



# INFLATION

## Report

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December 2012\*

\* Presented by the technical staff to the Board of Directors, for the Board meeting on January 28, 2013.

Central Bank of Colombia  
Bogotá, D. C., Colombia

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# THE INFLATION TARGETING STRATEGY IN COLOMBIA

## OBJECTIVES

Monetary policy in Colombia is based on inflation targeting, which is intended primarily to keep inflation low and to ensure stable long-term growth in output. Accordingly, the objectives of monetary policy combine the goal of price stability with maximum sustainable growth in output and employment. In this respect, monetary policy complies with the constitution and contributes to the well being of the Colombian population.

## HORIZON AND IMPLEMENTATION

The Board of Directors of the Central Bank of Colombia (BDBR) sets quantitative inflation targets for the current year and the next. BDBR policy initiatives are designed to meet each year's target and to provide for long-term inflation at around 3%. The annual variation in the consumer price index (CPI) is the inflation measurement used.

## THE DECISION-MAKING PROCESS

Decisions on monetary policy are announced after meetings of the Board of Directors, through a press bulletin posted immediately on the Bank's website ([www.banrep.gov.co](http://www.banrep.gov.co)). Inflation reports are published quarterly and lend transparency to the Board's decisions. They also contribute to a better understanding of monetary policy and help to enhance its credibility. Specifically, these reports i) let the public know how the Board of Directors and the Technical Governor of the Bank view recent and anticipated changes in inflation and its short and mid-term determinants; ii) explain the implications of those determinants for monetary-policy management within the scope of inflation targeting; iii) describe the context and analysis justifying monetary-policy decisions made during the quarter; and iv) provide information that helps economic agents to form their own expectations about future developments with respect to inflation and growth in output.

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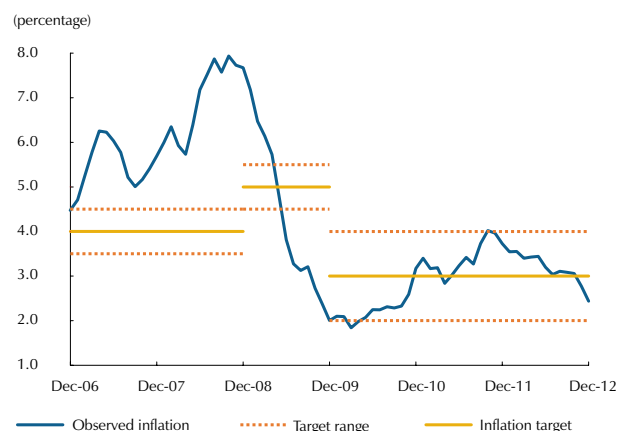


# OVERVIEW

At the end of 2012 annual inflation stood at 2.4%, lower than the long-term target (3%) and within the year's target range (2%-4%) (Graph A). Fourth-quarter inflation results were lower than average market expectations and also below the rates expected by Banco de la República's technical staff. The deceleration in inflation came largely from slower growth in the consumer price index (CPI) for food and regulated items.

Annual change in food CPI has been on a downward trend since October 2011, when it was at a peak for the present decade. The return of normal weather after the 2011 La Niña climate event helped to increase food supply and was thus responsible for much of the negative annual change in non-processed food. Moreover, lower international prices for some of Colombia's agricultural commodity imports were passed through to domestic prices, further helping to curb growth in food CPI. In December 2012 annual change in food CPI was 1.7%, down by 194 basis point (bp) on the previous quarter.

Graph A  
Headline consumer inflation



Sources: DANE and Banco de la República.

The fourth quarter saw lower annual change in non-food CPI and the other core-inflation measures. In December 2012 core-inflation measures averaged 2.80%, lower than the long-term target and 36bp below the September average. Slower fourth-quarter growth in regulated items stemmed from gas, energy, fuel and public transport, helped by year-on-year stable international oil prices and by the peso's appreciation. In addition, some local governments decreed unforeseen reductions in urban transport fares and other public services.

Regarding the components of the non-food CPI excluding regulated items, in December tradables rose year-on-year by 0.77% and non-tradables by 3.92%. The peso's appreciation and lower external inflationary

pressures accounted for the low rise in tradable prices, while price growth in non-tradables continued to be driven by housing rents, which increased at rates close to the target-range ceiling.

The above consumer-price trends, together with low inflationary pressures from demand and from labor costs, helped to reduce inflation expectations at all horizons. Both the survey of economic analysts and the estimates based on public-debt securities point to inflation expectations of less than 3%.

Inflation forecasts for 2013 have also been reduced, with a central path that is estimated to rise but stay below 3%. Food and regulated CPI is projected to accelerate at annual rates close to the long-term target. The non-tradable excluding food and regulated items should lose pace, partly because of little demand pressure and because some indexed prices would be adjusted by last year's low inflation rate. Annual growth in tradable goods prices should not vary greatly.

Regarding external demand, low global growth in the fourth quarter of 2012 was much as expected in the September Inflation Report. This weak performance has held back international trade, negatively affecting exports and industrial production all over the world, including Colombia. International oil prices have stayed high, while prices for coffee and coal have fallen. Thus, the rising trend in the terms of trade that had continued through 2011 was disrupted in 2012 and became relatively flat.

In 2013 the measures adopted by the European authorities and improvements in financial conditions have reduced the likelihood of a strong recession in the euro zone. The United States might grow less than in 2012. The emerging countries will drive the world economy once more, with increases in their gross domestic product similar to the expansion in their potential output. It is therefore likely that economic activity in countries that are Colombia's main trading partners will continue to be weak, expanding at much the same average rate as observed in 2012.

Low global growth and weak global inflationary pressures suggest that international interest rates should remain low. Colombia's terms of trade could be somewhat lower than the 2012 average, as a result of very modest world growth. It is therefore possible that the country's national income will continue to be sustained by high terms of trade, albeit lower than those observed last year.

Domestically, in the third quarter of 2012 Colombia's economy was down by 0.7% on the second quarter, but up by 2.1% on a year earlier. The loss of pace was greater than expected and resulted mainly from a decline in civil works, construction and buildings. Growth in household consumption (4%) slowed as expected. Exports lost pace faster than imports.

For the fourth quarter of 2012 new information on consumer lending, retail trade and consumer confidence suggests that household spending grew somewhat more slowly than in the third quarter. There was great uncertainty about investment

behavior, particularly about spending on civil works, construction and buildings. Export figures in dollars point to greater deceleration in external sales than in imports.

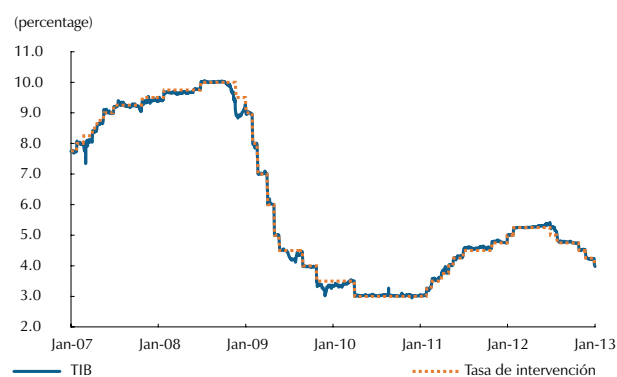
In November the industrial production index (IPI) fell, and the sector's expectations deteriorated once more. Retail sales grew apace. In mining, the public-order and transportation problems that had hampered the sector in the third quarter appeared to have dissipated in late 2012, resulting in recovery in oil and coal production

Based on the foregoing, the technical staff has revised down the GDP growth range forecast for 2012 to 3.3%-3.9%. In 2013 GDP could grow at a rate in the upper half of an estimated range of 2.5%-4.5%. Uncertainty about investment behavior in Colombia and about the size of the recession that could occur in the euro zone is accountable, in good measure, for the width of the forecast ranges.

To sum up, economic activity in the second half of 2012 slowed faster than expected, and both headline inflation and the average of the core-inflation measures ended the year at rates below 3%. For 2013, GDP is projected to grow at a rate below its potential in the first half of the year, resulting in a negative output gap. In addition, weakness in demand and the recorded deceleration in credit reduce the likelihood of any financial imbalances being created. And the context for the above is one in which inflation expectations and projections stand below 3%.

The Board of Directors of Banco de la República, having assessed the above economic setting and the balance of risks, decided to reduce the benchmark rate from 4.75% in September 2012 to 4% in January 2013 (Graph B). The Board further decided to continue the accumulation of international reserves, in a context

Graph B  
Banco de la República's intervention rate, and the interbank borrowing rate (2007-2013) <sup>a/</sup>



a/ Figures refer to working-day data; the last figure is for January 31, 2013  
Sources: Financial Superintendence of Colombia and Banco de la República.

in which there is a greater likelihood of currency mismatches than in the past, the economy is slowing, and monetary policy is expansionary. The foreign currency purchases should bring reserve indicators closer to the levels internationally regarded as the most adequate. Accordingly, the program of daily auctions for purchasing foreign currency has been extended, in order to accumulate at least US\$3 billion between February and May of this year, through daily purchases of at least US\$30 million. Average monthly purchases will thus be increased from US\$500m to not less than US\$750m under this program.

**José Darío Uribe Escobar**  
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# INFLATION Report

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# I. EXTERNAL CONTEXT AND BALANCE OF PAYMENTS

**Recession in the euro zone may have** persisted over the fourth quarter of 2012 and would last a little longer than expected.

**Measures taken** by the European economic authorities and the United States have helped to calm financial markets, although structural problems have yet to be solved.

**The central growth scenario** for Colombia's main trading partners may still be valid, but the likelihood of a critical scenario in Europe has been reduced.

**In view of the international context**, the current-account deficit for 2012 is expected to have been in the range of 3.1%-3.3% of GDP.

## A. INTERNATIONAL CONTEXT

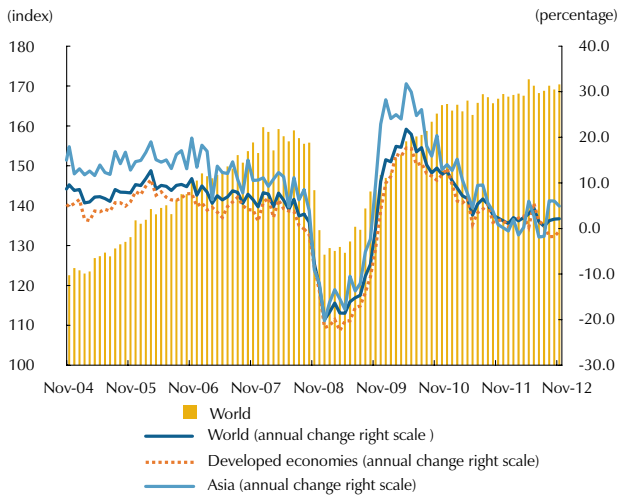
### 1. Real activity

Third-quarter economic growth was generally slightly higher than expected in the September Inflation Report's central scenario, owing to stronger growth in the developed countries and in some Latin American economies. Available information for the fourth quarter suggests that US growth may have continued to be modest, while European activity may have contracted once more. The situation improved for the emerging economies of Asia, thanks to faster output growth in China. Real activity in Latin America continued to expand at a favorable pace.

World trade showed signs of recovery in the final months of the year, owing in particular to faster growth in China and other Asian emerging economies (Graph 1). Moreover, improvement in business expectations suggests less deterioration in manufacturing, especially in China and the US, where expansion is expected. Real activity has thus begun to show signs of revival which should become stronger in 2013.

*World trade started to pick up in the final months of 2012.*

Graph 1  
World trade: real exports index



Source: Datastream.

Gross domestic product (GDP) in the euro area contracted again in the third quarter, in both annual and quarterly terms, confirming the recession there, but the pace of contraction did slow slightly, thanks to smaller GDP falls in some periphery countries. In Germany, expansion in production continued to moderate, with the result that the country's economic growth was not sufficient to offset the deterioration in other countries.

The European authorities' measures for implementing the permanent rescue fund, progress on the banking integration, support to Greece and backing from the European Central Bank (ECB), brought calm to financial markets in the last months of 2012, disrupting the outflow of capital from the periphery countries.

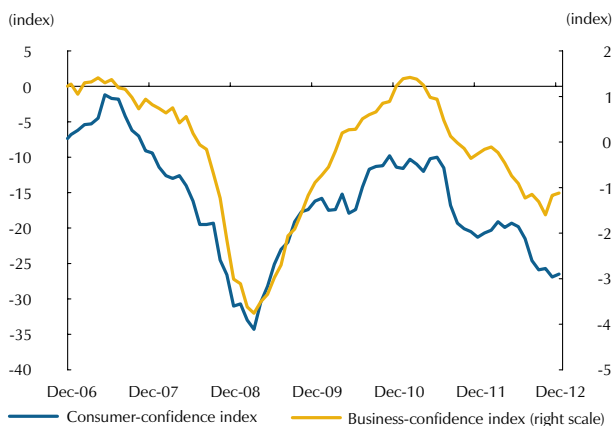
As a result, there was less likelihood of the European economy plummeting, while the possibility of Greece leaving the euro area diminished significantly, as did Spain's and Italy's loss of access to public-debt markets. In the fourth quarter, however, indicators of confidence and real activity remained low (Graph 2), suggesting that economic deterioration may have extended into the fourth quarter, and that the economic decisions taken were not yet reflected in domestic demand and production.

Hence, in Europe industrial production, retail sales and lending to the private sector were still contracting in November, in both annual and monthly terms. Moreover, information to December shows unemployment remaining at all-time highs in a number of periphery economies.

The euro area's weak situation continued to affect Germany and France, which recorded fallbacks in their industrial production in the final months of 2012. Recent reports from the German government suggest that the economy may have

contracted in the fourth quarter, adding weight to the possibility of the region as a whole remaining in recession.

Graph 2  
Euro area: confidence indices



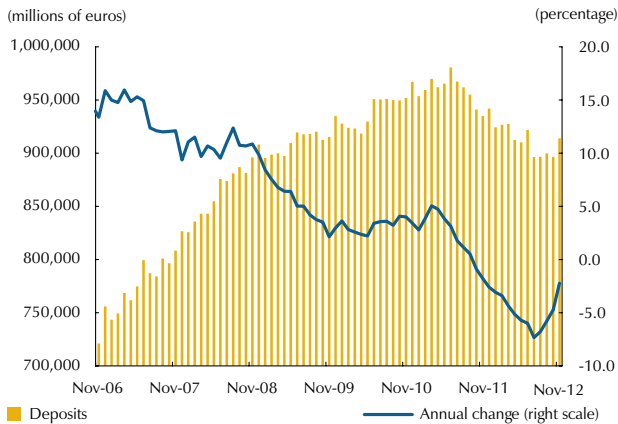
Source: Bloomberg.

On the positive side, the ECB's announcements, together with progress in recapitalization of Spanish commercial banks, have helped to reduce financial tension in Spain. This has been reflected in reversal of capital flows and in rising deposits in the banking sector (Graph 3).

If financial conditions and confidence improve in the region, the credit channel can be expected to become reactivated and growth begin to respond, but this had still not happened by the end of 2012. In this respect,



Graph 3  
Bank deposits in Spain



Source: Bloomberg.

it is essential that the European authorities continue to give confidence to markets and make further progress on their integration agenda. Progress on banking integration may be taking a little longer than expected in the September Inflation Report, as is the case with transmission of financial-market improvements to real activity

Third-quarter growth in the United States rose surprisingly, owing to positive expansion in public spending and faster growth in investment, mainly in inventories and residential construction. Household consumption expanded at a modest pace, while exports decelerated strongly.

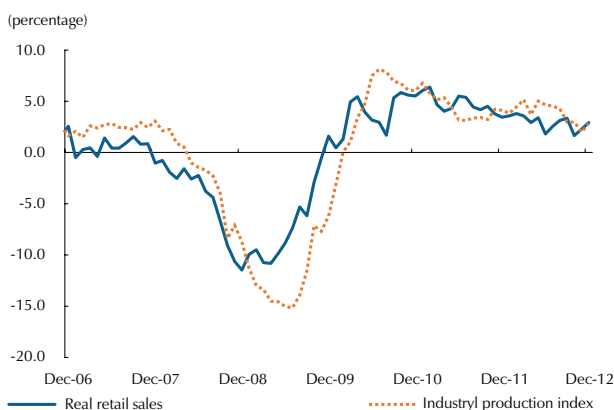
Fourth-quarter indicators of US real activity point to moderate growth in domestic demand over the quarter (Graph 4). Figures to December show that retail sales and industrial production continued to grow in both annual and monthly terms, and there was further recovery in the housing market, though still from a very low level.

*US domestic demand has continued to expand at a moderate pace.*

The US economy’s positive growth and the Federal Reserve’s stimulus measures may be helping to improve the country’s labor-market conditions marginally, as evidenced in recent months by a slow decrease in the unemployment rate and a positive increase (albeit a small one) in the number of workers.

At the same time, the US external sector has remained depressed, reflecting stronger transmission of the European recession. On information to November, annual growth in exports continued on a trend toward deceleration, while the level of exports stayed flat as in the preceding several months. This may mean that the external sector’s fourth-quarter contribution may have been negligible, or even negative.

Graph 4  
US: annual growth in retail sales and industrial production index



Source: Bureau of Economic Analysis.

Regarding fiscal negotiations in the US, in early January Congress partly avoided the economy facing the so-called “fiscal cliff” that involved sharp spending cuts and widespread tax increases. The agreement reached provided for higher taxation of the richest, non-renewal of payroll exemptions, and extension of unemployment benefits, among other things. Although these measures involve a fall in disposable income for all households, they have a smaller contraction effect than would have been the case if no agreement had been reached by Democrats and Republicans.

Note that discussion of cuts in social security and defense spending, and some other federal items, has

been postponed to March, while the debt ceiling was lifted until May, in order to center discussion in the near term on public expenditure adjustments. As a result, fiscal uncertainty may continue at least during the first half of 2013 and may again affect business and consumer confidence, as well as the main rating agencies' country-risk outlook.

Regarding the emerging economies, the third quarter saw GDP growth losing pace in China and other Asian countries, owing to the slowdown in external demand. But in the final months of 2012 real activity gained momentum, thanks to greater growth in China, where the economic authorities' stimulus measures proved effective.

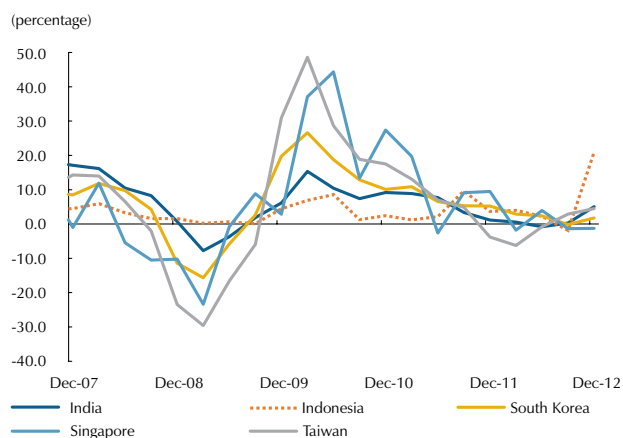
Fourth-quarter figures show China's GDP expanding year-on-year by 7.9%, up from 7.4% in the third quarter, driven mainly by a 20.6% year-on-year rise in investments in fixed assets. Industrial activity, retail sales and exports also grew faster in the fourth quarter. On this information, the country's GDP growth in 2012 was 7.8%.

For the rest of the Asian emerging countries, information on retail sales, industrial production and exports shows some recovery in the fourth quarter, but the trend is not clear yet (Graph 5). Stronger growth in China is expected to help drive these economies.

In Latin America third-quarter GDP maintained a growth rate close to its potential in Chile, Mexico and Peru, while in Brazil it began to show signs of recovery, albeit still at a very low rate. Venezuela and Ecuador performed satisfactorily, thanks to greater government spending during election periods.

Based on available information for the fourth quarter, Chile and Peru were still growing at around their potential; Brazil continued to respond to stimulus measures and may have thus recovered further in the final months of the year. In contrast, the Mexican economy may have slowed, though growing still at favorable rates (Graph 6).

Graph 5  
Asian emerging economies: annual growth in industrial production indices

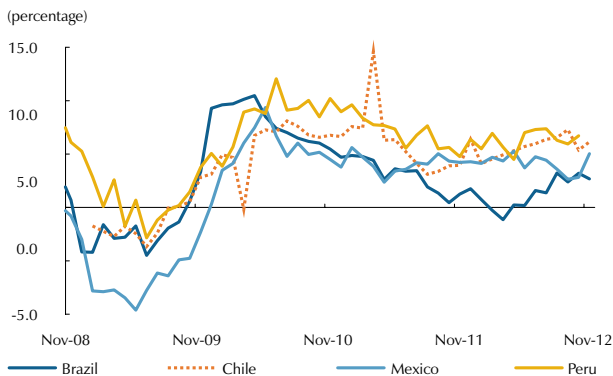


Source: Bloomberg.

Lastly, it is important to mention analysts' projections for evolution of the world economy in 2013. The developed economies as a whole are generally expected to continue to record weak growth, with the euro zone contracting again and the US decelerating. World GDP is projected to be driven especially by the emerging economies, led by China and to some extent by Latin America.

Recession in the euro area should be concentrated in the first half of 2013, as indicated by the ECB. For the second half, lower financial tensions and recovery

Graph 6  
Latin America: annual change in real activity indices



Source: Datastream.

in external demand are projected to begin to have a positive effect on real activity. Regarding the United States, a new fiscal agreement is expected to be reached by the authorities in the coming months. In the short term, however, the fiscal measures may have a negative effect on the US economy, resulting in a growth rate under 2%.

In the case of emerging economies, China is projected to grow faster than in 2012. Moreover, transformation of the country's traditional economic model to one involving greater household consumption is expected to be carried out somewhat more smoothly than was estimated before the change of government, resulting in a smaller effect on medium-term growth. Lastly, in

Brazil analysts expect that the stimulus measures and investment plans will boost real activity in 2013.

*In Spain and Italy public-funding conditions improved in the final months of 2012.*

In the context described above, the International Monetary Fund's recent global outlook report estimates that world growth should rise from 3.2% in 2012 to 3.5% in 2012. By group of countries, the high income economies' GDP should edge up from 1.3% to 1.4%, thanks to a smaller GDP fall in the euro area and a pick-up in the United Kingdom and other advanced economies. Lastly, expansion in the emerging and developing economies should rise from 5.1% to 5.5%.

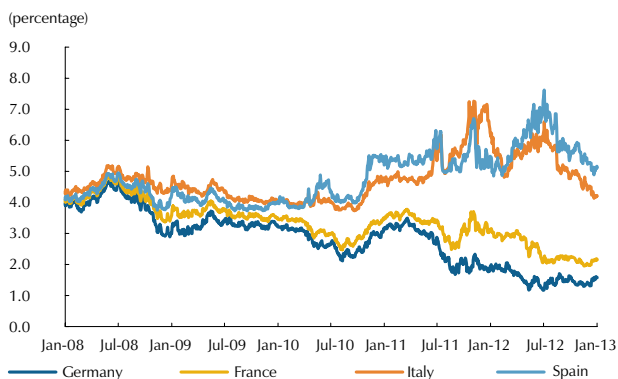
## 2. Financial markets

In the fourth quarter of 2012 the major global stock markets exhibited a positive trend, as a result of less skepticism about the evolution of the euro-area crisis and greater monetary stimulus from the central banks of the developed countries. Moreover, in Spain and Italy public-funding conditions improved in the final

months of the year, with interest rates falling and demand for public-debt securities rising (Graph 7). Hence, there is now less likelihood of the Spanish government applying for help from the ECB in the coming months, although the country's economic conditions have not improved.

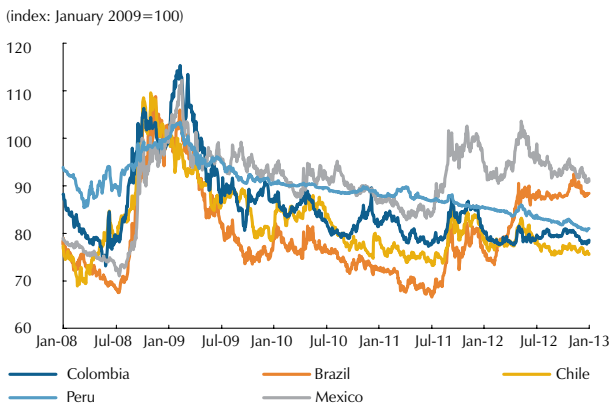
In the United States discussions of the fiscal issue slightly increased volatility in financial markets in the final weeks of 2012, but without raising it to the worrisome levels that had characterized other episodes of fiscal uncertainty. Note that the partial outcome of the negotiations (postponement of major decisions on public-spending cuts and extension of the borrowing limit) may affect market volatility in the early months

Graph 7  
Europe: interest rates on 10-year sovereign debt securities



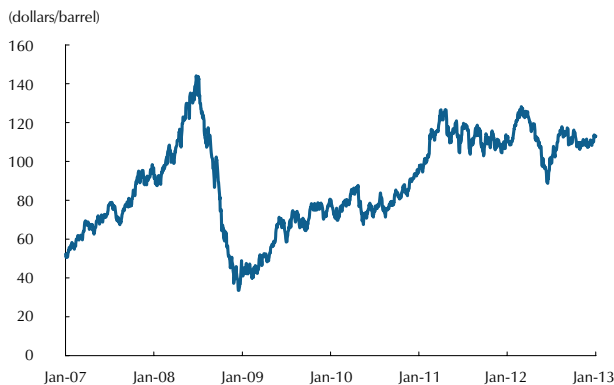
Source: Bloomberg.

Graph 8  
Latin America: nominal exchange-rate indices



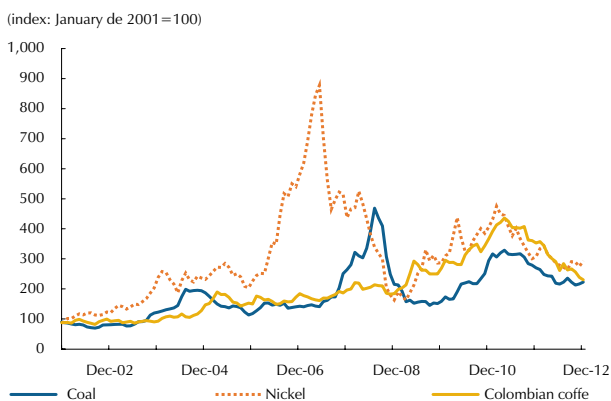
Source: Bloomberg.

Graph 9  
Brent international oil price



Source: Datastream.

Graph 10  
International price indices for coal, nickel and coffee



Sources: Bloomberg y Banco Mundial.

of 2013, particularly close to the March and May deadlines for taking those decisions

Lastly, the perception of risk to Latin-American economies remained relatively low, though it did rise slightly with US fiscal uncertainty, while the region's currencies tended to appreciate against the dollar (Graph 8).

### 3. Commodity prices, inflation and monetary policy

International prices for Colombian goods exports behaved unevenly in 2012. Thus, while average oil prices remained stable (Graph 9), average prices for coal, nickel and coffee fell all through the year (Graph 10). Fourth-quarter Brent benchmark crude prices behaved as expected in the September Inflation Report and ended the year at an average of US\$112 a barrel.

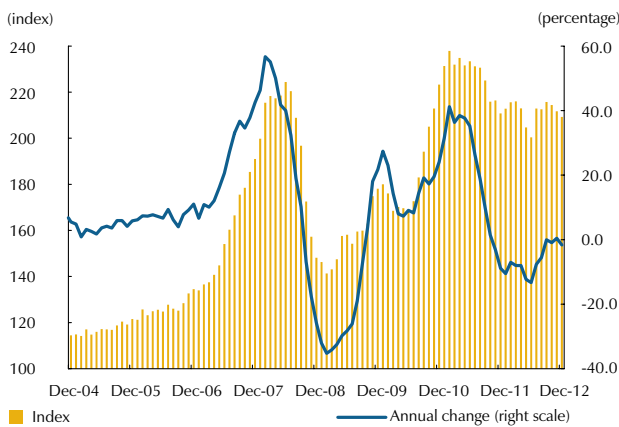
Although geopolitical tensions in the Middle East and North Africa did not significantly affect the supply of crude oil, they did have repercussions on expectations of future supply and, hence, on international prices, with the result that prices remained above US\$110, despite weak demand worldwide, particularly from the developed countries.

