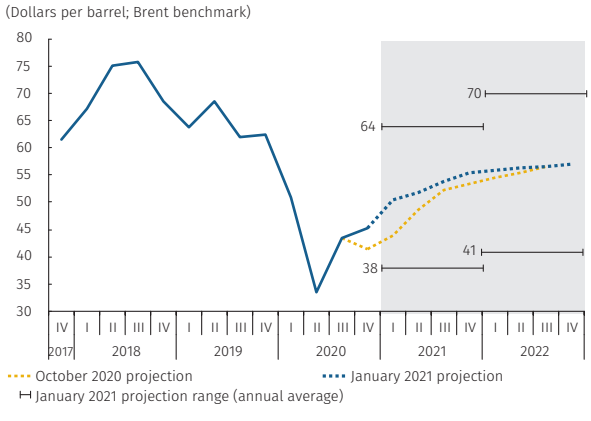
2.1.2 International Prices

Oil prices are expected to increase year-on-year in 2021 but to remain below pre-pandemic levels (Graph 2.6). International oil prices started to recover in the fourth

4 Declines in vehicle fuel prices (-14.6%) and a deceleration in food prices (1.2%) have contributed to this dynamic.

quarter, with Brent benchmark crude remaining above USD 50 per barrel (bl) and rising to an average of USD 55/bl in the first three weeks of 2021. This was aided in December and January by the extension of production cuts by the Organization of Petroleum Exporting Countries and its allies (OPEC+), which should help rebalance the market more quickly. On the demand side, oil prices have benefited from expectations surrounding COVID-19 vaccine deployment and by those economies that have maintained a continuous rate of recovery in recent months, most notably China. Nevertheless, oil prices remain below pre-pandemic levels and future recovery could be limited by the effects on demand of the virus' recent global resurgence. An expected gradual increase in global production could also be a factor. Additionally, there is some uncertainty over both the sustainability of the OPEC+ accords and the rate of vaccination necessary to allow for greater economic opening. Wide forecast intervals[5] for future oil prices persist as a result, and in 2021 and 2022 the average price for the Brent benchmark is expected at USD 52.8/bl and USD 56.4/bl, respectively (Graph 2.6).

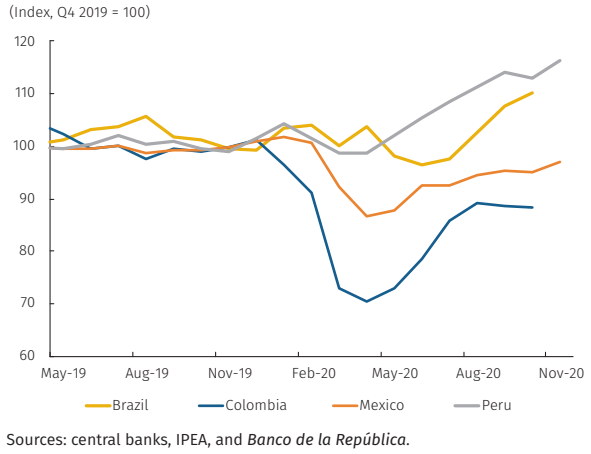
Graph 2.6
Assumed Average Quarterly Oil Price



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

Advanced economy inflation is expected to be below or close to target levels on the forecast horizon, amid excess production capacity and loose labor markets. Annual headline inflation in the United States rose to 1.4% in December from 1.2% in November on increased energy and food prices. Core inflation did not register changes in December from the previous month, remaining at 1.6%. U.S. inflation expectations for 2021 based on analyst surveys suggest an upward correction, and currently project inflation close to 2.0% on expectations for additional fiscal stimulus. Headline and core inflation in the euro zone remained stable at -0.3% and 0.2%, respectively, with inflation in 2021 expected to remain below the target.

Graph 2.7
Terms of Trade for Selected Countries in the Region



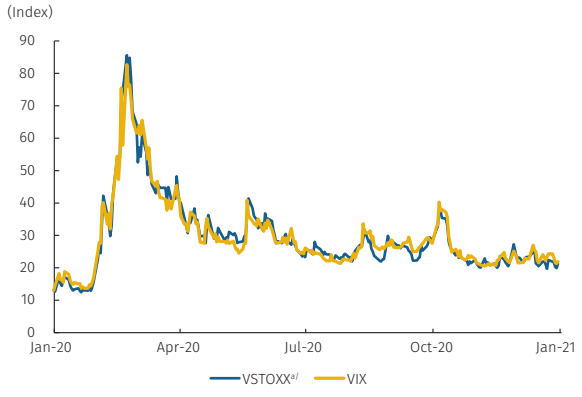
Sources: central banks, IPEA, and *Banco de la República*.

Terms of trade likely fell significantly in 2020. A partial recovery is expected in 2021. The shock from COVID-19 in 2020 was reflected in a reduction in Colombia's terms of trade, estimated around 15%. This came primarily due to falling prices for oil and coal, which together make up a significant part of the country's exports. This would imply a negative impact on national revenues and changes in relative prices. Exports fell significantly, likely affecting fiscal revenue. This decline in terms of trade was likely more significant than it was for some countries in the region with more diversified exports or whose export prices were less affected by, or recovered more quickly from, the shock of COVID-19 (Graph 2.7). A partial recovery in terms of trade is expected this year, in line with an increase in the price for Colombia's main export commodities (oil and coal), though to below pre-pandemic levels.

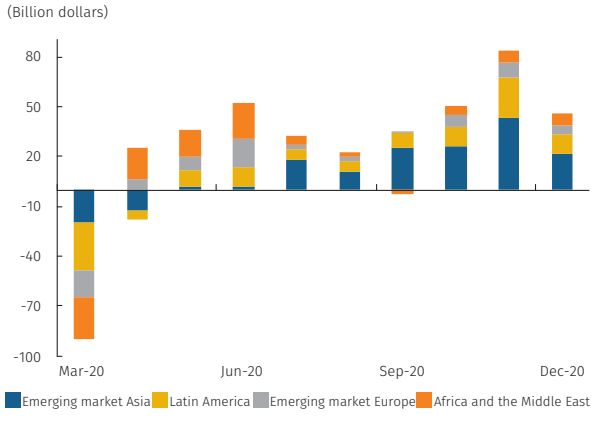
5 For 2021 the average oil price is expected to range from USD 38/bl to USD 64/bl. For 2022 the interval is between USD 41/bl and USD 70/bl.

Graph 2.8
Financial Volatility and Foreign Investment Flows

A. VIX and VSTOXX[a/]

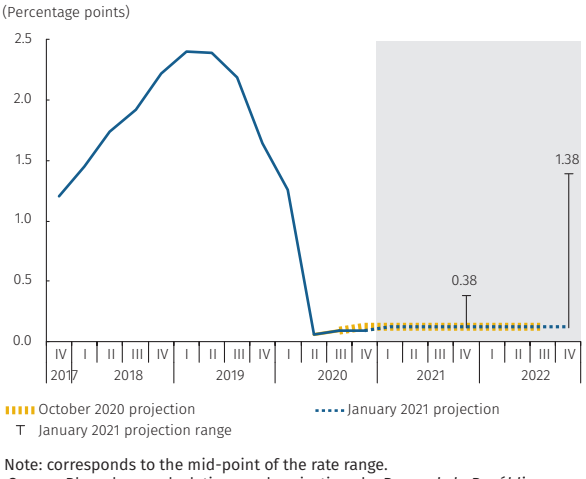


B. Net foreign investment flows to emerging market economies[b/]



a/ Figures to January 22, 2021
b/ Corresponds to investment flows in debt and stock instruments.
Sources: Federal Reserve Bank of St. Louis, Bloomberg, and the Institute of International Finance (IIF)

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



Note: corresponds to the mid-point of the rate range.
Source: Bloomberg; calculations and projections by *Banco de la República*.

2.1.3 Global Financial Conditions

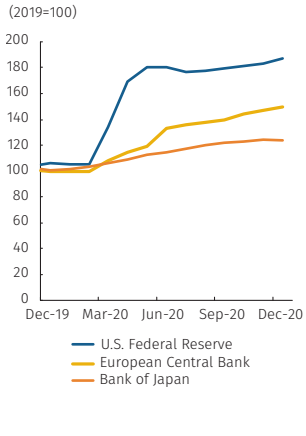
International financing conditions remain favorable amid high levels of liquidity and low interest rates. Risk measures for developed countries (VIX and VSTOXX) started to fall in November, and in December reached their lowest levels since February 2020, though both remained above pre-pandemic figures (Graph 2.8, Panel A). Major stock indices gained significant value, surpassing levels observed in the prior to the pandemic. Significant capital inflows toward emerging market economies were also registered in the fourth quarter (Graph 2.8, Panel B). All of this came in the context of expansive monetary policies in advanced economies, the launch of COVID-19 vaccination programs, the culmination of national elections in the United States, and optimism there over forthcoming fiscal stimulus. Some of those factors may have contributed to the favorable international financing conditions that continued in the first three weeks of 2021. VIX and VSTOXX registered average levels similar to those seen in December, and several of the main stock indices continued to add value. Long-term U.S. treasury bond interest rates increased starting in the fourth quarter, in the context of increased public sector debt and expectations for increased fiscal stimulus. Moving forward, high levels of uncertainty and the potential for unexpected changes associated with fiscal and monetary measures in the world's largest economies could lead to variation in international financing costs. The potential for worsening effects on the global economy from the pandemic, delays in vaccine deployment, and heightened trade tensions between China and the United States are all potential factors that could generate backsliding in international financial markets.

The U.S. Federal Reserve is expected to hold its policy interest rate between 0.0% and 0.25% over the forecast horizon (Graph 2.9). The Federal Open Market Committee (FOMC) left the federal funds rate unchanged in its meeting on December 16[6]. The current policy rate is expected to remain stable moving forward, an assumption that would be in line with analyst and FOMC member projections, as well as with information derived from futures markets. Based on Federal Reserve announcements, unconventional policies designed to supply markets with liquidity, and which have contributed to improved global financial conditions in recent months, are expected to remain in place in the months ahead (Graph 2.10, Panel A). It will be necessary to consider the implications of the newly inaugurated U.S. administration's fiscal strategy both on the assumed Federal Reserve interest rate and on Colombia's international financing costs once this strategy has been defined and approved. Such an evaluation should take into account recent changes to the Federal Reserve's monetary policy

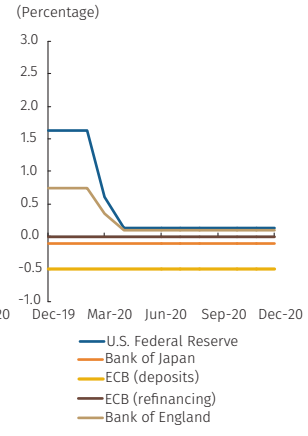
6 Upon completion of this report, the FOMC in its meeting on 27 January again held the federal funds rate unchanged.

Graph 2.10
Monetary Policy in Selected Advanced Economies

A. Balance sheets

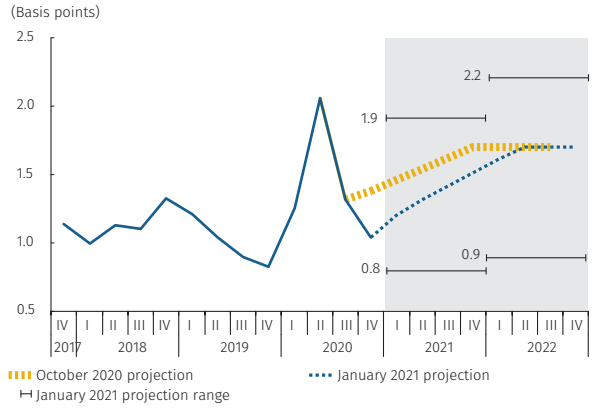


B. Benchmark rates



Sources: U.S. Federal Reserve, European Central Bank, and Bloomberg.

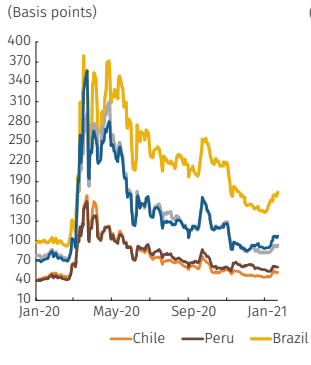
Graph 2.11
Assumed Quarterly Risk Premia for Colombia (CDS) [a/]



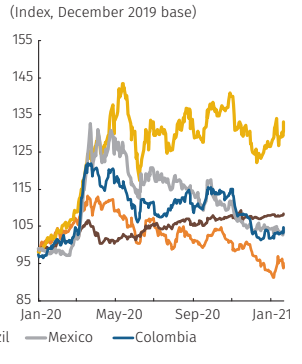
a/ Five-year credit default swaps.
Source: Bloomberg; calculations and projections by *Banco de la República*.

Graph 2.12
Nominal Exchange Rate and Risk Premia (five-year CDS) for Selected Latin American Countries

A. Five-year credit default swaps



B. Nominal exchange rate



Note: Figures to January 22, 2021.
Source: Bloomberg; calculations by *Banco de la República*.

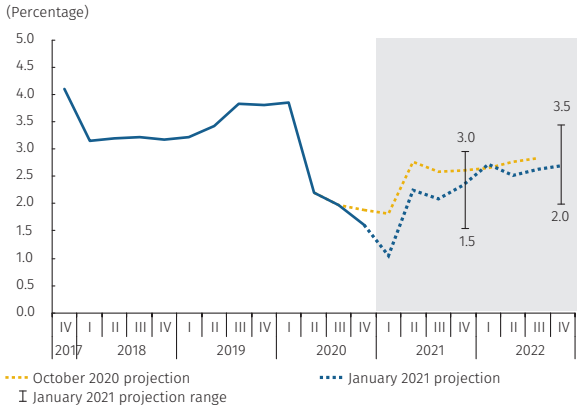
framework. The assumed upper limit on the Federal Reserve interest rate presented in this report (0.38% at the end of 2021 and 1.38% at the end of 2022)[7] accounts for the potential reaction to a recovery in the labor market or in economic activity in the U.S. that is faster than projected. Other advanced economy central banks are also expected to maintain low policy interest rates[8] (Graph 2.10, Panel B)

The baseline forecast scenario for 2021 supposes a lower risk premium than projected in the October report, with an upward trajectory on the forecast horizon (Graph 2.11). Risk premiums and exchange rates for some countries in the region fell over the course of the fourth quarter (Graph 2.12) alongside economic recovery, ample global liquidity, and reduced perceptions of international risk. The major risk agencies maintained Colombia's investment grade, and for the fourth quarter credit default swaps (five-year CDS) and the exchange rate fell to averages of 104.2 bp and COP 3,661 per dollar, respectively. These values remained above pre-pandemic levels. Five-year CDS in some countries in the region registered average levels for the year-to-date below those observed in the final quarter of 2020, though they have also registered recent increases that could be associated in part with an exacerbation of the COVID-19 pandemic. For Colombia, this indicator averaged close to 97.9 basis points through the first 22 days of January, reaching a maximum of around 107.2 bp for the period (Graph 2.12). The baseline forecast scenario for 2021 supposes an average risk premium of 140 bp, with a range between 80 bp and 190 bp, a downward revision from the previous report. For 2022 this assumption is 168 bp, with a range between 90 bp and 220 bp, which would be somewhat above the historical average. The reduced risk premium projected for 2021 compared with the previous report takes into account the indicator's recent behavior, the prospect of favorable international financing conditions, and the previously mentioned recovery in oil prices. The growth trajectory and its convergence account for increased public debt and the accumulation of external deficits.

7 The upper limit of this assumption considers a Federal Reserve benchmark interest rate at the end of this year of 0.38% (between 0.25% and 0.5%) and for the end of 2022 of 1.38% (between 1.25% and 1.5%) (Graph 2.9).

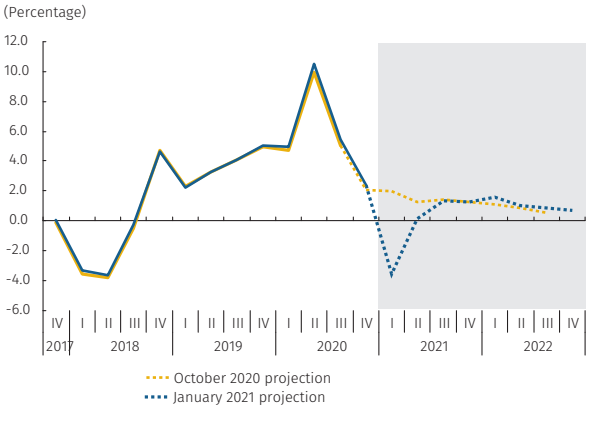
8 The European Central Bank (ECB) in its meeting on January 21 held interest rates and continued its pandemic emergency purchase program (PEPP), in addition to maintaining measures to maintain favorable financial conditions for economic recovery.

Graph 2.13
Quarterly CPI
(annual change, end-of-period)



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

Graph 2.14
Quarterly RER Inflationary Gap [a/]



a/ The real exchange rate (RER) inflationary gap captures inflationary pressures from the exchange rate. Positive values imply upward pressure on inflation. The gap is calculated as the deviation in the real exchange rate compared to a non-inflationary trend component estimated using a 4G model.
Source: *Banco de la República*.

2.2 Macroeconomic Projections[9]

2.2.1 Inflation

Price indexation on some services tied to low observed inflation, limited exchange rate pressures expected in 2021, and high excess production capacity contributed to a reduction in the projected inflation path compared to the previous report (Graph 2.13). Inflation in December 2020 was lower than expected due to an extension of several price relief measures and the existence of significant downward demand pressures. Core inflation fell more than projected in the October report, suggesting a downward trend that cannot be explained by relief measures and other temporary supply shocks. Together with an output gap that is likely to be somewhat more negative over the next two years than previously expected, the forecast for a lower real exchange rate in forthcoming quarters (Graph 2.14) has led to a reduction in the expected paths for headline and core inflation over the entire forecast horizon. Lower observed and expected inflation at the end of 2020 would suggest additional downward pressures due to lower price indexation tied to current values and a reduced path of inflation expectations. The revised forecast also accounts for an extension of the temporary elimination of the VAT on various goods and services, lower annual adjustments in prices for regulated items in 2021, and a path for food prices that did not exhibit substantial changes.

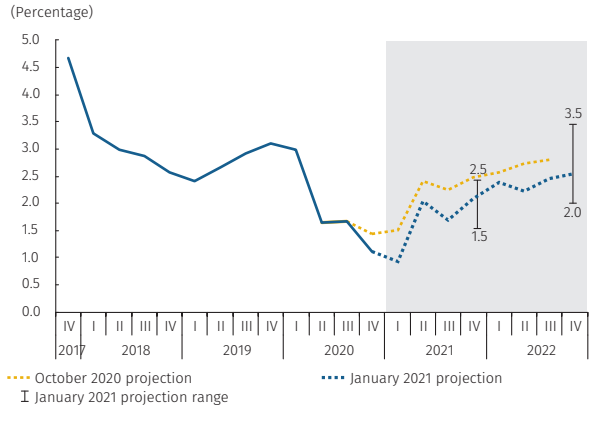
Headline inflation is expected to reach a low in the first quarter of 2021 before increasing, though without surpassing the 3.0% target in the next two years. This report projects falling inflation through the first quarter of 2021, to around 1.1%. This figure would be lower than the 1.8% projected in the previous report, in part the result of the effect of social distancing measures put in place at the beginning of the year (Graph 2.13). Prices are expected to begin to increase at slightly higher annual rates beginning in the second quarter, as the downward shock of some temporary tax and price relief measures implemented in the second quarter of 2020 dissipates. This would also imply a low base of statistical comparison for annual indicators. Nevertheless, significant excess production capacity and limited exchange rate pass-through on prices over a large portion of the forecast horizon, among other factors, should contribute to keeping inflation below the 3.0% target for the next two years. A gradual normalization of demand and reduction of excess production capacity should allow inflation to slowly converge to the target beyond this report's forecast horizon. The second wave of COVID-19 in the first quarter of 2021, alongside new social

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

distancing measures put in place to address it, are reflected in a change in price adjustment patterns considered in these forecasts, with a smaller-than-usual concentration of price increases in the first quarter. Current projections continue to include a much higher degree of uncertainty than is normal due to the size and frequency of shocks associated with the COVID-19 pandemic. These circumstances, in addition to challenges they generate in measuring the CPI, make it difficult to estimate the relative weight of the factors that influence price behavior. Taking all of this into account, the estimated range for headline inflation at the end of 2021 is currently between 1.5% and 3.0%, and between 2.0% and 3.5% for the end of 2022.

