MONETARY
POLICY
REPORT

10/
2020

October 2020

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POLICY
REPORT

Banco de la República
Bogotá, D. C. (Colombia)

Office of the Deputy Technical Governor
    Hernando Vargas
    Deputy Technical Governor

Office for Monetary Policy and Economic Information (*)
    Juan José Ospina
    Chief Officer

Programming and Inflation Department
    Carlos Huertas
    Director

Inflation Section
    Adolfo León Cobo
    Head

    Édgar Caicedo
    Juan Pablo Cote
    Nicolás Martínez
    Carlos Daniel Rojas
    Karen Pulido

Macroeconomic Programming Section
    Aarón Garavito
    Head

    Luis Hernán Calderón
    Camilo González
    Andrea Salazar
    Franky Galeano

Advisors and Associate Researcher with the Programming and Inflation Department
    Celina Gaitán
    Sergio Restrepo

Macroeconomic Modeling Department
    Franz Hamann
    Director

Macroeconomic Modeling Department
    Julián Pérez
    Head

    Jose Vicente Romero
    Santiago Forero
    Nicolás Moreno
    Marcela De Castro
    Sara Naranjo

Consultant and Researchers associated with the Macro-Economic Models Department
    Alexander Guarín
    Head

Monetary Policy in Colombia

The *Banco de la República* (*Banco de la República*) 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.

Content

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01 / Summary

1.1   Macroeconomic summary

Recent data suggest that the technical staff's appraisals of the condition and development of economic activity, inflation and the labor market have been in line with current trends, marked by a decline in demand and the persistence of ample excess productive capacity. A significant projected fall in output materialized in the second quarter, contributing to a decline in inflation below the 3% target and reflected in a significant deterioration of the labor market. A slow recovery in output and employment is expected to continue for the remainder of 2020 and into next year, alongside growing inflation that should remain below the target.

The Colombian economy is likely to undergo a significant recession in 2020 (GDP contraction of 7.6%), though this may be less severe than projected in the previous report (-8.5%). Output is expected to have begun a slow recovery in the second half of this year, though it is not projected to return to pre-pandemic levels in 2021 amid significant global uncertainty. The output decline in the first half of 2020 was less severe than anticipated, thanks to an upward revision in first-quarter GDP and a smaller contraction in the second quarter (-15.5%) than had been projected (-16.5%). Available economic indicators suggest an annual decline in GDP in the third quarter of around 9%. No significant acceleration of COVID-19 cases that would imply a tightening of social distancing measures is presumed for the remainder of this year or in 2021. In that context, a gradual opening of the economy would be expected to continue, with supply in sectors that have been most affected by the pandemic recovering slowly as restrictions on economic activity continue to be relaxed. On the spending side, an improvement in consumer confidence, suppressed demand for goods and services, low interest rates, and higher expected levels of foreign demand should contribute to a recovery in output. A low base of comparison would also help explain the expected increase in GDP in 2021. Based on the conditions laid out above, economic growth in 2020 is expected to be between -9% and -6.5%, with a central value of -7.6%. Growth in 2021 is projected to be between 3% and 7%, with a central value of 4.6% (Graph 1.1). Upward revisions compared to the July report take into account a lower-than-expected fall in first-semester growth and a somewhat faster recovery in the third quarter in some sectors. The forecast intervals for 2020 and 2021 growth tightened somewhat but continue to reflect a high degree of uncertainty over the

Graph 1.1
Annual gross domestic product
(Annual change)
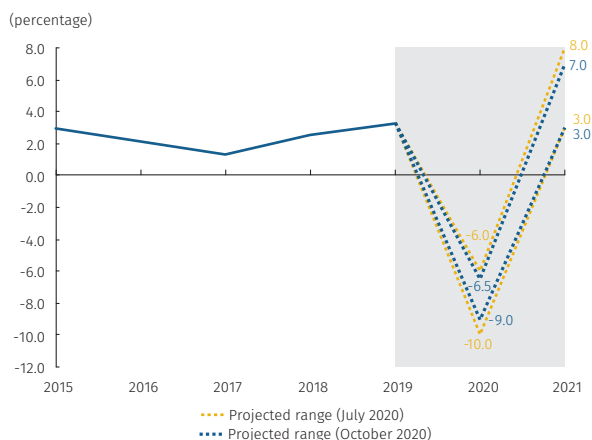
Source: *Banco de la República*

evolution of the pandemic, the measures required to deal with it, and their effects on global and domestic economic activity.

Labor market deterioration has been significant, and the unemployment rate remains at historically high levels despite some improvement in total employment, particularly among informal urban workers. Despite month-on-month improvement beginning in May, national employment in August remained 2.9 million workers below its pre-pandemic total (February). A slow recovery in labor demand in Colombian cities has been concentrated in non-salaried workers, particularly among the self-employed and to a lesser degree in formal employment. Three million people were incorporated into the labor supply between May and August, a significant number of whom then found employment, either in their old jobs or in new places of work. Nevertheless, there remains a significant number of inactive workers who could enter the labor market and thus put upward pressure on the unemployment rate in the months ahead. The national unemployment rate in the fourth quarter is expected to fall to between 15.1% and 16.9%. As a result, the labor market should continue to be very loose, which would help explain significant excesses in productive capacity and a significant fall in available household income.

Inflation projections have been revised upward but remain below 2% for the end of 2020 and 3% for the end of 2021. Average inflation expectations for December are below 2%, and at five years or less continue below or close to the target rate. Annual inflation continued to decline in September (1.97%), though less than projected in the July report (1.63%). Nevertheless, significant downward pressure on inflation continued and will likely contribute to inflation below the target rate over the entire forecast horizon. Favorable climate conditions and perishable food supplies should continue to support the deceleration of the perishable foods component of the Consumer Price Index (CPI). Ample excess productive capacity is expected to continue and should contribute to keeping price adjustments low. Annual price changes for several goods and services with significant and persistent elements of inflation indexation (real estate rentals and education services) continue to decline, a trend that is expected to continue in 2021. Nevertheless, inflation should increase in the second quarter of next year as the effects of price relief measures implemented to address the pandemic disappear. The inflation trajectory has risen slightly compared to the previous forecast but remains below the target rate. There are several factors that can help explain this increase. First, a temporary reduction in the consumption tax applied to food away from home (FAH) has not been reflected in final consumer prices and as a result prices in this component of the CPI are not expected to fall for the remainder of the year. Cost pressures (sanitization, the regulation of installed capacity, etc.) associated with efforts to address the pandemic could be influencing these prices. Second, while the output gap is expected to continue in significantly negative territory in 2021, it is now projected to tighten more quickly than forecast in the previous report. Finally, accumulated peso depreciation is expected to pass through more significantly than previously projected on some components of the CPI. Given the above, year-end inflation for 2020 and 2021 is expected to be around 1.9% and 2.6%, respectively. Other measures of inflation over the same time horizon offer similar results. As was the case with economic activity, uncertainty surrounding the inflation forecasts remains high, with an interval for 2020 between 1.3% and 2.3% and for 2021 between 2% and 3% (Graph 1.2).

Graph 1.2
Consumer price index (CPI)
(end-of-period; annual change)

(percentage)
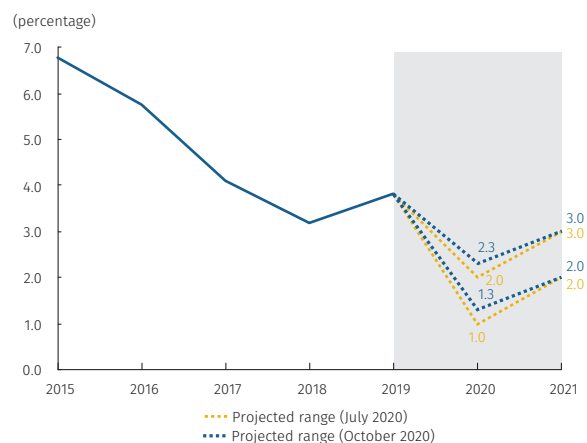
Source: *Banco de la República.*

Graph 1.3
Assumed trade partner GDP
(Annual change)
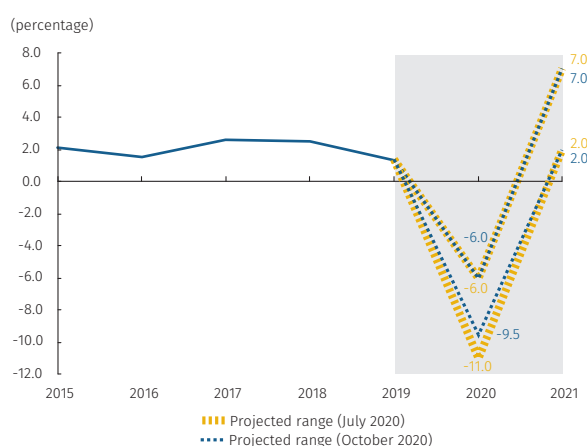
(percentage)

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

Graph 1.4
Policy interest rate, interbank rate (IBR) and OPR ª/
(weekly data)

(percentage)
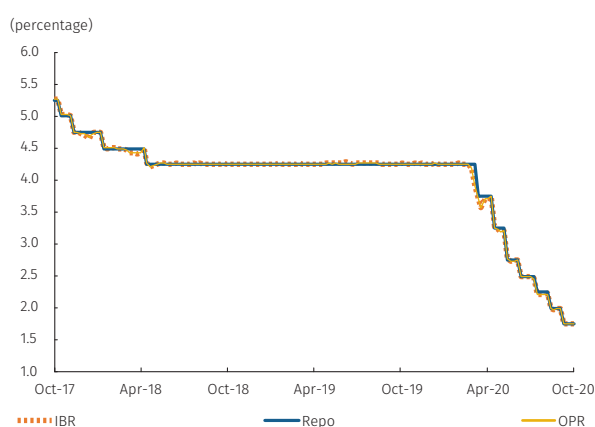
a/ Repo: policy interest rate
OPR: overnight policy rate
Source: Office of the Financial Superintendent of Colombia and the *Banco de la República.*

Both foreign demand and oil prices should continue to recover slowly in 2021, though without returning to pre-pandemic levels. Uncertainty over the pace and sustainability of this recovery is high. Third-quarter data suggest an improvement in global economic activity and remittances, and some oil prices have risen following significant declines in the second quarter of the year. This rebound has come amid fewer restrictions on mobility, a gradual opening of economic sectors, significant fiscal and monetary stimulus measures, and a reduction in the global oil supply. Average output among Colombia's primary trade partners is expected to fall by around 7.7%, with a forecast interval between -9.5% and -6.0%. Growth among these trade partners is expected to recover in 2021 to around 4.6%, with an interval between 2.0% and 7.0% (Graph 1.3). Average oil prices for 2020 and 2021 are projected at USD 42 and USD 49 per barrel, respectively. There remains a high degree of uncertainty surrounding the recovery of foreign demand and commodities prices, due in part to a significant upsurge of COVID-19 in several countries, weak consumer confidence, high levels of public debt, the large number of firms facing financial challenges, and economic tensions between the United States and China.

Global and domestic financial conditions have improved in the context of ample liquidity, though some indicators have not yet returned to pre-pandemic levels. Major central banks have significantly expanded their balance sheets, which has been reflected in high levels of global economic liquidity. In the United States, the Federal Reserve recently announced changes to its monetary policy framework that could extend the duration of its expansionary stance. Risk premiums both at the global level and for Colombia have come down but remain above pre-pandemic levels amid significant uncertainty over future risk due to increases in public debt and credit downgrades in some emerging market economies. Colombia's household financial portfolio ended its decline at the beginning of October, while the portfolio for commercial businesses fell slightly; both registered decelerations in annual growth rates. The transmission of reductions in the benchmark rate on interbank and debt interest rates has been significant, while the effects on commercial and consumer rates continue to register more slowly. Mortgage rates, meanwhile, have remained relatively stable.

1.2 Monetary policy decision

The Central Bank's Board of Directors (BDBR) reduced the policy interest rate by a quarter of one percentage point in both its August and September meetings. In October the BDBR decided to keep the rate at 1.75% (Graph 1.4). The August and October decisions were made unanimously, while the September decision was made by majority.

02/ Macroeconomic Projections and Risk Analysis

Graph 2.1
Index of Social Distancing and Quarantine Measures

(Index)

	United States	Europe
	Latin America and the Caribbean	185-country average
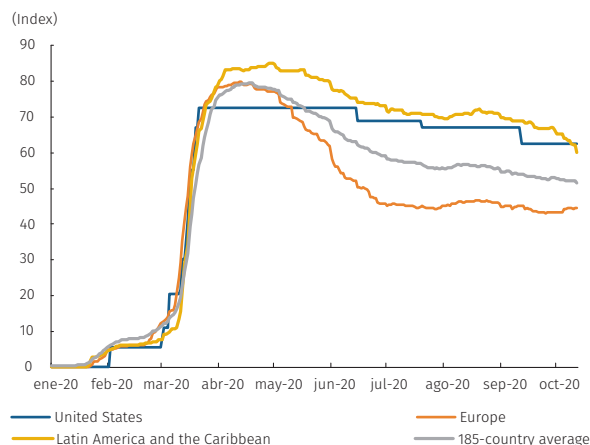
Note: this index is composed based on nine indicators: school closure, workplace closure, cancelation of public events, restrictions on the size of gatherings, public transport closure, mandatory quarantine, restrictions on domestic and international travel, and public information campaigns. The indicator takes values on a scale between 0 and 100, where 100 is the strictest response. Data updated to October 12, 2020. Data by region corresponds to a simple average of countries.
Source: Stringency Index, Hale, Thomas, Sam Webster, Anna Petherick, Toby Phillips, and Beatriz Kira (2020). Oxford COVID-19 Government Response Tracker, Blavatnik School of Government.

Graph 2.2
Industrial Production Among Selected Advanced Economies and Global Trade Indicators

A. Annual change in industrial production

B. Annual change in real global exports and shipping container traffic

(Percentage)

	United States	Germany	Advanced economies	Emerging economies
	France	United Kingdom	Containers (right axis)	
	Japan			
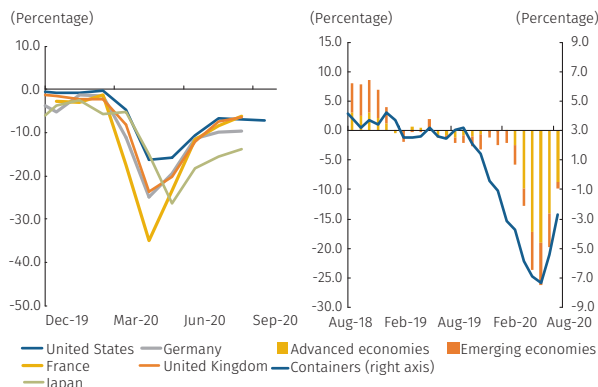
Sources: CPB Netherlands Bureau for Economic Policy Analysis, Federal Reserve Bank of St. Louis, Eurostat, Bloomberg, statistics offices and the Economic Ministry of Japan.

2.1   International Outlook

International economic conditions continue to be negatively affected by COVID-19, amid a high degree of uncertainty over the future development of the pandemic. The global economic outlook improved somewhat in the third quarter thanks to the partial reopening of several major economies (Graph 2.1) and a range of fiscal and monetary measures aimed at mitigating the effects of the pandemic. This was reflected in a rebound in industrial production and international trade (Graph 2.2), and a partial recovery of commodities prices and international financing conditions. Foreign demand, terms of trade, and risk premiums have not yet returned to pre-pandemic levels and continue to have an unfavorable effect on Colombia's economy. The central forecast intervals presented in this report take into account the persistence of potential risks and uncertainty surrounding the current state of the pandemic[1].

2.1.1   Foreign Demand

Foreign demand should continue to recover gradually, though it is not expected to return to pre-pandemic levels in 2021 (Graph 2.3). The reopening of some economies, low interest rates and ample liquidity in international markets, fiscal stimulus packages, and China's recovery should favor an upturn in foreign demand. Uncertainty remains high and any recovery could be affected by a resurgence of COVID-19 and a re-imposition of restrictions on mobility in some countries, as well as by the persistent adverse effects of labor market deterioration, high private-sector bankruptcy rates, delays in the reactivation of certain sectors, increased levels of government debt, and other factors. Trade tensions between China and the United States and between the United Kingdom and the European Union could also have an effect. The pace of recovery among Colombia's trade partners is expected to vary due to differences in con-

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1   During the writing of this report, several countries including the United States and the euro zone saw a resurgence of COVID-19 cases and the renewed closure of some economic activities and imposition of mobility restrictions. The central forecast does not consider the possibility of new economic closures among Colombia's major trade partners on the same scale as those observed in the first half of 2020.

Graph 2.3
Assumed Real Quarterly GDP among Trade Partners
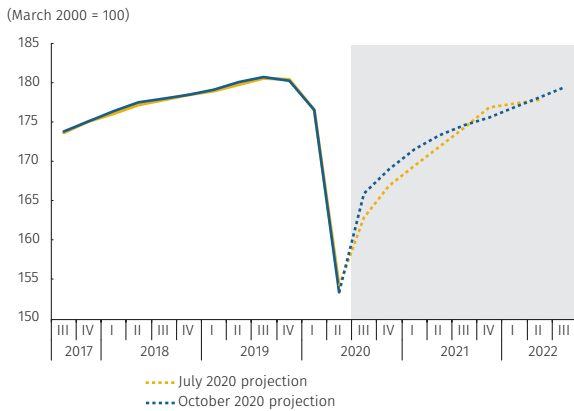
(March 2000 = 100)

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

Graph 2.4
Unemployment Rate and Consumer Confidence

A. Unemployment rate for selected trade partners

B. Consumer confidence indicators for selected trade partners
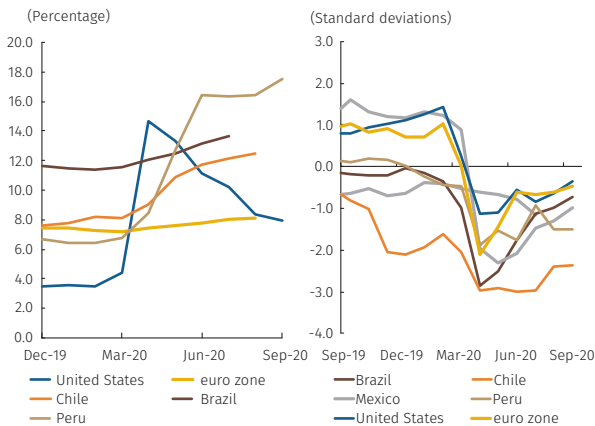
Sources: INEGI, BIE, CIF, FVG IBRE, UDD, Fedesarrollo, APOYO, University of Michigan, European Commission, Federal Reserve Bank of St. Louis, Eurostat and central banks; calculations by *Banco de la República*.

Graph 2.5
Mobility Index to Restaurants, Shopping Malls, Cinemas, Etc.

(Percentage)
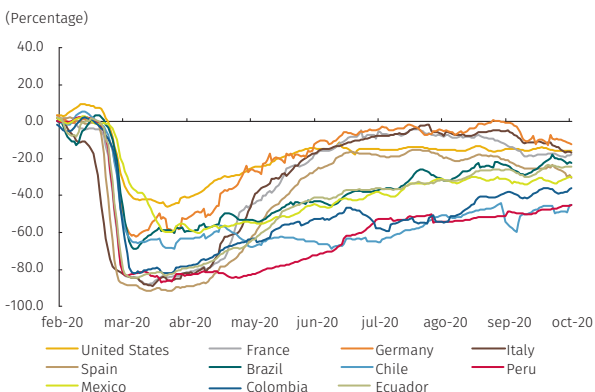
Source: Google LLC "Google COVID-19 Community Mobility Reports: "https://www.google.com/covid19/mobility/. Accessed 10/25/2020.

trolling the pandemic and in implementing measures to mitigate its effects. The potential development and mass distribution of a COVID-19 vaccine in the short term could drive an upturn in global economic growth. Given the above, a decline in foreign demand of -7.7%, ranging between -9.5% and -6.0%, is expected in 2020. This marks an upward revision compared to the previous report (-8.2%), in part due to projections of a more significant third-quarter recovery than previously expected. Average growth among Colombia's trade partners in 2021 is expected to be 4.5%, with a range between 2.0% and 7.0%.

GDP growth in the United States and the euro zone likely recovered somewhat in the third quarter, though uncertainty remains high following recent resurgences of COVID-19. The U.S. unemployment rate continued to fall in September, and in August the euro zone showed no significant signs of labor market deterioration (Graph 2.4, Panel A). Improved consumer confidence (Graph 2.4, Panel B), increased population mobility (Graph 2.5), direct government support for families, and low interest rates all likely favored private consumption. Meanwhile, business conditions in manufacturing remained positive (Graph 2.6, Panel A) and industrial production partially recovered (Graph 2.2, Panel A), likely favoring investment. As a result, both the U.S. and euro zone economies are expected to have recovered somewhat in the third quarter[2], though the pace of growth will likely slow at the end of the year (Graph 2.6, Panel B). Overall economic contraction in 2020 is expected to be more significant in the euro zone, while the expected recovery in both of these economies continues to face a high degree of pandemic-related uncertainty. Recent surges in COVID-19 cases will likely stall or reverse what had been an increase in mobility and economic reopening. Business conditions for services, which have been hard hit by the pandemic worldwide, were already in negative territory in the euro zone in September and October. International trade tensions add an additional element of uncertainty.

China continues to report success in controlling the pandemic, and in Q3 registered positive annual GDP growth for the second consecutive quarter (4.9%). Retail sales, investment, and industrial production grew annually in September, and business conditions have continued in positive territory. Nominal dollar exports and imports continue to register positive annual growth. China is forecast to be an exception among the world's major economies by registering positive growth in 2020, though this is still expected to be far below the country's performance of recent years. Trade and political tensions with the United States, a more significant weakening in

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2   During the writing this report, real third-quarter GDP growth in the U.S. was reported at -2.9% annually and 33.1% at an annualized quarterly rate.

Graph 2.6
Business Conditions and Economic Activity for Selected
Major Economies

A. Manufacturing and
services PMI

B. Economic activity
indicators
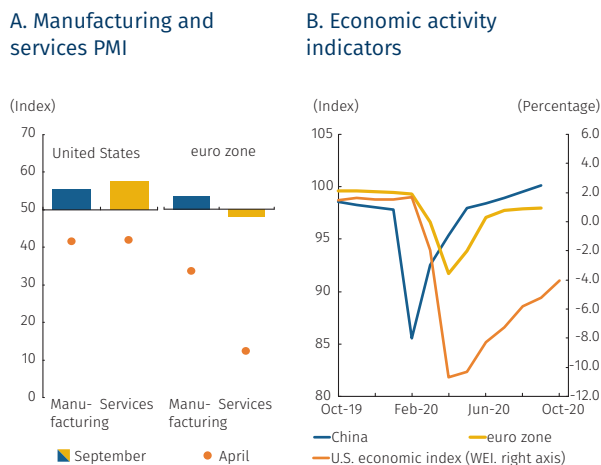
Sources: OECD, New York Federal Reserve and Bloomberg; calculations by *Banco de la República*.