Food prices were on a downtrend in the final months of 2012 (Graph 11), thanks to normal weather after the climate events that had affected mid-year prices.

Moderately rising international food prices and stable crude oil quotes helped to keep inflation low in the major developed countries, allowing them to pursue a monetary stimulus policy of low interest rates and ample liquidity injections.

In the case of the emerging economies, in the fourth quarter of 2012 inflation trended down in Latin America (except in Brazil), as a result of lower food prices and widespread currency appreciation in the region. In Asia, however, the inflation situation was less clear, although for the monetary authorities of most countries annual price changes were within

Graph 11  
International food prices



Sources: Food and Agriculture Organization (FAO).

*Evolution of the euro zone crisis continues to have a strong bearing on the world economy.*

tolerable ranges. Regarding monetary policy, the central banks of the emerging countries differed in their stance, which, however, was either neutral or expansive.

#### 4. Forecasts by the Bank's technical staff

Economic growth in 2012 for Colombia's main trading partners may generally have been much as expected in the September Inflation Report. Recent developments in the euro zone and the United States have, however, considerably reduced the likelihood of a steep fall in 2013.

As indicated in previous Reports, the evolution of the euro zone crisis continues to have a strong bearing on the world economy. For this reason the growth scenarios described in the following paragraphs lay special emphasis once more on the euro area, without ignoring further risks from other economies (Table 1).

According to information on GDP growth in the third quarter and data on real activity in the fourth, expansion in euro-area production may have been 0.4% in 2012. This figure is slightly higher than the estimate made three months ago, owing to a smaller GDP fall in July-September.

Recent data suggest that real activity may take longer than expected to recover, which means that the recession may continue over the first half of 2013. Real activity is expected to pick up in the second half, as a result of backing from the economic authorities and improvement in financial markets. Expansion for the whole year is projected to be 0.2%, rather than 0%. This scenario assumes that progress will be made during the year on issues of bank intervention and lead to the establishment in early 2014 of a banking regulation authority. Regarding the lower-growth scenario, this Report rules out the possibility of Europe collapsing in 2013, in view of the work undertaken by the region's economic and political authorities and by other multilateral organizations such as the IMF. The low-growth scenario envisages a growth of 1.2% for the euro area (down from 3% in the previous Report), assuming financial tensions and loss of confidence are not made worse by disruption or delay in implementing the integration agenda, or by a greater impediment to real activity.

US growth in 2012 may have been a little stronger than was expected three months ago, in view of the third-quarter acceleration in GDP<sup>1</sup>. For 2013, the contractionary effects of fiscal uncertainty, lower government spending and greater deterioration

<sup>1</sup> Fourth-quarter and whole-year 2012 GDP figures were published when this Report was being prepared and were not therefore taken into account for the forecast scenarios presented in this Section.

in the euro area should slow down the US economy, resulting in a growth rate of just 1.8%. The central or most probable scenario assumes that in the first months of 2013 a new fiscal agreement will be reached on the subject of raising the debt ceiling, and on some cuts in public spending on defense and social security. But the problem of debt sustainability would not be solved and would thus continue to cause uncertainty in the coming years. The low-growth scenario for the US envisages not only a sharper contraction in Europe but also a greater fiscal uncertainty that may affect the country's growth more strongly in 2013.

*Average prices for Colombia's main exports in 2013 are projected to be lower than in 2012.*

Regarding the emerging countries, economic growth is expected to gain momentum, particularly in China and Brazil. In these two countries real activity is projected to be boosted by the stimulus measures implemented in recent months by their economic authorities. Other Latin American countries such as Chile and Peru should grow at rates close to their potential, driven rising domestic demand. GDP expansion in Venezuela is projected to lose pace in a post-election year.

In the lower-growth scenario, real activity in the emerging economies should be affected by slowing external demand and, in some cases, by lower prices for export goods.

Table 1  
Growth projections for trading partners

Growth projections for trading partners	2011	Projections for 2012			Projections for 2013		
		Scenario			Scenario		
		Mínimum expected	Central	Maximum esperado	Mínimum expected	Central	Maximum expected
<b>Main partners</b>							
United States	1,7	2,2	2,3	2,4	0,5	1,8	2,5
Euro zone	1,4	(0,5)	(0,4)	(0,3)	(1,2)	(0,2)	0,4
Venezuela	4,2	5,0	5,5	6,0	0,0	2,5	4,0
Ecuador	7,8	4,7	4,9	5,1	3,0	4,5	5,5
China	9,2	7,6	7,8	8,0	7,2	8,0	8,5
<b>Other partners</b>							
Brazil	2,7	0,8	1,0	1,2	2,0	3,5	4,5
Peru	6,9	6,0	6,3	6,5	4,5	6,0	6,5
Mexico	4,0	3,8	4,0	4,2	1,5	3,5	4,5
Chile	6,0	5,3	5,6	5,9	3,5	4,8	5,5
<b>Total trading partners</b> (weighted by non-traditional exports)	3,0	3,3	3,5	3,8	1,8	3,2	4,0
<b>Developed countries</b> <sup>a/</sup>	6,2		1,3		1,4		
<b>Developing countries</b> <sup>a/</sup>	1,6		5,1		5,5		
<b>Global total</b> <sup>a/</sup>	3,9		3,2		3,5		

a/ IMF forecasts to January 2013.  
Sources: Calculations by Banco de la República.

*The current account deficit for January-September 2012 was 3.1% of GDP.*

Lastly, regarding international prices for Colombian exports in 2013, the central scenario envisages lower average prices for all of the country's main export products (oil, coal, gold, ferronickel and coffee), because of weak growth in the developed economies and supply conditions for some of these products (Table 2)<sup>2</sup>.

In this context, the terms of trade in 2013 could be somewhat lower than the average observed in 2012. This would be the first year since 2003 that the annual average of the terms of trade does not rise.

Table 2  
Forecasts of benchmark prices for Colombian commodity exports

Main products	2012	Projections for 2013		
		Minimum expected	Central	Maximum expected
Colombian coffee (ex dock) (dollars.lb)	2.0	1.30	1.60	1.90
Oil Brent (dollars.barrel)	112	97	105	110
Coal Rotterdam (dollars.tonne)	92.8	70.0	90.0	95.0
Nickel London Metal Exch. (dollars.tonne)	17,591	16,000	18,200	19,000
Gold <sup>a</sup> . (dollars.troy oz)	1,670	1,800	1,600	1,500

a. It is assumed that, gold being a safe-haven asset, its price will rise when there is greater uncertainty (worst-case scenario)  
Source: Bloomberg. Calculations by Banco de la República.

## B. BALANCE OF PAYMENTS

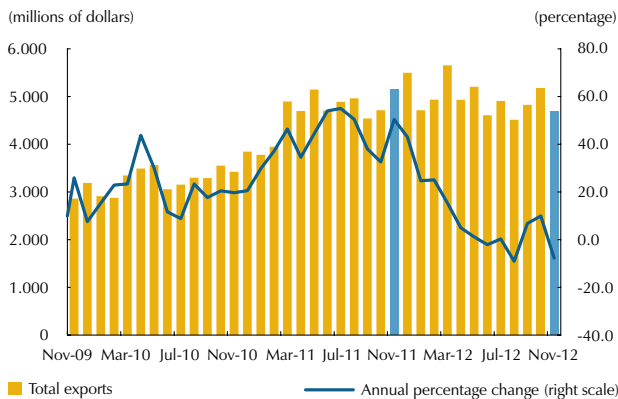
The accumulated balance of payments for January-September 2012 recorded a current account deficit of 3.1% of GDP (US\$8,447 million), higher than for the same period the year before (2.7% of GDP, US\$6.742m). Specifically, the current account deficit for the third quarter of 2012 was 4.0% of GDP (US\$3,630m), also higher than for the same period a year earlier (3.4% of GDP, US\$2.940m). This widening of the deficit resulted from a smaller trade surplus, accompanied by a bigger services deficit and lower net transfer income. The deficit was supported by higher external funding, involving a surplus of US\$5,451m (6.0% of GDP) on the capital and financial account, up by US\$1,260m on a year earlier (US\$4,191m, 4.8% of GDP).

The third quarter's greater current-account imbalance resulted from a 0.3% year-on-year fall in goods exports, as against a 3.5% year-on-year growth in goods imports. Moreover, net current transfer income decreased year-on-year by 19% in the third quarter, with workers' remittances declining by 4.3%. An offsetting factor was a 10% year-on-year narrowing of the factor income deficit, owing to lower profit and dividend transfers by companies with foreign capital; these

<sup>2</sup> Table 2 presents the benchmark international prices used in forecasting the balance of payments. They do not necessarily correspond to the implicit prices of Colombian exports, because of differences in the quality and types



Graph 12  
Total exports  
(monthly)



Source: DANE.

*Foreign direct investment was the main source of funding in the third quarter of 2012, amounting to US\$3,960m.*

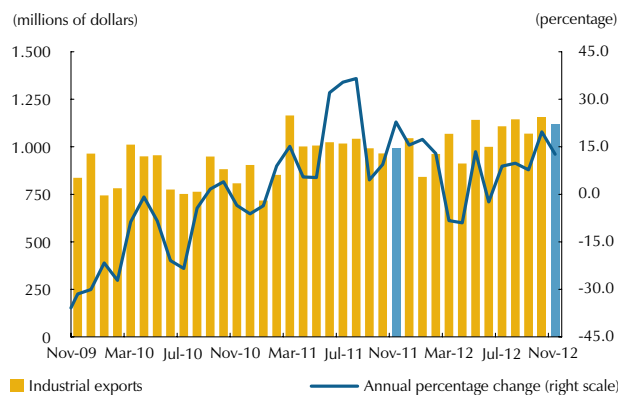
transfers slowed over the year, mainly because of the behavior of mining exports.

The main sources of funding in the third quarter of 2012 were foreign direct investment (FDI), amounting to US\$3,960m, and foreign portfolio investment, totaling US\$3,738m. These inflows were partly offset by outflows of Colombian capital for acquiring assets abroad, in the amount of US\$1,887m, especially from private-sector companies. The balance of gross international reserves increased by US\$1,446m over the third quarter.

Foreign trade information to November 2012 suggests that the trade balance behavior described above may have been maintained in the fourth quarter, with exports contracting again and imports growing moderately. In fact, in October and November 2012 total exports in dollars averaged US\$4,932m, signifying a 0.1% decrease relative to the same period in 2011 (Graph 12). In contrast, in that period FOB imports<sup>3</sup> in dollars grew year-on-year by 4.9%, to an average value of US\$4,939m.

In October-November 2012 export behavior reflected year-on-year falls in external sales of both mining goods (coal, ferronickel, gold and oil and its derivatives: 2%) and farm goods (coffee, bananas and flowers: 9%). Mining goods accounted for 70% of total exports in that period and decreased because the volume of crude-oil and ferronickel exports fell. The decline in the value of farm goods resulted from a 26% year-on-year average contraction in coffee exports, caused by a sharp price drop in that period. The behavior of mining and farm exports was offset by industrial exports,<sup>4</sup> which accounted for 23% of total external sales and grew on average by 16% year-on-year (Graph 13). Most sub-sectors of industrial exports performed better in October-November 2012, relative to results observed up to September. Sales to Ecuador increased by 7.7% year-on-year and to all other destinations excluding the US and Venezuela by 17%. Over the same period, sales of industrial

Graph 13  
Industrial exports, excluding commodities<sup>a/</sup>  
(millions of dollars)



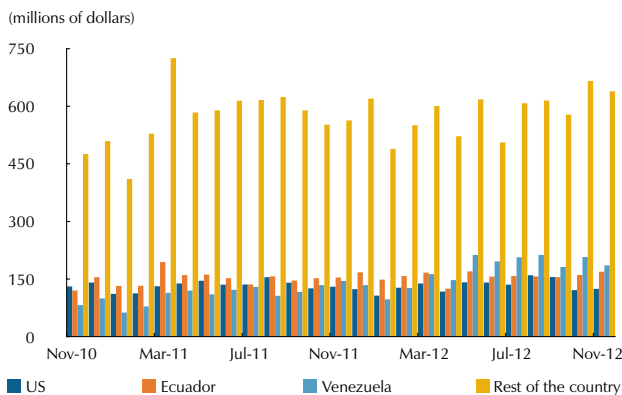
a/ Excluding oil and its derivatives, coal, ferronickel, gold, coffee, bananas and flowers, but including other mining and farm goods.  
Fuente: DANE.

3 Measurement of the balance of payments takes into account FOB import prices; in contrast, calculation of GDP according to the national accounts uses CIF import costs, which include freight and insurance. In October and November 2012 total CIF import costs in dollars averaged US\$5,193m, a year-on-year rise of 4.9%.

4 Industrial exports do not include oil or its derivatives, coal, ferronickel, gold, coffee, bananas or flower. Manufacturing exports represent 98% of this group, for they include other mining and farm goods.

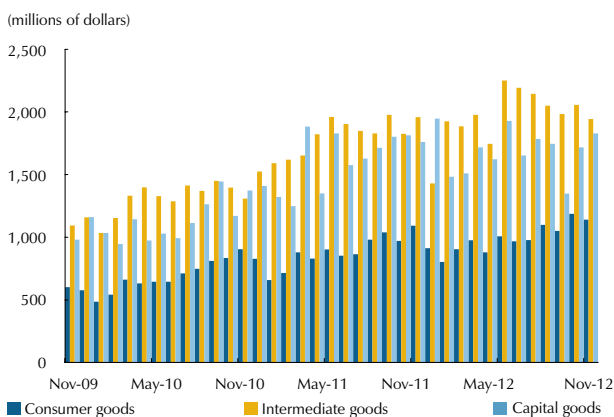


Graph 14  
Industrial exports to the US, Ecuador, Venezuela and the rest<sup>a/</sup>



a/ Excluding coffee, oil derivatives, ferronickel and gold.  
Source: DANE.

Graph 15  
Goods imports (FOB)



Source: DANE.

*The deficit for 2012 may have been in the range of 3.1%-3.3% of GDP.*

products to Venezuela continued to expand apace (40.7% year on year), though more slowly than in the preceding quarters, while such sales to the US contracted by 4.2% year on year (Graph 14).

Regarding FOB imports in dollars, their average growth in October-November was mainly driven by consumer goods, which expanded by 12.9% year on year, thanks mostly to a 19% increase in non-durable imports. Imports of intermediate goods rose on average by 5.8%, boosted in particular by purchases of commodities and intermediate goods for farming. In contrast, capital-goods imports fell on average by 0.8% over those two months, owing to a 12% decrease in external purchases of transport equipment (Graph 15).

In the year to November 2012, remittances from Colombians working abroad fell by 2.1% year on year, this being one effect of the difficult situations faced by the countries of origin of the remittances, such as Spain. The foreign-exchange balance<sup>5</sup> in 2012 showed an increase in private-capital inflows, relative to a year earlier, mostly in the form of foreign direct investment in Colombia. Those inflows were, however, offset by greater outflows of private-sector capital, resulting largely from flows other than direct investment.

Based on the foregoing, and on the forecast intervals for the main external variables and domestic growth (presented in other sections of this Report), balance-of-payment projections give a current-account deficit for 2012 in the range of 3.1%-3.3% of GDP, higher than the deficit recorded in 2011.<sup>6</sup> In line with those results, export growth in dollars is estimated in the range of 3.9% to 4.1%, reflecting the slowdown observed in external sales throughout 2012 in a setting of weak external demand and falling prices for the country's main exports. Imports should have expanded by 7%-8%, given the good growth

5 Capital flows recorded in the foreign-exchange balance refer to currency inflows and outflows and therefore are not exactly equal to capital flows recorded in the balance of payments, but they do give some idea of the latter's trend.

6 For balance-of-payment forecasting, projections are constructed of the average implicit prices for the main exports, using as the base the price ranges presented in the previous Section. Thus, for 2012 average actual prices are used, while for 2013 the average price forecasts in the most probable scenario are: Colombian oil \$96.4/barrel, Colombian coal \$90/tonne, and ferronickel \$2.9/lb. For gold and coffee the projections are equal to their benchmark prices.

projected for consumption. Factor-income outflows are estimated at much the same levels as in 2011 and are associated mainly with profit transfers from the hydrocarbon sector. Net transfer income is projected to have edged down, owing in particular to the observed behavior of workers' remittances.

Regarding the capital and financial account, the chief source of funds in 2012 is estimated to have been FDI, running at a higher level than in 2011, but growing at a moderate pace. This behavior is explained both by FDI in the oil sector having remained at much the same levels as in 2011, driven by crude prices, and by the additional boost of investment in other sectors such as finance, hotels and tourism. Capital outflows of Colombian investment abroad are estimated to have been lower than in the previous year, signifying in net terms a considerable growth in FDI funds. External public-sector funding is also estimated to have expanded in 2012, relative to 2011, consisting to a large extent of external credit operations connected with specific investment projects, mostly in the hydrocarbon sector (Table 3).

*Balance-of-payment forecasts suggest that the current-account deficit could be in the range of 3.0%-3.6% of GDP in 2013.*

Balance of payment forecasts for 2013 suggests that the current-account deficit could be in the range of 3.0%-3.6% of GDP, with a central scenario slightly higher than estimated for 2012. The smaller likelihood of a sharp fall in economic activity in Europe and the United States raised the forecast for the current-account deficit in the worst-case scenario of international context, relative to the deficit projected in the previous quarterly Report.

In the central scenario of the balance of payments, the country's main exports are projected to grow faster in 2013 than they did in 2012. This should result from larger volumes of coffee, oil and coal being exported and offsetting lower terms of trade, since international prices projected for 2013 are lower than those observed in 2012. Non-traditional exports are forecast to lose pace, given that the trading partners' growth is projected to be slower in 2013 than it was in 2012. At the same time, both factor-income outflows and net transfer income should be stable, while imports should expand at much the same rate as in 2012.

The deficit is expected to continue to be financed mainly from FDI inflows, which should remain at levels similar to last year's, and from a lower level of external public-sector funds (given the lower borrowing needs of some non-financial public-sector entities). Lastly, it is important to point out that the balance of payment forecasts reflect a change in gross international reserves that is in line with the announcements made by Banco de la República in connection with foreign currency purchases.

Table 3  
Colombia's balance-of-payment forecast  
(central or most probable scenario)

	(millions of dollars)				(percentage of GDP) <sup>d</sup>			
	2009	2010	2011 (pr)	2012 (proy)	2009	2010	2011 (pr)	2012 (proy)
I. Current account	(4,960)	(8,758)	(9,955)	(11,533)	(2.1)	(3.1)	(3.0)	(3.2)
A. Current account <sup>a</sup>	(275)	(1,384)	940	(803)	(0.1)	(0.5)	0.3	(0.2)
B. Factor income	(9,298)	(11,849)	(15,833)	(15,550)	(4.0)	(4.1)	(4.7)	(4.3)
C. Transfers	4,613	4,475	4,938	4,820	2.0	1.6	1.5	1.3
II. Capital and financial account	6,255	11,807	13,711	16,931	2.7	4.1	4.1	4.6
A. Private sector: net FDI and other capital flows <sup>b</sup>	(1,029)	7,026	10,913	10,336	(0.4)	2.5	3.3	2.8
B. Public Sector	7,293	4,789	2,839	6,603	3.1	1.7	0.9	1.8
III. Errors and omissions	52	87	(11)	(172)	0.0	0.0	(0.0)	(0.0)
IV. Change in gross international reserves <sup>c</sup>	1,347	3,136	3,744	5,226	0.6	1.1	1.1	1.4

((pr): preliminary.

(proj): projected.

a. The balance of non-factor goods and services and special trade operations.

b. Net flows of FDI, portfolio investment, and net external borrowings.

c. Including contributions to the Latin American Reserve Fund (FLAR).

d. Real GDP growth for 2012 is an estimate by the Bank's Economic Studies Office.

Source: Banco de la República.

## Box 1

# COLOMBIA'S COMPETITIVENESS AND POTENTIAL GROWTH ACCORDING TO THE GLOBAL COMPETITIVENESS INDEX

Óscar Iván Ávila Montealegre  
 Celina Gaitán Maldonado  
 Juan Sebastián Rojas Bohórquez\*

The World Economic Forum (WEF) recently published its 2012-2013 report on competitiveness, classifying economies by the level of prosperity they can achieve in the coming years. Specifically, the Global Competitiveness Index (GCI) considers twelve pillars for measuring, among other things, macroeconomic and fiscal stability, level of education and training, infrastructure, efficiency and size of goods and factor markets, capacity for adopting technologies and innovating.

Based on their performance in respect of each pillar, economies are grouped into three categories, depending on their state of development and medium-term prospects:

1. Factor-driven economies<sup>1</sup>.
2. Efficiency-driven economies<sup>2</sup>.
3. Innovation-driven economies<sup>3</sup>.

The information contained in the GCI makes it possible to determine whether a country has the potential to increase its growth in the coming years. For, as stated by neoclassical economics theory, a country's economic expansion is determined by the availability of the factors of production (land, labor and physical capital) and by efficiency in using them (productivity and technological development).

\* The authors are staff of the Programming and Inflation Department, in the Bank's Economic Studies Office. Their opinions do not necessarily reflect the views of the Bank or its Board of Directors.

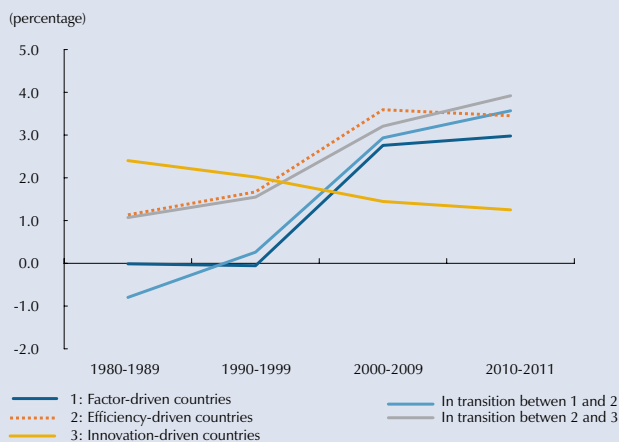
- 1 Economies with a per-capita income or less than \$3,000, characterized by dependence on exploiting their natural resources, intensive use of unskilled labor and by meeting a number of basic parameters regarding institutions, infrastructure, macroeconomic setting, and health care and primary education.
- 2 Economies with a per-capita income of \$3,000-\$17,000, characterized by meeting the basic parameters and having, in addition, a higher level of education and training, greater goods- and labor-market efficiency, a higher level of financial development, and being capable of (or in the process of) adopting technologies.
- 3 Economies with a per-capita income greater than \$17,000, characterized by competing in the market by developing new technologies, unique products and continually improving business models.

For instance, if a country increases its capital level, by improving its infrastructure, or puts in place technologies that allow it to use its factors of production more efficiently, its economic potential may increase.

Although the WEF study does not aim to identify a country's economic potential, the information contained in the GCI makes it possible to analyze some of the factors that could raise the country's medium- and long-term growth.

In this respect, reviewing the historical growth of some countries reveals that those currently making the transition from efficiency-driven to innovation-driven economies are the ones leading the world in terms of per-capita growth (Graph B1.1). Similarly, the countries that made that transition decades ago were the ones that expanded faster in the past (currently innovation-driven economies).

Graph B1.1  
 Per-capita GDP growth (annual average)



Source: World Bank.

Those results show that an economy's growth increases in the stages of transition, the increase being made possible if the indicators of competitiveness improve. They also show that as economies become more innovative, they reach a level of growth more sustainable in the long term, with low rates of expansion, but with a relatively high gross domestic product (GDP) per capita.

### Colombia's Global Competitiveness Index

Based on the parameters and results of the study conducted by the World Economic Forum, Colombia is classified in the

second group of countries, in 69th place on the roster of 144 sample countries, with a GCI score of 4.18 out of a maximum possible value of 7<sup>4</sup>.

Notable in this result is the rating obtained in the pillar of macroeconomic conditions, on account of great progress made in reducing the public deficit, managing debt, controlling inflation, and improving the country's risk rating. This progress has gone hand in hand with relative improvement in other aspects such as market size and financial-market efficiency.

Despite good results in the above fields, the GCI estimates also revealed great shortcomings in other areas, including: weakness of public institutions, deficit of transport infrastructure, quality-of-education problems, and low research and innovation capacity. These shortcomings are the main obstacles to the country's growth and competitiveness.

### Colombia's GCI in relative terms

Colombia ranks favorably among the efficiency-driven countries, on account of its relative strength in terms of macroeconomic context and market size (especially local market) (Graph B1.2), which has allowed it to increase its per-capita GDP in recent years. Yet, the country still faces great challenges in increasing its potential growth and reaching a new stage of development. This becomes evident by comparing Colombia's indicators with those of countries that have shown better economic performance in recent years.

The first comparison referent is China, which has recorded relatively high average annual per-capita growth in the past two decades and has achieved higher results in every component of the competitiveness index. Greater values in the categories of infrastructure, health care, education and market size, among others, together with a lower level of per-capita GDP, explain China's greater potential growth (Graph B1.3).

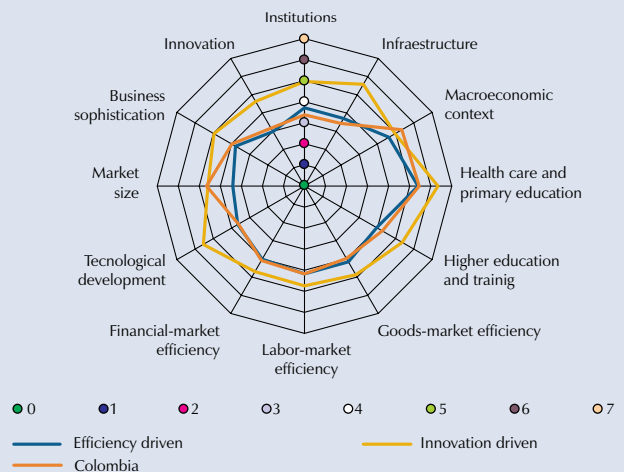
Another country in the same stage of development as Colombia and with greater average growth in the past decade is Peru.<sup>5</sup> The Global Competitiveness Index reveals a similar outlook for the two countries, with great challenges in terms of institutions and education (Graph B1.4). Some differences

4 The GCI results for 2011-2012 ranked Colombia in 68th place, which means that in this year's update it has fallen by one position.

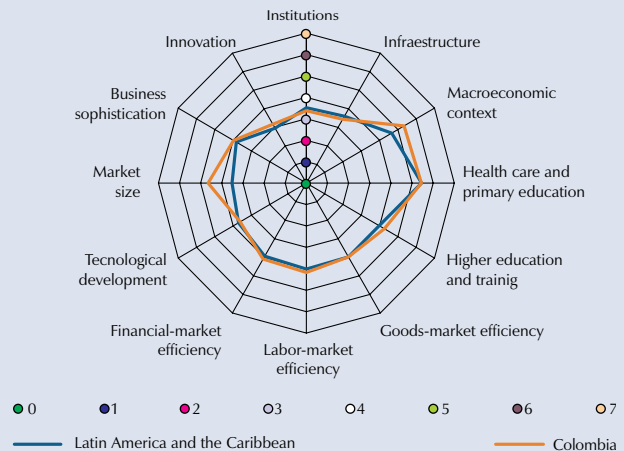
5 It is more logical to compare Colombia with Peru, given their geographic proximity and similarity of characteristics, so that the differences in competitiveness and growth can give a better picture of the challenges facing Colombia in the medium and long term.

Graph B1.2

A. GCI ratings for Colombia and average ratings for efficiency-driven and innovation-driven countries (1 = worst possible performance; 7 = best possible performance)



B. GCI ratings for Colombia and the average rating for Latin America and the Caribbean (1 = worst possible performance; 7 = best possible performance)

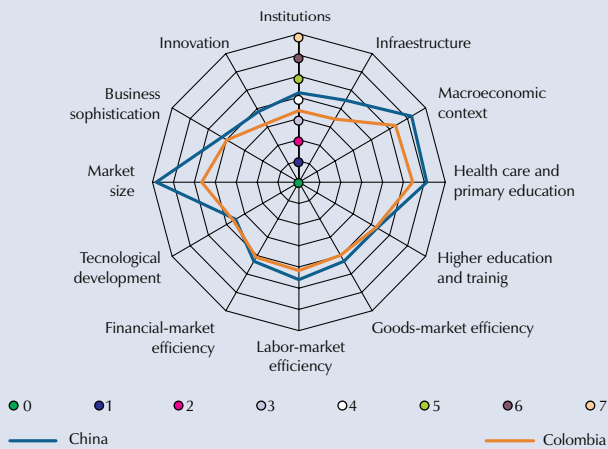


Source: World Economic Forum.

are present, however, with regard to macroeconomic context and goods-market efficiency.