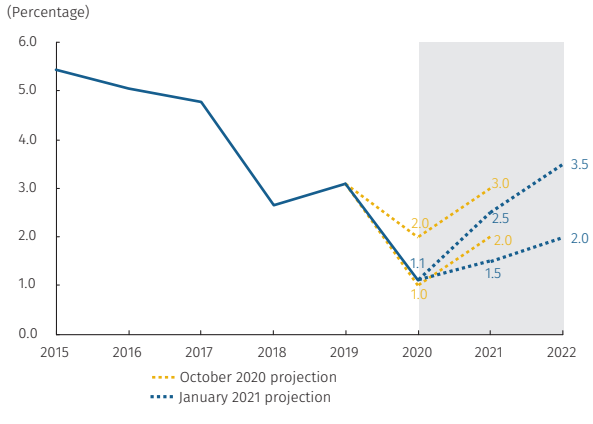
Limited demand and salary cost pressures, together with price indexation at low rates, should keep core inflation below the 3.0% target over the entire forecast horizon (Graph 2.15). Although the expiration of some price relief measures in the goods sub-basket is expected in the first quarter, core inflation for this period should continue to decline, later increasing significantly in the second quarter. For both periods the base of comparison is likely to play an important role in explaining performance. Even so, price adjustments should be somewhat lower than previously predicted, given recent measures adopted regarding the extension of the health emergency and changes to Colombia's General Tourism Law (*Ley General del Turismo)*[10]. The expiration of price relief measures and a low base of comparison should have their greatest effect on annual change in the CPI for goods, which is expected to increase to around 3.0% in the second quarter of 2021. Lower price adjustments are expected in services due to greater influence from excess production capacity and weak demand, as well as from limited salary pressures in a very loose labor market, and despite an adjustment in the minimum wage in 2021 that was somewhat larger than expected. At the same time, segments such as housing rentals would be indexed to lower inflation rates than were anticipated in the previous report. Additionally, due to recent measures restricting mobility and certain commercial activities, price adjustments that are typically seen at the beginning of the year are expected to be delayed, leading to a smoothing of the price adjustment path for services in 2021. Despite these considerations, the CPI for services is also expected to see increases in annual variation due to a low base of comparison. Given the above, core inflation is expected to remain somewhat above 2.0% in 2021, closing the year between 1.5% and 2.5%. The range expected for 2022 is between 2.0% and 3.5% (Graph 2.16). The slight upward trend should persist beyond the forecast horizon, given a recovery in the economy and a gradual closing of

Graph 2.15
CPI excluding Food and Regulated Items
(annual change, end-of-period)



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

Graph 2.16
CPI excluding Food and Regulated Items, Annual Range
(annual change, end of period)



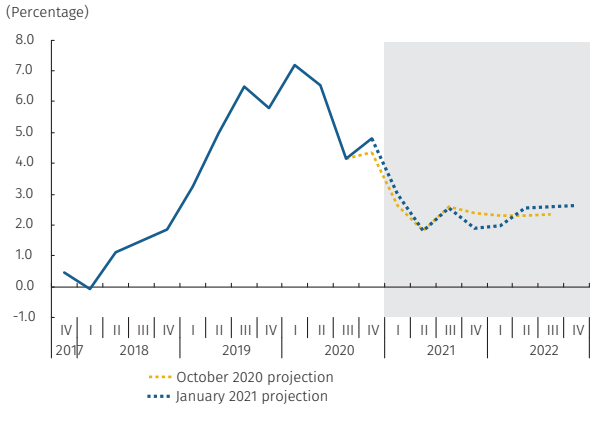
Source: DANE; calculations and projections by *Banco de la República.*

10 Law 2068 of 31 December 2020 modifies the General Tourism Law by, among other changes, extending until December 2021 relief measures for tourism, lodging, and food away from home services; the same will be in place until December 2022 in the case of airline tickets.

the output gap, supporting convergence to the inflation target.

Food prices should contribute to keeping consumer inflation at low levels on the forecast horizon, supported by favorable climate conditions and despite the appearance of some upward external pressures at the beginning of 2021. Climate conditions over the last several months have been categorized by a weak to moderate La Niña weather pattern. The most recent forecasts from specialized climate agencies suggest that these conditions will continue in the next quarter. La Niña tends to be associated with higher-than-normal rainfall, which has a positive effect on agricultural supply and puts downward pressure on prices in the sector. This could be compounded by demand for food that, having been relatively little affected by the health emergency, could exhibit low levels of growth in coming quarters amid projected weakness in household income and COVID-related operating difficulties facing the restaurant sector. By contrast, prices for processed foods face some upward pressures due to the recent growth trend for international prices on numerous commodities and agricultural products, as well as due to higher transportation costs (for example for maritime fleets), which could extend for several months and have led to an upward revision to the forecast for the beginning of 2021. With all of this in mind, and considering the low base for comparison from 2020, annual change in the CPI for foods should fall significantly in the second quarter of 2021, and later rise moderately above 2.5% at the end of the forecast horizon (Graph 2.17).

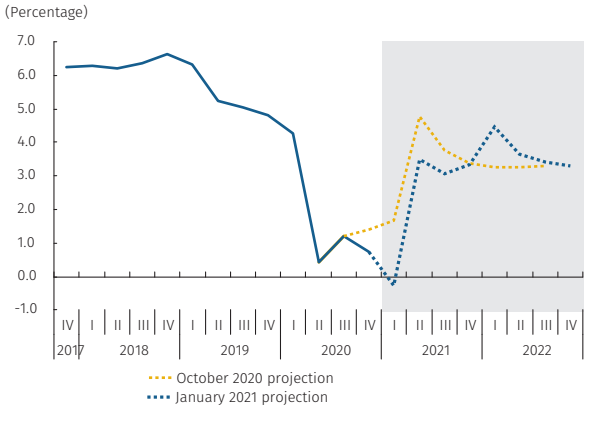
Graph 2.17
CPI for Foods[a/]
(annual change, end-of-period)



a/ Does not include food away from home.
Source: DANE; calculations and projections by *Banco de la República*.

The CPI for regulated items is not expected to face significant upward pressures on the forecast horizon. Annual change for this CPI should remain close to or below 0% at the beginning of 2021 (Graph 2.18). An increase to levels somewhat higher than 3.0% is expected starting in the second quarter, based largely on the low base of comparison from the second quarter of 2020, when price relief measures for utilities and a reduction in fuel prices were concentrated. These forecasts incorporate indexation to low inflation levels for some utility rates and other regulated categories, which would also have an effect, alongside weak demand and new mobility restrictions, on regulated education prices. At the same time, the projected path does not suppose significant pressure from electricity prices, assuming that climate conditions remain favorable, nor does it assume significant pressures from international fuel prices or the exchange rate.

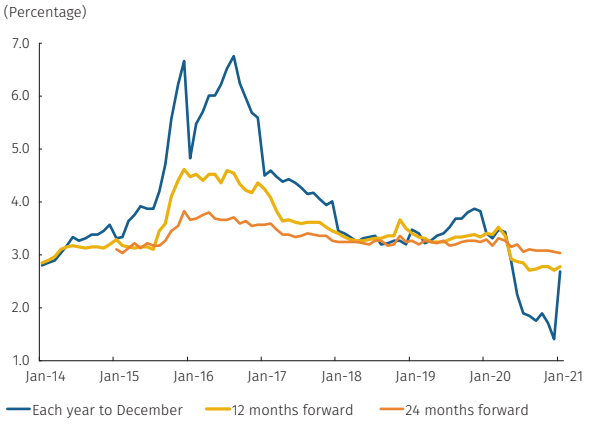
Graph 2.18
CPI for Regulated Items
(annual change, end of period)



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

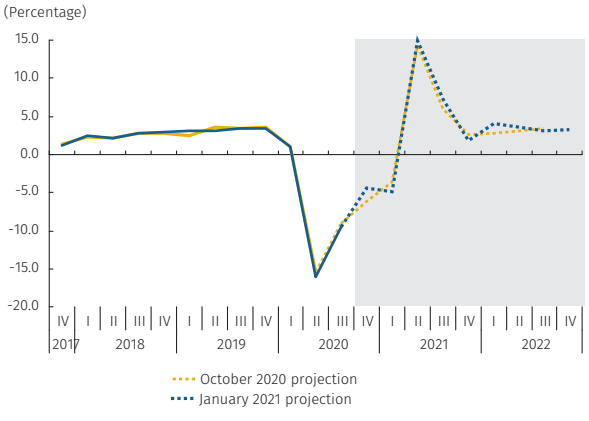
Market inflation expectations fell in the fourth quarter and suggest inflation below 3.0% at the end of 2021, converging with the target in 2022. Expectations based on the price of government bonds at two years or less remained below or close to the target. Responses to the Bank's monthly survey from January suggest that economic analysts expect year-end inflation in 2021 and 2022 of 2.7%

Graph 2.19
Bank and Stockbroker Inflation Forecasts



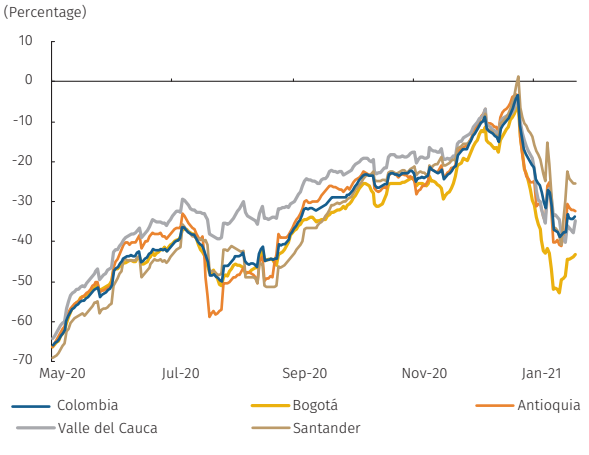
Source: *Banco de la República* (*Monthly Analyst Survey*).

Graph 2.20
Quarterly GDP[a/]
(annual change)



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

Graph 2.21
Mobility Changes [a/, b/]
(seven-day moving average; average of non-residential destinations)



a/ The reference value is the median for the given day of the week corresponding to the five weeks from 3 January to 6 February 2020.
b/ Figures to 22 January 2021.
Source: Google Community Mobility Reports; calculations by *Banco de la República*.

(2.9% in the October survey) and 3.1%, respectively (Graph 2.19). Expectations for inflation excluding foods fell to 2.5% for 2021 (2.7% in the October report) and 2.9% for 2022. For its part, expectations based on government bonds suggest year-end inflation in 2021 of 2%, and one year forward from that date (FBEI 1-1 2022) of 3.2%[11].

2.2.2 Economic Activity

Colombia's third-quarter recovery likely deepened in the fourth quarter, with a significant reversal of the negative shock from COVID-19. However, the effects of a second wave of contagion at the beginning of 2021 are likely temporarily interrupting this trend. Third-quarter figures showed annual growth of -9.5% (seasonally adjusted and corrected for calendar effects, SACE), confirming the pace of recovery expected by the Central Bank's technical staff (see Section 3). Data available for the fourth quarter suggests a smaller contraction in output in annual terms than in the third quarter, likely on the order of 4.4% (Graph 2.20). If these forecasts are confirmed, GDP growth for 2020 would range between -6.8% and -7.4%, with -7.2% growth being the most likely[12]. The flexibilization of social distancing measures, steps by local and national authorities to sustain household income and support company financing, as well as low interest rates and ample liquidity administered by *Banco de la República*, likely continued to facilitate the recovery in economic activity in the fourth quarter. Contractions in total employment and household income likely continued to slow the speed of recovery. Quarantine measures implemented by some local governments in response to an increase in COVID-19 cases and deaths at the end of 2020 and, especially, at the beginning of 2021 will likely affect economic activity in the first quarter, according to a reading of high frequency indicators (e.g., commercial sales measured through electronic transactions at some commercial banks and mobility to non-residential destinations) (Graph 2.21). Based on this information, the impact of the pandemic on GDP in the early months of the year could be close to the effect registered in August 2020[13].

11 Based on average monthly information to 22 January, implicit inflation (breakeven inflation, BEI) from peso-denominated TES and UVR, and the forward breakeven inflation (FBEI) curve for the same period.

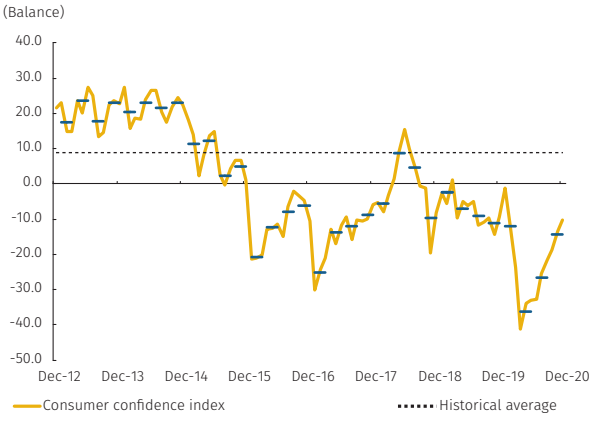
12 On the assumption that the national statistics agency (DANE) ratifies SACE figures for the three previous quarters.

13 The first quarter 2021 estimate accounts for similar effects from the pandemic in January and the first two weeks of February as occurred in August 2020. This applies in particular to the following sectors: industrial manufacturing, commerce, repairs, transportation and lodging, arts and recreation activities, and other services. These effects are assumed to be concentrated in the regions of Bogotá, Antioquia, Valle, and Santander. An approximation of the methodology utilized in this assessment can be found in Box 1 of the *Monetary Policy Report* from April 2020.

Fourth-quarter economic recovery likely continued to be driven primarily by a reactivation of domestic demand. Private consumption and investment in machinery and equipment appear to have played crucial roles in re-establishing economic activity in this period, far beyond the other components of spending. Domestic demand likely continued to improve in the fourth quarter, while remaining below pre-pandemic levels and registering negative annual change close to that of GDP.

There appears to have been a particularly notable rebound in household consumption, regaining at the end of the year a large portion of the ground lost through the shock of the pandemic in the second quarter. This indicator also likely registered far less severe annual declines compared to the third quarter and to other components of private spending. This is suggested by retail sales figures excluding fuel and vehicles, which grew at an annual rate of 11.7% (seasonally adjusted series) in November. Consumption of non-durable goods, the segment of household consumption least affected by the shock, appears to have grown at a similar rate to the third quarter. Spending on semi-durable and durable goods appears to have registered significant quarterly growth (driven, in part, by the "VAT-free day" and other rebate holidays), and it's possible that for durable goods the growth rate was positive. Services consumption, the segment that was hardest hit by the implementation of social distancing measures, likely registered a significant annual decline, though at a notable rate of expansion compared to the previous quarter. Private consumption continued to benefit from a perceived improvement in consumer confidence in the final months of the year (Graph 2.22), although this continued to be limited by a fall in employment and household income. The growth estimate for public-sector spending in the fourth quarter calls for a moderate acceleration, though to annual rates below those observed in 2019.

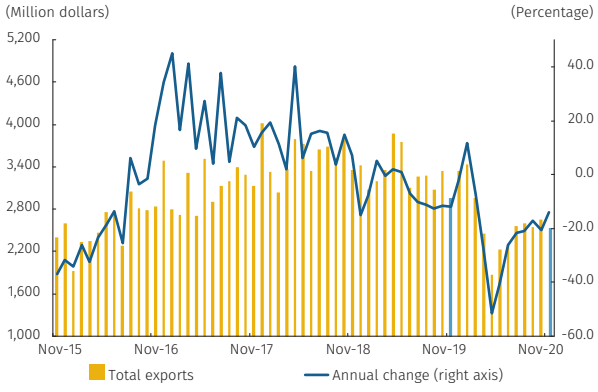
Graph 2.22
Consumer Confidence Index and Quarterly Average



Source: Fedesarrollo; calculations by *Banco de la República*.

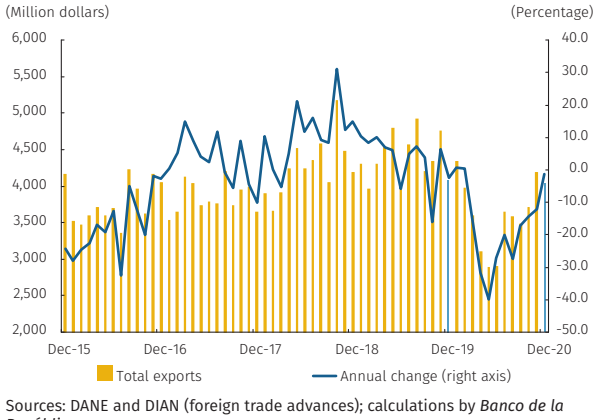
Overall investment appears to have increased, though it remains well below pre-pandemic levels. Investment in machinery and equipment, driven again by transportation-related purchases and/or by tax stimulus included in the Financing Law of 2019 (Ley de Financiamiento de 2019), appears to have consolidated a significant third-quarter recovery, registering positive annual growth at the end of the year. The forecast suggests that a lag in the recovery for investment in public works observed in the third quarter likely started to be overcome in the fourth. It is worth mentioning that a number of highway infrastructure projects exist for which structuring and financing would be assured. Finally, investment in housing appears to have registered only very modest quarterly growth and is likely the segment of fixed capital formation that was hardest

Graph 2.23
Total Goods Exports (FOB)
(monthly)



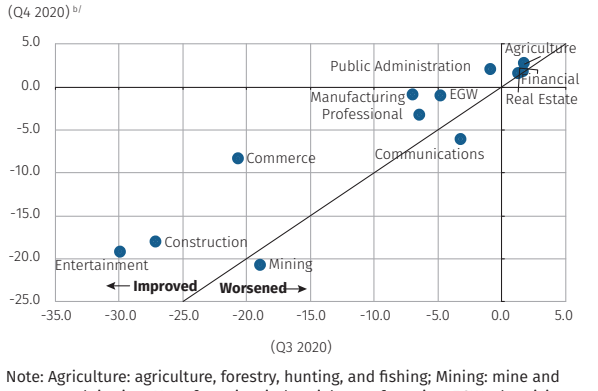
Source: DANE; calculations by *Banco de la República.*

Graph 2.24
Total Goods Imports (CIF)
(monthly)



Sources: DANE and DIAN (foreign trade advances); calculations by *Banco de la República.*

Graph 2.25
Annual Growth by Activity[a/]
(Q4 2020 *vs.* Q3 2020)



Note: Agriculture: agriculture, forestry, hunting, and fishing; Mining: mine and quarry exploitation; Manufacturing: industrial manufacturing; EGW: electricity, gas, and water; Construction: construction; Commerce: commerce, repairs, transportation, lodging, and food services; Communications: information and communications: Finance: financial and insurance activities; Real estate: real estate activities; Professional: professional, scientific, technical, and support activities; Public administration: public administration and defense, education, and health; Entertainment: arts, entertainment and recreation, and household activities.
a/ seasonally adjusted and corrected for calendar effects.
b/ *Banco de la República's* technical staff's forecast.
Source: DANE; calculations by *Banco de la República.*

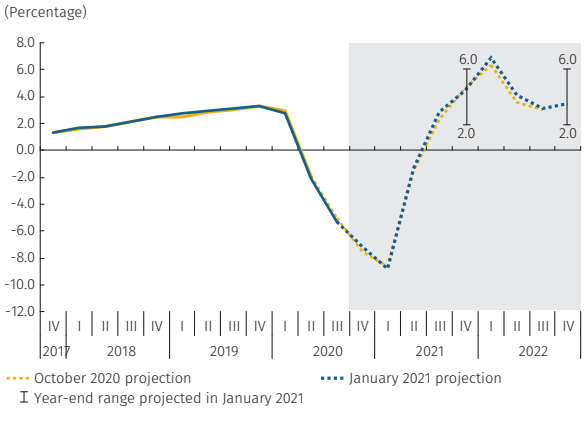
hit by the pandemic, despite the performance of residential housing sales in recent months[14].

