MONETARY POLICY REPORT

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MONETARY **POLICY REPORT**

* Presented by the Central Bank of Colombia's technical staff for the Board of Directors' meeting on 31 July 2020.

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Monetary Policy in Colombia

The Central Bank of Colombia (*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 Central Bank of Colombia'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

The global macroeconomic outlook is slightly clearer than it was at the start of the COVID-19 pandemic both in real and financial terms. But uncertainty remains, and several of the sources of that uncertainty are still present. On one hand, the effects of the pandemic – as well as the mandatory isolation measures required to confront it – have been more prolonged than expected. In some countries, COVID-19 cases spiked after earlier declines in May and June. In Colombia, an increase in cases and health system occupancy have led to new restrictions on mobility, though only in some geographic areas. All of this suggests a slower recovery of global and domestic economic activity than first anticipated. On the other hand, external financing conditions have become more favorable, reflected in lower sovereign risk premia, reduced volatility, and significantly more liquidity in international and domestic money markets, public debt markets, and foreign exchange markets. Oil prices and remittances have also recovered slightly. This environment has provided the backdrop for a correction to the significant peso depreciation registered at the beginning of the pandemic.

Given the current context, and in contrast to April's *Monetary Policy Report*, the technical staff's forecast presented in this document reflects the expectation of macroeconomic adjustment for the next two years. Observed declines in economic activity and inflation suggest that while recent economic shocks have affected both supply and aggregate demand, those factors associated with the latter appear to have been predominant. Still, it remains difficult to assign probabilities to potential scenarios moving forward, and as a result this report presents simple ranges for primary macroeconomic variables. The intervals provided are the result of multiple simulations that attempt to capture degrees of uncertainty surrounding the speed of economic recovery, the duration of expected sector closures and their effects on output, the magnitude of excess production capacity, and the effects of temporary regulatory measures (tax reductions and aid) on inflation behavior, among other considerations.

Colombia's economy faces the likelihood of deep recession through 2020 after what appears to have been a historic fall in output in the second quarter. That said, uncertainty over the size of the output decline and the magnitude of excess production capacity remains high. Colombia's economic monitoring indicator and its components (May), high-frequency financial indicators of household spending (June), and business and consumer confidence surveys (June), among other considerations, confirm a significant drop in output in the second quarter of the year, likely around 16.5%. Labor market deterioration (May) has also been significant, with sharp drops in employment and a high number of workers becoming inactive. Additionally, quarantine measures have been extended in major Colombian cities, and foreign demand has dropped more than previously projected amid the possibility of renewed COVID-19 outbreaks among several trading partners. Upon incorporating these and other considerations into its simulations, the technical staff's estimates suggest a decline

in output in 2020 close to 8.5%, with a range between -10% and -6%. Next year economic activity should recover (4.1%, with a range between 3% and 8%), but likely will not reach pre-pandemic levels. The technical staff also expects a significant excess production capacity expansion both this and next year compared to 2019. However, it is difficult to establish the levels of such excesses given the degree of uncertainty over the magnitude and persistence of supply and demand shocks and their effects on real economic activity and potential output. The latter could be affected at different points by a fall in investment, the failure of some efficient firms, the effects of the pandemic on a relatively rigid formal labor market, and the impact of sectoral reallocation on aggregate productivity, among other factors.

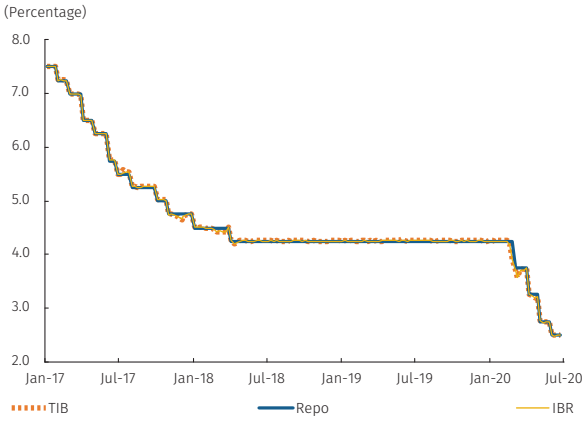
Headline inflation (2.19%) and inflation excluding food and regulated items (1.66%) fell more than expected in June, settling below the 3% target rate. A fall in demand and temporary price relief provided by the national government help explain the drop and should leave inflation between 1% and 2% at the end of the year. Expectations for inflation at five years or less are below 3%. A generalized slowdown in price increases for large components of the Consumer Price Index (CPI) between March and June was sharper than the technical staff's prior expectations. Core inflation (excluding food and regulated items) fell in both tradable items (from 2.47% to 0.61%) and non-tradables (3.29% to 2.13%). As was the case with drops registered in all core inflation indicators, these declines were likely in part the result of weak aggregate demand, excess production capacity, and low pressure on labor costs. Some temporary reductions in indirect taxes and price freezes can also help explain this behavior. A fall in the annual change in the price of regulated items (from 3.78% to -0.78%) came amid temporary subsidies for public services and a reduction in gasoline prices. Food prices registered the smallest decline (5.99% to 5.35%), possibly associated with increased demand and the pass-through effects of the exchange rate on processed food prices. Inflation could increase once temporary subsidies, rebates on indirect taxes, and targeted price freezes are removed. There remains a high degree of uncertainty over the potential for measurement biases as a result of limited transactions and the closure of some sectors, and the recomposition of household spending. Given this, the Bank's technical staff estimates year-end inflation between 1% and 2%, which should rise in 2021 to between 2% and 3% in a context of excess production capacity. Analysts' inflation expectations at one and two years continue on a downward trajectory and remain below 3%, as do those for five years or less based on public debt prices.

External demand appears to have undergone a historic decline in the second quarter. Recovery will likely be slow and fail to return to pre-pandemic levels in 2021. Ample global liquidity and historic low interest rates should persist. Colombia's trade partners registered unprecedented declines in primary indicators of economic activity and employment, alongside observed and expected inflation falling below target rates. Gasoline prices have recovered, but to below pre-pandemic levels, amid an easing of mobility restrictions in several countries and supply cuts by the world's primary oil-producing countries. The absence of a COVID-19 vaccine, the likelihood of new waves of contagion and social distancing guidelines, and the failure of some efficient firms all suggest that economic recovery in the second half of 2020 will be slow and uncertain. Heightened diplomatic and trade tensions between the United States and China could

further dampen the prospects for global growth. Low observed and expected inflation, excesses in production capacity, and significant labor market deterioration suggest that central banks will seek to maintain ample liquidity and low interest rates for the rest of the year and in 2021.

International and domestic financial conditions have improved, though some relevant indicators have not yet returned to pre-pandemic levels. Ample international liquidity, the partial reopening of several world economies, a recovery in oil prices, and measures implemented by the Central Bank of Colombia and the national government, among other factors, have helped improve international and domestic financial conditions facing the country. Global risk indicators have come down, though without reaching levels registered at the beginning of the year. In this context, numerous emerging market economies, including Colombia, have been able to emit foreign currency-denominated debt at rates similar to or below pre-pandemic levels. Peso-denominated interest rates on public and private debt have declined, returning to levels similar to those observed at the beginning of the year. Reductions in the policy rate have passed through to numerous interest rates in the financial system. Average interest rates on deposits and consumer and ordinary commercial credit have fallen slightly below levels observed before the pandemic, while mortgage rates remain relatively stable. Consumer and mortgage loan portfolios continued to slow, while business loans showed significant annual growth, though at a lower growth rate according to the latest figures.

Graph 1.1
Policy rate, interbank rate and OPR [a/]
(weekly data)



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

1.2 Monetary policy decision

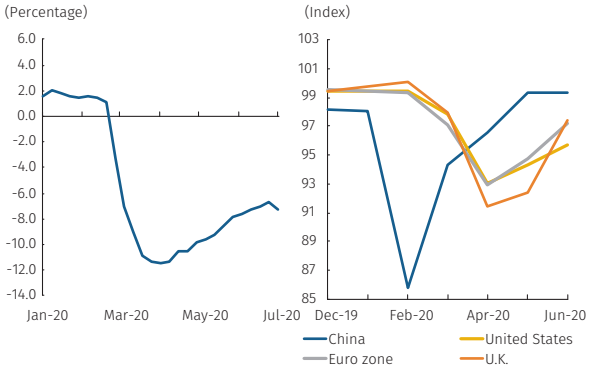
The Central Bank of Colombia's Board of Directors' (BDBR) benchmark rate decisions were made by majority in May and June, and unanimously in July. The BDBR decided to reduce the policy interest rate by 50 basis points (bp) in May, and by 25 bp in both June and July. The 100 bp reduction over that three-month period brought the current interest rate to 2.25% (Graph 1.1).

02/ Macroeconomic forecasts and risk analysis

Graph 2.1
Economic activity indicators for select advanced economies and China

A. U.S. weekly indicator

B. Leading indicator for major economies

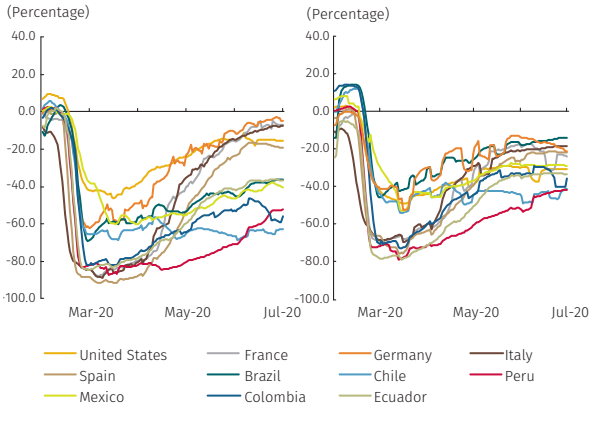


Sources: Federal Reserves of St. Louis and New York; Bloomberg; OECD (2020), Composite leading indicator (CLI) (July 29, 2020); calculations by *Banco de la República*.

Graph 2.2
Mobility index for select countries

A. To restaurants, shopping centers, movie theaters, and other destinations

B. To workplaces



Note: seven-day moving average.
Source: Google LLC "Google COVID-19 Community Mobility Reports."https://www.google.com/covid19/mobility/. July 30, 2020.

2.1 International outlook

2.1.1 Foreign demand

The deep economic crisis facing the world's advanced economies likely reached its nadir in the second quarter[1], but uncertainty about the speed and sustainability of recovery remains high. Economic activity in the United States continued to recover slowly in June (Graph 2.1, Panel A). The unemployment rate, though still high, fell alongside a temporary rebound in consumer confidence. These factors, as well as government aid, observed increases in mobility (Graph 2.2), and low interest rates, likely favored household consumption[2]. Business outlooks also improved in June, though increased optimism has not yet translated to improvement in industrial production figures, which continue to show significant annual declines. The Organization for Economic Cooperation and Development's (OECD) leading indicator for Europe showed monthly improvement in June (Graph 2.1, Panel B), accompanied by expansive business conditions following a partial recovery of economic activity in May[3]. The strengthening of employee retention schemes in some OECD countries appears to have helped them avoid a more significant deterioration of labor markets, which together with improved consumer confidence and the gradual relaxation of quarantine measures likely contributed to private consumption. The European Union also reached a fiscal agreement in July that, together with expansive monetary policy, should support economic activity. Despite these signs of improvement, the U.S. and euro zone will likely face significant output declines through 2020, finishing the year far below pre-pandemic levels. Uncertainty over the evolution of the pandemic also remains high and could affect recovery. What's more, caseloads have increased in the U.S. and in some European countries, which could stall reopening.

China's GDP recovered significantly in the second quarter after shrinking at the beginning of the year. Chinese output grew in the second quarter at annual and

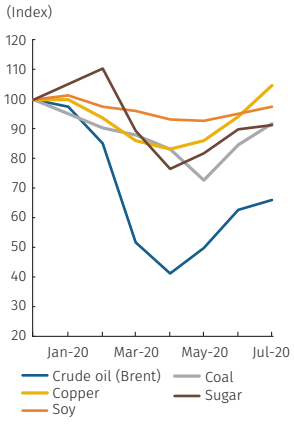
1 As this report went to press, real second quarter GDP figures in the U.S. showed an annual decline of 9.5%.

2 Retail sales registered monthly growth of 18.2% in May and 6.9% in June, similar to levels from the previous year.

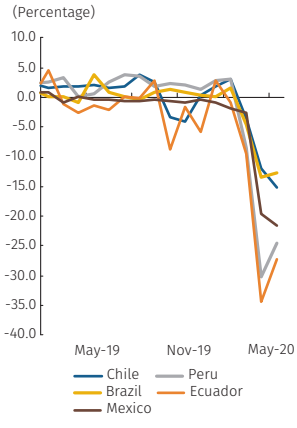
3 Retail sales grew 17.8% and industrial production 14.9% in May, though both remained below levels from the previous year.

Graph 2.3
Economic activity and Latin American commodity export prices

A. commodity export prices (December 2019=100)



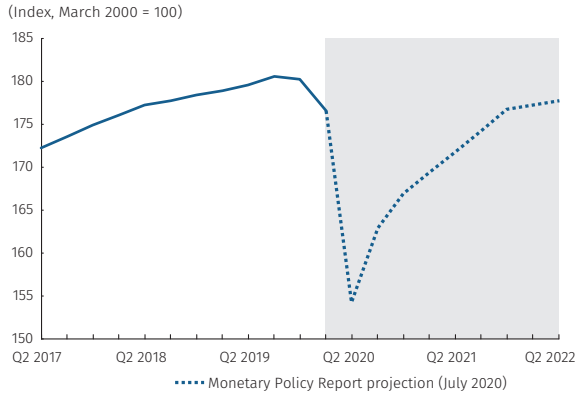
B. Economic activity indicator



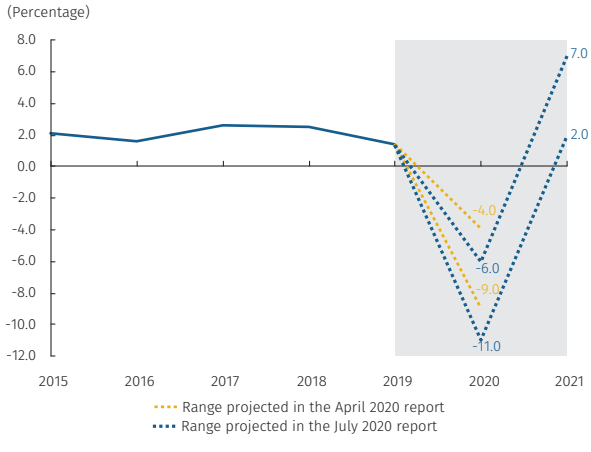
Sources: Bloomberg and Datastream; calculations by *Banco de la República*.

Graph 2.4
Foreign demand

A. Assumed quarterly real GDP for Colombian trade partners



B. Assumed quarterly real GDP growth for Colombian trade partners



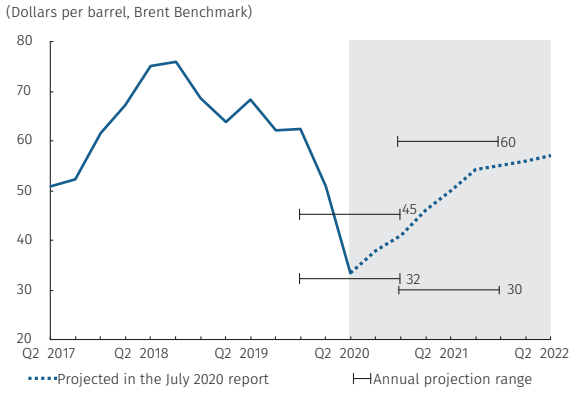
Sources: Bloomberg, statistics offices and central banks; calculations and projections by *Banco de la República*.

quarterly rates of 3.2% and 11.5%, respectively. China's success in containing the virus and the reopening of additional segments of the economy aided recovery in economic activity. This included improvement in industrial production, investment, and retail sales. Consumer confidence and business outlooks also improved in June from the previous month. Nevertheless, recovery has been limited by unfavorable international conditions, as quarantine measures in large parts of the world remained in place in the second quarter, contributing to an annual decline in China's exports. Despite signs of improvement, growth is expected to be low through 2020, even as new cases of COVID-19 have appeared and raised the risk of renewed outbreaks.

Deep economic recession is expected for Colombia's trade partners in Latin America, with the region now an epicenter of the pandemic. As Latin America deals with a significant increase in COVID-19 cases, quarantine measures have been relaxed at a slower pace than elsewhere in the world. Weakness in public health systems, a prevalence of informality in labor markets, and social conditions, among other factors, have made controlling the pandemic more difficult in the region. International conditions have also been marked by declines in foreign demand, remittances, and tourism. Nonetheless, financial conditions have improved compared to April and May alongside increases in export prices for raw materials (Graph 2.3, Panel A). Colombia's main trade partners in the region continued to see annual declines in May in monthly indicators of economic activity (Graph 2.3, Panel B), accompanied by higher unemployment rates. According to the Economic Commission for Latin America and the Caribbean (ECLAC), the regional unemployment rate will likely be around 13.5% at the end of 2020. On the margin, mobility indicators have stagnated or reversed, given difficulties in controlling the virus (Graph 2.2). There remains a high degree of uncertainty about the recovery of economic activity in the region amid increased COVID-19 cases, fiscal limitations, social and political tensions, and rigid labor markets, among other factors.

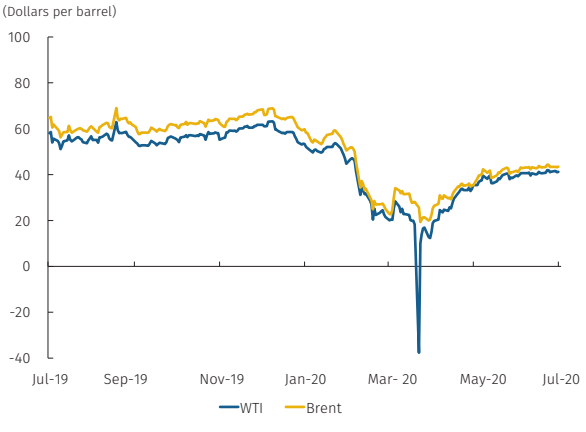
The technical staff's central forecast scenario projects a gradual recovery in external demand but with a high degree of uncertainty. Real GDP among Colombia's trade partners is not expected to reach pre-pandemic levels on the forecast horizon (Graph 2.4, Panel A). Increased liquidity, low international interest rates, fiscal stimulus to confront the health crisis, and other factors should contribute to recovery in the global economy. Nevertheless, the potential for risk is increasing, especially considering the possibility of new waves of contagion or greater persistence of the existing waves, which could lead to a hardening of quarantine measu-

Graph 2.5
Assumed quarterly oil price



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

Graph 2.6
International oil price

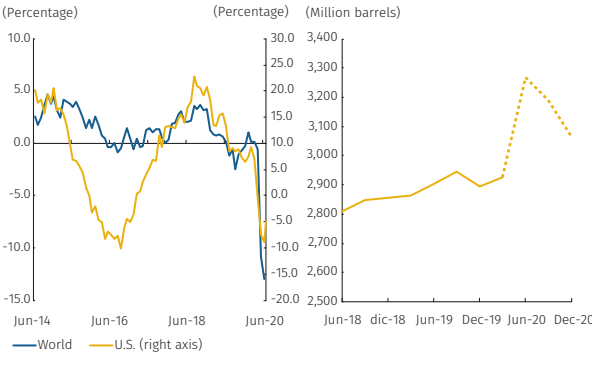


Source: Bloomberg.

Graph 2.7
Oil market supply and inventories

A. Annual production growth for crude oil

B. OECD commercial inventories



Note: inventory data for crude oil and other liquid derivatives obtained from the U.S. Energy Information Administration's July report.
Sources: EIA and Datastream; calculations by *Banco de la República*.

res. Job losses, business failures, slow reactivation in some sectors, a generalized increase in debt, and indicators of global uncertainty, among other factors, bring with them a high degree of uncertainty about the dynamic of recovery expected in the second half of the year. The possible negative effects of the pandemic in the medium term are also uncertain. As a result, an average contraction of 8.2% of GDP among Colombia's main trade partners is expected for 2020, ranging between -11.0% and -6.0%. Annual growth of 4.8% is projected for 2021, with a range between 2.0% and 7.0% (Graph 2.4, Panel B).