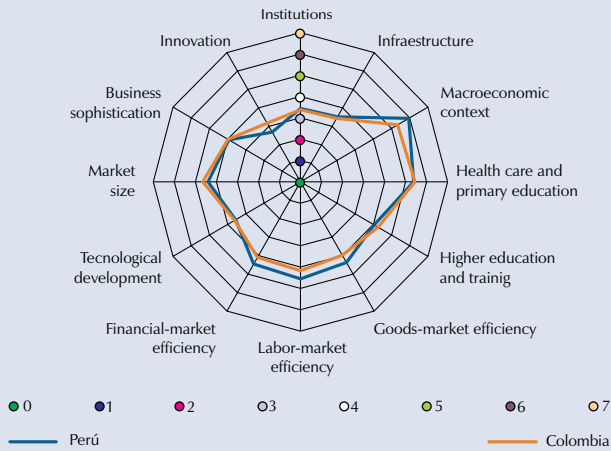
Peru's relative superiority may be explained by two factors in particular: tax system and legal framework. Colombian tax rates are relatively higher and tend to limit investment, while Peru's legal setting is more favorable to foreign direct investment, given the existence of more free-trade agreements providing greater opening to international markets. Both factors explain why Peru could have more in its favor for achieving greater long-term growth, despite the

Graph B1.3  
GCI ratings for Colombia and China  
(1 = worst possible performance; 7 = best possible performance)



Fuente: Foro Económico Mundial.

Graph B1.4  
GCI ratings for Colombia and Peru  
(1 = worst possible performance; 7 = best possible performance)



Source: World Economic Forum.

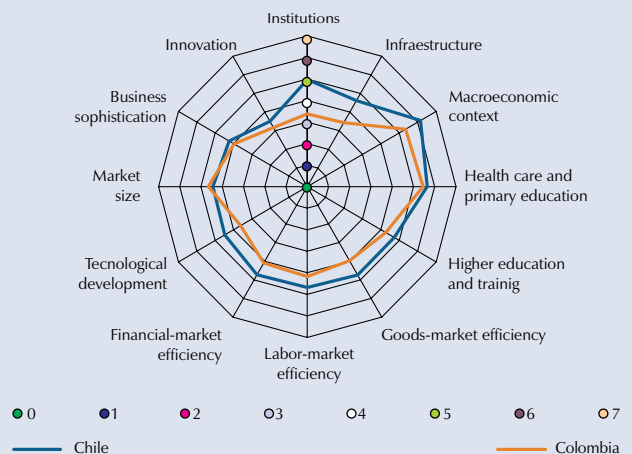
great similarity in recent years between the two countries' growth models (mining, FDI, and robust domestic demand).

Peru's per-capita GDP, like China's, is lower than Colombia's, so a base effect may also explain part of Peru's greater growth.

Lastly, it is worth comparing Colombia's results with those of some other country of the region that is one step ahead, in that it is classified in a stage of transition to innovation-driven growth. It will thus be possible to identify the challenges facing Colombia not only for achieving stronger long-term growth but for making it sustainable (Graph B1.5). Chile's results are a good point of comparison, for they suggest two main fields of action.

The contrast shows that Colombia lags behind Chile in transport infrastructure. This shortage raises the costs of traded goods and constitutes a clear obstacle to market expansion and efficiency. Furthermore, Colombia's score in the institutional sphere is one of the region's lowest, posing a great challenge to the country in endeavoring to improve its competitiveness and increase its long-term growth. For it involves, among other things, reducing the levels of violence, making the judicial system more efficient, and enhancing transparency among both public and private officials.

Graph B1.5  
GCI ratings for Colombia and Chile  
(1 = worst possible performance; 7 = best possible performance)



Source: World Economic Forum.

## II. DOMESTIC GROWTH: CURRENT SITUATION AND SHORT-TERM OUTLOOK

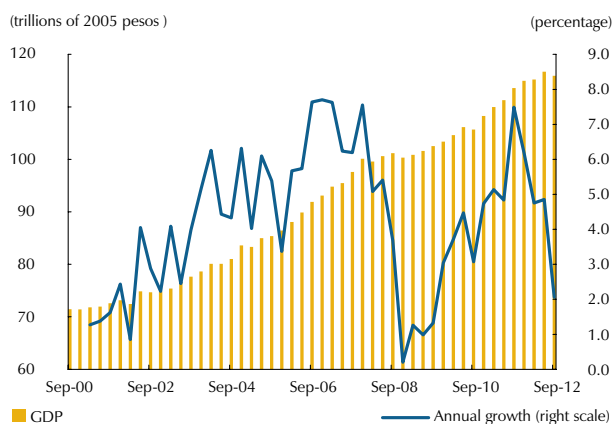
**Economic growth in the third quarter of 2012** was significantly lower than expected in the previous Inflation Report.

**Domestic demand slowed, mainly** because of negative contributions from civil works and building construction. Household consumption continued to grow at rates close to its historical average, as expected in previous Reports.

**For the fourth quarter of 2012** economic activity is forecast to grow by 2.0%-3.5% year on year and for the year as a whole by 3.3%-3.9%. These ranges are based on the assumption of improvement in investment late in the year and considers the uncertainty about growth in spending on construction and civil works.

### A. GDP IN THE THIRD QUARTER OF 2012

Graph 16  
Gross domestic product  
(seasonally adjusted)



Source: DANE. Calculations by Banco de la República.

In the third quarter of 2012 the Colombian economy expanded by 2.1% year on year (Graph 16). This figure is below the forecast range presented in the previous Inflation Report and considerably lower than expected by market analysts. It signifies a quarterly contraction of 0.7% in GDP, the first quarterly fall since mid-2010.

Domestic demand grew by 2.4% year on year, the smallest growth since mid-2009. This slowdown was caused to a great extent by strong demand shocks concentrated in investment, particularly investment in civil works, building construction and transport equipment (as explained in detail further below). Total consumption increased year on year by 4.1%, much as it had done in the second quarter.



Government consumption expanded by 4.8% year on year, faster than in the second quarter. At 4.0%, the year-on-year growth in household consumption was much the same as in the second quarter and as the average since 2001. Breakdown of family consumption reveals mixed results: while non-durable goods and services expanded faster than in the previous quarter, growth in semi-durable and durable goods lost pace, to the point of becoming negative in the case of durables (Table 4).

*In the third quarter of 2012 investment performed significantly less well than expected.*

Private consumption in January-September 2012 exhibits a soft landing of growth rates to levels similar to the historical average (3.0% for 1978-2011), as predicted in previous Reports. This is consistent with the decisions taken by the economic authorities from mid-2011 to the first half of 2012, when household consumption and consumer loans were growing at very high rates (in 2011 consumption had expanded on average by 6.5% and consumer loans by 22.6%).

All components of investment slowed relative to the second quarter, but the largest falls occurred in civil works (-14.9%) and building construction (-10.7%) that were the main causes of the economy's deceleration in the third quarter. Investment in transport equipment also fell considerably (-10.9%), after expanding strongly in the first half of the year (27.4% on average). In contrast, investment

Table 4  
Real annual GDP growth, by type of spending

	2011	2011		2012		Contributions to annual growth (Q3-2012) (percentage points)
	Q4	Full year	Q1.	Q2	Q3	
<b>Total consumption</b>	5.6	5.8	5.1	4.1	4.1	3.3
Household consumption	6.3	6.5	5.6	4.0	4.0	2.6
Nondurable goods	3.9	4.3	5.5	2.9	3.1	0.7
Semi-durable goods	13.6	15.1	9.1	7.9	4.7	0.3
Durable goods	10.3	23.9	5.4	1.6	(5.9)	(0.2)
Services	5.2	4.6	4.6	3.9	4.4	1.5
Government final consumption	3.0	2.6	3.3	4.5	4.8	0.8
<b>Gross capital formation</b>	15.2	17.2	8.2	13.1	(1.6)	(0.4)
Gross fixed capital formation	16.5	16.7	7.5	15.0	(4.6)	(1.3)
Farming, forestry, hunting & fishing	1.8	2.1	1.8	(0.3)	(11.9)	(0.1)
Machinery and equipment	20.0	25.8	15.1	10.0	9.7	0.9
Transport equipment	39.3	45.2	24.9	29.9	(10.9)	(0.4)
Construction and buildings	1.9	5.1	4.3	17.0	(10.7)	(0.7)
Civil works	21.8	6.7	(7.5)	20.3	(14.9)	(1.1)
Services	1.0	5.3	5.0	4.2	2.2	0.0
<b>Domestic demand</b>	8.4	8.8	5.9	7.1	2.4	2.6
<b>Total exports</b>	15.5	11.4	6.9	3.6	2.5	0.4
<b>Total imports</b>	21.5	21.5	11.5	10.0	8.8	(2.3)
<b>GDP</b>	6.2	5.9	4.8	4.9	2.1	2.1

Source: DANE. Calculations by Banco de la República.



in machinery and equipment increased year on year by 9.7%, which did not fully offset the fall in the other components of gross capital formation (Table 4).

Exports and imports also decelerated in the third quarter of 2012. Exports grew by 2.5% year on year, down from 5.3% in the first half of the year, and imports by 8.8%, down from 10.8%. Net exports continued to contribute negatively to annual GDP growth, though to a lesser extent than in 2010 and 2011.

On the side of supply, the sectors that contributed most to annual GDP growth in the third quarter of 2012 were social, community and personal services, the financial sector, and commerce (Table 5). But this was overshadowed by the strong fall in construction. Moreover, industry continued to contract slightly for the second consecutive quarter. The mining sector added to the negative behavior by decelerating sharply.

The large expansion in social, community and personal services came from a sustained increase that started in April of public-administration and defense related items executed by the government. Notable also was the significant increase in the subsector of recreation, culture and sport, which grew by 10.9% year on year (and by 11.2% in quarterly terms, an all-time high). The financial sector, too, continued to show robust growth, expanding still by more than the economy as a whole, despite slowing loans. Lastly, farming accelerated in the third quarter, thanks in particular to coffee, which increased by 19% year on year.

*The sectors of construction and industry contributed negatively to growth.*

In contrast, construction and industry contracted, causing the country's economy to lose pace in July-September. Buildings and civil works were both responsible for the shrinkage in construction. The decline in buildings came from a fall in the accrued area caused by delays in the construction stages of housing and commercial projects, although according to the National Statistics Agency's (DANE's) building-census figures, starts and works in progress grew at relatively high rates in the third quarter (14% and 18%, respectively). The annual change in civil works was -14.6%, far below the previous Report's forecast and in sharp contrast to a 19.8% growth in the previous quarter (see shaded text on Recent Movements in Civil Works). The construction sector as a whole was the activity that made the biggest negative contribution to the economy.

Manufacturing behaved fairly modestly, in line with what was happening to industry internationally. The sector's added value contracted by 0.1% year on year.

Stagnation in industry over the third quarter was connected with weak growth in domestic demand, particularly for investment in construction. It was also connected with a still weak international context, in which, despite positive growth in industrial exports<sup>7</sup>, companies reported that competition was more aggressive both in world markets and in the domestic market (see Box 2). According to

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<sup>7</sup> In the third quarter industrial exports grew by 8.8% year on year.

Table 5  
Real annual GDP growth, by economic activity

Sector	2011				2011 fFull year	2012			Contribution to an growthnual (Q3- 2012)
	Q1	Q2	Q3	Q4		Q1	Q2	Q3	
Farming, forestry, hunting & fishing	7.4	1.4	1.5	(1.7)	2.1	0.2	2.1	4.0	0.25
Mining and quarrying	9.4	10.9	19.2	18.3	14.5	13.3	8.5	0.5	0.04
Manufacturing	4.7	2.6	5.7	3.6	4.1	0.4	(0.4)	(0.1)	(0.01)
Electricity, gas and water	(0.9)	1.7	3.3	2.6	1.7	4.4	3.8	3.3	0.12
Construction	1.2	(7.9)	18.9	11.1	5.5	(2.0)	18.7	(12.3)	(0.79)
Buildings	1.5	5.1	11.9	1.1	4.8	3.4	15.8	(10.5)	(0.31)
Civil works	1.5	(18.5)	29.8	19.2	6.2	(6.3)	19.8	(14.6)	(0.50)
Commerce, repairs, restaurants & hotels	5.9	6.7	6.1	5.3	6.0	4.6	4.3	3.7	0.44
Transport, warehousing & communications	6.3	6.9	7.9	5.6	6.7	6.0	3.7	3.3	0.25
Financial, real-estate and corporate services	4.5	5.8	6.4	6.7	5.9	6.8	5.3	4.4	0.84
Social, community & personal services	2.5	3.1	3.8	3.3	3.2	3.8	3.9	5.3	0.80
Subtotal value added	4.7	4.1	7.3	5.9	5.5	4.4	4.9	2.0	1.82
Taxes less subsidies	9.9	12.8	10.3	9.2	10.5	8.5	4.9	2.2	0.21
GDP	5.1	4.8	7.5	6.2	5.9	4.8	4.9	2.1	

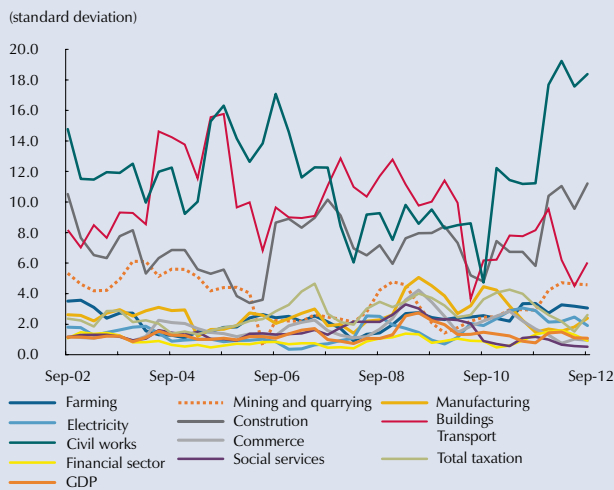
Source: DANE. Calculations by Banco de la República.

ANDI (National Association of Colombian Industrialists), more than 80% of the companies surveyed said they had been strongly affected by import competition. Besides weakness in domestic demand and in the international context, there were supply problems, which caused setbacks in the sub-sectors of chemicals, oils and lubricants, and petroleum refining.

## RECENT MOVEMENTS IN CIVIL WORKS

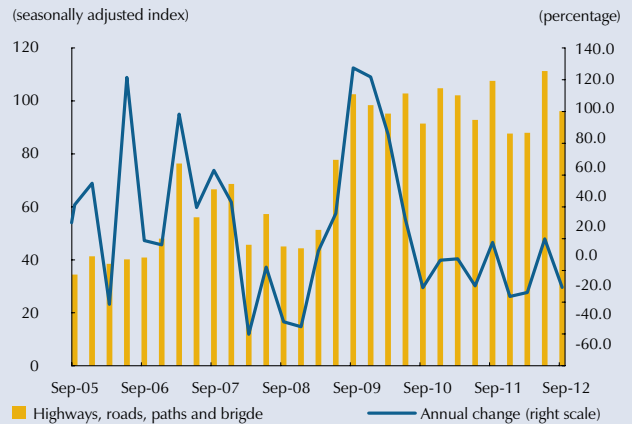
In January-September 2012 civil-works movements had a significant bearing on the dynamics of real economic activity. Upside and downside surprises in growth forecasting during the first three quarters of 2012 were concentrated in this GDP component. Note that this series has been historically characterized as the most volatile of all branches of production (Graph A). In addition to this high variability, there are the usual revisions made to historical series, and together they heighten the uncertainty surrounding proper analysis and forecasting of this variable.

**Graph A**  
Supply-side volatility in sectors of economic activity (six-month moving window) (standard deviation)

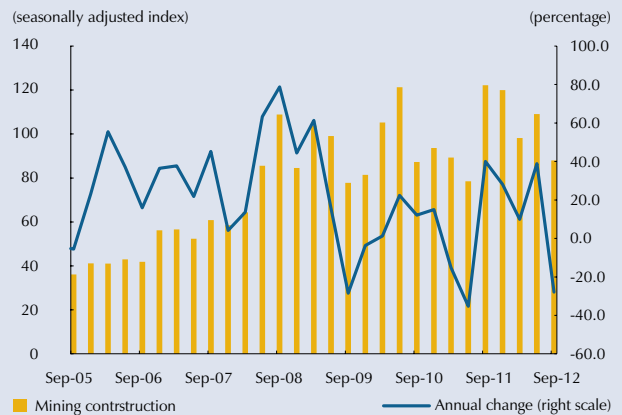


In the third quarter of 2012 the civil-works indicator contracted by approximately 14%, after picking up strongly between April and June, when it had growth by 20%. Breakdown of the indicator reveals that the biggest falls occurred in the following components: railways and massive transport systems (from 57.9% in the second quarter to -51.8% in the third), mining construction (from 38.9% to -27.9%), and highway, bridge and road construction (from 19.% to -10.6%) (Graphs B and C). The only component that recorded positive growth in the third quarter consisted of other engineering works, which expanded by 37.2%, but have a low weighting in the indicator. Note that in September, DANE altered the indicator's base year and gave new weightings to the different components. Most particularly, the importance attached to mining construction was raised significantly, so that it now represents a little over half of investment in civil works (Table A).

**Graph B**  
Highways, roads, paths and bridges (seasonally adjusted and annual growth)



**Graph C**  
Mining construction (seasonally adjusted and annual growth)



**Table A**  
Weightings in civil-works indicator

Base year	Highways, roads, paths,	Railways, landing strips, & massive transport systems	Waterways, harbors, dams, water-supply systems, & port works	Mining construction and power stations	Other engineering works
2005	35.0	5.4	16.5	36.7	6.5
2010	27.8	2.6	11.5	50.9	7.3

Source: DANE.

The mining sector grew year on year around 0.5%, the lowest rate since September 2007 and considerably lower than the rates recorded in the past four years (averaging 10%). This resulted largely from a strong setback in coal production (-8.9%) and a slowdown in oil (barely 2.5%); both sectors suffered from the presence of supply shocks associated with public-order problems and transport difficulties. There were also bottlenecks in obtaining approval of environmental permits for mining. All this resulted in third-quarter production of coal and oil being lower than expected in previous Reports and below the production targets projected by mining companies.

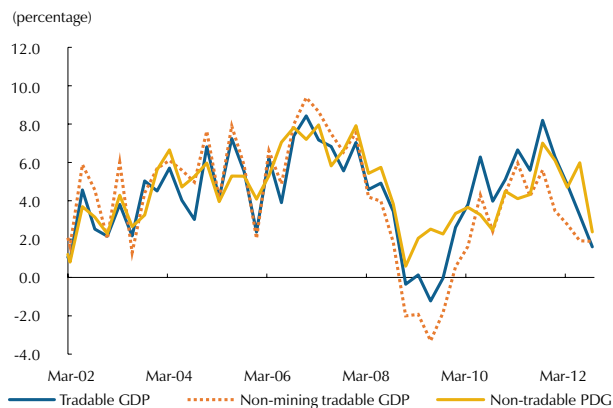
Moreover, production of non-metallic minerals contracted by around 12% in the third quarter, in parallel with the slump in construction, which is one of the sectors that have a demand for such minerals. In contrast, production of metallic minerals increased by 9% year on year, offsetting to a small extent the loss of pace in mining.

The other large sectors behaved in diverse ways. Some accelerated: farming and social, community and personal services. Others slowed: transport, commerce, and electricity, water and gas. In the case of farming, coffee production expanded by approximately 19% in the third quarter, offsetting the slowdowns observed in

the other components of farming GDP. Commerce continued to expand at a good pace year on year (3.7%), despite a slight deceleration in added value by the commercialization of goods (resulting from weak supply of such goods, particularly from industry), and despite the performance of some segments of retail sales.

Thus, in the third quarter of 2012 annual growth in the GDP of non-tradable sectors decelerated (from 6.0% to 2.4%), but exceeded growth in tradable GDP, which also slowed (from 3.2% to 1.6%) (Graph 17). Among other aspects, the deceleration in non-tradables stemmed from the sharp contraction in construction, while the slowdown in tradables resulted from weakness in mining and industrial production (although excluding mining still gives a tradable growth of only 1.9%).

Graph 17  
GDP of tradable sector, non-mining tradable sector, and non-tradable sector (annual growth)



Source: DANE. Calculations by Banco de la República.

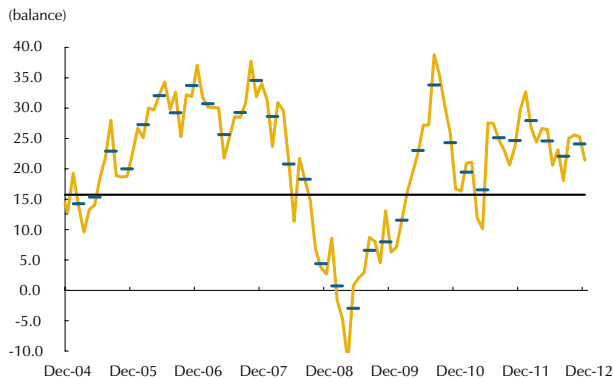
## B. SHORT-TERM GDP FORECAST

Various available indicators of real activity suggest that in the fourth quarter consumption may have grown at a rate marginally lower than in the third quarter and not much different from its historical average. Available information also points to private investment, except for construction, having maintained its pace of expansion at the end of the year.

Yet, the economy as a whole probably grew only modestly in the fourth quarter, because the third quarter's strong demand shock to construction investment (in

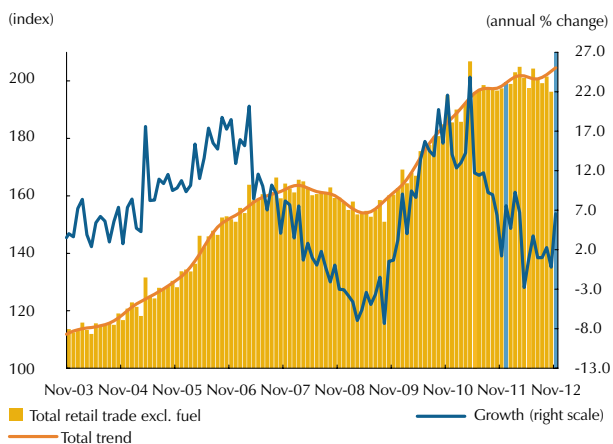
both civil works and buildings) may have continued through to the end of the year. Moreover, various industrial indicators suggest that the sector performed badly in November and December, which may not have been offset by recovery from supply shocks in oil, coal and coffee production. All the same, annual GDP growth in the fourth quarter should have been somewhat better than in the third.

Graph 18  
Consumer confidence index and quarterly average  
(annual growth)



Source: Fedesarrollo.

Graph 19  
Monthly retail trade sample  
(total retail trade excluding fuel, seasonally adjusted)



Source: DANE. Calculations by Banco de la República.

Fedesarrollo's consumer confidence index is one of the indicators that can shed light on household spending in the fourth quarter; on information to December it shows household perception at stable levels relative to the year as a whole. Although there was a fall in December relative to figures for October and November, those figures gave a fourth-quarter average that broke the slight downtrend that had started in early 2012 (Graph 18).

Furthermore, according to information released by DANE, retail sales in November increased by 6.7% year on year, driven in particular by sales of motor vehicles (12.9%); excluding cars and fuel gives a retail growth of 5.1%. Despite lower growth in October, the figure for October-November was relatively good and higher than the third quarter rate (Graph 19). Thus, these results support the projection that private consumption may have continued to expand at an acceptable rate in the final three months of the year.

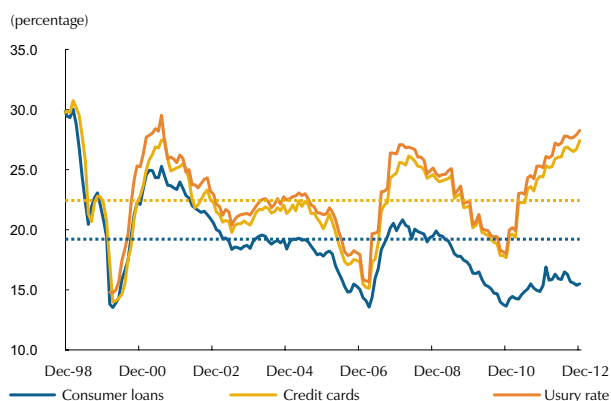
Breakdown of household consumption by type of spending points to durable goods having expanded at positive rates, after a 5.9% fall in the third quarter. This projection is based on sales of vehicles and cars reported by DANE from its monthly retail-trade surveys; it seems that these sales were driven by the Bogotá Automobile Show, as had already occurred two years ago.

The other components of household consumption are projected to have grown year on year at much the same rates as in the third quarter. This is suggested by, among

other things, CIF imports of consumer goods in dollars, which grew in October and November by almost 6.9% year on year (much as they had in the previous two quarters), and in particular imports of non-durable goods, which expanded by 20% (up from 18% in the third quarter).

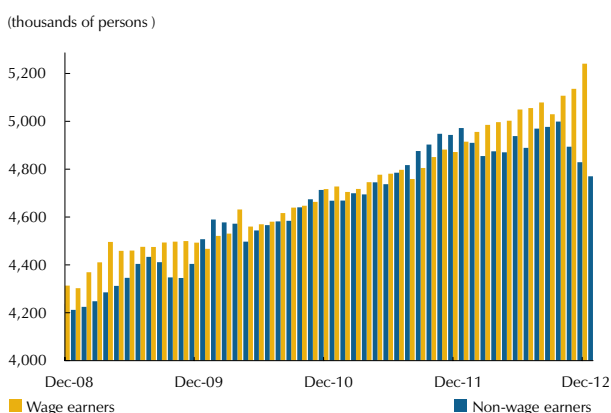
Other indicators, connected with financing capacity and household income, also point to consumption having continued to expand at year-on-year rates similar to those recorded in July-September. The reasons for this stabilization of the

Graph 20  
Real household interest rates  
(deflated by non-food CPI)



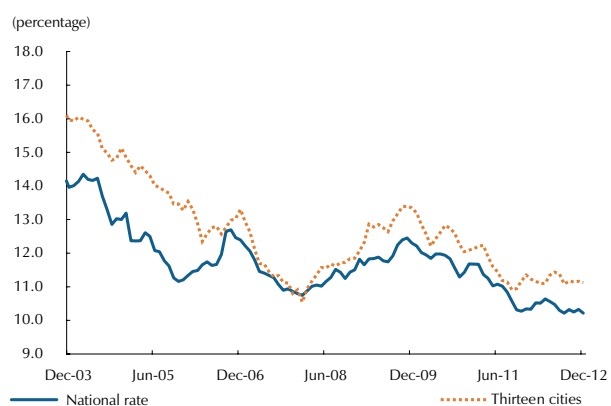
Source: Financial Superintendence of Colombia.

Graph 21  
Employment, by type of occupation  
(thirteen cities, seasonally adjusted moving quarter)



Source: DANE (GEIH). Calculations by Banco de la República.

Graph 22  
Unemployment rate  
(seasonally adjusted moving quarter)



Source: DANE (GEIH). Calculations by Banco de la República.

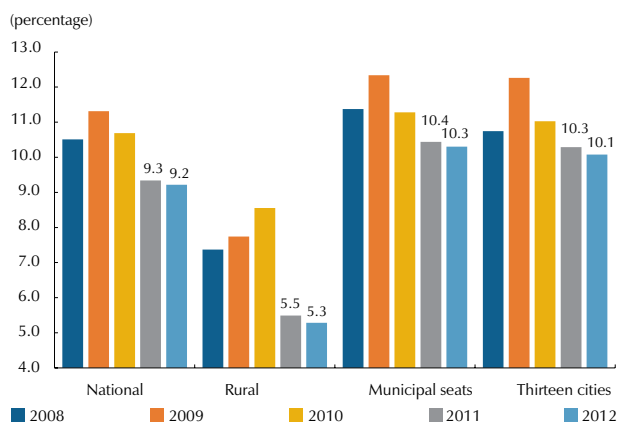
consumption cycle include the following: i) the terms of trade, which have a bearing on national income, have remained at historically high levels for several quarters; ii) consumer loans, despite slowing (as anticipated in previous Reports), continue to grow apace (at an average year-on-year rate of 18.4% for the fourth quarter), allowing households to keep on financing their spending; iii) real consumer interest rates were lower than in the previous quarter (Graph 20); and iv) although overall employment growth decelerated, wage employment continued to grow at a high rate (6.1% in the fourth quarter) (Graph 21). This development is of great importance to consumption performance, for it has a favorable bearing on consumer confidence and on medium- and long-term borrowing decisions by households.