As was the case in the third quarter, the contribution from net foreign demand to economic growth in the fourth quarter was likely small, above all due to poor export performance. External dollar sales figures presented by DANE in November (Graph 2.23) point to a small recovery in real exports in pesos in the fourth quarter. Exports likely continued to feel the effects of supply shocks and from trade partner demand that remains highly constricted. The supply shocks likely affected coal exports, as will be explained below. Based on preliminary information from DANE, these sales, together with oil sales, will have continued to register very significant annual declines in dollar terms. As such, a modest expansion in exports was likely facilitated by gold sales, sales of non-traditional goods and, to a lesser extent, services exports. Imports appear to have registered a more significant recovery in the third quarter compared to exports, based on dollar figures from December (according to advance results from DIAN) (Graph 2.24). This would be consistent with an expected increase in domestic demand for imported goods and a gradual normalization of the global trade lines.

Supply side information also points to a strong recovery in economic activity in the fourth quarter, driven by sectors that most benefited from the easing of social distancing norms and a reduced perception of risk of contagion. Third-quarter figures suggest improved performance in all facets of production compared to historic lows in the second quarter. These trends began consolidating with the end of a mandatory preventive isolation program at the beginning of September and extended through the fourth quarter. All signs suggest recovery in a wide range of economic activity in this period (Graph 2.25), though in most cases without returning to pre-pandemic levels. Industrial manufacturing appears to have recovered very close to year-end 2019 levels, and growth in wholesale and retail commerce likely benefited from very positive performance in retail sales excluding fuels and vehicles in October and November, though this was likely partially offset by lower figures in December. Arts and recreation and construction and mining continued to show pronounced annual contractions due to operating restrictions that are still in place for many services activities, a lack of building progress in public works projects, and a pronounced decline in the oil price, along with strikes and closures of some coal mines.

14 According to figures from CAMACOL, the housing units sold in 19 administrative departments it covers grew 17.8% annually in the fourth quarter (12% in the social housing segment and 29.7% in the non-social housing segment).

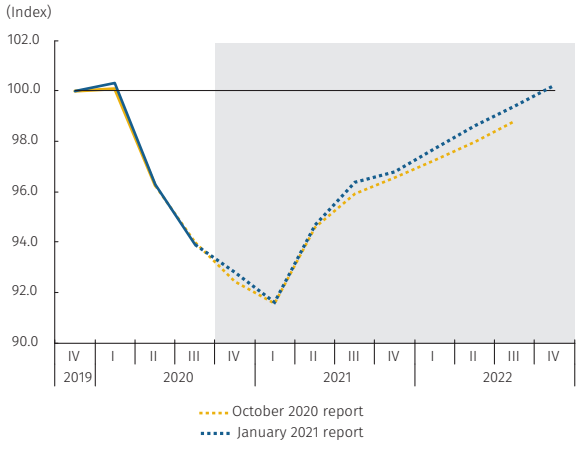
Graph 2.26
Accumulated GDP, 4 Quarters [a/]
(annual change)



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

Economic growth this and next year will continue to be determined by the evolution of the pandemic, the measures adopted to halt its advance, and their medium-term consequences on production capacity and the health of public finances. One of the most important factors dictating economic recovery is the speed with which vaccination campaigns can be carried out both in Colombia and abroad. Colombia's economy is now forecast to grow 4.5% in 2021, ranging between 2.0% and 6.0%, a wide interval that reflects significant uncertainty that persists and that will be explained in further detail below. This figure is similar to the October forecast (Graph 2.26), but this report accounts for more restrictive social distancing measures put in place at the beginning of the year and supposes compliance with COVID-19 vaccination targets presented by the national government at the beginning of 2021. The forecast anticipates a gradual reduction of COVID-19 cases as the second wave of contagion comes under control in the first quarter. This would allow for social distancing measures to be relaxed and the return to a path of economic opening and normalization for various productive sectors. Growth is expected to be driven domestically by an increase in consumer confidence and by a continuation of economic opening for productive activities once isolation measures implemented at the beginning of the year are relaxed. This would allow for higher spending, especially in services. Monetary policy is expected to continue to be expansive and favorable credit conditions are expected to persist. Recovery among Colombia's main trade partners, the forecast for which was revised slightly given the favorable impact expected from the COVID-19 vaccination process already underway in several countries, is expected to allow for improved performance in the export sector and in commodities prices in the context of favorable international financing conditions. As a result, it is expected that Colombia will continue to have access to ample sources of external financing. Economic figures in 2021 will likely benefit from a low base of comparison in 2020, especially in the first half of the year. By component, demand is expected to benefit from improved performance in investment in public works as a result of significant public works programs at the national and local level that should gain ground in 2021. It is expected that, as a result, the lag in recovery in this aspect of spending that was observed in 2020 will be overcome. Private consumption, which accounts for close to two-thirds of spending, should also continue to approach pre-pandemic levels, though at a more moderate rate. A similar dynamic is projected for exports, though these in any case are expected to remain at low levels, as a full recovery in coal, oil, and services exports is not anticipated. On the supply side, growth is expected to be driven by construction, especially in public works, in commerce, repairs, transportation and lodging, and in the manufacturing industry. These results would also be explained by low bases for comparison.

Graph 2.27
Accumulated GDP, 4 Quarters[a/]
(Q4 2019 = 100)



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

Economic activity is expected to continue to approach pre-pandemic levels in the medium term, converging to those levels at the end of 2022 (Graph 2.27). This pace of growth would likely be the result of a slow recovery in disposable household income in the context of unemployment that, while below current rates, will likely remain at historical highs, and amid fragile household and business financial conditions. Despite some recent recovery, terms of trade that continue to be below levels observed in previous years would also be a factor. These forecasts would be affected by possible changes in consumption patterns that could affect aggregate demand, high uncertainty over the evolution of the pandemic, and the possible effects of fiscal reforms laid out in the Medium-Term Fiscal Framework. This would suggest a relatively slow recovery and an output gap that would remain negative in 2022. As a result, the baseline forecast scenario calls for economic activity to grow by 3.5% in 2022, with a range between 2.0% and 6.0% taking multiple sources of uncertainty into account.

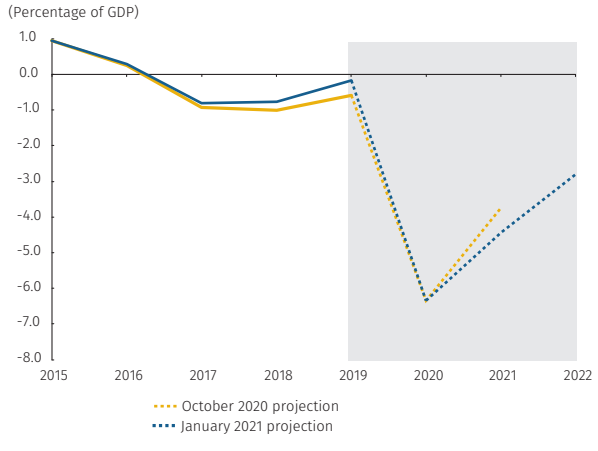
Given the forecasts for economic activity, the national unemployment rate is expected to continue to decline, averaging between 12.5% and 15.5% in 2021. The increase in employment during the second half of 2020 outpaced growth in workforce participation, allowing for consecutive declines in the unemployment rate across geographical categories (see Section 3). Based on this and the macroeconomic forecast presented in this report, the national unemployment rate is expected to continue to decline, though at a slower pace than in the second half of 2020. This is due to a slow recovery in salaried and formal employment, as well as economic activity that will likely remain below pre-pandemic levels. The national average unemployment rate for 2021 is expected to be between 12.5% and 15.5%, with 14.0% the most likely value. This represents a downward correction compared to the range presented in October (between 14.0% and 16.3%). The labor market is therefore expected to continue to be very loose, and not constitute a source of inflationary pressure via labor costs on the forecast horizon.

The Colombian economy continues to face significant uncertainty, in particular over the evolution of the pandemic and its impact on productive activities and the behavior of economic agents. For the purposes of this report, it is expected that the COVID-19 pandemic will recede gradually in coming months, both in Colombia and in most of its main trade partners, as vaccination programs advance and/or as relatively high levels of immunity are achieved. However, the possibility of new waves of the pandemic cannot yet be discarded, nor can the potential for further delays in the full re-establishment of economic activity that would lead to lower growth than expected in the baseline forecast scenario. This is the case both for Colombia as its partners abroad, particularly in Latin America and the Caribbean. A degree of uncertainty also persists around the composition of supply and demand

shocks generated by the pandemic and their implications for future growth. Colombia's public sector debt trajectory is another important factor in the macroeconomic forecast. Based on indications from the national government, this forecast assumes a fiscal reform taking effect in 2022. The reform, which would allow for public-sector debt at levels projected in the Medium-Term Fiscal Framework and keep relatively low-cost financing sources available, could have some short-term effects on economic activity. Nevertheless, the specific effect of a fiscal reform in the macroeconomic scenario can only be estimated when more details become available. The magnitude of the reform, the moment in which it is implemented, and the package of fiscal measures that is adopted represent risks to this forecast.

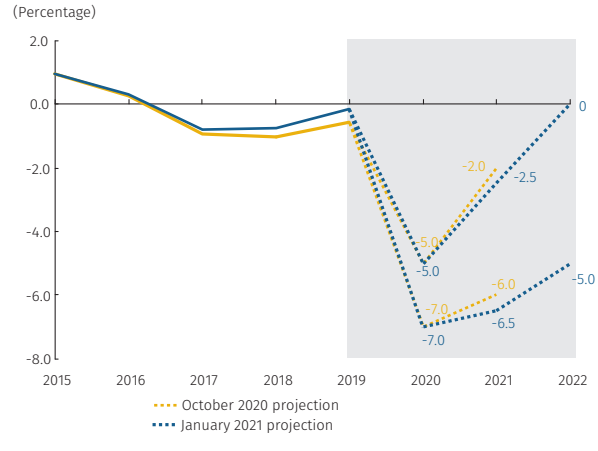
The most recent information related to economic activity and inflation suggests higher excess production capacity on the forecast horizon, due to a recovery in potential output that appears to be faster than expected. The technical staff continues to believe that while the pandemic has affected both aggregate supply and aggregate demand, significant excess production capacity is the result of shocks to demand predominating over those to supply. The most recently available information suggests the coincidence of low core inflation below expectations on one hand, and economic growth above expectations on the other. This suggests the presence of significant excess capacity and a more significant recovery in potential GDP that previously anticipated. Market closures at the beginning of the year may temporarily deepen this effect. As a result, the baseline forecast projects an output gap of -6.3% in 2020, within a range of -7.0% and -5.0%, with potential output growing -1.3% (compared to -1.9% in the October report). In 2021 and 2022 potential GDP is expected to increase 2.4% and 1.8%, respectively, with annual growth rates at the end of this year above 2%. The output gap would remain negative at -4.4% (between -6.5% and -2.5%) for 2021 and -2.8% (between -5.0% and 0.0%) for 2022 (Graphs 2.28 and 2.29). All of this would be consistent with inflation paths somewhat below estimates. There remains a high degree of uncertainty about these estimates due to a combination of shocks simultaneously affecting aggregate supply and demand.

Graph 2.28
Annual Output Gap [a/]



a/ The historical estimate is calculated as the difference between observed and potential (trend) GDP using a 4G model; the forecast is calculated as the difference between the technical staff's GDP estimate and potential (trend) GDP using a 4G model.
Source: *Banco de la República.*

Graph 2.29
Annual Output Gap (ranges)[a/]

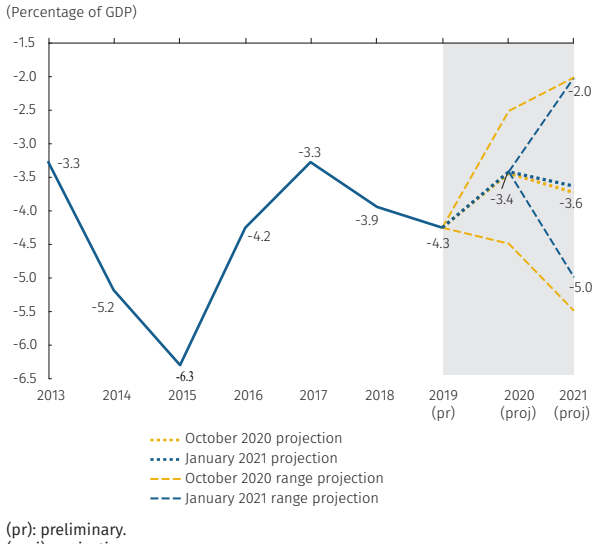


a/ The historical estimate is calculated as the difference between observed and potential (trend) GDP using a 4G model; the forecast is calculated as the difference between the technical staff's GDP estimate and potential (trend) GDP using a 4G model.
Source: *Banco de la República.*

2.2.3 Balance of Payments

The current account deficit for 2020 (-3.4% of GDP) was likely lower than in 2019, in line with a contraction of the Colombian economy (Graph 2.30)[15]. Declines in consumption and private investment likely contributed to a reduction in imports and the profitability of foreign direct investment (FDI) serving the domestic market. Together with reduced profitability for extractive industries with foreign capital focused on oil and coal, this was likely the primary determinant in the reduction in the current account deficit in 2020. Remittances also grew 2.5% in 2020, in line with their countercyclical nature and as the result of increased migrant income thanks to fiscal stimulus in their countries of residence. By contrast, the correction in the deficit would have been partly contained by a negative shock in terms of trade and foreign demand, and its impact on Colombian exports, as well as by restrictions in mobility for international travelers, which likely reduced a surplus in the balance of services associated with tourism. From a sectoral perspective, the contraction of the deficit was likely a consequence of an adjustment in private-sector spending, which would contrast with a larger fiscal deficit.

Graph 2.30
Annual Current Account



(pr): preliminary.
(proj): projection.
Note: the estimate of the current account deficit for 2020 incorporates the possible effect of a revision of observed figures due to an update to estimation methodology in the trade balance for services.
Source: *Banco de la República.*

The current account deficit is expected to grow to -3.6% of GDP in 2021 (Graph 2.30), as economic shocks from the pandemic begin to recede. An expected recovery in domestic demand would likely drive growth in imports and a recovery in profitability for businesses with foreign participation. This would support an increase in the deficit that would likely grow more pronounced in the second half of the year. This projection would account for the partially offsetting effect of a recovery in current external income. The reversion of global economic shocks would support increased foreign demand from Colombia's trade partners and an improvement in the country's terms of trade. Given this, a recovery in foreign sales in Colombia's main export commodities, including oil, gold, and coffee, is expected in 2021 alongside a recovery in exports of industrial products. Remittances should also continue to grow at positive, though more moderate, rates. All of the factors that help explain the deficit forecast for 2021 are subject to a great deal of uncertainty, as suggested by the forecast interval of -5% to -2% of GDP.

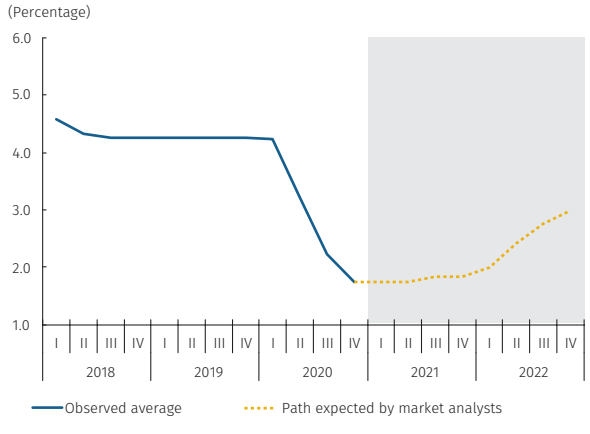
Colombia is expected to continue to have access to external financing in the context of favorable global financial conditions characterized by low interest rates and high levels of liquidity. FDI likely contributed significantly to financing the current account deficit in 2020, though less

15 The current account estimate for 2020 incorporates the possible effect of a revision in observed figures for the year due to an update to the estimation methodology for the trade balance for services. The revised series and methodological details will be published next month on *Banco de la República's* website.

so in proportion to previous years. Public sector participation in the external financing structure appears to have increased over the period, via financing through increased debt and the liquidation of investments abroad. By contrast, the private sector appears to have acquired net assets in 2020 that, together with an accumulation of international reserves, would have partially offset an expansion in external liabilities. Moving forward, a recovery in local and international economic activity is expected to support a generalized rebound in FDI in 2021. Moreover, international financial conditions are expected to continue to be favorable in 2021, allowing access to financing through debt and portfolio flows.

2.2.4 Monetary Policy and Interest Rates expected by Analysts

Graph 2.31
Monetary Policy Interest Rate



Source: *Banco de la República.*

The median policy interest rates expected by analysts at the end of 2021 and 2022 are 1.83% and 3%, respectively (Graph 2.31). Median interest rate expectations in *Banco de la República's* monthly analyst survey in January were 1.75% for the first semester and 1.83% for the end of the year. Survey respondents expected additional increases in 2022, with the median at 3.0% for the end of the year. On the forecast horizon (eight quarters), increased excesses in production capacity and lower estimated inflation in this report are compatible with an expected benchmark interest rate path that, on average, is lower than both the previous *Monetary Policy Report* and what was expected by analysts in January of this year. Nevertheless, uncertainty over economic growth, the speed of recovery, the degree to which production capacity and aggregate demand are affected, and international conditions continues to be high on the forecast horizon and should continue to be evaluated in light of available information and the evolution of the pandemic.

The primary sources of uncertainty for inflation and growth projections are rooted in the COVID-19 health emergency and the measures required to address it. The possibility of new waves of contagion or a worsening of the current health crisis continue to be the primary risks for macroeconomic projections. A new wave of contagion requiring additional quarantine measures could affect economic activity beyond what is considered in this report. If this eventuality is reflected in weaker demand and an increased deterioration in the labor market, it could drive the inflation path downward. Expected inflation and the behavior of external financial conditions would also be important in evaluating inflationary pressure on the monetary policy horizon.

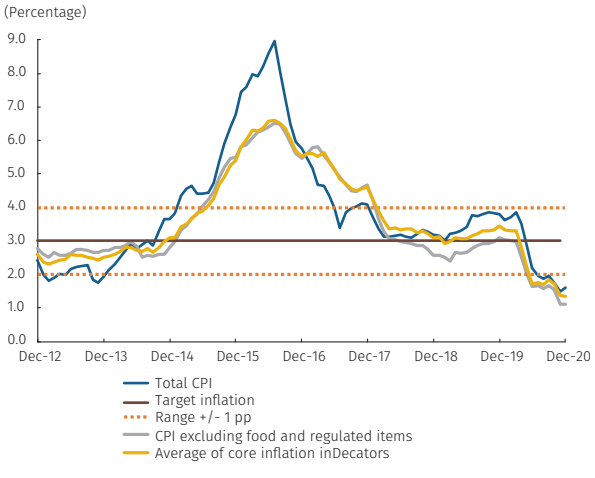
03 / Current Economic Conditions

3.1 Inflation and Price Behavior

Significant downward pressures on core and headline inflation prevailed in the fourth quarter, originating in large part in weak demand and ample excess production capacity. Despite more dynamic economic activity in the final months of the year, a wide and negative output gap continued to be reflected in declines or small price increases for a range of goods and services. The effect of a temporary rebate on indirect taxes on various items in the consumer basket and the effect of a "VAT-free day" in November also contributed to lower inflation. As with previous quarters, exchange rate pressures have not significantly passed-through on prices, in large part due to the negative output gap. These pressures would be expected to be lower following an appreciation of the peso toward the end of the year.

Annual consumer inflation maintained its downward trend, closing the year at 1.61%, below levels projected in the previous report (1.9%). The figure from December was considerably lower than the previous year (3.80%) and reflected the significant impact that the shock from the COVID-19 pandemic has had on prices, as documented in previous reports. This was the lowest year-end headline national CPI figure since official and consolidated information started being recorded in 1951. Core inflation also showed a significant decline in the fourth quarter, as suggested by growth in the CPI excluding food and regulated items in December (1.11%), which was 56 bp lower than in September. The other two measures of core inflation also fell, with their average settling at 1.34% (Graph 3.1). Growth in the CPI excluding food and regulated items was also lower than projected in the October report.