Graph 2.7
Economic Activity and Prices for Selected Commodities
Exports for Countries in the Region

A. Monthly economic activity
indicator

B. Export commodities prices
(December 2019=100)
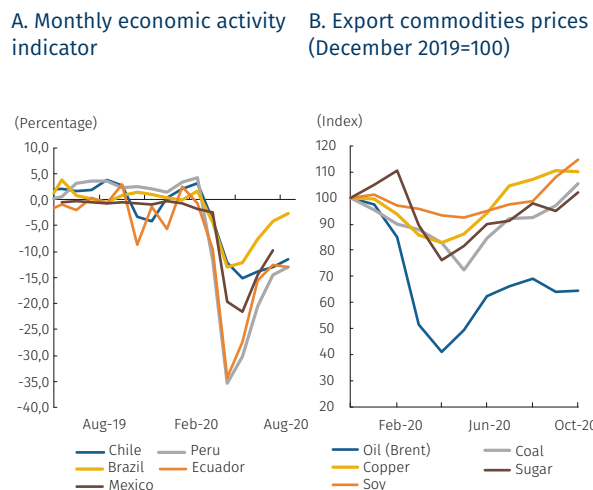
Sources: Bloomberg, central banks, statistics offices and Datastream; calculations by *Banco de la República*.

foreign demand, high levels of debt, and the potential resurgence of COVID-19 represent negative risks.

Latin American and Caribbean countries will likely face significant GDP contractions in 2020. Recovery is expected to be slow and affected by a high degree of uncertainty. The region has faced challenges in controlling the pandemic, and severe lockdown restrictions in some countries have remained in place longer than in other parts of the world (Graph 2.1, Panel A). Second-quarter declines in GDP were significant, and while recent data on monthly economic activity suggest the potential for a partial recovery in the third quarter, this would still be to levels below those observed last year (Graph 2.7, Panel A). The region continues to face an unfavorable international environment, though some countries have benefited from a partial recovery in certain commodities prices (Graph 2.7, Panel B), an uptick in remittances, China's recovery, and low interest rates and ample international liquidity. The region's largest GDP declines are expected in Peru, Mexico, and Ecuador. Growth in Brazil and Chile should decline to a lesser degree, though in the latter case this is partially due to a low base of comparison following social unrest at the end of 2019 that affected growth. The pace and extent of recovery across the region will likely be gradual and vary depending on the development of the pandemic and the space available to implement economic policies in response to the shock. Relatively high unemployment rates (Graph 2.4, Panel A), significant declines in consumer confidence (Graph 2.4, Panel B), and the slowdown or reversal in returns to normal activity could limit recovery. Limited fiscal space, labor market rigidity, and social and political tensions would also represent potential obstacles.

2.1.2   International Prices

International oil prices should recover in 2021, though they are expected to remain below pre-pandemic levels (Graph 2.8). Oil prices partially recovered in the third quarter, with the Brent benchmark averaging USD 43.3 per barrel (bl) and reaching a high in August of USD 45/bl. Prices benefited from the reopening and partial recovery of some economies, increased population mobility, China's rebound, and other factors that drove demand for hydrocarbons. The implementation of supply cut agreements between the Organization of Petroleum Exporting Countries (OPEC) and its allies, together with further cuts from other oil-producing countries, also contributed to a partial rebalancing of the market. Nevertheless, this price recovery started to subside in September, in part due to the prospect of a slowdown in renewed demand, reflected in the decision by some observers to revise their

Graph 2.8
Assumed Average Quarterly Oil Price

(Dollars/barrel (Brent))

···· July 2020 projection   ···· October 2020 projection
I October projected range (annual average)

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

Graph 2.9
Terms of Trade for Selected Countries in the Region

(Index, December 2019 = 100)

Brazil   Colombia
Mexico   Peru
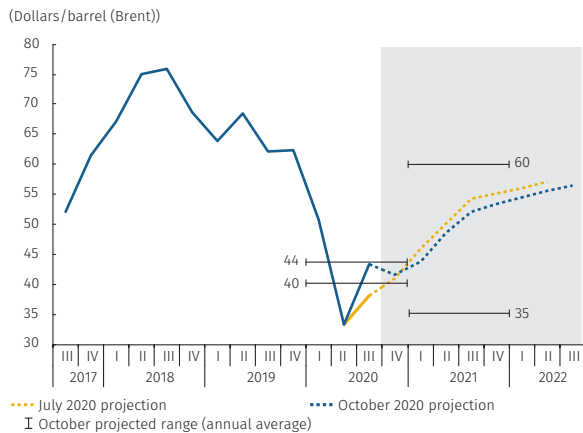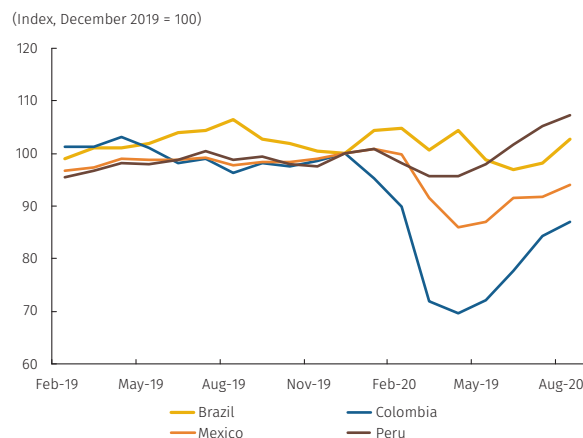
Sources: Central banks, IPEA and *Banco de la República*.

consumption projections downward. On the supply side, current and expected inventory and production levels have remained relatively high. Significant uncertainty remains regarding the immediate future of the oil market due to unknowns surrounding the pandemic, its effects on the global economy, and the sustainability of supply cut agreements among OPEC members and their allies. Given the above, average fourth-quarter Brent prices are expected to fall to USD 41/bl, bringing the yearly average to USD 42/bl at a range between USD 40 and USD 44. The assumed price for 2021 was revised downward from the previous report to USD 49/bl, at a range between USD 35 and USD 60.

Inflation in advanced economies has remained low, and significant inflationary pressures are not expected in the medium term. Total annual inflation in the United States in September rose compared to last year, from 1.3% to 1.4%. Core inflation remained at 1.7%. This contributed to a smaller fall in energy prices (from -9.1% to -7.6% in September) and an increase for used car prices (from 4.0% to 10.3% in September). By contrast, headline inflation in Europe fell from -0.2% to -0.3%, remaining in negative territory for the second consecutive month. Core inflation fell from 0.4% to 0.2%. Notable declines were observed in inflation for the food and lodging and the clothing and shoes sectors. Inflation expectations for 2020 and 2021, based on analyst surveys, continue to suggest minimal inflationary pressures in the context of excess productive capacity and loose labor markets.

Despite some recent improvement, deterioration in terms of trade in 2020 is likely to be significant. A reduced annual decline in terms of trade can be explained primarily by the improvement in prices for Colombia's main export commodities (Graph 2.9). Nevertheless, to August the yearly average had fallen at an annual rate of 18.6%, due primarily to the significant decline in dollar prices on exports (22.9%), especially in mining and oil derivatives. Given that oil and coal contribute significantly to Colombia's foreign sales, and that their prices have been especially affected by the pandemic, the country has faced a more significant negative shock to terms of trade than have some other countries in the region with more diversified export portfolios, whose commodities have faced a less significant deterioration in international prices (Graph 2.9), or that are net importers of oil. As a result, the reduction in terms of trade in 2020 in Colombia is expected to approach 20%, which would affect national revenues.

Graph 2.10
Financial Volatility and Foreign Investment Flows

A. VIX and VSTOXX[a/]

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

(Index)

(Dollars (billions))

— VSTOXX — VIX

■ Emerging market Asia ■ Latin America
■ Emerging market Europe ■ Africa and the Middle East
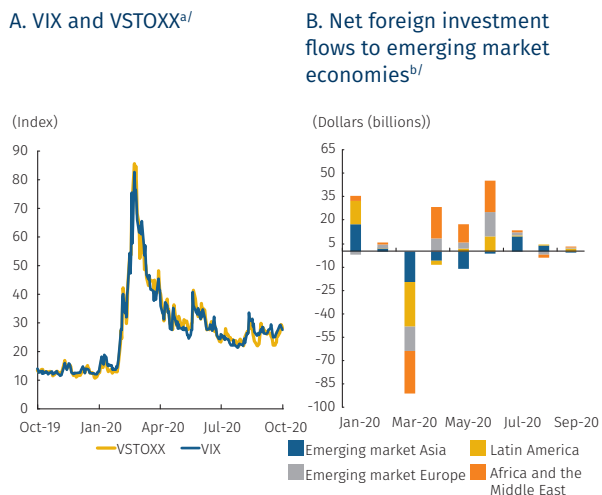
a/ Figures to October 23, 2020
b/ Corresponds to investment flows in debt and actions instruments.
Sources: Federal Reserve Bank of St. Louis, Bloomberg and Institute of International Finance (IIF).

Graph 2.11
Assumed Quarterly U.S. Federal Reserve Interest Rate

(Percentage points)

∎∎∎∎ July 2020 projection
•••• October 2020 projection
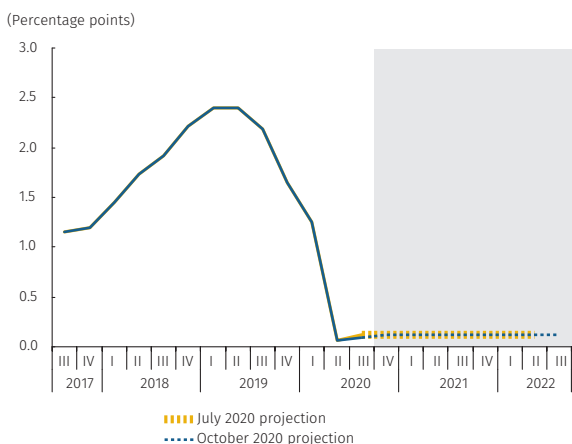
Source: Federal Reserve Bank of St. Louis; calculations and projections by *Banco de la República.*

Graph 2.12
Assumed Quarterly Risk Premia for Colombia (CDS)[a/]

(Basis points)

∎∎∎∎ July 2020 projection •••• October 2020 projection
⊢ Range projected (annual average) in October 2020
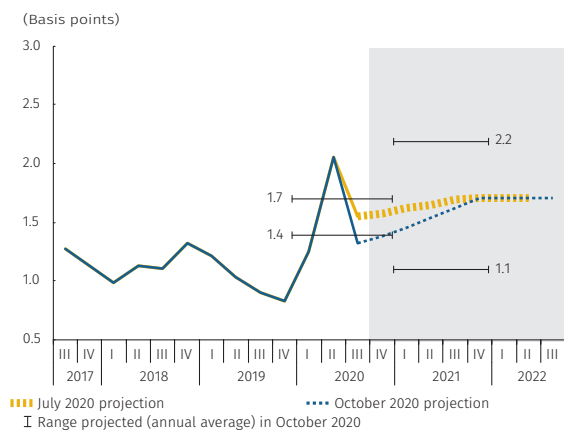
a/ Five-year credit default swaps
Source: Bloomberg; calculations and projections by *Banco de la República.*

2.1.3 Global Financial Conditions

Measures of perceived economic risk declined in the third quarter, though without reaching pre-pandemic levels. Capital flow to emerging market economies continues to be low. After reaching a high in March, measures of global risk for developed economies (VIX and VSTOXX) showed improvement until August (Graph 2.10, Panel A) thanks in part to the reopening of some economies and the implementation of numerous fiscal and monetary measures intended to address the COVID-19 crisis. Both indicators have been increasing since September and remain above pre-pandemic levels but are performing better than they were in March (Graph 2.10, Panel A). This comes in the context of increased concern over the resurgence of COVID-19 in several countries, and uncertainty regarding presidential elections in the U.S., trade tensions between the U.S. and China, and ongoing Brexit negotiations. Meanwhile, net capital flows to emerging markets remained relatively low in September (Graph 2.10, Panel B) and were concentrated primarily in the fixed rent market. Overall uncertainty remains high, and negative shocks associated with political or trade tensions, or with the pandemic and efforts required to mitigate its effects, could bring a renewed deterioration of financial markets.

The U.S. Federal Reserve is expected to maintain its policy rate at minimum levels over the forecast horizon in the context of significant international liquidity (Graph 2.11). The Federal Open Market Committee (FOMC) on September 16 decided to keep interest rates between 0.0% and 0.25%. At the end of August, the committee also announced changes to its monetary policy framework that could provide space to extend its expansionary stance for a longer period of time. As a result, the policy rate is expected to remain at current levels over the entire forecast horizon, in line with analyst expectations and projections based on futures market information. The FOMC has in recent months kept unconventional policies in place, continuing to provide ample liquidity and contributing to an improvement in financial conditions. Surveys suggest that central banks in other advanced economies will likewise continue to maintain low policy interest rates. The European Central Bank (ECB) has continued to provide liquidity through its financing operations and kept up purchases under the auspices of its pandemic emergency program and its asset purchasing program. Central banks in multiple emerging market economies have also maintained an expansionary monetary policy stance and taken complementary measures to address the COVID-19 crisis.

The central forecast continues to assume risk premiums somewhat above their historical average at the end of

Graph 2.13
Nominal Exchange Rate and Risk Premia (Five-Year CD) for
Selected Latin American Countries

A. Five-year credit default swap

(Basis points)

Colombia
Q3 Average
132

Colombia
Q4 Average
125 a/

Colombia
Q2 Average
206

— Chile — Peru — Brazil — Mexico — Colombia
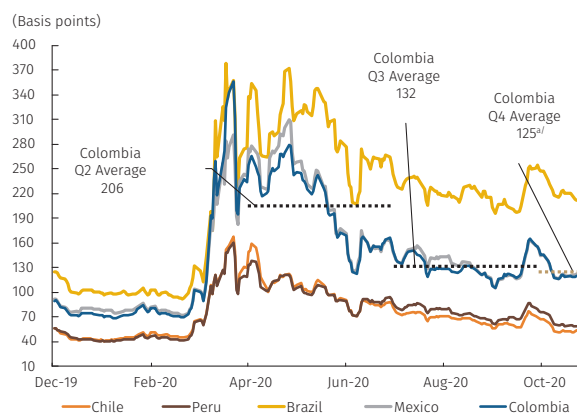
B. Average nominal exchange rate

(index, base December 2019)

Colombia
Q4 Average
114 a/

Colombia
Q3 Average
111

Colombia
Q2 Average
114

— Chile — Peru — Brazil — Mexico — Colombia
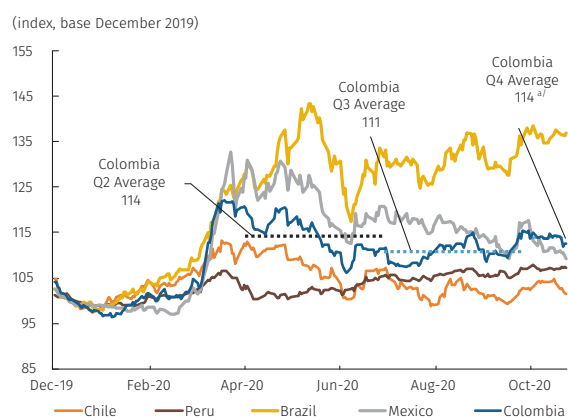
a/ Average calculated to October 23
Source: Bloomberg; calculations by *Banco de la República*.

the forecast horizon (Graph 2.12). In accordance with improved international financial conditions, average risk premiums and exchange rates for some Latin American economies showed a correction in the third quarter compared to the significant deterioration of recent months. Nevertheless, risk premiums have not returned to pre-pandemic levels, and since the crisis began some countries in the region have seen their credit ratings downgraded. In Colombia, credit default swaps (five-year CDS) have fallen on average for the fourth quarter to October 23, while the peso showed some depreciation compared to previous quarter (Graph 2.13). The central forecast assumes risk premiums in 2020 and 2021 somewhat below from the July report and marginally above their historical average at the end of the forecast horizon. This takes into account both their recent trajectory and the country's accumulation of public debt and external deficits. As a result, volatility in financing costs cannot be discounted, and the average risk premium for 2020 could be between 140 bp and 170 bp and between 110 bp and 220 bp in 2021.

2.2   Macroeconomic Projections[3]

2.2.1   Inflation[4]

Annual consumer inflation is still expected to be significantly below the 3.0% target at the end of the year, despite an upward revision in the forecast trajectory. The current projection accounts for cost pressures originating primarily in the CPI for services that had not been considered in the previous report. It also recognizes more transmission of accumulated depreciation, likely facilitated by a re-composition of demand, on the CPI of certain goods and services. Projected utility rates, excluding for gas, were also revised upward in light of high volatility and price variation in recent months following the lapse of government relief measures. Finally, this report discounts the potential transmission of a temporary rebate on the consumption tax on FAH prices, as this did not materialize in September (see Section 3). Despite these upward shocks, downward pressures on inflation should predominate over the forecast horizon, as weakness in demand subsides very slowly and gradually to pre-pandemic levels. Given the above and

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

4   As mentioned in the previous report, the technical staff will now use a new classification for the CPI, as well as new measures of core inflation, which are detailed in González et al. (2020). "Nueva clasificación del Banrep de la canasta del IPC y 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

Graph 2.14
Consumer Price Index (CPI)
(Annual change, end-of-period)

(Percentage)

······ July 2020 projection   ▪▪▪▪ October 2020 projection
Ɪ Year-end range projected in October
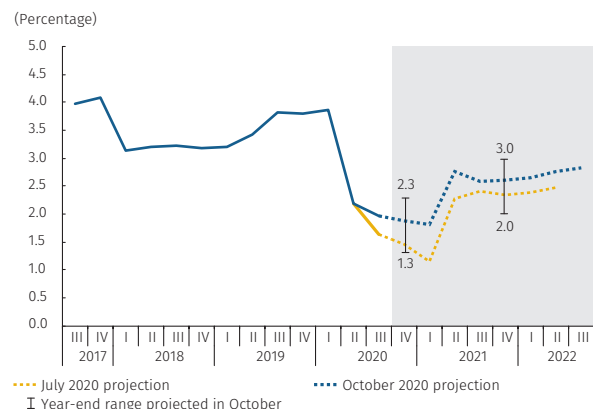
Source: DANE; calculations and projections by *Banco de la República.*

Graph 2.15
Quarterly RER Inflationary Gap[a/]

(Percentage)

······ July 2020 projection
▪▪▪▪ October 2020 projection
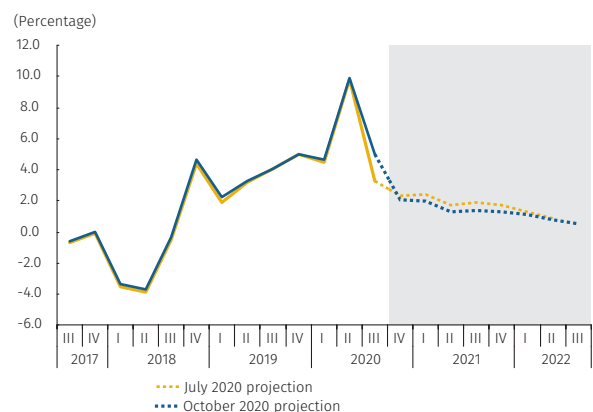
a/ The real exchange rate (RER) inflationary gap captures inflationary pressures from the exchange rate. Positive values imply upward pressure on inflation. The gap is calculated as the deviation in the real exchange rate compared to a non-inflationary trend component estimated using a 4G model.
Source: *Banco de la República.*

Graph 2.16
CPI Excluding Food and Regulated Items
(Annual change, end-of-period)

(Percentage)

▪▪▪▪ October 2020 projection
Ɪ Year-end range projected in October 2020

Note: given the inclusion of a new classification for the CPI, a comparison with the projection for CPI sub-baskets from the previous report is not presented.
Source: DANE; calculations and projections by *Banco de la República.*

keeping in mind the fact that the economy appears to be recovering slightly more quickly than projected in the previous report, inflation projections have been revised upward across the entire forecast horizon (eight quarters). Inflation in December is now expected to be close to 1.9% (Graph 2.14), with a range between 1.3% and 2.3%. This also accounts for different sources of uncertainty and the current difficulty of identifying the nature of multiple supply and demand shocks currently affecting prices.

Headline inflation should continue to fall until the first quarter of 2021, then rise at the end of the year and in the first three quarters of 2022 without exceeding 3.0%. Starting with the second quarter of 2021, prices should continue to increase at somewhat higher annual rates, as mostly temporary price relief measures implemented in the second quarter of 2020 continue to wane. This would also be reflected in a low statistical base of comparison for annual indicators. Still, a loose labor market (and minimal salary costs), weak demand, and significant excess productive capacity should limit price adjustments, and also offset moderate upward pressures from a somewhat positive real exchange rate gap (Graph 2.15). The gradual normalization of demand and a decline in excess productive capacity are expected to be somewhat faster than projected in the previous report, with inflation increasing slowly and converging with the target somewhat beyond this report's forecast horizon. The central scenario also supposes minimal pressure on prices for food and regulated items. There remains significant pandemic-related uncertainty over these projections, which added to the challenge of measuring CPI makes it difficult to estimate the relative weight of different factors on price behavior.

Core inflation should slowly converge but remain below the 3.0% target due in part to minimal demand and salary pressures (Graph 2.16). For the rest of 2020 inflation excluding food and regulated items should remain at levels similar to those observed in September (1.67%), with an expected range in December between 1.0% and 2.0%. This interval takes into account the significant levels of forecast uncertainty discussed above. The central forecast trajectory suggests that this indicator could continue to decline slowly, ending up at around 1.5% at the end of the year. Increases in some of the indicator's components are expected toward the end of 2020 and into the first half of 2021, as a result of the scheduled lapse of temporary price relief measures (such as the temporary elimination of indirect taxes on some goods and services) and cost pressures associated with the "new normal" (capacity restrictions and health and safety measures that could affect food away from home and inter-city transportation, for example). Neverthe-

less, downward pressures associated with ample excess productive capacity are expected to predominate in 2021 and 2022 despite a projected recovery in demand. High unemployment rates should slow increases in salary costs in the context of low expected inflation with respect to the target rate. Additionally, some baskets with a strong indexed component, such as rents and education, should register small price adjustments given low expected headline inflation. These factors should all put a break on price increases both in goods and services, keeping inflation excluding food and regulated items below the target for the next eight quarters. Significant additional pressures originating in the exchange rate are not expected, despite the fact that the real exchange rate gap is projected to remain in positive territory. Beginning in 2021 core inflation should start on a gradual upward trajectory, leading it to converge with the 3.0% target slightly beyond the forecast horizon.
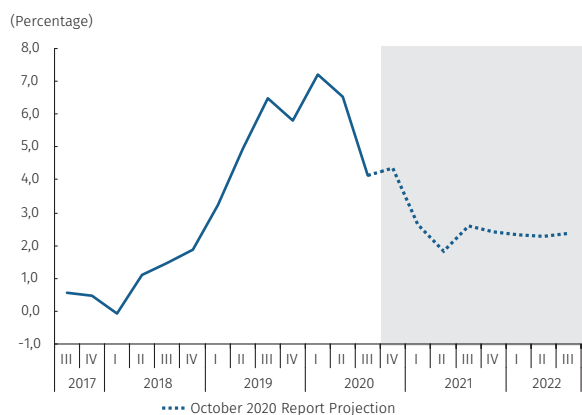
Annual change in the CPI for regulated items is expected to grow in 2021 as the effects of the reduction in fuel prices and temporary relief on utility rates subside (Graph 2.17). Annual growth in the CPI for regulated items is expected to close 2020 at around 1.4%, increasing over the next two years to levels somewhat above 3.0%. Effects from the reduction in fuel prices should wane in the first half of 2021. A similar dynamic is expected to continue regarding temporary relief measures on utility rates in some cities, the reversion of which likely had an effect on inflation that has been difficult to anticipate in recent months (see Section 3). Once these relief measures expire, price readjustments should moderate, given low indexation of prices on utilities such as water and sewage services and minimal pressures from salaries and international fuel prices, among other factors.