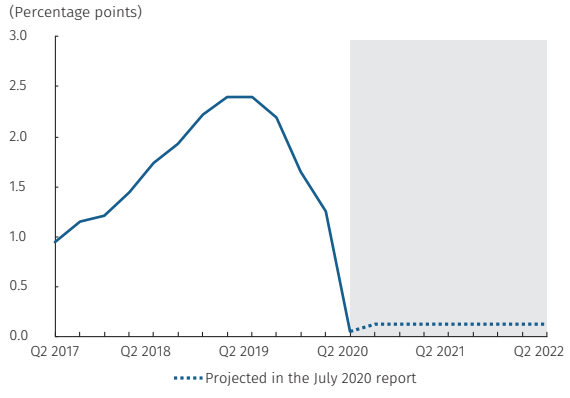
2.1.2 International prices

The central forecast scenario for 2020 and 2021 suggests oil prices below pre-pandemic levels (Graph 2.5). In June the price of crude (Brent) continued to recover from low levels observed in April, settling above USD 40 per barrel (bl) (Graph 2.6). Nevertheless, this was still below pre-pandemic levels. Together with reduced price volatility, the recovery in prices reflected a partial rebalancing of the market as a result of both supply and demand factors, including historic production cuts associated with agreements between the Organization of Petroleum Exporting Countries (OPEC) and its allies. Additionally, crude extraction fell among important market participants, including the United States (Graph 2.7, Panel A) and Canada, partly as a consequence of low profitability in the sector. On the demand side, signs of recovery came in line with the relaxation of quarantine measures and partial economic reopening. The world's primary hydrocarbons consumers have registered increases in automobile usage and partial recoveries in economic activity[4]. Some markets have also shown rebounds in commercial air travel. Still, the U.S. Energy Information Administration (EIA) expects hydrocarbons demand to remain below pre-pandemic levels, which together with high inventory (Graph 2.7, Panel B) and expected increases in production[5] would limit price recovery. Uncertainty about the future behavior of the oil market is high and will depend in part on how the pandemic evolves. Considering these factors, average Brent prices in 2020 are expected at USD 41/bl, with a range between USD 32 and USD 45. For 2021, the price is expected to be USD 51/bl, with a range between USD 30 and USD 60.

4 In June China showed a significant increase in imports and demand for crude, as well as higher refinery utilization rates.

5 According to OPEC, agreed production cuts will be curtailed in coming months. Additionally, supply from other producers could increase, according to market analysts.

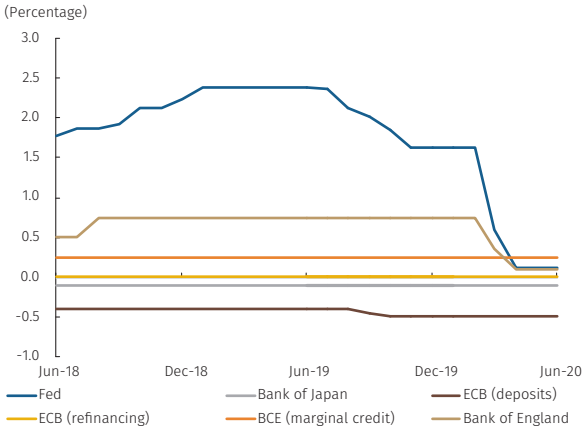
Graph 2.8
Assumed quarterly Federal Reserve interest rate



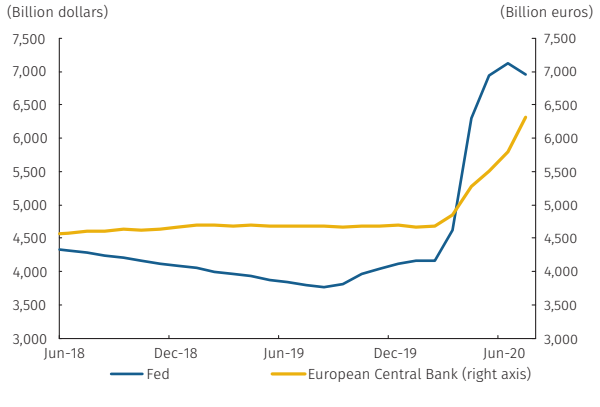
Source: Federal Reserve of St. Louis; calculations and projections by *Banco de la República*.

Graph 2.9
Monetary policy for select advanced economies

A. Policy interest rates



B. Balance sheets
(total assets)



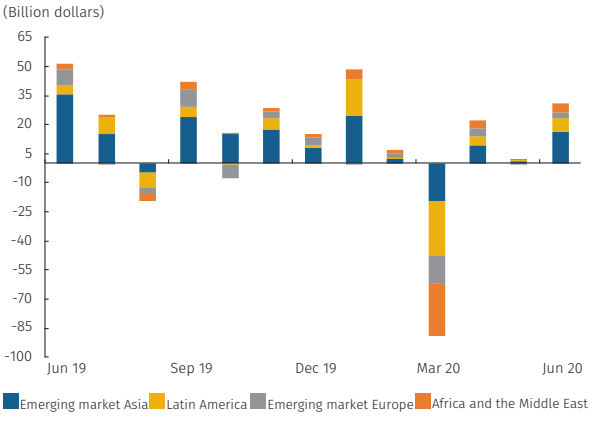
Source: Bloomberg.

Inflationary pressures are not expected in advanced economies given excess production capacities and loose labor markets. Annual consumer inflation in June in the United States and the euro zone increased over the previous month, rising from 0.1% to 0.6% and 0.1% to 0.3%, respectively. This dynamic was the result of a recovery in energy prices. In the United States, food prices have increased above 3.0% annually since April, despite observed reductions in international prices in previous months. Core inflation in the United States did not change from the previous month (1.2%), while in Europe it fell from 0.9% to 0.8%. Analyst surveys for the last month reflect expectations of reduced inflationary pressure in these countries for 2020 and 2021, at levels below 2.0%.

This report assumes the Federal Reserve's benchmark interest rate will remain at its technical minimum of 0.0% to 0.25% (Graph 2.8). No changes to the Federal Reserve's interest rate are expected on the forecast horizon, in line with projections from the Federal Open Market Committee (FOMC) and analyst surveys. Central banks in other advanced economies are also likely to continue to maintain low benchmark rates (Graph 2.9, Panel A). Unconventional monetary policies continue to provide ample liquidity to markets, reflected in an increase in central banks' balance sheets (Graph 2.9, Panel B). New measures from the Federal Reserve to buy corporate debt in the primary and secondary market are also worth mentioning. For its part, the European Central Bank (ECB) has continued to provide liquidity through financing operations and by maintaining purchases under the framework of its emergency pandemic program and asset purchasing program.

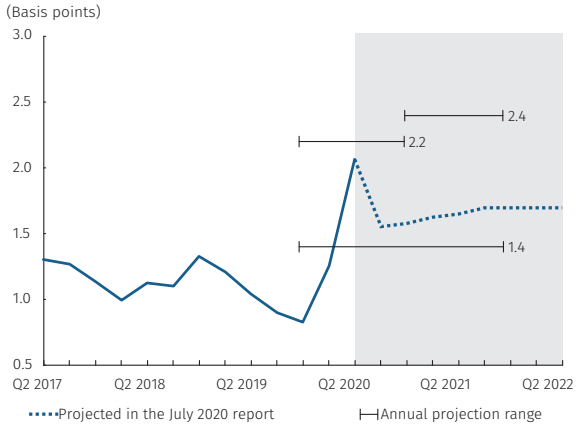
A significant reduction in terms of trade is expected for 2020. Terms of trade registered a 20.6% decline in the year to May, a result of the reduction in implicit export prices in dollars, mainly in mining and industrial goods. This was partially offset by lower dollar prices on imports, especially for intermediate and capital goods. This reflects reduced global demand for certain items as a consequence of the COVID-19 pandemic. Prices on Colombia's main export commodities (oil and coal) are expected to be below 2019 levels. With that in mind, the annual fall in the terms of trade could surpass 20%, with negative effects on national income.

Graph 2.10
Net foreign investment flows to emerging market economies[a/]



a/ Investment flows via debt instruments and equity.
Source: Institute of International Finance (IIF).

Graph 2.11
Colombia's assumed quarterly risk premium (CDS)[a/]

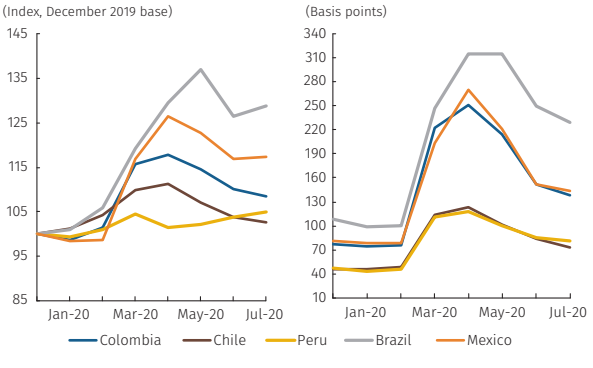


a/Five-year credit default swaps
Source: Bloomberg; calculations and projections by *Banco de la República*

Graph 2.12
Nominal exchange rate and risk premium (5-year CDS) for select Latin American countries

A. Average nominal exchange rate

B. Five-year credit default swap



Note: Average calculated to July 29
Source: Bloomberg; calculations by *Banco de la República*

2.1.3 Global financial conditions

International financial conditions have improved after deteriorating significantly in March and April, though they remain less favorable than before the pandemic. International financial conditions have been aided by central banks' efforts to mitigate the adverse effects of COVID-19 and by the partial reopening of some economies. The VIX volatility index fell 43.8% in July compared to March-April. Major stock indices also recovered during that period, alongside net inflows of capital to emerging markets in June (Graph 2.10) concentrated primarily in the fixed income market. Some countries in the region, including Colombia, have been able to maintain access to international financing and emit public debt in international markets at high demand and, in general, favorable interest rates. Nonetheless, uncertainty is high given questions over the evolution of the pandemic, which could eventually cause international financial conditions to deteriorate.

The risk premium in 2020 and 2021 is expected to be marginally above its historical average (Graph 2.11). Risk premia and exchange rates in the region have generally come down since March and April (Graph 2.12), in line with more favorable financial conditions. Despite this recovery, several countries in the region have had their credit ratings lowered. For the year to July, credit default swaps (5-year CDS) and the exchange rate in Colombia registered an average of close to 138 bp and COP 3,653 to the dollar, respectively, below the average of 251 bp and COP 3,987 in April. The central forecast scenario assumes a risk premium somewhat above its historical average at the end of the forecast horizon. This would reflect increased uncertainty over the negative impact of the pandemic, an increase in public debt, and the effect of accumulated external deficits. Uncertainty surrounding this assumption is high and will depend, in part, on the behavior of international financial markets, for which premia could average between 140 bp and 220 bp for 2020, and between 140 bp and 240 bp in 2021.

2.2 Macroeconomic projections[6]

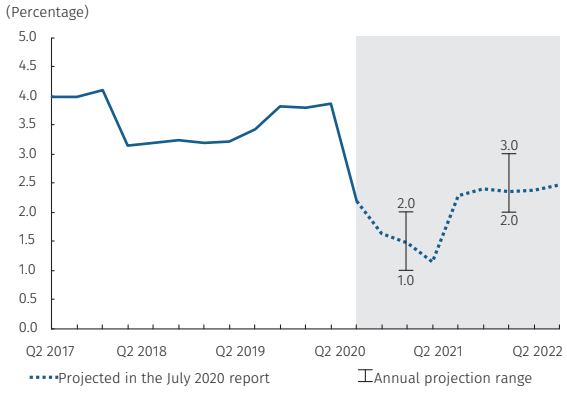
2.2.1 Inflation[7]

Weak demand and significant excess production capacity should continue to limit inflation for the rest of the

6 The results suppose an active monetary policy in which the Central Bank of Colombia's benchmark rate is adjusted to guarantee compliance with the inflation target.

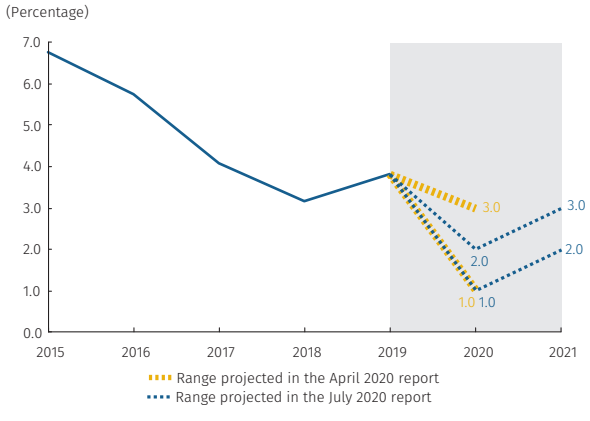
7 It is worth mentioning that starting with the next Monetary Policy Report, the technical staff will start to use a new classification for the CPI basket, as well as new measurements for core inflation, which will be detailed in Box 2.

Graph 2.13
Consumer price index (CPI)
(end-of-period; annual change)



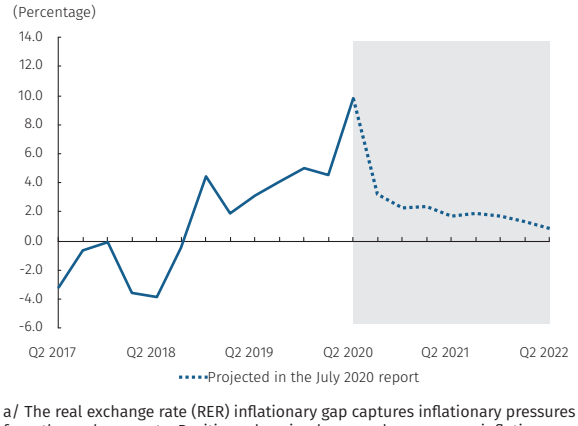
Source: DANE; calculations and projections by *Banco de la República*.

Graph 2.14
Total annual CPI
(end-of-period; annual change)



Source: *Banco de la República*.

Graph 2.15
Quarterly RER inflationary gap[a/]



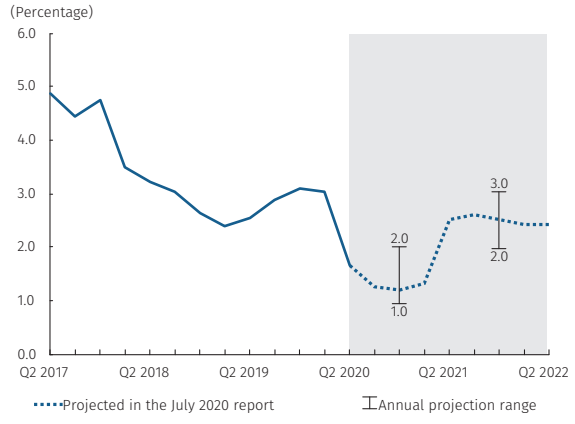
a/ The real exchange rate (RER) inflationary gap captures inflationary pressures from the exchange rate. Positive values imply upward pressure on inflation. The gap is calculated as the deviation in the real exchange rate compared to a non-inflationary trend component estimated using a 4G model.
Source: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

year and into 2021 (Graph 2.13). These factors, together with government price relief policies (see Box 1) and the closure of some markets as a consequence of social distancing measures, led to a significant decline in inflation in June (2.19%). headline inflation is expected to close 2020 between 1% and 2%, with a central forecast value of 1.5% (Graph 2.14). Weak demand and excess production capacity should also continue as limiting factors into the first quarter of 2021, with the possibility of larger annual price adjustments due in part to lower bases of comparison and the likely end of some government relief measures. All this would come amid broad excess production capacity, loose labor markets exerting minimal pressure via labor costs, and only moderate exchange rate pressure (Graph 2.15). The baseline forecast for 2021 thus suggests that inflation will remain around 2.5% in the second half of 2021, with a year-end range between 2.0% and 3.0%. The wide intervals presented in this report reflect the high degree of uncertainty over the evolution of the pandemic and its effects on prices. The floor for this range accounts for larger and more persistent drops in demand and more restrictive financial conditions, while the ceiling reflects an economic recovery somewhat faster than projected in the central forecast.

The COVID-19 health crisis will likely continue to have a significant effect on core inflation over the forecast horizon due to commercial and services closures, restrictions on mobility, weak demand, and potential changes in household consumption. Price increases for tradable goods excluding food and regulated items should slow through the rest of 2020, as a consequence of temporary reductions in indirect taxes on a diverse array of products and COVID-19's effects on demand. These effects are expected to outweigh inflationary pressures from the exchange rate. Projections of a downward annual trajectory for non-tradable goods are the product of a significant drop in demand, especially for tourism-related services, and price controls on housing rentals. The projected range for inflation excluding food and regulated items in this context is between 1.0% and 2.0% for the end of 2020, with a central forecast rate of 1.2% (Graph 2.16). An uptick is expected in 2021 as a consequence of a low basis for comparison, the end of government support on indirect taxes, and a somewhat tighter – though still significantly negative – output gap than in 2020. These factors should leave inflation excluding food and regulated items between 2.0% and 3.0% at the end of 2021.

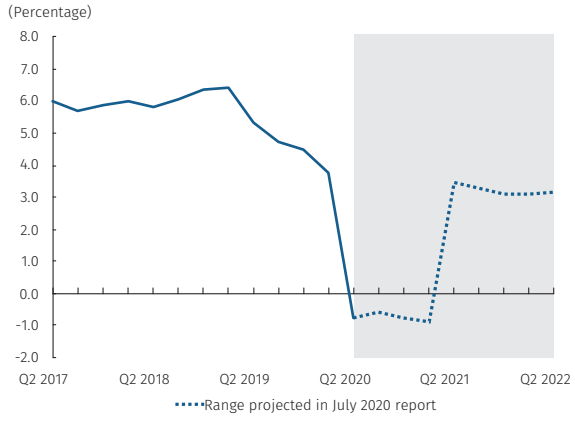
The annual change in prices for regulated items should remain slightly negative until early 2021. Regulated items inflation is expected to be affected in coming quarters by a reduction in fuel prices decreed by the

Graph 2.16
CPI excluding food and regulated items
(end-of-period; annual change)



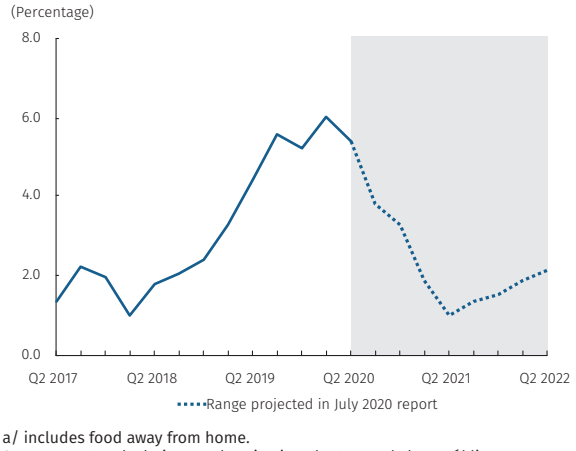
Source: DANE; calculations and projections by *Banco de la República*.

Graph 2.17
CPI for regulated items
(end-of-period; annual change)



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

Graph 2.18
CPI for food[/a]
(end-of-period; annual change)



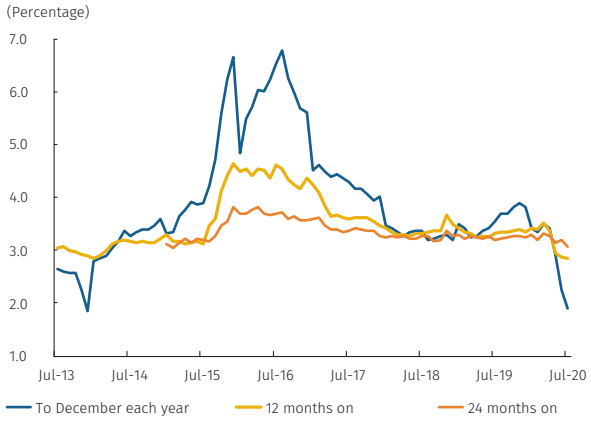
a/ includes food away from home.
Source: DANE; calculations and projections by *Banco de la República*.

national government in March, which for this report is assumed will not be reversed in 2021. That said, this downward shock would only temporarily affect the annual change in the CPI for regulated items and should fade in the second quarter of next year (Graph 2.17). Additionally, the central forecast accounts for a return to normal utility rates in the second half of the year, as rebates offered by local authorities in response to COVID-19 come to an end. This regularization would prevent annual change in regulated goods prices from continuing to fall in the rest of the year. In 2021, a low basis for comparison in utility rates may also lead to increases in the annual change of the CPI for regulated items beginning in the second quarter.