Graph 3.1
CPI and Core Inflation Indicators
(annual change)

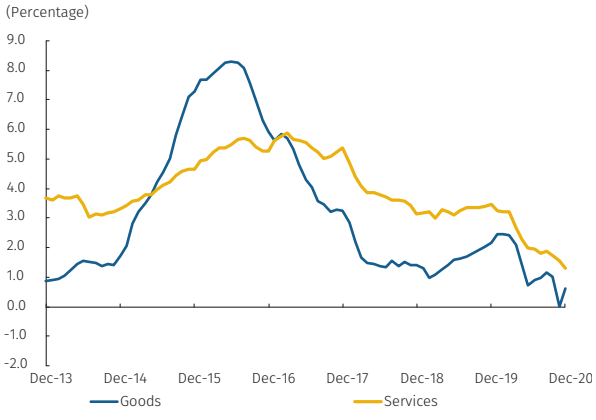


Sources: DANE and *Banco de la República.*

Upward pressure on some items appeared in the fourth quarter, though this was insufficient to offset the downward pressure on consumer inflation. This was the case in costs associated with reduced capacity and strict biosecurity measures imposed on some economic activities, which likely generated upward pressures on services with a high level of social interaction. Other non-labor cost pressures also seemed to appear at the end of the year, likely associated with increased transportation costs and the behavior of producer prices.

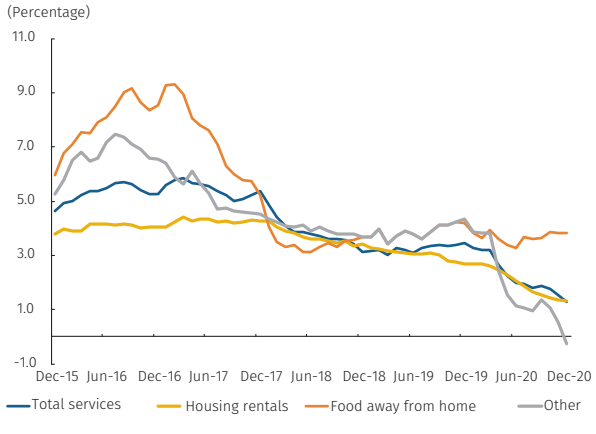
The extension of some price relief measures, a "VAT-free day" in November, and recent appreciation of the peso, all in the context of weak demand, led to a marked decline in the annual change in the CPI for goods in the fourth quarter. Annual change in the CPI for goods excluding food and regulated items in December was 0.63%, significantly lower than in September (1.15%) and below expectations

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 its Components
(annual change)



Source: DANE; calculations by *Banco de la República.*

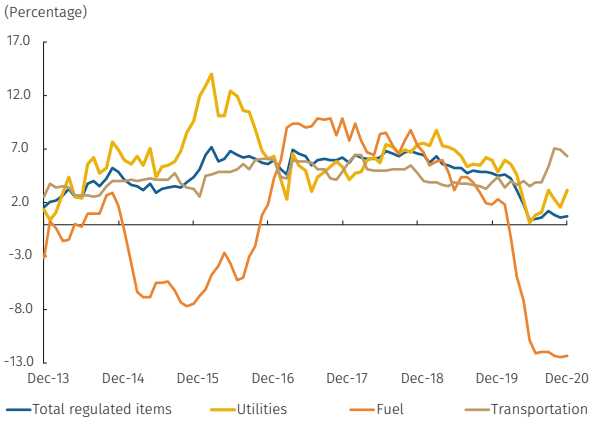
in the October report (Graph 3.2). Despite a gradual economic recovery and stronger demand, significant excess production capacity continued, and household spending intentions and capacity continued to be affected, leading to small price increases in the goods basket. The planned expiration of VAT relief for personal hygiene and household products in the fourth quarter was postponed by the national government to the first quarter of 2021[16], partially explaining this result. A third "VAT-free day" on November 21 generated significant declines in prices on products covered by the measure (clothing, appliances, electronics, communications devices, and others), which were only partially reverted in December, probably as a consequence of weak demand. This weakness in demand could be explained, at least in part, from the limited pass-through on prices of nominal accumulated depreciation of the peso. Exchange rate pressures appear to have been lower at the end of the year due to recent appreciation of the peso. Transportation goods (automobiles, motorcycles, and bicycles), for which demand was more dynamic, were an exception and exhibited meaningful price increases.

Annual change in the CPI for services also declined significantly in the fourth quarter, as a consequence of a recomposition in consumer spending and weak demand, factors that predominated over increased operating costs in some sectors. Measures adopted to control the COVID-19 pandemic have been associated with a decline in services consumption and in favor of foods and some basic necessities (medicines, cleaning and hygiene products, among others). This was reflected in a decline in the annual change in the CPI for services between September (1.86%) and December (1.29%) (Graph 3.3). Unregulated education services were a significant factor in this decline. Reduced demand for these services, in particular related to higher education, and lower costs associated with online learning generated substantial reductions in student registrations and tuition payments in the second half of the year, including in the fourth quarter. Annual change in this segment to December was -16.6%, and for the "other" category of services, which includes unregulated education, was -0.3% (compared to 1.4% in September). Housing rentals also continued to exert downward pressure on the CPI for services, where growth fell from 1.5% in September to 1.3% in December. Weak demand likely performed a crucial role in inducing extraordinary renegotiations in contracts and the freezing of rental fees (Graph 3.3). These downward pressures were partially offset in recent months by considerable increases in the price of inter-city

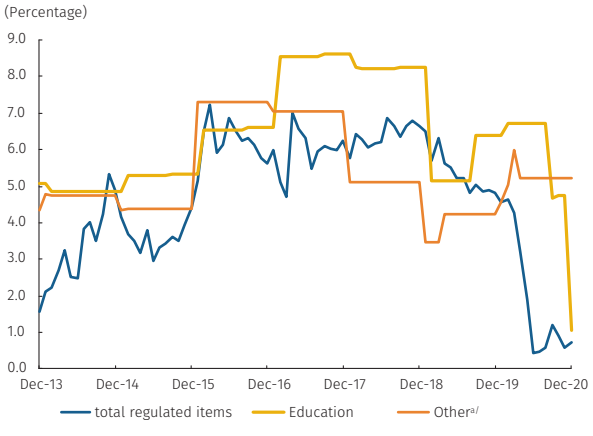
16 The Ministry of Health and Social Protection, through Resolution 2230 on 27 November 2020, prolonged the health emergency across the country until 28 February 2021. VAT is not expected to be charged on personal hygiene and cleaning products until the health emergency is over. The health emergency was initially announced through Resolution 385 on 12 March 2020, and later extended by Resolutions 844 on 26 May 2020 and 1462 on 25 August 2020.

Graph 3.4
CPI for Regulated Items and its Components
(annual change)

A.

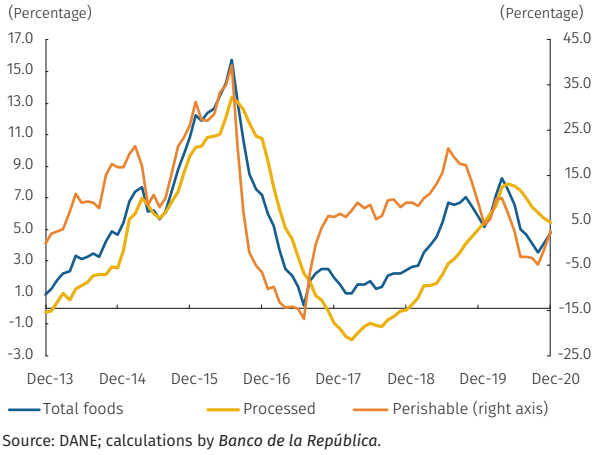


B.



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

Graph 3.5
CPI for Foods by Group and its Components



Source: DANE; calculations by *Banco de la República.*

transportation (40.5% annually in December), likely associated with increased operating costs due to capacity restrictions and stricter biosecurity requirements. A similar dynamic is likely for foods away from home (FAH), where growth did not accelerate but remained relatively high in the fourth quarter (3.8% in December) despite a temporary 8.0% rebate on the consumption tax.

Reductions in regulated education prices led to a decline in the adjustment for regulated items toward the end of the year. Growth in the CPI for regulated items fell 0.73% in December, from 1.19% in September (Graph 3.4, Panel A). Regulated education (elementary and secondary) ended the year with annual growth (1.1%) below levels observed in September (4.7%) due to the incorporation by the national statistics agency (DANE) in December of information obtained by a survey applied to academic institutions. This survey showed a reduction in tuition payments due to the pandemic (Graph 3.4, Panel B). The rest of the segment for regulated items either remained stable or increased from September. The annual adjustment in utilities prices ended the year at 3.2%, showing a high level of volatility throughout the entire second semester due to the intermittent application of price relief measures in different cities around the country (Graph 3.4, Panel A). Gas prices in particular exerted volatility on the utilities, as a subsidy on basic gas consumption for the lowest two tax brackets (stratas 1 and 2) was increased by 10 percentage points in October and November. This change was reversed in December. Annual price adjustments in fuels (-12.2%) and the "other" category (5.2%) did not show significant change in the fourth quarter. For its part, the annual change in transportation costs increased from September (5.4%) to December (6.4%), a consequence in particular of an increase in urban public transportation rates in Cartagena.

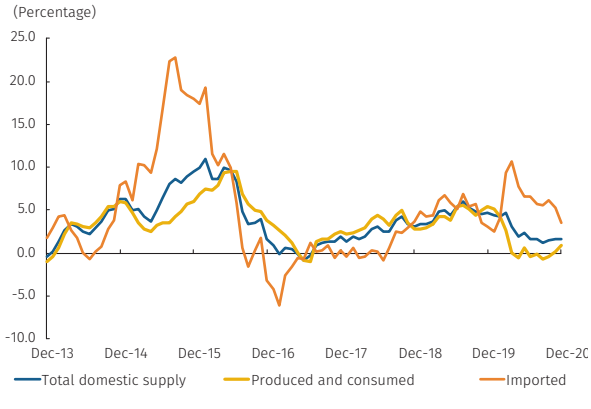
The CPI for food increased somewhat above projections in the fourth quarter, due to upward pressure on prices from perishable foods. Annual growth for foods increased between September (4.13%) and December (4.8%), an upward trend that was driven by perishable foods, where price adjustments rose from -3.4% in September to 2.5% in December (Graph 3.5). This recovery was not associated with a general contraction in the food supply, given high food storage levels registered at the end of the year. Local markets have also benefited from an adequate supply because thanks to a La Niña weather pattern[17] that has increased rainfall and in general boosted yields in

17 According to the National Oceanic and Atmospheric Administration (NOAA), the current *La Niña* pattern is moderate in intensity and will extend, with 95% probability, at least until the end of the northern hemisphere winter, with a potential transition to normal climate conditions, at 55% probability, in the spring (April-June). For more, see *El Niño* Diagnostic Discussion, Climate Prediction Center and International Research Institute for Climate and Society, January 2021.

agricultural production and livestock activities. As such, the rebound in the annual change for perishable foods prices, especially in the last months of 2020, can be explained primarily by a very low base of comparison (significant price declines occurred in the same months in 2020). Meanwhile, annual change of the CPI for processed foods maintained a downward trend observed since in the middle of the year, falling from 6.4% in September to 5.4% in December, without yet facing upward pressures from an increase in international prices beginning in the middle of last year[18]. It is possible that these prices were offset by relative stability in the exchange rate during the third quarter and appreciation of the peso observed in the last quarter of 2020, in addition to weak demand.

Non-labor costs in the fourth quarter broke a downward trend registered since the second half of 2019. An approximation of non-labor costs based on the annual change in the producer price index (PPI) for domestic supply suggests growth in September (1.20%) and December (1.65%) (Graph (3.6). This can be attributed to the domestic component of the PPI, which passed from negative territory in September (-0.7%) to positive territory in December (0.8%). For its part, the rebound in the domestic PPI can be explained primarily by the annual change in producer prices for agricultural goods (from 4.5% in September to 10.2% in December), driven by in vegetables, legumes, and oilseeds. The mining sector also helped drive producer inflation, rising from -19.4% in September to -14.2% in December. For its part, the PPI for the industrial sector maintained annual growth slightly below zero, incorporating excess installed capacity and weak demand into prices. By contrast, change in the annual PPI for imports continued to fall between September (5.6%) and December (3.6%), likely associated with appreciation in the exchange rate in recent weeks.

Graph 3.6
PPI by Origin
(annual change)



Source: DANE; calculations by *Banco de la República*.

3.2 Growth and Domestic Demand

3.2.1 Third-Quarter GDP

The Colombian economy began to recover in the third quarter from the unprecedented shock caused by the COVID-19 pandemic, growing from a low level in the second quarter but at an annual rate that was still very negative. GDP growth data from the third quarter confirmed that the economy reached a low in the second quarter as a consequence of the shock of the COVID-19 pandemic.

18 The recovery in international prices in the second half of the year has various explanations. The supply of grains coming from the United States and Russia has been affected by climate problems and has fallen. Rice production was low in Vietnam and Thailand, alongside an increase in demand in India and Pakistan. The supply of bovine products has been affected by reductions in supply from Oceania, while porcine products have come up against global supply reductions rooted in phytosanitary problems in some Asian countries.

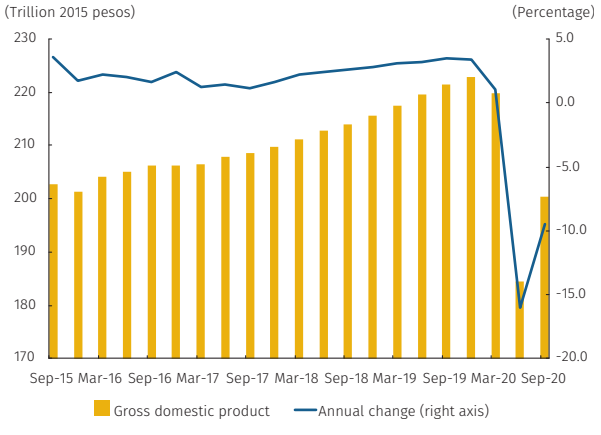
The rebound in economic activity has come alongside the easing of quarantine measures, and steps by local and national authorities to sustain household income and provide financial support to firms, as well as by low interest rates and ample liquidity administered by *Banco de la República*, the combination of which likely contributed to improved consumer and business confidence and facilitated a partial recovery in the economy. However, the effects of the pandemic persisted in some sectors to varying degrees, as restrictions were kept in place in order to maintain an adequate level of social distancing.

Third-quarter GDP figures confirmed a pace of recovery that was close to projections. According to DANE, third-quarter GDP registered an annual contraction of -9.5% (SACE) (Graph 3.7) and -9.0% in the original series. Growth for the period was equivalent to an increase of 39.6% in annualized quarterly terms compared to the second quarter, when the economy absorbed the largest effects of the COVID-19 shock. Additionally, DANE revised its original series for the first quarter (from 1.4% to 1.2%) and the second quarter (from -15.7% to -15.8%) of 2020[19]. Together, these figures place output growth for the first three quarters at -8.2%[20], performance that was similar to other economies in the region and some members of the Organization for Economic Cooperation and Development (OECD) (Graph 3.8).

The recovery in GDP in the third quarter was primarily the result of stronger domestic demand. The annual decline in domestic demand (-9.8%), despite being slightly above that for GDP, was significantly lower than in the second quarter (-17.4%) (Graph 3.9). By component, both consumption and gross fixed capital formation registered significant recoveries, though their levels remain markedly below those from 2019. For its part, net foreign demand again contributed positively to annual GDP growth, though to a lesser extent than in the second quarter (Graph 3.10).

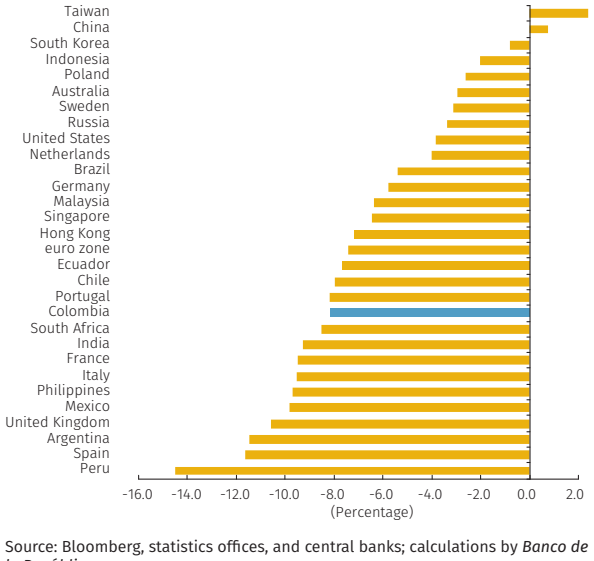
Consumption recovered significantly in the third quarter, though it still remains close to 2017 levels. Household consumption registered significant quarterly growth following an unprecedented decline in the second quarter. Despite this, negative annual change (-9.3%), similar to that for GDP, continued. A partial opening of commerce and the relaxation of social distancing measures contributed to the quarterly improvement. All of the segments within this aggregate registered notable recoveries, with the exception of consumption in non-durable goods, which did not fall in the second quarter. Consumption of semi-durable and durable goods rose from annual

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
Annual Growth in the first three Quarters of 2020
(percentage; selected countries)

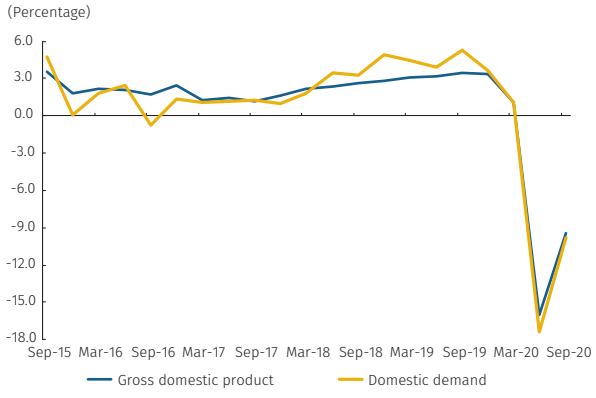


Source: Bloomberg, statistics offices, and central banks; calculations by *Banco de la República*.

19 Nevertheless, in the SACE series, the revisions were reflected in a more pronounced contraction only in the second quarter (from -15.5% to -16.0%).

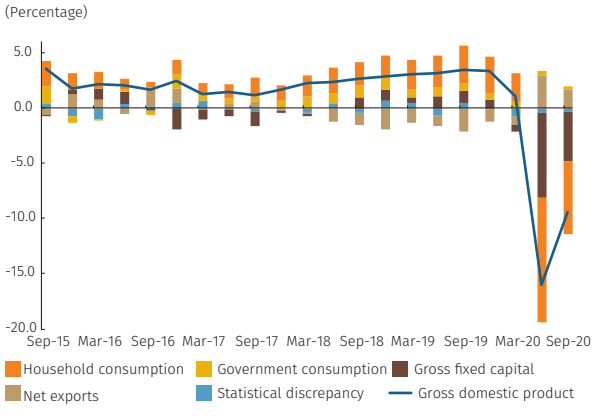
20 From -8.1% in the original series.

Graph 3.9
Gross Domestic Product and Quarterly Domestic Demand[a/]
(annual change)



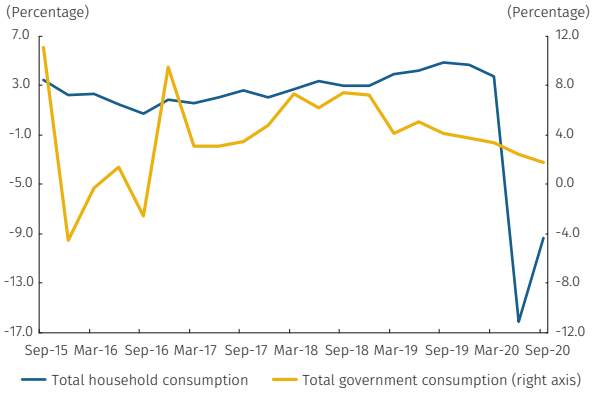
a/ Seasonally adjusted and corrected for calendar effects.
Source: DANE; calculations by *Banco de la República.*

Graph 3.10
Spending Side Quarterly GDP[a/]
(annual change, contributions)



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

Graph 3.11
Final Consumer Household Spending and Government Spending[a/]
(annual change)



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

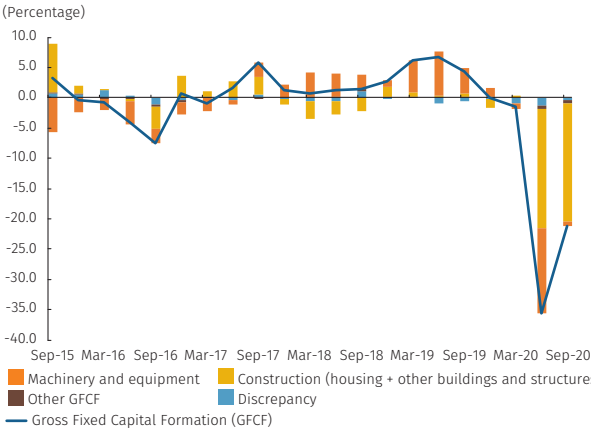
declines above 30% to contractions of 18.7% and 6.9%, respectively. Services consumption, the largest component of private consumption, also recovered from a decline of 20.7% to a fall of 14.1%, though this segment continued to be the most negatively affected by the pandemic. Finally, consumption of non-durable goods sustained growth close to second-quarter figures. For its part, public consumption continued to decelerate, and registered growth below first-semester figures and the technical staff's projections (Graph 3.11). Given the above and despite a degree of recovery, overall consumption continued to make the largest spending-side contribution to the annual contraction in GDP, registering an annual decline of 7.3%.