Food prices should help to keep consumer inflation low in the short and medium terms amid favorable climate conditions. Annual growth in food prices has fallen significantly in recent months, driven by a reduction in perishable food prices. This dynamic should continue for the rest of the year, and alongside a low base of statistical comparison should offset larger increases in processed food prices. As a result, the annual change in CPI for foods should remain slightly above 4,0% (Graph 2.18). Additional significant declines in annual rates are expected next year, for several reasons. First, the probability of a La Niña weather pattern has increased. This is expected to be of relatively low intensity and would be associated with higher than average rainfall that could favor agricultural supply and push down prices in subsequent quarters. Meanwhile, demand for food, which has been relatively little affected by the health emergency, could be less dynamic moving forward amid weak projected household income and obstacles to full operation in the

Graph 2.17
CPI for Regulated Items
(Annual change, end of period)

(Percentage)

···· October 2020 projection

Note: given the inclusion of a new classification for the CPI, a comparison with the projection for CPI sub-baskets from the previous report is not presented.
Source: DANE; calculations and projections by *Banco de la República.*

Graph 2.18
CPI for Foods [a/]
(Annual change, end-of-period)

(Percentage)

···· October 2020 Report Projection

Note: given the inclusion of a new classification for the CPI, a comparison with the projection for CPI sub-baskets from the previous report is not presented.
a/ Does not include food away from home
Source: DANE; calculations and projections by *Banco de la República.*

restaurant sector. As a result, annual change should fall rapidly in 2021 to levels somewhat above 2%, where they are expected to remain for the rest of the forecast horizon. These projections consider minimal pressures from the exchange rate and international prices, which can have a significant effect on processed foods. Recent reported increases in international prices on agricultural commodities, should they continue and become prolonged, could generate upward risks on this front.

Third quarter measures of expected inflation at five years or less remained below or very close to the target. According to the Bank's monthly survey in October, analysts expected year-end inflation in 2020 of 1.92%, and at 12 and 24 months of 2.80% and 3.09%, respectively (Graph 2.19). In the July report these values were 1.89% for December 2020, and 2.85% and 3.07% for 12 and 24 months. The year-end expectation for inflation excluding food increased from 1.24% in July to 1.51% in October, though this remains significantly below the 2.0% target. This appears to be in line with expected weakness in demand in the medium term and the effects from price relief measures mentioned above. Since the BDBR's meeting on September 25, and with information to October 23, implicit inflation (breakeven inflation, or BEI) taken from the peso-denominated TES and UVR at one, two, three, and five years has increased 62 bp, 51 bp, 43 bp, and 31 bp, respectively. As a result, the BEI measured on October 23 was 2.03%, 2.52%, 2.83%, and 3.19% for one, two, three, and five years, respectively.

Graph 2.19
Bank and Stockbroker Inflation Forecasts

(Percentage)
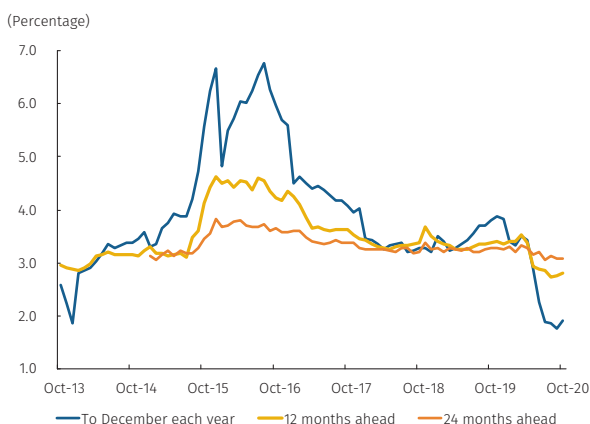
Source: *Banco de la República.* (*Monthly analyst survey*).

2.2.2   Economic Activity

Colombia's economy likely began to recover in the third quarter, growing from a low second-quarter base following the shock of COVID-19, but still at a very negative annual rate. Following its 15.5% annual decline in the second quarter (seasonally adjusted and corrected for calendar effects), GDP is estimated to have fallen by 9.0%[5] (Graph 2.20) in the third quarter. This calculation, which was made by following a similar methodology to previous quarters that accounts for sector-level effects, considered several real activity indicators from September, suggesting a slightly faster recovery than projected in the July report. The estimate takes into account partial economic closures in July and August in some cities, as well as the significant normalization of operations in certain sectors in September. The flexibilization of social distancing measures, national and local government measures to support household income and private sector financing, and the low interest rates and ample liquidity provided by the Central Bank appear to have facilitated a recovery in economic activity in the third quarter.

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

(Percentage)

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

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5   Annual quarterly growth of 38.3%

Graph 2.21
Consumer Confidence Index and Quarterly Average

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

Graph 2.22
Total Goods Exports (FOB)
(Monthly)
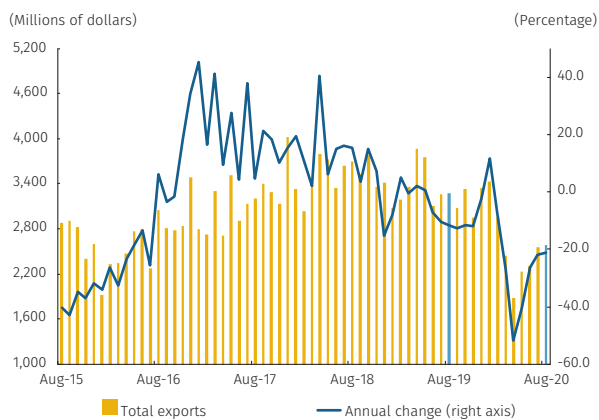
Source: DANE; calculations by *Banco de la República.*

Graph 2.23
Total Goods Imports (CIF)
(Monthly)
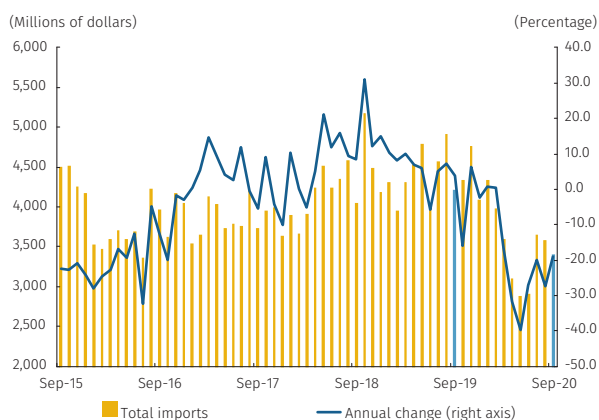
Sources: DANE and DIAN (foreign trade advances); calculations by *Banco de la República.*

Nevertheless, this recovery continues to be gradual, and employment and household income have rebounded only partially due to the continuation of some mobility restrictions and social distancing measures, and amid the pandemic's effects on consumer and investor confidence.

All components of spending are expected to have performed better in recent months than in the second quarter, though they likely remain below pre-pandemic levels. Private consumption in the third quarter is expected to have fallen at a lower annual rate than in the second quarter, and less than other components of private spending. Spending on durable and semi-durable goods and on services likely continued to register significant annual declines but are expected to have grown compared to the second quarter. Consumption of non-durable goods, which were least affected by the shock from CO-VID-19, should grow at a rate close to zero. Nevertheless, the recovery in private consumption will likely continue to be limited by lasting effects on consumer confidence (Graph 2.21) and a fall in employment (see Section 3). Meanwhile, public consumption is expected to show a moderate acceleration, though at annual rates below those observed in 2019 and those projected in the July report. This would be consistent with a rate of budget execution greater than that observed in the first half of the year by national and local authorities. Investment should continue to increase thanks primarily to a partial recovery in construction (especially in public works and social housing), though such growth starting from very low levels in the second quarter would not prevent a fall in annual terms in the double digits. As a result, domestic demand should have continued to show a somewhat significant recovery in the third quarter, though at levels that remain below those of previous years. Based on dollar figures from August, exports, driven in particular by coffee, gold, and non-traditional products, should also grow after a significant fall in the second quarter, though remaining comparable to 2011 levels (Graph 2.22). Similar behavior is expected in the case of imports, keeping in mind dollar figures for September (according to early results from DIAN, the national customs agency) (Graph 2.23). Imports should continue to fall at annual rates greater than those expected for exports, and as a result net foreign demand should continue to contribute positively to annual GDP growth, as was the case in the second quarter.

Available data suggest a quarterly increase in production in all components of supply, in particular for those facing fewer operating restrictions due to COVID-19. Second-quarter figures suggested a pronounced effect on supply in sectors that were susceptible to social distan-

cing measures and in those most affected by the significant decline in commodities exports at the beginning of the year. The gradual flexibilization of these measures is expected to have driven a significant recovery in a wide range of economic activities in the third quarter, though to levels substantially below those registered before the pandemic. Some of this improvement was reflected in the national statistics agency's (DANE) measures of sector-level and aggregate value, as well as its monthly economic tracking indicator (ISE) (Section 3). Industrial manufacturing and construction, especially in public works, were likely the sectors that most benefited from the flexibilization of quarantine measures and the partial recovery of demand. Agriculture, real estate, and the public administration sub-sector, which were less affected by the shock, should have continued to show positive annual growth in the third quarter. By contrast, arts, entertainment, and recreation, together with commerce, repairs, transportation (especially air transit), lodging, and food services likely showed the biggest annual contractions, though at levels above those of the second quarter, due to increased operating restrictions and a re-composition in consumer spending.

Reopening in most sectors and a significant flexibilization of social distancing measures should have pushed the economy to a more solid trajectory for recovery in the fourth quarter, likely to extend into 2021. The technical staff estimates a contraction of -7.6% in 2020 and an expansion of 4.6% in 2021 (Graph 2.24). This projection assumes that there will not be significant new closures from a resurgence of COVID-19, and that economic agents will not change their behavior as a result. In the medium term the central forecast scenario projects a gradual recovery both in private consumption and in gross capital formation, leading to a slow improvement in consumer and investor confidence. The likelihood of suppressed demand in services such as health, entertainment, and tourism among those who have kept their jobs and income levels though the crisis should favor a recovery in consumption, if the health crisis continues to abate. Within gross fixed capital formation, improvement continues to be expected primarily in the other buildings and structures sub-category, which includes public works. This comes thanks to the continuation of multiple road infrastructure projects and the beginning of other works, especially in major cities such as Bogotá. Investment growth in 2021 is likely to be sustained by housing construction, which should benefit from various government support programs. The contribution from exports should be limited for the remainder of 2020, though this will likely gain prominence in 2021 amid an improved global growth outlook. A low base of comparison would also largely help explain GDP growth in 2021 in the context of ample global liquidity and access to external finan-

Graph 2.24
Accumulated GDP, Four Quarters [a/]
(Annual change)

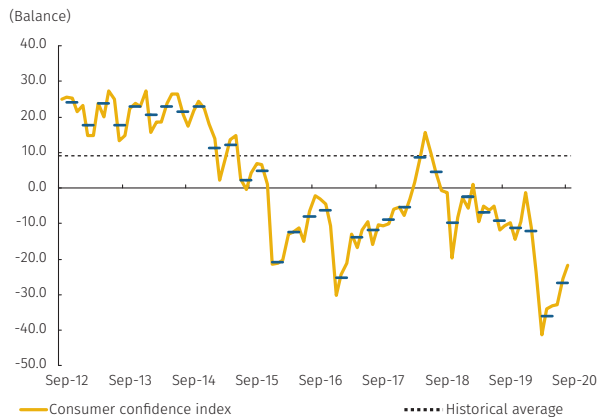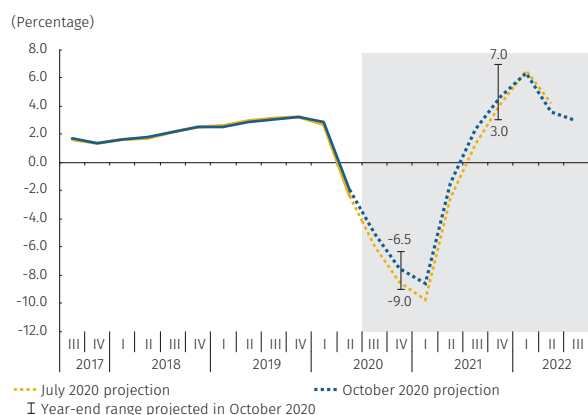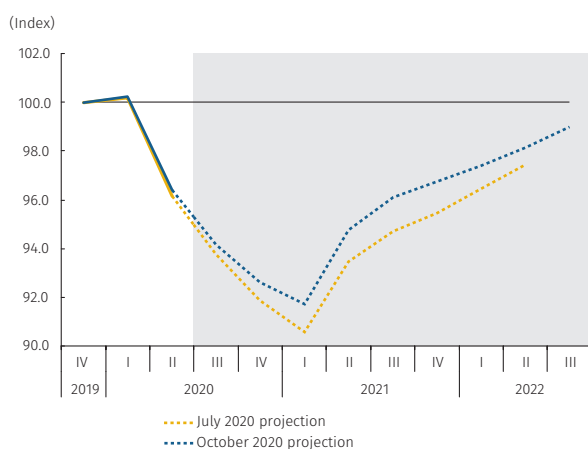a/ Seasonally adjusted and corrected for calendar effects.
Source: DANE; calculations and projections by *Banco de la República.*

cing. Growth estimates for 2020 and 2021 have been revised from the last report, following a lower-than-expected contraction in the first half of the year thanks to an upward revision of first-quarter GDP, a contraction in the second quarter (-15.5%) that was below earlier projections (-16.5%), and a somewhat faster recover than expected in the third quarter in some sectors.

Colombia's economy is expected to return to pre-pandemic levels of activity only at the end of 2022 (Graph 2.25), due to a slow pace of recovery in demand and terms of trade relative to previous years. This outcome would be the result of a slow recovery in available household income amid high and likely lasting unemployment and fragile financial conditions for families and businesses. A gradual recovery in consumer confidence, due to uncertainty about the evolution of the pandemic and its effects on private spending, the possible effects of tax reform mentioned in Colombia's medium-term fiscal framework (MFMP in Spanish), the weak recovery expected in foreign demand, and the recovery of prices on some basic goods to below pre-pandemic levels could also help explain the persistence of weak aggregate demand and would determine, in large part, the output dynamic on the forecast horizon. A downward trend in annual inflation (discounting the effects of temporary price relief measures) supports the interpretation that negative demand shocks have predominated on growth dynamics. The pandemic will likely have lasting effects on Colombia's productive capacity due to operating limits in some sectors, impacts on investment, sector-level reassignment of productive factors and its possible consequences for productivity, and other permanent effects of social distancing measures.

The most recent employment figures and projections of economic activity suggest a national unemployment rate between 15.1% and 16.9% at the end of 2020. The unemployment rate in August fell significantly as a result of a recovery in employment that was greater than the return of inactive workers to the labor market, which has been slower than projected in the July report (see Section 3). As a result, and in light of current macroeconomic projections, the national unemployment rate in the fourth quarter is expected to be between 15.1% and 16.9%. This would imply an average rate for 2020 between 15.9% and 16.7%, a downward correction compared to the July report (between 16.5% and 19%). Labor demand is expected to continue to recover next year, though very gradually, for which the average national unemployment rate for 2021 is projected to be between 14.0% and 16.3%.

The difficulty of forecasting the pandemic and its effects on economic activity creates a high degree of uncertainty in economic growth projections. Although economic

Graph 2.25
Accumulated GDP, Four Quarters (levels) a/
(2019, Q4=100)

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

Graph 2.26
Annual Output Gap [a/]
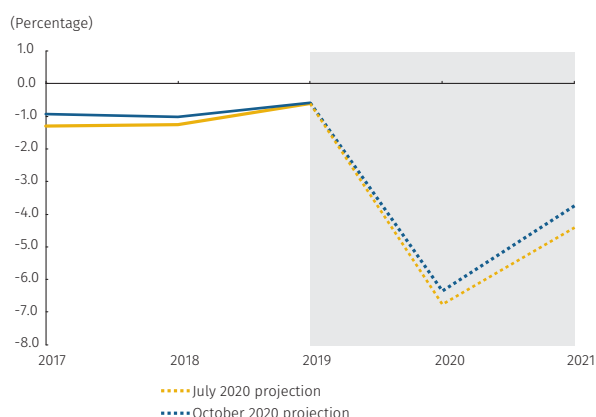
(Percentage)

.... July 2020 projection
.... October 2020 projection

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 2.27
Annual Output Gap (range) [a/]
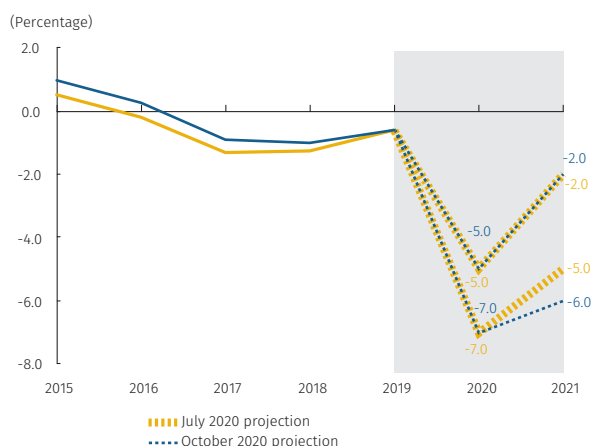
(Percentage)

.... July 2020 projection
.... October 2020 projection

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.*

activity is expected to recover gradually over the forecast horizon, there remains significant uncertainty over the economic outlook both globally and in Colombia, as well as over the composition of supply and demand shocks caused by the pandemic and their implications for future growth, tied to the risks that its future evolution entails. As of this writing, a resurgence of COVID-19 cases had occurred in Europe and the United States. The potential for an additional wave of outbreak in Colombia cannot be discounted, along with the concomitant effects on consumer and investor confidence, foreign demand, terms of trade, and domestic and external financing conditions, among other factors. If this were to occur, it would likely delay recovery and the return to pre-pandemic economic conditions. As a consequence, the forecast ranges presented in this report remain wide along the forecast horizon, with growth in 2020 projected between -9% and -6.5% and in 2021 between 3% and 7%. As with the central forecast scenario, these ranges consider the continued existence of a relatively normal credit channel, in the context of ample global liquidity and access to international financing.

Significant excess capacity and the loss of potential output is likely to continue over the forecast horizon. Excess productive capacity over the next eight quarters will likely be significant, though slightly lower than projected in the previous report as a result of the upward revision of growth forecasts. COVID-19 and lower oil prices have created complex shocks on both supply and demand, with the greatest effects in the second quarter and which appear to have begun to recede gradually in the third quarter. Still, demand shocks are expected to predominate, given reduced spending capacity and lower levels of consumption and investment translating to significant excess capacity. As a result, the output gap is expected to be between -7.0% and -5.0% for 2020 and between -6.0% and -2.0% for 2021, with central forecasts of -6.4% and -3.7%, respectively (Graphs 2.26 and 2.27). These estimates imply potential GDP growth of -1.9% in 2020 and 1.8% for 2020, very similar to projections from the July report and which continue to be below the levels estimated for 2019.

2.2.3   Balance of Payments

Given the projected contraction of Colombia's economy, the current account deficit in 2020 is expected to be below levels observed in 2019. The decline in import spending and in earnings on the part of businesses with foreign participation would largely explain a correction in the current account deficit. These conditions would be the result of a significant fall in domestic demand, depreciation of the peso, and reduced income for inter-

Graph 2.28
Annual Current Account

(Percentage of GDP)

Projection in the July 2020 Report
Projection in the October 2020 Report
Range projected in the July 2020 Report
Range Projected in the October 2020 Report
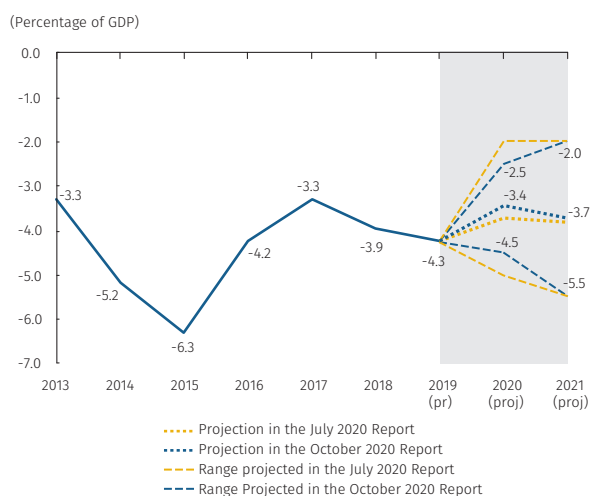
(pr): preliminary.
(proj): projection.
Source: *Banco de la República.*

national oil and coal exporting firms. An adjustment in the trade imbalance would be limited by a reduction in the terms of trade and of foreign demand, the contraction of tourism income, and a widening of the fiscal deficit, among other factors. As a result, the central forecast scenario for 2020 projects the current account deficit as a percentage of GDP at 3.4%[6], below the 3.7% projected in the previous report[7]. In 2021 the deficit is expected to be equivalent to 3.7% of GDP (Graph 2.28), amid a recovery in imports and increased profitability of businesses with foreign capital. Improved global economic conditions would also help drive a recovery Colombia's foreign income, partially offsetting a widening of the deficit. Uncertainty over these forecasts continues to be high, due to multiple shocks that affect the current account whose magnitude and persistence are uncertain. The forecast intervals remain wide as a result.