Annual change in food prices should continue to decline over the course of the year and for a significant portion of 2021 (Graph 2.18). This expectation is based on reduced pressures from demand, the suspension of the consumption tax, and excess production capacity related to food away from home (FAH). Annual changes in FAH prices are expected to increase at very low levels or possibly decline over the remainder of 2020. A gradual opening of the restaurant sector would make this more likely, given that a significant portion of a temporary rebate on the 8% consumption tax is expected to pass through on prices. The remainder of food prices would continue to increase at a moderate rate amid a negative output gap and adequate levels of supply. This supposes normal climate conditions for the next three quarters (which is suggested by meteorological reports) and only moderate pressures from the exchange rate.

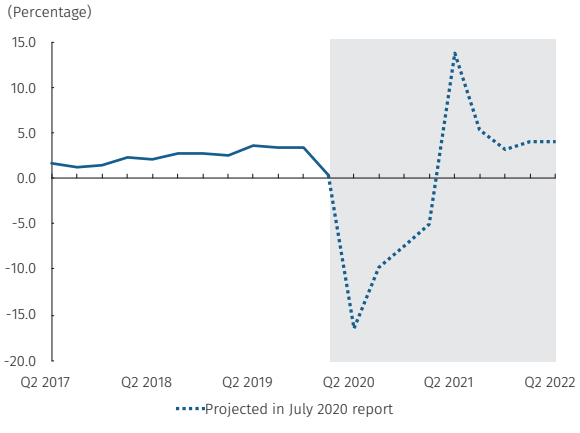
Second quarter measurements of expected inflation at five years or less fell below the target rate. According to the Bank's monthly survey, analysts expect year-end inflation in 2020 of 1.89% and at 12 and 24 months of 2.85% and 3.07%, respectively (Graph 2.19). In the April report, these values were 3.43% to December 2020 and 3.38% and 3.27% at 12 and 24 months. The year-end expectation for inflation excluding food fell sharply, from 3.08% in April to 1.24% in July. This appears to be in line with expectations of a significant drop in demand over the rest of the year, as well as with previously mentioned government relief measures. Based on information through July 24, implicit inflation expectations (break even inflation, or BEI) taken from the peso-denominated TES was 1.33%, and the UVR-denominated TES at three and five years was 1.59% and 2.12%, respectively. These figures are below those registered in the April report by nearly a full percentage point.

Graph 2.19
Bank and stockbroker inflation projections



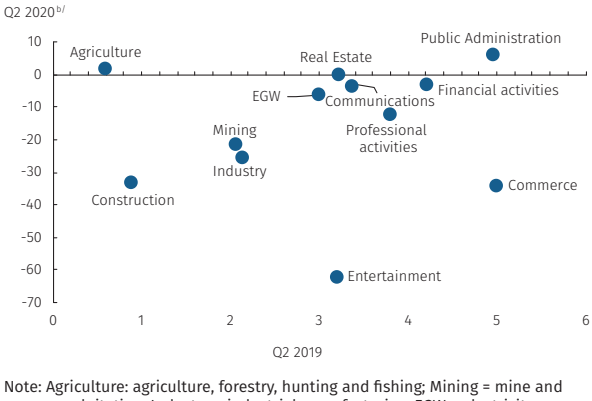
Source: *Banco de la República* (monthly analyst survey).

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



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

Graph 2.21
Annual growth by sector[a/]
(Q2 2020 vs. Q2 2019)



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

2.2.2 Economic activity

As with much of the rest of the world, measures required to confront COVID-19 in Colombia are having a deep impact on economic activity, which is expected to be most pronounced in the second quarter. Information through June suggests that second-quarter GDP shrunk at an annual rate of 16.5% (Graph 2.20). This estimate considers the effects of social distancing measures and their gradual relaxation in the second quarter in accordance with national government policy[8]. This projection is based on a sectoral impact estimate of the effects of social distancing measures at the end of March, with first-quarter GDP and sectoral indicators from January-February as reference points. These effects and the use of input-output methodology to quantify the magnitude of the shocks over the course of different phases of quarantine were used to establish changes to value added in each sector and for each phase of mandatory preventive isolation in the quarter[9].

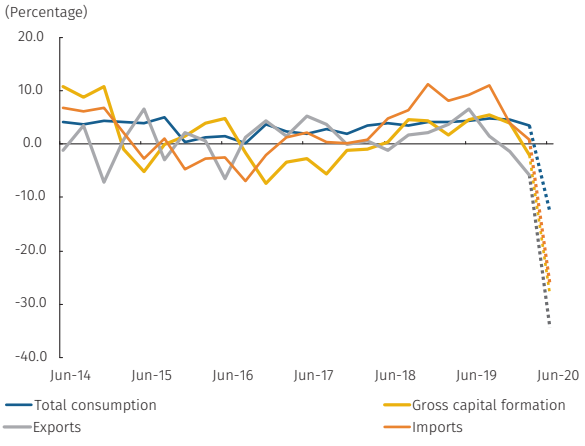
Second-quarter performance in various sectors of the economy likely depended on the degree to which they were affected by mandatory isolation measures. The arts, entertainment and recreation, commerce, repairs, transportation and lodging, and construction sectors appear to have been most significantly affected by quarantine restrictions. Arts, entertainment and recreation likely contracted by more than 60%. The transportation and storage, lodging and food services and building construction sub-sectors were also likely significantly affected. By contrast, the public administration, education, and health sector appears to have been among the few to register positive annual growth, in line with government efforts to mitigate the effects of the pandemic.

The impact of COVID-19 related shocks on second-quarter demand also appears to have been varied. Private consumption in the period appears to have contracted significantly in both quarterly and annual terms, though to a lesser extent than other major components of spending. The consumption of durable goods, semi-durables, and services likely contracted significantly, as household spending in favor of non-durable goods that began at the end of the first quarter seems to have con-

8 Isolation measures were as follows: a first phase of strict quarantine in April, followed by two periods in May (one until May 11 and the other for the remainder of the month) in which restrictions were relaxed in the construction, industrial manufacturing, and some commercial sectors, followed by a final period in June that encouraged greater economic dynamism, especially in the commercial sector.

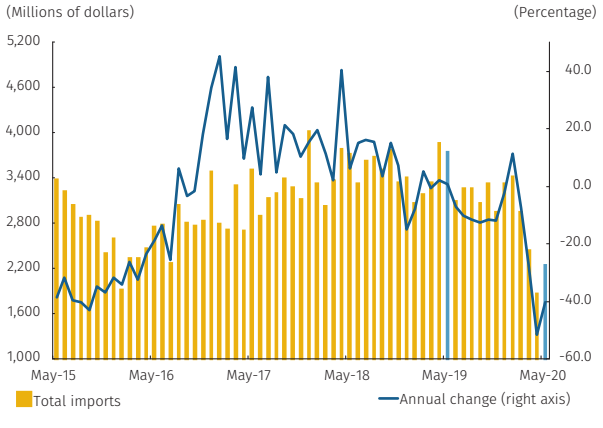
9 To see details of this exercise, see "Estimate of the impact of preventive isolation on GDP growth in 2020," in the Central Bank of Colombia's April 2020 *Monetary Policy Report.*

Graph 2.22
Demand components of GDP and Q2 2020 projections



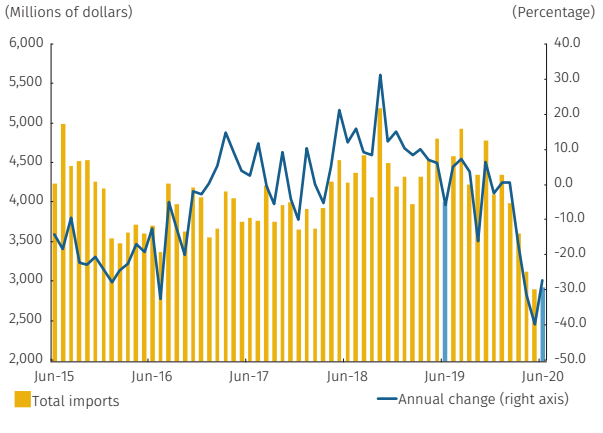
Source: DANE; calculations by *Banco de la República.*

Graph 2.23
Total goods exports (FOB)
(monthly)



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

Graph 2.24
Total goods imports (CIF)
(monthly)

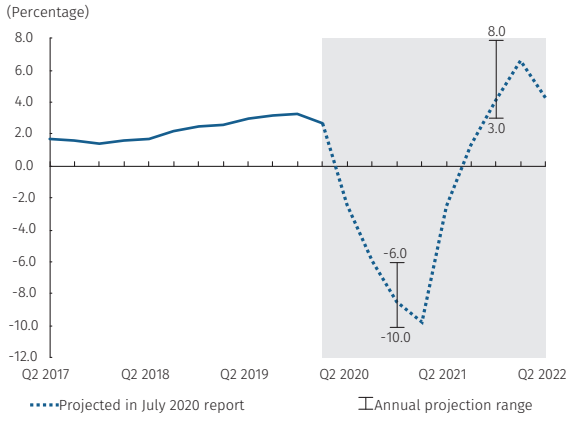


Sources: DANE and DIAN (advance international trade information); calculations by *Banco de la República.*

tinued through the second, though with some moderation. Public consumption, meanwhile, is expected to have grown at high annual rates in this period. The fall in investment appears to have been in the double digits, with the housing, machinery, and equipment sectors likely the most severely hit. Public works investment also likely fell in the quarter, though to a lesser degree than other investment sub-sectors. Given the above, domestic demand appears to have undergone its largest annual contraction since 1999. Data through May suggests that exports may have absorbed the most significant effects of the pandemic and the fall in oil prices, both in raw materials (coal and oil) and non-traditional goods and services (especially as a result of the effects of COVID-19 on tourism). Based on commercial information to June from the Colombian customs authority (DIAN), imports are also expected to have undergone a significant decline, as a result of a large fall in demand and due to current difficulties in international trade (Graph 2.24).

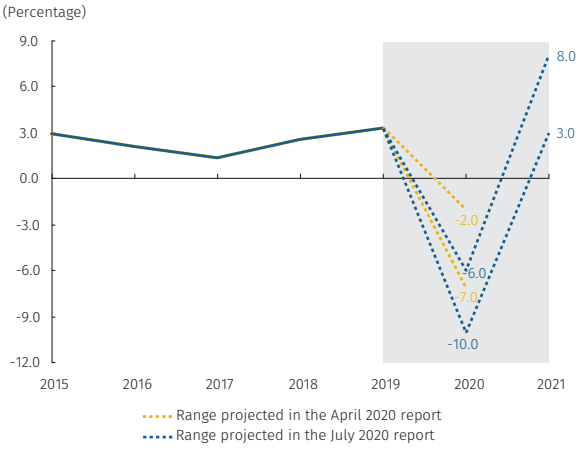
The speed of recovery and the timeframe on which economic activity can be expected to return to pre-crisis levels are both highly uncertain and will depend primarily on the evolution of the pandemic in Colombia and the rest of the world. The measures required to control COVID-19 and any long-term consequences of their implementation will also be important factors. The central forecast presented in this report assumes a gradual recovery in economic activity beginning in the second quarter of 2020, along with the absence of any new generalized quarantine measures resulting from further waves of contagion. That said, the forecast does account for the negative effects of potential mobility restrictions in Bogotá and other cities in the third quarter. The forecast considers a gradual reopening of economic activities that would be complete at the end of September. A recovery in consumer and investor confidence would also be expected along these lines, keeping in mind the positive effects of fiscal and monetary policy measures implemented to date. Under this scenario, growth in the second half of the year would be driven by private consumption and by public spending, the latter thanks to continued fiscal measures. Despite this, it is expected that the recovery in private consumption on the forecast horizon will be slow, above all in sectors such as services, where quarantine measures have been most strict and that may be more susceptible to contagion fears and the slow recovery of consumer confidence. As regards gross fixed capital formation, investment in buildings and structures, which includes public works, would be expected to return to pre-pandemic levels most quickly. A recovery in housing investment would be expected in 2021, driven by government programs aimed at social housing.

Graph 2.25
Accumulated GDP, 4 quarters[a/]
(annual change)



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

Graph 2.26
Annual GDP
(annual change)



Source: *Banco de la República*.

Momentum in external demand would likely be limited for the rest of 2020 and only start to take on a larger role in 2021, alongside the consolidation in global economic recovery.

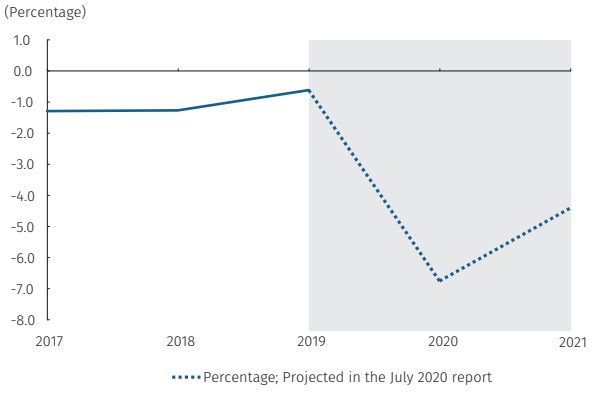
Given all of the above, the technical staff estimates a deep recession for 2020 followed by a degree of recovery in 2021, though the extent of both is highly uncertain. Economic growth in 2020 is expected to be around -8.5%, with a range between -10% and -6%. In 2021 growth should be close to 4.1%, with a range between 3% and 8% (Graph 2.25). These ranges reflect a high degree of uncertainty facing both the global and Colombian economies. As with the central forecast scenario, the projection ranges are based on relatively normal access to credit. Interval floors would correspond, in part, to a situation in which further waves of contagion arise in several countries, including Colombia, or in which controlling COVID-19 entails significant additional challenges. The ceiling and floor for these intervals correspond to more or less favorable foreign demand, respectively, in each case amid ample global liquidity and access to external financing, though with differences in costs due to variations in the country risk premium. These ranges also consider uncertainty over the size of shocks to supply and demand and their effects on output, and inflation. The central forecast scenario suggests economic activity in 2021 will not return to 2019 levels.

Second quarter and yearly growth forecasts from the April report were revised downward (Graph 2.26). Many of the downside risks identified in the April report have materialized. Domestically, the evolution of the pandemic has required prolonged social distancing measures, delaying the opening of many sectors and affecting consumer confidence in a more persistent manner than expected. Colombia's trade partners have also been more significantly affected by the pandemic than initially forecast, and now project slower economic recovery.

The speed of economic recovery will be limited by oil prices below those projected at the beginning of the year. A lower oil price in the medium term could imply less investment in the sector and the continued closure of high cost production wells, which would slow economic recovery. This would also reduce exports, lead to a decline in investment in new mining projects, and limit the availability of resources for regional authorities and the national government, among other effects.

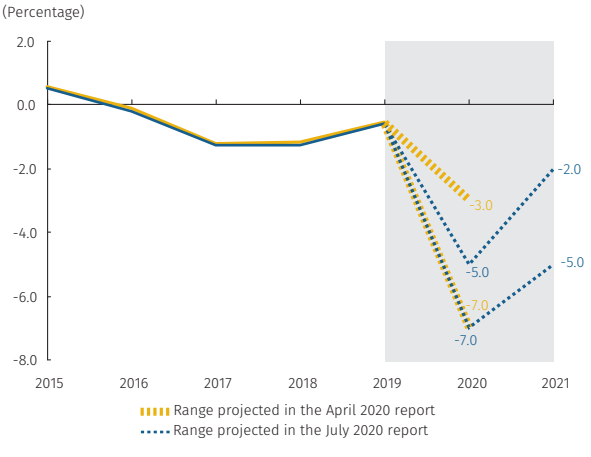
Although COVID-19 and reduced oil prices have brought shocks both to supply and to demand, the latter are expected to predominate and, as a result, lead to a significant widening of excess production capacity on the forecast horizon. For this report, it is expected that the annual

Graph 2.27
Annual output gap [a/]



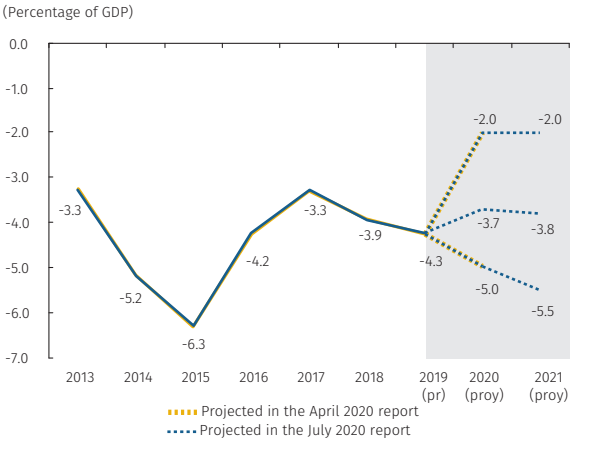
a/ Calculated as the difference between observed GDP and potential (trend) GDP using the 4G model.
Source: *Banco de la República.*

Graph 2.28
Annual output gap[a/] (range)



a/ Calculated as the difference between observed GDP and potential (trend) GDP using the 4G model.
Source: *Banco de la República.*

Graph 2.29
Annual current account



(pr): preliminary.
(proj): projection.
Source: *Banco de la República.*

output gap will settle between -7.0% and -5.0% for 2020, and -5.0% and -2.0% for 2021, with central forecast values of -6.8% and -4.4%, respectively (Graphs 2.27 and 2.28). These values are both historically low and significantly lower than those observed in 2019 (-0.6%). The widening of the output gap in negative territory implies a significant downward revision in potential growth (-2.6% for 2020 and -1.6% for 2021), which would be affected at different points by reduced investment, the failure of some efficient firms, the effects of the pandemic on a relatively rigid labor market, and the effect of sectoral reallocation on aggregate productivity, among other considerations.

2.2.3 Balance of payments

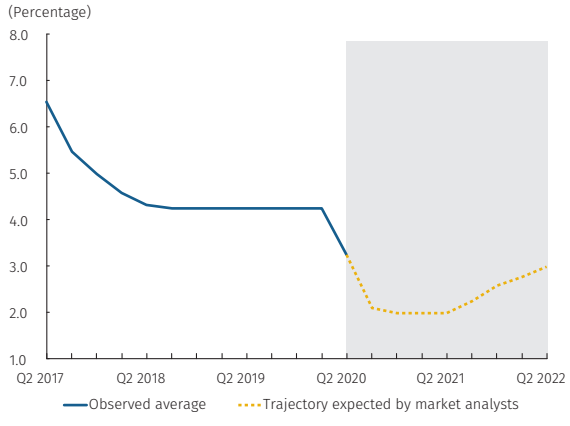
The current account deficit in 2020 is expected to fall relative to last year, in line with expectations for a significant contraction in spending. A significant decline in private consumption and investment, together with depreciation of the Colombian peso, would lead to a deficit correction. These factors would bring about a decline in goods and services imports and reduce profits for businesses with foreign participation that sell in the domestic market. Firms in the mining and hydrocarbons sectors will also likely see reduced profits due to the fall in international prices for coal and oil. By contrast, a negative shock in terms of trade and foreign demand, a reduction in remittances, the contraction of international tourism, and a widening of the fiscal debt should limit a larger adjustment in the external imbalance[10]. Given the above, the current account deficit for 2020 is expected to be between -5% and -2% of GDP, with -3.7% as the central forecast. This would be below levels registered last year (-4.3% of GDP) (Graph 2.29). This forecast interval reflects a high degree of uncertainty associated with the evolution and impact of the pandemic. The current account deficit in 2021 should rebound slightly, in line with increased economic activity that would drive import spending and foreign firms' profits. This could be partially offset by improved international conditions that would favor recovery in Colombia's external revenues.

In 2020 and 2021 Colombia is expected to maintain continued access to the international financing necessary to fund the current account deficit. Foreign direct

10 The deficit is expected to be around 3.3% of GDP for the second quarter of 2020. This would be below levels observed in the same period last year and would be associated with lower earnings expected by firms with foreign capital, which would be partially offset by the fall in remittances. It is worth highlighting that the goods and services trade balance would not experience significant changes compared to the second quarter of 2019, due to the fact that strong economic contractions both in exports and imports are expected in that period.

investment (FDI) will likely continue to have a predominant role in Colombia's external financing structure, though it could be affected by the difficult economic environment. FDI flows should recover in 2021, alongside improved prospects for investment thanks to recovery in economic activity and improvement in the international economic outlook. Furthermore, access to other sources of international financing will likely be favored by global financial conditions, characterized by low interest rates and ample liquidity. External debt is expected to be an important factor in 2020, in particular as regards capital flows directed at the public sector.