Gross fixed capital formation registered significant quarterly growth, explained primarily by investment in machinery and equipment (Graph 3.12). This sub-component registered an annual contraction of 2.2% in the third quarter, approaching pre-pandemic levels after a 37.7% annual decline in the second quarter. Data regarding capital goods imports suggest that a significant part of this recovery can be explained by the purchase of automotive vehicles used for public transportation. Another component would be explained by an increase in national machinery production, as suggested by industrial figures on the supply side. By contrast, investment in housing and other buildings and structures continued to be very hard hit by the pandemic, with both categories registering annual declines above 20% in the third quarter and without showing recovery compared to the second.

Greater recovery in imports compared to exports widened the trade deficit in real terms in the third quarter. The real value of exports registered a very modest and lower-than-expected recovery (-24.5%). Foreign sales of mining goods and services continued to decline at significant annual rates and were only barely offset by less unfavorable figures for agricultural and non-traditional exports. By contrast, imports saw greater improvement in the third quarter based on a strengthening of domestic demand, falling 22.8% in annual terms (Graph 3.13) after falling more than 30% in the second. The main contributions to this recovery came from the purchase of durable consumer goods and capital goods.

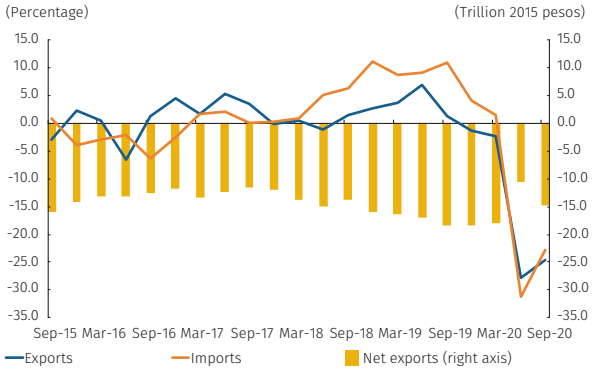
All major sectors of productive activity performed better in the third quarter of 2020 than they did in the preceding period, alongside a relaxation of social distancing measures. Nevertheless, many sectors continued at levels well below those observed before the shock, with considerable annual declines (Graph 3.14). Industrial manufacturing and commerce, repairs, transportation, and lodging were those sectors that showed the most significant quarterly recovery. Both performed better than anticipated in the October report. Industrial manufacturing was especially notable, reaching close to 92% of the value added in the fourth quarter of 2019. By contrast, the exploitation

Graph 3.12
Quarterly Gross Fixed Capital Formation[a/]
(annual change, contributions)



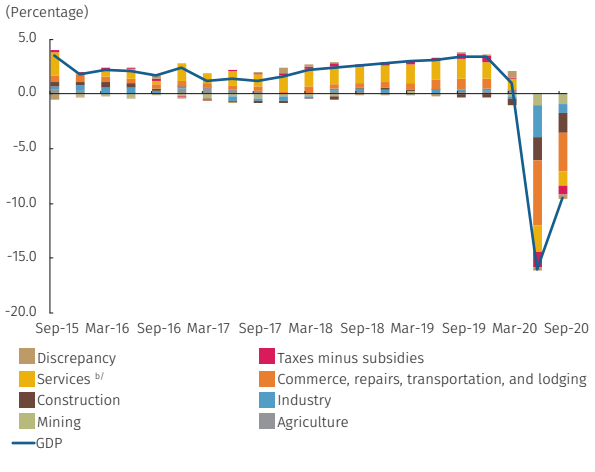
a/ Seasonally adjusted and corrected for calendar effects.
Source: DANE; calculations by *Banco de la República*.

Graph 3.13
Exports, Imports, and Trade Balance[a/]
(annual change, trillion 2015 pesos)



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

Graph 3.14
Supply Side Quarterly GDP[a/]
(annual change, contributions)



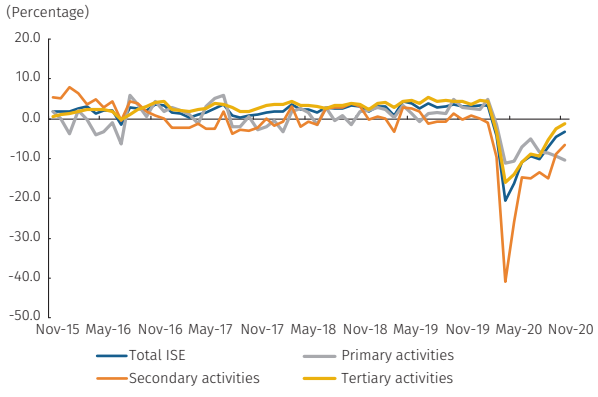
a/ Seasonally adjusted and corrected for calendar effects.
b/ Includes electricity, gas, and water, information and communications, financial and insurance services; real estate; professional, scientific, and technical activities, public administration and defense, education and health, and arts, entertainment, and recreation.
Source: DANE; calculations by *Banco de la República*.

of mines and quarries, construction, and arts, recreation, and other services continued to show pronounced annual declines, higher than projected and without large quarterly increases in value added. Low raw materials prices compounded the closure and paralysis of some coal mines in part due to labor conflicts, affecting performance in the mining sector. Limited public works execution (especially due to the decline in investment in mining infrastructure) and a slow rate of progress in building construction (where inventories have declined thanks to significant dynamism in sales and a lack of new projects) were important determinants in the construction sector. Restrictive measures that remain in place for some services continue to determine the performance of arts and recreation activities.

3.2.2 Fourth-Quarter Economic Activity Indicators

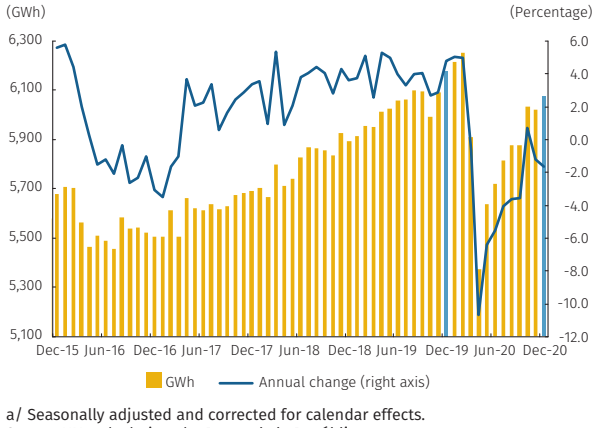
Available indicators suggest that economic activity likely continued to recover in the fourth quarter. The end of mandatory preventive isolation measures at the beginning of September, together with recovery in employment and domestic demand, likely allowed for economic activity to become more dynamic in the fourth quarter. This is suggested by various sector-level indicators where recovery continued in October and November: retail commercial sales excluding fuel and vehicles grew 8.8% in October-November in the seasonally adjusted series, after falling 3.9% annually in the quarter from July-September (the November figure of 11.7% suggests a significant impact from the "VAT-free day" and other discount holidays); the annual change in industrial manufacturing production went from -7.4% in the second quarter to -0.8% in the two months from October-November; and DANE's Economic Monitoring Index (ISE, for its acronym in spanish), the most complete measure of economic activity, went from -7.1% in September to -3.9% on average for October and November. By grouping, secondary activities registered the largest recovery (from -14.9% in September to -7.7% in October-November) followed by tertiary activities (from -5.3% in September to -1.9% in October-November). Primary activities, by contrast, declined from -8.5% in September to -9.9% from October-November (Graph 3.15). Other indicators, such as the demand for energy (Graph 3.16), mobility reports, transaction figures from various commercial banks, and vehicle matriculations also suggest that economic activity continued to improve in November and December.

Graph 3.15
Total ISE by Sector[a/], Seasonally Adjusted and Corrected for Calendar Effects
(annual change)



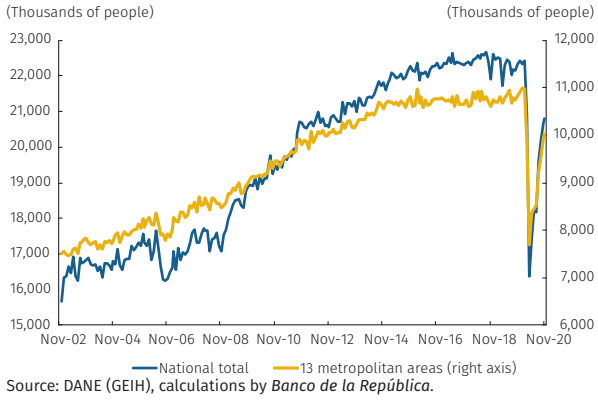
a/ Primary activities: agriculture, hunting, forestry, and fishing; and mine and quarry exploitation. Secondary activities: industrial manufacturing and construction; Tertiary activities: electricity, gas, and water; commerce, repairs, transportation, and lodging; information and communications; financial activities and insurance; real estate; professional, scientific, and technical activities; administration and support; public administration and defense, education and health; arts, entertainment, and recreation.
Source: DANE, calculations by *Banco de la República*.

Graph 3.16
Total Monthly Energy Demand, National Interconnected System (SIN)[a/]
(GWh and annual change)



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

Graph 3.17
Employment by Location
(seasonally adjusted monthly series)



Source: DANE (GEIH), calculations by *Banco de la República*.

3.3 Labor Market[21]

The Colombian labor market continued to recover, though employment remained well below pre-pandemic levels. Based on seasonally adjusted[22] figures, DANE's comprehensive household survey (GEIH in Spanish) from November suggested that total employment grew nationally and in Colombia's 13 largest cities month-on-month, by 0.8% (160,000 jobs) and 1.2% (118,000 jobs), respectively (Graph 3.17). Including these figures, 73.4% of the jobs lost nationally and 71.6% lost in the 13 largest cities between March and April were recovered between May and November. Total employment remains well below pre-pandemic levels, by 1.6 million jobs nationally and 927,000 in the 13 largest cities. These figures reflect a labor market that remains very weak. Although the gradual recovery of the economy has allowed for a majority of sectors to register increases in employment, the rate of recovery in commerce and lodging and in professional activities[23] likely remained slow.

Growth in urban employment has been faster in the informal and non-salaried segments. The recovery in the labor market in recent months has been more dynamic in non-salaried and informal employment. In the moving quarter ending in November, salaried employment for Colombia's 23 cities grew by 1.4% (75,000 jobs) and non-salaried by 3.8% (189,000 jobs), compared to the quarter ending in October (Graph 3.18, Panel A). This means that 81% of non-salaried jobs (1.5 million) lost between March and April were recovered between May and November, while only 55% of salaried jobs (1 million jobs) have been recovered. Another change in composition, although less pronounced, is evident in formal and informal urban employment (Graph 3.18, Panel B). Informal urban employment has recovered 70% of its lost jobs compared to 64% for the formal sector. The lower dynamism in formal employment is also confirmed by alternative indicators based on administrative registers, such as the number of contributors dependent on pensions reported on Colombia's online register for social security (PILA, for its acronym in Spanish), which as of November still had not shown signs of recovery.

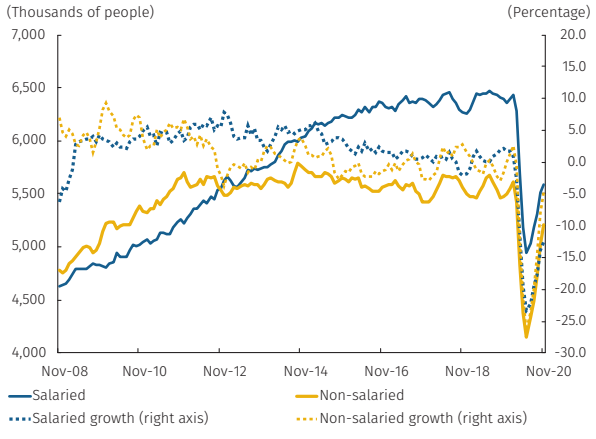
21 For a more detailed analysis on the recent evolution of the labor market, see *Banco de la República's Labor Market Report*, available at http://www.banrep.gov.co/es/reporte-mercado-laboral. This report also contains an analysis of some of new determinants of labor participation during the health crisis, including the closure of health care services.

22 Labor market series present some degree of seasonality. That is, their values are systematically higher or lower depending on the month of the year. This phenomenon needs to be isolated using statistical techniques in order for the technical staff to make comparisons between months in the same year. For that reason, the information presented in this section corresponds to the series excluding those calendar effects, known as the seasonally adjusted series.

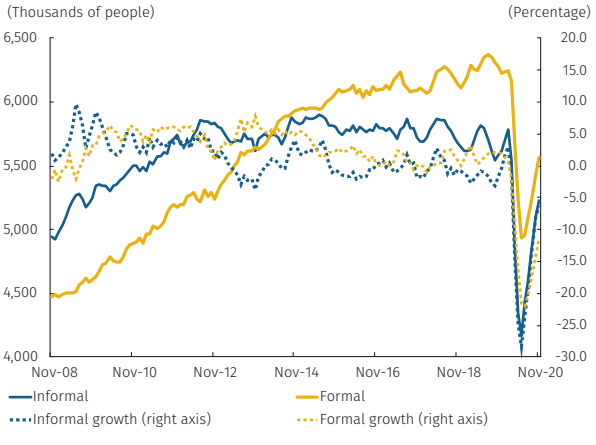
23 This sector comprises professional, scientific, and technical activities, as well as administrative and support services.

Graph 3.18
Employment by Job Quality: 23 Major Cities
(seasonally adjusted moving quarter)

A. Salaried and unsalaried

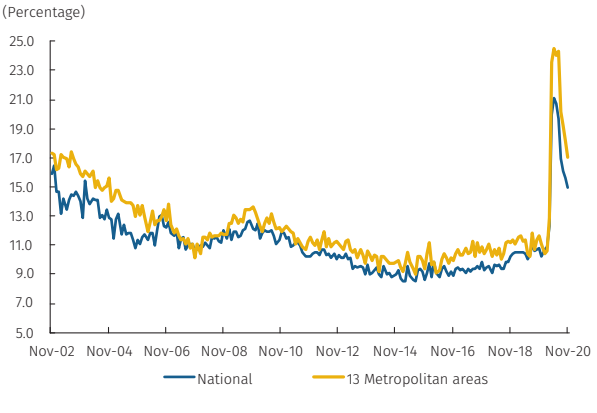


B. Formal and informal



Note: Colombia's national statistics agency (DANE) considers informal workers as those who work in establishments, businesses or firms with up to five employees in all locations, including partners or bosses, except for self-employed professionals and government workers and employees.
Source: DANE (GEIH); calculations by *Banco de la República*.

Graph 3.19
Unemployment Rate by Location
(seasonally adjusted monthly series)



Source: DANE (GEIH), calculations by *Banco de la República*.

The unemployment rate continues to fall and show significant disparities among population groups. The most recent information from the GEIH continues to reflect a recovery in labor participation, though this has come at a slower pace than the growth in employment. This has allowed for consecutive declines in the unemployment rate both nationally and for Colombia's 13 largest cities. In November the seasonally adjusted figure for both categories was 14.9% and 17.0%, respectively. This would be 0.7 percentage points and 1.1 percentage points below October figures (Graph 3.19). Nevertheless, the unemployment rate remains considerably high and recovery in recent months has come at a slower rate than observed in August and September, months in which the national unemployment rate fell by 3.6%. Significant disparities in the unemployment rate among different population groups have been observed, the most marked of which is between urban men and women. The gender gap in the unemployment rate[24] in Colombia's seven largest cities for October-November 2020[25] was 8.5 percentage points, the largest register in the history of the quarterly series (available since 1984).

Inflationary pressures from labor costs are not expected due to a still loose urban labor market. Other indicators related to labor demand, such as job opening indices (from the GEIH and the Public Employment Service), remain low and below levels registered before the pandemic. In comparing this with the recent evolution of the urban unemployment rate, the most recent estimate on the Beveridge curve, which relates the rate of job openings with the unemployment rate, suggests a labor market that as of November was still very loose (Graph 3.20). This would exert downward pressure on inflation via reduced increases in salary costs. Information from labor income in the GEIH confirms this expectation, with non-salaried income severely deteriorated, while salaried incomes have remained relatively stable (Graph 3.21).

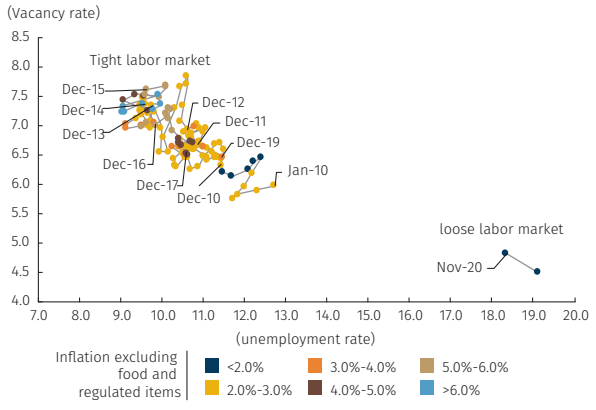
3.4 Monetary and Financial Market

Domestic financial conditions continued to recover at the end of 2020. Demand for cash and deposits moderated in the fourth quarter. The reduction in policy interest rate continued to be transmitted to interest rates on deposits and loans, which reached historical lows. Different categories of loan disbursements increased in this period and in December were already similar to or above pre-pandemic levels. Portfolio levels have recovered but are growing at low real annual rates.

24 Defined as the difference between the unemployment rate for women compared to men.

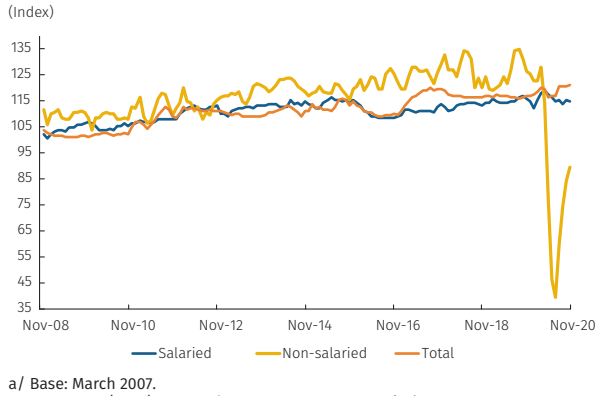
25 Seasonally adjusted monthly series.

Graph 3.20
Beveridge Curve for Seven Largest Cities



Notes: seasonally adjusted, moving quarter. Vacancy rate estimated through hiring methodology in GEIH, see Morales, L. F., & Lobo, J. (2017). Estimating Vacancies from Firms' Hiring behavior: The Case of a Developing Economy. *Borradores de Economía*, (1017).
The Beveridge curve estimate is not available for the period from March to September 2020, as the vacancy indicator with which it is usually calculated could not be produced due to a reduction in the number of questions in the GEIH.
Source: DANE (GEIH) and *Banco de la República*.

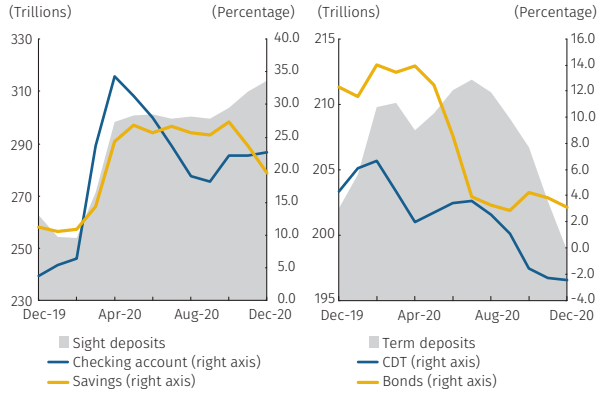
Graph 3.21
Real Monthly Median Labor Income Index: 23 Cities[a/]
(seasonally adjusted moving quarter)



a/ Base: March 2007.
Source: DANE (GEIH); calculations by *Banco de la República*.