Colombia is likely to retain its access to external financing, amid low interest rates and ample liquidity in international markets. Foreign direct investment (FDI) will likely continue to finance a significant portion of the current account deficit in 2020, though at lower levels due to an economic environment that would likely limit the reinvestment of profits and the inflows of new capital. FDI is expected to rebound in 2021, in accordance with an expected recovery in domestic economic activity and an improved international outlook. Additional sources of financing are likely to gain ground in 2020, in particular in the form of new debt and asset liquidation in the public sector. Given the projected contraction in the external imbalance and the influx of capital to the public sector, the private sector is expected to constitute assets abroad, partially offsetting the expansion in the country's external liabilities.

6   The third-quarter deficit is expected to be around 3% of GDP. This would be below levels observed in the same period last year and would likely be associated primarily with lower earnings by firms with foreign capital and a reduction of imports for goods and services. This would be partially offset by declines in foreign income, in particular in mineral and hydrocarbon exports, industrial products, and tourism services.

7   This revision of the current account deficit in 2020 compared to the July report is due primarily to greater foreign income expected from remittances and, to a lesser degree, by lower net spending derived from firms' earnings. This would more than offset an increase in the deficit on commercial goods and services with respect to the previous report. It is worth mentioning that remittances have recovered significantly compared to declines observed in the second quarter, showing positive annual growth in the third quarter despite deterioration in labor markets in countries with populations of Colombian migrants. This recovery may be explained by remittances counter-cyclical nature and by expansive fiscal policy in countries such as the United States that could be benefiting household income.

2.2.4   Monetary Policy and Interest Rates Expected by Analysts

Analysts expect median policy interest rates at the end of 2020 and 2021 of 1.75% and 2.00%, respectively (Graph 2.29). According to the Bank's monthly analyst survey for October, the policy interest rate is on average expected to stand at 1.75% for the rest of the year and remain there until the third quarter of 2021. The survey suggests expectations of an increase of 25 bp in the policy rate in the fourth quarter of 2021. The technical staff's higher growth and inflation forecasts in this report are compatible with the expected trajectory of the benchmark interest rate on the forecast horizon (eight quarters), which on average is higher than market expectations from October. Nevertheless, the differences between the two are not significant, given the magnitude of the COVID-19 shock and continued uncertainty over macroeconomic projections.

As was the case in the previous report, uncertainty over economic growth, the speed of recovery, and the nature of shocks (supply vs. demand) remains high. The primary sources of uncertainty on inflation projections are related to the development of the health crisis, the possibility of a resurgence in COVID-19 cases (as seen in other countries), the speed with which diverse sectors of the economy can reopen, and international conditions. The technical staff continues to view demand shocks as predominant. Changes in the labor market, salaries, and their economic expectations will also be important in evaluating inflationary pressures on the monetary policy horizon.

Graph 2.29
Average Observed and Analyst Expected Policy Interest Rate[a]

(Percentage)

─── Observed average   ····· Market analysts' expected trajectory

a/ Median analyst projections. These projections are calculated taking into account quarterly averages from monthly surveys of analysts' economic expectations, conducted by *Banco de la República.* in October 2020.
Source: *Banco de la República.*
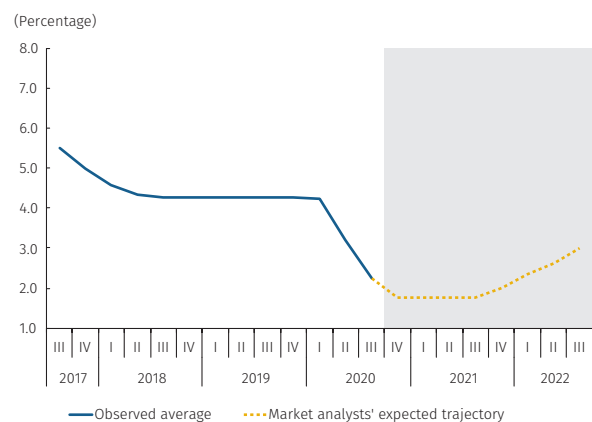
03 / Current Economic Conditions

3.1 Current Economic Conditions

3.1.1 Inflation and price behavior[8]

Weak demand and excess productive capacity kept total and core inflation below 2% in the third quarter, despite diverse shocks that pushed both slightly higher than expected. Consumer inflation continued on a downward trajectory in the third quarter compared to June, falling from 2.19% to 1.97% in September. Core inflation, taken as inflation excluding food and regulated items, stopped its decline and in September was 1.67%, increasing from August due in large part to the scheduled lapse of several price relief measures. Other indicators of core inflation suggested similar results (Graph 3.1). The decline in total annual inflation between June and September was driven by the foods and services sub-categories. By contrast, goods and regulated items exerted upward pressure on inflation. The low level of inflation in the third quarter can be attributed to weak demand, significant excess productive capacity, a very loose labor market, and price relief measures that remain in effect[9], factors that, despite the partial reopening of markets and the end of some quarantine measures, continue to exert significant downward pressure on prices. The reopening of productive and commercial activities comes as some sectors face capacity restrictions or high costs from health and safety measures, which could translate into higher consumer prices in September. This has already been observed in gyms, restaurants, some personal services, and inter-city transportation, among other sectors. At the same time, the projected reintroduction of the VAT for low-cost voice and data cell phone plans (below COP 71,000) and the end of subsidies for water and sewage services and energy prices in several cities, put upward pressure on prices in September. Headline inflation in September was above technical staff projections from July, in part because that report underestimated the effects on prices of the end of government

Graph 3.1
Consumer Price Index (CPI) and Core Inflation Indicators
(Annual change)
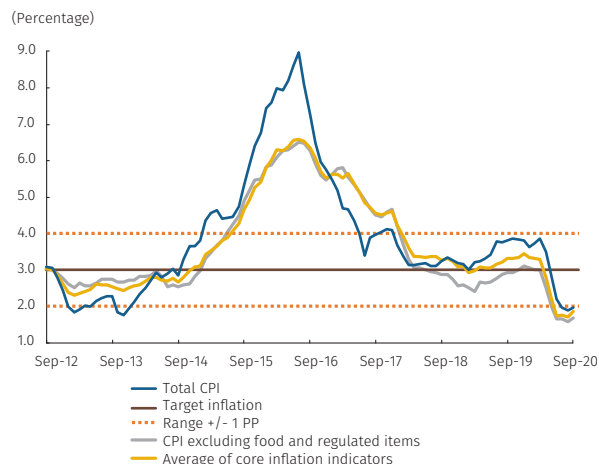
Sources: DANE and *Banco de la República.*

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8   Starting with this report consumer inflation will be analyzed using a new classification implemented by the Bank's technical staff. This methodology divides the CPI among goods, services, and new categories for foods and regulated items. This publication also introduces new core inflation indicators. For more information see Box 2 of the July report: "New classifications of the Central Bank's CPI and revision of core inflation measures in Colombia."

9   See Box 1 of the July report: "Estimate of the impact on price relief measures on inflation."

Graph 3.2
CPI for Foods and its Components
(Annual change)
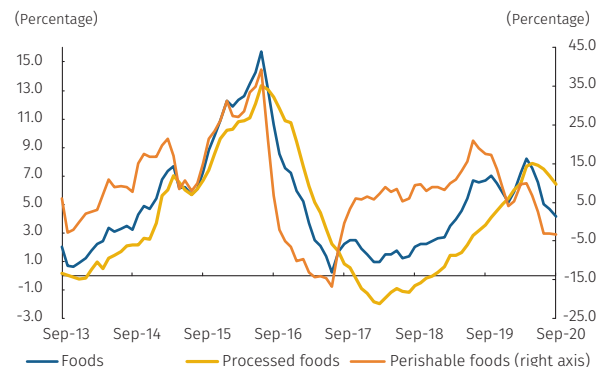
Source: DANE; calculations by *Banco de la República*.

Graph 3.3
CPI for Goods and Services, Excluding Food and Regulated Items
(Annual change)
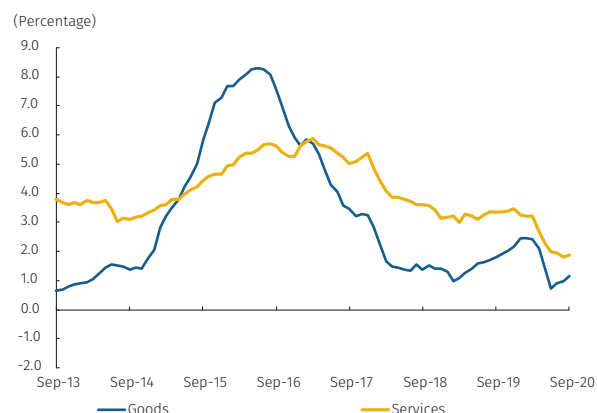
Source: DANE; calculations by *Banco de la República*.

Graph 3.4
CPI for Services, Excluding Food and Regulated Items
(Annual change)
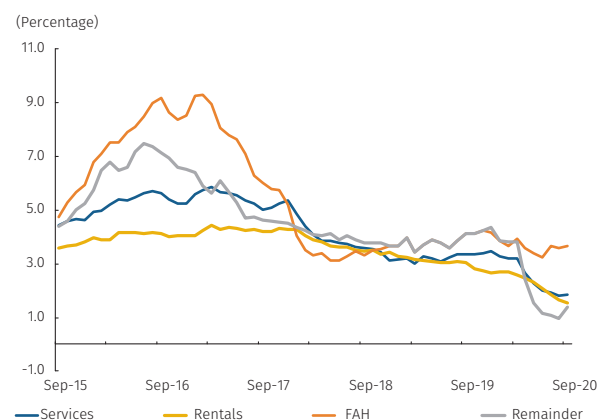
Source: DANE; calculations by *Banco de la República*.

relief measures and of costs associated with operating in "the new normal" of COVID-19. Nevertheless, these differences do not imply a significant change in expected inflation trends.

Annual variation in the CPI for food continued to decline in the third quarter amid ample agricultural supply and favorable climate conditions. The uninterrupted decline in the CPI for food from June (6.55%) to September (4.13%) reflects ample food supply and a moderation in stockpile purchases related to the pandemic (Graph 3.2). Favorable rainfall patterns in recent months have helped increase agricultural productivity and improved conditions in the food supply, which in September and so far in October has been relatively high. As a result, annual growth in perishable food prices fell from 2.52% in June to -3.42% in September, while prices for processed foods were down from 7.75% to 6.40% (Graph 3.2). A moderation in demand for processed foods compared to high levels registered at the beginning of the pandemic may be offsetting recent upward pressures from the increase in some international prices (especially for grains), where supply has been restricted by recent adverse climate events in multiple parts of the world and by export restrictions by some major producers. International prices for some food items, including pork, have also increased due to phytosanitary issues (pork) and by increased demand from the reactivation of economic activity in China and the reopening of some international markets.

Services represented the other major component of the CPI that contributed to a decline in inflation in the third quarter, and continued to be affected by low demand, above all in certain components with significant weight in the consumer basket. The annual change in services prices excluding food and regulated items fell from 2% in June to 1.86% in September (Graph 3.3). This can be explained in large part by downward pressure from rentals, which fell in annual terms from 2.1% in June to 1.5% in September, its lowest level in recent decades (Graph 3.4). Given the fall in tenants' income, some regulations have been renegotiated alongside a temporary prize freeze implemented by the national government. Unregulated education prices have also fallen to unprecedented low levels amid a decline in new student registrations. That said, some other items saw unexpected increases, as was the case in prices on food away from home, which contrary to expectations did not reflect a temporary elimination of the consumption tax[10]. The annual observed increase in September (3.6%) did not change compared to February, the month before the pandemic (Graph 3.4). This could be associated with the fact that the temporary elimination of the consumption tax has not offset other

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10   Eight percent tax.
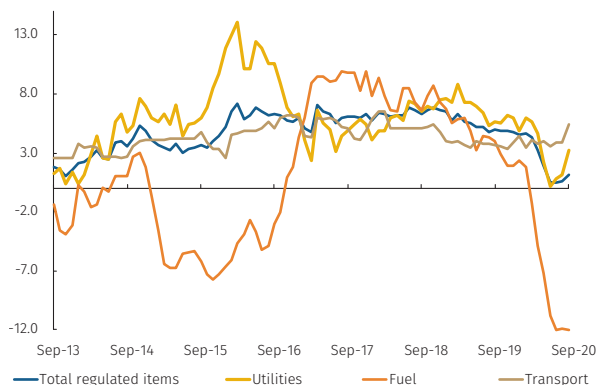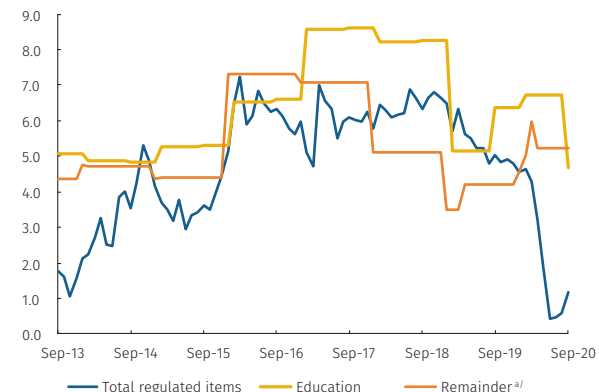
cost increases associated with COVID-19, including increases in delivery services, the implementation of health and safety measures, and capacity restrictions. At the same time, municipal transport increased significantly. In September, with the reopening of inter-city travel, fares rose more than 18%. This could be associated with significant upward pressure originating from the cost of biosecurity and, especially, by capacity restrictions.

Growth in the price of goods (excluding food and regulated items) rebounded in the third quarter. The gradual relaxation of quarantine measures beginning in July was met with increased demand for individual transportation, such as personal vehicles, motorcycles, and bicycles. A significant third-quarter increase saw this segment increase from 0.73% in June to 1.15% in September (Graph 3.3). For personal vehicles, the entrance into the market of new models also drove prices. A rebound in the exchange rate in the second quarter could also still be passing through on prices for these goods, given the lag on which they operate. The temporary removal of the VAT on cleaning and personal hygiene products, scheduled to the end of August, was extended to the end of November[11]. This, alongside downward pressure as the result of very weak demand, an output gap in negative territory, and a deteriorated labor market, has partially offset upward pressures.

The scheduled lapse of price relief measures for utilities, among other factors, pushed a third-quarter increase in the CPI for regulated items. Prices on regulated items rose from 0.44% in June to 1.19% in September (Graph 3.5, Panel A). Utility prices rose at an annual rate in the third quarter (from 0.1% in June to 3.2% in September) as the result of the scheduled lapse of price relief measures on sewage and water services and electricity rates in several cities[12]. By contrast, utility gas prices fell significantly in September following measures adopted by the national government to provide a temporary subsidy (for two months) of an additional 10 percentage points for basic gas consumption for the two lowest income brackets 1 and 2[13]. Public transportation prices also rose, especially in September, reflecting an increase in bus and taxi services in Cartagena. By contrast, annual change in the sub-categories for fuels (from -10.8% to -11.9%) and regulated education (6.7% to 4.7%) fell be-

Graph 3.5
CPI for Regulated Items and its Components
(Annual change)

A.

(Percentage)

| Total regulated items | Utilities | Fuel | Transport |

B.

(Percentage)

| Total regulated items | Education | Remainder a/ |

a/ Includes regulated education and inter-city transportation, among others.
Source: DANE; calculations by *Banco de la República.*

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11   See the Ministry of Health and Social Protection's Resolution 1462 of August 25, 2020.

12   Support ranged from complimentary services, rate freezes, and increased subsidies, to discounts for early payment. The cities that offered one or more of these services, with a significant reduction in prices, were: Pereira, Ibagué, Neiva, Montería, Villavicencio, Pasto, and Bogotá.

13   See the Ministry of Mines and Energy's Resolution 40236 of August 14, 2020.

Graph 3.6
PPI by Origin
(Annual change)
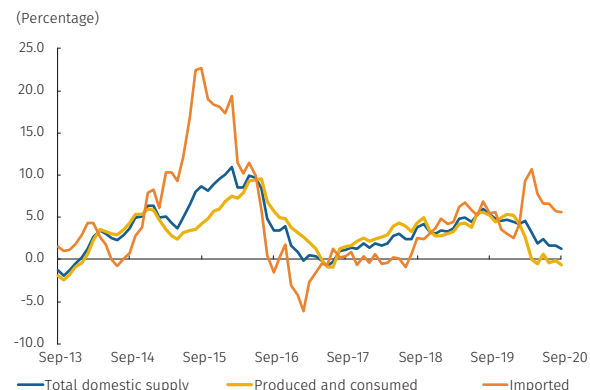
(Percentage)

Source: DANE.

Graph 3.7
Gross Domestic Product a/
(quarterly and annual change)
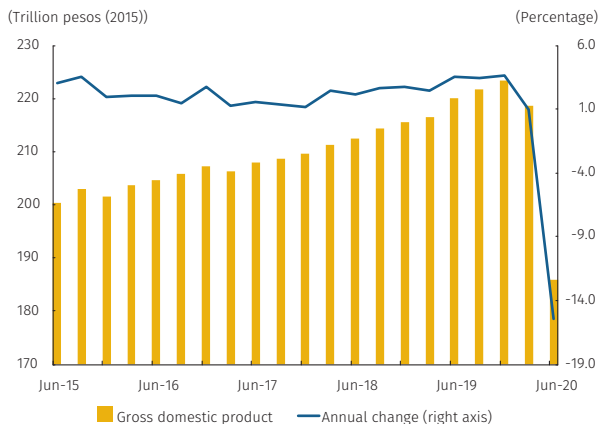
(Trillion pesos (2015))   (Percentage)

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

Graph 3.8
Annual Growth in the First Half of 2020
(percentage, selected countries)

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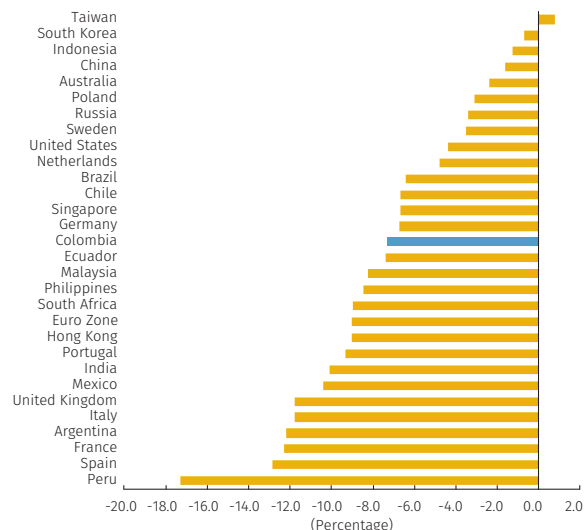
Source: Bloomberg, statistics offices and central banks; calculations by *Banco de la República*.

tween June and September (Graph 3.5, Panels A and B). Regulated education (primary and high school) began the "B calendar" academic year with changes in registrations and pensions going down given a fall in demand (Graph 3.5, Panel B).

Non-labor costs continued on a downward trajectory that began a year ago. These non-labor costs are approximated with the PPI for domestic supply, which fell annually from 2.36% in June to 1.20% in September (Graph 3.6). The annual change in the domestic component of the PPI fell from positive territory in June (0.56%) to negative territory in September (-0.67%), which can be explained especially by excess installed capacity in the industrial sector, which led the fall in this component, and by weak demand. For its part, the annual change in the PPI for imports continued to fall between June (6.60%) and September (5.64%), associated in part with a decline in producer prices for some products (alcoholic drinks and oil refining).

3.2 Growth and Domestic Demand

3.2.1 Second-Quarter GDP

Second-quarter GDP figures confirm the significant impact of COVID-19 on the Colombian economy. GDP in the second quarter registered an unprecedented annual decline (-15.5%) in the seasonally adjusted and calendar corrected series (SACE)[14] (Graph 3.7), although somewhat less than the technical staff's forecast in the last report (-16.5%). This decline was equivalent to a 47.6% fall in annualized quarterly terms. DANE revised its measure of first-quarter growth from 0.4% to 1.0% in the SACE series[15], explained primarily on the production side by better results in the commerce, repairs, transportation, and lodging sectors, and in the construction sub-sector of public works, and on the demand side by exports. These figures put first-quarter growth at -7.3%[16], similar to other economies in the region and to some members of the Organization for Economic Cooperation and Development (OECD) (Graph 3.8).

Measures to contain the pandemic led to significant declines in all major components of GDP on the demand side. Domestic demand fell in the second quarter at an annual rate above that for GDP (-16.8%) (Graph 3.9). Declines in gross fixed capital formation (-33.3%) and consumption (-12.5%) were particularly notable. For its part,

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14   Decline in the original series of 15.7%.

15   From 1.1% to 1.4% in the original series.

16   From -7.4% in the original series.

Graph 3.9
Gross Domestic Product and Quarterly Domestic Demand [a]
(annual growth)
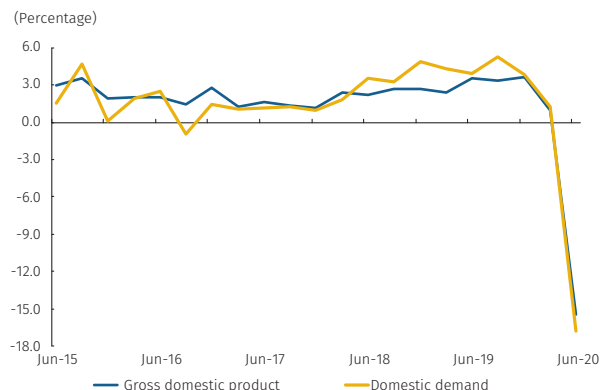
(Percentage)

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

Graph 3.10
Spending Side Quarterly Growth [a]
(annual change, contributions)
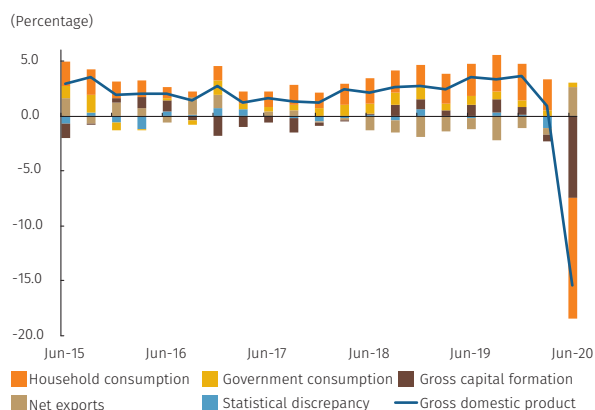
(Percentage)

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)

(Percentage)   (Percentage)

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

net foreign demand contributed positively to the annual change in GDP, with a fall in imports larger than that for exports (Graph 3.10).