Graph 2.30
Policy Interest Rate Quarterly Average: Observed and Analyst Expectations[a/]



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 July 2020.
Source: *Banco de la República.*

2.2.4 Monetary policy and interest rates expected by analysts

Analysts expect the year-end policy rate to be reduced to 2.0% (Graph 2.30). The median response to the Colombian Central Bank's July survey of analyst expectations saw the policy rate falling to 2.0% for what then remained of the second quarter and staying there through the second half of next year. Analysts expected a very gradual normalization in monetary policy in 2021, with a median policy rate expectation 2.58% for the fourth quarter. The implicit interest rate in the technical staff's central forecast projection shows a similar trajectory, though somewhat lower than analyst expectations in 2021. The trajectory of interest rate policy could deviate in risk scenarios, depending especially on the magnitude and persistence of adverse shocks on aggregate demand.

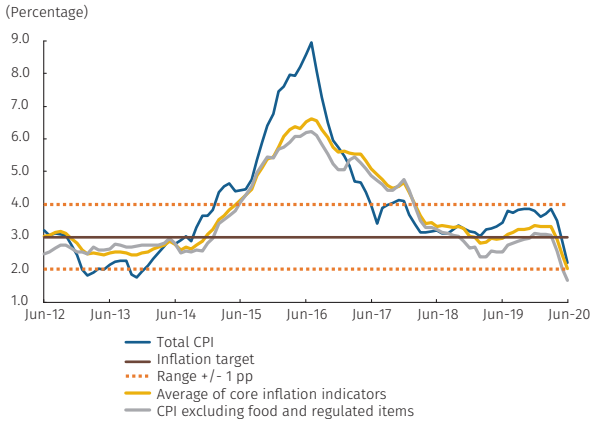
Expectations for inflation and economic activity will continue to be affected by the evolution of the health crisis and the speed with which diverse sectors of the economy are able to recover. In the forecast exercise, the primary source of uncertainty on inflation projections came from the health crisis, the speed with which various sectors of the economy reopen, and the dynamic of international conditions considered by the technical staff. The forecast exercises suggest inflation performance will be affected predominantly by the demand shock. As a result, the evolution of the labor market, salaries and salary expectations will be particularly important in the assessment of inflationary pressures on the monetary policy horizon.

03/ Current economic conditions

3.1 Inflation and price behavior

Measures necessary to confront the pandemic generated a significant decline in inflation in the second quarter. A significant annual decline in the second quarter (from 3.86% in March to 2.19% in June) brought inflation below the target (3.0%) for the first time since 2014 (Graph 3.1). Downward pressures were generalized across major components of the Consumer Price Index (CPI), including for foods, which showed increases in the first months of the pandemic likely associated with households' oversupply. A more significant drop was observed in core inflation, which according to the CPI excluding food and regulated items fell from 3.04% in March to 1.66% in June (Graph 3.1). The remaining indicators for core inflation also fell significantly, all finishing below the Bank's target (see statistical annex). The average of the four indicators fell from 3.31% in March to 2.03% in June. In general, the results for core and headline inflation were far below those projected in previous months by both the markets and the Central Bank's technical staff.

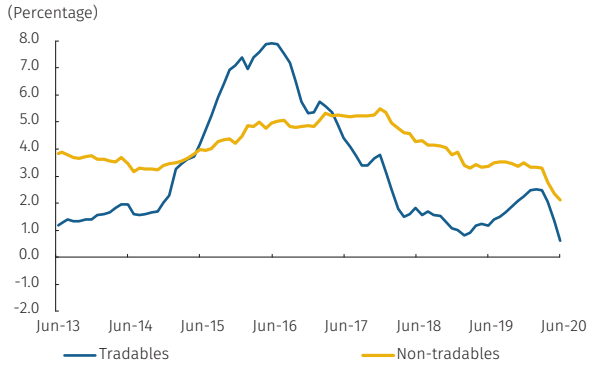
Graph 3.1
Total CPI and core inflation indicators
(Annual change)



Sources: DANE and *Banco de la República.*

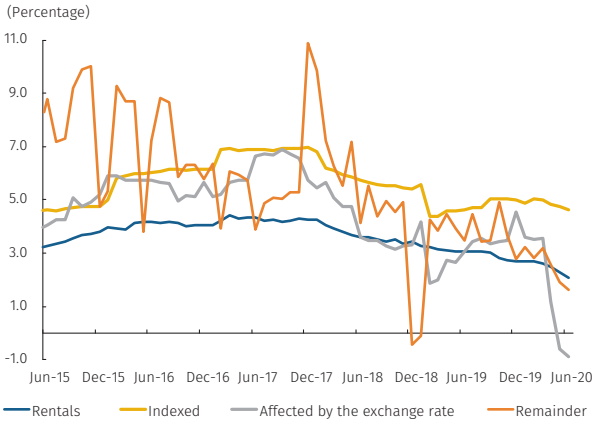
A wide range of factors contributed to the decline in inflation, including price relief measures implemented by the government and a fall in demand. The COVID-19 emergency has created a complex shock on supply and demand that makes it very difficult to interpret factors that might explain recent trends in inflation. According to estimates from the Bank's technical staff, significant downward pressure on inflation came from mostly temporary price relief measures implemented by regional authorities and the national government in an effort to safeguard household purchasing power. Among these it is worth highlighting a freeze on rental fees and utility rates (which in some regions were subsidized), a drop in fuel prices, and the elimination or temporary rebate of the VAT on a group of goods and services and of the 8% restaurant consumption tax (though the effect of this last measure will likely be felt mostly in the second half of the year). Estimating the role played by the elimination of indirect taxes and other aid on the drop in inflation is not easy because of a simultaneous contraction in demand. Despite this difficulty, the technical staff estimates that price interventions will have contributed to the decline in annual inflation by around 1 percentage point during the second quarter (see Box 1). Finally, it is important to mention that weakness in demand and the price relief measures, together with market closures, stopped accumulated depreciation in the exchange rate in the first half of the year from being reflected in inflation.

Graph 3.2
CPI for tradable and non-tradable goods, excluding food and regulated items
(annual change)



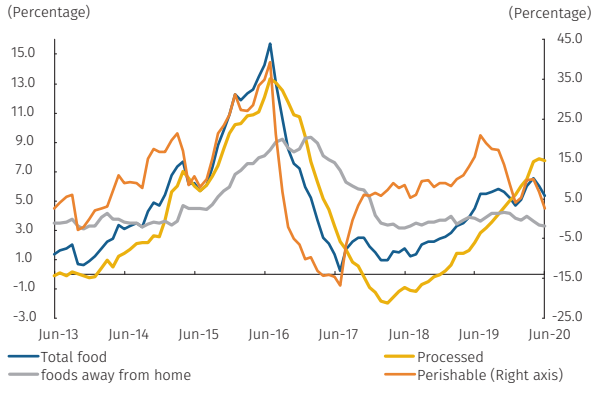
Source: DANE; calculations by *Banco de la República*.

Graph 3.3
Components of CPI for non-tradable goods, excluding food and regulated items
(annual change)



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

Graph 3.4
CPI for food and its components
(annual change)

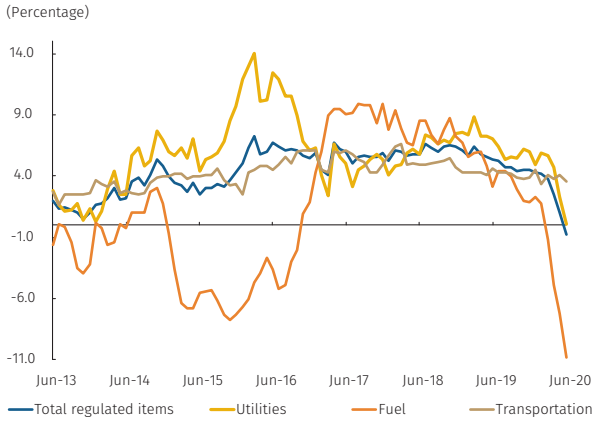


Source: DANE; calculations by *Banco de la República*.

Smaller price adjustments for both tradable and non-tradable goods contributed to a decline in core inflation. The tradables CPI (excluding food and regulated items) was the basket of goods most supported by government price relief measures in the second quarter (Graph 3.2). In particular, a temporary suspension of the VAT on health, personal hygiene, and cleaning products, and a reduction of the VAT from 19% to 5% on airline tickets, together with the first "day without VAT" (see Box 1), help explain a significant part of the decline in annual price adjustments for these goods (from 2.47% in March to 0.61% in June). These temporary declines offset potential inflationary pressures derived from observed depreciation of the peso to the dollar over the course of the first quarter. Price relief also affected the CPI for non-tradables (excluding food and regulated items), though less broadly than for tradable items. Among those items favored by the temporary reduction in the VAT, mobile communication services and tourism are particularly worth mentioning (See Box 1). Housing rentals were also supported by price freezes and temporary contract renegotiations, which partly explains the significant decline in the annual change from 2.60% in March to 2.07% in June (Graph 3.3). Due to their significant contribution to the CPI (around 25%), rentals drove the annual decline in non-tradables (excluding food and regulated items). The performance of core inflation and relative prices has also been affected by significant excess production capacity, as well as by the recomposition of household spending as a result of quarantine measures and partial commercial closures, which have favored food consumption and some elements of hygiene and health spending to the detriment of other goods and consumption services.

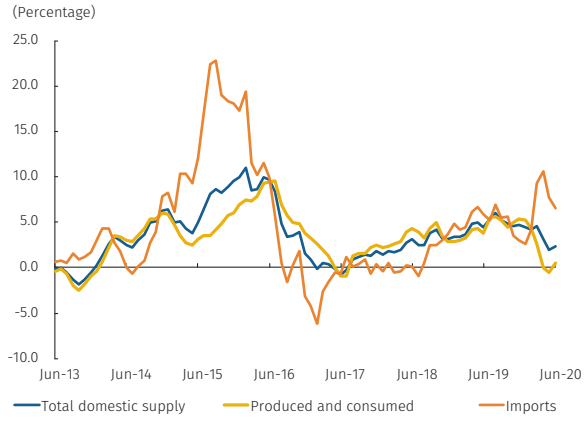
Annual change in the CPI for foods was down in the second quarter, although spending on food was not likely to have been significantly affected by the health emergency. Annual change in the CPI for foods had been rising since the beginning of the year (January: 4.66%), a product of adverse climate conditions for much of 2019 and exchange rate pressures. The pandemic brought some additional upward pressures, due to a surge in food spending and possible problems in the supply chain, all of which pushed annual change in the CPI for foods up to 6.53% in April. Nevertheless, beginning in May the figure began to recede, falling to 5.53% in June (Graph 3.4). Factors such as the recent normalization of the climate and positive agricultural supply figures favored a smaller annual adjustment in perishable food prices (from 10.0% in April to 2.52% in June). Processed foods also registered more moderate price adjustments between May (7.86%) and June (7.75%), explained in part by weakening demand once the oversupply in households from the beginning of the pandemic subsided,

Graph 3.5
CPI for regulated items and its components
(annual change)



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

Graph 3.6
PPI by origin
(annual change)



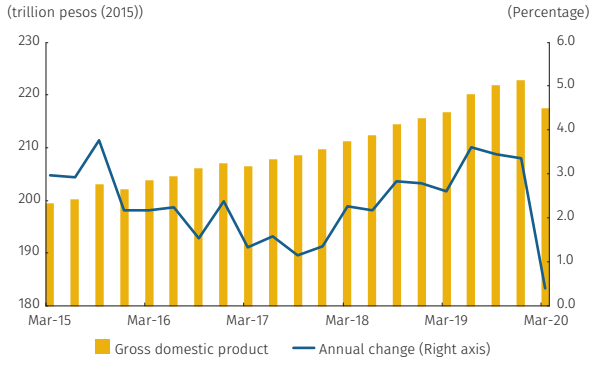
Source: DANE.

and by less pass-through of peso depreciation to consumer prices. Annual changes in foods also tended to be lower as a result of the elimination of a temporary tax on consumption for food services implemented by the national government in mid-May (See Box 1). This, together with a fall in demand and the mandatory closure of restaurants, should explain the decline in the annual change in the CPI for FAH between March (3.92%) and June (3.26%).

The CPI for regulated items was significantly affected by local and national government price relief measures, amid significantly reduced international oil prices. The annual change in prices for regulated items finished in negative territory (-0.78%) for the first time since disaggregated information for the CPI became available (March 1983). This was also far below levels registered last March (3.78%) (Graph 3.5). This notable decline can be explained by downward pressure from two sources. The first has to do with the reduction in fuel prices in March of around COP 1,300, which brought annual change down from 1.81% in February, prior to the pandemic, to -10.82% in June. The second factor was support for utilities payments provided by regional authorities (rebates for early payment, price freezes, an increase in subsidies for low-income families, and instances of payments for specific public services by some mayors' offices), driving the annual adjustment for this segment of the CPI from 5.68% in March to 0.12% in June. Spot energy prices, which had previously pushed prices upward, fell more than 50% in June, after the rainy season intensified in the final weeks of the month. The majority of the relief measures that help explain the significant reduction in prices for regulated items were temporary and will thus have only short-term downward effects on annual inflation.

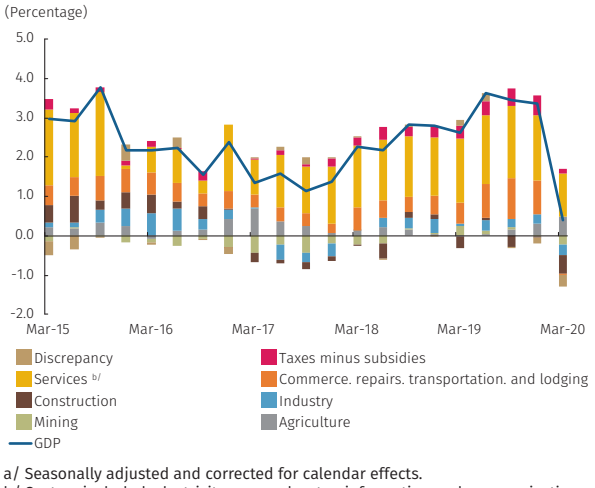
Inflationary pressures derived from non-labor costs were minimal in the second quarter. Annual change in the producer price index (PPI) for domestic supply fell from 4.62% in March to 2.36% in June, a dynamic that incorporated downward pressure from aggregate demand in the second quarter (Graph 3.6). The annual change in the local component of the PPI fell from 2.62% in March to 0.56% in June, although from May (-0.57%) to June it rebounded, the result of a low statistical basis for comparison and significant recovery in producer prices for oil extraction (monthly change of 60.76%). The annual change of the PPI for imports rose at the beginning of the pandemic, incorporating the upward pressure on the dollar into prices during the first weeks of the crisis. This later fell to 6.60% in June. Producer prices, beyond the fall in fuel prices, were not significantly favored by government-decreed price relief measures, as was reflected in a wide range of goods and services in the CPI.

Graph 3.7
Gross domestic product and economic tracking indicator (ISE) [a/]
(monthly and annual growth)



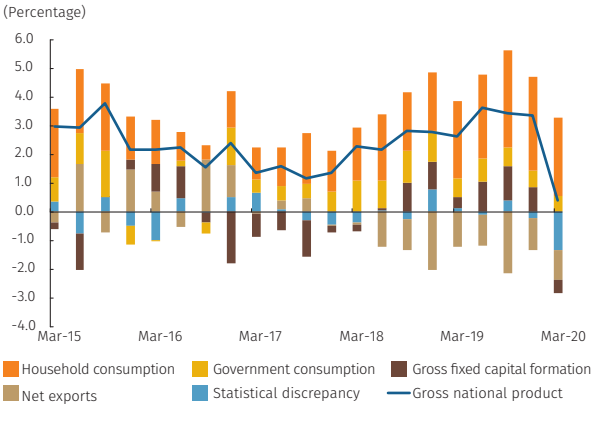
a/ Seasonally adjusted and corrected for calendar effects.
Source: DANE; calculations by *Banco de la República*.

Graph 3.8
Quarterly GDP by Production Approach [/a]
(Annual change, contributions)



a/ Seasonally adjusted and corrected for calendar effects.
b/ Sectors included: electricity, gas, and water; information and communications; financial activities and insurance; 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*.

Graph 3.9
Quarterly GDP by Expenditure Approach [a/]
(annual change, contributions)



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

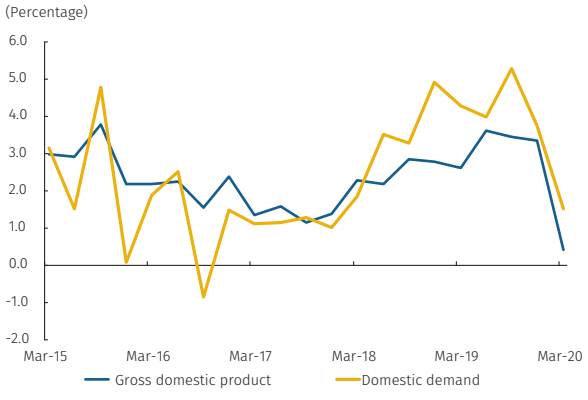
3.2 First-quarter GDP

As with most of the world's economies, measures required to address COVID-19 in Colombia have had significant negative effects on economic activity, which were confirmed by first-quarter figures. The Colombian economy enjoyed a dynamic start to 2020, with sectoral indicators for January and February suggesting it was headed toward growth above 3% in the first quarter. DANE's monthly economic tracking indicator (ISE), for example, reported an annual rate of growth of 3.3% in that period for its seasonal and calendar effects adjusted series (SACE) (Graph 3.7). Nevertheless, the economic impact produced by measures to contain the pandemic, especially in the second half of March, brought an abrupt break to this trend. As a result, first-quarter GDP (SACE) grew at an annual rate of 0.4% (equivalent to 1.1% in the original series), below estimates from the April report. Annualized quarterly variation in GDP was -9.2%, while the negative impact on economic activity registered in March, derived in large part from quarantine measures, was larger than projected by the technical staff.

Voluntary and government-mandated quarantine measures affected sectors of the economy in varying ways. Broken down by sector (Graph 3.8), the first quarter saw significant contractions in construction (-7.5% annual growth in the SACE), mining and quarry exploitation (-4.6%), arts and recreation (-3.2%), and industrial manufacturing (-2.1%). Within the construction sector, the buildings sub-sector presented a significant decline (-18.0%), in part due to social distancing measures in March, though likely also as a result of weak performance in the two preceding months. Public works construction, by contrast, continued its positive performance in the quarter (7.4%), though at a slower rhythm at the end of March. Economic performance was varied in industrial production as well: sub-sectors directed at production of non-durable consumer goods grew significantly, especially in March, in response to a surge in demand, while those related to textiles, garments, leather, and vehicles were the most affected by mandatory isolation measures. For its part, the agricultural sector saw significant growth (7.9%), which accompanied the increase in non-durable consumption.

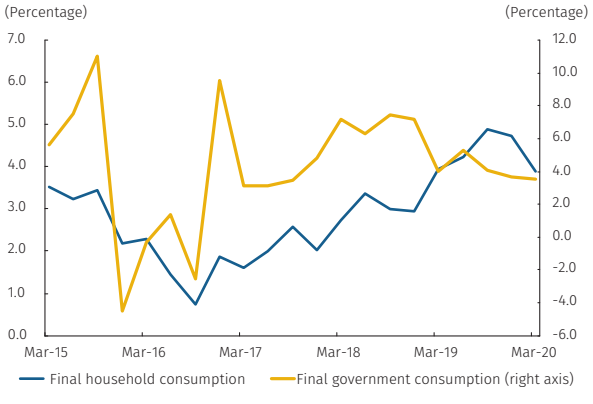
The health emergency also had a varied effect on demand (Graph 3.9). In the first three months of the year, domestic demand decelerated significantly, registering annual growth of 1.5% and falling compared to the fourth quarter of 2019 (Graph 3.10). Nevertheless, demand performance was uneven, as consumption saw positive annual growth (3.4%) while investment fell (-2.1%). For its part, net external demand contributed negatively to first quarter growth, primarily due to a significant contraction in exports.