Graph 3.22
Deposit Balances
(monthly average and annual change)

A. Sight deposits[a/]



B. Term deposits

a/ Includes checking accounts, saving deposits, and other sight deposits.
Source: Office of the Financial Superintendent of Colombia; calculations by *Banco de la República*.

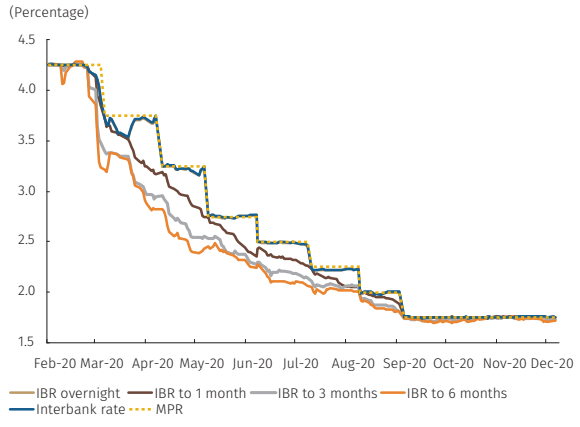
Demand for deposits and cash moderated in the fourth quarter. Annual growth in deposits in December was 10.3%, below figures from June (15.4%). This was the product of deceleration in savings deposits, which in the same period decelerated from 25.6% growth to 19.6%. By contrast, checking accounts, which to the third quarter were also trending downward, finished the year recovering thanks to an increase in government transfers, closing in annual terms at 22.6% (Graph 3.22, Panel A). For their part, term deposits continued to weaken (Graph 3.22, Panel B), the result of performance in term certificate deposits (CDT), which a contracted by 2.5%. Reduced placement of CDTs by intermediaries' treasuries and a deceleration in long-term CDT placements explain this behavior. Fundraising from bank bonds also continued to register lower rate of growth and to December increased 3.2% annually. By contrast, demand for cash began to moderate, slowing from rates close to 33% in June and September to 27% in December.

Interbank rates approached the monetary policy interest rate to a greater extent the fourth quarter, and deposit taking rates maintained a downward trend . On average, the overnight IBR and interbank rates were equal to the policy rate in this period, with volatility not greater than a basis point (Graph 3.23). Longer-term interbank rates converged to the MPR starting in October, registering maximum volatility of 4 bp (Graph 3.23). As for deposit interest rates, between March and December CDTs accumulated rate declines (-240 bp) similar to those to the policy interest rate. This reduction was less acute for savings interest rates (-130 bp).

Reductions in the policy interest rate continued to pass-through to business and household interest rates. Accumulated reductions in interest rates between February and December were driven by commercial credit (Graph 3.24, Panel A) on ordinary loans (-240 bp), preferential loans (-222 bp), and construction loans (-162). Household credit rates also accumulated significant reductions (Graph 3.24, Panel B), especially on credit cards (-173 bp) followed by consumer credit (-146 bp), and housing acquisition (-100 bp). Commercial treasury credit interest rates showed significant volatility and, on average, have been 92 bp above February levels during the health emergency.

Credit activity continued to recover in the fourth quarter, but uncertainty remains and factors that could affect supply and demand in the credit market should be monitored. Despite the magnitude and duration of the shock generated by the pandemic, credit markets have been supported by several factors during this period. The reduction of the policy interest rate and liquidity measures implemented by *Banco de la República* are especially noteworthy, as are the normalization of key financial markets, the positive disposition of financial institutions to provide loans (as seen in the Bank's credit outlook survey), a reduction of spreads between credit interest rates and those for public

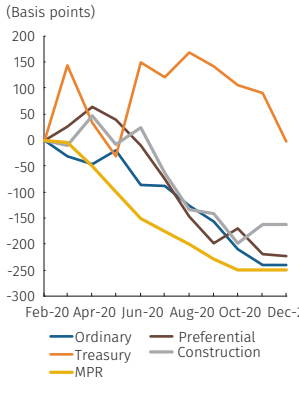
Graph 3.23
Policy Interest Rate (MPR), Interbank Rate, and Banking Benchmark Reference Rate (IBR)
(daily data)



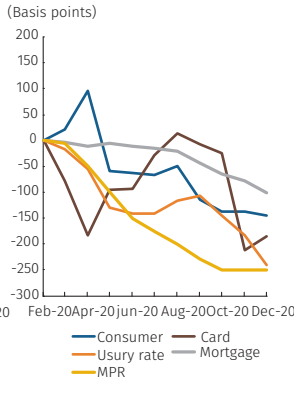
Source: *Banco de la República.*

Graph 3.24
Monthly Disbursement Loans Interest Rates
(change from February 2020)

A. Commercial credit

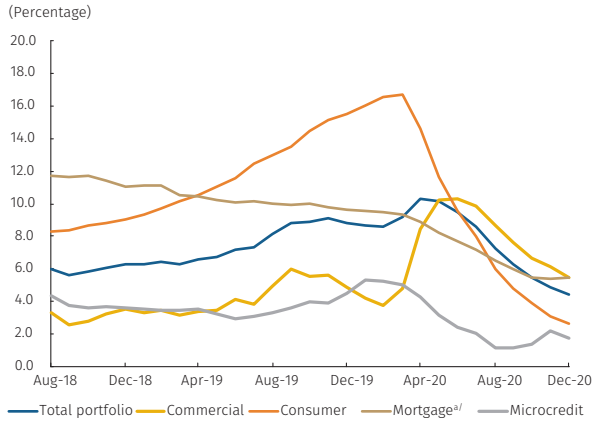


B. Consumer credit



Source: Office of the Financial superintendent of Colombia; calculations by *Banco de la República.*

Graph 3.25
Gross Portfolio in National Currency
(annual change, average monthly data)



a/ Adjusted mortgage: banking portfolio plus securitizations.
Source: Office of the Financial Superintendent of Colombia; calculations by *Banco de la República.*

debt, adequate solvency levels above regulatory minimums, and support from the national government – for example, through its partial coverage of mortgage interest[26] and the Debt Support Program (PAD in Spanish)[27] established by the Financial Superintendent. In this context, microcredit and household credit portfolios, which had registered significant declines in the second quarter of 2020, had recovered to February levels in December. The mortgage portfolio maintained growth over the course of the year, though at a moderate rate. The commercial credit portfolio, which showed a significant increase in the second quarter due to the liquidity requirements for businesses to confront the health crisis, in the third quarter decelerated, in part due to prepayments made by the sector, and at the end of 2020 tended to stabilize. All disbursement modalities have recovered and reached levels similar to or above those registered before the pandemic. Despite this recovery on the margin, the weakness in economic activity and high levels of uncertainty continue to be high, factors that could continue to affect the supply and demand for credit, and which are reflected in low annual portfolio growth rates (Graph 3.25).

26 Mechanism operated by the Reserve Fund for the Stabilization of Mortgage Portfolio (FRECH in Spanish).

27 External Memo 022 of 30 June 2020, more flexible and less onerous mechanism than what was previously available to refinance debts.

Box I
Macroeconomic Expectations: Analysis of the *Monthly Survey of Economic Analyst Expectations*

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Jonathan Muñoz*

Expectations related to inflation, the policy interest rate, GDP growth, and nominal depreciation constitute essential pieces of information for central banks, especially those pursuing inflation targeting strategies. Macroeconomic expectations help determine the present and future behavior of economic agents and, as a result, are fundamental to assess the current state and future outlook of an economy. Meanwhile, economic agents' macroeconomic expectations themselves can in turn serve as a reference point for central banks to gauge their forecasts and guide their communications and actions.

Expectations, though, are not an observable phenomenon, and as a result tracking and evaluating them is a complex task. In practice, market expectations are captured through surveys of specific population groups (e.g. analysts, firms, or consumers) or inferred from financial market instruments (e.g. breakeven inflation rates, swaps, or options).

Surveys are a useful way to compile economic agents' expectations, and allow for a direct estimate of their probability distributions. However, such resources are available infrequently (e.g. monthly or quarterly) and over limited time horizons (e.g. one or two years).

Beginning in September 2003, *Banco de la República* has captured economic agents' expectations for major macroeconomic variables with its *Monthly Survey of Economic Analyst Expectations* (EME in Spanish). The first iteration of the survey took responses from economic agents at 46 financial institutions on expected inflation and the expected exchange rate for the month in progress and at 12 months. The survey was later updated to include additional variables and time horizons.

The current survey of 42 financial market analysts asks, among other issues, for expectations regarding the policy interest rate path for the month in progress and the subsequent 24 months, annual headline inflation and inflation excluding foods, and the exchange rate at 12 and 24 months. In January, April, July, and October, the survey includes questions about expected annual GDP growth for the previous quarter, the quarter in progress, and the following six quarters. The analysts are also asked to weigh in on expected GDP growth at the end of the year in progress and the following year.

The information from the EME is an essential part of the technical staff's permanent analysis of the Colombian economy. The survey results published each month by the Bank[1] are also essential for users of the information included therein.

This supplement aims to analyze the information included in the EME in its entirety and evaluate the coherence and consistency in analysts' responses both within each survey and over time.

With this in mind, we analyze the distribution of expectations from the most recent EME (January 2021) and study their dynamics and dispersion using the available historical information. We also seek to establish the relationship between macroeconomic expectations in each survey and among surveys over time. In particular, we ask whether the EME questions reveal an empirical relationship between:

- The expected policy interest rate and expectations for inflation and GDP growth
- Expected inflation and the expectations for GDP growth and depreciation

1. Monthly Survey of Expectations (EME)

In this section we analyze the central tendency and the distribution of expectations for a set of variables in the EME from January 2021. We also examine the same set of expectations for the period 2003-2021, as well as the dispersion of answers from the analysts in each survey.

1.1 January 2021

Graph B1.1 shows the median (blue line) and the distribution (yellow shading) of analysts' expectations for annual inflation at 12 and 24 months, the policy interest rate, accumulated annual GDP growth for four quarters (4Q), and annual depreciation (calculated according to Annex B1.1) in the January 2021 survey.

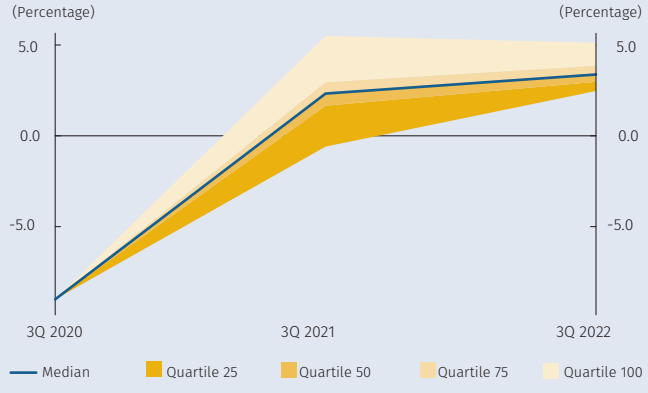
The median indicates that analysts expect inflation and GDP growth to increase over the next two years, and for the Colombian peso to appreciate. Although the analysts do not expect a change in the policy interest rate in 2021, they do expect an increase to come in 2022. Nevertheless, the distribution of the answers indicates a high degree of uncertainty for the period in question.

* The authors are members of the Office of the Deputy Technical Governor and the Department of Macroeconomic Modeling at *Banco de la República*; the opinions herein are their exclusive responsibility and do not necessarily reflect those of *Banco de la República* or its Board of Directors.

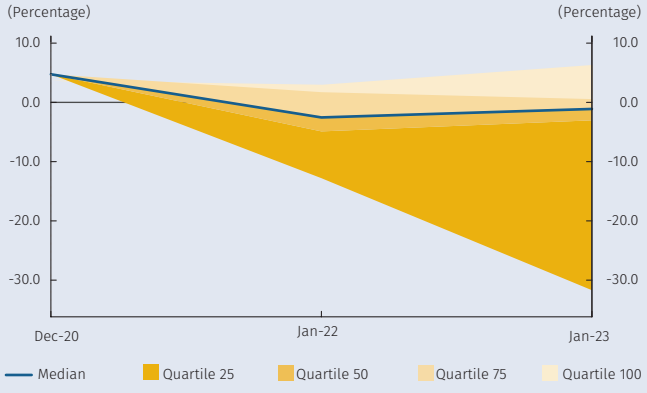
1 https://www.banrep.gov.co/resultados-mensuales-expectativas-analistas-economicos

Graph B.1
Distribution of Macroeconomic Expectations (January 2021 EME)

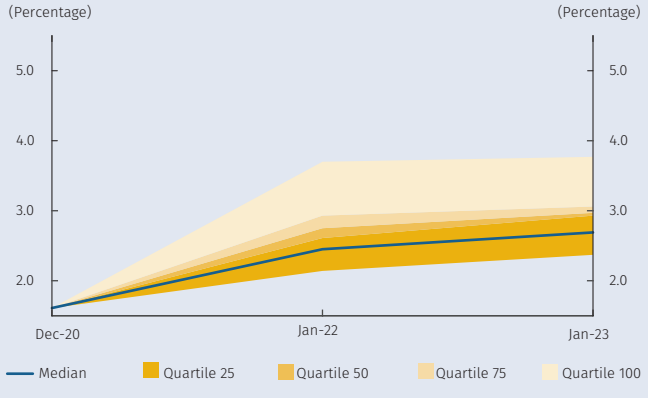
A. Annual GDP growth (4Q)



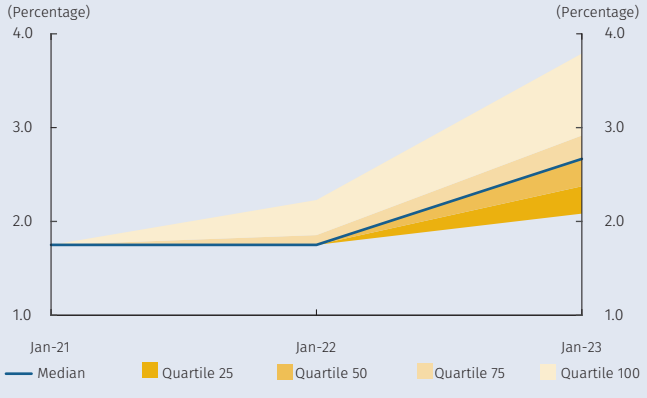
B. Annual depreciation



C. Annual inflation



D. Policy interest rate



Source: *Banco de la República*; calculations by the authors.

1.2 September 2003 to January 2021

Graph B1.2 shows the evolution of analysts' expectations for the same variables at 12 months over time (yellow dots) as well as the median of their answers from each survey (red dots). Graph B1.3 shows the dispersion[2] of the data.

The median expectations at 12 months for annual inflation, the policy interest rate, and annual GDP growth (4Q) follow the dynamic of the respective variables observed at the date of the survey. By contrast, the median of expected depreciation maintains a downward trend during the survey period. This figure is positive before 2010, and afterward is close to zero or negative. In this case the expectations differed from the observed values of the variable over this period.

Graphs B1.2 and B1.3 show that the dispersion of analysts' expectations changes over time and, in particular, increases in the presence of specific shocks to the economy. Nevertheless, this dispersion responds differently to shocks depending on the variable.

In general, the expected policy interest rate showed a lower degree of dispersion, followed by inflation expectations and expectations for GDP growth. That said, the dispersion of the latter figure reacted considerably to the COVID-19 shock.

The dispersion of expected inflation increased primarily in response to demand shocks, increases in oil prices and international food prices in 2007 and 2008, and the fall in oil prices and an *El Niño* weather pattern in 2015 and 2016. The degree of dispersion for expected depreciation is high during the sample period, increasing mainly in response to the global financial crisis and to significant movement in the price of oil.

2. Relationship between Macroeconomic Expectations

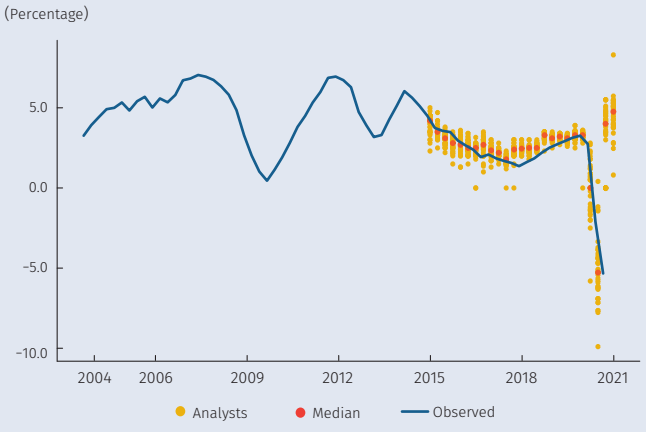
In this section we examine the relationship between macroeconomic expectations within each survey and between surveys over time. Cross-sectional regression exercises are employed in the first case, while a data pool for the sample period is used in the second.

In particular, we seek to answer the following questions:

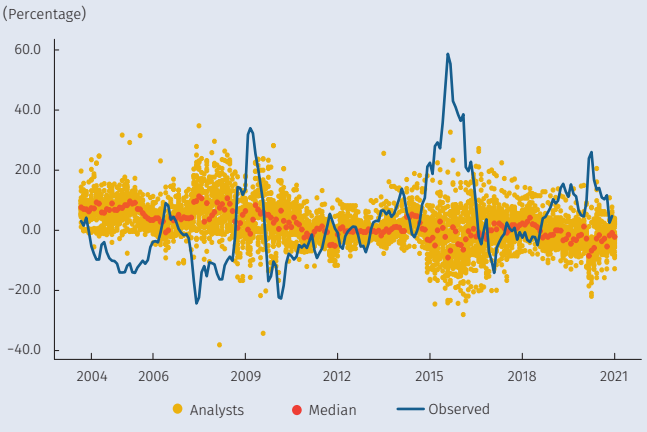
2 Measured as the standard deviation of analyst answers in each monthly survey.

Graph B.2
Analysts' Expectations at 12 Months (September 2003 – January 2021 EME)

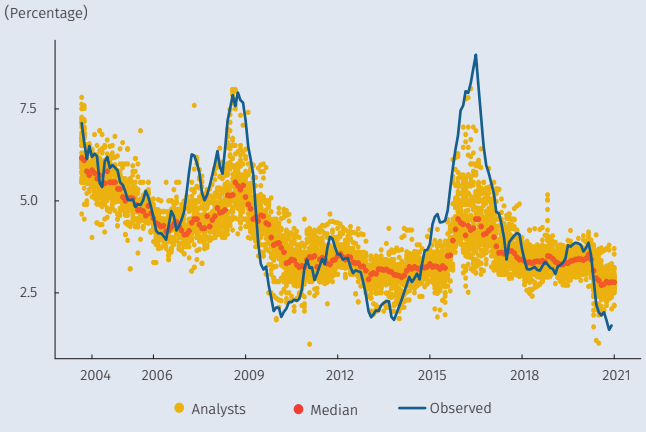
A. Annual GDP growth (4Q)



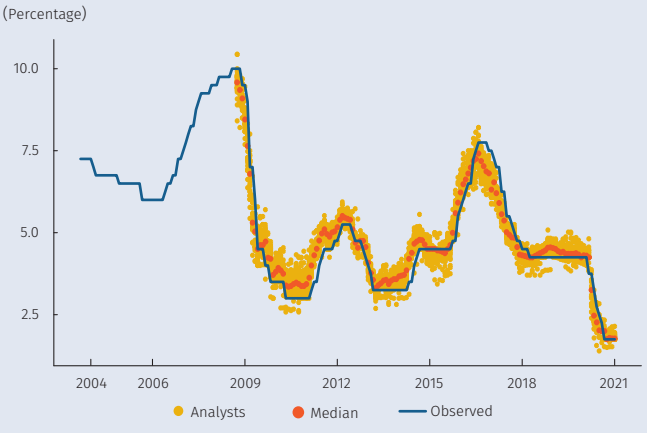
B. Annual depreciation



C. Annual inflation

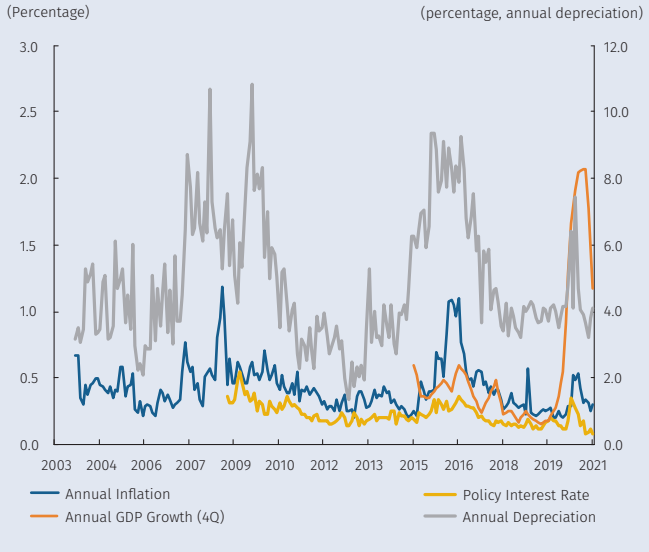


D. Policy interest rate



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

Graph B.3
Dispersion of analysts' expectations at 12 months
(September 2003 – January 2021 EME)



Source: *Banco de la República*; calculations by the authors.