Consumption underwent its biggest decline since quarterly data became available, with private spending on durable goods and semi-durables the most severely affected sectors. Household consumption fell at around the same rate as GDP (-15.8%), in part due to social distancing measures to address the pandemic that led to a shut-down of a significant portion of goods and services activity. Every element of consumption registered historic negative annual declines, with the exception of spending on non-durable goods, which grew, though at a slower rate than in the first quarter. Declines in durable and semi-durable consumption were notable, both above 35%. Though less severe, the fall in consumption for services (-21.1%) contributed most to the contraction in private consumption. For its part, public consumption decelerated compared to the first quarter, and was significantly less dynamic than projected (Graph 3.11). This result would be consistent with reduced budget execution by national and local authorities as a result of the pandemic, among other factors. As a result, total consumption fell annually by -12.5% and, given its weight in GDP, contributed most to the annual contraction in the second quarter from the spending side.

All of the primary components of gross fixed capital formation showed significant annual declines (Graph 3.12). The most significant were those for investment in housing (-40.0%) and machinery and equipment (-37.0%). Nevertheless, for the latter monthly import figures on capital goods suggested some recovery in May and June compared to April. According to supply data, the decline in investment in other buildings and structures (-28.6%) was greater than expected, primarily due to construction in public works.

The real value of exports and imports fell at annual rates above 25%, receding to below levels not observed in almost a decade. As a consequence of significant declines in economic activity and demand among Colombia's main trade partners, and of reduced production of raw materials, exports declined 27.5% annually in the second quarter. The largest contributions to this decline came from foreign commodities sales (oil and coal) and services, which were only slightly mitigated by positive performance in the export of precious metals. Imports fell at an annual rate of 29.6%, consistent with the collapse of domestic demand and limits on international trade (Graph 3.13). Given the above, the trade deficit showed a greater decline than predicted last quarter, and net foreign demand contributed positively, albeit modestly, to growth in April-June.

Graph 3.12
Quarterly Gross Fixed Capital Formation a/
(annual change, contributions)
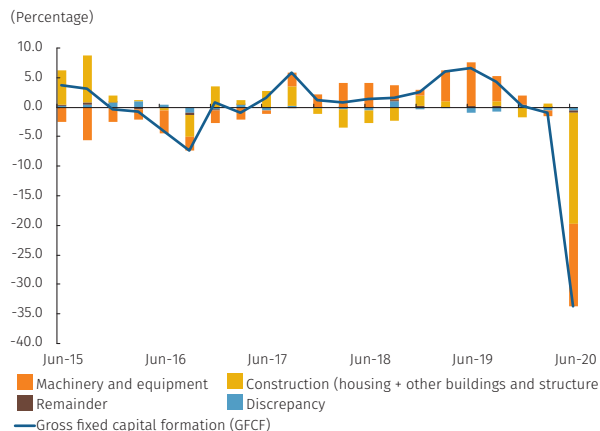
a/ Seasonally adjusted and corrected for calendar effects.
Source: DANE; calculations by *Banco de la República*.

Graph 3.13
Exports, Imports and Trade Balance a/
(annual changes, trillion 2015 pesos)
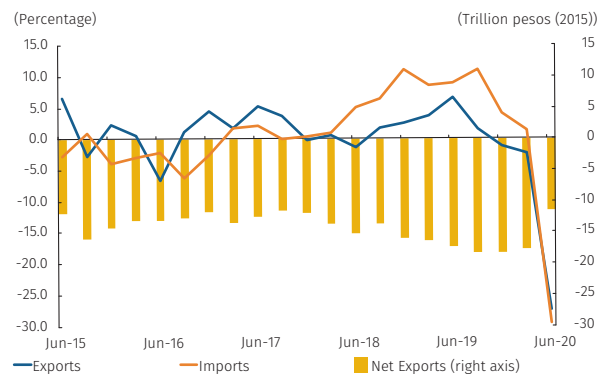
a/ Seasonally adjusted and corrected for calendar effects.
Source: DANE; calculations by *Banco de la República*.

Graph 3.14
Supply Side Quarterly GDP a/
(annual change, contributions)
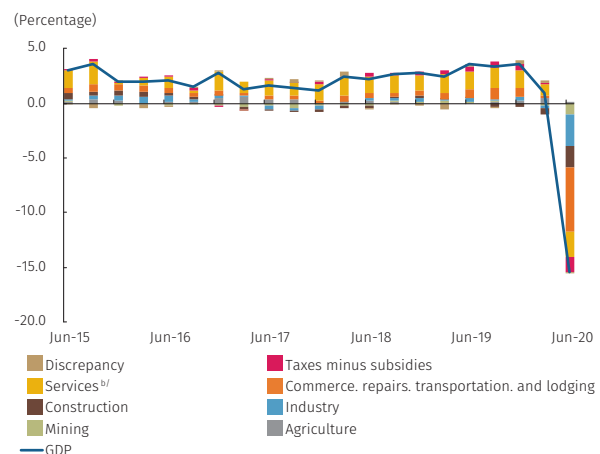
a/ Seasonally adjusted and corrected for calendar effects.
b/ Includes electricity; gas and water; information and communications; financial and insurance services; real estate; professional, scientific and technical activities; public administration and defense; education and health; and arts, entertainment and recreation.
Source: DANE; calculations by *Banco de la República*.

The health emergency and social distancing measures led to a second-quarter contraction in most components of economic activity (Graph 3.14). The largest declines occurred in those components that were directly affected by social distancing and quarantine measures. This was the case in arts, entertainment, and recreation (-37.1%), trade, repairs, transport, and lodging (-33.9%) and in construction (-30.5%)[17]. By contrast, only three components registered annual growth: the agricultural sector (0.2%), which saw positive results in fishing; real estate activities (2.0%), in part thanks to administrative measures that provided guarantees on existing rentals contracts; and the financial and insurance sectors (1.0%), with positive contributions from financial intermediation and insurance, and negative contributions from commissions and auxiliaries. For significant groupings, improved results in the third quarter can be explained by higher growth than expected in secondary activities and in the taxes minus subsidies component. Growth in the tertiary activities aggregate was close to projected, but differences within the grouping were notable. The arts, entertainment, and recreation sub-component, for example, performed much better than expected, while the annual fall in public administration and defense (-3.5%) was greater than expected, explained primarily by a collapse in value added in health care activities.

Following a significant decline in April, the economy started to recover gradually as social distancing measures were relaxed, though without reaching pre-crisis levels. The monthly economic tracking indicator reflects a pattern of recovery over the course of the quarter alongside the gradual flexibilization of social distancing measures. Monthly figures show a pronounced contraction in April (-20.2%) and less significant declines in May (-16.1%) and June (-11.0%). This was especially notable in secondary activities, which after an annual fall of -40.7% in April, showed significantly better results, though still in negative territory, in May (-25.2%) and June (-13.7%). This helped moderate the contraction in the second quarter. Nevertheless, to June aggregate economic activity remained below pre-pandemic levels[18].

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17   In this component buildings performed better than projected, while the fall in public works construction was sharper than expected.

18   Levels estimated around 90% of those observed before the pandemic.

Graph 3.15
Total ISE and by Sector [a/ b/]
(Annual change)
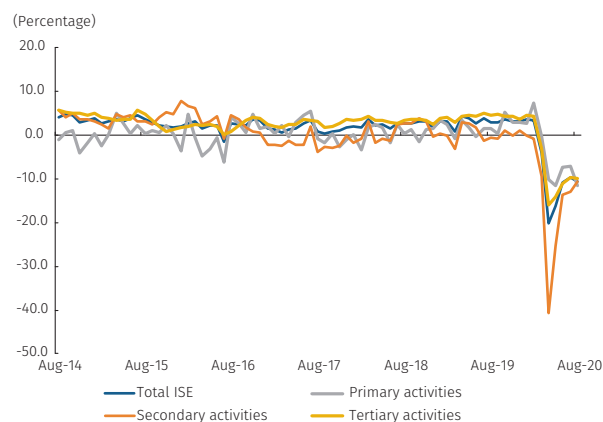
a/ Primary activities: agriculture, hunting, forestry, and fishing; and mine and quarry exploitation. Secondary activities: industrial manufacturing and construction; Tertiary activities: electricity, gas, and water; commerce, repairs, transportation, and lodging; information and communications; financial activities and insurance; real estate; professional, scientific, and technical activities; administration and support; public administration and defense, education and health; arts, entertainment, and recreation.
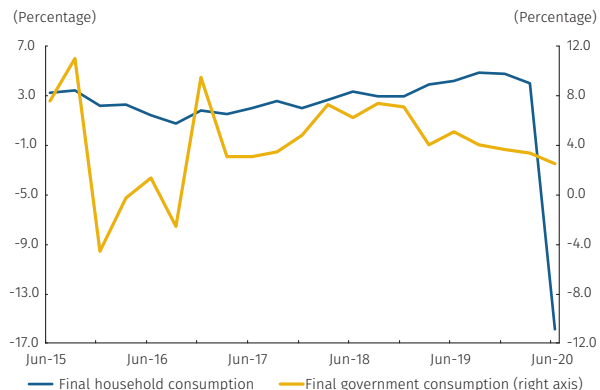b/ Seasonally adjusted and corrected for calendar effects.
Source: DANE; calculations by *Banco de la República.*

Graph 3.16
Total Weekly Energy Demand, 2020
(annual change)
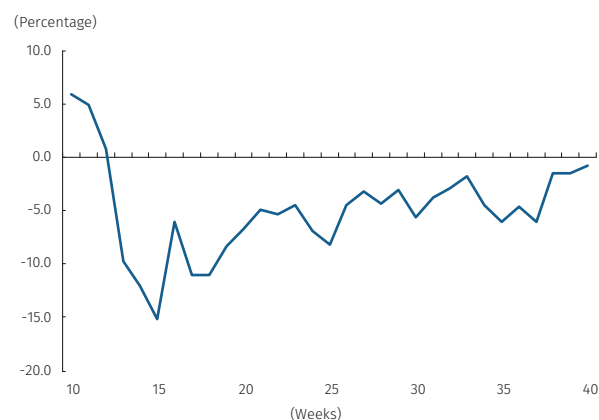
Note: annual change is measured between equivalent weeks in 2019 and 2020, using Sunday as the first day of the week. Week 10 comprises March 1-7, 2020. Weeks 15 and 16 are affected by the Holy Week holidays. The third quarter runs from week 27 to week 40.
Source: XM, calculations by *Banco de la República.*

3.2.2 Third-Quarter Economic Activity Indicators

Available indicators suggest that economic activity will have continued to recover in the third quarter. Despite localized quarantines in some cities in July and August, the overall flexibilization of social distancing measures and the reopening of more productive sectors in the third quarter should have allowed economic activity to recover some of its dynamism compared to the historic lows of the second quarter. This is reflected by diverse sector-level indicators where annual declines continued to moderate in July: in the seasonally adjusted series, retail sales excluding fuel and vehicles went from -4.7% in June to -4.6%, industrial manufacturing went from -11.5% to -8.8%, and the economic tracking indicator, which is the most complete measure of economic activity, went from -11.0% to -9.6%. Still, the tracking indicator regressed as projected in August (-10.6%) due to the re-imposition of quarantine measures by some local governments. Primary activities showed the most significant decline (from -7.2% in July to -11.6% in August), while secondary activities continued to show improvement (Graph 3.15). Other indicators, such as the demand for energy (Graph 3.16), those for mobility, transaction figures from commercial banks, and vehicle registrations suggest that economic activity continued to improve in September, driven by the continued reopening of various aspects of production, the flexibilization of some restrictions on mobility, and the gradual recovery of consumption, especially in durable goods and some services.

3.3 Labor Market[19]

Significant labor market deterioration continued and formal employment in cities did not recover despite a significant rebound in overall employment in August. Seasonally adjusted[20] monthly figures from May to July showed a labor market that, despite month-to-month growth, was recovering very slowly. There was a significant recovery in employment in August both at the national level and in Colombia's thirteen largest cities, increasing compared to July by 7.3% (1.3 million jobs) and 8.7% (close to 734,000 jobs) respectively (Graph 3.17).

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19 For a more detailed analysis on the recent evolution of the labor market, see the Central Bank's Labor Market Report, available at: https://www.banrep.gov.co/es/reporte-mercado-laboral. This report also contains an analysis on the effect of the COVID-19 shock on formal businesses and employment.

20 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.

Graph 3.17
Employment (GEIH)
(monthly seasonally adjusted series)
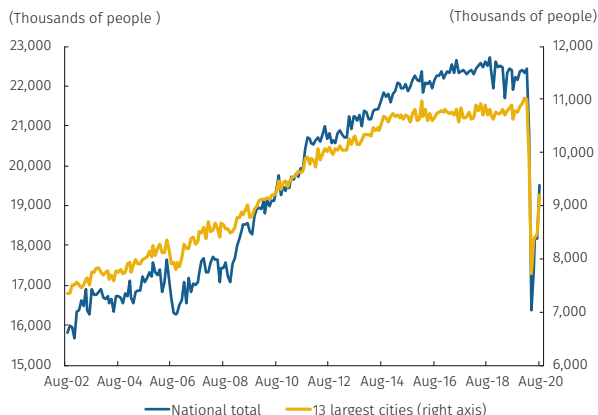
Source: DANE household survey (GEIH); calculations by *Banco de la República*.

Graph 3.18
Employment According to Job Quality: 13 Largest Cities
(seasonally adjusted quarterly moving average)
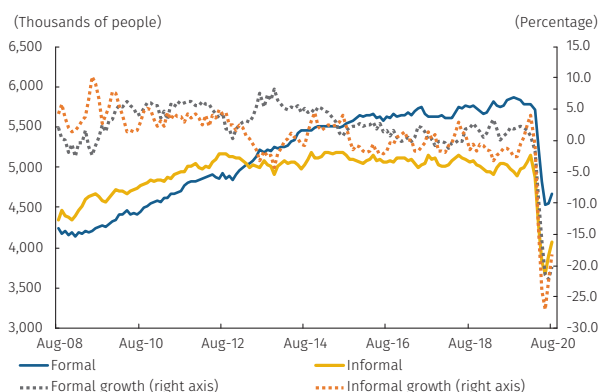
Note: Colombia's national statistics agency (DANE) considers informal workers as those who work in establishments, businesses or firms with up to five employees in all locations, including partners or bosses, except for self-employed professionals and government workers and employees.
Source: DANE (GEIH); calculations by *Banco de la República*.

Graph 3.19
Inactive People (GEIH)
(seasonally adjusted monthly series)
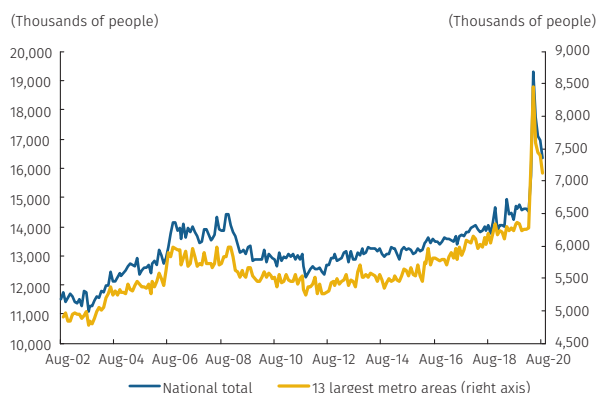
Source: DANE (GEIH); calculations by *Banco de la República*.

Nevertheless, the number of employed people remains 2.9 million below it was in February, suggesting the continued deterioration of labor demand. The rebound in August in cities was driven primarily by the informal sector, for which the quarterly moving average for August grew 4.2% (close to 165,000 jobs) compared to the end of July. Formal employment grew 2.9% (close to 130,000 jobs) (Graph 3.18). Weak growth in salaried and formal employment was also observed in alternative indicators, such as the PILA, family compensation funds, and professional risk managers, which to August continued to show few signs of recovery.

The labor supply continues to recover as inactive people return to productive activities. Mandatory quarantine measures prevented many people from looking for work, and as a result many of those without jobs in April were classified as inactive. The flexibilization of these measures and the gradual reopening of economic sectors beginning in May has led to a decline in the number of inactive people from historic highs. Compared to July, the number of inactive persons in August declined by 3.5% nationally (close to 599,000 inactive people) and 3.6% in Colombia's 13 largest cities (approximately 269,000 inactive workers) (Graph 3.19). This month-to-month growth implied that between May and August 3 million people were reincorporated into the labor market and, according to DANE's comprehensive household survey (GEIH in Spanish), a significant number of those people became employed, whether by returning to their old jobs or finding new ones. Still, many people remain inactive, and their return to the labor market could put upward pressure on the unemployment rate in coming months.

A more significant recovery in labor demand has led to a decline in the unemployment rate, but it remains high and uneven among different population groups. Employment grew faster than the decline in inactivity, leading to a significant decline in the unemployment rate in August. The seasonally adjusted figure for the month was 17.1%, 2.7 percentage points below levels observed in July, while in the 13 largest cities the figure fell by 4.1 percentage points to 20.4%. Nevertheless, these continue at historic levels (Graph 3.20). The national unemployment rate differentiated by population groups suggests that deterioration in the labor market has been more pronounced among women, likely because of employment concentrated in economic activities that face more significant operating restrictions, such as commerce, lodging, and services. To August, the moving quarterly national unemployment rate for women was 24.7% , 9.3 percentage points above the figure for men. Labor market deterioration has also been pronounced for young people, non-heads of household, and less educated workers.

Graph 3.20
Unemployment Rate by Location
(seasonally adjusted monthly series)

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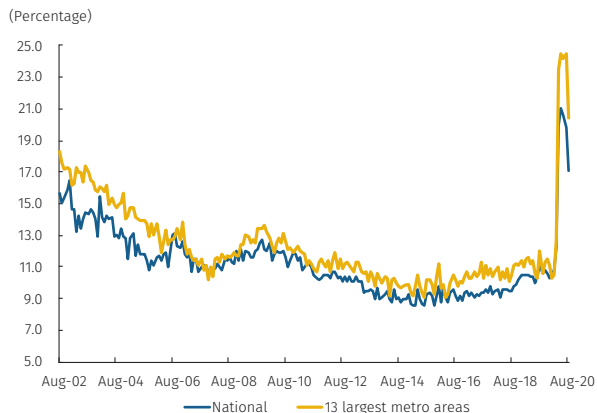
Source: DANE (GEIH); calculations by *Banco de la República*.

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

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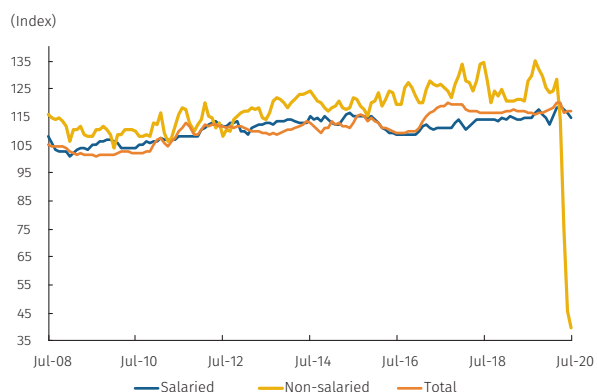
a/ Base: March 2007.
Source: DANE (GEIH); calculations by *Banco de la República*.

Graph 3.22
Deposit Balances
(monthly average and annual change)

A. Sight deposits [a]   B. Term deposits

(billones)   (Percentage)   (billones)   (Percentage)
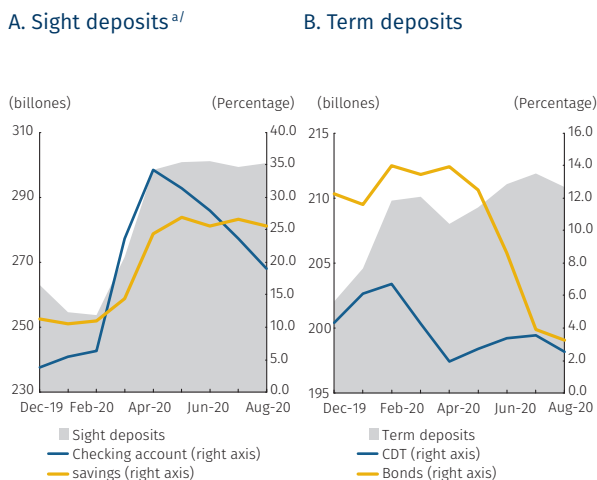
a/ includes checking accounts, savings deposits, and other sight deposits
Source: Financial Superintendent of Colombia; calculations by *Banco de la República*.

Inflationary pressures from labor costs are not expected, as the labor market should continue to be loose over the forecast horizon. Information from job openings and classified ads, such as from the Public Employment Service (SPE in Spanish), suggest a slow recovery in job openings from second-quarter lows. Using a Beveridge curve, this and recent behavior in the unemployment rate suggest that the Colombian labor market remains very loose and should put downward pressure on inflation in the form of lower salary costs[21]. This has already been reflected in real median labor income, which in the case of non-salaried workers continued to deteriorate significantly in the period (Graph 3.21) due to a reduction in hourly wages and hours worked. For its part, DANE's household survey suggests that income for the salaried segment has remained relatively stable, while sector-level surveys that account for salaried employment suggest there may have been a slight recovery compared to the abrupt fall in April. Nevertheless, lower growth in salaried employment given the rigidities of the market imply that such an increase would not be enough to produce inflationary pressure from salary costs.

3.4 Monetary and Financial Market

Economic agents' preference for liquid assets has moderated, stabilizing at high levels in the context of ample liquidity and reductions of the policy interest rate (MPR). A significant second-quarter increase in the demand for liquidity was reflected in a significant increase in sight deposits and cash in circulation (Graph 3.22, Panel A). This occurred amid high levels of uncertainty, a significant fall in output, and declines in observed and expected inflation below the target rate. At the same time, and in response to the above, the Central Bank injected liquidity into the market, significantly expanding its balance sheet[22] and beginning a period of reductions in the MPR. Second-quarter sight deposits and cash in circulation increased significantly, and in the third quarter to-date have remained at high though relatively stable levels (Graph 3.22, Panel A). Term deposits over the same period recovered to levels similar to those seen before the pandemic, but registered low annual growth (Graph 3.22, Panel B). As a result, total deposits in annual terms increased 14.1% (12.0% real) in August, as savings deposits grew 25.6% and checking accounts 19.1%.

21 The Beveridge curve is a graphic representation of the relationship between the rate of job openings and the unemployment rate. In this report the curve was not updated because the job openings indicator with which it is usually produced could not be calculated due to a reduction in questions on DANE's household survey.

22 See Box 2: Measures implemented by the BDBR to confront the effects of COVID-19 on the Colombian Economy, in the April 2020 Monetary Policy Report.