Graph 3.10
Quarterly gross domestic product and domestic demand[a/]
(annual change)



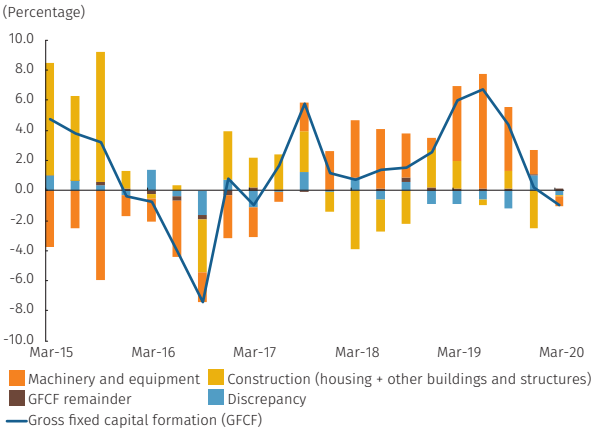
a/ Seasonally adjusted and corrected for calendar effects.
Source: DANE; calculations by *Banco de la República.*

Graph 3.11
Final household and general government consumption [a/]
(annual change)



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

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.*

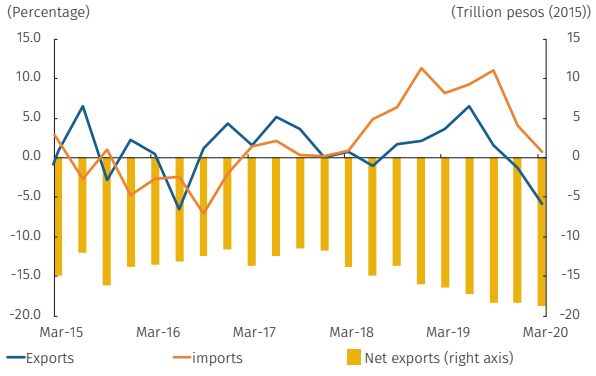
A significant recomposition of private consumption in the first quarter tended toward non-durable goods and basic necessities. Total private consumption decelerated in this period but continued to register positive growth. Within demand, non-durable consumption grew notably and more than expected (13.2%); consumption of durable goods decelerated but registered surprisingly high growth (6.7%) considering the nature of the shock and commercial closures; semi-durable and services consumption registered significant annual and quarterly declines (-4.5 and -1.0%, respectively). Available information suggests that a recomposition of household spending in favor of non-durable goods, especially basic necessities, occurred in March alongside increased risk of contagion, behavior similar to that seen in other countries. This would likely have been in large part a consequence of reduced opportunities to make purchases in other sectors in light of market and commercial closures. Public consumption, meanwhile, performed similar to the close of 2019, though at lower levels than predicted (Graph 3.11). Given the above, total consumption performed less favorably than the previous quarter, though still at positive annual growth rates.

A significant break on investment in March led to an overall contraction for the quarter as a whole, both in annual and quarterly terms. The housing and machinery and equipment components of aggregate investment both registered negative annual growth in the first quarter (Graph 3.12). For the former, it marked five straight quarters of decline. For the latter, imports of capital goods suggest that the decline was due to performance in March, which broke trend from the first two months of the year. Part of the contraction in gross capital formation can be explained by residual behavior, which includes the changes in inventories and the statistical discrepancy from investment and was significantly negative in the first quarter.

Economic contraction among Colombia's main trade partners led to a decline in exports that was greater than expected. A significant drop in both annual and quarterly terms brought exports down to levels not observed since 2016 (Graph 3.13). Monthly figures suggest that the fall in exports was concentrated in March, when global economic growth trends were disrupted by the spread of the pandemic. The most significant declines were in coffee sales, non-traditional exports, and services. Mining exports were also likely affected at the end of March by the closure of some of the country's largest coal mines due to the health emergency.

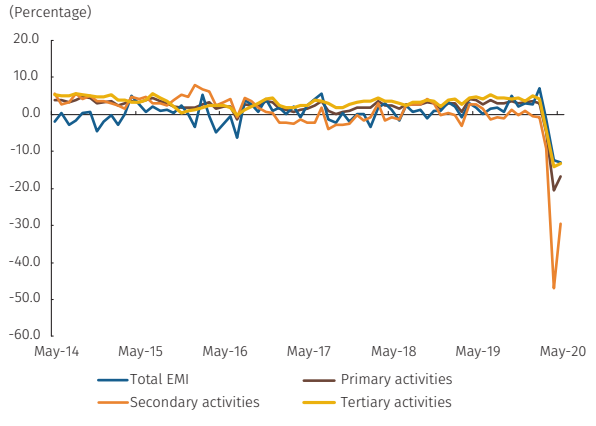
After significant growth in the first months of the year, imports contracted significantly in March in line with domestic demand behavior. Despite low but positive annual

Graph 3.13
Exports, imports and trade balance [a/]
(annual change, trillion pesos 2015)



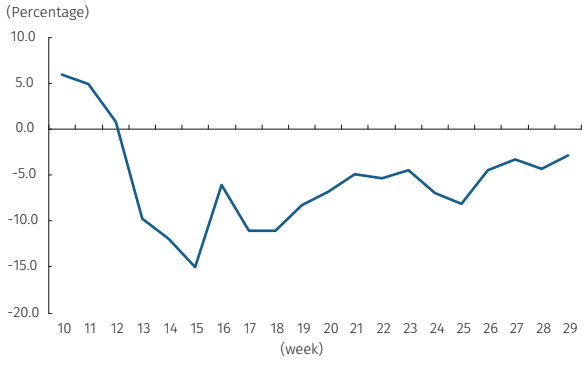
a/ Seasonally adjusted and corrected for calendar effects.
Source: DANE; calculations by *Banco de la República*.

Graph 3.14
Total and sectoral EMI [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 and recreation.
b/ Seasonally adjusted and corrected for calendar effects.
Source: DANE; calculations by *Banco de la República*.

Graph 3.15
Total weekly energy demand in 2020
(annual change)



Note: measured between equivalent weeks in 2019 y 2020 using Sunday as the first day of the week. Week 10 corresponds to March 1-7, 2020. Weeks 15 and 16 are affected by Holy Week holidays.
Source: XM, calculations by *Banco de la República*.

growth, import levels were below those observed in February. This reduction was consistent with deceleration in domestic demand in the first quarter and with obstacles to international trade that began in that period. The deceleration of imports partially offset the effect of significant export declines on net foreign demand, which nevertheless fell slightly compared to the fourth quarter of 2019. As a result, foreign demand continued to contribute negatively to growth in the first quarter.

3.2.1 Second-quarter economic activity indicators

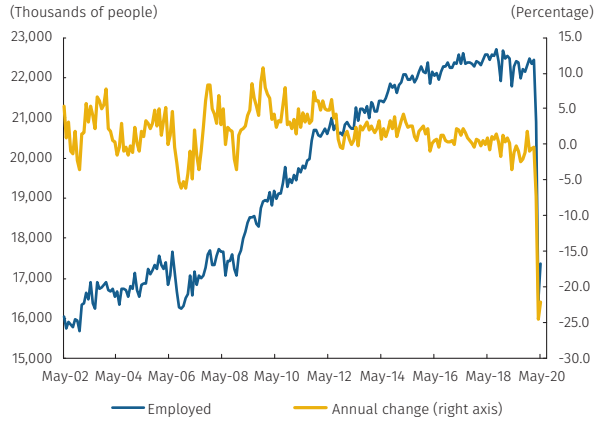
Early signs of economic recovery beginning in May allow for the possibility that the effects of measures to control the pandemic will have been felt most acutely in April. As quarantine measures began to be relaxed and some productive sectors were allowed to reopen (in particular those related to manufacturing, commerce, and construction), economic activity became somewhat more dynamic, though still significantly less so than pre-pandemic levels and at negative annual growth rates. This was reflected in various sector-level indicators, where annual rates of contraction slowed in April and May. Retail sales excluding fuel and vehicles went from -25.0% to -16.4% in its seasonally adjusted series, manufacturing production from -34.3% to -24.0%, and the measure of total economic activity, reflected in the tracking indicator, from -20.5% in April to -16.7% in May. Secondary activities[11] (Graph 3.14) registered the most significant decline in this period, while tertiary or services sectors contributed most to the overall decline, given the size of their contribution to GDP (67%).

Available indicators suggest that economic activity should continue to become more dynamic in June. Demand for energy (Graph 3.15), mobility indices, and transaction figures from commercial banks suggest improvement in economic activity in June, driven by the continued reopening of productive sectors, a relaxation of mobility restrictions, and a gradual recovery in consumption, especially of goods. All of this points to the possibility of increased economic activity compared to April and May, though still at lower levels than those projected in the previous report. That said, the size of economic contraction in the second quarter is expected to be unprecedented in the time since quarterly data has been available.

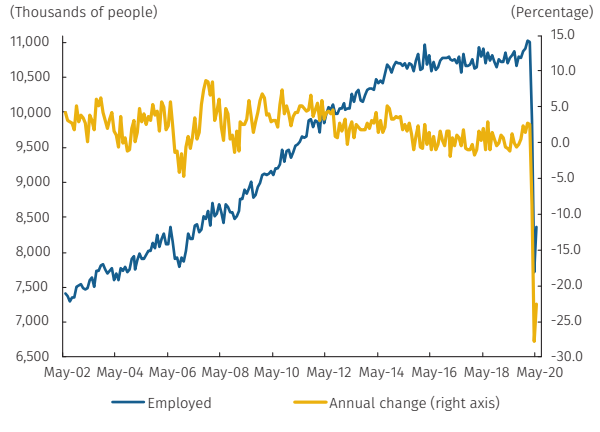
11 According to DANE's classifications, primary activities subsectors include agriculture, animal husbandry, hunting, forestry, and fishing, and the exploitation of mines and quarries; secondary activities include manufacturing and construction industries; and tertiary activities include the provision of electricity, gas, and water, commerce, repairs, transportation, lodging, and food services, information and communications, financial activities and insurance, real estate activities, professional, scientific, and technical activities, public administration, education and health, and arts, entertainment and recreation.

Graph 3.16
Employment according to DANE's comprehensive household survey
(number; annual change)
(seasonally adjusted monthly series)

A. National total



B. Thirteen major metropolitan areas



Source: DANE (comprehensive household survey); calculations by *Banco de la República*.

3.3 Labor market[12]

Pandemic-related declines in economic activity led to a generalized and unprecedented deterioration in the Colombian labor market. The shocks derived from COVID-19 have had a significant effect on global labor markets, and Colombia is no exception. Seasonally adjusted monthly figures[13] to April in DANE's integrated household survey showed an abrupt contraction in total national employment of 24.5% annually (5.3 million jobs) and 27.9% annually in the country's thirteen major cities (3 million jobs). These declines, the largest in the history of the series (Graph 3.16), suggest that between March and April around a quarter of employment prior to the health emergency was destroyed. Although in May there was a slight monthly recovery in employment thanks to the reopening of some economic sectors (more than 930,000 jobs nationally and close to 640,000 jobs in the thirteen largest cities) both geographic categories continued to experience annual declines above 20%. This loss of employment has been generalized, both in urban and rural areas, and has affected non-salaried and salaried workers in a similar way.

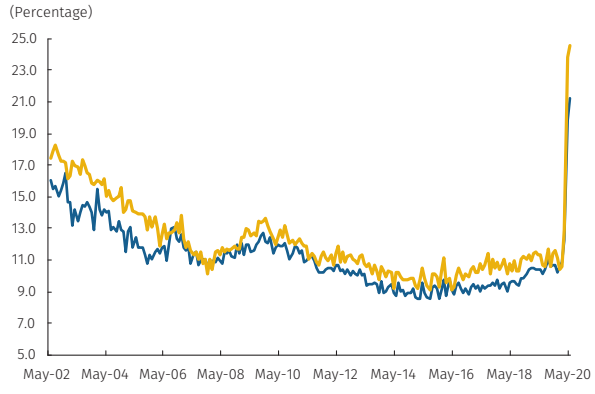
An increase in inactivity mitigated the potential for a higher rise in unemployment rates, which were nonetheless at historical highs. The relaxation of mobility restrictions in May, meanwhile, will have moved part of the inactive population into unemployment. Besides the destruction of jobs observed at the beginning of the health crisis, mobility restrictions in response to the pandemic prevented people from actively looking for work. As a result, many of those who lost their jobs in April became inactive, a category that grew annually at 29.0% (4.3 million inactive people). These increases implied a significant drop in the labor supply, which mitigated potential increases in unemployment rates. Even so, unemployment rates doubled from the previous year. The relaxation of isolation measures and gradual reopening of some sectors in May allowed for a significant portion of inactive people to return to the labor market in search of work, and led to a monthly expansion in the labor supply above and beyond the creation of new jobs. This in turn drove national and urban unemployment rates to historical highs. In May, the seasonally adjusted national and urban unemployment

12 For more detailed analysis on the recent behavior of the labor market, see the Central Bank of Colombia's labor market report available at https://www.banrep.gov.co/es/reporte-mercado-laboral. This report also contains analysis of the effects that sectoral restrictions derived from isolation measures had on labor performance from February to April 2020.

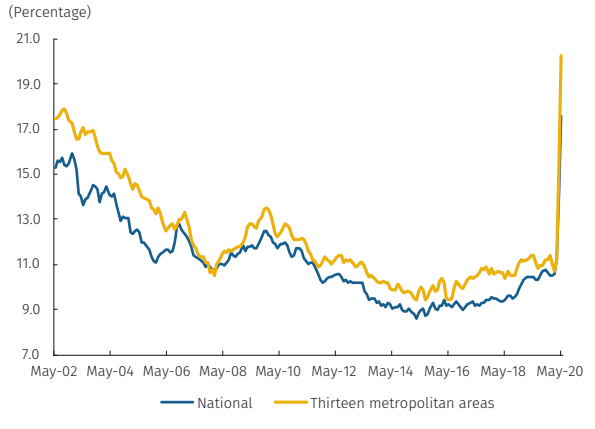
13 Labor market series present some degree of seasonality. That is, their values are systematically higher or lower depending on the month of the year. This phenomenon needs to be isolated using statistical techniques in order for the technical staff to make comparisons between months in the same year. 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
Unemployment rate by area
(seasonally adjusted series)

A. Monthly

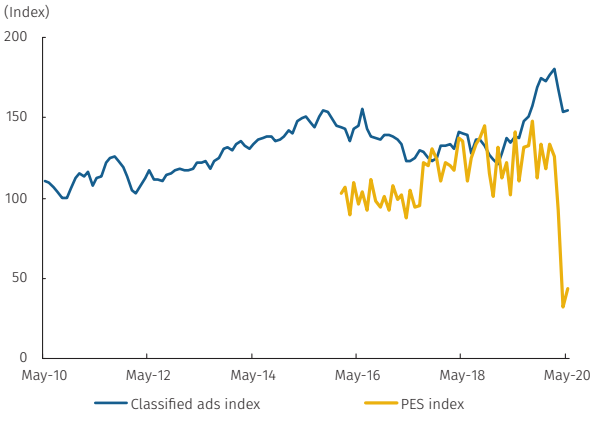


B. Moving quarter



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

Graph 3.18
Classified ads index and Public Employment Service (PES)
(seasonally adjusted moving quarter)



Note: the classified ads index uses 2009 as a base and the PES uses January 15.
Sources: Arango (2013) and PES; calculations by *Banco de la República.*

rates were 21.2% and 24.6% (Graph 3.17, Panel A), respectively, while the moving quarterly averages (March-May) were 17.6% and 20.3% (Graph 3.17, Panel B).

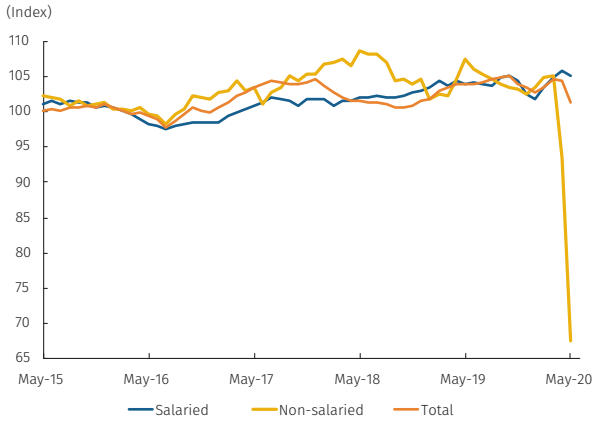
A slow recovery in the Colombian labor market that would bring the unemployment rate through 2020 to between 16.5% and 19.0% is expected, in line with projections for economic activity. The most recent employment information suggests that employment and labor participation indicators likely registered their biggest drop in April, before a slight recovery in May. As a result, as various productive sectors continue to reactivate activities, employment is projected to continue to gradually recover over the course of the year. This recovery would be driven primarily by non-salaried employment, as job creation in the salaried sector is usually slower. In this context, the technical staff's simulation exercises suggest that the national unemployment rate should settle between 16.5% and 19.0% through the end of 2020, recovering in the second half of the year from the peak observed in the second quarter. This projection takes into account the most recent figures from DANE's household survey, which showed more significant falls in salaried employment than expected, and the macroeconomic projection scenario laid out in section two of this report[14].

The labor market is expected to remain loose through 2020, and salary costs should exert downward pressure on inflation, a dynamic that has already manifest in adjustments in labor income. The COVID-19 shock also had an effect on other labor market indicators, such as indices for job openings and labor income. Based on classified ad indices and the Public Employment Service (PES), job openings fell significant in April (Graph 3.18). In May, however, these indicators saw a slight recovery alongside observed behavior in employment. Reduced job openings, together with increases in the unemployment rate, suggest a highly loose labor market, according to the Beveridge curve, which should exert downward pressure on inflation as a result of reduced salary costs[15]. These pressures have already become manifest in labor income behavior. Information from DANE's household survey showed a significant fall in real median labor income per hour worked among non-salaried employees in April and May. Labor income for salaried workers has not yet shown significant observable change due to a higher degree of rigidity in that market (Graph 3.19). Other sources of information, such as DANE's commercial and industrial sur-

14 For more detail on this projection exercise and a more exhaustive analysis of the Colombian labor market, see the *Labor Market Report* no. 15, available at https://www.banrep.gov.co/es/reporte-mercado-laboral

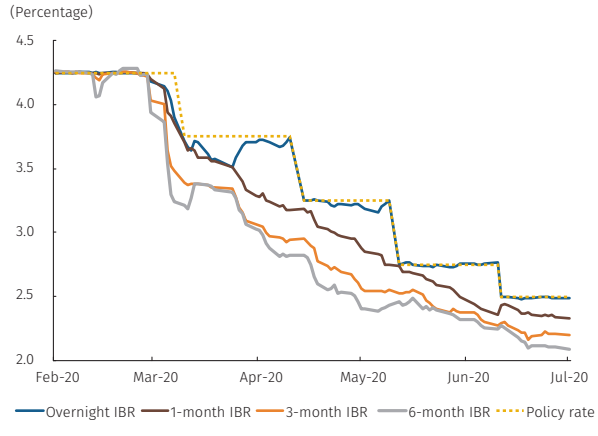
15 The Beveridge curve is a graphic representation of the relationship between the rate of job openings and the unemployment rate. In this report the curve was not updated because the job openings indicator with which it is usually produced could not be calculated due to a reduction in questions on DANE's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

Graph 3.19
Index of real median labor income per hour: twenty-three cities
(seasonally adjusted moving quarter)



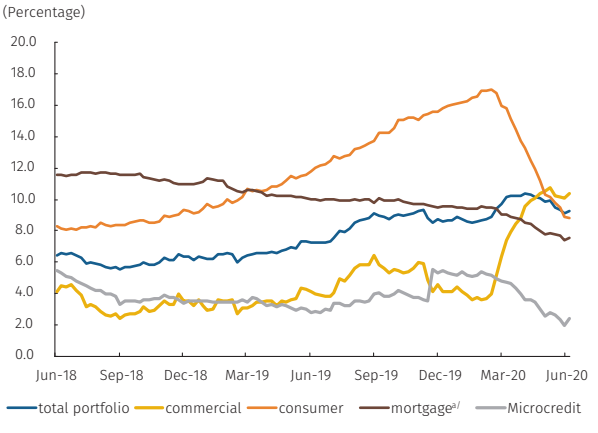
Source: DANE (comprehensive household survey); calculations by *Banco de la República*.

Graph 3.20
Monetary policy rate and banking benchmark reference rate (IBR)
(daily figures)



Source: *Banco de la República.*

Graph 3.21
Gross national currency portfolio
(annual change, weekly data)



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

veys[16], which collate information from formal businesses and, as a result, primarily salaried employees, did show a significant decline in salary indices.

3.4 Monetary and financial market

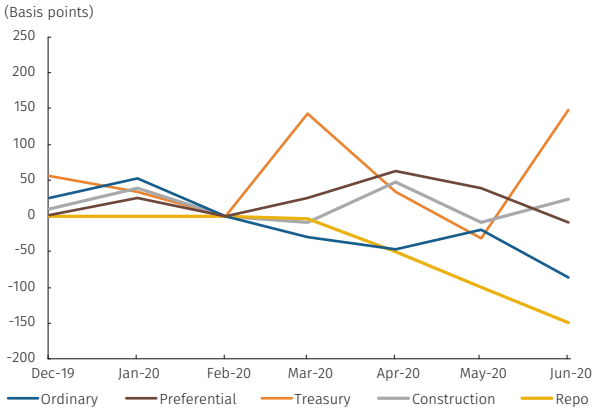
Ample liquidity provided by the Central Bank and reductions in the policy interest rate have passed through to interest rates in the interbank market. Information from July shows that interest rates in the money market have declined along with reductions in the policy rate, and that liquidity in the system has remained significantly loose since the beginning of the health crisis. As a result, the one-day interest rate has been at levels similar to the policy rate, while for other maturities it has been lower: around 13 bp in the case of the one-month interbank reference indicator (IBR) and 28 bp in the six-month IBR (Graph 3.20).