The labor-market trends described in the previous Inflation Report continued into the fourth quarter. In particular, the unemployment rate (seasonally adjusted) remained at levels that were the lowest since 2001, though it stopped falling in the final months (Graphs 22 and 23). The number of people with jobs grew more slowly in the second half of 2012, but this trend was less pronounced in the thirteen major urban areas, where there were increments relative to the preceding months. On information to December, the number of employed persons nationwide grew year on year by 0.3%, while in the thirteen urban areas it grew by 1.7%.

Regarding investment, spending on machinery and equipment for industry is estimated to have grown well in the fourth quarter, as suggested by the 6.7% expansion in imports of these goods in dollars in October-November. This aggregate represents around 35% of gross fixed capital formation. In addition, imports of transport equipment resumed positive growth in November (4.6%), after the previous months' contractions, and should therefore have shown some recovery at the end of the year.

In the case of construction, too few indicators of civil works are available for the fourth quarter to show their evolution. Note that the volatility of this series was very high in the past (see the shaded text on page ...) and was the cause in the year to September 2012 of the main surprises to GDP; note also that the preliminary

Graph 23  
Unemployment rate  
(October-November-December moving quarter)



Source: DANE (Large-Scale Integrated Household Survey).

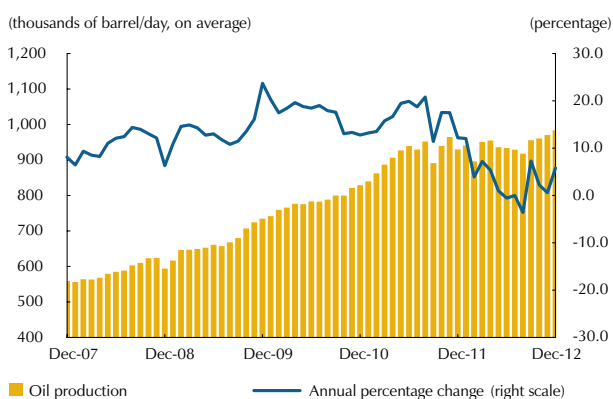
figures for civil works tend to be significantly revised (see June 2008 Inflation Report, Box 1: How large are revisions to macroeconomic series in Colombia?). All that makes it enormously difficult to make a forecast for civil works, even for the short term.

The projection for fourth-quarter civil works in this Report has taken into account information showing improvement in local-government budget execution in the final part of the year, and termination of mining investment projects, such as the Bicentenary pipeline. However, the year-on-year growth rates resulting from such improved performance could actually be low and below the rates recorded for the first half of 2012. Besides, much uncertainty surrounds this forecast, for the reasons described above.

On the side of supply, available fourth-quarter indicators give mixed signals. For instance, figures on mining and commerce show there was improvement relative to the previous quarter. And information on transportation points to strong growth in this activity. In contrast, information connected with industry and construction continues to suggest deterioration in these sectors' production.

With regard to mining, the National Hydrocarbon Agency has reported that oil production in December stood at 984,000 barrels a day (Graph 24). Thus, fourth-quarter production averaged 972,000 barrels a day, up from 934,000 in the previous three months. This performance resulted from improvement in transportation conditions and from stabilization of production in the different fields. Note that despite the reported recovery, the level of production was below the target of about a million barrels a day proposed at the beginning of the year. Coal production, too, rose in October and November, which was reflected in robust growth in exports: 22.5% in those two months, compared with -29.8% in July-September.

Graph 24  
Crude oil production  
(monthly production, and annual growth)



Source: National Hydrocarbon Agency.

In the case of commerce, surveys by Fedesarrollo and Fenalco (National Federation of Merchants) at December showed a pick-up in the current economic situation of merchants and their levels of sales; retail sales had also performed well in November, as stated earlier. Expectations six months ahead had also improved, so that the sector can be predicted to have performed well. Commerce may thus be expected to have continued to make a positive contribution to growth at the end of 2012, as it had up to September.

With respect to transportation, the Civil Aviation Authority's statistics indicate that in October-November

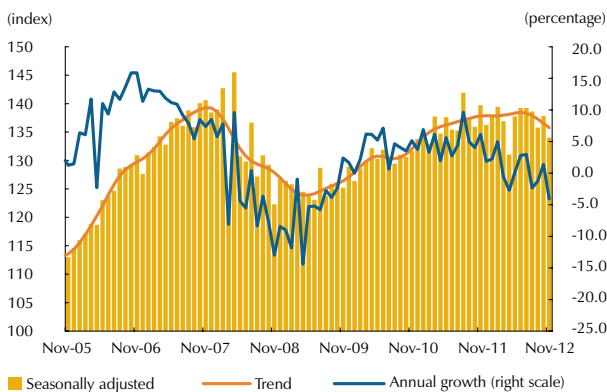


the number of air passengers may have been rising on average by approximately 23%. This rise, added to the fact that foreign trade (exports and imports) continued to expand in the final months of the year, leads to the expectation that the GDP of transportation grew faster than the economy as a whole.

*Industrial production contracted by 4.1% in November, exhibiting a downward trend.*

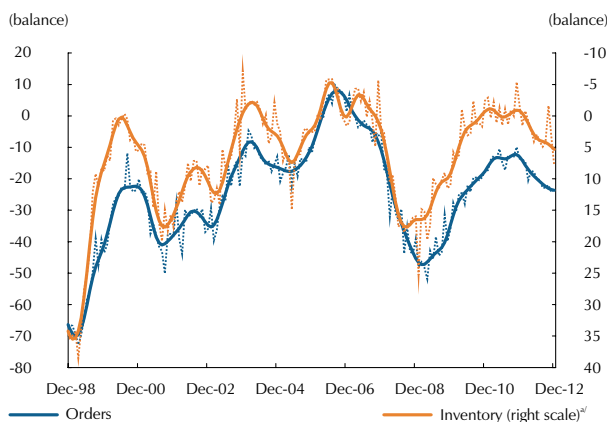
In contrast, industry and construction probably contracted or grew only very slightly. For the fourth quarter of 2012 this Report projects a year-on-year fall in the added value of industry, with the result that the weakness observed from several months before may have intensified at the end of the year. Specifically, in November the industrial-production index excluding coffee threshing contracted by 4.1%, causing the trend component of the series to slope down (Graph 25). This unfavorable behavior resulted from falls in production in the sectors of chemicals, and oils and lubricants, which had faced supply problems associated with difficult access to raw materials.

Graph 25  
Industrial production index, excl. coffee threshing



Sources: National Hydrocarbon Agency and Ministry of Mines and Energy. Calculations by Banco de la República.

Graph 26  
Manufacturing orders and inventory indices



a/ Inverted scale.  
Source: Fedesarrollo.

Furthermore, the problem of weakening domestic demand, evident from the second quarter of the year, may have had repercussions on the industrial sector's result at the end of 2012 and may continue to do so in the first half of 2013. According to surveys by ANDI (National Association of Industrialists) the sector has been strongly affected by import competition. Besides the foregoing, another factor projected to have a negative impact on industrial growth is the smaller number of working days in December 2012 and February and March 2013.

Fedesarrollo's orders and inventory indicators exhibited contrasting behavior, since the orders indicator continued to deteriorate, while the inventory indicator displayed a trend change that should mean a pick-up in the coming months (Graph 26). The manufacturing confidence index and production expectations for three months ahead extended their falls, though their levels did not compare unfavorably with those recorded at other times of industry contraction. In line with the foregoing, industrial demand for non-regulated energy, which is highly correlated with the industrial production index, contracted in December at an annual rate of 0.8% and in general slowed over the fourth quarter from 3.9% to 1.1%.

The few indicators available for construction show scant growth, contrary to what was projected in previous Reports. In particular, according to DANE cement production recorded an annual contraction of 1.3% in December. Regarding housing construction,



figures provided by Camacol (Colombian Chamber of Construction) show that sales and starts contracted in October-November at year-on-year rates of 5.3% and 14.2%, respectively; however, these were smaller shrinkages than those recorded in July-September 2012. Moreover, according to Fedesarrollo's surveys, although the situation of construction firms improved in the fourth quarter of 2012, their expectations were lower than a year earlier, particularly with regard to housing projects. As mentioned earlier, growth in civil works is projected to have been positive but low, and below the rate recorded in the first half of 2012.

Based on all the foregoing, Colombia's fourth-quarter GDP is projected to have been within the range of 2%-3.5% and standing at the mid-point of the range in the most probable scenario. Thus, the economy may have grown faster than in the third quarter, though more slowly than forecast in previous Reports. The forecast range implies expansion of the GDP in quarterly terms. The projections assumed that public consumption had expanded at a relatively good pace much as it had in the previous three quarters, and took into account the government's announced spending plans. They further assumed that the third quarter's strong investment-demand shocks had been partly transitory and should largely dissipate by the end of 2012 and early 2013.

*Colombia's economic growth in 2012 could have been in the range of 3.3%-3.9%. y 3,9%*

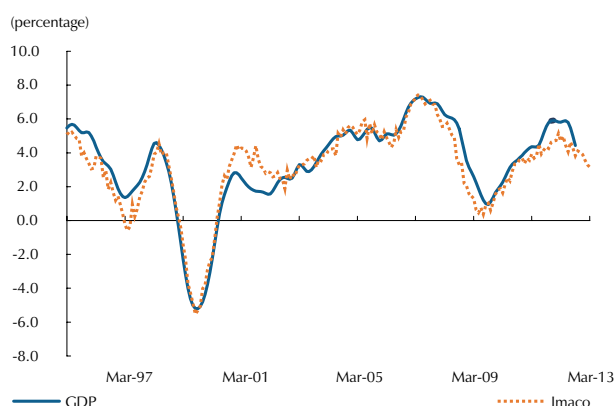
Accordingly, this Report considers that GDP expansion for the whole of 2012 could have been in the range of 3.3%-3.9%. The width of the range reflects great uncertainty surrounding year-end results for civil-works and building construction, and possible revisions to the first three quarters' series. In general terms, full-year 2012 household consumption may have grown at around its historical average rate, as expected by the economic authorities, while investment may have increased more slowly than in 2011, owing to the demand shock suffered in the second half of the year, when demand decelerated by more than expected. In the external sector, growth in both exports and imports may have been lower than in the year before.

The best-performing sectors of production throughout the year may have been mining, transport, and the financial system. Despite the supply shocks to mining, described above, this sector may have continued to lead growth in the Colombian

economy during 2012, though at an ostensibly slower pace of expansion than the 11.9% average for the previous four years.

Lastly, the leading indicator Imaco, calculated from several sector variables on information to November, also shows a slowdown, in line with the above forecast (Graph 27). The growth rate suggested by the indicator is a little under 4% at the end of 2012, consistent with the deceleration recorded in the third quarter and projected growth for the fourth. Note, however, that this indicator does not take into account variables for sectors such as mining and construction, particularly civil works, which is why its growth projection is higher than the one officially presented in this *Report*.

Graph 27  
Imaco: five-month leading indicator of GDP <sup>a/</sup>



a/ Twelve-month accumulated annual growth.  
Source: Calculations by Banco de la República.

## Box 2 RECENT BEHAVIOR OF COLOMBIAN INDUSTRIAL PRODUCTION

Daniel Parra  
Jhon Edwar Torres\*

As stated in this Inflation Report and in the previous one, industrial stagnation in 2012 was caused by the accumulation of several factors: i) certain supply shocks that occurred at different times of the year in different industries; ii) lower domestic and external demand; and iii) import competition. In the third quarter supply shocks occurred, for example, in the chemical sector, which reported difficult availability of raw materials, and in the oil-refining sector, which was affected by scheduled maintenance in some refineries. Moreover, recently the sectors of oils and lubricants, sugar-cane processing and non-metallic minerals have also reported supply problems, connected with transportation, crop relocation and other situations.

The impact of weak domestic demand on industrial production was at first gradual, but became stronger in the second half of 2012, when economic activity lost pace significantly. Meanwhile, the negative impact of external demand on industry was less clear in the second half of the year than in the first, as industrial exports picked up in the second part of the year.

Regarding import competition, although industrial exports grew by 7% in the year to November, companies reported more aggressive competition from imported products, both in global and domestic market. According to the National Association of industrialists (ANDI), more than 80% of the companies surveyed stated they had been strongly affected by import competition.

Note that industrial performance has been poor not only in Colombia but worldwide (see the June 2012 Inflation Report, Box 1: International trade and industry, pp 27-29).

A description follows of a number of empirical approaches to analyze the behavior of the different subsectors of industry. Based on DANE's monthly manufacturing sample, an exercise was conducted to estimate the dynamics of each branch of activity at the margin through decomposition of the time series using the X-12 Arima methodology and the Hodrick-Prescott filter. The trend component of each branch of industry was then estimated (the subsectors having

been grouped into 27 branches of greater importance) and assigned a color on the following criteria: i) orange, where the production trend falls on a monthly basis for two consecutive months; ii) blue, where the trend rises on a monthly basis for two consecutive months; and iii) yellow for all other cases (Graph B2.1).<sup>1</sup> The results show that some 60% of the branches may be contracting at the margin (orange). The industries connected with paper have been depressed for over four years, while others such as leather, textiles and 'other chemicals' have been contracting since 2011.

The drawback of the above exercise is that it does not take into account the weight of each branch within total industrial production. To correct for that, a weighted diffusion index was constructed using the results of the exercise mentioned above. The blue and orange areas of Graph B2.1 were added together, taking into account the weight of each industry, that is, a weighted sum suggesting an approximation to the percentage of industries that grew or decreased within the total. The results show that some 50% of industries may be contracting, if we take into account only the trend component (Graph B2.2). Moreover, although industrial performance was poor in 2012, the percentage of industries that contracted at the margin (orange) was relatively low compared with the percentage at other times of contraction, such as at the end of the nineties or during the 2008 international financial crisis.

In addition, the total available supply from the branches of industry was constructed using the 2010 annual manufacturing survey, monthly manufacturing samples and import figures provided by DANE (Table B2.1). The table shows that in branches of activity where national production has fallen, imports have grown at relatively high rates and that their share has been rising in recent years.

Figures on international trade reveal that in the year to November 2012 industrial exports and imports both recorded positive nominal growth (7% in each case). Breakdown of exports shows that in the first six months of the year the industrial sectors producing exports contracted year-on-year. In contrast, in October and November 2012 external sales grew in most industrial sectors, falling in only three of them. This was a sign of recovery in external demand, which had curbed industrial growth in the first half of the year.

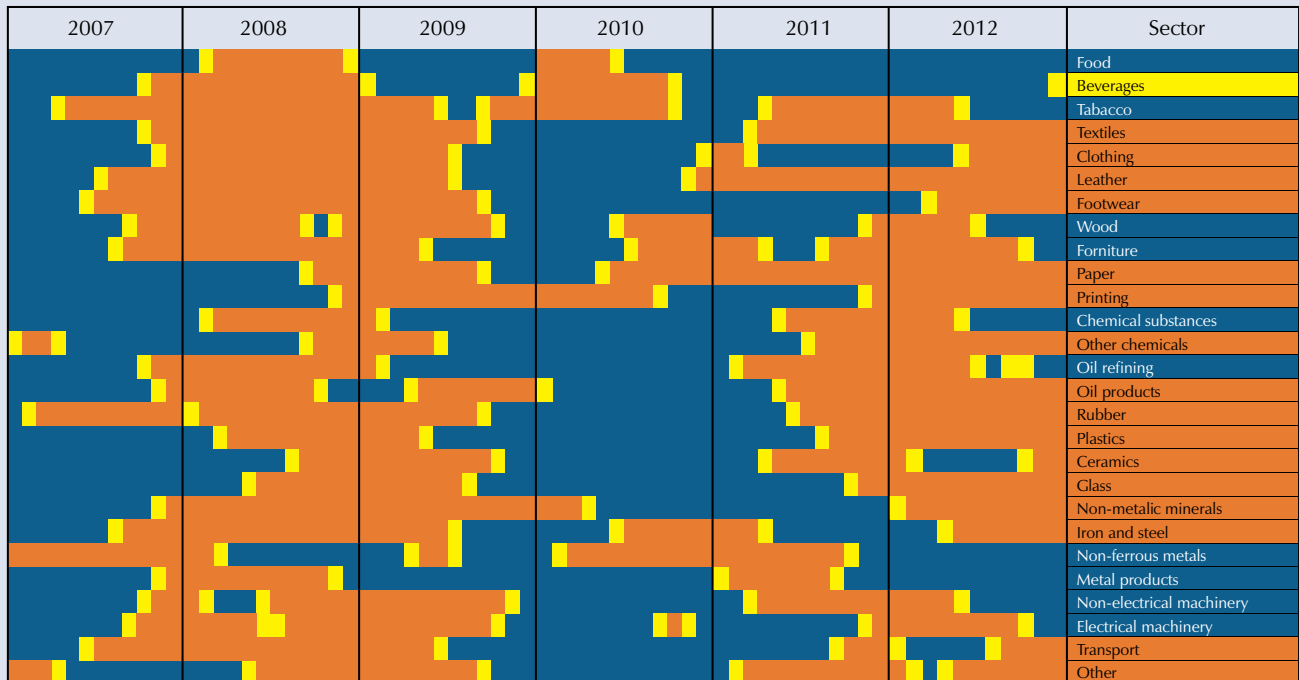
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\* The authors are staff of the Bank's Programming and Inflation Department. They are grateful to Carlos Huertas, Adolfo Cobo and Sergio Olarte for their comments. The opinions expressed are exclusively those of the authors and do not necessarily reflect the views of Banco de la República or its Board of Directors.

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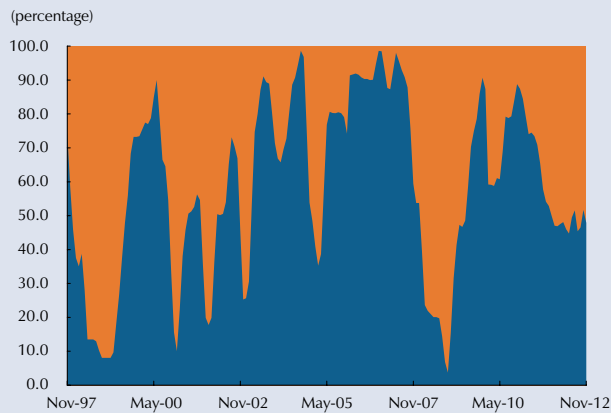
1 The results from the two methodologies are similar, and therefore only those obtained from the Hodrick-Prescott filter are shown.

Graph B2.1  
Evolution of the trend component of industry



Source: DANE. Calculations by the authors.

Graph B2.2  
Diffusion index of industry, weighted by the weight of each sector, from a semaphore exercise using a Hodrick-Prescott filter



Note: The percentage of weighted industries in blue, less the percentage of those in orange.  
Source: DANE. Calculations by the authors.

Breakdown of imports shows growth throughout 2012 in over 80% of importing sectors. This bears out the perception of industrialists who have reported greater competition for their products from foreign goods, particularly in a context

in which demand has been decelerating. The behavior described above for both imports and exports holds true also in real terms (Table B2.1).

Lastly, to analyze the behavior of industrial foreign trade, a similar exercise was also conducted on trend components of industrial imports and exports. In general, industrial goods performed well in 2012 in both groups. Import growth has, however, been more constant, while growth in exports has been more variable. In fact, since mid-2009 most branches of industrial goods imports have exhibited trend growth. In contrast, a large number of industrial exports began to perform positively only in 2011-2012 (Graphs B2.3 and B2.4).

Hence, based on the exercises described and on available information, the following conclusions have been reached: i) although external demand played an important part in explaining the cycle of moderation in world industrial production in 2012, as far as Colombia is concerned external demand began to show some recovery in the second half of the year; ii) supply shocks in several sectors have dampened industrial production; and iii) industry has been subject to greater import competition in the past three years.

Table B2.1  
Behavior of industrial production, imports and exports Industrial sector

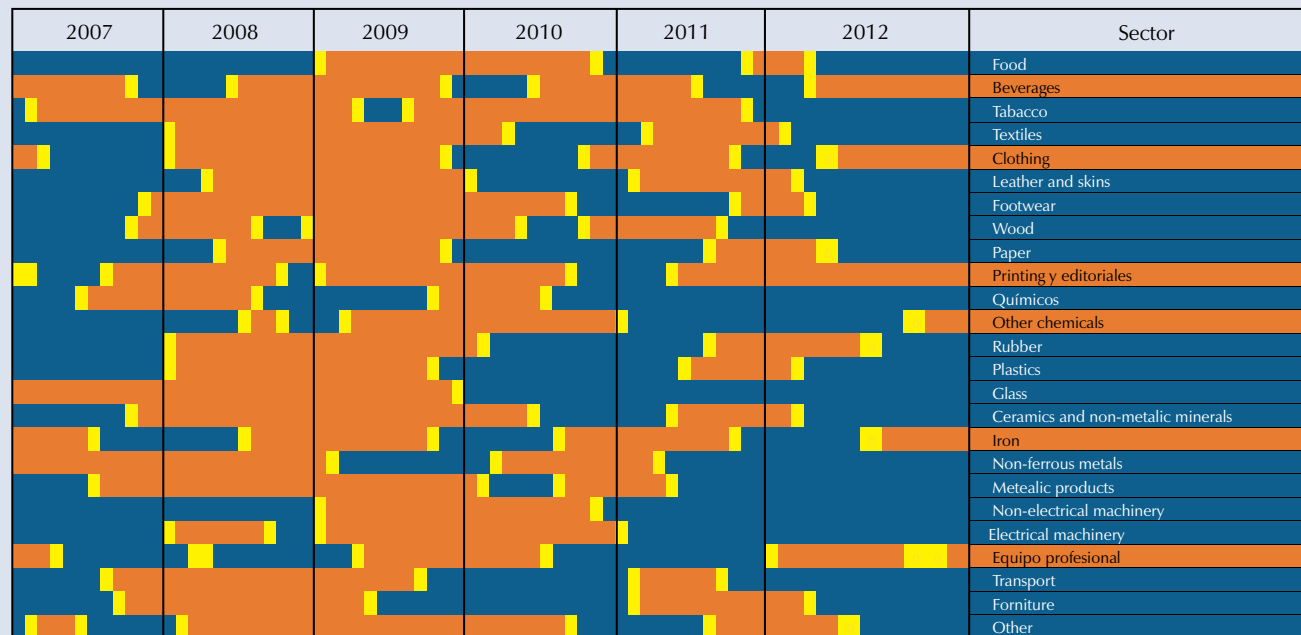
Rama industrial	Sector industrial									
	Producción nacional		Importaciones		Oferta total		Participación (importaciones/oferta total)			Exportaciones
	2011	2012	2011	2012	2011	2012	2010	2011	2012	2012
Alimentos	5.7	8.9	16.1	19.5	6.6	9.9	8.6	9.4	10.2	14.1
Bebidas	5.5	5.9	8.3	19.3	5.6	6.3	3.3	3.4	3.8	14.6
Tabaco	2.5	(16.2)	(11.1)	227.2	1.7	(2.4)	6.5	5.6	18.9	84.1
Textiles	4.9	(6.9)	38.1	3.0	15.5	(3.1)	31.7	37.9	40.3	(0.3)
Confecciones	3.0	11.4	70.0	36.2	7.9	14.3	7.3	11.5	13.7	10.1
Cuero	(3.0)	(6.0)	47.0	21.2	18.0	8.2	42.0	52.3	58.6	(12.8)
Calzado	20.9	2.9	57.8	13.1	33.6	7.0	34.6	40.8	43.1	(0.3)
Madera	0.6	(1.2)	10.2	8.0	3.3	1.5	27.7	29.6	31.5	25.8
Muebles	(2.4)	(3.2)	18.7	11.2	0.4	(0.9)	13.6	16.1	18.0	(18.5)
Papel	(6.5)	(1.3)	5.1	(2.2)	(4.1)	(1.5)	20.7	22.7	22.5	3.5
Imprentas	1.4	(8.4)	17.2	(11.6)	2.7	(8.7)	7.9	9.0	8.7	(7.1)
Sustancias químicas	5.7	(3.7)	15.7	(3.7)	10.8	(3.7)	51.0	53.2	53.2	4.7
Otros químicos	5.6	(2.6)	17.3	12.2	9.3	2.5	31.6	34.0	37.2	6.9
Refinerías de petróleo	0.6	(3.8)	94.2	38.3	0.6	(3.8)	0.0	0.0	0.0	n. a.
Caucho	6.0	(11.4)	28.3	0.0	20.3	(3.6)	64.4	68.6	71.2	(23.2)
Plásticos	6.4	(6.1)	26.0	15.1	9.5	(2.3)	15.7	18.0	21.3	(1.9)
Vidrio	8.7	(3.3)	24.7	4.7	12.3	(1.3)	22.4	24.8	26.4	24.8
Minerales no metálicos	12.0	(0.3)	38.7	12.5	14.0	0.8	7.5	9.1	10.1	(2.1)
Hierro y acero	(7.6)	12.1	30.0	2.4	7.0	7.5	38.9	47.3	45.0	40.0
Metales no ferrosos	(12.2)	11.0	2.2	(0.8)	(8.4)	7.6	26.1	29.1	26.9	(7.7)
Productos metálicos	0.9	3.5	49.1	11.5	12.5	6.0	24.1	31.9	33.6	6.5
Maquinaria no eléctrica	0.4	(1.7)	39.2	5.5	28.4	3.9	72.1	78.2	79.4	13.5
Maquinaria eléctrica	4.8	(2.9)	20.6	9.4	12.2	3.3	46.8	50.3	53.2	13.0
Transporte	21.1	(0.1)	(51.7)	16.7	(21.1)	5.8	57.9	35.5	39.1	39.0

n.a. Not applicable

Note: Real figures for year to date (January-November of each year).

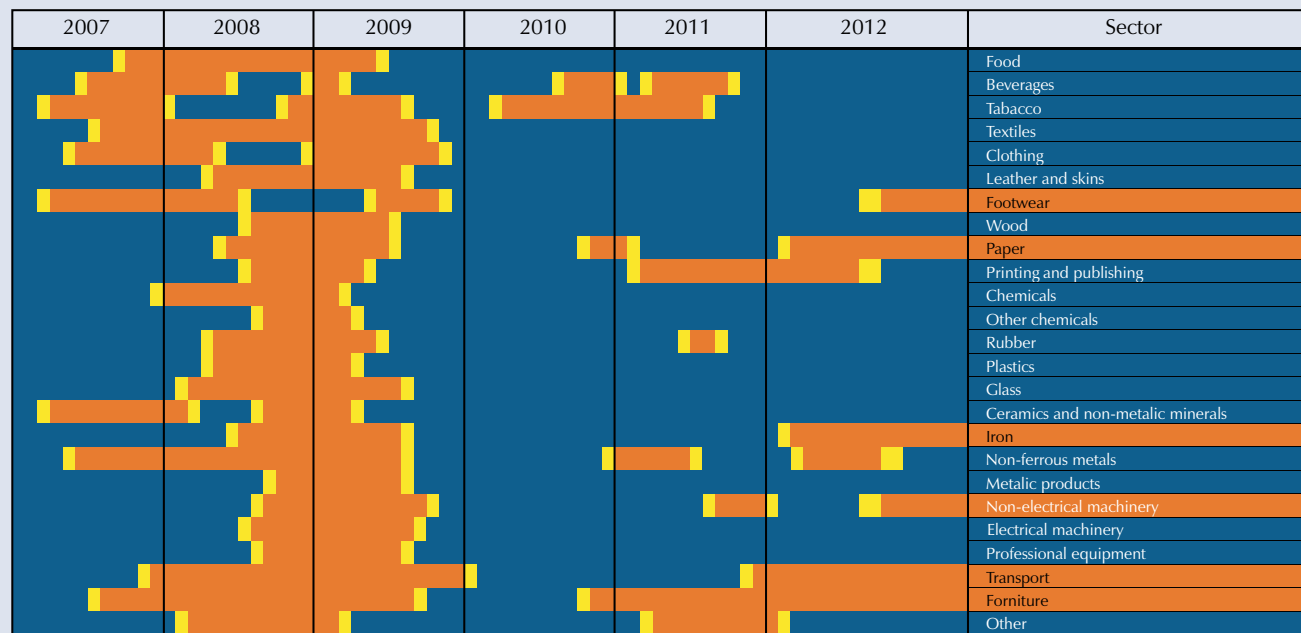
Source: DANE. Calculations by the authors.