A: Is there a relationship between the expected policy interest rate and expectations for inflation and GDP growth in the EME?

To respond to this question, we propose two empirical relationships:

$$i_j^{e,m} = \mu + \gamma \pi_j^{e,m} + \varepsilon_j, \quad (1)$$

$$i_j^{e,m} = \mu + \gamma \pi_j^{e,m} + \theta \Delta y_j^{e,m} + \varepsilon_j \quad (2)$$

where $i_j^{e,m}$, $\pi_j^{e,m}$ and $\Delta y_j^{e,m}$ represents expectations for the policy interest rate, annual inflation, and annual GDP growth (4Q) for the horizon m and each analyst $j = 1, \ldots, J$ (Annex B1.1).

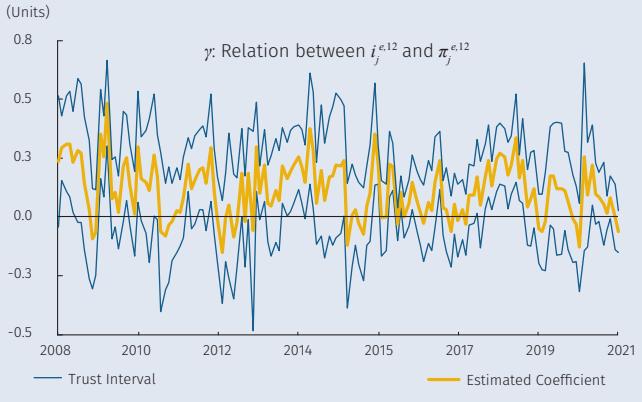
Equation 1 establishes the relationship between the expected policy interest rate and expected inflation, while equation (2) also controls for the effects of expected growth in GDP. Relationship estimate (1) uses monthly information starting in October 2008, while relationship estimate (2) includes quarterly data since 2015. Below we present and analyze several exercises related to EME expectations on an m=12 months horizon.
Using a cross-sectional approach, we estimate equations (1) and (2) by ordinary least squares (OLS) based on

expectations from each of the EMEs, and the statistical significance of the γ and θ parameters is evaluated using a 95% confidence interval. Each regression exercise includes an average of 40 observations, corresponding to the analysts' answers in the EME.

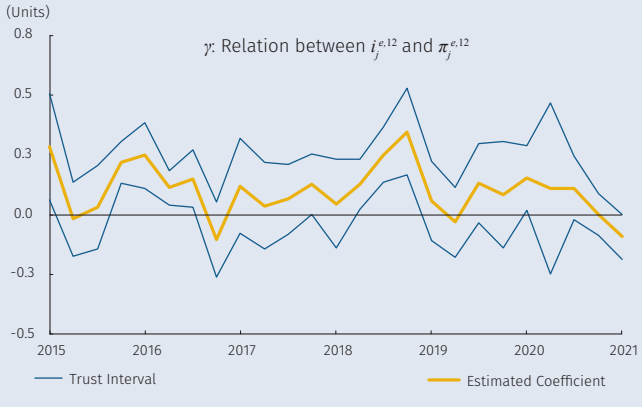
Graph B1.4 shows the estimated coefficient value for each relationship, as well as their corresponding confidence intervals. The results illustrate, in general, a positive relationship between the expectations of the policy rate and those for inflation, but it is neither stable nor statistically different from zero. Nor when controlling for expected GDP growth (Graph B1.4, Panels B and C) is there a stable and significant relationship between the variables. These results suggest that within each EME those analysts expecting higher inflation do not therefore systematically expect a higher policy interest rate.

Graph B.4
Estimated Relationship between Expectations at 12 Months for Policy Interest Rate, Inflation, and GDP Growth: Cross-Sectional Analysis

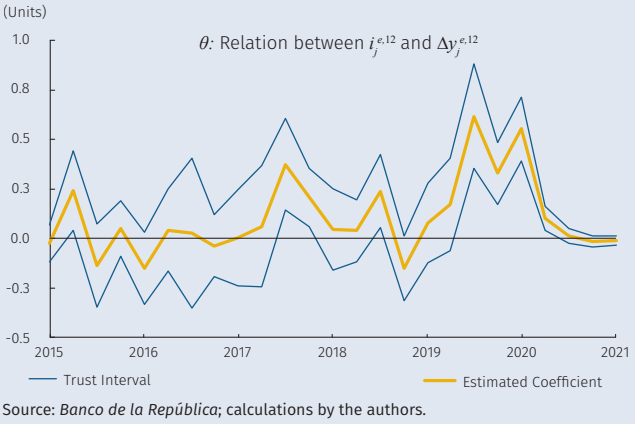
A. Relationship between the expected policy interest rate and expected inflation (equation 1)



B. Relationship between the expected policy interest rate and expected inflation (equation 2)



C. Relationship between the expected policy interest rate and expected growth (equation 2)



Source: *Banco de la República*; calculations by the authors.

In the regression exercises using the data pool, equations (1) and (2) are estimated by OLS and panel data with fixed effects (PD) using the set of expectations from the EME for the entire sample period. This allows us to consider the temporal dimension of the relationship between these variables.

Table B1.1 shows the results of estimate (1) and (2) by OLS and PD for the data pool. The results suggest evidence of a positive and significant relationship between the expected policy interest rate and inflation expectations.

Table B.1
OLS and Data Panel Regression for Equations (1) and (2) on EME Data Pool: Expectations at 12 Months

$i_j^{e,12}$	OLS	OLS	Panel Data	Panel Data
μ	0.000***	-0.005***	-0.002***	-0.009***
	(0.000)	(0.001)	(0.000)	(0.001)
$\pi_j^{e,12}$	1.325***	1.398***	1.387***	1.522***
	(0.019)	(0.048)	(0.019)	(0.051)
		0.107***		0.098***
$\Delta y_j^{e,12}$		(0.017)		(0.017)

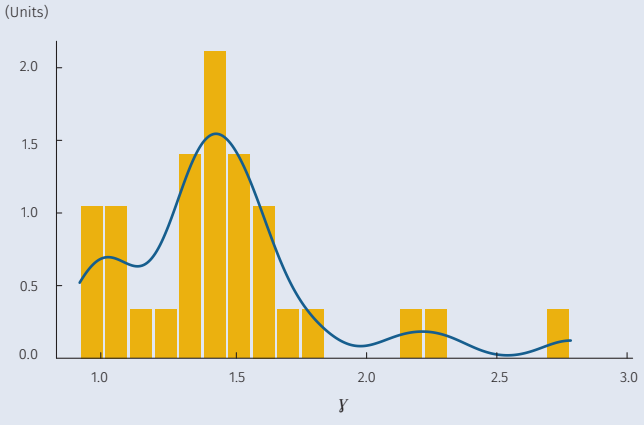
Note: *, **, *** equal significance of 10%, 5.0%, and 1.0%, respectively. Values in parenthesis correspond to standard deviations. Regression exercises for equation (1) consider a data pool from the EME that includes information since October 2008, while those for equation (2) cover data since the first quarter of 2015.
Source: *Banco de la República*, calculations by the authors.

In each of the exercises the estimated coefficient for γ is positive and greater than 1. This implies that the analysts who expect higher inflation over time also expect that *Banco de la República* will react by increasing the policy interest rate, and that this increase would be greater than that for expected inflation. In Table B1.1 we also show a positive and significant relationship between the expectation of the policy interest rate and expected GDP growth, though to a lesser extent.

Graph B1.5 shows the distribution of estimates for parameter γ for each of the analysts over time. This shows that the response of policy interest rate expectations to changes in expected inflation is positive and similar for a majority of those surveyed.

These exercises were replicated for expectations on a 24-month time horizon and the conclusions of the previous analysis held (Table B1.2). However, at this time frame the analysts expect a stronger response of the policy rate to changes in inflation expectations than on the 12-month horizon. This may reflect the perception that more persistent shocks on inflation would require a more significant policy reaction. In any case, it is important to note that, given the availability of data, the samples of each exercise differ.

Graph B.5
Density of Estimated Relationship between each Analyst's Expectations at 12 Months for the Policy Interest Rate and for Inflation (October 2008 – January 2021 EME)



Source: *Banco de la República*; calculations by the authors.

Table B.2
OLS and Data Panel Regression for Equation (1) on EME Data Pool: Expectations at 24 Months

$i_j^{e,24}$	OLS	Panel Data (FE)
μ	-0.029***	-0.046***
	(0.003)	(0.003)
$\pi_j^{e,24}$	1.988***	2.536***
	(0.117)	(0.124)

Note: *, **, *** significant at 10%, 5.0%, and 1.0%, respectively. Values in parenthesis correspond to standard deviations. Regression exercises consider a data pool from the EME that includes data since October 2019
Source: *Banco de la República*, calculations by the authors.

B: Is there a relationship between expected inflation and expected GDP growth and depreciation in the EME?

To answer this question the following relationships were proposed:

$$\pi_j^{e,m} = \alpha + \beta \Delta y_j^{e,m} + \varepsilon_j, \quad (3)$$

$$\pi_j^{e,m} = \alpha + \beta \Delta y_j^{e,m} + \delta \Delta s_j^{e,m} + \varepsilon_j, \quad (4)$$

where $\pi_j^{e,m}$, $\Delta y_j^{e,m}$ and $\Delta s_j^{e,m}$ represent annual inflation expectations, annual GDP growth (4Q), and annual depreciation for horizon m of analyst $j = 1, \ldots, J$ (Annex B1.1).

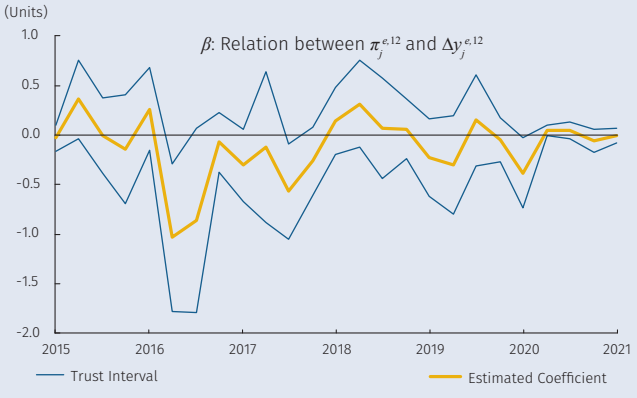
Equation (3) establishes the relationship between expected inflation and expected GDP growth while equation (4) controls for the effects of expected depreciation. The analysis of both relationships uses quarterly information since 2015. As with the empirical strategy from the previous section, these are analyzed through cross-sectional regression exercises and a data pool of EME expectations on an m=12 months horizon.

Equations (3) and (4) are estimated by OLS using expectations from each of the EMEs, and the statistical significance of the parameters β and δ is evaluated using a confidence interval of 95% (Graph 1.6). The same equations are estimated using a regression strategy with the data pool by OLS and PD using the set of expectations for the EME for the entire sample period (Table B1.3).

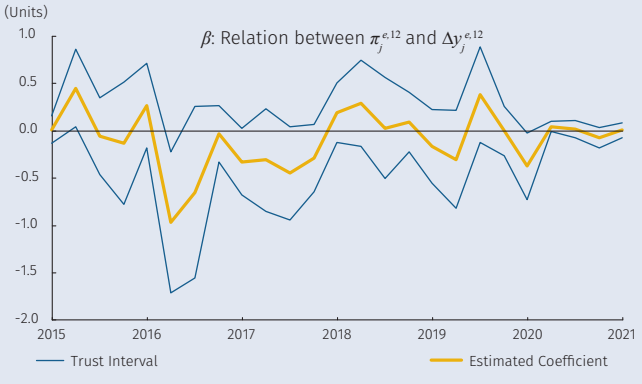
The results from Graph B1.6 do not show a stable or statistically distinct from zero relationship between expected inflation and GDP growth or depreciation expectations. As a result, there is no evidence that within each individual survey those analysts who expect higher growth or depreciation also systematically expect higher inflation.

Graph B.6
Estimated Relationship between Expectations at 12 Months for Inflation, GDP Growth, and Depreciation: Cross-Sectional Analysis

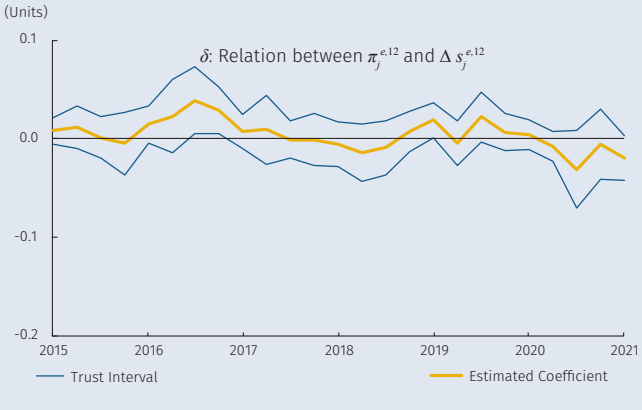
A. Relationship between expected inflation and expected GDP growth (equation 3)



B. Relationship between expected inflation and expected GDP growth (equation 4)



C. Relationship between expected inflation and expected depreciation (equation 4)



Source: *Banco de la República*; calculations by the authors.

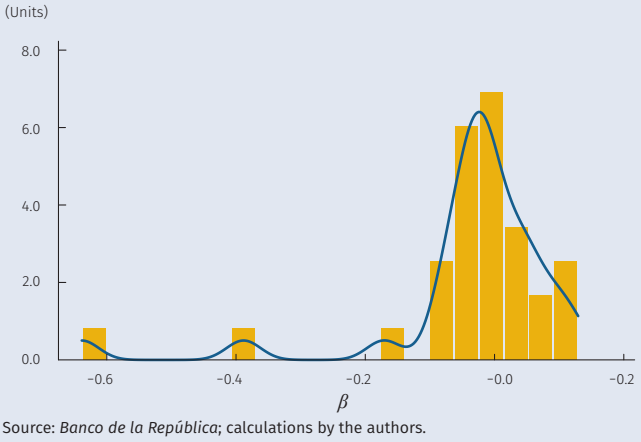
Nor is there evidence of a statistically distinct from zero relationship (significance varies) between expected inflation and the expectations for economic growth and depreciation in examining the same relationship in the data pool (Table B1.3). Additionally, the signs of the estimated relationship are not robust to marginal changes in the data set[3]. This suggests that analysts have not systematically associated expected movements in inflation with expected variations in aggregate demand or in the exchange rate over time.

Table B1.3
OLS and data panel regression for equations (3) and (4) on EME data pool: expectations at 12 months

$i_j^{e,12}$	OLS	OLS	Panel data	Panel data
μ	0.035***	0.035***	0.035***	0.035***
	(0.000)	(0.000)	(0.000)	(0.000)
$\Delta y_j^{e,12}$	0.019*	0.018	0.018	0.016
	(0.011)	(0.012)	(0.011)	(0.011)
$\Delta s_j^{e,12}$		0.009**		0.002
		(0.003)		(0.004)

Note: *, **, *** significant at 10%, 5.0%, and 1.0%, respectively. Values in parenthesis correspond to standard deviations. Regression exercises for equation (1) consider a data pool from the EME that includes information since the first quarter of 2015.
Source: *Banco de la República*, calculations by the authors.

Graph B.7
Density of Estimated Relationship Between each Analyst's Expectations at 12 Months for Inflation and GDP Growth (October 2008 – January 2021 EME)



Source: *Banco de la República*; calculations by the authors.

Graph B1.7 shows the distribution of the estimates for parameter β for each analyst over time. This suggests that the estimated response for inflation expectations to changes in expected GDP growth is dispersed among the analysts and is negative for some and positive for others. This graph corroborates the results presented in Table B1.3.

Annex 1

Table A1.1 shows information available from the EME for the variables considered in this supplement.

Averages at 12 and 24 months for expectations of annual inflation, the policy interest rate, annual GDP growth (4Q), and annual depreciation were used for graphs and regression exercises. For Graph B1.1, expectations for the same variables are displayed for the first and second year of the time horizon. Table A1.2 includes technical details for the transformations conducted for each expectation considered.

For accumulated GDP for four quarters (4Q), the survey does not include information on expected annual growth at 12 months. Between the first quarter of 2015 and the second quarter of 2020 we consider annual growth expected at year end for the year in progress from the January and April surveys as a proxy. From July 2020 annual expected GDP growth (4Q) at 12 months is approximated as the average of annual growth for each quarter over the course of four quarters for the path available in the EME.

3 A recursive estimate of these coefficients shows variation in the sign and significance for different data ranges.

Table A1.1
Information available from the Macroeconomic Expectations of the EME.

Expectation (e)		Horizon (h)	Available from
Annual inflation	$\mathbb{E}_t[\pi_{j,t+h}]$	12 months,	September 2003
		24 months	January 2015
Annual policy interest rate	$\mathbb{E}_t[i_{j,t+h}]$	Path 0-11 months forward	October 2008
		Path 12-23 months forward	October 2019
Annual GDP growth	$\mathbb{E}_t[\Delta y_{i,t+h}]$	End of year in progress End of following year	January 2015
		Previous quarter Current quarter Path 1-6 quarters forward	July 2020
Exchange rate	$\mathbb{E}_t[s_{i,t+h}]$	Month in progress 12 months	September 2003
		24 months	January 2015

Source: *Banco de la República*; calculations by the authors.

Table A1.1
Transformations of Macroeconomic Expectations from the EME

Expectativa (e)	Horizonte	Ecuación
Average annual inflation	m=12 months m= 24 months	$\pi_j^{e,m} = \prod_{h=12}^{m}(1+\mathbb{E}_t[\pi_{j,t+h}])^{12/m}, \quad h = 12, 24$
	a= second year	$\pi_j^{e,a} = \mathbb{E}_t[\pi_{j,t+h}], \quad h = 24$
Average annual policy interest rate	m=12 months m= 24 months	$i_{j,t}^{e,m} = \prod_{h=0}^{m-1}(1+\mathbb{E}_t[i_{j,t+h}])^{1/m} - 1, \quad h = 0, \dots, m-1$
	a= second year	$i_{j,t}^{e,a} = \frac{(1+i_{j,t}^{e,24m})}{(1+i_{j,t}^{e,12m})} - 1$
Average annual GDP growth (4Q)	m=12 months m= 24 months	$\Delta y_{j,t}^{e,m} = \prod_{h=0}^{\frac{m}{3}-1}(1+\mathbb{E}_t[\Delta y_{j,t+h}])^{3/m} - 1, \quad h = 0, \dots, m/3$
	a= second year	$\Delta y_{j,t}^{e,a} = \frac{(1+\Delta y_{j,t}^{e,24m})}{(1+\Delta y_{j,t}^{e,12m})} - 1$
Average nominal annual depreciation	m=12 months m= 24 months	$\Delta s_{j,t}^{e,m} = \frac{\mathbb{E}_t[s_{j,t+m}]}{\mathbb{E}_t[s_{j,t}]}^{12/m} - 1$
	a= second year	$\Delta s_{j,t}^{e,a} = \frac{\mathbb{E}_t[s_{j,t+24}]}{\mathbb{E}_t[s_{j,t+12}]} - 1$

Source: *Banco de la República*; Calculations by the authors.