Since the April report, the preference among economic agents for liquid assets has shown signs of stabilization, though at high annual rates of growth. Agents' preference for liquid resources has been characterized by relative stability in growth rates for checking and savings accounts, though still at high levels. In June, annual change in total deposits (LSRR) was 16%, the product of growth in sight deposits of 26% and fixed-term deposit certificates (CDTs) of 4%. For its part, growth in cash in circulation continued to accelerate to 31%. Following cuts in the policy rate, rates on CDTs fell for all maturities and ended below levels observed in the previous report. Total CDT and 90-day interest rates in June were 4.0% and 3.8%. respectively.

Information for June and July suggests a moderation in commercial credit, while the household credit portfolio continued to decelerate (Graph 3.21). Commercial loans accelerated significantly in the second quarter but appears to have slowed at the end of June and beginning of July as a result of reduced disbursements. Since April, interest rates for ordinary and preferred credit have fallen, while treasury and construction loans have yet to show a defined trend. This has come in the context of recent weakening in demand for commercial credit, lower deposit interest rate, availability of government guarantees, and expectations for increased risk (Graph 3.22). For its part, given the weakness of activity and employment figures, the household credit portfolio (consumption and mortgages) continued to decelerate, driven in large part the dynamic of the portfolio as a whole. According to the Office of the Financial Superintendent of Colombia, approximately 46% of consumer credit and 66% of housing credit was covered by debt relief programs by the

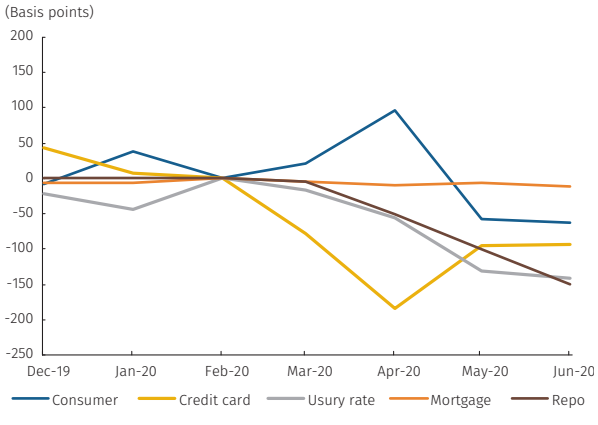
16 Regionally focused monthly manufacturing survey and monthly commercial survey.

Graph 3.22
Monthly interest rates on commercial loans
(change compared to February 2020)



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

Graph 3.23
Monthly interest rates on household loans
(change compared to February 2020)



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

end of the quarter. With respect to household interest rates, consumption and credit card rates declined, while the mortgage interest rate has remained stable (Graph 3.23).

Box 1
Estimate of the Impact of Price Reliefs on Inflation

Edgar Caicedo García
Nicolás Martínez Cortés*

The global pandemic caused by the Covid-19 led the National Central Government to declare a health and economic emergency in mid-March[1]. Additionally, mandatory confinement of the Colombian population was ordered for several weeks, leading to total or partial closures of the country's productive and commercial capacity. These closures, which began to be relaxed in May, were accompanied by a program of consumer price reliefs implemented by local and national authorities with the purpose of sustaining the households' purchasing power. These programs have had an impact on annual consumer inflation, which is, to a large extent, transitory. Below we list the most important price reliefs and estimate their potential impact on prices. Subsequently, the same exercise is performed to try to approximate the impact of the VAT-free days on the CPI.

1. Price Relief Measures

Table B1.1 contains a brief description of the price reliefs decreed by the Government and that were included in the estimation exercise presented below. In addition, with Decree 579 of 15 April 2020, the Ministry of Housing froze the fees for leases and allowed out-of-contract negotiations until 30 June of this year. In addition, several territorial authorities designed programs to help the lower-income population with public utility fees by increasing subsidies to low-income households, freezing and deferring to several months, applying rebates for early payment, and even paying the cost of one or more public utility services, as was the case in Manizales, Ibagué, and Villavicencio.

2. Estimate of the Impact of Price Reliefs on the CPI

As mentioned in the third chapter of this report, several factors have explained the downward performance of inflation in recent months, from which weak demand, spare productive capacity, and price reliefs decreed by governments stand out. These factors (along with others such as accumulated depreciation, global prices, measurement difficulties, etc.) have acted simultaneously, making the task of identifying their effects on inflation complex and subject to considerable uncertainty. However, this exercise provides an estimate of the impact of price reliefs described in Table B1.1. Reliefs for leases and utility rates are excluded, as it is particularly difficult to incorporate them due to their heterogeneity, scope, and complexity, which makes it more difficult to create a metric to quantify their impact.

The following steps were taken to estimate the impact of price reliefs:

i. A pre-pandemic, non-tax price index equal to 100 was established for each of the components of the basic goods and services basket.
ii. The average tax for each of the items in the CPI was identified under normal conditions (without pandemic reliefs), and was imposed on the index in item *i*. For example, for an item with a 19% VAT, its index goes from 100 to 119 (= 100*1.19). This value was related to February 2020 because it was the month prior to the first relief coming into effect.
iii. The taxes for items covered by the decrees were eliminated starting in the month in which their relief came into effect. The other items maintain the same index that corresponds to them (depending on whether they are taxed and on their magnitude). Following the example of the item with a 19% VAT, if it belongs to a group of reliefs, its index goes to 100 = 119/1.19. In contrast, if it has no relief, its index continues at 119. It should be noted that the percentage bearish impact of the relief on the item in the example is (100/119) - 1 =-15.97%.
iv. On the date of expiry of the decree, the tax is reset to the corresponding index. In the example, the index returns to 119 (= 100*1.19). This means an upward impact of (119/100)-1=19.0%, which shows the asymmetric effect that these situations have on percentage variations in price indexes (or levels).
v. Since the above mentioned steps were applied to all items in the CPI basket, the resulting indexes are finally calculated for the different sub baskets and for the total basket over the months. From this, the percentage changes of interest were calculated.

Thus, the exercise estimates a baseline scenario, where the impact of the reliefs is transmitted completely to the CPI, both in price cuts (tax reliefs) as in the subsequent increase (expiry of the reliefs). The results are presented in Table B1.2, where it is noted that, in this scenario, the impact of the reliefs would result in a 1.78% fall in the total price level by June 2020 (*vis-à-vis* February), but would be lower by December 2020 (1.19% as compared to February).

* The authors belong to the Programming and Inflation Department. Their opinions do not compromise *Banco de la República* or its Board of Directors.

1 On 12 March, the health emergency was decreed until 31 May 2020 (Resolution 385 of the Ministry of Health and Social Protection), which was extended until 31 August 2020 on 26 May (Resolution 844 of the Ministry of Health and Social Protection). The declaration of economic, social and ecological emergency was decreed on 17 March 2020 (Decree 417 by the President of the Republic) and was extended on 6 May for another month (Decree 637 of the Presidency of the Republic).

Table B1.1
Government-Decreed Price Reliefs Incorporated in the Estimation Exercises

Relief	Decree and Effective Application	Date
Temporary VAT elimination for mobile cellular plans below COP 71,000.	Decree 540 of 13 April 2020, Ministry of Information Technologies and Communications	Four months from the date of the decree.
Temporary elimination of VAT on health products, body hygiene, and household hygiene products.	Decree 551 of 15 April 2020, Ministry of Finance and Public Credit.	End of the health emergency (for the time being, 31 August 2020).
Temporary VAT reduction to air travel tickets from 19% to 5.0%.	Decree 575 of 15 April 2020, Ministry of Transport.	31 December 2021
Temporary elimination of consumption tax on food services.	Decree 682 of 21 May 2020, Ministry of Finance and Public Credit.	31 December 2020
Temporary elimination of VAT for tourism and hotel services.	Decree 789 of 4 June 2020, Ministry of Finance and Public Credit.	31 December 2020
Reduction in fuel prices close to COP 1,300.	Two decisions by the Ministry of Mines and Energy in the first weeks of March 2020.	We assume that it is maintained for the entire horizon of the exercise.

Source: Ministries mentioned; elaborated by the authors.

Table B1.2
Impact Exercise on the CPI of Reliefs in Prices under a Full-Transmission Scenario

	Total	Excluding Food and Regulated items (EFR)	Tradables EFR	Non-tradables EFR	Regulated Items[a/]	Food
Average Tax	6.0%	7.5%	16.5%	3.5%	1.6%	4.8%
Indexes						
No Tax	100	100	100	100	100	100
Feb-20	106.0	107.5	116.5	103.5	101.6	104.8
Jun-20	104.1	106.2	113.6	102.9	99.0	101.9
Aug-20	104.2	106.4	113.6	103.1	99.0	101.9
Dec-20	104.7	107.2	116.4	103.1	99.0	101.9
Jan-21	105.6	107.5	116.4	103.5	99.0	104.8
Dec-21	105.6	107.5	116.4	103.5	99.0	104.8
Jan-22	105.6	107.5	116.5	103.5	99.0	104.8
Variations vis-à-vis February 2020 (impact of reliefs vs. initial price level) (Percentage)						
Jun-20	-1.78	-1.22	-2.51	-0.57	-2.53	-2.81
Aug-20	-1.69	-1.08	-2.51	-0.35	-2.53	-2.81
Dec-20	-1.19	-0.28	-0.15	-0.35	-2.53	-2.81
Jan-21	-0.39	-0.05	-0.15	0.00	-2.53	0.00
Dec-21	-0.39	-0.05	-0.15	0.00	-2.53	0.00
Jan-22	-0.36	0.00	0.00	0.00	-2.53	0.00

Note: The February price level incorporates the average tax to the items comprised by each sub-basket, i.e., it is equal to the level without taxes plus the average tax.
a/ It only considers the relief on the price of fuels.
Source: DANE; elaborated by the authors.

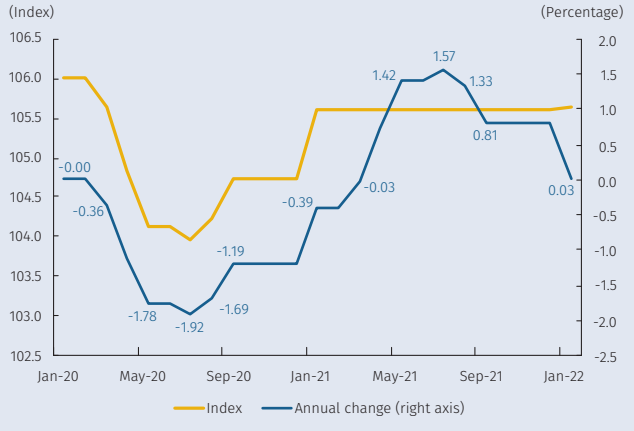
This implies part of the upward effects of these measures resulting from the expiry of some of the reliefs (those related to mobile phone plans and health products, body hygiene, and hygiene products), given that between June and December 2020 there would be a 0.60% increase in the total CPI level. Precisely, every time some relief expires, the exercise will show an increase in the price level. In addition to the one already mentioned, in December 2020, reliefs on food, tourism and hotel services will end, and the total price index would therefore increase by 0.81% in January 2021 *vis-à-vis* December 2020. Finally, between December 2021 and January 2022, the index would rise 0.03% due to the return of the 19% VAT on air travel fares.

On the other hand, it is important to note that such movements of the indexes lead to a particular behavior of their

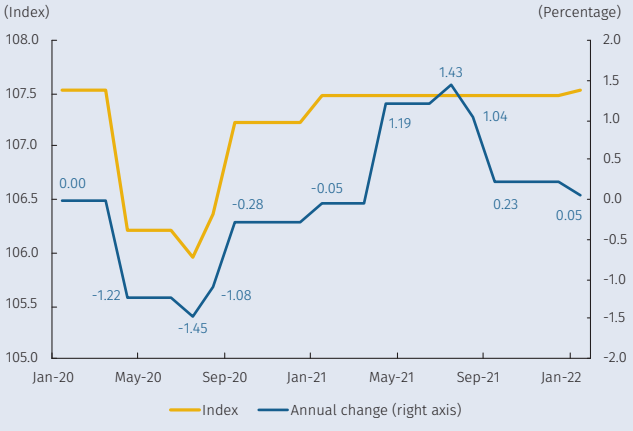
annual variation. Precisely, as has already been mentioned, the reliefs generate a decrease in the annual variation when they are in force, but also an increase (which is greater than the decrease)[2], when they expire, first, and then when the index with the reliefs is used as a basis of comparison for the calculation of the annual variation. This is shown by Graph B1.1, which shows the price indexes and their respective annual variations for the year detailed.

Graph B1.1
Relief Impact Exercise on the CPI and its Annual Variation under a Full Transmission Scenario

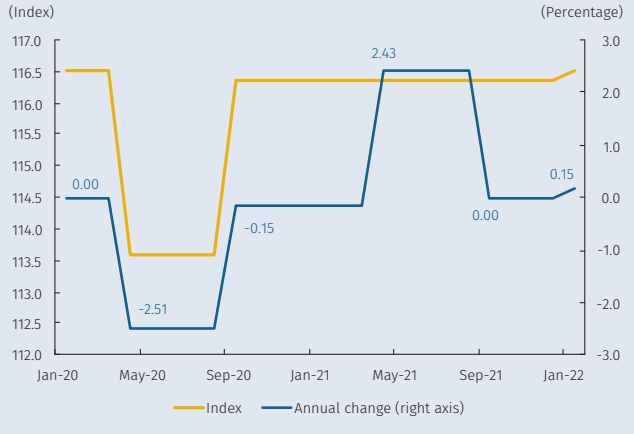
A. Total CPI



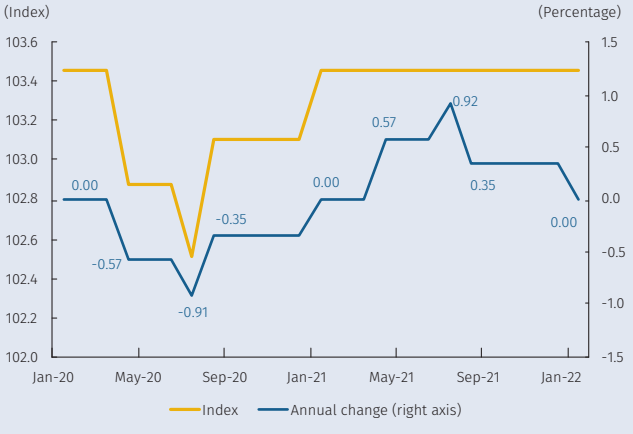
B. CPI excluding food and regulated items



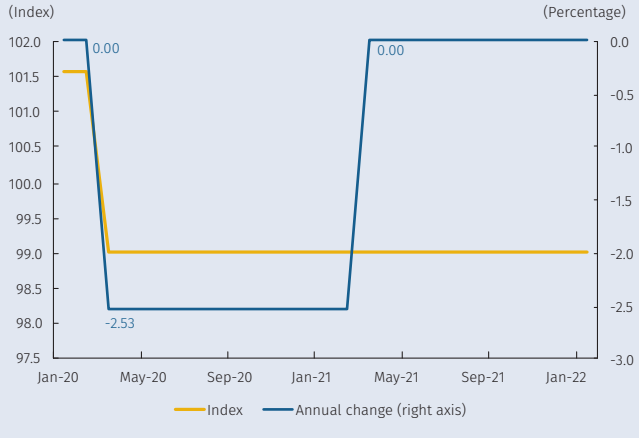
C. CPI for tradables excluding food and regulated items



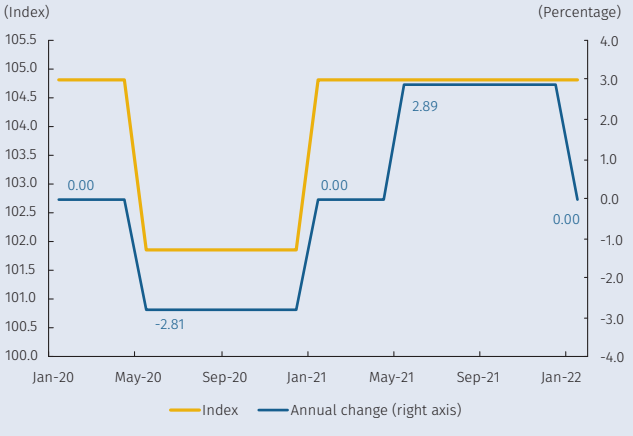
D. CPI for non-tradables excluding food and regulated items



E. CPI for Regulated items



F. Food CPI



Source: DANE; calculations by the authors.

2 As long as no other effects operate, such as a very weak demand that does not allow for adjustment.

However, it is very likely that the effects of the transitory elimination of indirect taxes will not be completely transmitted to consumer prices. Assuming an alternative scenario of a 50% carryover, the total CPI would only fall by a little less than one percentage point (89 bp) to June 2020. This result is similar to that of an additional exercise done to attempt quantifying the impact of price reliefs (and the VAT-free day) on the headline annual inflation figure observed in June 2020. This exercise was to maintain until June the last observed value of the index for CPI items with price reliefs or which were included in the VAT-free day before it registered falls within the periods where the reliefs are in force. Annual inflation was calculated with the resulting indexes and compared with the figure actually observed, obtaining a downward impact of about 80 bp in June 2020. The result of this additional exercise is also an approximation and it should be considered that it could be collecting not only the effect of the reliefs, but also other factors such as weak demand or the difficulty in price measurement, given the cautionary health measures and the closure of establishments.

3. Estimation of the impact of the VAT-free days on the CPI

Furthermore, Decree 682 of 21 May 2020 of the Ministry of Finance provided the exemption of VAT on certain consumer goods and supplies for the agricultural sector on 19 June and 3 and 19 July. However, three days before the last VAT-free day, this was postponed, with no announcement of a new date[3]. The items included in this exemption were: clothing and footwear, clothing accessories (briefcases, umbrellas, glasses, etc.), appliances, sporting goods, toys and games, school supplies and goods and supplies for the agricultural sector.

Following the same calculation methodology as in the previous paragraph, the impact of a VAT-free day on the CPI level was estimated. This calculation has a wide range of uncertainty because the number of times in which DANE records the prices per item is unknown, so that if the information is collected once a month, the estimated impact is divided by 1 (If that record is taken on the VAT-free day), while if the information is recorded on a daily basis, the calculated impact is divided by 30. Consequently, it was estimated that the impact of a VAT-free day on the change in the total CPI would be a 87 bp fall recording prices once per month, while, with 30 price records per month, the adjustment of the total CPI would contract only 3 bp. In any case, it is assumed that this impact would be low, since the goods that benefited from the VAT-free day are of high demand, so we assume that DANE carries out a frequent recording of prices.

In summary, a significant fall in inflation occurred in June 2020, among other reasons, due to the various price reliefs implemented by different local or national authorities. However, starting in August, inflation could be expected to pick up, as some price reliefs begin to expire. However, the impact and likely trajectory of the CPI and inflation illustrated here are greatly uncertain due to multiple overlapping factors in both supply and demand, including price measurement difficulties in current circumstances. Therefore, the exact degree and extension of the transmission of price reliefs to the CPI is unknown.

3 On 16 July, by Decree 1044 of the Ministry of Domestic Affairs, the third VAT-free day was suspended.

Box 2
Banco de la República´s New Classification of the CPI basket and Review of Core Inflation Indicators in Colombia

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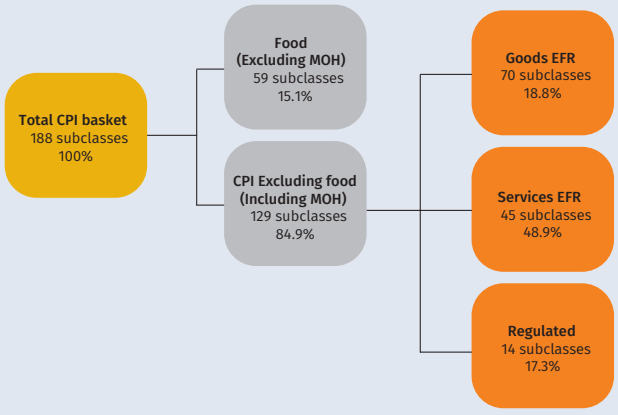
Ramón Hernández-Ortega
José Vicente Romero
Anderson Grajales-Olarte*

This box summarizes the paper by González et al. (2020)[1], which condenses the results and characteristics of the new CPI classification and the new core inflation indicators that will be used from the fourth quarter on by the technical staff at *Banco de la República* for its various analyses. It is important to highlight that this disaggregation does not intend to replace the official classification used by the DANE and, although it will be the center of analysis and monitoring by the technical staff at the Central Bank, it will not limit the use of other disaggregations of the CPI that allow to deepen on relevant analyses of the economic situation or for research purposes.