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

(Percentage)
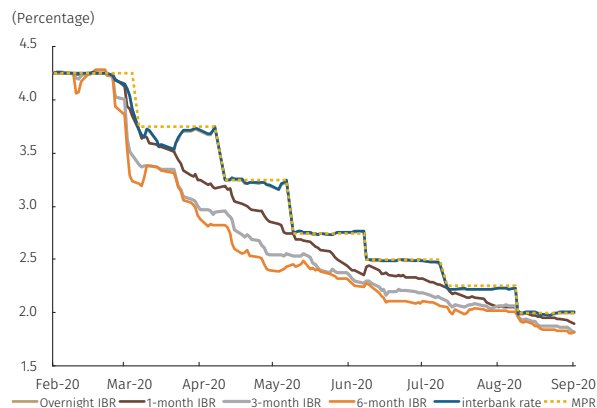
Source: *Banco de la República.*

Graph 3.24
Monthly Lending Interest Rates
(change from March 2020)
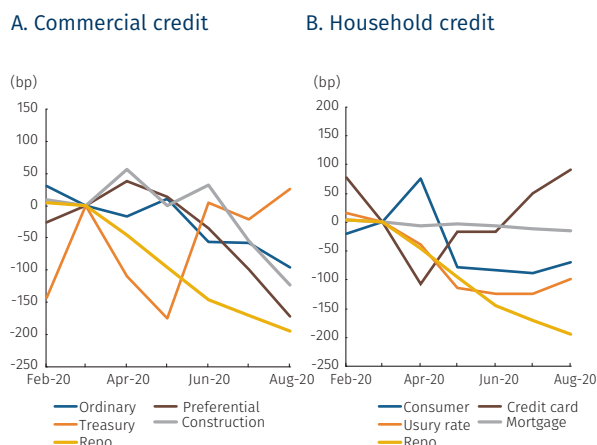
A. Commercial credit   B. Household credit

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

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

(Percentage)
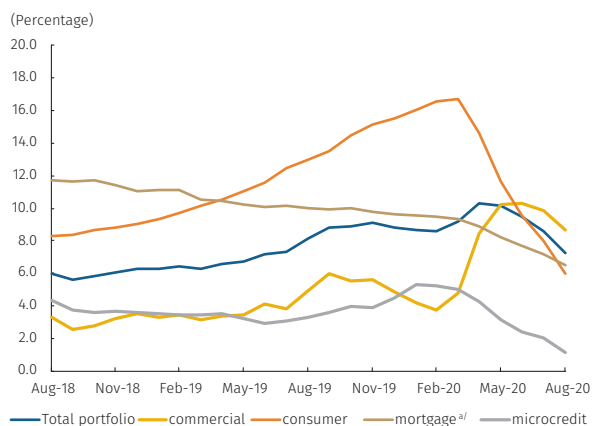
a/ Adjusted mortgage: banking portfolio plus securitization
Source: Financial Superintendent of Colombia; calculations by *Banco de la República.*

Term deposit certificates (CDT) in August increased by 2.6% and the fundraising from bonds 3.2%. The increase in cash in circulation was 33%, an annual rate similar to that registered in June and July.

Interbank and deposit interest rates fell at a pace similar to reductions to the MPR. Overnight rates, IBR, and IIR levels tracked with the MPR in the third quarter, while longer-term rates continued at a lower trajectory (Graph 3.23). In particular, the IBR at one, three and six months, averaged below the TPM by 7, 12 and 15 basis points, respectively. Interest rates on deposits continued on a downward trajectory. From March to August, the interest rates for the total CDT, at 90-day, and on savings, accumulated declines of 145 bp, 172 bp and 62 bp, respectively. For this period, the reduction in the MPR was 195 bp.

The transmission of reductions in the MPR to credit interest rates has been uneven among lending types, and more moderated in terms of household credit. The majority of credit types saw declines in interest rates between March and August, though these were more intense in commercial rates (Graph 3.24, Panel A). In the latter, the largest accumulated declines were on rates for preferential loans (-172 bp), ordinary loans (-96 bp), and for home construction (-124 bp), while treasury interest rates increased (26 bp). In the same period the largest decline in credit interest rates for households was in consumer credit (-70 bp), though in the last three months this has stopped its decline (Graph 3.24, Panel B). Mortgage interest rates remained relatively stable between March and August, while credit card rates increased.

Growth in credit portfolios of all kinds decelerated in the third quarter, especially those for consumer credit (3.25). The closure of multiple economic sectors in the second quarter and uncertainty over the pandemic and other issues contributed to higher demand for commercial credit as businesses attempted to resolve cash flow issues. As a result, there was a rapid increase in commercial credit levels between February and May, with annual rates rising from 3.7% to 10.3%. In the same period the household credit portfolio shrunk, primarily on consumption, after having grown significantly for more than a year. So far in the third quarter all components of the portfolio have decelerated. In August annual growth in the commercial portfolio moderated (8.7%) in an environment of weak economic activity and despite flexibilization of financial regulations[23] and support from the

---

23   Starting on February 29, the government authorized postponement on the expiration on loan quotas for 120 days. See the Financial Superintendent's External Memos 007 and 014 from March 2020.

national government[24]. Annual growth in the consumption portfolio (6.0%) and mortgage portfolio (6.5%) in August continued to decline, though this was more pronounced in the first case. This loss of dynamic in household credit has come in the context of deteriorating income due to the significant decline in employment and despite government support for housing credit[25]. On the supply side, recent information on consumer credit suggests low approval rates and a higher percentage of payroll loans, with the risk of default as the primary reason for requests being denied[26]. In the case of mortgage loans, the risk of these loans is attenuated by a loan-to-value ratio 24 percentage points lower than regulatory requirements.

24   The opening of rebate lines for 3.5 trillion pesos and a guarantee program for 22.4 trillion pesos to back working capital loans.

25   Coverage of fractions of interest rates for credit for home purchases.

26   See the most recent Banking Superintendent credit reports at: https://www.superfinanciera.gov.co/inicio/informes-y-cifras/informes/informe-sobre-el-sistema-financiero-durante-la-cuarentena-obligatoria-10103679

Box 1
Evaluation of the Predictive Capacity of Expected Inflation Measures

César Anzola-Bravo
Anderson Grajales-Olarte
Alexander Guarín-López
Julián Camilo Mateus-Gamboa
Jonathan Alexander Muñoz-Martínez
Carlos Andrés Quicazán-Moreno
Juan Sebastián Rojas-Moreno
Cristhian Hernando Ruiz-Cardozo*

Economic theory suggests that inflation expectations are a key driver of decision-making among economic agents. Alongside nominal interest rates, expected inflation helps determine the real interest rate, which is fundamental to decisions regarding consumption, production, and savings. Given the relationship between inflation and economic activity, expected inflation can also be an indicator of future behavior related to production and employment[1]. It serves a central role in determining prices and salaries. As businesses look to set salary increases for an upcoming year, for example, they may incorporate inflation expectations into their decision-making processes, compensating employees for an anticipated increase in the cost of living and making determinations over increases in labor costs.

Given its importance in informing such decisions, this supplement examines which of the numerous measures of expected inflation are most predictive of future behavior, and under what circumstances[2].

The measures used to gauge expected inflation in Colombia are varied, and aim to capture a diverse range of perspectives, time horizons (short, medium, long) and frequencies (monthly, quarterly). Although these measures generally reveal similar dynamics, their results tend to be more mixed in periods of uncertainty regarding the nature and duration of economic shocks.

Diagram B1.1 summarizes the measures analyzed in this supplement. Those included consider annual inflation expectations on three different forecast horizons (one, two, and five years) and using different general sources of information: surveys, financial market instruments, and macroeconomic models. The surveys include both the Central Bank's monthly (EME in Spanish) and quarterly (ETE in Spanish) surveys of analyst expectations, the survey of financial opinion conducted by Colombian think-tank Fedesarrollo, and a survey from Focus Economics[3].

The market instruments used include breakeven inflation (BEI)[4] and forward breakeven inflation (FBEI), derived from public debt securities, and a smoothed measure of BEI using a recursive Hodrick-Prescott filter (HPF BEI)[5].

The macroeconomic modeling measures of expected inflation are based on the Bank's central forecasting models: Patacon and 4GM. They also include averages of the measures in question and a naive expectation measure, the value of which corresponds to the most recent observable data point. Graph B1.1 compares monthly annual inflation expectations on a 12-month forecast horizon with the corresponding observed inflation.

Graph B1.1
Annual Inflation and Measures of Expected Inflation
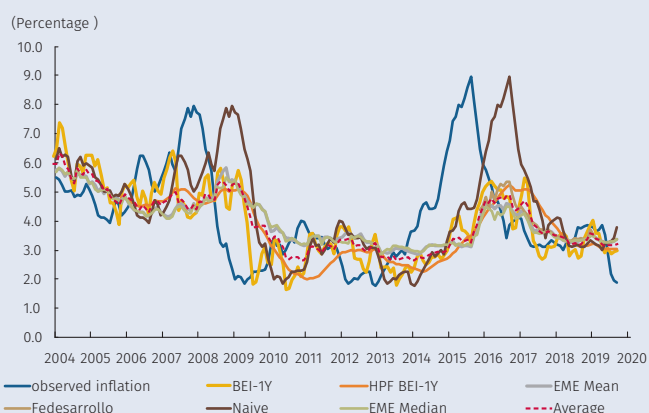
Sources: DANE, *Banco de la República*, Fedesarrollo; calculations by the authors.

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1 Inflation expectations in this sense serve as a market proxy of monetary policy credibility.

2 This analysis does not attempt to measure the relative degree of divergence in inflation expectations, which would be of value but falls outside the bounds of this supplement. This supplement is a purely retrospective exercise and its results can not necessarily be extrapolated to future behavior. Given the difficulty in anticipating supply and demand shocks (e.g. El Niño or Covid-19), measures of expected inflation show high levels of forecast error. This limited forecasting capacity in absolute terms does not diminish the importance of expected inflation measures in decision-making on behalf of diverse economic agents.

3 Expected inflation measures at 12 and 24 months from the EME begin in September 2003 and January 2015, respectively, while those for the ETE at four and eight quarters are available from 2000 and 2015. Expectations at five years from Focus Economics and at 12 months from Fedesarrollo are available beginning in February 2004 and October 2015, respectively.

4 BEI expectations are constructed based on nominal government bonds denominated in pesos and UVR.

5 Smoothed expectations aim to eliminate short-term movement derived from government bonds that are not necessarily related to changes in market expectations. Conducted with a recursive Hodrick-Prescott filter.

This supplement presents three exercises used to examine the predictive capacity of expected inflation measures:

a. Traditional evaluation of statistics such as mean absolute error (MAE) and root-mean-squared error (RMSE).
b. Forecast error distribution and likelihood analysis
c. Statistical tests comparing expected values of forecast errors (see Giacomini and White, 2006; Giacomini and Rossi, 2010).

These three exercises were performed for the various measures of inflation, frequencies, and time horizons presented in Diagram B1.1 for three different sample periods: the full period[6], the last three years (2017-2020), and periods of high inflation (2008 and 2015-2016)[7]. This supplement only shows exercises related to monthly expected inflation at 12 months. A comparative analysis of all the measures considered for the three sample periods is presented in the final section of this supplement.

1. Traditional Evaluation

MAE and RMSE[8] were calculated for the various measures of expected inflation. These statistics reflect the average magnitudes of forecast errors for each measure with respect to observed inflation at the future date. Chart B1.1 reflects these statistics for expected inflation at 12 months

Diagram B1.1
Measures of Expected Inflation: Source, Frequency, and Time Horizon
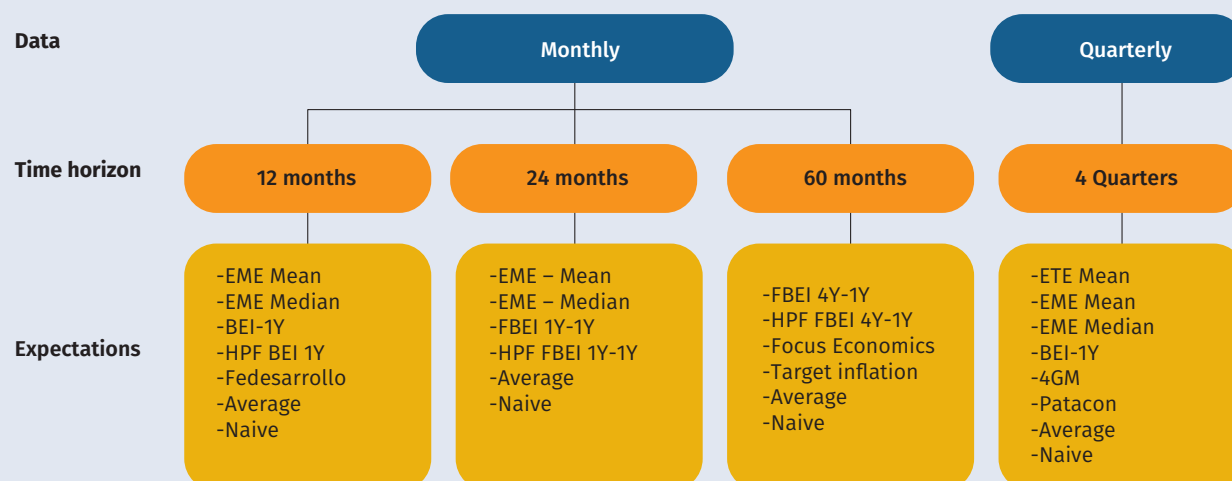
Sources: DANE, *Banco de la República* and Fedesarrollo; calculations by the authors

Chart B1.1
MAE and RMSE for Expected Inflation at 12 Months

	MAE (Percentage Points)			RMSE (percentage points)		
	Full period	High-inflation periods	Last three years	Full period	High-inflation periods	Last three years
BEI-1Y	1.2	3.6	0.6	1.7	3.7	0.7
HPF BEI-1Y	1.4	3.8	0.9	1.8	3.9	1.1
EME Mean	1.3	3.9	0.5	1.8	4.1	0.7
EME Median	1.3	4.0	0.5	1.8	4.1	0.7
Fedesarrollo	-	-	0.6	-	-	0.8
Average	1.3	3.8	0.6	1.7	3.9	0.7
Naive	1.7	2.9	1.5	2.1	3.1	2.0

Sources: DANE, *Banco de la República* and Fedesarrollo; calculations by the authors

7   High-inflation periods are defined as those in which the annual observed change in CPI is above the constructed range of 1.5 times greater than its standard variation around the mean.

8    $MAE = \frac{1}{T}\sum_{t=1}^{T}|e_t^m|$ and $RMSE = \sqrt{\frac{1}{T}\sum_{t=1}^{T}(e_t^m)^2}$, where $e_t^m = E_t[\pi_{t+m}] - \pi_{t+m}$ is the forecast error $e_t^m = E_t[\pi_{t+m}]$ and the expected value t of inflation $t+m$; π_{t+m} is the value observed at that date; t is time indexed; m time horizon, and T is the number of periods.

6   Available information is considered for each measure, and the most recent data is considered the start of the period, such that all measures use the same set of information and are comparable among themselves.

for the three sample periods considered, while Graph B1.2 shows their historical behavior using a centered rolling window of 24 months.

Graph B1.2
MAE and RMSE for Expected Inflation at 12 Months

A. MAE

(Percentage points)

BEI-1Y	HPF BEI 1Y	EME Mean	EME Median
Fedesarrollo	Average	Naive	

B. RMSE

(Percentage points)
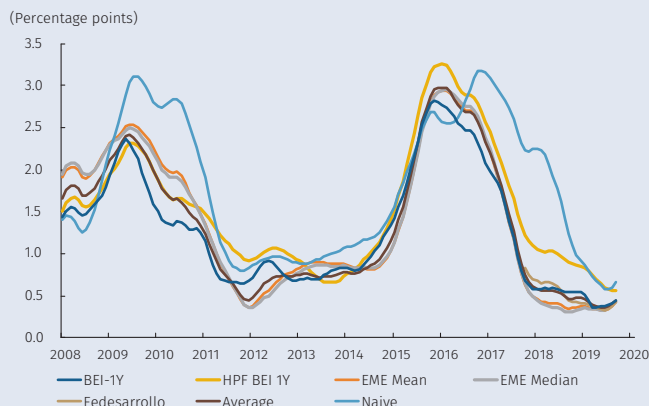
BEI-1Y	HPF BEI 1Y	EME Mean	EME Median
Fedesarrollo	Average	Naive	
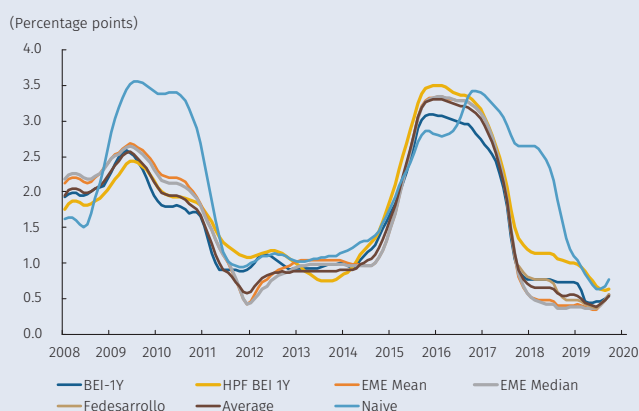
Sources: *Banco de la República* and Fedesarrollo; calculations by the authors.

Broadly speaking, the results of this exercise show that the predictive ability of distinct measures of expected inflation changes over time. Both the MAE and RMSE suggest a relatively high degree of prediction error from 2009-2011 and from 2015-2017. In the first case, these errors can be associated with a rapid decline in observed inflation resulting from the global financial crisis. For the second period in question, inflation rose as the result of nominal depreciation as well as from supply pressures created by an El Niño weather pattern from 2015 to 2016. By contrast, from 2012 to 2014 and from the end of 2017 to the first half of 2020, prediction errors were relatively low, and in the latter case were trending downward.

For the full sample period, prediction errors for the various measures of expected inflation oscillated between 1.2 and 1.8 percentage points (pp). For the sample period of the last three years, those figures were reduced by half, and even more in some cases. In periods of high inflation, however,

the MAE and RMSE rose to values between 3.6 and 4.1 pp, the result of supply or demand shocks the nature and duration of which were difficult for economic agents to determine.

A comparison of the MAE and RMSE results for the different measures of expected inflation was also conducted. The results suggested that one-year BEI (BEI-1Y) performed better relative to the other measures for the sample period and in particular before 2012 and from 2016 to the beginning of 2018. These results are illustrated in Graph B1.2.

2. Distribution of the Probability of Forecast Errors and Log-Score

This exercise directly compared the probability distribution of forecast errors reflected in the various measures of expected inflation. Distributions were estimated using parametric methods for each measure on each of the study's sample periods, using the same centered rolling window of 24 months defined above.

A log-score indicator was calculated for each of these probability distributions, defined as the natural logarithm of the relative probability of observed forecast errors equal to zero. The higher the value of this indicator, the better the predictive capacity of the measure being considered (Geweke and Amisano, 2010). Graph B1.3, Panel A shows the log-score over time for expected inflation at 12 months, while Panel B illustrates the probability distribution of forecasting errors for the entire period.

As with the results described in the previous section, the predictive capacity of the various measures of expected inflation depended on the period of analysis. According to the log-score, BEI-1Y showed the best predictive capacity before 2012 and was among the best-performing measures after 2017. The mean and median of analysts' EME responses were the most predictive after 2015. Similarly, the distribution of forecast errors indicates that BEI-1Y was the most predictive over the full study period, followed by statistics from the EME.

3. Statistical Tests

Finally, the predictive capacity of the various measures of expected inflation was evaluated using Giacomini and White (GW, 2006)[9] and Giacomini and Rossi (GR, 2010)[10] tests. These tests are used to evaluate the statistical significance of the expected difference between forecast

---

9   The unconditional (conditional) GW test evaluates $H_0 = E[\Delta \hat{L}_{t+h}^{S1,S2}] = 0$ ($H_0 = E[\Delta \hat{L}_{t+h}^{S1,S2}]|G_t] = 0$) equivalent predictive capacity among measures of expected inflation s_1 and s_2 (conditioned on the set of information G_t).

10   The *GR* fluctuation test evaluates $H_0 = E[\Delta \hat{L}_{t+h}^{S1,S2}] = 0$, equivalent predictive capacity among measures of expected inflation s_1 and s_2 on a rolling time horizon with set magnitude v.

Graph B1.3
Expected Inflation at 12 Months: distribution of Probability in Forecast Errors and Log-Score

A. Log-score

(log-score)

BEI-1Y	HPF BEI 1Y	EME Mean	EME Median
Fedesarrollo	Average	Naive	Fedesarrollo
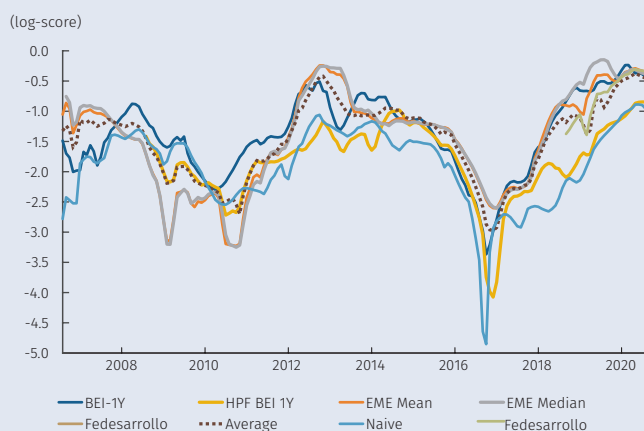
B. Probability distribution of forecast errors (full period)

(Density)

(forecast error)

BEI-1Y	HPF BEI 1Y	EME Mean	EME Median
Fedesarrollo	Average	Naive	
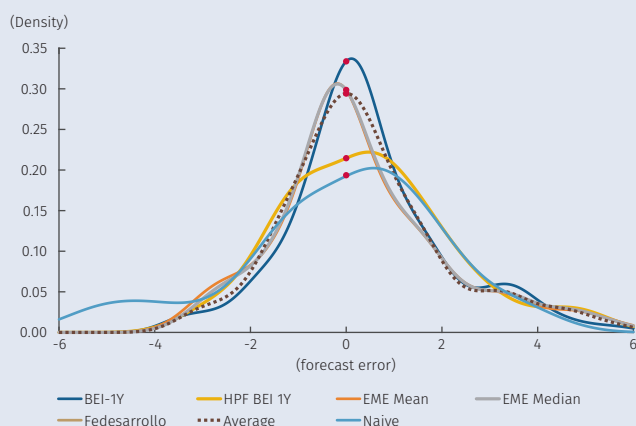
Note: in Panel B, positive values on the x-axis indicate that inflation expectations underestimated observed annual inflation
Source: calculations by the authors.

errors of two different measures of expected inflation. The conditional GW test also examines whether the predictive capacity of the measures can be differentiated given prior conditions. The GR test captures the variation over time in the relative performance of the forecast.

The results of the unconditional and conditional GW tests at 12 months are reflected in Panel A and Panel B, respectively, of Chart B1.2. The values in the first line correspond to the p-values of each test. The values in parenthesis in the second line represent the ratio between the RMSE of the measure of expected inflation on the upper part of the box with respect to the measure on the left. The blue (orange) shading indicates that the test rejects an equivalent predictive capacity among the two measures at a 10% level of significance, and that the measure on the left has a lower (higher) RMSE than the measure above.