Graph B2.3  
Evolution of the trend component of exports



Source: DANE. Calculations by the authors.

Graph B2.4  
Evolution of the trend component of imports



Source: DANE. Calculations by the authors.

### III. RECENT INFLATION DEVELOPMENTS

**In the fourth quarter consumer inflation fell** more than expected, ending the year below the 3.0% target. The average of the core inflation indicators also subsided over the quarter.

**Inflationary pressure moderated** in the final months of 2012, owing to lower international commodity and food prices, exchange rate stability, and slowing demand.

**In October-December downside pressure was concentrated** in regulated and food prices.

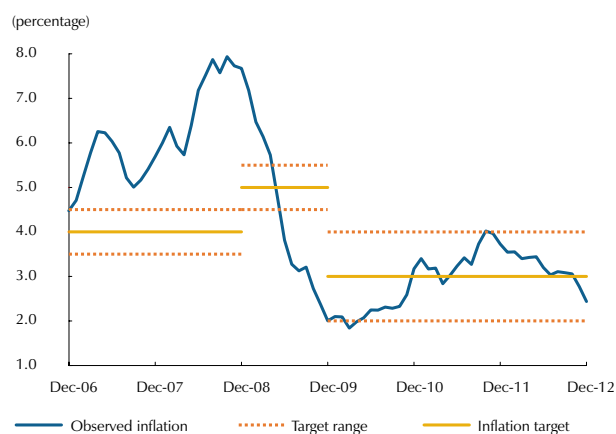
**Annual rent adjustments tended** to fall between September and December, after rising for several quarters.

Annual consumer inflation in Colombia decreased steadily all through 2012 and this trend accentuated during the fourth quarter. By December the rate stood at 2.44%, down on September by 64 basis points (bp) (Graph 28 and Table 6), and significantly lower than forecast in the previous *Inflation Report* or than expected by the market. Pressures on inflation were generally low in 2012, but more marked than had been anticipated in the previous four quarters' *Inflation Reports*.

With the December result, inflation was once again within the 2%-4% range set by the Bank's Board of Directors and below the 3% long-term target. Note that inflation has stood within that range for three and half years, with very few, irrelevant deviations.

In the last three months of 2012 both the regulated component and the food component helped greatly to decelerate price growth, to the point of lowering annual inflation below the point target and below the level expected in the previous *Inflation Report*. Energy and gas utilities (among the regulated items) and perishable food were the components of the consumer basket that contributed the most to reduce inflation in the fourth quarter and throughout 2012 (Table 6).

Graph 28  
Headline consumer inflation



Sources: DANE and Banco de la República.

In 2012, and more particularly in the fourth quarter, several factors combined to reduce inflation by more than was expected by analysts and by the Bank. First, international fuel and food prices did not, on average, rise above 2011 levels. Though this had been predicted, the Bank's models underestimated the size of those lower adjustments and their speed of transmission to Colombian consumer prices. This was more evident in the case of domestic gasoline, gas and electric energy prices in the fourth quarter.

Second, the exchange rate appreciated against the dollar by an average 2.7% over the year, restraining price rises in tradable goods, including food and all other items. The mid-year increases in international prices for several imported food proved to be transitory

and did not pass through to consumer inflation in Colombia; this may have been due to exchange-rate behavior.

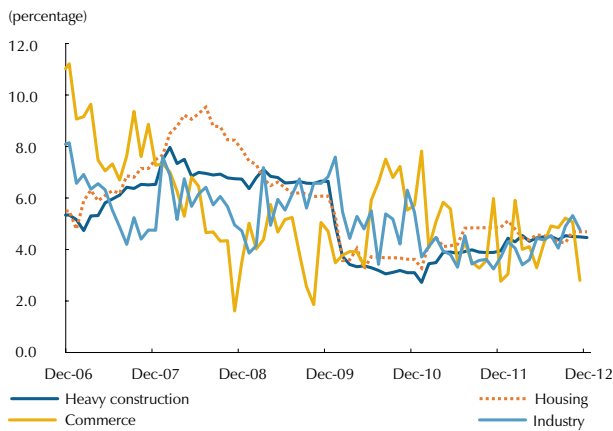
Third, in the second half of the year inflationary pressure from domestic demand tended to weaken more than expected, because of the fall in investment in building construction and civil works and the contractionary effect this may have had on all other spending. Thus, the output gap, originally estimated to be in slightly positive territory in the second half of the year, has been revised down to -0.3% (see Chapter IV).

Table 6  
Indicators of consumer inflation  
(at December 2012)

Description	Dec-11	Mar-12	Jun-12	Sep-12	Oct-12	Nov-12	Dec-12
<b>Headline inflation</b>	3.73	3.40	3.20	3.08	3.06	2.77	2.44
<b>Non-food inflation</b>	3.13	2.95	2.80	2.87	2.86	2.68	2.40
Tradables	0.80	0.68	1.01	1.09	1.06	0.94	0.77
Nontradables	3.64	3.71	3.62	4.02	4.03	3.97	3.92
Regulated items	5.81	4.94	3.92	3.31	3.28	2.79	1.91
<b>Food inflation</b>	5.27	4.56	4.22	3.63	3.56	3.01	2.52
Perishables	7.73	5.18	(2.04)	(2.35)	(0.63)	(1.95)	(3.90)
Processed food	4.50	3.69	5.12	4.33	3.69	3.12	2.83
Eating out	5.59	5.87	5.52	5.21	5.33	5.11	4.90
<b>Core-inflation indicators</b>							
Non-food inflation	3.13	2.95	2.80	2.87	2.86	2.68	2.40
Core 20	3.92	3.76	3.56	3.71	3.58	3.35	3.23
CPI excl. perishable food, fuel & utilities	3.18	2.99	3.23	3.33	3.28	3.15	3.02
CPI excluding food and regulated items	2.38	2.38	2.48	2.74	2.73	2.65	2.55
<b>Average of all indicators</b>	3.15	3.02	3.02	3.16	3.11	2.96	2.80

Source: DANE. Calculations by Banco de la República.

Graph 29  
Nominal wages  
(annual percentage change)

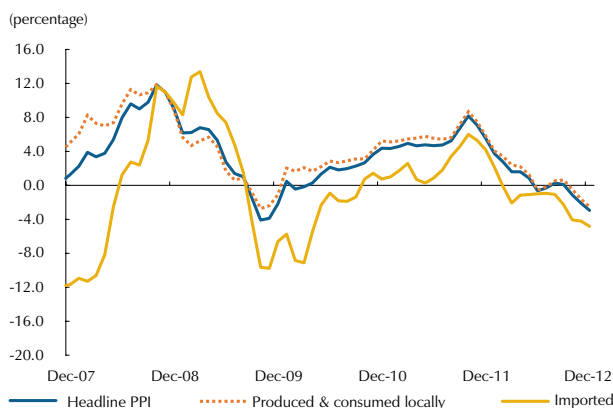


Source: DANE. Calculations by Banco de la República.

A fourth factor had to do with scant pressure from wage costs. The minimum-wage rise for 2012 (5.8%) was relatively high compared with the inflation target and pointed to high increases also in all other wages in the economy, but these did not materialize. In fact, annual wage increases in industry, commerce and construction were mostly within the range of 3%-5% (Graph 29). The mid-point of this range could be considered compatible with the inflation target assuming a 1% growth in labor productivity. It is worth noting that through 2012 the labor market tended to be looser than anticipated at the beginning of the year; this seems to have been corroborated by the fact that the unemployment rate stopped falling since June (see Chapter II of this Report).

Inflationary pressure from non-wage costs also decreased substantially in the final months of the year, as is evident from lower producer prices. Annual change in the headline producer price index fell from 5.5% in December 2011 to 0.1% in September and down to -2.95% at the end of 2012 (Graph 30). All segments of the PPI, by economic activity, decelerated strongly, and something similar happened with imported, as well as with domestically produced goods.

Graph 30  
PPI, by origin of goods  
(annual change)



Source: DANE.

In addition to the above, good weather conditions resulted in a broad supply of perishable food, leading to very modest price rises and even price falls in several cases. The disappearance from the second half of the year of the risks attached to El Niño climate event also helped to bring down electric energy prices on the exchange market, which would have been passed through to consumer rates. Certain local-government decisions, too, contributed to the reduction of inflation, as they lowered urban-transport fares and some utility rates, which had not been fully included in the forecasts.

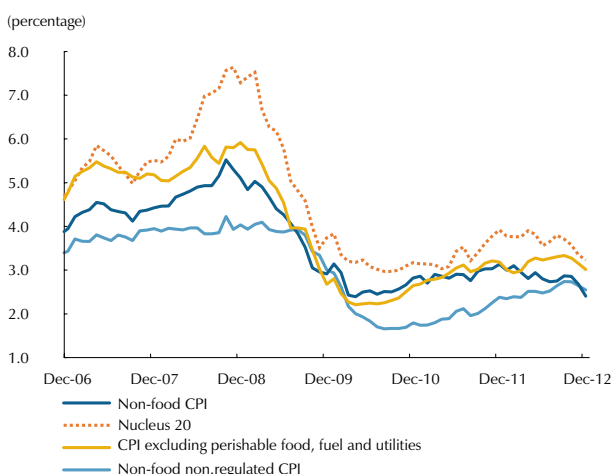
## A. CORE INFLATION

Core inflation fell in the fourth quarter of 2012, after remaining relatively stable in the first three quarters. This is evidenced by the average of the four core indicators regularly monitored by the Bank, which stood at 2.80% in December, down from 3.16% in September and 3.15% in December 2011.

All four indicators stayed within the inflation target range throughout 2012 and presented several noteworthy developments during the year. Core 20



Graph 31  
Core-inflation indicators



Source: DANE. Calculations by Banco de la República.

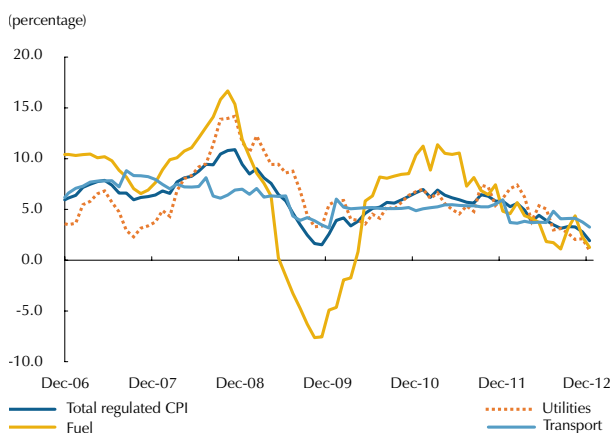
Among regulated items, utilities made the biggest contribution to reducing inflation.

(3.2%) began and ended the year higher than all the others, despite falling sharply all through the year. The consumer price index (CPI), excluding perishable food, fuel and utilities, was more stable and ended the year within the target. The CPI excluding food and regulated items (2.6%) remained at the lowest level except in December, when it gave up this place to non-food CPI. Lastly, non-food CPI, having remained at around 3.0% during the first three quarters, fell sharply in the fourth, by much more than projected in previous Reports, and ended the year at 2.4% (Graph 31).

The fall in non-food CPI was caused in particular by lower pressures from international food prices and the exchange rate. This reduction was transmitted to consumer prices in Colombia through the CPI of tradable goods, but particularly through regulated utilities. Annual change in regulated items fell throughout 2012, from 5.8% at the end of 2011, dropping more sharply late in the year, to stand at 1.9% in December, significantly lower than forecast in previous *Inflation Reports*.

Among regulated items, utilities CPI exhibited the biggest annual change (Graph 32), with notable decreases in household gas prices (from 18.7% in December 2011 to 1.0% in December 2012) and in electricity rates (from 6.4% to -0.8%). In these cases, as in the case of the domestic price of gasoline, an important factor (together with the peso's appreciation) was the fact that the international price for oil remained stable during in the second half of the year and only slightly higher than in 2011, in terms of annual averages. Moreover, in the case of energy an important part was played also by a lower PPI and favorable conditions for hydroelectric generation during the year.

Graph 32  
Regulated CPI and its components  
(annual change)



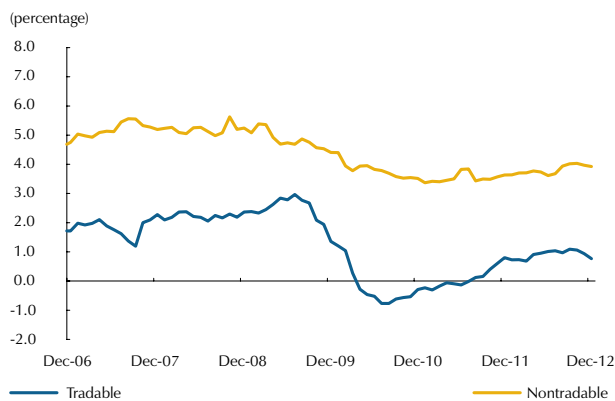
Source: DANE. Calculations by Banco de la República.

Note that changes to consumer electricity rates depend on regulation formulae that include movements in variables such as the exchange rate, PPI and international prices, which have shown a noninflationary behavior. Similarly, the prices agreed on in energy-supply agreements in force for the second half of 2012 had taken into account the state of the dams a year or two before, precisely when they were at their maximum levels thanks to excessive rainfall from the climate event La Niña. This probably helped to lower the cost of power generation in the country, which was passed through to household electricity rates.

In the subgroup of regulated transport, besides lower gasoline price rises, referred to above, another factor that put downward pressure on inflation was the

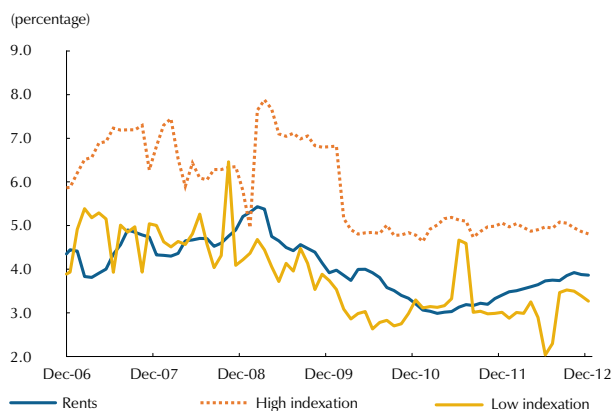
launching of the Integrated Public Transport System (SITP) in Bogotá, which reduced urban public transport fares from the middle of last year. Rate reductions were also decreed in the first half of 2012 for the Bogotá water-supply system.

Graph 33  
Tradable CPI and nontradable CPI, excl. food and regulated group  
(annual change)



Source: DANE. Calculations by Banco de la República.

Graph 34  
Nontradable CPI excluding food and regulated items  
(annual change)



Source: DANE. Calculations by Banco de la República.

The peso's appreciation also curbed tradables' price increases from the middle of the year and, more particularly, in the fourth quarter. Tradable CPI (excluding food and regulated items), having risen slightly in the first half, decelerated later in the year (Graph 33). Vehicles, articles of jewelry, some household appliances and some telephony services were the items that contributed most to lowering the group's inflation in the fourth quarter. Operators of telephony services began in October last year to provide subsidized internet services to low-income households (levels 1 and 2). The free-trade agreements with the US and Canada, which came into force in the middle of last year, may have also helped to reduce growth in this segment of the CPI basket.

Lastly, non-tradable CPI, excluding food and regulated items, fell slightly in the final months of the year, to stand below 4%, breaking the uptrend observed since early 2011 (Graph 33). In this sub-basket, it is worth noting the behavior of housing rents, whose annual change, after rising since mid-2010, stopped accelerating from October and stood at 3.9% in December (Graph 34). Oversupply in the rental housing market, particularly at higher-income levels, together with weaker demand toward the end of the year, may have begun to moderate rent increases.

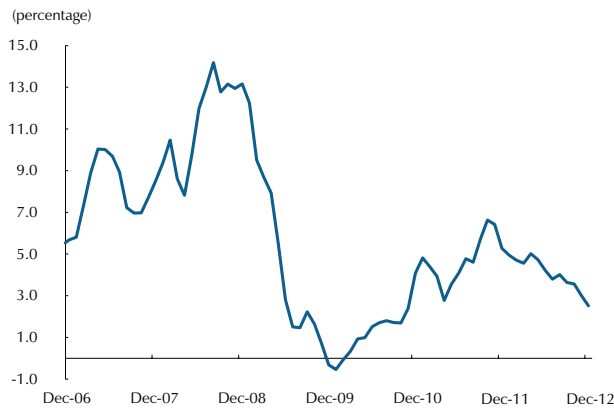
In 2012, as in several preceding years, price rises in tradable goods were the lowest in Colombia's consumer basket, suggesting that international prices for manufactured goods, a high supply of imported products and exchange-rate appreciation have helped to anchor inflation within the target range. This behavior of tradables has offset price rises for non-tradable goods that exceeded the target.

## B. FOOD PRICES

*Perishables led the deceleration in food prices in the fourth quarter.*

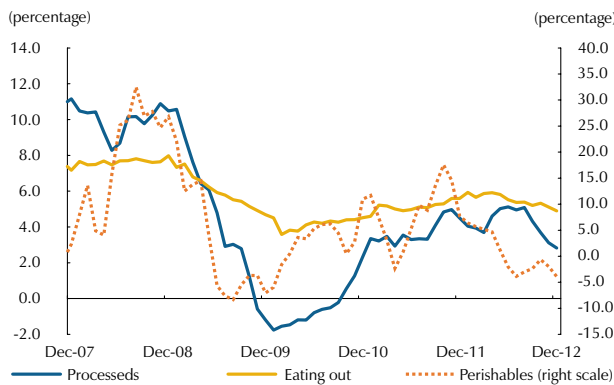
At the end of the fourth quarter of 2012 annual change in food prices stood at 2.5%, below the levels seen in the third quarter and earlier in the year, and significantly lower than forecast in previous Inflation Reports. Food prices fell substantially all through 2012, the decrease accelerating in the final months of the year (Graph 35).

Graph 35  
Food CPI  
(annual change)



Source: DANE. Calculations by Banco de la República.

Graph 36  
Food CPI, by group  
(annual change)



Source: DANE. Calculations by Banco de la República.

Price growth moderated in the three main components of the food group through continual decreases over the year, becoming negative in the case of perishables (Table 6 and Graph 36). The supply of perishables benefited from: weather conditions becoming favorable again from the second quarter; lower production costs thanks to scarce rises in input prices; and relatively high prices in 2010 and 2011, which had boosted sowing. There was thus a stage of ample supply in 2012, which should have lasted to the end of the year, lowering prices in a wide range of products.

Annual growth in processed food prices fell, particularly later in the year, dropping from 4.3% in September to 2.8% in December (Table 6 and Graph 36). In this case, lower international prices, from the third quarter of 2012, for corn and other cereals, oil seeds, oils and coffee, among other products, combined with the peso's appreciation and abundant imports, may have caused the downtrend in the past several months in this component of food CPI.

Likewise, the rising trend in eating out, which had started in mid-2010, came to an end in the second quarter of 2012, with the price growth falling from 5.9% in April to 4.9% in December. This item, too, benefited from lower food costs and utility rates.

### Box 3

## POSSIBLE EFFECTS OF THE TAX REFORM ON THE LABOR MARKET

Juan Sebastián Amador Torres  
Jackeline Pirajan Díaz\*

The new tax reform (Law 1607 of 2012) has reduced payroll taxes payable by employers from 29.5% to 16% of the monthly pay of all workers earning less than ten times the minimum monthly wage. This is the first time that payroll taxes have been reduced since they were introduced in 1944. The reduction may have an impact on formal labor in Colombia by reducing the costs of hiring workers in the formal sector.

### *Impact on the formal/informal composition of employment*

There is some evidence of the part played by payroll taxes in increasing informal labor in Colombia. Graph B3.1 indicates a relationship between rising payroll taxes and the increasing share of non-wage employment, a proxy for informal employment.

z B3.1  
Non-wage workers and payroll taxes



Sources: Santamaría (2008) and DANE (various household surveys)

The impact of the tax reform on the labor market can be analyzed from the standpoint of economics theory, by using

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the model built by Albrecht et al. (2008) in a context of search and matching models. The Albrecht model extends the model of Mortensen and Pissarides (1994) by including a significant informal sector and heterogeneous worker productivity in the formal sector. Where there are frictions in searching for employment, there will be unemployment in the formal sector (the informal sector is regarded as non-regulated self-employment).

According to this model, the probability that a person will find formal employment increases with his level of skills and his productivity in the formal sector. This heterogeneity of productivity is what offers the option of working in the informal sector (where everyone has the same productivity), whereas workers whose productivity is higher than a certain threshold will reject this option and wait for formal employment. Similarly, there will be workers with less than the threshold productivity, who will not find well-paid work in the formal sector.

Given that mandatory contributions (such as payroll taxes), whether payable by the worker or the employee, have to be deducted from the value added by each worker, and that only workers whose productivity is greater than their cost will be given jobs in the formal sector, changes to labor-taxation policy will have an impact on the formal/informal composition, on account of the threshold of productivity referred to above.

In this context, reduction of payroll taxes would lead to fewer workers accepting informal jobs and more accepting formal ones (resulting in a higher proportion of formal workers) and would increase the duration of formal employment (Albrecht et al. 2008).

### *Impact on wages and aggregate employment*

In principle, reducing payroll taxes would reduce the cost of employing workers and so increase the demand for labor. An approximation to the size of the reduction in the employer's total labor costs can be obtained by analyzing the behavior of labor costs with the minimum wage. Taking into account the minimum-wage increase between 2012 and 2013 the total monthly costs of a worker would be reduced by 4.1% (Table B3.1).

However, the effect on the costs of workers earning more than the minimum is uncertain because, although the tax reform increases the demand for labor, this higher demand could result in higher wages, depending on the workers' bargaining power.

Cuadro B3.1  
Evolution of employer's costs for a minimum-wage worker

	2011	2012 (pesos)	2013
Minimum wage	535,600	566,700	589,500
Payroll taxes payable by employer	158,002	167,177	94,320
Pensions	64,272	68,004	70,740
Health care	45,526	48,170	-
Parafiscal taxes (SENA: training institute)	10,712	11,334	-
Parafiscal taxes (ICBF: family,child welfare institute)	16,068	17,001	-
Parafiscal taxes (family benefit funds)	21,424	22,668	23,580
Total costs <sup>a</sup>	927,487	980,325	939,866
Annual change in total costs (percentage)	4.0	5.7	(4.1)

a, Total costs = minimum wage + transport allowance + bonus + vacations + health care + pension + work risk insurance + parafiscal taxes (indicated above) + uniform.  
Sources: Santamaría (2008) and DANE (various household surveys)

Very few studies have been conducted in Colombia on the impact of lower payroll taxes on employment, for there are no precedents in this respect. There are, however, studies on payroll-tax increases. In this case, if real wages were downwardly flexible, employers could absorb the additional cost by paying lower wages. But the mandatory nature of the minimum wage limits this behavior (wages cannot be reduced below the minimum); hence, employers would have to adjust their level of employment rather than wages. Studies by Maloney and Núñez (2004), Arango and Pachón (2004), Santamaría et al. (2008) and Bell (1997) provide evidence that the minimum wage in Colombia is a significant restriction. Furthermore, Iregui et al. (2011) present microeconomic evidence of the existence of downward rigidity in nominal wages from a sample of Colombia firms. The conclusion seems to be, therefore, that it is difficult in Colombia to transfer payroll taxes to employees in the form of lower nominal wages<sup>1</sup>.

The lack of academic literature on upward wage rigidity is a problem when it comes to evaluating the effect of the tax reform on aggregate employment. For, if upward and downward wage rigidities are asymmetrical, the effect on aggregate employment of reducing payroll taxes will not simply be the reverse of the effect of raising them. In Chile there is an important precedent of lowering payroll taxes that can be taken into account in evaluating the impact of the tax reform on Colombia's labor market. From 1981, as a result of privatization of Chile's social-security system, a series of reductions began to be made to payroll taxes, which upon completion represented 25% of wages. Using

information from a census of manufacturing in Chile, Gruber (1997) estimated that the payroll-tax reduction was passed through completely to workers in the form of higher wages, with little effect on aggregate employment. In Colombia various estimates have been made of the effects of payroll-tax increases. Kugler and Kugler (2008) use a panel of firms from DANE's annual manufacturing surveys to analyze the impact on the manufacturing sector. Their results suggest that a 10% rise in payroll taxes causes formal wages to fall by 1.4%-2.3% and formal employment to decrease by 4%-5%.

Arango, Gómez and Posada (2009), using quarterly information from DANE's household surveys, estimate functions of skilled and unskilled labor demand for a representative firm from the formal urban private sector, whose inputs are capital, and skilled and unskilled labor. They find that an increase in non-wage costs has a negative impact on the level of aggregate employment.

Furthermore, Cárdenas and Bernal (2004) estimate the wage elasticity of urban labor demand before and after the 1993 pension and health-care reform, which raised non-labor costs by around 10%. They found that the reform had a negative effect on the level of employment. They also conducted simulations on the possible effects of a parafiscal-tax elimination and found that a 9% reduction of such taxes would raise the level of unskilled employment by 1.8% and of skilled employment by 0.8%. Given that most unskilled workers are in the informal sector, the authors' estimates imply that reduction of payroll taxes would benefit formalization of labor. They also provide evidence that the wage elasticity of labor demand increased during periods of contraction, which explains rapid rises in the unemployment rate in bad times and its slow fall in times of recovery.

Lack of information on upward wage flexibility in Colombia's labor market makes it difficult to anticipate the impact of a

1 Mondragón-Vélez et al. (2011) show that part of the non-wage cost increases is passed on to workers through lower real wages. This result, however, is sensitive to the identity strategy employed.

payroll-tax reduction on the level of employment. Regarding the impact on composition, the evidence suggests that a payroll-tax reduction such as is envisaged in the tax reform benefits formal wage employment, regardless of the effect on aggregate employment. As new information on labor-market behavior becomes available, it will be possible to make a proper evaluation of the impact of the recent tax reform on the labor market<sup>2</sup>.

## References

Albrecht, J.; Navarro, L.; Vroman, S. (2008). "The Effects of Labor Market Policies in an Economy with an Informal Sector", Washington, D. C.: Georgetown University.

Arango, L.; Gómez, M.; Posada, C. (2009). "La demanda de trabajo formal en Colombia: determinantes e implicaciones de política", Borradores de Economía, Banco de la República.

Arango, C.; Pachón, A. (2004). "Minimum Wages in Colombia: Holding the Middle with a Bite on the Poor", Borradores de Economía, Banco de la República.

Bell, L. (1997). "The Impact of Minimum Wages in Mexico and Colombia", *Journal of Labor Economics*, vol. 15, núm. 3, pp. S102-S135, julio.

Botero, J. (2011). "Desempleo e informalidad en Colombia: un modelo de equilibrio general computable", documento interno, Universidad Eafit, Medellín.

Cárdenas, M. (2012). "Reforma tributaria, 2012" (presentación) [en línea], disponible en: <http://www.minhacienda.gov.co/portal/page/portal/HomeMinhacienda/recaudodeimpuestos/Reforma-tributaria-2012/2012-10-09%20Reforma%20Tributaria.pdf>, octubre de 2012.

Cárdenas, M.; Bernal, B. (2004). "Determinants of Labor Demand in Colombia, 1976–1996", en *Law and Employment: Lessons from Latin America and the Caribbean*, NBER Chapters, pp. 229-272 National Bureau of Economic Research, Inc.

Gruber, J. (1997). "The Incidence of Payroll Taxation: Evidence from Chile", *Journal of Labor Economics*, University of Chicago Press, vol. 15, núm. 3, pp. S72-101, julio.

Iregui, A.; Melo, L.; Ramírez, M. (2011). "Rigideces de los salarios a la baja en Colombia: evidencia empírica a partir de una muestra de salarios a nivel de firma", en *Formación de precios y salarios en Colombia*, tomo II, Bogotá: Banco de la República.

Kugler, A.; Kugler, M. (2008). "Labor Market Effects of Payroll Taxes in Developing Countries: Evidence from Colombia", NBER Working Papers, núm. 13855, National Bureau of Economic Research, Inc.