1. *Banco de la República´s* New Classification of the CPI

The implementation of the new CPI methodology by the DANE in 2019 raised the need to update the current classification employed by the Central Bank. The classification proposed will contribute to the timely identification of different inflationary pressures, and is in harmony with international practices; also, it is compatible with the COICOP nomenclature (adopted by the DANE for the production of the CPI starting January 2019), and it is clear and easy to communicate. The elaboration of this new disaggregation of the CPI was based on a rigorous analysis guided by the expert judgment of the technical staff at *Banco de la República*, focusing on international experience, the COICOP classification, and the analysis of the performance of the CPI. It is also supported by the study of the current price regulations in the Colombian economy, the information available in the supply-use matrix, and the relationship of the CPI subclasses with possible explanatory variables by using econometric statistics and techniques (see Diagram B2.1).

Diagram B2.1
Banco de la República´s New Classification of the CPI



Note: Within each column, baskets are exclusive; i.e., they do not share subclasses. The third line of each sub-basket table indicates its weight in the total CPI.
MOH: Meals outside the home.
EFR: Excluding food and regulated items.
Source: DANE; elaborated by the authors.

In summary, the classification proposed is relatively similar to the one previously used and published by the Central Bank (see Table B2.1), but with the following main changes[2]:

i. The classification for EFR (i.e., excluding food and regulated items) and non-tradables EFR is replaced by goods EFR and services EFR, respectively.
ii. The sub baskets for regulated items and food continue, but adopting the methodological changes of the COICOP nomenclature, i.e., the food group only includes perishable and processed foods and excludes meals out-of-home (MOH), which become part of the EFR services group.
iii. The regulated segment includes pre-school, primary and middle school services, among others.

In this classification, EFR services have a predominant role, with 48.9% representation in the total CPI (within which lease-related items stand out with 25.2% of the total CPI), while food weighs 15.1%, this being the sub basket with the lowest share in the total CPI (See Table B2.1). Finally, another feature of this classification is that it facilitates additional disaggregations that are more intuitive, clearer, and easy to communicate than the classification currently in use, as it is easier to talk about tradable or non-tradable goods and services than non-tradable items affected by the exchange rate.

* The authors belong to the Programming and Inflation Department, the Technical and Economic Information Department, and the Macroeconomic Models Department of *Banco de la República*. Their opinions are their sole responsibility and do not necessarily reflect those of *Banco de la República* or its Board of Directors.

1 González, E.; Hernández, R.; Caicedo, E.; Martínez-Cortés, N.; Grajales, A.; Romero, J. (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.

2 For further details, the classification of each CPI subclass is presented in Annex 4: Details of the new classification by *Banco de la República* and its correlation with the previous classification, from the base document (González et al., 2020).

Table B2.1
Comparison between *Banco de la República*´s previous and new Classification of the CPI

Previous Classification			New Classification		
Group	Weight in total (percent)	Number of subclasses	Group	Weight in total (percent)	Number of subclasses
Food (including MOH)	23.8	64	Food (excluding MOH)	15.1	59
Excluding food	76.2	124	CPI Excluding food	84.9	129
Tradables EFR	19.2	71	Goods EFR	18.8	70
Non-tradables EFR	42.3	44	Services EFR	48.9	45
Regulated	14.7	9	Regulated	17.3	14

MOH: Meals outside the home.
EFR: Excluding food and regulated items.
Source: DANE; elaborated by the authors.

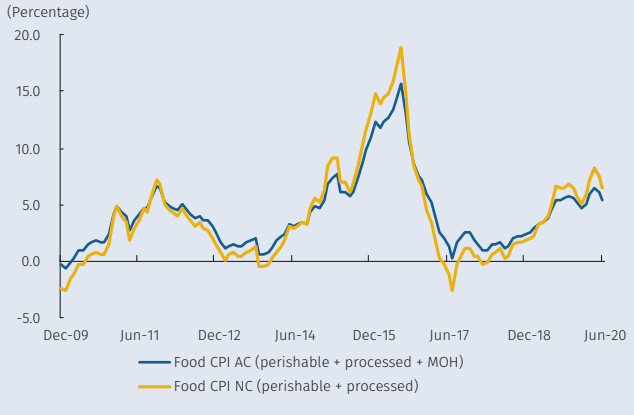
In order to illustrate the changes, a graphical comparison was made between the evolution of the annual variation of the sub baskets with the previous and the new classifications (Graph B2.1).

2. Review of core inflation indicators in Colombia and update of those used by *Banco de la República*

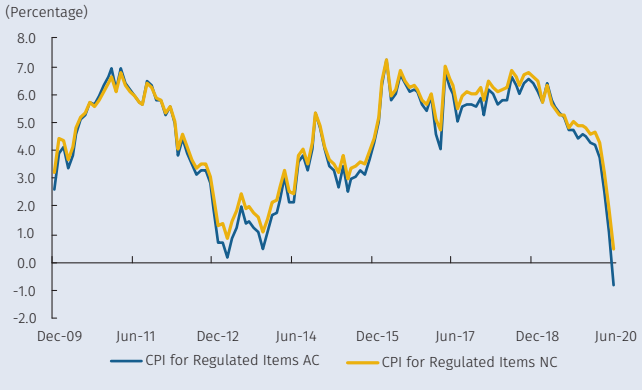
The recent change in the basket by the DANE included an update on household consumption patterns, which may lead to the need for updating core inflation indicators as well. In response, nearly fifty core inflation measures were constructed, including those currently used by *Banco de la República*, and they were assessed according to the selection criteria most commonly used by international literature. The results suggest that there is no best indicator, in absolute terms, among all the dimensions considered. In this regard, the four core inflation indicators currently used by the Bank exhibit a relatively good performance when comparing their properties with those of a broad set of core inflation indicators.

Chart B2.1
Graphical Comparison of *Banco de la República*'s previous (OC) and the new Classification (NC)
Annual Variation

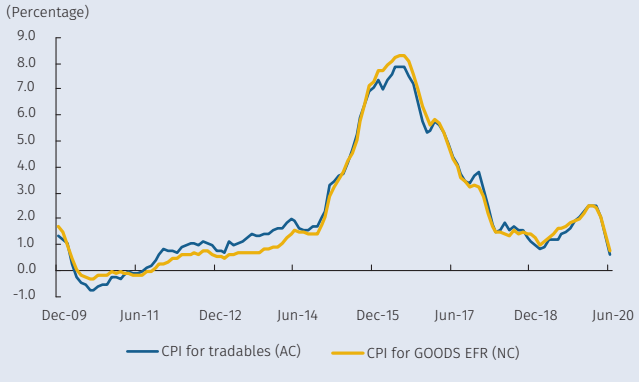
A. Food CPI



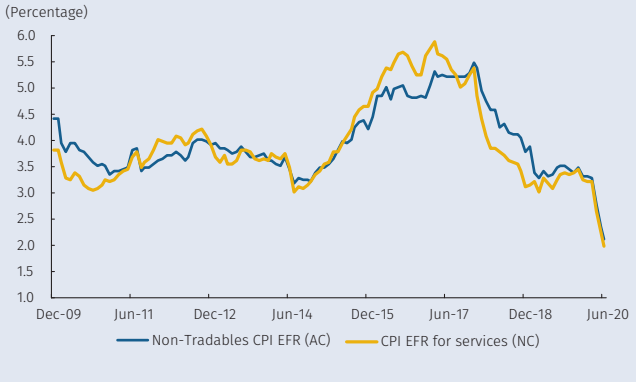
B. Regulated Items CPI



C. CPI for goods and tradable CPI, excluding food and regulated items (EFR)



D. CPI for services and non-tradable CPI, excluding food and regulated items (EFR)



Source: DANE; calculations by the authors.

The exercise was to select and analyze several types of core inflation indicators that not only met the technical criteria, but that would also: 1) be easy to interpret and replicate, and 2) have no frequent revisions. Although these two criteria do not necessarily suggest that the measurement is adequate, they do ensure better communication. In this context, the indicators built were grouped into three sets: exclusion measures (not including some expenditure items in order to build an aggregate price index), core measures (excluding sub-classes of the CPI basket whose prices have been more volatile over a given period), and rigid price measures with exclusion (seeking a basket of rigid prices, understood as those that remain unchanged for longer periods). Additionally, the median for the annual variation was considered (this is a monthly record of annual inflation for the subclass which, in that month, and ordered by variations from low to high, stands at 50% of the cumulative weighting), which is not affected by extreme price changes[3].

These indicators were later analyzed under the desirable criteria: 1) Unbiasedness; 2) Variance lower than headline inflation; 3) Follow-up of the long-term component, estimated in two ways: using the Kalman filter and as a centered moving average; 4) Good forecasting capacity of headline inflation (assessed at six and twelve-month horizons); 5) Relationship to their macroeconomic determinants (Phillips Curves and cross-correlations with the gap and unemployment); and 6) Scarce reaction to transitory supply shocks.

The results of the assessment are presented in Table B2.2, in which the eleven best indicators were selected and ranked according to the final score[4]. In the table, core inflation indicators currently published by the Central Bank are

3 For further details, the list of the indicators assessed is presented in Annex 6: Core inflation indicators assessed from the main document (González et al., 2020).

4 The following scoring procedure is used to assess the core inflation indicators: a) each indicator is rated according to its performance in each of the dimensions assessed, assigning scores between 1 (best performance or compliance with criteria) and 4 (non-compliance with criteria); b) the final score for each indicator is the sum of the scores obtained in all dimensions. Thus, the core inflation indicators that show better performance will be those with the lowest scores.

Table B2.2
Assessment Results of Core Inflation Indicators

Dimension/ Indicator	DANE excluding food and regulated items	DANE excluding food and regulated items 2019a/	Core 10 (p08)	Core 15 (p08)	Banrep excluding food and regulated items	Expert Criteria	Banrep excluding food	DANE excluding food	Core 30 (p08)	CPI excluding perishable food, fuels, and public utilities	Core 20 (p98)
Cross Correlations (Gap)	1	1	2	3	1	1	2	3	3	2	3
Cross-correlations (Unemployment)	1	1	3	3	1	2	2	2	4	3	3
Phillips Curve	1	1	1	1	1	1	1	1	1	1	1
Unbiasedness	3	3	1	1	3	3	2	1	2	3	3
Variance	2	2	2	2	2	2	2	2	2	3	2
LP1 Tracking	3	3	2	2	3	2	2	2	3	2	3
LP2 Tracking	2	3	2	2	3	3	2	2	3	2	2
Forecasting capacity H = 6	2	2	2	2	2	2	4	4	2	3	1
Forecasting capacity H = 12	2	3	2	2	2	3	3	3	2	3	2
Supply shock	2	1	4	3	3	2	2	2	1	1	3
Score	19	20	21	21	21	21	22	22	23	23	23
Ranking	1	2	3	4	5	6	7	8	9	10	11

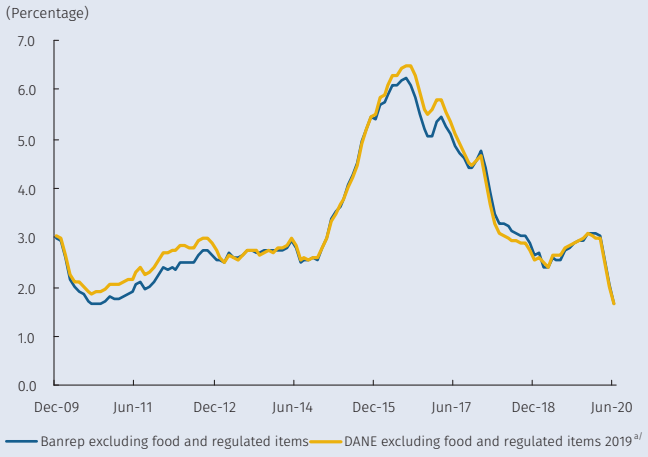
Notes:
- Banrep Foods refers to perishable, processed and out-of-home foods.
- DANE Foods refers to perishable and processed foods.
- Regulated items refers to the previous classification for regulated items.
- As an additional robustness exercise, a core inflation indicator was constructed using expert criteria (Expert Criteria column). For this indicator, the subclasses that were most sensitive to demand were selected; according to the authors' view, those affected by transitory shocks were excluded.
a/ This refers to the new classification for regulated items proposed in this box.
Source: Sources external to *Banco de la República*; prepared by the authors.

highlighted in gray, while those proposed in this document are highlighted in blue.

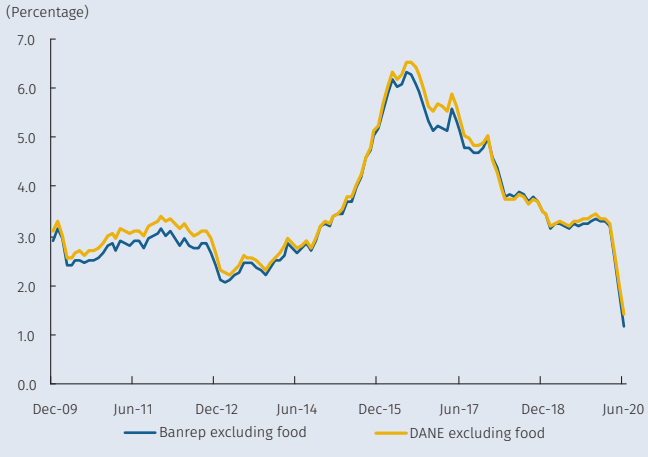
In conclusion, although no single core inflation indicator was found to be better in absolute terms in all the dimensions used to assess them, It has been proposed that the indicators used by the Central Bank be changed for indicators that represent the most recent changes in the CPI (2019), since they consider the update to the COICOP nomenclature and thus facilitate communication of their behavior and comparability with headline inflation and other sub baskets. Thus, the indicators selected to replace the existing ones were: CPI excluding food (CPI excluding perishable and processed foods), CPI excluding food and regulated items (CPI excluding perishable, processed and the new definition of regulated items), and Core 15 (excluding items that are at 15% of the most volatile weight of the CPI basket). Finally, Graph B2.2 shows a graphical comparison between the evolution of the core inflations indicators that *Banco de la República* has followed and those proposed in this document.

Graph B2.2
Graphical Comparison between previous and new Core Inflation Indicators by *Banco de la República.*
Annual Variation

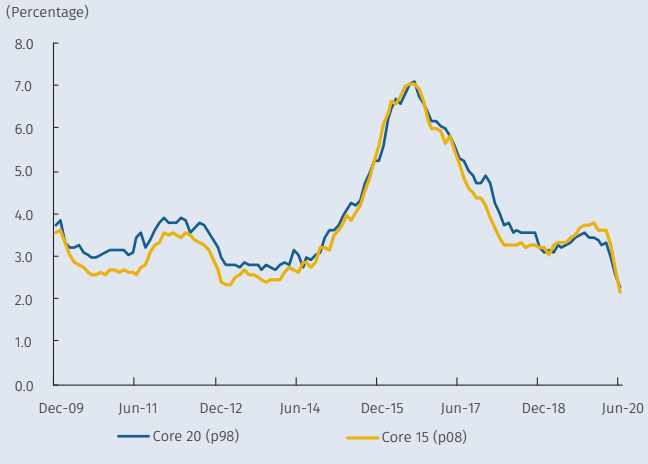
A. CPI excluding food and regulated items



B. CPI excluding food



C. Core



Note: Banrep Food refers to perishable, processed, and out-of-home foods.
DANE Food refers to perishable and processed foods.
Regulated items refers to the previous classification of regulated items.
a/ This refers to the new classification for regulated items proposed in this box.
Source: DANE; calculations by the authors.

Annex 1
Macroeconomic projections from local and foreign analysts[a/b/]

	Units	Jul-20	Dec-20	Jul-21	Dec-21	Jul-22
Total CPI	Monthly Variation (average)	-0.13	n. d.	n. d.	n. d.	n. d.
CPI excluding foods	Monthly Variation (average)	-0.14	n. d.	n. d.	n. d.	n. d.
Total CPI	Annual Variation, end of period (average)	1.84[c/]	1.89	2.85	2.91	3.07
CPI excluding food	Annual Variation, end of period (average)	0.87[c/]	1,24	2.51	2.59	2.76
Nominal Exchange Rate	Pesos per dollar, end of Period	3,650	3,695	3,600	3,545	3,460
Policy Rate	Percentage, end of period	2.25	2.00	2.25	2.75	3.25

	Units	Q2 2020	Q3 2020	Q2 2020	2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	2021	Q1 2022	Q2 2022
GDP	Annual Variation [d/]	-13.0	-6.5	-3.1	-5.4	-0.5	6.5	3.6	3.0	3.1	3.1	3.2
Unemployment	Thirteen cities, end of period	22.0	20.5	18.8	18.8	18.4	17.5	16.0	15.0	15.0	15.2	14.3
IBR (90 days)	End of Period	n. r.	2.0	2.0	2.0	2.0	2.1	2.3	2.5	2.5	2.9	3.0
DTF	End of Period	n. r.	3.0	2.8	2.8	2.8	2.8	2.8	3.0	3.0	3.3	3.4
Fiscal Deficit (NCG)	Percentage of GDP	n. r.	n. a.	n. a.	-8.2	n. a.	n. a.	n. a.	n. a.	-5.5	n. a.	n. a.
Current Account Deficit	Percentage of GDP	n. a.	n. a.	n. a.	-4.0	n. a.	n. a.	n. a.	n. a.	-4.0	n. a.	n. a.

a/ Macroeconomic surveys of local and foreign analysts will be suspended following this report. Data from the results of *Banco de la República*'s monthly economic analyst surveys will be included.
b/ Reflect median answers from *Banco de la República*'s *Monthly Survey of Economic Analyst Expectations*, except for CPI and CPI excluding food, which correspond to averages.
c/ Figures calculated based on the results of *Banco de la República*'s *Monthly Survey of Economic Analyst Expectations.*
d/ Annual change obtained based on median for each quarter.
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
Primary variables in macroeconomic projection