Annex 1
Macroeconomic Projections from Local and Foreign Analysts [a/b]

	Units	Jan-21	Dec-21	Jan-22	Dec-22	Jan-23
Total CPI	Monthly Variation (average)	0.41	n. r.	n. r.	n. r.	n. r.
CPI excluding foods	Monthly Variation (average)	0.35	n. r.	n. r.	n. r.	n. r.
Total CPI	Annual Variation, end of period (average)	1.60[c/]	2.69	2.80	3.09	3.05
CPI excluding food	Annual Variation, end of period (average)	1.03[c/]	2.51	2.61	2.90	2.92
Nominal Exchange Rate	Pesos per dollar, end of period	3,485	3,450	3,423	3,383	3,385
Policy Rate	Percentage, end of period	1.75	2.00	2.00	3.13	3.25

	Units	Q4 2020	2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	2022
GDP	Annual variation, original series	-4.5	-7.0	-2.8	12.5	6.0	3.2	4.8	4.0	3.6	3.5	n. a.	n. a.
Unemployment	Thirteen cities, average of period	n. a.	n. a.	15.3	13.8	13.4	12.8	n. a.	13.0	12.1	11.6	11.0	n. a.
IBR (90 days)	Effective annual rate, end of Period	n. r.	n. r.	1.8	1.8	1.8	2.0	n. a.	2.3	2.5	3.0	3.0	n. a.
DTF	Effective annual rate, end of Period	n. r.	n. r.	1.9	2.0	2.0	2.0	n. a.	2.3	2.6	2.8	3.0	n. a.
Fiscal Deficit (NCG)	Percentage of GDP	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	-7.6	n. a.	n. a.	n. a.	n. a.	-5.5
Current Account Deficit	Percentage of GDP	n. a.	n. a.	n. a.	n. a.	n. a.	n. a.	-3.5	n. a.	n. a.	n. a.	n. a.	-3.7

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.*
n/a: not available.
n/r: not relevant given that data is already observed.
Source: Monthly Survey of Economic Analyst Expectations, *Banco de la República,* January 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	2.6	2.5	1.4	**-7.1**	**4.4**	**3.5**
Oil price (Benchmark Brent)	Dollars per barrel, average for period	112	109	99	54	45	55	72	64	43	**53**	**56**
Federal funds (Fed) effective interest rate	Percentage, average for period	0.14	0.11	0.09	0.13	0.40	1.00	1.83	2.16	0.38	**0.13**	**0.13**
Credit default swaps at 5 years for Colombia	Basis points, average for period	119	113	101	184	212	129	114	99	141	**136**	**168**
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	4.4	4.3	3.9	3.3	2.8	2.5	2.5	2.6	-1.3	**2.4**	**1.8**
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	**2.33**	**2.70**
CPI excluding food [c/]	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	**3.36**	**3.32**
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	**1.90**	**2.65**
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	**2.08**	**2.55**
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	5.8	**-0.2**	**1.0**
Economic activity												
Gross domestic product	Percentage, annual change, s.a.c.e.	3.9	5.1	4.5	3.0	2.1	1.4	2.5	3.3	**-7.2**	**4.5**	**3.5**
Final consumption spending	Percentage, annual change, s.a.c.e.	5.5	5.4	4.3	3.4	1.6	2.3	3.7	4.4	**-4.6**	.	.
Final household consumption spending	Percentage, annual change, s.a.c.e.	5.6	4.6	4.2	3.1	1.6	2.1	3.0	4.5	**-6.0**	.	.
Final government overhead spending	Percentage, annual change, s.a.c.e.	4.8	8.9	4.7	4.9	1.8	3.6	7.0	4.3	**2.5**	.	.
Gross capital formation	Percentage, annual change, s.a.c.e.	2.9	7.8	12.0	-1.2	-0.2	-3.2	2.1	4.0	**-18.1**	.	.
Gross fixed capital formation	Percentage, annual change, s.a.c.e.	3.3	8.5	9.2	2.8	-2.9	1.9	1.5	4.3	**-18.1**	.	.
Housing	Percentage, annual change, s.a.c.e.	-0.7	6.4	10.4	9.5	-0.2	-1.9	-0.4	-7.4	**-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	-3.3	4.2	**-20.8**	.	.
Machinery and equipment	Percentage, annual change, s.a.c.e.	4.0	4.8	9.2	-9.3	-7.9	1.4	9.4	13.9	**-9.5**	.	.
Cultivated biological resources	Percentage, annual change, s.a.c.e.	-5.7	6.6	-1.3	2.3	13.1	0.3	5.6	0.5	**-0.9**	.	.
Intellectual property products	Percentage, annual change, s.a.c.e.	8.0	19.6	5.1	1.3	-12.0	1.2	1.5	2.6	**-8.6**	.	.
Domestic demand	Percentage, annual change, s.a.c.e.	4.9	5.9	6.0	2.4	1.2	1.1	3.4	4.3	**-7.7**	.	.
Exports	Percentage, annual change, s.a.c.e.	4.5	4.7	-0.3	1.7	-0.2	2.6	0.9	2.6	**-18.6**	.	.
Imports	Percentage, annual change, s.a.c.e.	9.4	8.5	7.8	-1.1	-3.5	1.0	5.8	8.1	**-17.0**	.	.
Output gap [f/]	Percentage	-0.1	0.7	1.3	0.9	0.3	-0.8	-0.8	-0.2	**-6.3**	**-4.4**	**-2.8**
Short-term indicators												
Real industrial production	Percentage, annual change, seasonally adjusted	-0.2	-1.3	1.7	2.1	3.5	0.0	2.9	1.3	.	.	.
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	.	.	.
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	**16.1**	**14.0**	.
Employment rate	Percentage, seasonally adjusted, average for period	57.8	58.0	58.4	59.0	58.5	58.4	57.8	56.6	.	.	.
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	.	.	.
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	.	.	.
Employment rate	Percentage, seasonally adjusted, average for period	60.1	60.3	61.2	61.4	60.7	59.9	59.2	58.6	.	.	.
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	.	.	.
Balance of payments [h/i/]												
Current account (A+B+C)	Millions of dollars	-11,362	-12,501	-19,764	-18,564	-12,036	-10,241	-13,118	-13,758	**-9,204**	**-10,745**	,
Percentage of GDP	Percentage, nominal terms	-3.1	-3.3	-5.2	-6.3	-4.2	-3.3	-3.9	-4.3	**-3.4**	**-3.6**	.
A. Goods and Services	Millions of dollars	-1,187	-3,164	-11,863	-18,267	-12,705	-8,447	-8,997	-12,362	**-12,478**	**-12,420**	.
B. Primary income (factor income)	Millions of dollars	-15,008	-14,224	-12,523	-5,727	-5,229	-8,405	-11,764	-10,100	**-5,364**	**-7,530**	.
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	**8,638**	**9,205**	.
Financial account (A+B+C+D)	Millions of dollars	-11,553	-11,740	-19,292	-18,244	-12,273	-9,558	-12,415	-12,852	.	.	.
Percentage of GDP	Percentage, nominal terms	-3.1	-3.1	-5.1	-6.2	-4.3	-3.1	-3.7	-4.0	.	.	.
A. Foreign investment (i+ii)	Millions of dollars	-15,646	-8,558	-12,270	-7,506	-9,330	-10,147	-6,409	-11,095	.	.	.
i. Foreign in Colombia (FDI)	Millions of dollars	15,040	16,210	16,169	11,724	13,848	13,837	11,535	14,314	.	.	.
ii. Colombian abroad	Millions of dollars	-606	7,652	3,899	4,218	4,517	3,690	5,126	3,219	.	.	.
B. Portfolio investment	Millions of dollars	-4,769	-7,438	-11,565	-9,166	-4,839	-1,617	1,297	283	.	.	.
C. Other investment (loans and other credits and derivatives)	Millions of dollars	3,457	-2,690	106	-1,987	1,731	1,661	-8,490	-5,373	.	.	.
D. Reserve assets	Millions of dollars	5,406	6,946	4,437	415	165	545	1,187	3,333	.	.	.
Errors and omissions (E and O)	Millions of dollars	-190	761	472	320	-237	683	703	906	.	.	.
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	.	.	.	.	.	.	.	.	.	**1.79**	**2.54**
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 the Central Bank 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 the Central Bank of Colombia 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 the Central Bank of Colombia 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/ Corresponds to the annual average of seasonally adjusted monthly figures.
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 2018 and 2019 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 January 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	2.5	2.9	3.1	2.8	3.1	2.7	0.9	1.1
Oil price (Benchmark Brent)	Dollars per barrel, average for period	55	51	52	61	67	75	76	69
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	144	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 [c/]	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 [e/]									
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	0.0	-3.4	-3.7	-0.3	4.7
Economic activity									
Gross domestic product	Percentage, annual change, s.a.c.e.	1.2	1.4	1.2	1.6	2.2	2.4	2.6	2.8
Final consumption spending	Percentage, annual change, s.a.c.e.	2.0	2.2	3.0	2.2	3.5	3.9	3.4	4.1
Final household consumption spending	Percentage, annual change, s.a.c.e.	1.6	2.0	2.6	2.0	2.7	3.4	3.0	3.0
Final government overhead spending	Percentage, annual change, s.a.c.e.	3.1	3.1	3.5	4.8	7.3	6.2	7.4	7.2
Gross capital formation	Percentage, annual change, s.a.c.e.	-3.6	-2.4	-5.6	-1.1	-0.8	0.4	4.4	4.5
Gross fixed capital formation	Percentage, annual change, s.a.c.e.	-1.0	1.6	5.8	1.2	0.7	1.3	1.5	2.6
Housing	Percentage, annual change, s.a.c.e.	5.0	4.5	-4.4	-11.7	-4.8	-2.6	2.2	4.3
Other buildings and structures	Percentage, annual change, s.a.c.e.	-0.4	4.0	10.1	5.0	-4.2	-4.0	-6.6	1.8
Machinery and equipment	Percentage, annual change, s.a.c.e.	-6.7	-2.2	7.8	7.2	13.7	13.6	7.8	3.2
Cultivated biological resources	Percentage, annual change, s.a.c.e.	16.3	-0.5	-10.7	-1.7	-0.6	1.7	14.3	7.7
Intellectual property products	Percentage, annual change, s.a.c.e.	-3.5	2.0	3.8	2.7	2.5	2.0	0.5	1.1
Domestic demand	Percentage, annual change, s.a.c.e.	1.1	1.2	1.3	1.0	1.8	3.5	3.3	5.0
Exports	Percentage, annual change, s.a.c.e.	1.8	5.4	3.5	-0.2	0.5	-1.2	1.5	2.6
Imports	Percentage, annual change, s.a.c.e.	1.7	2.1	0.0	0.3	0.9	5.1	6.2	11.1
Output gap [f/]	Percentage	0.0	-0.3	-0.6	-0.8	-0.9	-0.9	-0.9	-0.8
Short-term indicators									
Real industrial production	Percentage, annual change, seasonally adjusted	-0.6	-0.5	1.0	0.1	2.5	2.7	3.7	2.7
Retail commerce sales excluding fuels and vehicles	Percentage, annual change, seasonally adjusted	0.1	-0.3	0.0	-0.4	4.5	5.8	5.3	6.2
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 [g/]									
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	58.0	58.2	57.1
Overall participation rate	Percentage, seasonally adjusted, average for period	64.5	64.7	64.4	64.0	63.8	64.2	64.3	63.6
Thirteen cities and metropolitan areas									
Unemployment rate	Percentage, seasonally adjusted, average for period	10.4	10.6	10.9	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	59.3	59.6	59.6	58.5
Overall participation rate	Percentage, seasonally adjusted, average for period	67.3	67.3	67.0	66.3	66.3	66.7	66.6	65.9
Balance of payments [h/i/]									
Current account (A+B+C)	Millions of dollars	-3,506	-2,481	-2,725	-1,529	-2,858	-3,283	-3,219	-3,759
Percentage of GDP	Percentage, nominal terms	-4.7	-3.3	-3.5	-1.8	-3.6	-3.9	-3.8	-4.4
A. Goods and Services	Millions of dollars	-2,584	-2,482	-2,283	-1,099	-1,504	-2,198	-2,297	-2,998
B. Primary income (factor income)	Millions of dollars	-2,343	-1,632	-2,128	-2,303	-2,977	-2,897	-2,878	-3,011
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	-2,922	-2,363	-2,675	-1,598	-2,562	-2,851	-3,434	-3,568
Percentage of GDP	Percentage, nominal terms	-4.0	-3.1	-3.4	-1.9	-3.2	-3.4	-4.0	-4.2
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	-519	620	1,750	334	536	-1,323
C. Other investment (loans and other credits and derivatives)	Millions of dollars	-1,482	717	1,867	560	-3,514	-988	-1,670	-2,317
D. Reserve assets	Millions of dollars	93	154	126	173	137	150	169	732
Errors and omissions (E and O)	Millions of dollars	584	117	50	-69	296	432	-216	190
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 the Central Bank 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 the Central Bank of Colombia 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 the Central Bank of Colombia 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/ Corresponds to the annual average of seasonally adjusted monthly figures.
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 2018 and 2019 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 January 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.

2019				2020				2021				2022			
T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
2.0	1.8	1.4	-1.8	-6.4	-44.1	46.3	6.0	**-0.7**	**5.9**	**7.8**	**6.4**	**1.2**	**1.7**	**2.0**	**2.2**
64	68	62	62	51	33	43	45	**50**	**52**	**54**	**55**	**56**	**56**	**57**	**57**
2.40	2.40	2.19	1.64	1.26	0.06	0.09	0.09	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**
121	104	90	83	125	206	132	104	**120**	**131**	**141**	**151**	**161**	**170**	**170**	**170**
3.21	3.43	3.82	3.80	3.86	2.19	1.97	1.61	**1.05**	**2.25**	**2.08**	**2.33**	**2.73**	**2.52**	**2.64**	**2.70**
3.27	3.22	3.37	3.45	3.26	1.40	1.57	1.03	.	.	.	.	.	.	.	.
1.09	1.60	1.83	2.18	2.41	0.73	1.15	0.63	.	.	.	.	.	.	.	.
3.01	3.10	3.37	3.45	3.22	2.00	1.86	1.29	.	.	.	.	.	.	.	.
6.33	5.24	5.03	4.81	4.27	0.44	1.19	0.73	**-0.26**	**3.48**	**3.07**	**3.36**	**4.45**	**3.67**	**3.40**	**3.32**
3.24	4.96	6.49	5.80	7.19	6.55	4.13	4.80	**3.02**	**1.80**	**2.57**	**1.90**	**1.97**	**2.55**	**2.58**	**2.65**
9.98	15.46	17.50	8.66	9.79	2.52	-3.42	2.49	.	.	.	.	.	.	.	.
1.43	2.18	3.57	5.04	6.46	7.75	6.40	5.43	.	.	.	.	.	.	.	.
3.27	3.22	3.37	3.45	3.26	1.40	1.57	1.03	.	.	.	.	.	.	.	.
3.24	3.34	3.66	3.78	3.64	2.17	2.33	1.88	.	.	.	.	.	.	.	.
2.41	2.65	2.92	3.10	2.99	1.65	1.67	1.11	**0.93**	**2.05**	**1.69**	**2.08**	**2.38**	**2.22**	**2.45**	**2.55**
2.97	3.07	3.32	3.44	3.30	1.74	1.86	1.34	.	.	.	.	.	.	.	.
3,134	3,241	3,340	3,411	3,532	3,848	3,733	3,661	.	.	.	.	.	.		
2.2	3.2	4.1	5.0	5.0	10.5	5.4	2.4	**-3.6**	**0.1**	**1.3**	**1.3**	**1.6**	**1.0**	**0.8**	**0.7**
3.1	3.2	3.4	3.4	1.0	-16.0	-9.5	**-4.4**	**-4.8**	**14.8**	**7.2**	**1.8**	**4.0**	**3.6**	**3.2**	**3.3**
4.2	4.4	4.7	4.4	3.5	-12.9	-7.3	**-1.5**	.	.	.	.	.	.	.	.
4.0	4.3	4.9	4.7	3.8	-16.1	-9.3	**-2.4**	.	.	.	.	.	.	.	.
4.2	5.1	4.1	3.7	3.3	2.4	1.8	**2.5**	.	.	.	.	.	.	.	.
2.3	4.6	5.2	3.6	-2.8	-34.2	-20.2	**-14.7**	.	.	.	.	.	.	.	.
6.2	6.7	4.4	0.0	-1.5	-35.6	-21.2	**-13.6**	.	.	.	.	.	.	.	.
-4.8	-6.7	-7.7	-10.5	-7.9	-40.3	-34.8	**-27.2**	.	.	.	.	.	.	.	.
4.9	4.3	6.1	1.6	4.9	-30.7	-32.5	**-24.0**	.	.	.	.	.	.	.	.
15.7	22.4	12.6	5.1	-2.1	-37.7	-2.2	**7.1**	.	.	.	.	.	.	.	.
2.0	4.2	1.1	-4.9	1.3	1.0	-5.0	**-0.9**	.	.	.	.	.	.	.	.
1.6	1.5	2.4	5.1	0.2	-13.2	-9.6	**-11.5**	.	.	.	.	.	.	.	.
4.4	3.9	5.3	3.7	1.1	-17.4	-9.8	**-4.4**	.	.	.	.	.	.	.	.
3.7	6.8	1.3	-1.3	-2.4	-27.7	-24.5	**-19.5**	.	.	.	.	.	.	.	.
8.6	9.0	10.9	4.1	1.5	-31.3	-22.8	**-15.1**	.	.	.	.	.	.	.	.
-0.7	-0.5	-0.3	-0.2	-0.4	-3.5	-5.3	**-6.3**	**-7.4**	**-5.6**	**-4.7**	**-4.4**	**-3.9**	**-3.4**	**-3.1**	**-2.8**
1.1	2.5	0.7	0.8	-1.2	-23.4	-7.4	.	.	.	.	.	.	.	.	.
6.4	7.4	9.6	8.9	5.2	-15.3	-3.9	.	.	.	.	.	.	.	.	.
-1.9	6.6	4.9	24.1	-13.8	-1.9	-3.6	-4.6	.	.	.	.	.	.	.	.
5.3	3.2	1.4	-0.2	-2.1	-15.7	-15.4	-14.1	.	.	.	.	.	.	.	.
10.5	10.3	10.7	10.6	11.2	20.6	17.6	**14.9**	.	.	.	.	.	.	.	.
57.4	56.4	56.4	56.4	55.2	43.5	48.6	.	.	.	.	.	.	.	.	.
64.1	62.8	63.2	63.0	62.2	54.7	58.9	.	.	.	.	.	.	.	.	.
11.4	11.0	10.9	11.4	11.2	24.0	21.2	.	.	.	.	.	.	.	.	.
58.6	58.6	58.7	58.5	57.1	44.0	48.8	.	.	.	.	.	.	.	.	.
66.2	65.9	65.9	66.0	64.4	57.9	61.9	.	.	.	.	.	.	.	.	.
-3,586	-2,840	-4,162	-3,170	-2,630	-1,653	-1,774	.	.	.	.	.	.	.		
-4.6	-3.6	-5.1	-3.7	-3.6	-3.0	-2.7	.	.	.	.	.	.	.		
-2,710	-2,510	-4,023	-3,119	-2,849	-2,378	-3,078	.	.	.	.	.	.	.		
-2,674	-2,542	-2,451	-2,434	-1,919	-982	-1,106	.	.	.	.	.	.	.		
1,798	2,211	2,312	2,383	2,138	1,707	2,411	.	.	.	.	.	.	.		
-3,336	-3,214	-3,556	-2,746	-2,289	-2,125	-1,181	.	.	.	.	.	.	.		
-4.3	-4.1	-4.4	-3.2	-3.1	-3.8	-1.8	.	.	.	.	.	.	.		
-2,632	-3,668	-1,802	-2,993	-2,346	-1,679	33	.	.	.	.	.	.	.		
3,390	4,148	3,303	3,472	3,468	1,393	589	.	.	.	.	.	.	.		
758	481	1,502	478	1,122	-285	622	.	.	.	.	.	.	.		
-1,307	-178	268	1,499	-315	-3,165	485	.	.	.	.	.	.	.		
-1,748	105	-2,276	-1,453	542	130	-1,905	.	.	.	.	.	.	.		
2,351	526	254	202	-171	2,590	205	.	.	.	.	.	.	.		
250	-373	606	424	341	-472	593	.	.	.	.	.	.	.		
4.3	4.3	4.3	4.25	4.23	3.26	2.24	1.75	**1.75**	**1.75**	**1.83**	**1.83**	**2.00**	**2.42**	**2.75**	**3.00**
4.3	4.3	4.3	4.25	4.22	3.22	2.22	1.75								
9.1	9.0	8.9	8.52	8.35	8.27	6.98	6.16								
18.0	17.2	16.0	15.49	15.8	15.51	14.77	14.22								
10.4	10.5	10.4	10.42	10.44	10.39	10.2	9.64								

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