Maloney, W.; Núñez, J. (2004). "Measuring the Impact of Minimum Wages. Evidence from Latin America", en *Law and Employment: Lessons from Latin America and the Caribbean*, NBER Chapters, pp. 109-130, National Bureau of Economic Research, Inc.

Mondragón, C.; Peña, X. (2011). "Rigideces laborales y salarios en los sectores formal e informal en Colombia", documento Cede, Universidad de los Andes.

Mortensen, D.; Pissarides, Ch. (1994). "Job Creation and Job Destruction in the Theory of Unemployment", *The Review of Economic Studies*, vol. 61, núm. 3, pp. 397-415, Oxford: Oxford University Press.

Nickell, S. (1997). "Unemployment and Labor Market Rigidities: Europe versus North America", *The Journal of Economic Perspectives*, vol. 11, núm. 3, American Economic Association.

Santamaría, M.; García, G.; Mujica, A. (2008). "Los costos no laborales y el mercado laboral: impacto de la reforma de salud en Colombia", documento de trabajo, núm. 43, Fedesarrollo.

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2 A thorough analysis should take into account the wage wedge, that is, the difference between post-tax real wages received by the employee and the cost to the employer. The wage wedge is the inverse function of the sum of payroll, income and consumption taxes. Hence, if the reduction in payroll taxes were fully offset, for example, by an increase in income tax, the effect on the wedge (and the labor market) would be neutral. Since the tax reform includes reductions of the withholding tax for persons earning less than ten times the minimum wage, and since according to estimates by the Bank's technical team the aggregate price effect of changes to VAT will not be inflationary, the effect of the reduction of payroll taxes will be to decrease the size of the wage wedge (Nickell, 1977). Another factor to take into account is that the net effect of the profit tax that is to replace the parafiscal taxes will be felt mainly by non-labor intensive sectors. According to the Ministry of Finance, labor-intensive companies will pay less taxes in the aggregate. Botero (2011) considers the fiscal and general equilibrium effects of eliminating the parafiscal taxes. The analysis presented in this Box may therefore be regarded as valid, even when the impact of the tax reform in its entirety is taken into account. For although the reform was conceived as fiscally neutral, its compositional effects and sectoral nature suggest that the points made above are valid.



## IV. MEDIUM-TERM FORECASTS

**The growth forecast for 2013 has not been significantly altered** in this Report. Colombia's economy will grow a little faster this year than it may have done in 2012.

**In 2013 household consumption will continue to grow at** rates similar to its historical average, while investment should perform better than it did last year.

**It is still highly probable that inflation will be in the range** of 2.0%-4.0% in 2013 and converge to the long-term target (3.0%) in 2014.

**Risks to growth and inflation in Colombia continue to** shave a downside bias because of the hazards still surrounding world economic stability. There is also much uncertainty about investment behavior in construction and civil works.

### A. ECONOMIC GROWTH

The following economic-growth forecasts for 2013 are not significantly different from what was projected in the previous Inflation Report. The most probable scenario still points to an expansion of around 4.0%, close to the average since 2000 (4.1%), implying faster growth in 2013 after the poor performance observed in the third quarter of 2012 and the weak result expected for the fourth.

The new estimates for 2013 still depend closely on what may happen in the international context, particularly in the euro area and in the United States. But there is now less uncertainty, and there are fewer risks of a strong contraction in the world economy. The low scenario presented in the September Report has, accordingly, been revised up. An important domestic factor is uncertainty regarding growth in items such as public consumption and investment in civil works. There are, however, some signs of how they may evolve in 2013.

*The most probable growth scenario still points to an economic expansion of around 4.0%.*

*An important factor is uncertainty regarding growth in civil works and public consumption.*

The central scenario assumes a slightly lower growth for the main trading partners than may finally be recorded for 2012 or was expected in the previous *Report*. Moreover, commodity-price forecasts have been revised down, as discussed in Chapter I. The terms of trade could therefore be expected to be lower than or equal to their level in the past two years. This should have some bearing on national income and limit the possibilities of growth in public and private spending.

*Investment in items other than civil works and building construction is forecast to expand in 2013 at much the same rates as in 2012.*

Regarding domestic variables, the central scenario assumes that investment in civil works and building construction will grow faster than may have been the case in 2012. Civil works investment is forecast to expand at annual rates of some 4.0%, which though not comparable with expansion in 2011 does imply robust recovery relative to 2012. This assumption is supported by expectations of greater budget execution by local governments, in the second year of their term of office, and by release of royalty funds, which were held back in 2012 pending the entry into force of the General Royalties System. There are also expectations of fewer bottlenecks in issuing environmental permits, greater progress in public infrastructure works nationwide, the start-up of new projects under the fourth-generation contracting regime (the first contracts are due to be awarded in March), and continuation of expansion programs in the mining-energy sector.

Building construction is also projected to improve relative to its possible growth in 2012, most particularly by reason of the government's program of social-housing construction. Although there have been setbacks in issuing permits under this program, such delays are expected to be resolved in the course of the year. Hence, the central scenario projects a growth of around 5% for building construction for the whole of 2013.

All other components of gross fixed capital formation are forecast to expand in 2013 at much the same annual rates as in 2012. This forecast is based on: i) projections that inflows of foreign direct investment will continue to be strong and will be directed not only to the mining sector, but also to commerce and transport; ii) important expansion plans for the mining-energy sector in 2013, involving high investment in transport machinery and equipment, in line with projected investment in civil works; and iii) ample domestic funding facilities in a context of low real interest rates for companies.

*Government and household consumption should grow at an annual rate close to the historical average.*

Growth in total consumption is not expected to be much different from what it may have been in 2012. Final government consumption and household spending should continue to expand at rates close to the historical average. Specifically, average growth in household spending for 2013 is projected to be similar to the rate recorded for the second half of 2012. The following factors, among others, could account for this continued growth: i) expectations that the economic situation of households will remain stable at adequate levels and not be affected by the international context described in the central scenario presented in Chapter I of this *Report*; ii) job creation and formalization providing better working conditions and wages, thanks to the lowering of parafiscal taxes under the new tax reform, with the result of improving the quality and level of aggregate household consumption;



*Mining and farming are expected to be the most dynamic sectors in 2013.*

iii) bank credit continuing to expand at double-digit annual rates, driven mainly by ample liquidity from the central bank and by the monetary-policy decisions taken since the end of 2012; and iv) inflation lower than forecast in 2012 and early 2013, implying higher purchasing power for families and higher real household income.

There will, however, be fewer factors boosting private consumption in 2013 than in the past, since no increase is expected this time in the terms of trade. Moreover, the level of workers' remittances from abroad should be similar to or less than levels in 2012 and other years, plus the fact that household debt is now greater. Lastly, the tax reform could make households feel uncertain about their income level, causing them to postpone some types of consumption until the impact of the reform becomes clearer; and households are also liable for municipal improvement taxes decreed in some cities.

*Oil and coal production will recover, but their growth rates will not reach the high levels of previous years.*

Imports are expected to decelerate slightly in 2013, after their strong expansion in previous years, which substantially increased their share of GDP. Exports should grow at much the same rate as in 2012, though they may continue to be influenced by uncertainty in the external sector and weak external demand. Mining exports will grow faster, in real terms, than they did in 2012, provided the transport bottlenecks are cleared and there are no public-order problems.

Considering GDP by sector of activity, mining and farming are expected to be the most dynamic sectors in 2013, expanding at higher rates than the economy as a whole. Construction and manufacturing are projected to pick up, after their poor performance in 2012, but there is still much uncertainty about them. Commerce and transport are forecast to grow by more than 4% in 2013, continuing the significant increase they recorded last year.

Mining is seen as recovering from the public-order and transport problems that disrupted the chain of oil and coal production, but their growth rates will not reach the high levels of previous years (over 10%). As this *Report* was being prepared, oil-production figures for January 2013 were released, showing that average production of crude had topped a million barrels a day; this lends support to favorable expectations about the sector.

Coal is Colombia's second biggest export. The production target for 2013 is 98 million tonnes, up from some 92 million tonnes recorded for 2012<sup>8</sup>, but despite this projected acceleration the sector is not expected to resume the double-digit growth rates of previous years.

*Farming is forecast to grow well, led by coffee production.*

Farming, too, is forecast to grow well, led by coffee production, which is projected to reach the producers' target of 10 million bags (60 kilos each), up from 8 million in 2012. According to the National Federation of Coffee Growers, coffee output

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<sup>8</sup> In the first weeks of 2013 Cerrejón, one of the major coal-mining companies began face union problems that could curb its production, a factor no envisaged in this *Report's* forecasting.

*Industrial activity may be very uneven in 2013.*

in January 2013 was 877,000 bags, 64% higher than a year earlier. Note that in the past five years coffee plants have been renewed on more than 460,000 hectares of coffee farms, which should raise their average productivity. Furthermore, the government has been implementing an assistance plan (of about 150 billion pesos) for coffee farmers, projected to extend over the first half of the year. All this points to a better farming-sector performance for 2013 as a whole, relative to 2012.

Lastly, uncertainty about construction and manufacturing complicates the domestic outlook. As stated earlier, the construction sector is expected to show recovery both in buildings and in civil works. In the case of building construction, it is estimated that under the government's current social-housing program 100,000 units will be provided over the next two years. The boost in civil works is expected to come from road construction, particularly "mega roads" and double-lane roads<sup>9</sup>, and from continuation of various projects for electricity infrastructure and oil and gas transportation.

In the case of industry, the trend observed in the second half of 2012 clouds the outlook for the sector. Although manufacturers have diversified their export destinations and made numerous efforts to renew their installed capacity so as to improve productivity, some industries continue to face aggressive import competition, according to the latest survey by ANDI (see Box 2).

Industrial activity may be very uneven in 2013, because there are fewer working days in the first quarter (Easter Week falls in March), which may have a negative impact on production and extend its downtrend at least over the first part of the year. This situation reverses in the second quarter, when results should be substantially better. By the second half of the year better external and domestic conditions are expected to further raise industrial production. Accordingly, for 2013 as a whole, industry is projected to show positive but moderate growth, amounting to a modest recovery relative to 2012.

Based on the foregoing, the growth forecast for 2013 in the most probable scenario has not been altered, remaining at around 4%. But the forecast range has been reduced in this Report, since the likelihood of the world economy deteriorating sharply in 2013 is significantly less than it was in the previous *Inflation Report*. Thus, Colombian GDP growth is projected to be in the range of 2.5% to 4.5%, compared with 2.0%-5.0% three months ago. The width of the current range is still large, however, owing to great uncertainty about civil works and building construction. The floor and ceiling of the forecast range are associated with the low and high scenarios of the international context described in Chapter I.

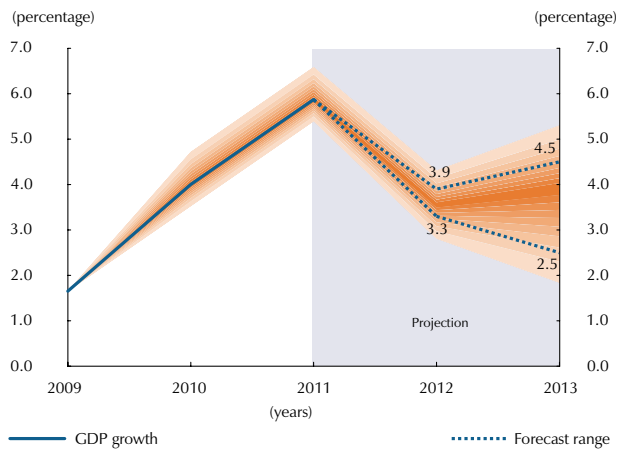
*GDP growth in 2013 is forecast to be in the range of 2.5% to 4.5%.*

The balance of risks is shown in the fan Graphs of growth (Graphs 37 and 38). It suggests that downside risks will become more important; signifying a not negligible

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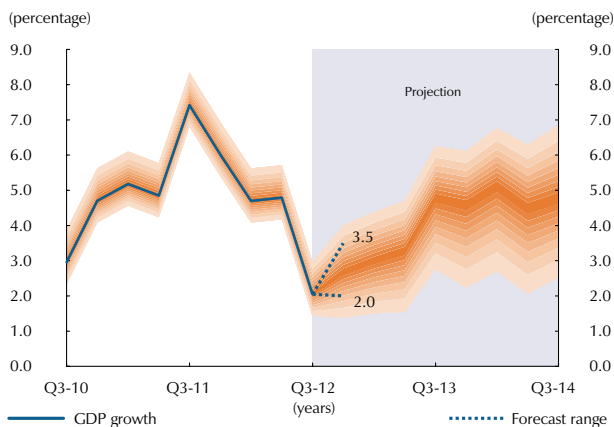
<sup>9</sup> In March 2013 the bidding process will be started for awarding at least four of the thirty road projects to be delivered in the next two years. This would be part of the fourth-generation concessions. In all, some 8,000 km of new roads are to be built, of which about 20% would be double-lane highways.

Graph 37  
Fan Graph of GDP growth  
(annual average)



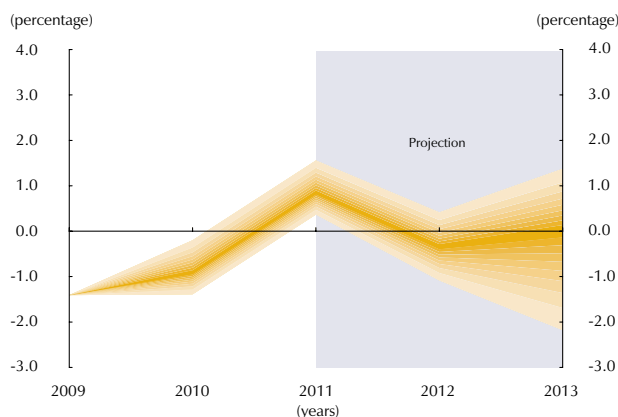
Source: DANE. Calculations by Banco de la República.

Graph 38  
Fan Graph of annual growth in quarterly GDP



Source: DANE. Calculations by Banco de la República.

Graph 39  
Fan Graph of output gap



Source: DANE. Calculations by Banco de la República.

likelihood that GDP growth in 2013 will run below the central path. The main downside risk continues to a weaker world growth than expected in the central scenario. In contrast, upside risks are connected with lower raw-material import costs and improvement in spending on civil works, building construction and public consumption.

Growth projections for 2012 point to a negative output gap, as against a positive gap in 2011. Similarly, the output gap is expected to be even more negative in 2013 than it was in 2012, though it should tend to close in the second half of the year as growth improves. Graph 39 shows the output gap for 2012 ranging between 1.0% and 0.4%, and for 2013 ranging between 2.0% and 1.4%. The current path is lower than the path presented in the previous *Inflation Report*.

The new estimates point to a closed labor-market gap for 2012, which may have turned positive when recorded unemployment moved very near to the Nairu rate. Given the growth projections for 2013, the labor-market gap is expected to be even more positive than in 2012. A possibly looser labor market may lead to lower wage increases and these, in turn, to lower inflationary pressure.

## B. INFLATION

### 1. Forecasts

Lower fourth-quarter inflation in 2012 and less inflationary pressure in early 2013 have made it necessary to revise down the September Report's inflation forecasts for 2013, particularly the projections for the first half of the year. In contrast to what was expected three months ago, the central path of the Bank's model now suggests that annual consumer inflation will run below 3% all through 2013, but with a rising trend in the fourth quarter, which may extend into early 2014.

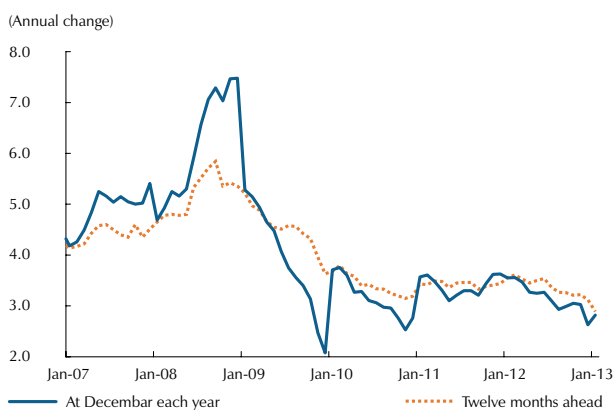
Various factors account for the projection of a lower central path:

- First, international commodity prices are assumed to be lower in this *Report* than they were in the previous one. As stated in Chapter I, current international price projections for oil, coal, minerals and food are lower than those of three months ago and below the averages recorded for 2012. Moreover, last year there was a greater pass-through of external prices to domestic ones, owing among other things to greater competition and supply in the local market and lower expectations of depreciation. These conditions could persist in 2013, thereby limiting increases in food and regulated prices.
- The Colombian economy was weaker in the second half of last year than it is projected to be in 2013. Hence, the downward revision of estimates of the output gap (see the first part of this Chapter). Available information points to the output gap having been in negative territory at the end of 2012. This, together with a central projection for growth of around 4% in 2013, suggests that there will be scant pressure on consumer prices this year.
- The labor market is projected to be looser than in previous forecasts, and wage rises are lower. In particular, the minimum wage, an important referent for setting prices and wages in Colombia, was raised by 4.0% for 2013, a lower rate than last year's rise. Moreover, the tax reform may result in reductions of the costs to be borne by employers for hiring a large number of workers (see Box3 for reduction of parafiscal taxes).

The cut in the price of fuel that came into force with the tax reform at the start of 2013 was not a certainty when the above forecasts were being prepared. It involves lower adjustments to this item, which represents 2.9% of the consumer basket, and will mean lower costs in providing transport services and lower adjustments to transport fares.

Low inflation at the end of the year means the existing indexation formulae for various prices in the economy (such as housing rents) will either not be activated or be activated at lower rates than foreseen in previous *Reports*.

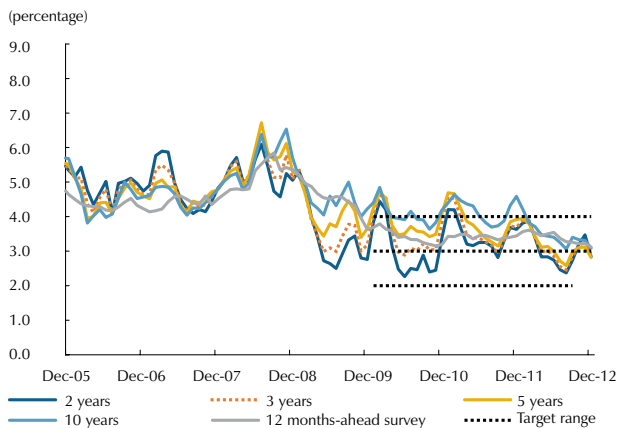
Graph 40  
Annual inflation forecasts by banks and stockbrokerage firms  
(annual change)



Source: Banco de la República.

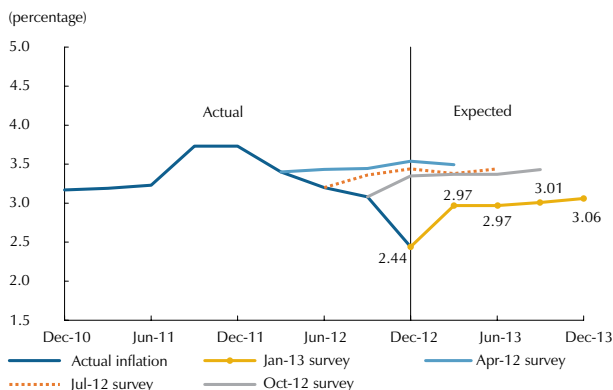
Lastly, the unexpected decline in inflation expectations in the final months of the year, probably below the 3% quantitative target (as suggested by surveys and estimates by the Bank) will also help to curb price and wage rises over the course of 2013. So, for instance, the monthly survey of financial-market analysts shows the expected inflation rate for December 2013 to be 2.8% (Graph 40). Similarly, estimates based on TES-securities interest rates (fixed vs. UVR: real constant value unit) indicate that expectations for 2, 3 and 5 years ahead fell below 3% in early 2013, to an all-time low (Graph 41). Only the quarterly survey of businessmen, labor-union members and academics presented twelve-month ahead results (3.1% at the

Graph 41  
Inflation expectations derived from TES securities  
(2, 3, 5 and 10 years ahead)  
(monthly average)<sup>a/</sup>



a/ Nelson and Siegel methodology.  
Source: Banco de la República.

Graph 42  
Actual and expected inflation  
(three, six, and nine months ahead)  
(annual change)



Sources: DANE and Banco de la República.

*Annual change in regulated prices should run below the target for much of 2013.*

Accordingly, annual change in regulated prices should remain close to or below the floor of the long-term target range during much of 2013, but converge at the end of the year and in 2014 to the 3% quantitative target. This behavior is in contrast to what has been observed in previous years, when price increases in

beginning of January) higher than the target, though still lower than the October results (3.4%). The quarterly surveys' expectations are usually higher than the monthly surveys' (Graph 42).

Besides headline consumer inflation and core inflation too, represented here by non-food inflation, will stay below 3% all through 2013, according to the central scenario of the projections.

Breakdown of non-food CPI projections by subgroup shows the biggest annual change in regulated CPI. The regulated prices of fuel, electricity, household gas and municipal public transport are linked to international oil-price movements. For this *Report* the average Brent benchmark price for 2013 is projected in the central scenario at \$105 a barrel (down from \$108 envisaged in the previous *Report*). This new level is lower than the \$112 a barrel recorded for 2012 and should result in low price adjustments to the above items, lower in any case than those made in previous years, assuming that depreciation pressure on the peso will be moderate.

Gasoline-price projections include a substantial reduction brought about by the entry into force of the tax reform, which has replaced the value added tax and the global fuel tax by the national gasoline and ACPM tax (see Box 4). The reduction (of 200 pesos or -1.7% of the year-end price) began to apply from January 1, 2013<sup>10</sup>, and will cause the respective CPI to trend down in the early months of the year, provided the international price of oil and the exchange rate undergo adjustments as projected in this *Report*. As with other similar decisions, the effect in this case occurs in one month only and will tend to reduce the annual change in gasoline CPI during one year, thereby producing a transitory direct impact on inflation. But if it affects expectations or the formation of other prices, it may have a longer-lasting impact on inflation.

10 Note that ACPM is not included in DANE's family basket.

*Re-estimation of the output gap and changes in expectations have lowered the projection for annual variation in non-tradable goods.*

regulated goods and services were one of the components that put the greatest upward pressure on consumer inflation.

Projections for tradables and for non-tradables, excluding food and regulated items, have also been revised down but to a lesser extent. Annual change for tradables is forecast to be close to 1% over 2013, similar to the rate observed in 2012. This forecast assumes little pressure from the exchange rate or international inflation, because international prices for manufactured goods, oil and transport are not expected to rise, given the projected weakness in world demand. The central path of this *Report* does not include the potential upward impact of higher duties imposed by the government on imports of clothing and footwear<sup>11</sup>, and it assumes that the direct effects on consumer prices of the entry into force of free-trade agreements with the United States and Canada last year will be felt very gradually.

Re-estimation of the output gap and the fall both in inflation and in inflation expectations at the end of the year have resulted in the projections for tradables being lower than those presented in the *September Inflation Report*. Although the central growth forecast for this year has not been greatly altered and some acceleration is expected relative to the estimated result for 2012, the demand shock observed in the second half of the year may have generated some excess production capacity, which may persist for several quarters. Demand pressure is now expected to be lower, allowing the annual change in tradables to converge more rapidly to 3%.

There is, in addition, the fact that non-tradable prices have a high indexed component, which makes their behavior tend to be more autoregressive than the behavior of other CPI baskets. Inflation falling below the target at the end of 2012 should therefore result in lower price rises in 2013: this is the case of housing rents, which by law are adjusted by the previous year's observed inflation upon renewal of leases. Note that housing rents are the biggest component of the consumer basket (18.6%).

*Projections for food inflation have been reduced owing, among other things, to lower pressure expected from international prices.*

Furthermore, non-tradable price rises should be moderated by reason of this year's lower minimum-wage rise. A large part of non-tradables consists of low- or medium-skilled labor-intensive services, where wage increases are based on the minimum wage, and where the labor market is expected to be looser.

The September Report's projections for food CPI have also been revised down considerably. Lower-than-expected results at December 2012, lower pressure

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11 As this *Report* was being prepared the government announced the introduction of a mixed tariff for clothing and footwear, to come into effect from the first of March 2013. The tariff consists of a 10% ad-valorem tax and a more specific tax of \$5 per kilo of clothing or per pair of shoes imported. This tariff is to be in effect transitorily for one year, at which time the results will be evaluated. It will not apply to imports from countries with which Colombia has free-trade treaties. It is estimated that 70% of clothing and footwear imports come from countries with which Colombia has no trade agreements. (Ministry of Industry and Commerce, Decree 0074 dated January 23, 2013).



expected from international food prices, and lower pass-through to domestic prices have influenced the downward revision.

However, the annual change in food prices is estimated to have fallen to a minimum in December 2012 and will tend to rise in 2013, particularly over the second half of the year. Given the farm-supply cycle, it is projected that at some point perishable-food prices will rise in the first half of the year, causing the annual change in the respective CPI to accelerate. Beef prices are also projected to rise, given that from the end of 2012 there is evidence that a new phase of cattle retention was under way.

Food projections do not take into account the Ministry of Agriculture's measures, announced at the end of January, for protecting the country's dairy sector against powdered-milk imports from Argentina. These measures could boost the prices of dairy products<sup>12</sup>.

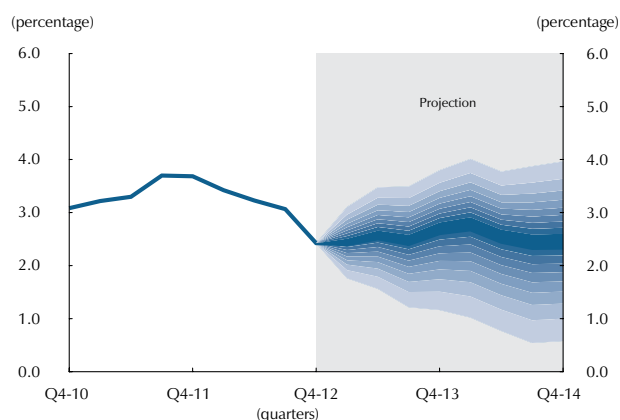
*The balance of risks still has a downside bias because of great uncertainty surrounding the international context and the sector of construction and civil works.*

## 2. Balance of risks

Graphs 43 and 44 present the fan charts of the balance of risks estimated for headline consumer inflation and for non-food inflation present. Great uncertainty about the international context and doubts regarding investment in construction and civil works have together contributed to keeping the width of the forecast intervals for inflation in 2013 about as large as it was projected in the previous *Report*. The balance of risks still has a downside bias.

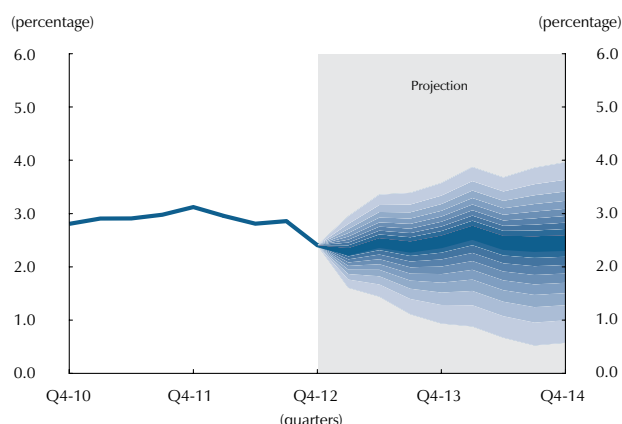
The main downside risks considered in this *Report* are:

Graph 43  
Fan chart of headline inflation



Source: DANE. Calculations by Banco de la República.

Graph 44  
Fan chart of non-food inflation



Source: DANE. Calculations by Banco de la República.