Graph B1.4 illustrates the results of a GR fluctuation test for the same measures of expected inflation at 12 months considered throughout this supplement. This is an

unconditional test of predictive equivalency among two measures for each of the moving averages defined above. The result of the test for each measure is presented relative to a benchmark rate, in this case the BEI-1Y. Positive (negative) values in the test correspond to measures that were less (more) predictive than the benchmark. The dotted lines denote critical values at a 5% level of significance.

Chart B1.2 shows statistically significant differences in the predictive capacity of various expected inflation measures and suggests that BEI-1Y was the most predictive on the 12-month horizon. The results shaded in blue on both the conditional and unconditional GW tests show a greater predictive capacity in the BEI-1Y compared to the other measures analyzed. The results of the GR test displayed in Graph B1.4 do not reject the hypothesis of equivalent predictive ability among the different time frames considered. Nevertheless, the BEI-1Y showed lower expected forecast errors between 2010 and 2011, as well as between mid-2015 and the beginning of 2017, and is in line with the EME expectations.

4. Results and Conclusions

Chart B1.3 shows the best-performing measures of expected inflation in each of the four evaluation exercises for each frequency and time horizon and highlights the measure that had the best results on average.

BEI-1Y showed the best predictive capacity at 12 months for the full sample period and when using monthly data, while for 24 and 60 months the average of the various measures of expected inflation would have performed best. The 4GM monetary policy model performed best for the quarterly frequency.

For the sample period of the last three years, the median of analyst responses in the EME was the most predictive at 12 and 24 months. For periods of high inflation at 12 months and four quarters, again the BEI-1Y and 4GM were most predictive.

In conclusion, the results of the evaluation suggest that 1) measures of expected inflation are imprecise, showing high levels of forecast error in absolute terms; that 2) the measures' predictive capacity depends significantly on the time horizon considered (12, 24, or 60 months); and that 3) their predictive capacity changes over time, depending on the existence, nature, and duration of economic shocks.

Chart B1.2
Giacomini & White (2006) Statistical Tests: expected Inflation at 12 Months

A. Unconditional test					
	HPF BEI-1Y	EME Mean	EME Median	Average	Naive
BEI-1Y	0.03 (1.18)	0.05 (1.16)	0.07 (1.15)	0.14 (1.07)	0.03 (1.63)
HPF BEI-1Y		0.41 (0.98)	0.35 (0.97)	0.03 (0.90)	0.11 (1.37)
EME Mean			0.21 (0.98)	0.01 (0.91)	0.10 (1.39)
EME Median				0.03 (0.92)	0.10 (1.41)
Average					0.06 (1.52)

B. Conditional test					
	HPF BEI-1Y	EME Mean	EME Median	Average	Naive
BEI-1Y	0.06 (1.18)	0.00 (1.16)	0.00 (1.15)	0.01 (1.07)	0.08 (1.63)
HPF BEI-1Y		0.00 (0.98)	0.00 (0.97)	0.00 (0.90)	0.04 (1.37)
EME Mean			0.14 (0.98)	0.00 (0.91)	0.04 (1.39)
EME Median				0.00 (0.92)	0.03 (1.41)
Average					0.06 (1.52)

Note: In Chart B1.2 Panels A and B, the values on the first line correspond to the p-values for each test, the numbers in parenthesis are ratios between RMSE for the expected inflation measure on the upper part of the table compared to the measure on the left. Shading in blue (orange) indicates that the test rejects equivalency in the predictive capacity between measures at a level of significance α=10%, and that the measure on the left has a smaller (larger) RMSE than the measure above.
Source: calculations by the authors.

Graph B1.4
Giacomini & Rossi (2010) Statistical Tests: Expected Inflation at 12 Months

(Benchmark = BEI-1Y)
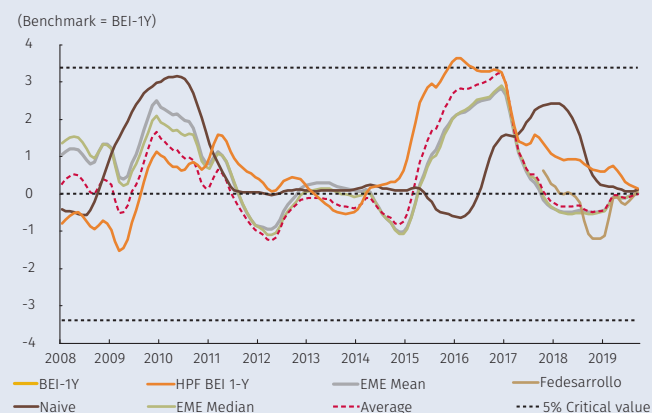
Note: each line evaluates the relative performance of a measure of expected inflation against the benchmark. The dotted line denotes a critical value in the Giacomini & Rossi (2010) test at a significance level of α=5%. Positive (negative) values in the test corres-pond to a measure of expected inflation performing below (above) the benchmark.
Source: calculations by the authors

Chart B1.3
Measures of Expected Inflation: Summary of Comparative Analysis

A. Full period				
Frequency		**Monthly**		**Quarterly**
Time horizon	**12 months**	**24 months**	**60 months**	**4 quarters**
Traditional Statistics	BEI-1Y	Average	Average	4GM
Giacomini & White (2006)	BEI-1Y	Average	Average	4GM
Giacomini & Rossi (2010)	BEI-1Y	Average	HPF FBEI 4Y-1Y	Patacon
Log-score	BEI-1Y	Average	Target inflation	4GM
Summary	BEI-1Y	Average	Average	4GM
B. Last three years				
Frequency		**Monthly**		**Quarterly**
Time horizon	**12 months**	**24 months**	**60 months**	**4 quarters**
Traditional Statistics	EME (Median)	EME (Median)	HPF FBEI 4Y-1Y	Average
Giacomini & White (2006)	Inconclusive	EME (Median)	Target inflation	Inconclusive
Giacomini & Rossi (2010)	Fedesarrollo	EME (Median)	HPF FBEI 4Y-1Y	BEI-1Y
Log-score	EME (Median)	EME (Median)	HPF FBEI 4Y-1Y	Average
Summary	EME (Median)	EME (Median)	HPF FBEI 4Y-1Y	Average
C. High-inflation periods				
Frequency		**Monthly**		**Quarterly**
Time horizon	**12 months**	**24 months**	**60 months**	**4 quarters**
Traditional Statistics	BEI-1Y	Average	HPF FBEI 4Y-1Y	4GM
Giacomini & Rossi (2010)	BEI-1	FBEI 1Y-1Y	HPF FBEI 4Y-1Y	BEI-1Y
Log-score	BEI-1Y	FBEI 1Y-1Y	HPF FBEI 4Y-1Y	4GM
Summary	BEI-1Y	FBEI 1Y-1Y	HPF FBEI 4Y-1Y	4GM

Source: Calculations by the authors.

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Box 2
Literature Review: Weighing the Drivers of Portfolio Flows to Emerging Market Economies

Andrés Sánchez-Jabba*

The literature on the determinants of portfolio capital flows to emerging markets tend to emphasize the role of push and pull factors. The first relate to external forces that influence capital flows and are generally associated with foreign investors' perceptions of risk and the relative returns expected from investments in emerging market economies. The second include domestic attributes that can influence demand for local bonds and equity, in particular the growth rate and sound monetary and fiscal policy reflected in macroeconomic stability (Koepke, 2019).

This box presents the main findings of a literature review on the drivers of portfolio flows to emerging markets, emphasizing the role of monetary policy. The analysis focuses on portfolio capital related to non-resident foreign investors, who account for a majority of these types of flows (Obstfeld, 2012; Broner *et al.*, 2013). It also distinguishes between capital inflows and outflows, and the type of investment (bonds or equity). Broadly speaking, the evidence suggests that portfolios comprised mainly of bonds are more sensitive to negative external shocks (push factors), which tend to result in a decrease in capital inflows. On the other hand, equity portfolios exhibit more sensitivity to disruptions in domestic fundamentals (pull factors), which tend to result in capital outflows.

The relative return on investments and investors' risk perceptions are essential in accounting for portfolio flows. According to Sarno *et al.* (2016), 83% of bond and 86% of equity flows can be attributed to these two factors[1]. In particular, negative shocks that affect risk perception appear to reduce portfolio inflows to emerging markets by between 0.2% and 2.8% of quarterly GDP[2]. By contrast,

positive shocks on interest rate spreads in favor of emerging markets can be expected to increase portfolio inflows by between 0.1% and 2.2% of quarterly GDP (Ahmed and Zlate, 2014; Adler *et al.,* 2016; Bems *et al.* 2016; Erduman and Kaya, 2016; Clark *et al.*, 2020). Graph B2.1 summarizes some of these findings.

Graph B2.1
Effects of Perceived Risk and Interest Rate Spreads on Portfolio Flows to Emerging Markets: Equivalence with Quarterly GDP
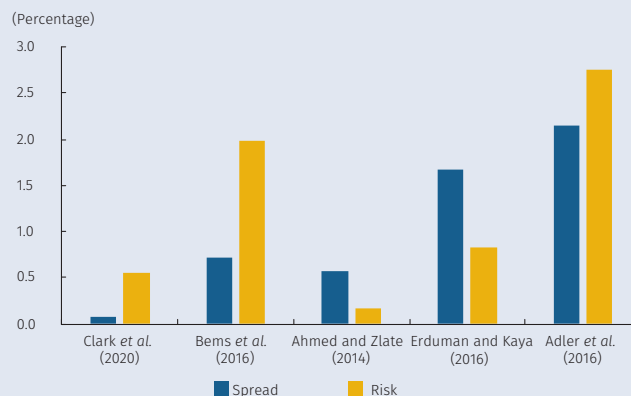
Source: calculations by the author.

Another factor underlined by the literature is the propensity among international investors to act cautiously by reducing their positions in emerging markets during episodes of heightened volatility and uncertainty (Milesi-Ferreti and Tille, 2011; Fratzscher, 2012; Broner *et al.*, 2013; Rey, 2013; Ananchotikul and Zhang, 2014; Koepke, 2014; Nier *et al.*, 2014; Bruno and Shin, 2015)[3]. These investors tend to redirect capital toward assets that are considered secure, in particular treasury bonds emitted by advanced economies, leading to an outflow of portfolio capital from emerging markets.

The literature also underscores investors' focus on potential returns as a determinant of portfolio composition, as they are willing to accept a certain degree of risk in their emerging market positions in exchange for higher returns. As a result, the spread between domestic and international interest rates can help explain capital inflows, especially when it comes to bonds (Fernández-Arias, 1996; Taylor and Sarno, 1997; Montiel and Reinhart, 1999; Baek, 2006; Dahlhaus and Vasishtha; 2014; Feroli, *et al.*, 2014; Koepke, 2014; Fratzscher *et al.*, 2016; Adler *et al.*, 2016; Banerjee *et al.*, 2016; Erduman and Kaya, 2016). This effect could be symmetrical: all else equal, increases in advanced economy interest rates may plausibly lead to portfolio outflows among emerging markets.

Of equal importance is understanding the extent to which domestic monetary policy can mitigate fluctuations in

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1   This is particularly notable in Colombia, where the two factors can explain up to 90% of bond and 95% of equity flows.

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*   The author is a junior researcher in the Department of Economic Policy Studies. The opinions contained herein do not necessarily reflect those of the *Banco de la República* or its Board of Directors.

2   Investor risk aversion is measured throughout the literature based on the volatility and behavior of stock market shares and the spread between U.S. treasury bonds and a BBB-rated corporate bond.

3   These studies focus on capital flows to emerging market economies. The general tendencies are expected to be consistent in the specific case of portfolio flows.

portfolio flows, to which the evidence suggests that the effect is ambiguous, limiting its effectiveness. A selection of case studies, summarized in Chart B2.1, support this conclusion. For example, Kim (2014) finds opposing effects on portfolio flows following positive interest rate shocks in South Korea. On one hand, and in line with expected outcomes under the risk channel, the increase in rates led to a reduction in equity portfolio flows that would have been motivated by expectations of worsening economic conditions[4]. On the other hand, and consistent with expected results under the portfolio channel, an increase in domestic bond purchases was also observed, possibly precipitated by greater returns in these positions within local markets, thus favoring portfolio inflows. Despite this, there are other types of tools available to monetary authorities in emerging markets to counteract the volatility of portfolio flows, including macroprudential policies and adherence to sustainable fiscal spending levels in the medium term (Koepke, 2019).

Chart B2.1
Effect of Domestic Monetary Policy on Portfolio Flows to Emerging Markets

Source	Effect	Flow	Account Type	Effect as a percentage of GDP	GDP frequency
ElFayoumi y Hengge (2020)	None	Total	Stock, bonos	-	N/A
Byrne y Feiss (2016)	None	Total	Stock, bonos	-	N/A
Fratzscher (2012)	None	Total	Total	-	N/A
Bluedorn et al. (2011)	Reduction	Total	Total	0.12%	Quarterly
	Reduction			0.40%	
	Reduction			0.30%	
	Reduction			0.10%	
Adugna (2016)	Reduction	Incoming	Portafolio	0.15%	Quarterly
	Reduction			0.40%	
	None			-	
	Increase			0.60%	
	Increase			0.38%	
Kim (2014)	Increase	Incoming	Bonds	1.00%	Monthly
	Reduction	Incoming	Stock	2.00%	
Çulha (2006)	Increase	Outgoing	Total	0.39%	Monthly

Source: created by the author.

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4   Çulha (2006) argues that increases in domestic interest rates are assimilated by the market through increases in the risk premium, which in Turkey's case preceded periods of macroeconomic instability. This provoked an adverse reaction from investors, who withdrew their positions to more secure markets.

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

	Units	Oct-20	Dec-20	Oct-21	Dec-21	Oct-22
Total CPI	Monthly Variation (average)	0.14	n. r.	n. r.	n. r.	n. r.
CPI excluding foods	Monthly Variation (average)	0.14	n. r.	n. r.	n. r.	n. r.
Total CPI	Annual Variation, end of period (average)	1,93[c/]	1.92	2.80	2.85	3.06
CPI excluding food	Annual Variation, end of period (average)	1,57[c/]	1.39	2.67	2.69	3.00
Nominal Exchange Rate	Pesos per dollar, end of period	3,820	3,710	3,619	3,595	3,500
Policy Rate	Percentage, end of period	1.75	1.75	2.00	2.25	3.25

	Units	Q3 2020	Q4 2020	2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	2021	Q1 2022	Q2 2022	Q3 2022
GDP	Annual variation, original series	-8.7	-5.0	-7.2	-2.2	10.3	5.4	3.6	4.3	3.5	3.3	n. a.
Unemployment	Thirteen cities, average of period	19.0	17.4	n.d.	17.5	16.8	15.7	14.7	n.d.	14.5	13.9	n. a.
IBR (90 days)	Effective annual rate, end of Period	n. r.	1.8	n.d.	1.8	1.8	1.9	2.2	n.d.	2.3	2.5	2.9
DTF	Effective annual rate, end of Period	n. r.	2.1	n.d.	2.1	2.2	2.3	2.5	n.d.	2.5	2.8	3.1
Fiscal Deficit (NCG)	Percentage of GDP	n. a.	n. a.	-8.4	n. a.	n. a.	n. a.	n. a.	-6.0	n. a.	n. a.	n. a.
Current Account Deficit	Percentage of GDP	n. a.	n. a.	-3.7	n. a.	n. a.	n. a.	n. a.	-3.8	n. a.	n. a.	n. a.

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

Annex 2
Main Macroeconomic Forecast Variables

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Exogenous variables												
External [a/]												
Trade partners GDP [b/]	Percentage, annual change, seasonally adjusted	5.0	4.0	3.6	2.8	2.2	1.6	2.6	2.5	1.4	**-7.7**	**4.5**
Oil price (Benchmark Brent)	Dollars per barrel, average for period	111	112	109	99	54	45	55	72	64	**42**	**49**
Federal funds (Fed) effective interest rate	Percentage, average for period	0.10	0.14	0.11	0.09	0.13	0.40	1.00	1.83	2.16	**0.38**	**0.12**
Credit default swaps at 5 years for Colombia	Basis points, average for period	131	119	113	101	184	212	129	114	99	**150**	**158**
Domestic												
Colombia real neutral interest rate	Percentage, average for period	1.7	1.6	1.5	1.4	1.5	1.6	1.3	1.3	1.2	**1.3**	**1.5**
Potential (trend) GDP	Percentage, annual change	4.6	4.5	4.3	4.0	3.4	2.8	2.6	2.6	2.8	**-1.9**	**1.6**
Endogenous variables												
Prices												
CPI Total	Percentage, annual change, end of period	3.73	2.44	1.94	3.66	6.77	5.75	4.09	3.18	3.80	**1.88**	**2.61**
CPI excluding food [c/]	Percentage, annual change, end of period	3.39	2.67	2.46	3.28	5.25	5.51	5.03	3.51	3.45	.	.
CPI tradables	Percentage, annual change, end of period	0.24	0.56	0.86	1.75	7.27	5.91	3.24	1.40	2.18	.	.
CPI non-tradables	Percentage, annual change, end of period	4.03	3.92	3.67	3.34	4.64	5.26	5.38	3.13	3.45	.	.
CPI regulated items	Percentage, annual change, end of period	5.79	2.33	1.56	4.89	4.43	5.63	6.26	6.65	4.81	**1.40**	**3.37**
CPI food [d/]	Percentage, annual change, end of period	5.13	1.48	-0.23	5.24	13.08	6.65	0.48	1.87	5.80	**4.36**	**2.41**
CPI perishables	Percentage, annual change, end of period	7.73	-3.90	-0.16	16.74	26.03	-6.63	5.84	8.88	8.66	.	.
CPI processed	Percentage, annual change, end of period	4.50	2.83	-0.24	2.54	9.62	10.74	-0.91	-0.08	5.04	.	.
Core inflation indicators [e/]												
CPI excluding food	Percentage, annual change, end of period	3.39	2.67	2.46	3.28	5.25	5.51	5.03	3.51	3.45	.	.
Core 15 CPI	Percentage, annual change, end of period	3.54	2.67	2.47	3.19	5.59	5.98	4.21	3.22	3.78	.	.
CPI excluding food and regulated items	Percentage, annual change, end of period	2.70	2.77	2.73	2.82	5.50	5.48	4.67	2.57	3.10	**1.45**	**2.47**
Average of all core inflation indicators	Percentage, annual change, end of period	3.21	2.70	2.55	3.10	5.45	5.66	4.64	3.10	3.44	.	.
MER	Pesos per dollar, average for period	1,848	1,798	1,869	2,001	2,742	3,055	2,951	2,956	3,281	.	.
Inflation gap in the real interest rate	Percentage, average for period	-1,7	-3,4	-1,0	-0,3	9,6	2,5	-1,6	-0,6	3,6	**5,4**	**1,5**
Economic activity												
Gross domestic product	Percentage, annual change, s.a.c.e.	6.9	3.9	5.1	4.5	3.0	2.1	1.4	2.5	3.3	**-7.6**	**4.6**
Final consumption spending	Percentage, annual change, s.a.c.e.	5.7	5.5	5.4	4.3	3.4	1.6	2.3	3.7	4.4	.	.
Final household consumption spending	Percentage, annual change, s.a.c.e.	5.5	5.6	4.6	4.2	3.1	1.6	2.1	3.0	4.5	.	.
Final government overhead spending	Percentage, annual change, s.a.c.e.	6.5	4.8	8.9	4.7	4.9	1.8	3.6	7.0	4.3	.	.
Gross capital formation	Percentage, annual change, s.a.c.e.	18.5	2.9	7.8	12.0	-1.2	-0.2	-3.2	2.1	4.0	.	.
Gross fixed capital formation	Percentage, annual change, s.a.c.e.	12.2	3.3	8.5	9.2	2.8	-2.9	1.9	1.5	4.3	.	.
Housing	Percentage, annual change, s.a.c.e.	2.4	-0.7	6.4	10.4	9.5	-0.2	-1.9	-0.4	-7.4	.	.
Other buildings and structures	Percentage, annual change, s.a.c.e.	-0.9	4.4	12.3	9.6	10.2	0.0	4.6	-3.3	4.2	.	.
Machinery and equipment	Percentage, annual change, s.a.c.e.	29.3	4.0	4.8	9.2	-9.3	-7.9	1.4	9.4	13.9	.	.
Cultivated biological resources	Percentage, annual change, s.a.c.e.	11.2	-5.7	6.6	-1.3	2.3	13.1	0.3	5.6	0.5	.	.
Intellectual property products	Percentage, annual change, s.a.c.e.	13.1	8.0	19.6	5.1	1.3	-12.0	1.2	1.5	2.6	.	.
Domestic demand	Percentage, annual change, s.a.c.e.	8.4	4.9	5.9	6.0	2.4	1.2	1.1	3.4	4.3	.	.
Exports	Percentage, annual change, s.a.c.e.	12.3	4.5	4.7	-0.3	1.7	-0.2	2.6	0.9	2.6	.	.
Imports	Percentage, annual change, s.a.c.e.	20.2	9.4	8.5	7.8	-1.1	-3.5	1.0	5.8	8.1	.	.
Output gap [f/]	Percentage	0.6	0.0	0.8	1.3	1.0	0.3	-0.9	-1.0	-0.6	**-6.4**	**-3.7**
Short-term indicators												
Real industrial production	Percentage, annual change, seasonally adjusted	4.7	-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	7.8	4.1	4.7	8.4	6.4	2.0	-0.1	5.4	8.1	.	.
Coffee production	Percentage, annual change in accumulated production for the period	-12.5	-0.8	40.6	11.5	16.8	0.4	-0.3	-4.5	8.8	.	.
Oil production	Percentage, annual change, average for period	16.5	3.2	6.6	-1.9	1.6	-11.7	-3.7	1.4	2.4	.	.
Labor Market [g/]												
National Total												
Unemployment rate	Percentage, seasonally adjusted, average for period	10.8	10.4	9.6	9.1	8.9	9.2	9.4	9.7	10.5	**16.3**	**15.1**
Employment rate	Percentage, seasonally adjusted, average for period	56.8	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	63.7	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	11.4	11.2	10.6	9.9	9.8	10.0	10.6	10.8	11.2	.	.
Employment rate	Percentage, seasonally adjusted, average for period	59.1	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	66.7	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	-9,803	-11,362	-12,501	-19,764	-18,564	-12,036	-10,241	-13,118	-13,748	**-9,212**	**-10,845**
Percentage of GDP	Percentage, nominal terms	-2.9	-3.1	-3.3	-5.2	-6.3	-4.2	-3.3	-3.9	-4.3	**-3.4**	**-3.7**
A. Goods and Services	Millions of dollars	636	-1,187	-3,164	-11,863	-18,267	-12,705	-8,447	-8,997	-12,353	**-12,181**	**-12,775**
B. Primary income (factor income)	Millions of dollars	-15,490	-15,008	-14,224	-12,523	-5,727	-5,229	-8,405	-11,764	-10,098	**-5,523**	**-6,932**
C. Secondary income (current account transfers)	Millions of dollars	5,051	4,833	4,887	4,622	5,430	5,898	6,611	7,643	8,704	**8,491**	**8,862**
Financial account (A+B+C+D)	Millions of dollars	-8,707	-11,553	-11,740	-19,292	-18,244	-12,273	-9,558	-12,415	-12,775	.	.
Percentage of GDP	Percentage, nominal terms	-2.6	-3.1	-3.1	-5.1	-6.2	-4.3	-3.1	-3.7	-4.0	.	.
A. Foreign investment (i+ii)	Millions of dollars	-6,227	-15,646	-8,558	-12,270	-7,506	-9,330	-10,147	-6,409	-11,095	.	.
i. Foreign in Colombia (FDI)	Millions of dollars	14,647	15,040	16,210	16,169	11,724	13,848	13,837	11,535	14,314	.	.
ii. Colombian abroad	Millions of dollars	8,420	-606	7,652	3,899	4,218	4,517	3,690	5,126	3,219	.	.
B. Portfolio investment	Millions of dollars	-6,171	-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	-51	3,457	-2,690	106	-1,987	1,731	1,661	-8,490	-5,296	.	.
D. Reserve assets	Millions of dollars	3,742	5,406	6,946	4,437	415	165	545	1,187	3,333	.	.
Errors and omissions (E and O)	Millions of dollars	1,096	-190	761	472	320	-237	683	703	973	.	.
Interest rates												
Policy rate	Percentage, average for period	4.0	5.0	3.4	3.9	4.7	7.1	6.1	4.4	4.3	.	.
Policy rate expected by analysts	Percentage, average for period	.	.	.	.	.	.	.	.	.	**2.9**	**1.8**
IBR	Percentage, average for period	4.1	5.0	3.4	3.8	4.7	7.1	6.1	4.3	4.3	.	.
Commercial interest rate	Percentage, average for period	9.0	10.3	8.4	8.7	9.4	12.8	11.1	9.3	8.8	.	.
Consumer interest rate	Percentage, average for period	18.2	19.2	17.9	17.3	17.2	19.2	19.4	17.9	16.5	.	.
Mortgage rate	Percentage, average for period	13.0	13.2	11.1	11.1	11.0	12.4	11.6	10.6	10.4	.	.