		Years											
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Exogenous variables													
External [a/]													
Trade partners GDP [b/]	Percentage, annual change, seasonally adjusted	4.8	5.0	4.0	3.6	2.8	2.1	1.6	2.6	2.5	1.4	**-8.2**	**4.8**
Oil price (Benchmark Brent)	Dollars per barrel, average for period	80	111	112	109	99	54	45	55	72	64	**41**	**51**
Federal funds (Fed) effective interest rate	Percentage, average for period	0.18	0.1	0.14	0.11	0.09	0.13	0.4	1.0	1.83	2.16	**0.39**	**0.12**
Credit default swaps at 5 years for Colombia	Basis points, average for period	135	131	119	113	101	184	212	129	114	99	**159**	**166**
Domestic													
Colombia real neutral interest rate	Percentage, average for period	1.6	1.4	1.3	0.9	0.9	1.1	1.3	1.1	1.3	1.2	**1.3**	**1.5**
potential (trend) GDP	Percentage, annual change	4.5	4.6	4.5	4.4	4.1	3.4	2.8	2.5	2.5	2.6	**-2.6**	**1.6**
Endogenous variables													
Prices													
CPI Total	Percentage, annual change, end of period	3.17	3.73	2.44	1.94	3.66	6.77	5.75	4.09	3.18	3.80	**1.50**	**2.30**
CPI excluding food[c/]	Percentage, annual change, end of period	2.82	3.13	2.40	2.36	3.26	5.17	5.14	5.01	3.48	3.37		
CPI tradables	Percentage, annual change, end of period	-0.29	0.80	0.77	1.40	2.03	7.09	5.31	3.79	1.09	2.24		
CPI non-tradables	Percentage, annual change, end of period	3.52	3.63	3.92	3.76	3.38	4.21	4.85	5.49	3.79	3.49		
CPI regulated items	Percentage, annual change, end of period	6.64	5.81	1.91	1.05	4.84	4.28	5.44	5.86	6.37	4.48		
CPI food[d/]	Percentage, annual change, end of period	4.09	5.27	2.52	0.86	4.69	10.85	7.22	1.92	2.43	5.20		
CPI perishables	Percentage, annual change, end of period	10.96	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	2.31	4.50	2.83	-0.24	2.54	9.62	10.74	-0.91	-0.08	5.04		
CPI food away from home	Percentage, annual change, end of period	4.52	5.60	4.90	3.26	3.51	5.95	8.54	5.21	3.68	4.18		
Core inflation indicators													
CPI excluding food	Percentage, annual change, end of period	2.82	3.13	2.40	2.36	3.26	5.17	5.14	5.01	3.48	3.37		
Core 20 CPI	Percentage, annual change, end of period	3.17	3.92	3.23	2.72	3.42	5.22	6.18	4.87	3.23	3.42		
CPI excluding perishable food, fuel and utilities	Percentage, annual change, end of period	2.65	3.18	3.02	2.19	2.76	5.93	6.03	4.02	2.76	3.46		
CPI excluding food and regulated items	Percentage, annual change, end of period	1.80	2.38	2.55	2.74	2.81	5.42	5.05	4.76	2.64	3.10	**1.21**	**2.50**
Average of all core inflation indicators	Percentage, annual change, end of period	2.61	3.15	2.80	2.50	3.06	5.43	5.60	4.66	3.03	3.34		
MER	Pesos per dollar, average for period	1,899	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	-3.2	-1.6	-3.3	-1.0	-0.5	9.1	2.2	-1.8	-0.8	3.5		
Economic activity													
Gross domestic product	Percentage, annual change, s.a.c.e.	4.5	6.9	3.9	5.1	4.5	3.0	2.1	1.4	2.5	3.3	**-8.5**	**4.1**
Final consumption spending	Percentage, annual change, s.a.c.e.	5.1	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.	5.1	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.	5.2	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.	9.6	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.	7.1	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.	-3.8	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.	5.1	-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.	15.6	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.	2.8	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.	-0.5	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.	6.0	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.	2.1	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.	10.8	20.2	9.4	8.5	7.8	-1.1	-3.5	1.0	5.8	8.1	.	.
Output gap Percentage[f/]	Percentage	-1.7	0.6	0.0	0.6	1.0	0.5	-0.2	-1.3	-1.3	-0.6	**-6.8**	**-4.4**
Short-term indicators													
Real industrial production	Percentage, annual change, seasonally adjusted	4.1	4.7	-0.2	-1.3	1.7	2.1	3.5	0.0	2.9	1.3	.	.
Retail commerce sales excluding fuels	Percentage, annual change, seasonally adjusted	8.0	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	14.2	-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	17.1	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	11.8	10.8	10.4	9.6	9.1	8.9	9.2	9.4	9.7	10.5	.	.
Employment rate	Percentage, seasonally adjusted, average for period	55.4	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	62.7	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	12.4	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	57.6	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	65.7	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	-8,732	-9,803	-11,362	-12,501	-19,764	-18,564	-12,036	-10,241	-13,117	-13,740	**-10,014**	**-10,806**
Percentage of GDP	Percentage, nominal terms	-3.0	-2.9	-3.1	-3.3	-5.2	-6.3	-4.2	-3.3	-3.9	-4.3	**-3.7**	**-3.8**
A. Goods and Services	Millions of dollars	-2,164	636	-1,187	-3,164	-11,863	-18,267	-12,705	-8,447	-8,996	-12,256	**-10,920**	**-10,498**
B. Primary income (factor income)	Millions of dollars	-11,228	-15,490	-15,008	-14,224	-12,523	-5,727	-5,229	-8,405	-11,764	-10,189	**-6,161**	**-8,160**
C. Secondary income (current account transfers)	Millions of dollars	4,659	5,051	4,833	4,887	4,622	5,430	5,898	6,611	7,643	8,704	**7,067**	**7,852**
Financial account (A+B+C+D)	Millions of dollars	-9,332	-8,707	-11,553	-11,740	-19,292	-18,244	-12,273	-9,558	-12,415	-13,051		
Percentage of GDP	Percentage, nominal terms	-3.3	-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	-947	-6,227	-15,646	-8,558	-12,270	-7,506	-9,330	-10,147	-6,409	-11,342		
i. Foreign in Colombia (FDI)	Millions of dollars	6,430	14,647	15,040	16,210	16,169	11,724	13,848	13,837	11,535	14,572		
ii. Colombian abroad	Millions of dollars	5,483	8,420	-606	7,652	3,899	4,218	4,517	3,690	5,126	3,230		
B. Portfolio investment	Millions of dollars	88	-6,171	-4,769	-7,438	-11,565	-9,166	-4,839	-1,617	1,297	298		
C. Other investment (loans and other credits and derivatives)	Millions of dollars	-11,615	-51	3,457	-2,690	106	-1,987	1,731	1,661	-8,490	-5,339		
D. Reserve assets	Millions of dollars	3,142	3,742	5,406	6,946	4,437	415	165	545	1,187	3,333		
Errors and omissions (E and O)	Millions of dollars	-599	1,096	-190	761	472	320	-237	683	702	689		
Interest rates													
Policy rate	Percentage, average for period	3.2	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**	**2.2**
IBR	Percentage, average for period	3.2	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	7.6	9.0	10.3	8.7	8.7	9.4	12.8	11.1	9.3	8.8	.	.
Consumer interest rate	Percentage, average for period	18.0	18.2	19.2	17.9	17.3	17.2	19.2	19.4	17.9	16.5	.	.
Mortgage rate	Percentage, average for period	13.1	13.0	13.2	11.1	11.1	11.0	12.4	11.6	10.6	10.4	.	.

Note: the values in bold correspond to a projection or assumption.
s.a.c.e.: seasonally adjusted and corrected for calendar effects.
a/ The quarterly data in bold correspond to an assumed base built on the annual projection of each variable.
b/ The top 21 trade partners (excluding Venezuela) are included in calculations for non-traditional exports from Colombia in dollars.
c/ Calculations from *Banco de la República* use new methodology. They exclude the division of food and sub-categories corresponding to food away from home.
d/ Calculations from *Banco de la República* use new methodology. They include the division of food and sub-categories corresponding to food away from home.
e/ Calculations by *Banco de la República* with provisional classifications.
f/ Refers to the difference between observed GDP and potential (trend) GDP resulting from the 4G monetary policy model.
g/ Corresponds to the seasonally adjusted moving quarter.
h/ The results presented follow recommendations of the sixth version of the balance of payments manual proposed by the IMF. Consult additional information and methodological changes at http://www.banrep.gov.co/balanza-pagos.
i/ Results for 2018 and 2019 are preliminary.
j/ Corresponds to the median of analyst projections. These projections are calculated by taking the quarterly average of monthly responses from the survey of analyst economic expectations conducted by *Banco de la República* in July 2020.

Annex 2 (continued)
Primary variables in macroeconomic projection

		2016				2017			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Exogenous variables									
External [a/]									
Trade partners GDP [b/]	Percentage, annual change, seasonally adjusted	1.5	2.0	2.0	2.6	2.6	2.8	3.2	3.0
Oil price (Benchmark Brent)	Dollars per barrel, average for period	35	47	47	51	55	51	52	62
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	6.20	6.31	5.92	5.14	5.13	5.12	4.71	5.01
CPI tradables	Percentage, annual change, end of period	7.38	7.90	7.20	5.31	5.59	4.41	3.41	3.79
CPI non-tradables	Percentage, annual change, end of period	4.83	4.97	4.85	4.85	5.33	5.21	5.21	5.49
CPI regulated items	Percentage, annual change, end of period	7.24	6.71	6.19	5.44	4.05	6.01	5.68	5.86
CPI food [d/]	Percentage, annual change, end of period	12.35	14.28	10.61	7.22	3.65	1.37	2.22	1.92
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
CPI food away from home	Percentage, annual change, end of period	7.53	8.11	9.18	8.54	8.94	7.62	6.01	5.21
Core inflation indicators									
CPI excluding food	Percentage, annual change, end of period	6.20	6.31	5.92	5.14	5.13	5.12	4.71	5.01
Core 20 CPI	Percentage, annual change, end of period	6.48	6.82	6.73	6.18	6.01	5.31	4.87	4.87
CPI excluding perishable food, fuel and utilities	Percentage, annual change, end of period	6.57	6.77	6.65	6.03	5.61	5.07	4.31	4.02
CPI excluding food and regulated items	Percentage, annual change, end of period	5.91	6.20	5.84	5.05	5.44	4.87	4.44	4.76
Average of all core inflation indicators	Percentage, annual change, end of period	6.29	6.52	6.29	5.60	5.55	5.09	4.58	4.66
MER	Pesos per dollar, average for period	3,263	2,993	2,949	3,016	2,924	2,920	2,975	2,986
Inflation gap in the real interest rate	Percentage, average for period	10.7	-0.1	-2.0	0.3	-3.2	-3.2	-0.7	-0.1
Economic activity									
Gross domestic product	Percentage, annual change, s.a.c.e.	2.2	2.2	1.5	2.4	1.3	1.6	1.1	1.4
Final consumption spending	Percentage, annual change, s.a.c.e.	1.3	1.5	0.1	3.7	2.3	2.1	2.9	2.0
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.	4.0	4.8	-1.5	-7.4	-3.4	-2.8	-5.5	-1.1
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	0.3	-5.4	12.3	5.4	4.3	-4.4	-11.9
Other buildings and structures	Percentage, annual change, s.a.c.e.	3.5	0.8	-5.5	1.5	2.0	3.3	9.3	4.0
Machinery and equipment	Percentage, annual change, s.a.c.e.	-4.7	-11.4	-6.5	-8.7	-6.4	-2.1	6.3	8.4
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	1.8	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	-6.5	1.2	4.3	1.6	5.2	3.6	0.0
Imports	Percentage, annual change, s.a.c.e.	-2.6	-2.5	-7.0	-1.9	1.4	2.1	0.4	0.3
Output gap Percentage [f/]	Percentage								
Short-term indicators									
Real industrial production	Percentage, annual change, seasonally adjusted	5.8	4.1	2.3	1.9	-0.4	-0.6	1.0	0.1
Retail commerce sales excluding fuels	Percentage, annual change, seasonally adjusted	3.8	2.0	0.0	2.3	-1.7	0.0	1.5	-0.3
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	9.3	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	58.0
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	60.3	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	6.9	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	11.8	12.4	12.7	12.7	12.5	12.3	11.3	10.9

Note: the values in bold correspond to a projection or assumption.
s.a.c.e.: seasonally adjusted and corrected for calendar effects.
a/ The quarterly data in bold correspond to an assumed base built on the annual projection of each variable.
b/ The top 21 trade partners (excluding Venezuela) are included in calculations for non-traditional exports from Colombia in dollars.
c/ Calculations from *Banco de la República* use new methodology. They exclude the division of food and sub-categories corresponding to food away from home.
d/ Calculations from *Banco de la República* use new methodology. They include the division of food and sub-categories corresponding to food away from home.
e/ Calculations by *Banco de la República* with provisional classifications.
f/ Refers to the difference between observed GDP and potential (trend) GDP resulting from the 4G monetary policy model.
g/ Corresponds to the seasonally adjusted moving quarter.
h/ The results presented follow recommendations of the sixth version of the balance of payments manual proposed by the IMF. Consult additional information and methodological changes at http://www.banrep.gov.co/balanza-pagos.
i/ Results for 2018 and 2019 are preliminary.
j/ Corresponds to the median of analyst projections. These projections are calculated by taking the quarterly average of monthly responses from the survey of analyst economic expectations conducted by *Banco de la República* in July 2020.

2018				2019				2020				2021				2022	
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
2.4	2.6	1.3	1.7	1.0	1.6	1.9	-0.4	-8.1	**-41.8**	**24.4**	**10.2**	**6.2**	**5.9**	**6.0**	**5.8**	**1.0**	**1.0**
67	75	76	68	64	68	62	63	51	33	**38**	**41**	**46**	**50**	**54**	**55**	**56**	**57**
1.45	1.74	1.92	2.22	2.40	2.40	2.20	1.65	1.23	0.06	**0.12**	**0.12**	**0.12**	**0.12**	**0.12**	**0.12**	**0.12**	**0.12**
99	113	110	132	121	106	89	88	124	200	**155**	**158**	**162**	**165**	**169**	**170**	**170**	**170**
3.14	3.20	3.23	3.18	3.21	3.43	3.82	3.80	3.86	2.19	**1.63**	**1.46**	**1.15**	**2.28**	**2.41**	**2.35**	**2.39**	**2.47**
4.05	3.81	3.71	3.48	3.26	3.15	3.28	3.37	3.18	1.18	.	.	.	.	.	.	.	.
1.80	1.83	1.57	1.09	0.90	1.17	1.65	2.24	2.47	0.61	.	.	.	.	.	.	.	.
4.76	4.27	4.13	3.79	3.29	3.36	3.53	3.49	3.29	2.13	.	.	.	.	.	.	.	.
6.01	5.82	6.03	6.37	6.42	5.33	4.74	4.48	3.78	-0.78	**-0.58**	**-0.76**	**-0.91**	**3.47**	**3.25**	**3.09**	**3.08**	**3.15**
0.98	1.74	2.05	2.43	3.26	4.46	5.58	5.20	5.99	5.35	**3.77**	**3.28**	**1.83**	**1.02**	**1.31**	**1.48**	**1.83**	**2.17**
7.13	8.47	9.51	8.88	9.98	15.46	17.50	8.66	9.79	2.52	.	.	.	.	.	.	.	.
-2.01	-0.91	-0.72	-0.08	1.43	2.18	3.57	5.04	6.46	7.75	.	.	.	.	.	.	.	.
3.32	3.13	3.32	3.68	3.43	3.80	4.12	4.18	3.92	3.26	.	.	.	.	.	.	.	.
4.05	3.81	3.71	3.48	3.26	3.15	3.28	3.37	3.18	1.18	.	.	.	.	.	.	.	.
4.04	3.58	3.56	3.23	3.09	3.28	3.51	3.42	3.31	2.28	.	.	.	.	.	.	.	.
2.99	2.71	2.81	2.76	2.57	2.87	3.21	3.46	3.70	2.98	.	.	.	.	.	.	.	.
3.49	3.23	3.04	2.64	2.38	2.54	2.87	3.10	3.04	1.66	**1.26**	**1.21**	**1.32**	**2.51**	**2.62**	**2.52**	**2.43**	**2.43**
3.64	3.33	3.28	3.03	2.82	2.96	3.22	3.34	3.31	2.03	.	.	.	.	.	.	.	.
2,860	2,839	2,961	3,160	3,135	3,242	3,337	3,413	3,534	3,850	.	.	.	.	.	.	.	.
-3.5	-3.8	-0.5	4.5	2.0	3.2	4.0	5.0	4.5	**9.8**	**3.3**	**2.3**	**2.4**	**1.7**	**1.9**	**1.7**	**1.3**	**0.8**
2.3	2.2	2.8	2.8	2.6	3.6	3.4	3.4	0.4	**-16.5**	**-9.7**	**-7.5**	**-5.1**	**13.8**	**5.4**	**3.2**	**4.2**	**4.1**
3.4	4.0	3.4	4.1	4.1	4.3	4.7	4.5	3.4	**-12.7**	.	.	.	.	.	.	.	.
2.7	3.4	3.0	2.9	3.9	4.2	4.9	4.7	3.9	**-16.8**	.	.	.	.	.	.	.	.
7.2	6.3	7.4	7.2	4.0	5.3	4.1	3.7	3.5	**6.0**	.	.	.	.	.	.	.	.
-0.9	0.4	4.6	4.5	1.8	4.7	5.4	3.9	-2.1	**-28.2**	.	.	.	.	.	.	.	.
0.7	1.3	1.5	2.6	6.0	6.7	4.3	0.2	-1.0	**-28.0**	.	.	.	.	.	.	.	.
-5.3	-3.0	2.6	4.8	-4.7	-7.4	-7.0	-10.6	-6.6	**-39.0**	.	.	.	.	.	.	.	.
-6.6	-3.3	-6.7	3.7	7.7	3.2	7.1	-0.7	3.3	**-16.9**	.	.	.	.	.	.	.	.
12.7	13.4	9.5	2.5	14.9	23.0	12.7	5.0	-1.9	**-39.0**	.	.	.	.	.	.	.	.
-0.4	1.5	14.5	7.6	2.0	4.5	1.5	-5.5	1.3	**1.2**	.	.	.	.	.	.	.	.
2.5	1.9	0.7	1.1	1.4	1.3	2.5	5.3	1.7	**1.6**	.	.	.	.	.	.	.	.
1.8	3.5	3.3	4.9	4.3	4.0	5.3	3.8	1.5	**-15.9**	.	.	.	.	.	.	.	.
0.7	-1.1	1.7	2.1	3.7	6.5	1.6	-1.3	-5.8	**-34.5**	.	.	.	.	.	.	.	.
0.9	4.9	6.3	11.3	8.2	9.3	11.1	4.0	0.7	**-26.1**	.	.	.	.	.	.	.	.
2.4	2.8	3.7	2.8	1.1	2.4	0.8	0.8	-1.2	.	.	.	.	.	.	.	.	.
4.8	6.3	4.8	5.8	6.4	7.2	9.4	9.1	7.4	.	.	.	.	.	.	.	.	.
-5.8	13.1	-13.8	-6.6	-1.9	6.6	4.9	24.1	-13.8	-1.9	.	.	.	.	.	.	.	.
0.7	1.2	1.1	2.6	5.3	3.2	1.4	-0.2	-2.1	-15.7	.	.	.	.	.	.	.	.
9.3	9.6	9.6	10.2	10.5	10.3	10.7	10.5	11.2	.	.	.	.	.		.		.
57.9	58.0	58.1	57.2	57.4	56.4	56.3	56.4	55.3	.	.	.	.	.		.		.
63.8	64.2	64.3	63.6	64.2	62.9	63.1	63.0	62.2	.	.	.	.	.		.		.
10.6	10.7	10.5	11.2	11.3	11.1	10.9	11.4	11.2	.	.	.	.	.		.		.
59.3	59.6	59.5	58.5	58.8	58.6	58.5	58.6	57.2	.	.	.	.	.		.		.
66.4	66.7	66.5	65.9	66.3	65.9	65.7	66.1	64.5	.	.	.	.	.		.		.
-2,857	-3,281	-3,219	-3,759	-3,529	-2,731	-4,030	-3,451	-2,712	.	.	.	.	.	.	.	.	.
-3.5	-3.9	-3.8	-4.4	-4.5	-3.5	-5.0	-4.1	-3.7	.	.	.	.	.	.	.	.	.
-1,503	-2,196	-2,298	-2,999	-2,728	-2,458	-3,998	-3,072	-2,886	.	.	.	.	.	.	.	.	.
-2,977	-2,897	-2,878	-3,011	-2,599	-2,484	-2,344	-2,762	-1,932	.	.	.	.	.	.	.	.	.
1,623	1,812	1,957	2,250	1,798	2,211	2,312	2,383	2,106	.	.	.	.	.	.	.	.	.
-2,562	-2,851	-3,434	-3,568	-3,306	-3,179	-3,441	-3,126	-2,378	.	.	.	.	.	.	.	.	.
-3.2	-3.4	-4.0	-4.2	-4.2	-4.0	-4.2	-3.7	-3.3	.	.	.	.	.		.		.
-935	-2,345	-2,469	-659	-2,602	-3,642	-1,791	-3,308	-2,321	.	.	.	.	.	.	.	.	.
2,007	3,846	2,799	2,883	3,385	4,119	3,269	3,800	3,589	.	.	.	.	.	.	.	.	.
1,072	1,500	330	2,224	783	477	1,477	492	1,268	.	.	.	.	.	.	.	.	.
1,750	334	536	-1,323	-1,307	-178	268	1,514	-521	.	.	.	.	.	.	.	.	.
-3,514	-988	-1,670	-2,317	-1,748	114	-2,171	-1,534	634	.	.	.	.	.	.	.	.	.
137	150	169	732	2,351	526	254	202	-171	.	.	.	.	.	.	.	.	.
295	431	-215	191	223	-448	589	325	333	.	.	.	.	.	.	.	.	.
4.6	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.2	3.3	.	.	.	.		.		.
.	.	.	.	.	.	.				**2.1**	**2.0**	**2.0**	**2.0**	**2.3**	**2.6**	**2.8**	**3.0**
4.6	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.2	3.2	.	.	.	.		.		.
9.4	9.4	9.3	9.0	9.1	9.0	8.9	8.5	8.4	8.3	.	.	.	.		.		.
18.7	17.9	18.0	17.3	18.0	17.2	16.0	15.5	15.8	15.5	.	.	.	.		.		.
10.8	10.6	10.5	10.4	10.4	10.5	10.4	10.4	10.4	10.4	.	.	.	.		.		.

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