12 In this connection see <http://www.minagricultura.gov.co/inicio/noticias.aspx?idNoticia=1882>

*Regulated prices may fall by more than expected, owing to improvement in the world supply of oil*

- *Slower world growth than is envisaged in the central forecast.* Although there is considerably less likelihood of a deep crisis occurring in Europe and in the world economy, world growth is still at risk of being less than projected in the central scenario, owing to persisting structural problems in European countries. In particular, the possibility cannot be ruled out that the credit channel will continue to be affected in Europe, and that the political cycle in countries such as Italy and Germany will have an impact on market confidence. In the US, the fiscal-cliff problem and the issue of the borrowing limit have yet to be fully resolved. The implications of slower world growth for Colombia's economy would be lower export income, owing to lower demand and falling terms of trade, and lower capital inflows. The exchange rate may depreciate by more than is envisaged in the central scenario, pushing up tradable prices, but downward pressures from weaker external and domestic demand are likely to be stronger, as they were in the 2008-2009 crisis.
- *Lower regulated prices than those projected in the central scenario.* The world supply of oil and other commodities has increased in recent quarters, thanks to investment and exploration in various countries in response to historically high prices. The US stands out for its initiatives to develop other sources of energy to replace oil, which are producing results, as in the case of shale-gas exploitation. Canada has dealt with its transport bottlenecks and is in a position to expand fuel exports. In addition, Japan has reactivated several nuclear energy plants<sup>13</sup>. In a setting of weak world demand and high inventories, as observed in recent months, it is not unlikely that the price of oil will fall below this Report's central-scenario prediction. As a result, the price of fuel may fall in Colombia, and with it the costs of closely related goods and services.
- *The impact of the tax reform on prices.* The tax reform should have a one-time effect of reducing prices, which would be reflected transitorily in annual inflation. This shock has not been incorporated in this Report's central path of inflation, except for the lower price of gasoline referred to earlier. The part of the tax reform's impact not taken into account may reduce directly or indirectly (through lower costs) the prices of some goods and services, including several foodstuffs. From the first of January this year VAT has been reduced on some services, including prepaid health care, local telephony and restaurants. VAT has also been lowered on vehicles, computers, sugar and chocolate, and on farm machinery and inputs (see Box 4).

The main upside risks are:

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13 See Economist Intelligence Unit "World Commodity Forecasts: Industrial Raw Materials" January 2013.



- *Stronger domestic growth than expected.* Given the volatility shown by public consumption and particularly by civil works, it is possible that these two components will expand more strongly than is projected in the central path of GDP and inflation forecasts. It is also possible that the impact of the government's announced free-housing program, which is already under way, has been underestimated, owing to the difficulty of measuring its contribution to value added in the economy. All this may lead to higher growth in demand, a greater output gap and stronger demand pressure.
- *The farming cycle and its effect on food prices.* Although the possibility of the El Niño climate event occurring this year has been rule out, there is still a risk of perishable-food prices rising, on account of the medium-term cycle of farm production. The relative prices of perishables have decreased in recent quarters, and this could be a disincentive to supply in 2013, causing higher price rises than last year's. Although this situation is envisaged in the central forecast path, its intensity may prove to be greater than projected (as has occasionally occurred). In principle, the impact on inflation should be transitory and prices should return to their normal levels by the end of the year or in early 2014, but if expectations are affected it may last longer.

*The likelihood of inflation converging to the target range continues to be high in 2013 and 2014 .*

Based on the foregoing, it is still highly likely that headline inflation will be in the range of 2% to 4% in 2013 and converge to the long-term target of 3% in 2014. Note that the forecast path presented in this *Report* assumes an active monetary policy, with interest rates being adjusted to ensure that the long-term inflation target is met.

## Box 4 CHANGES TO VAT UNDER THE NEW TAX REFORM

Edgar Caicedo García\*

Colombia's new tax reform (Law 167 dated December 26, 2012) has introduced a number of innovations that could affect future movements in the consumer price index, namely: changes to the value added tax (VAT) on various products, creation of a consumption tax, and changes to fuel taxes. Each of these three reforms is analyzed in detail in this Box, and an attempt is made to quantify the inflationary impact of the new tax law.

### 1. Changes to VAT

The new tax reform came into force on the first of January, 2013 and includes the following main changes to the value-added tax system<sup>1</sup>:

- The new law has simplified collection by reducing the number of VAT rates to three (0%, 5% and 16%), from seven before (0%, 1.6%, 10%, 16%, 20%, 25% and 35%).
- The sale of cattle on the hoof changes from being excluded from VAT to being exempt from VAT<sup>2</sup>.
- Some processed meats are taxed at a VAT rate of 5%, down from 16%.<sup>3</sup>
- AT on seeds, machinery, tools and inputs for farming has been reduced to 5% from the previous rates of 16% and 10%.
- The VAT rate has been increased from 1.6% to 16% on cleaning, security and temporary-employment services, but only on the component of administration expenses, unforeseen costs and profits. Where these services are

provided by handicapped persons, VAT is applied at 5% on the gross value of the service.<sup>4</sup>

- Tourist accommodation services and building rents other than for housing are now taxed at a VAT rate of 10%, down from 16%. Horizontal-property firms charging for parking in communal areas now have to pay a 16% VAT.
- The VAT rate has been reduced from 10% to 5% on the marketing of solid sugar, coffee (including toasted decaffeinated), cocoa, and uncooked pasta that contain egg. The rate has also been reduced on basic foodstuffs for industrial use, including notably rice, corn, wheat, oats, sorghum and raw flours and oils. VAT on pre-paid health care and health insurance has also been reduced from 10% to 5%.
- In local telephony, the first 325 impulses billed each month to low-income subscribers (levels 1 and 2) are excluded from payment of VAT. Also excluded from VAT are: laptop and desktop computers not costing more than 82 tax value units (UVT); mobile devices not costing more than 43 UVT; and anticonceptives for women.

### 2. Introduction of the consumption tax

The new tax reform has introduced the consumption tax as a non-discountable levy, in contrast to VAT. The excise tax will be charged on services providing food and beverages, on cell-phone services, and on vehicles. It will not be applied in the Department of Amazonas and the Department of San Andrés, Providencia and Santa Catalina.<sup>5</sup> Details follow of each case:

- The 16% VAT on restaurant services has been eliminated and replaced by an 8% consumption tax. Franchises continue to be charged the 16% VAT but do not pay the consumption tax.<sup>6</sup>

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\* Staff member in the Programming and Inflation Department of the Bank's Economic Studies Office. The opinions expressed do not necessarily reflect the views of the Banco de la República or its Board of Directors.

1 Note that all marketed goods and services must begin to comply with the new law from January 30, 2013. See Article 69 of Law 1607, dated December 26, 2012.

2 The VAT rate on exempted goods is 0%, which grants the right to discount payments made in respect of VAT. Accordingly, producers of exempted goods will always have a credit balance in respect of VAT payments made on inputs and may apply for such payments to be refunded in full. In contrast, excluded goods and services are not subject to VAT.

3 Sausages of various kinds.

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4 For greater details and discussion see <http://actualicese.com/actualidad/2013/01/28/ley-1607-cambio-el-iva-y-la-retencion-de-renta-para-empresas-temporales-de-aseo-de-vigilancia-y-las-cta/>

5 However, the consumption tax in these Departments is payable on the sale of yachts, sports vessels and private aircraft with an FOB price of more than 30,000 tax-value units (UVT).

6 All individuals and firms providing food and beverage services, such as restaurants, bars, grills, cafeterias, bakeries, ice-cream shops and the like will be on the excluded list (not liable for VAT). But they shall pay the 8% consumption tax if their sales for the respective year exceed 4,000 tax-value units. If the restaurant's gross income is less than 4,000 tax-value units it will not be liable for VAT or the consumption tax. VAT is charged at

- Cell-phone services are subject to a VAT rate of 16%, down from 20%, plus excise consumption tax of 4%.
- VAT has been reduced to 16% on all types of vehicle, from the previous rates of 20%, 25% and 35%. The vehicles described in Articles 73 and 74 of the new law will be subject to the consumption tax of 8% or 16%.<sup>7</sup>

### 3. Adjustments to fuel taxes

The new tax reform has eliminated the Global Tax and VAT on fuel and created a national gasoline and ACPM tax. The new national tax per gallon is set at 1,050 pesos for regular gasoline, at 1,555 pesos for extra gasoline, and 1050 pesos for ACPM. For all other products defined as gasoline or ACPM by the new tax law, other than extra gasoline, the rate will be 1050 pesos per gallon (see Article 168). The savings per gallon resulting from the tax change is estimated at 200 pesos. The rate of the national tax will be adjusted every year on the first of February by the previous year's inflation.

Furthermore, the following products will be exempt from VAT: carburetor alcohol to be mixed with gasoline for automobiles; vegetable or animal biofuel produced in Colombia to be mixed with ACPM for use in diesel engines; and liquid fuels distributed by the Ministry of Mines and Energy in Departments and municipalities located in frontier areas (see Article 173).

### 4. The direct impact of changes to sales taxes on CPI

A simple way of gauging the size of the tax reform's impact on inflation is to modify directly the CPI weighting structure in the same proportion by which prices would rise for products affected by changes or new taxes. To this end, we use the new basket defined by DANE in December 2008 (CPI-08).

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16% on businesses that operate under a franchise, concession or royalty scheme and are registered under the "common regime" of taxation. In this regard, see Articles 78 and 79 of the new tax reform.

7 Vehicles, boats and aerodynes, which were subject before to VAT rates of 20%, 25% and 35%, are now taxed at a uniform rate of 16% under the new law. In addition, an 8% consumption tax has been created on piston motorcycles of a cylinder capacity exceeding 250cc, pick-up trucks, family-type cars, four-wheel drives and yachts and recreational craft with an FOB price of less than \$30,000, including all accessories (see Article 73). Furthermore, a 16% consumption tax has been created on family-type vehicles, four-wheel drives and pick-up trucks with an FOB price equal to or higher than \$30,000, including all accessories. The 16% consumption tax is also charged on balloons and private non-engine aircraft, as well as all classes of aircraft (see Article 74). The national consumption tax shall not be charged on used vehicles over four years old.

Note that the weightings of CPI-08 are based on DANE's income and spending surveys conducted in 2006-2007.

The following algebraic expressions explain the methodological procedure adopted:<sup>8</sup>

$$P_x = \sum_{x=1,n} \delta_x$$

$$P_x^* = \sum_{x=1,n} \delta_x (1 + \alpha_x), \text{ where:}$$

$P_x$ , is the initial level of prices for goods  $x$ , and  $x = 1, \dots, n$

$\delta_x$ , is the weighting of goods  $x$ , and  $\delta > 0$  y  $\delta < 1$

$P_x^*$ , is the final level of prices for goods  $x$

$\alpha_x$ , is the increase in the price of goods  $x$  in the CPI (owing to the change in the VAT rate)

An adjustment ( $\alpha$ ) in the price of any goods ( $x$ ) in the CPI may turn into an inflationary impact, increasing the weighting of goods  $x$  by ( $\alpha$ ), which results in a new price level ( $P_x^*$ ). The new price level is compared with the initial price level ( $P_x$ ), to obtain the percentage increase of  $P_x^*$ .

In this methodology, it is assumed that the whole of VAT, or the tax differential caused by the new law, is passed on to the price paid by the consumer. In the case of goods and services that have a new VAT rate and are also subject to the excise tax, the difference between the old VAT rate and the sum of the new VAT rate and the consumption tax is used.<sup>9</sup> In the case of gasoline, its impact on consumer prices is equal to the percentage that represents the 200 pesos decrease in taxes on the current selling price to the public. Based on the above considerations, the direct impact of the new tax reform is, at most, a fall of 26 basis points in the level of CPI.

It is important to point out that the impact is only a one-time fall and that the estimate given here should be treated cautiously. First, because the methodology employed takes into account only the impact through prices but not quantities. And second, because it does not consider the indirect effects that a change in the price of a good could have through the entire production network.

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8 The methodology is taken from Caicedo and Tique (2012), "La nueva fórmula de la gasolina y su potencial impacto en Colombia", Borradores de Economía, No. 698, Banco de la República, Bogotá, Colombia.

9 For example, in the case of vehicles previously subject to VAT at 25%, but now subject to VAT at 16% plus an 8% consumption tax, there is a 1% fall in overall taxation. Similarly, there is an 8% tax fall on restaurant services, given that the 16% VAT has been eliminated and replaced by an 8% excise tax.

## V. RISKS TO LONG-TERM MACROECONOMIC STABILITY

**In the third quarter of 2012 housing prices continued to rise strongly**, and the current-account deficit widened. At the end of the year the real exchange rate was still appreciating and credit losing pace, albeit from high borrowing levels.

**In an inflation-targeting scheme with a broad horizon**, and given the possible formation of some disequilibrium, monetary policy will need to be gradual so as to avoid any risks to long-term macroeconomic stability.

The recent crises in the United States and Europe have brought into discussion the role of monetary policy in anticipating macroeconomic imbalances in order to prevent future crises. Identifying possible asset overvaluations, credit excesses, unsustainable deficits or misalignment of the real exchange rate from its long-term level has thus become important, in that some of these imbalances have been observed recently in developed countries where inflation is under control and growth close to potential.

Given the difficulty of forecasting with certainty the formation of such imbalances, the economic variables referred to above need to be monitored with some regularity and their follow-up reported in good time so as to correct, or at least avoid, any deepening of the imbalances. In this respect, in an inflation-targeting scheme with a broad horizon, and given the possible formation of some of those disequilibria, monetary policy will need to be gradual in order to avoid any risks to long-term macroeconomic stability.

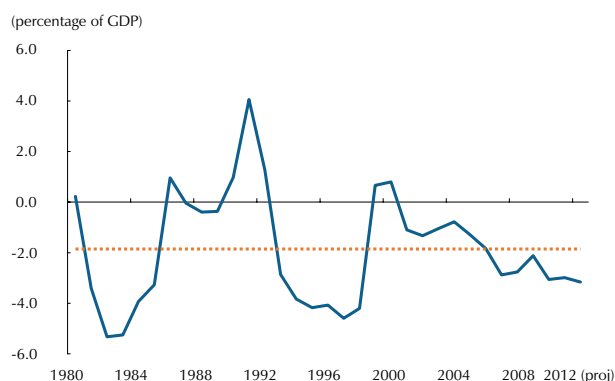
As has been the practice for many years, this Chapter analyzes some of the economic variables regarded as essential to detect macroeconomic disequilibria. Section D presents an update of Colombia's macroeconomic disequilibrium

index; the index is a tool that gives warning signals of an economy's potential vulnerabilities in the event of facing adverse shocks.

## A. CURRENT ACCOUNT AND REAL EXCHANGE RATE

As stated in Chapter I, the deficit of the current account of the balance-of-payment as a percentage of GDP accelerated from an average of 2.7% in the first half of 2012 to 4.0% in the third quarter (Graph 45). This occurred at the same time as GDP slowed significantly in the same period.

Graph 45  
Current account and historical average



(proj): projected  
Source: Banco de la República.

Based on preliminary estimates of national-account figures to the third quarter of 2012, annual consumer growth, which is close to its historical average and from already high spending levels in 2011, helped to reduce household saving. The reduction in saving compensated for the sharp fall observed in investment (mainly in civil-works and building construction) and accounted for the widening of the current-account deficit in the third quarter.

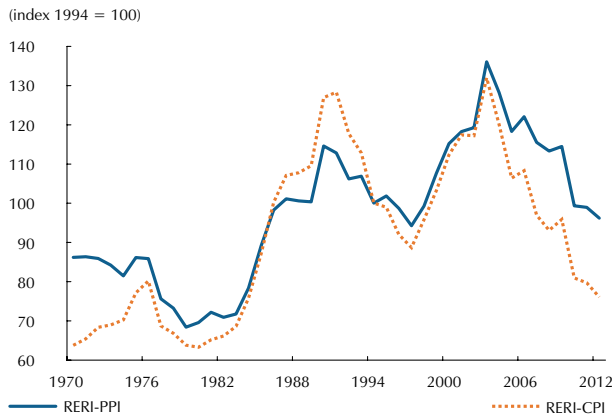
The behavior of private consumption in pesos reflected in part the recent growth in imports in dollars, which was driven in the second half of the year (to November) by external purchases of consumer goods, particularly nondurables. Spending on nondurables, which represents over 30% of total private consumption in GDP, gathered pace in the third quarter of 2012.

Household spending was supported by strongly growing credit, which tended to slow down in the fourth quarter. Regarding investment, in 2012 capital-goods imports in dollars slowed significantly, except for machinery and equipment for industry, which grew faster in pesos in the third quarter, according to national-accounts figures (Table 4).

As pointed out in Chapter II, consumption is expected to have moderated in the fourth quarter, pushing up saving and offsetting some recovery in investment. This is consistent with a lower current-account deficit than was observed in the third quarter. Assuming the continuation of these trends it is likely that the deficit for the whole of 2012 was led once more by the private sector's saving-investment imbalance.

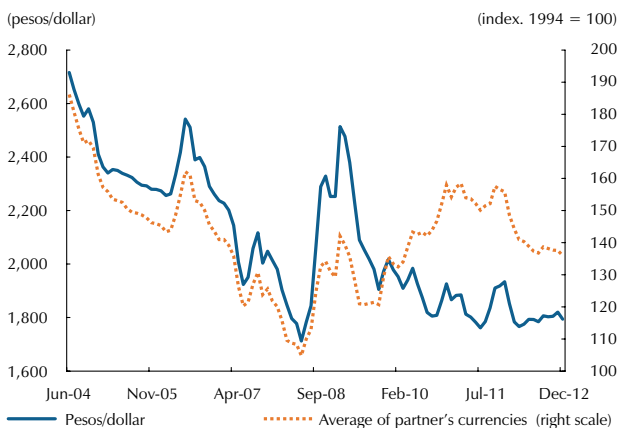
In 2012 the real exchange-rate index (RERI) deflated by PPI appreciated by 2.8%, and the index deflated by CPI by 4.6%, in annual terms. As a result RERI-PPI stands at the lowest levels since 1998 and RERI-CPI has fallen to levels not seen since 1984 (Graph 46). The competitiveness indicator of Colombian exports (RERI-C), representing the multilateral real exchange rate with respect to countries competing

Graph 46  
Real exchange-rate indices



Source: Banco de la República.

Graph 47  
Nominal exchange-rate indices



Source: Banco de la República.

in the US market with Colombia's main exports (coffee, bananas, textiles and flowers), appreciated by 5.5% in 2012. The Colombian peso thus recorded three consecutive years of real appreciation.

In 2012 the nominal peso/dollar exchange rate fell from an average of 1,848 pesos to 1,798 pesos, resulting in a nominal appreciation of 2.7%. The peso appreciated by 9.6% against the average of the currencies of the countries Colombia trades with<sup>14</sup> (weighted by nontraditional exports) (Graph 47). Taking into account only the countries Colombia competes with in the US market, the appreciation was 6.5% against the average of their currencies.

Movements in relative prices (domestic against external prices) offset in part the pressures from appreciation. Thus, both CPI inflation and PPI inflation in Colombia were lower than the external rates: 3.2% against 9.0%, and 0.3% against 7.9%, respectively.

## B. MOVEMENTS IN HOUSING PRICES

To the third quarter of 2012 the price indices for both used and new housing continued to grow strongly, from levels that had been historically low. This behavior was driven in particular by price growth in Bogotá. According to the used housing price index, since 2009

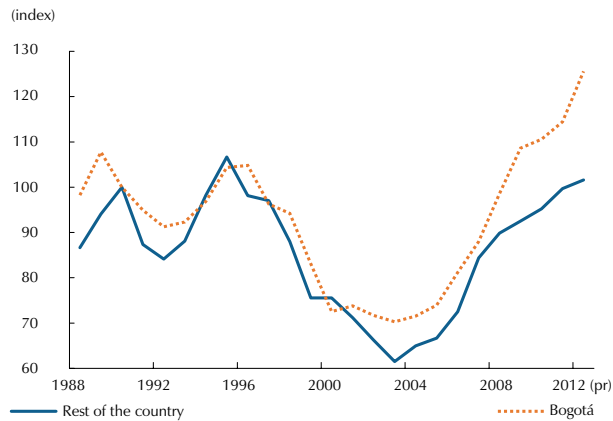
prices in Bogotá have been above the peak recorded in the nineties, growing at an average rate higher by 3.2 percentage points (pp) than the averages for Medellín and Cali, which are still slightly lower than in 1995. Prices for new housing, both in Bogotá and in the rest of the country, began to rise again, recording in 2012 the highest levels of the series. Since September 2008 the growth rate of the new housing price index for Bogotá has, on average, been 2.2pp higher than the rate for the rest of the country. (Graph 48)

According to figures from the Colombian Chamber of Construction (Camacol), the above price behavior has taken place in a context in which growth in new housing supply has varied from region to region of the country. Thus, while in Bogotá the supply of new housing has been falling since December 2012, in the

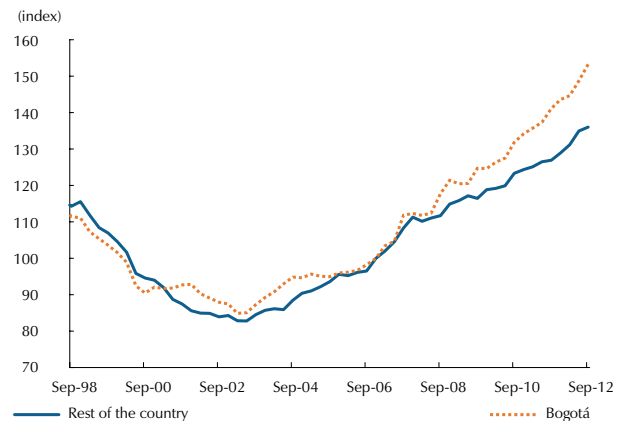
14 The group of trading partners is not the same as the group of countries with which Colombia competes in terms of exports.

Graph 48

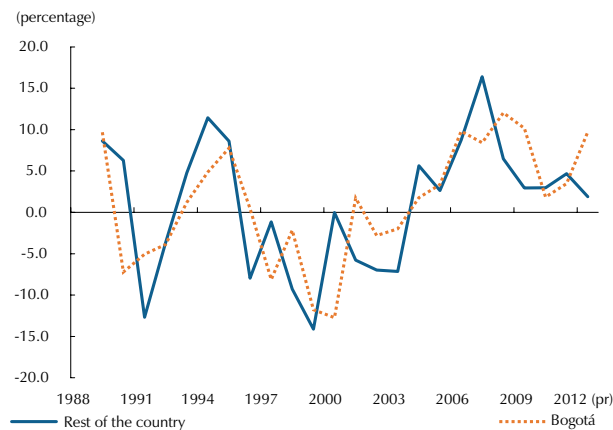
A. Used-housing price index, relative to CPI



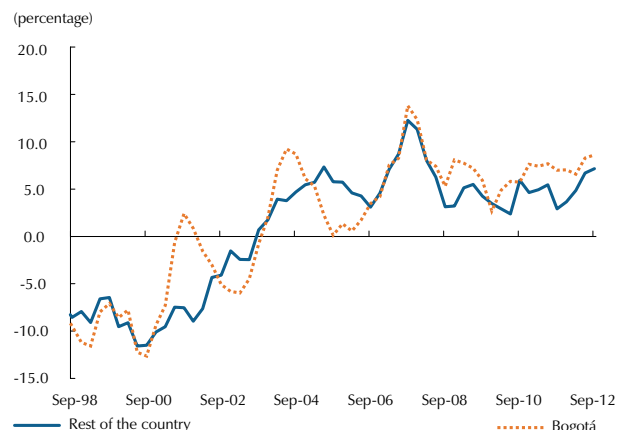
B. New-housing price index (DANE), relative to CPI



C. Annual growth in used-housing price index



D. Annual growth in new-housing price index (DANE)



(pr): preliminary.  
Source: Banco de la República.

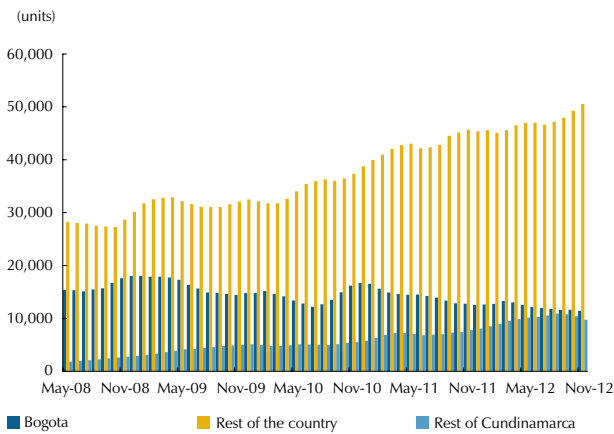
rest of the country the supply has been abundant and rising at annual rates of around 10% (Graph 49).

The trend in the number of housing starts has been falling in all regions: in Bogotá since late 2010, in the rest of the country since early 2011, and in Cundinamarca towns near Bogotá since the middle of last year. This indicator is still high for the rest of the country, though for Bogotá it is at the lowest level recorded in the past five year. Further decline in starts over the coming months could slow down housing supply in the rest of the country and extend the fall of supply in Bogotá. In line with this, constructors' expectations have been deteriorating. According to Fedesarrollo's survey of constructors, the balance of expectations about housing construction has been below the average for three years running and continues to deteriorate at the margin (Graph 50).

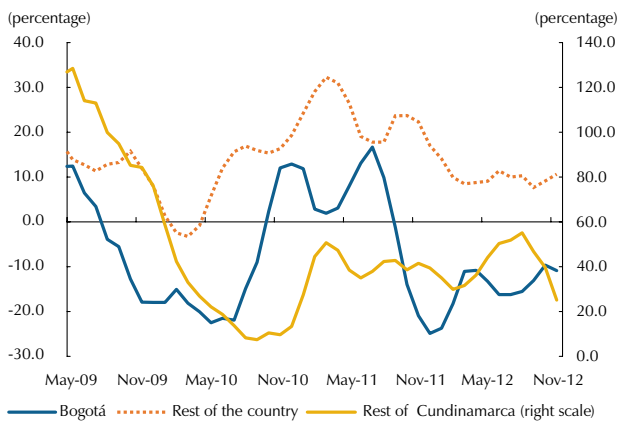


Graph 49

A. Housing supply (three-month moving average)



B. Annual growth in supply



Source: Camacol.

One factor pointing to weaker housing supply is employment in the construction sector, which has lost pace in Bogotá to the point of recording a negative annual rate in November 2012 (Graph 51). In the rest of the country construction employment has been stable and high. Cement shipments plummeted in Bogotá (-9.9% annual rate), but grew by 6.2% in the rest of the country. The price of residential land in Bogotá<sup>15</sup> rose sharply (28.9%), from a high base of comparison (Graph 52). Other construction costs (materials, labor<sup>16</sup>), both in Bogotá and in the rest of the country have decelerated markedly since 2011, recording real negative changes in the last three months of 2012.

Regarding demand for housing, Fedesarrollo’s consumer surveys show that the willingness to buy housing is at high levels, albeit somewhat lower in Bogotá (Graph 53). High levels of employment, the increase in disposable income, and available funding may support this result. However, looking ahead, the recent slowdown in employment both in Bogotá and in the rest of the country could cause demand to lose pace (Graph 54). Similarly, high levels of household debt relative to income could limit the capacity to buy housing (Graph 55).

The above supply and demand factors have resulted in housing sales falling in Bogotá since mid-2011 but less so in the rest of the country, where they have remained relatively high (Graph 56). This development, together with price behavior, could be

consistent with restrained supply and high demand in Bogotá, resulting in the selling time remaining relatively low in recent years. In the rest of the country, sustained growth in supply and stable (but strong) demand may have increased the number of months for selling the available supply (Graph 57).

To sum up, housing prices in Bogotá could be rising faster as a result of the fall in supply, sharply rising land prices, and strong demand. In the rest of the country, high demand, albeit with higher supply, may be supporting positive growth in housing prices, but at lower rates than in Bogotá. Looking ahead, deteriorating prospects for housing supply nationwide point to higher prices in 2013. However, lower growth forecasts, the level of household debt, and the

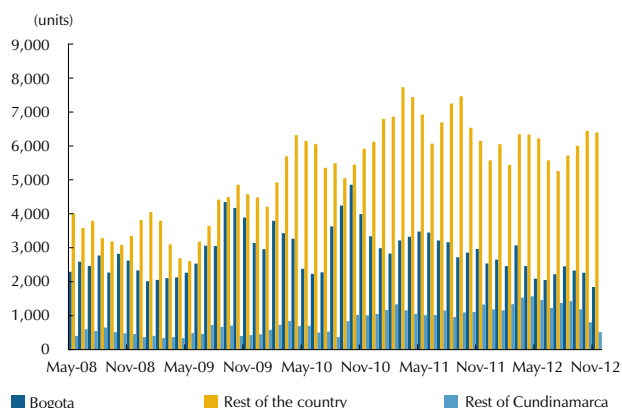
15 Figures available only for Bogotá.