SACE: seasonally adjusted and corrected for calendar effects
Note: values in bold represent a projection or assumption.
a/ quarterly data in bold correspond to an assumption based on the annual projection of each variable
b/ Calculated for the largest 21 trade partners (excluding Venezuela) by non-traditional dollar exports from Colombia
c/ Calculations by *Banco de la República* based on its new classification; excludes the division of the CPI for food and non-alcoholic drinks. See González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC and revisión de las medidas de inflación básica en Colombia," Borradores de Economía, no. 122, *Banco de la República*, available at: https://investiga.banrep.gov.co/es/be-1122
d/ Calculations by *Banco de la República*. based on its new classification; equal to the division of the CPI for food and non-alcoholic drinks produced by DANE (does not include sub-categories corresponding to food away from home). See González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC and revisión de las medidas de inflación básica en Colombia," Borradores de Economía, no. 122, *Banco de la República*, available at: https://investiga.banrep.gov.co/es/be-1122
e/ Calculations by *Banco de la República*. based on its new classification. See González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC and revisión de las medidas de inflación básica en Colombia," Borradores de Economía, no. 122, *Banco de la República*, available at: https://investiga.banrep.gov.co/es/be-1122
f/ The historical estimate for the gap is calculated as the difference between observed and potential (trend) GDP resulting from the 4G monetary policy model; forecast is calculated as the difference between the technical staff's GDP estimate and potential (trend) GDP from the 4G model.
g/ 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 October 2020.

Annex 2 (continued)
Main Macroeconomic Forecast Variables

		2016				2017			
		T1	T2	T3	T4	T1	T2	T3	T4
Exogenous variables									
External a/									
Trade partners GDP b/	Percentage, annual change, seasonally adjusted	1.4	2.1	2.0	2.8	2.5	3.0	3.0	2.9
Oil price (Benchmark Brent)	Dollars per barrel, average for period	35	47	47	51	55	51	52	61
Federal funds (Fed) effective interest rate	Percentage, average for period	0.36	0.37	0.40	0.45	0.70	0.95	1.15	1.20
Credit default swaps at 5 years for Colombia	Basis points, average for period	266	225	179	180	144	130	127	113
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	7.98	8.60	7.27	5.75	4.69	3.99	3.97	4.09
CPI excluding food c/	Percentage, annual change, end of period	6.35	6.51	6.28	5.51	5.55	5.40	4.86	5.03
CPI tradables	Percentage, annual change, end of period	7.91	8.30	7.58	5.91	5.69	4.28	3.46	3.24
CPI non-tradables	Percentage, annual change, end of period	5.21	5.50	5.63	5.26	5.87	5.55	5.02	5.38
CPI regulated items	Percentage, annual change, end of period	7.22	6.85	6.31	5.63	4.71	4.32	6.10	6.26
CPI food d/	Percentage, annual change, end of period	14.48	17.03	11.23	6.65	1.46	-1.21	0.59	0.48
CPI perishables	Percentage, annual change, end of period	27.09	34.94	6.66	-6.63	-13.09	-14.72	-0.32	5.84
CPI processed	Percentage, annual change, end of period	10.83	12.09	12.56	10.74	6.28	3.29	0.84	-0.91
Core inflation indicators e/									
CPI excluding food	Percentage, annual change, end of period	6.35	6.51	6.28	5.51	5.55	5.40	4.86	5.03
Core 15 CPI	Percentage, annual change, end of period	6.64	6.97	6.90	5.98	5.63	5.16	4.49	4.21
CPI excluding food and regulated items	Percentage, annual change, end of period	6.09	6.41	6.27	5.48	5.81	5.13	4.50	4.67
Average of all core inflation indicators	Percentage, annual change, end of period	6.36	6.63	6.48	5.66	5.66	5.23	4.62	4.64
MER	Pesos per dollar, average for period	3,262	2,993	2,950	3,016	2,923	2,919	2,977	2,987
Inflation gap in the real interest rate	Percentage, average for period	11.1	0.3	-1.7	0.5	-2.9	-3.0	-0.6	0.0
Economic activity									
Gross domestic product	Percentage, annual change, s.a.c.e.	2.0	2.1	1.5	2.8	1.3	1.6	1.4	1.2
Final consumption spending	Percentage, annual change, s.a.c.e.	1.6	1.3	-0.1	3.6	2.0	2.2	3.0	2.2
Final household consumption spending	Percentage, annual change, s.a.c.e.	2.3	1.4	0.7	1.9	1.6	2.0	2.6	2.0
Final government overhead spending	Percentage, annual change, s.a.c.e.	-0.3	1.4	-2.5	9.5	3.1	3.1	3.5	4.8
Gross capital formation	Percentage, annual change, s.a.c.e.	4.1	4.7	-1.7	-7.3	-3.6	-2.6	-5.3	-1.4
Gross fixed capital formation	Percentage, annual change, s.a.c.e.	-0.7	-4.1	-7.4	0.8	-1.0	1.6	5.8	1.2
Housing	Percentage, annual change, s.a.c.e.	-6.8	0.2	-5.4	12.3	5.4	4.3	-4.4	-11.9
Other buildings and structures	Percentage, annual change, s.a.c.e.	5.0	-0.9	-6.0	2.2	-1.4	4.4	10.5	5.3
Machinery and equipment	Percentage, annual change, s.a.c.e.	-5.4	-11.8	-7.7	-6.5	-6.7	-2.2	7.8	7.2
Cultivated biological resources	Percentage, annual change, s.a.c.e.	4.4	15.2	15.6	17.0	17.1	-0.8	-11.1	-1.6
Intellectual property products	Percentage, annual change, s.a.c.e.	-7.7	-12.1	-14.4	-13.8	-3.5	1.9	3.9	2.7
Domestic demand	Percentage, annual change, s.a.c.e.	1.9	2.5	-0.9	1.5	1.1	1.1	1.3	1.0
Exports	Percentage, annual change, s.a.c.e.	0.5	-6.6	1.2	4.5	1.8	5.2	3.7	-0.2
Imports	Percentage, annual change, s.a.c.e.	-3.0	-2.2	-6.4	-2.5	1.7	2.1	0.0	0.2
Output gap f/	Percentage	0.7	0.5	0.2	0.3	-0.1	-0.3	-0.6	-0.9
Short-term indicators									
Real industrial production	Percentage, annual change, seasonally adjusted	6.0	4.1	2.2	1.9	-0.6	-0.5	1.0	0.1
Retail commerce sales excluding fuels and vehicles	Percentage, annual change, seasonally adjusted	3.8	2.2	0.6	1.6	-0.9	0.1	0.1	0.2
Coffee production	Percentage, annual change in accumulated production for the period	8.9	1.1	-12.2	5.4	13.0	-17.2	17.1	-10.1
Oil production	Percentage, annual change, average for period	-7.4	-11.5	-13.3	-14.8	-11.6	-5.2	1.5	1.9
Labor Market g/									
National Total									
Unemployment rate	Percentage, seasonally adjusted, average for period	9.4	9.1	9.2	9.1	9.4	9.2	9.5	9.5
Employment rate	Percentage, seasonally adjusted, average for period	58.7	58.4	58.4	58.6	58.5	58.8	58.2	57.9
Overall participation rate	Percentage, seasonally adjusted, average for period	64.8	64.3	64.3	64.5	64.5	64.7	64.3	64.0
Thirteen cities and metropolitan areas									
Unemployment rate	Percentage, seasonally adjusted, average for period	10.2	9.5	10.1	10.2	10.4	10.6	10.9	10.6
Employment rate	Percentage, seasonally adjusted, average for period	61.2	60.7	60.4	60.6	60.4	60.1	59.6	59.3
Overall participation rate	Percentage, seasonally adjusted, average for period	68.2	67.1	67.2	67.5	67.4	67.3	66.9	66.4
Balance of payments h/i/									
Current account (A+B+C)	Millions of dollars	-3,439	-2,590	-3,466	-2,541	-3,506	-2,481	-2,725	-1,529
Percentage of GDP	Percentage, nominal terms	-5.5	-3.7	-4.7	-3.2	-4.7	-3.3	-3.5	-1.8
A. Goods and Services	Millions of dollars	-3,792	-2,757	-3,367	-2,789	-2,584	-2,482	-2,283	-1,099
B. Primary income (factor income)	Millions of dollars	-1,018	-1,270	-1,509	-1,432	-2,343	-1,632	-2,128	-2,303
C. Secondary income (current account transfers)	Millions of dollars	1,371	1,437	1,410	1,679	1,421	1,632	1,685	1,873
Financial account (A+B+C+D)	Millions of dollars	-3,620	-3,154	-3,423	-2,077	-2,922	-2,363	-2,675	-1,598
Percentage of GDP	Percentage, nominal terms	-5.8	-4.6	-4.6	-2.6	-4.0	-3.1	-3.4	-1.9
A. Foreign investment (i+ii)	Millions of dollars	-3,672	-2,726	-1,579	-1,353	-1,797	-1,252	-4,148	-2,951
i. Foreign in Colombia (FDI)	Millions of dollars	4,684	3,638	2,256	3,269	2,513	2,526	4,992	3,805
ii. Colombian abroad	Millions of dollars	1,012	913	677	1,916	716	1,275	845	854
B. Portfolio investment	Millions of dollars	-856	-1,625	-975	-1,384	265	-1,983	-519	620
C. Other investment (loans and other credits and derivatives)	Millions of dollars	810	1,352	-954	524	-1,482	717	1,867	560
D. Reserve assets	Millions of dollars	98	-155	85	136	93	154	126	173
Errors and omissions (E and O)	Millions of dollars	-181	-564	43	465	584	117	50	-69
Interest rates									
Policy rate	Percentage, average for period	6.1	6.9	7.7	7.7	7.4	6.6	5.5	5.0
Policy rate expected by analysts	Percentage, average for period								
IBR	Percentage, average for period	6.1	7.0	7.7	7.7	7.4	6.6	5.5	5.0
Commercial interest rate	Percentage, average for period	11.7	13.0	13.4	13.2	12.8	11.6	10.6	10.0
Consumer interest rate	Percentage, average for period	18.5	19.0	19.5	19.6	20.1	19.7	19.0	18.7
Mortgage rate	Percentage, average for period	11.9	12.4	12.7	12.7	12.5	12.3	11.3	10.9

SACE: seasonally adjusted and corrected for calendar effects
Note: values in bold represent a projection or assumption.
a/ quarterly data in bold correspond to an assumption based on the annual projection of each variable
b/ Calculated for the largest 21 trade partners (excluding Venezuela) by non-traditional dollar exports from Colombia
c/ Calculations by *Banco de la República* based on its new classification; excludes the division of the CPI for food and non-alcoholic drinks. See González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (2020). "Nueva clasificación del Banrep de la canasta del IPC and revisión de las medidas de inflación básica en Colombia," Borradores de Economía, no. 122, *Banco de la República*, available at: https://investiga.banrep.gov.co/es/be-1122
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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 October 2020.

2018				2019				2020				2021				2022		
T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3
2.7	2.8	0.9	1.3	1.2	2.3	1.3	-0.8	-8.0	-42.9	**36.7**	**7.6**	**6.2**	**4.5**	**2.7**	**2.4**	**2.9**	**2.9**	**2.9**
67	75	76	69	64	68	62	62	51	33	43	**42**	**44**	**49**	**52**	**53**	**55**	**56**	**57**
1.45	1.74	1.92	2.22	2.40	2.40	2.19	1.64	1.26	0.06	0.09	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**	**0.13**
99	113	110	132	121	104	90	83	125	206	132	**138**	**146**	**154**	**162**	**170**	**170**	**170**	**170**
3.14	3.20	3.23	3.18	3.21	3.43	3.82	3.80	3.86	2.19	1.97	**1.88**	**1.81**	**2.76**	**2.59**	**2.61**	**2.66**	**2.76**	**2.82**
3.97	3.73	3.67	3.51	3.27	3.22	3.37	3.45	3.26	1.40	1.57	.	.	.	.	.	.	.	.
1.67	1.39	1.39	1.40	1.60	1.60	1.83	2.18	2.41	0.73	1.15	.	.	.	.	.	.	.	.
4.09	3.79	3.60	3.13	3.01	3.10	3.37	3.45	3.22	2.00	1.86	**1.40**	**1.66**	**4.77**	**3.77**	**3.37**	**3.26**	**3.26**	**3.30**
6.28	6.21	6.35	6.65	6.33	5.24	5.03	4.81	4.27	0.44	1.19	**4.36**	**2.65**	**1.83**	**2.60**	**2.41**	**2.31**	**2.29**	**2.36**
-0.06	1.11	1.47	1.87	3.24	4.96	6.49	5.80	7.19	6.55	4.13	.	.	.	.	.	.	.	.
7.13	8.47	9.51	8.88	9.98	15.46	17.50	8.66	9.79	2.52	-3.42	.	.	.	.	.	.	.	.
-2.01	-0.91	-0.72	-0.08	1.43	2.18	3.57	5.04	6.46	7.75	6.40	.	.	.	.	.	.	.	.
3.97	3.73	3.67	3.51	3.27	3.22	3.37	3.45	3.26	1.40	1.57	.	.	.	.	.	.	.	.
3.45	3.24	3.19	3.22	3.24	3.34	3.66	3.78	3.64	2.17	2.33	.	.	.	.	.	.	.	.
3.28	2.99	2.87	2.57	2.41	2.65	2.92	3.10	2.99	1.65	1.67	**1.45**	**1.50**	**2.42**	**2.26**	**2.47**	**2.58**	**2.74**	**2.81**
3.57	3.32	3.24	3.10	2.97	3.07	3.32	3.44	3.30	1.74	1.86	.	.	.	.	.	.	.	.
2,860	2,841	2,961	3,164	3,134	3,241	3,340	3,411	3,532	3,848	3,733	.	.	.	.	.	.	.	.
-3.3	-3.7	-0.3	4.7	2.3	3.3	4.0	5.0	4.7	9.9	**5.0**	**2.0**	**2.0**	**1.3**	**1.4**	**1.3**	**1.1**	**0.8**	**0.5**
2.4	2.2	2.7	2.7	2.4	3.6	3.4	3.6	1.0	-15.5	**-9.0**	**-6.2**	**-3.6**	**14.2**	**5.9**	**2.6**	**2.8**	**3.0**	**3.4**
3.5	3.9	3.4	4.1	4.1	4.3	4.7	4.5	3.8	-12.5	**-8.4**	.	.	.	.	.	.	.	.
2.7	3.4	3.0	2.9	3.9	4.2	4.9	4.8	4	-15.8	**-11.2**	.	.	.	.	.	.	.	.
7.3	6.3	7.4	7.2	4.1	5.1	4.1	3.7	3.4	2.5	**3.4**	.	.	.	.	.	.	.	.
-0.8	0.5	4.6	4.3	2.3	4.6	5.4	3.6	-3	-33.3	**-18**	.	.	.	.	.	.	.	.
0.7	1.3	1.5	2.6	6.0	6.6	4.4	0.2	-0.9	-33.6	**-17.5**	.	.	.	.	.	.	.	.
-5.3	-3.0	2.6	4.9	-4.6	-7.2	-7.0	-10.9	-7.8	-40.0	**-25**	.	.	.	.	.	.	.	.
-4.5	-3.8	-6.6	1.8	4.9	4.5	6.2	1.4	5.7	-28.6	**-13.7**	.	.	.	.	.	.	.	.
13.7	13.5	7.8	3.2	15.7	22.3	12.7	5	-2.4	-37.0	**-22.2**	.	.	.	.	.	.	.	.
-0.4	1.5	14.5	7.6	1.9	4.5	1.4	-5.5	1.3	1.6	**1.6**	.	.	.	.	.	.	.	.
2.5	1.9	0.7	1.1	1.5	1.3	2.5	5.2	1.3	-11.6	**-9.5**	.	.	.	.	.	.	.	.
1.8	3.5	3.3	4.9	4.3	3.9	5.3	3.8	1.3	-16.8	**-10.5**	.	.	.	.	.	.	.	.
0.5	-1.3	1.7	2.5	3.7	6.5	1.5	-1.2	-2.3	-27.5	**-20**	.	.	.	.	.	.	.	.
0.9	5.1	6.3	11.0	8.6	8.9	11.1	4.1	1.2	-29.6	**-22.9**	.	.	.	.	.	.	.	.
-1.0	-1.1	-1.0	-1.0	-1.1	-0.9	-0.8	-0.6	-0.8	-3.6	**-5.2**	**-6.4**	**-6.9**	**-5.1**	**-4.2**	**-3.7**	**-3.2**	**-2.8**	**-2.2**
2.5	2.8	3.6	2.7	1.1	2.5	0.7	0.8	-1.2	-23.3	.	.	.	.	.	.	.	.	.
4.5	5.7	5.4	6.2	6.0	7.7	9.9	8.7	6.7	-15.5	.	.	.	.	.	.	.	.	.
-5.8	13.1	-13.8	-6.6	-1.9	6.6	4.9	24.1	-13.8	-1.9	-3.6	.	.	.	.	.	.	.	.
0.7	1.2	1.1	2.6	5.3	3.2	1.4	-0.2	-2.1	-15.7	-15.4	.	.	.	.	.	.	.	.
9.4	9.6	9.6	10.2	10.5	10.3	10.7	10.6	11.2	20.6	**17.6**	**16.0**	.	.	.	.	.	.	.
57.9	58.0	58.1	57.1	57.4	56.4	56.4	56.4	55.3	43.5	.	.	.	.	.	.	.	.	.
63.8	64.2	64.3	63.6	64.2	62.8	63.1	63.0	62.2	54.7	.	.	.	.	.	.	.	.	.
10.6	10.6	10.6	11.2	11.4	11.1	11.0	11.3	11.1	24.0	.	.	.	.	.	.	.	.	.
59.3	59.6	59.5	58.5	58.7	58.6	58.5	58.6	57.2	44.0	.	.	.	.	.	.	.	.	.
66.4	66.7	66.5	65.9	66.3	65.9	65.7	66.1	64.4	57.9	.	.	.	.	.	.	.	.	.
-2,858	-3,283	-3,219	-3,759	-3,538	-2,842	-4,221	-3,147	-2,547	-1,693	.	.	.	.	.	.	.	.	.
-3.5	-3.9	-3.8	-4.4	-4.5	-3.6	-5.2	-3.7	-3.5	-3	.	.	.	.	.	.	.	.	.
-1,504	-2,198	-2,297	-2,998	-2,700	-2,501	-4,037	-3,115	-2,882	-2,487	.	.	.	.	.	.	.	.	.
-2,977	-2,897	-2,878	-3,011	-2,636	-2,552	-2,496	-2,414	-1,802	-921	.	.	.	.	.	.	.	.	.
1,623	1,812	1,957	2,250	1,798	2,211	2,312	2,383	2,138	1,715	.	.	.	.	.	.	.	.	.
-2,562	-2,851	-3,434	-3,568	-3,314	-3,220	-3,471	-2,770	-2,189	-2,279	.	.	.	.	.	.	.	.	.
-3.2	-3.4	-4.0	-4.2	-4.2	-4.1	-4.3	-3.3	-3	-4.1	.	.	.	.	.	.	.	.	.
-935	-2,345	-2,469	-659	-2,610	-3,674	-1,829	-2,983	-2,282	-1,591	.	.	.	.	.	.	.	.	.
2,007	3,846	2,799	2,883	3,390	4,148	3,303	3,472	3,456	1,340	.	.	.	.	.	.	.	.	.
1,072	1,500	330	2,224	781	474	1,475	489	1,174	-250	.	.	.	.	.	.	.	.	.
1,750	334	536	-1,323	-1,307	-178	268	1,499	-315	-3,094	.	.	.	.	.	.	.	.	.
-3,514	-988	-1,670	-2,317	-1,748	105	-2,164	-1,489	579	-184	.	.	.	.	.	.	.	.	.
137	150	169	732	2,351	526	254	202	-171	2,590	.	.	.	.	.	.	.	.	.
296	432	-216	190	224	-378	751	376	358	-586	.	.	.	.	.	.	.	.	.
4.6	4.3	4.3	4.3	4.3	4.3	4.3	4.25	4.23	3.26	2.24	**1.75**	**1.75**	**1.75**	**1.75**	**2.00**	**2.33**	**2.63**	**3.00**
4.6	4.3	4.3	4.3	4.3	4.3	4.3	4.25	4.22	3.22	2.22								
9.4	9.4	9.3	9.0	9.1	9.0	8.9	8.52	8.35	8.27	6.98								
18.7	17.9	18.0	17.3	18.0	17.2	16.0	15.49	15.8	15.51	14.77								
10.8	10.6	10.5	10.4	10.4	10.5	10.4	10.42	10.44	10.39	10.2								