16 Construction costs index, with data from DANE.

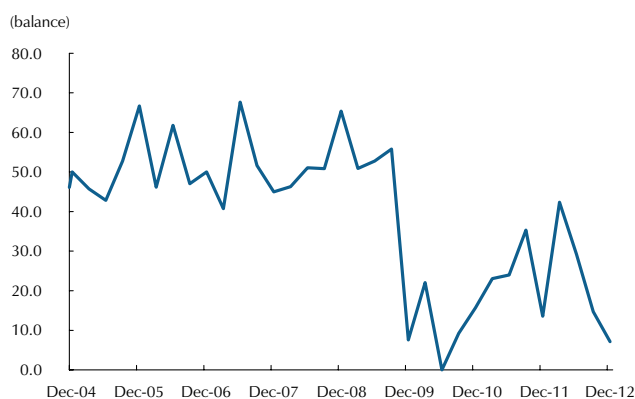


Graph 50

A. Starts of housing projects  
(three-month moving average)

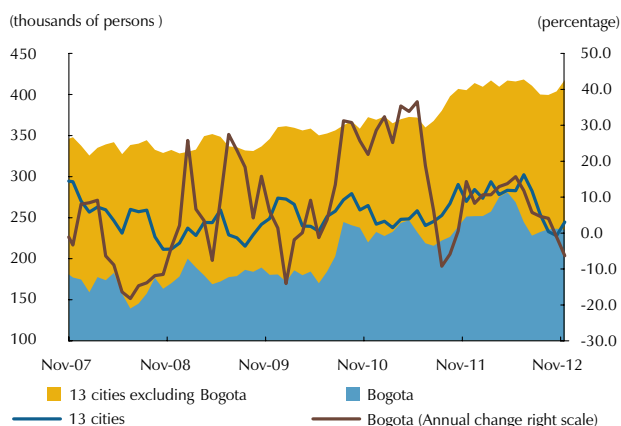


B. Housing-construction expectations <sup>a/</sup>



a/ Question: Do you expect to build more, less or the same amount in the next quarter as in the present one?  
Source: Fedesarrollo.

Graph 51  
Number of people employed in construction  
(moving quarter)



Source: DANE.

slowdown in employment could reduce demand and offset the rise in prices.

C. MOVEMENTS IN CREDIT

Bank credit continued to lose pace in the last quarter of 2012, growing year on-year by 15.2%, down from 16.4% in the third quarter. The decline occurred especially in consumer loans and to a lesser extent in commercial and mortgage loans, despite the fact that at the margin both of the latter have increased their rates of expansion (Graph 58). Financial deepening, measured as the ratio of loans to GDP, continued to increase in 2012 and is expected to be around 37%, with consumer loans expanding significantly and representing over 10% of GDP in 2012, up from 7% in 2006.

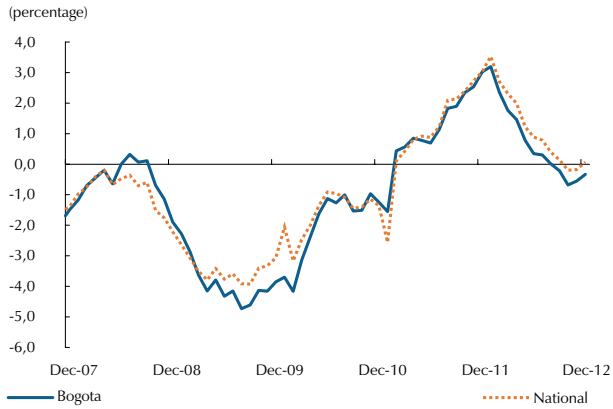
In terms of risk and default, the respective measures remain at low levels in all cases, though they have stopped falling, particularly for microcredit and consumer loans, which have been expanding faster than gross loans. Provisions set aside by banks against loans stand higher than 70%, and the solvency ratio of banks exceeds the minimum required by the Financial Superintendence. According to Banco de la República's survey of the credit situation at December 2012, financial intermediaries had recently tightened their credit requirements and in the case of consumer loans would be tightening them further in the following three months.

D. MACROECONOMIC DISEQUILIBRIUM INDEX

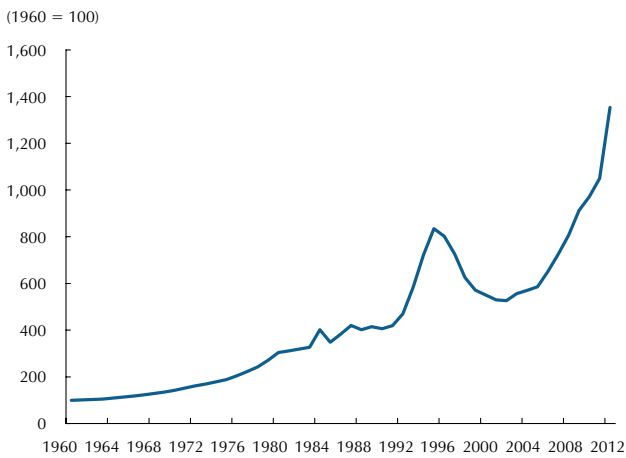
The macroeconomic disequilibrium index (MDI) is designed to sum up in a single indicator the potential formation of imbalances based on estimates of four variables: the current account, the real exchange rate, housing prices, and credit. To this end, a (standardized) gap is calculated for each of these variables and is defined as the difference between the variable's

Graph 52

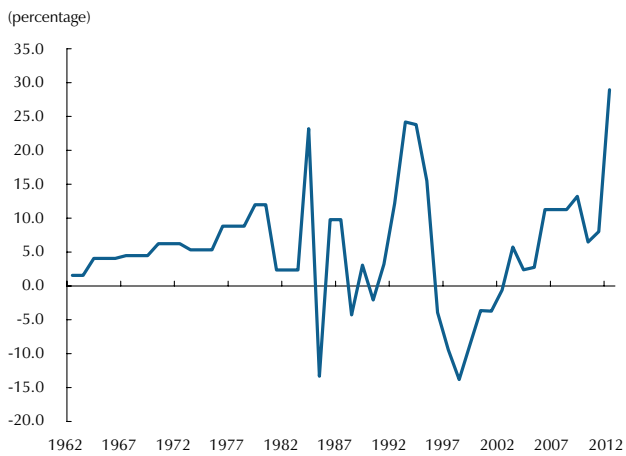
A. Annual change in housing-construction costs, relative to CPI



B. Bogota residential-land price, relative to CPI

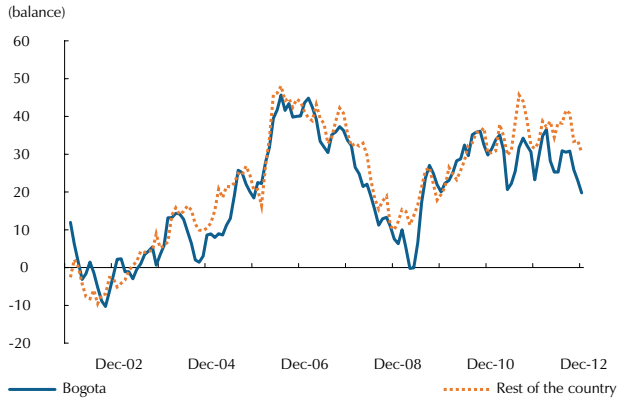


C. Annual change in the price of land



Sources: DANE and Lonja de Bogotá. Calculations by Banco de la República.

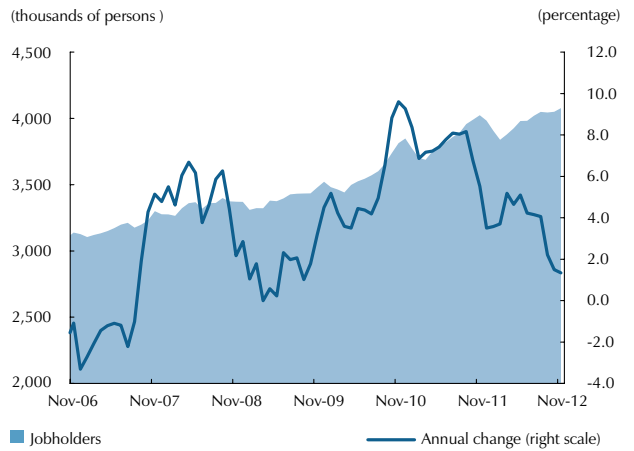
Graph 53  
Willingness to buy housing  
(three-month moving average)



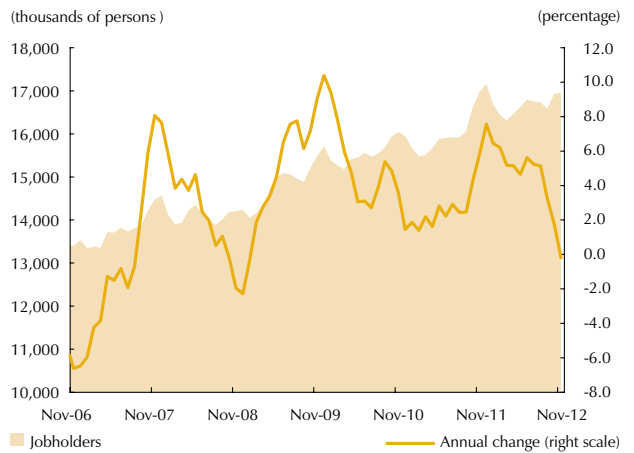
Source: Fedesarrollo.

Graph 54  
Number of people employed

A. Bogota

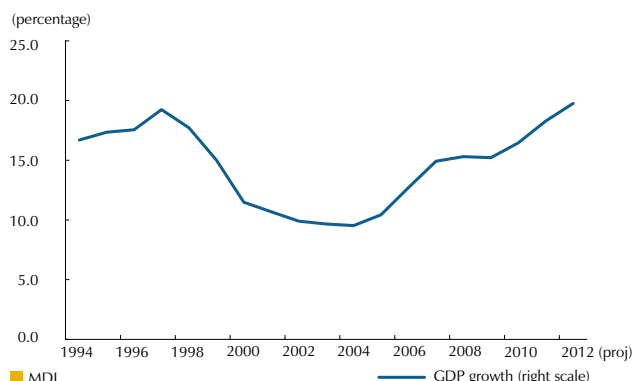


B. Rest of the country



Sources: DANE.

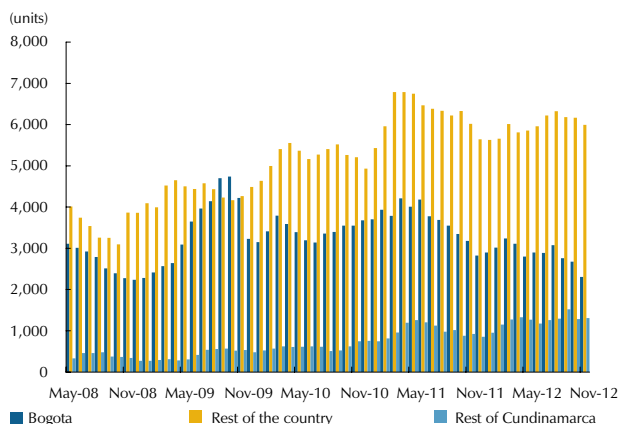
Graph 55  
Gross loans / household disposable income



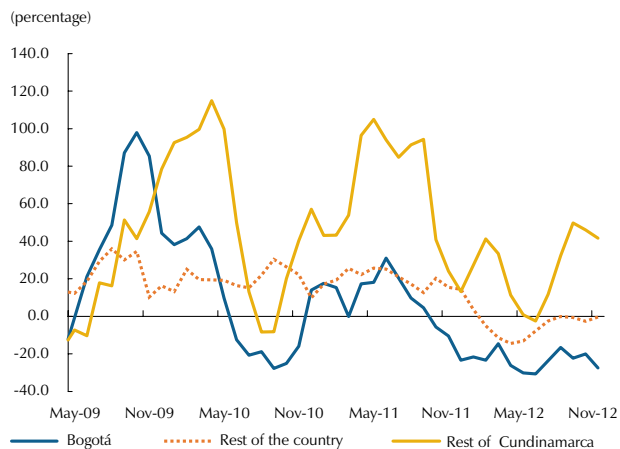
Source: DANE and the Financial Superintendence. Calculations by Banco de la República.

Graph 56

A Housing sales (three-month average)



B. Annual growth in sales



Sources: Camacol.

observed value and its long-term estimate.<sup>17</sup> Next, the weighted average is calculated, using the principal-components method<sup>18</sup>.

In MDI analysis, importance is attached to both the level of the index and the length of time it has remained positive. Regarding the level, the MDI provides an indication of the presence and size of the disequilibrium at a given point and the possibility of deducing whether or not its level is accelerating at the margin. However, since some MDI components are estimated by using statistical filters, the series may change and so may the signal that the index gives at the margin<sup>19</sup>. In this context, a more stable signal is obtained by observing the sum of the positive values of the MDI, which could be interpreted as the accumulation of the imbalances. By applying this latter methodology to eleven countries, the authors of the Index<sup>20</sup> found

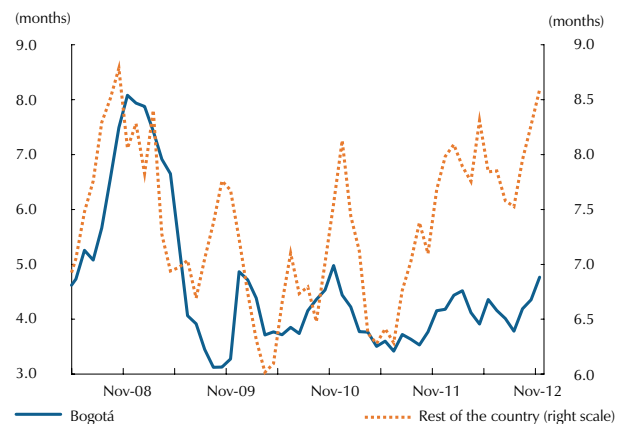
17 Except in the case of the current account and the exchange rate, for which the gap is calculated in reverse.

18 Since the long-term levels of the variables are not observable, confidence intervals cannot be calculated for the Macroeconomic Disequilibrium Index; this precludes having a certainty measure for the index.

19 For example, indicating acceleration at one date and subsequently deceleration for the same date

20 Arteaga C., Huerta C. and Olarte S. (2012), “Índice de desbalance macroeconómico”, Borradores de Economía, No. 744, Banco de la República, Colombia.

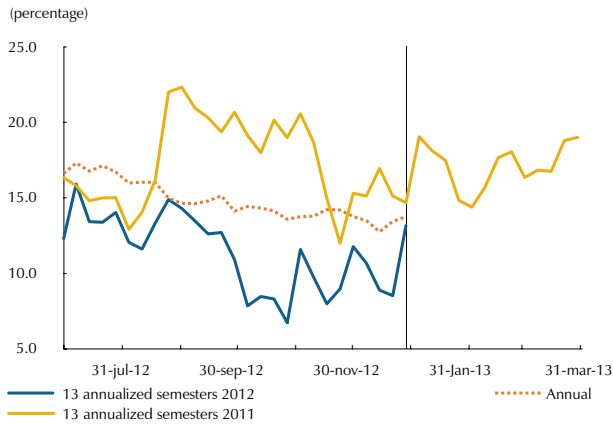
Graph 57  
Number of months to sell available supply



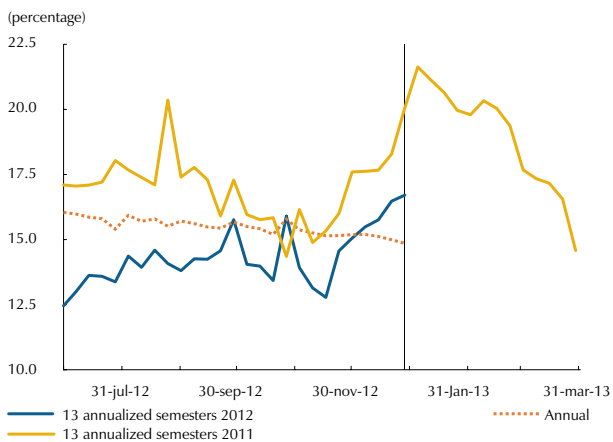
Source: Camacol.

Graph 58

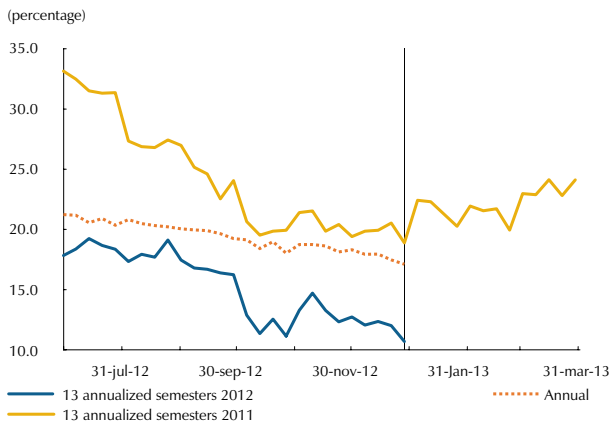
A. Local-currency commercial loans  
(seasonally adjusted, annual change)



B. Mortgage loans  
(seasonally adjusted, annual change)



C. Consumer loans  
(seasonally adjusted, annual change)



Sources: Financial Superintendence of Colombia. Calculations by Banco de la República.

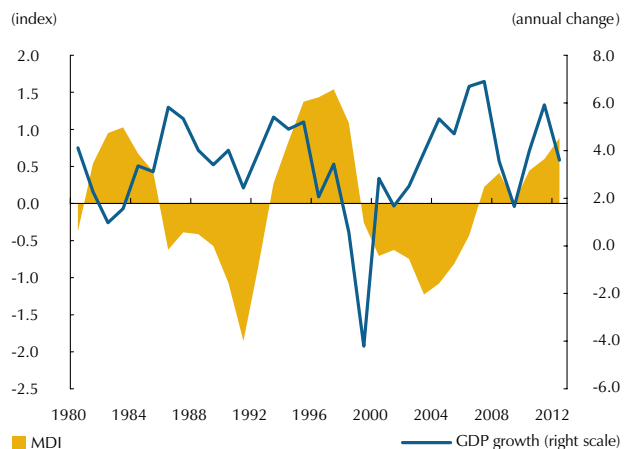
that the greater the MDI accumulations, the greater the likelihood of a future fall in output.

Another feature to be pointed out concerns the relation that the MDI should have to the GDP gap. In theory, the correlation should be positive, because in times of economic boom agents are more given to acquiring assets with higher leverage. Moreover, positive gaps could be consistent with greater absorption, with widening of the current-account deficit, and with real appreciation. However, differences in the variables' cycles, the formation of agents' expectations, regulatory innovations and changes, among other factors, may imply an accumulation of imbalances, at the same time as a negative gap occurs. So, for instance, in the early years of the nineties the MDI started a period of accumulation of imbalances, while the output gap remained negative. In 2008-2009 the MDI reduced its pace of growth, but was positive and the gap estimate was negative.

The new MDI estimates show that in 2012 the Index accelerated. Despite that, the sum of its values since 2006 was similar to the aggregate obtained a quarter before, indicating that the accumulation of imbalances had not changed. In 2012 the imbalances in the four variables analyzed intensified (Graph 60). Acceleration of the current-account gap is explained by a lower equilibrium estimate of the deficit (-2.0% current rate

Graph 59

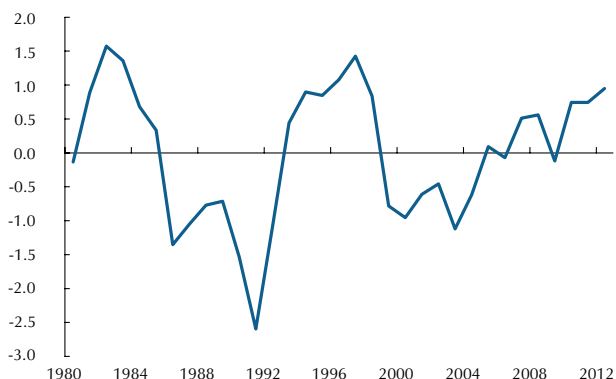
Macroeconomic disequilibrium index (MDI) and GDP growth



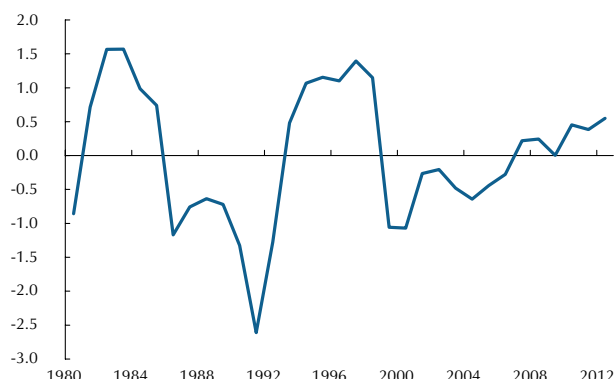
Source: DANE. Calculations by Banco de la República.

Graph 60

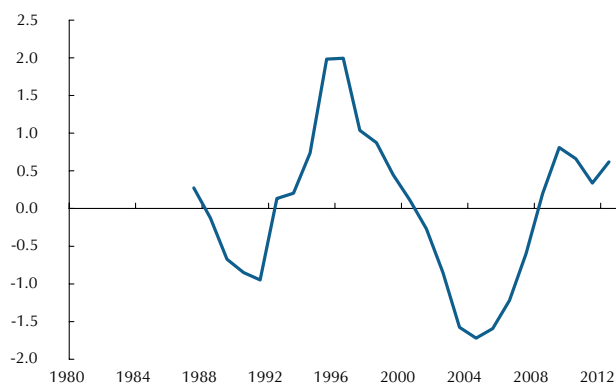
A. Standardized gap of the real exchange rate



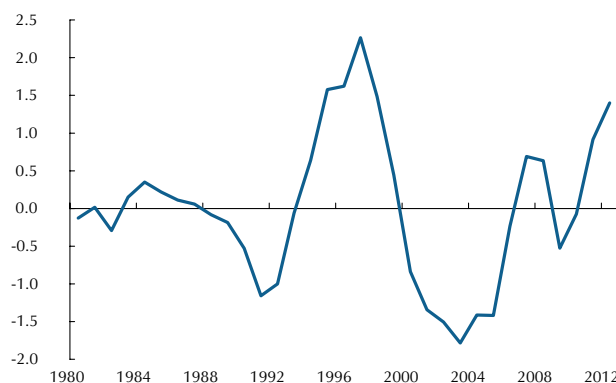
B. Standardized gap of the current account



C. Standardized gap of housing prices



D. Standardized gap of credit



Source: Calculations by Banco de la República.

as against a previous rate of -2.1%), and by an observed value that widened from -2.7% in the first half of 2012 to -3.2% projected for the whole of the year. That widening of the deficit, in turn, affected the equilibrium estimate of the real exchange rate. Thus, despite the fact that in the second half of 2012 the actual real exchange rate (measured by both PPI and CPI) depreciated relative to the first half, the equilibrium estimate was corrected to a greater degree, thereby generating a widening of the deficit variable.

As regards housing prices, both lower GDP growth and construction costs generated a lower growth in the long-term value of housing prices, relative to the increase in actual prices, resulting in a wider gap. In the case of credit, despite the deceleration observed in the second half of 2012, its growth rates have continued to be significant and, from a historically high level of real per-capita loans, implied a widening of the gap.

# ANNEX

## LOCAL AND FOREIGN ANALYSTS' MACROECONOMIC PROJECTIONS

This Annex provides a summary of local and foreign analysts' latest projections for the economy's main variables for 2013 and 2014, based on information to January 2013..

### 1. Projections for 2013

On average, local analysts expect an economic growth of 4.4%, compared with 4.7% estimated in the previous *Inflation Report*. The foreign entities consulted forecast on average an expansion of 4.3% in GDP.

Table A1  
Projections for 2013

	Real GDP growth (percentage) (porcentaje)	CPI inflation (percentage) (porcentaje)	Nominal year-end exchange rate fin de	Nominal DTF deposit rate (percentage) (porcentaje)	Fiscal deficit (% of GDP) (porcentaje del PIB)	Unemployment rate. 13 cities (percentage) (porcentaje)
<b>Local analysts</b>						
Alianza Valores	4.4	3.1	1,795	4.4	(2.5)	10.5
ANIF (national association of financial institutions)	4.3	3.0	n.a.	4.6	(2.4)	10.5
Banco de Bogotá	4.5	3.0	1,800	4.5	(2.0)	10.2
Bancolombia	4.0	3.3	1,780	4.3	(2.7)	9.3
BBVA Colombia <sup>a/</sup>	4.4	2.6	1,760	4.1	(2.0)	10.0
Corficolombiana	4.8	3.1	1,750	5.0	(2.1)	9.8
Corpbanca <sup>b/ c/</sup>	4.6	2.6	1,750	5.0	(2.4)	10.6
Corredores Asociados	4.2	2.7	1,750	4.3	(2.4)	9.6
Correval	5.0	2.7	1,830	5.0	(0.7)	10.1
Davivienda <sup>a/</sup>	4.1	2.5	1,800	4.1	(2.4)	10.1
Fedesarrollo <sup>a/</sup>	4.3	3.1	1,825	4.3	(3.4)	9.7
Ultrabursátiles	4.6	2.7	1,780	5.0	n,d	9.5
<b>Average</b>	<b>4.4</b>	<b>2.9</b>	<b>1,784</b>	<b>4.5</b>	<b>(2.3)</b>	<b>10.0</b>
<b>External analysts</b>						
Citi <sup>a/</sup>	4.5	3.0	1,775	4.9	(2.4)	10.6
Deutsche Bank	4.3	3.0	1,740	n.a.	(1.2)	n.a.
Goldman Sachs	4.2	3.0	1,800	4.0	(2.2)	n.a.
JP Morgan	4.0	2.5	1,775	4.5		n.a.
<b>Average</b>	<b>4.3</b>	<b>2.9</b>	<b>1,773</b>	<b>4.5</b>	<b>(1.7)</b>	<b>10.6</b>

n.a. Not available.

a/ The deficit forecast refers to the central government.

b/ Average unemployment rate for the year.

c/ Formerly Banco Santander.

Source: Banco de la República (electronic surveys).

Table A2  
Projections for 2014

	Real GDP growth (percentage)	CPI inflation (percentage)	Nominal year-end exchange rate
	(porcentaje)		
<b>Local analysts</b>			
Alianza Valores	4.7	3.9	1,750
ANIF	4.5	3.3	n.a.
Banco de Bogotá	5.0	3.0	1,838
Bancolombia	4.7	4.6	1,814
BBVA Colombia	5.0	2.9	1,765
Corficolombiana	5.5	3.5	1,775
Corpbanca <sup>a</sup>	4.9	2.8	1,745
Corredores Asociados	4.6	3.1	1,780
Correval	4.7	3.0	1,850
Davivienda	5.2	3.0	n.a.
Fedesarrollo	4.5	3.3	1,804
Ultrabursátiles	4.8	3.1	1,780
<b>Average</b>	<b>4.8</b>	<b>3.3</b>	<b>1,790</b>
<b>External analysts</b>			
Citi	5.5	3.2	1,800
Deutsche Bank	5.0	3.1	1,730
Goldman Sachs	4.8	3.0	1,818
JP Morgan	n.a.	n.a.	1,825
<b>Average</b>	<b>5.1</b>	<b>3.1</b>	<b>1,793</b>

n.a. Not available.

a. Formerly Banco Santander.

Source: Banco de la República (electronic surveys).

Regarding inflation, both local and foreign analysts see prices rising by 2.9% by the end of 2013. This price growth is within the 2.0%-4.0% target range set by the Bank's Board of Directors for 2013.

With respect to the exchange rate, Colombian analysts expect the 'representative market rate' to end the year at an average value of 1,784 pesos to the dollar, compared with 1,812 pesos estimated in the previous Report's survey. Foreign analysts forecast a year-end rate close to 1,773 pesos.

For the fixed-term deposit rate (DTF), all local analysts project average values of 4.5%. And they expect unemployment to stand at 10.0%.

## 2. Projections for 2014

For 2014, local analysts expect an economic growth of 4.8%, while foreign analysts see the economy growing by 5.1%. Inflation is projected at 3.3% by local analysts and 3.1% by the foreigners. The exchange rate is forecast to average 1,790 pesos by local entities and 1,793 pesos by external firms.

The Publications Section of the Department of Economic and Financial Education was responsible for coordinating, editing and diagramming this Report, in Times New Roman font, 10.5 point.