THE COMMODITY CYCLE IN LATIN AMERICA
MIRAGES AND DILEMMAS

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Latin America & the Caribbean
Opportunities for All

The Commodity Cycle in Latin America:
Mirages and Dilemmas

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Executive Summary

Short-run growth prospects within Latin America and the Caribbean (LAC) have bifurcated. While the northern half of the region—Mexico, Central America and the Caribbean—is expected to grow in 2016 at a reasonable yet uninspiring rate of around 2.5 percent, South America is expected to contract by more than 2 percent reflecting strong recessions in Brazil (-3.5 percent) and Venezuela (-8.3). This comes after a decade where a prolonged and unusually strong boom in commodity prices lifted South America's growth to an average of about 5.5 percent.

As the lower commodity prices and the much less robust growth in China seem to be here to stay, countries in LAC that are significant net commodity exporters (most of which are located in South America) find themselves in the midst of a difficult and protracted transition to a new equilibrium (to a "new normal"). In the process, the maneuvering room has narrowed sharply for policy makers that are caught up in a dilemma between what they would like to do (ease policies to stimulate growth and employment in the short-run) and what they are compelled to do (tighten policies to retain macroeconomic viability while judiciously adjusting domestic demand to levels that are compatible with the terms of trade-originated fall in income). This dilemma, moreover, plays out in all crucial dimensions—monetary, fiscal, external, and social.

While the current adversities facing South American countries are clearly not in the nature of a 1990s-style sudden stop in capital inflows, they share a common feature with the large macroeconomic swings of the past—the end of an unsustainable domestic demand boom—as well as a common root—a low saving rate. Looking at the entire commodities super-cycle (the upswing and downswing phases) this report examines the drivers and dynamics that led South America to its current stress and draws some lessons for the future.

A key starting point is the recognition that South American countries are uniquely exposed to commodity price turbulence, even more so than middle-income commodity-exporting countries in Africa. While this may be a well-known fact, its overwhelming dominance has perhaps been insufficiently appreciated. Fluctuations in South America's key macro indicators (growth, investment, the current account, the real exchange rate, the net foreign asset position, stock market returns) have mirrored terms of trade fluctuations to an unsettling extent. Moreover, aggregate domestic demand growth has followed the terms of trade even more tightly than output growth, a clear indication that demand responded more intensely than supply. But the intensity of demand response was not uniform across countries. In some (Argentina, Brazil, Uruguay) it was greatly amplified, in others (Chile, Colombia, Peru) it was modestly amplified or dampened. The obvious question is why?

Two interconnected issues emerge, one relating to the root of the shocks, the other to the strength of its transmission. On the root side lie the price windfalls that trigger a demand response, namely,

the terms of trade windfall and the real exchange rate windfall. Both raise purchasing power even if the volume of output does not change, a rise in the terms of trade allowing the same quantity of exports to buy more imports, an appreciation of the real exchange rate allowing the same quantity of non-tradables to buy more tradables. Once the production of non-tradables reaches full capacity, the purchasing power-induced rise in domestic demand puts upward pressure on the prices of non-tradables, overheats the economy, and widens the current account deficit.

On the transmission side, the report identifies domestic saving rates as the central culprit. Higher saving, whether marginal (e.g., the propensity to save out of the windfalls) or average (as determined by the country's structural saving habits) automatically neutralizes a large fraction of the induced spending stream. Indeed, low saving countries in South America tended to amplify more the domestic demand implications of the commodity price bonanza.

But saving interacted with other country-specific factors. The challenge is thus to identify the key factors that influenced the marginal propensities to save (which were neither constant across time, nor uniform across countries) and their multiplier impact. Although the evidence is often more suggestive than statistically settled in stone, the report detects some tantalizing patterns. In particular, because the private sector's marginal propensity to consume out of real exchange rate windfalls appears to be high, countries with fixed or more heavily managed exchange rates (Bolivia, Ecuador, Peru) seem to have saved more than countries with more flexible regimes (Brazil, Chile, Colombia) that experienced substantially larger real exchange rate windfalls.

Who appropriated the windfalls (public vs private sector, residents vs non-residents) also mattered. More open economies (e.g., Chile, Peru) have done better than more closed economies (Argentina, Brazil) because the excess demand was diverted abroad via imports (with the windfall partly flowing to non-residents) rather than being bottled up at home. Countries where the state captured more of the windfalls (Bolivia, Ecuador, Peru) also tended to save more out of the windfalls than countries where the windfalls were more widely dispersed (such as in Brazil) because governments modulated the rhythm of spending in accordance with policy priorities and constraints. Yet, the report also detects a disturbing negative correlation between national saving and the size of the state, which suggests that public appropriation of the windfalls may end up being counterproductive if it leads to a permanently bigger and consumption-prone state.

The problem is that the excess demand of the past is still restricting the policy space of today. In the low saving-high demand multiplier countries, the overheating during the boom seems to have contributed to the post-boom (incipient) stagflation problem. At the same time, the large real appreciations of the boom are now delaying the speed of recovery of non-commodity tradables (i.e., of non-commodity goods and services that can be traded across borders). To compound it all, the lower saving countries are facing higher sovereign risk premiums, hence have less room to maneuver and less scope to smooth out and distribute over time the pain of the adjustment through additional external finance.

On the policy side, a first lesson to be drawn (which at first sight might appear to be an innocuous technicality) is that the accounting of price windfalls matters. Both the terms of trade and real exchange rate appreciation windfalls can produce a "mirage" effect. In the terms of trade windfall, the mirage becomes reality only if the terms of trade gains are permanent; in the real exchange rate windfall, only if the productivity of tradables rises relative to that of non-tradables. But because the mirage may never become reality, it seems prudent to exclude much of the price windfalls from measured income, so as to avoid unsustainable consumption booms.

But things are not as simple when one views the numbers in light of the political economy of commodity shocks. In effect, from the perspective of low income, liquidity-constrained consumers, it is probably always optimal to consume as much as possible of a windfall, regardless of its temporariness. For low income groups in society, in fact, the commodity boom was not a mirage. It was the most real and positive experience in a long time. Yet from the perspective of the policy maker, even a permanent terms of trade gain should be phased into domestic demand only gradually, so as to allow domestic supply (especially of non-tradables) to catch up with demand without economic overheating and excessive external deficits.

As the region adjusts to the new normal and policy makers wrestle with the easing vs tightening dilemma, growth-oriented structural reforms should be kept alive. Since at the heart of the commodity cycle-related problems is the excessive expansion of domestic demand relative to supply, reforms need to focus both on the demand side (with a view to strengthening saving rates) and the supply side (to improve resource allocation and enhance flexibility in production). Such reforms would indeed help ease the dilemmas. For example, raising the country's saving capacity should lower the interest rates needed to keep inflation in check, which should in turn lower the public sector's interest rate bill, allowing for lower cuts on social spending. This report makes a strong case in favor of saving-focused reforms. These should not only involve tools required for saving more of the windfalls at the margin (automatic fiscal stabilizers, stabilization funds, sovereign wealth funds, macroprudential norms, and the like). They should also include policies, particularly fiscal, financial and social security policies aimed at raising saving on average. In addition to providing an automatic dampener, a higher saving rate protects against the risk of suddenly falling into a bad equilibrium with little or no policy space.

Yet, structural reforms take time to implement and they bear fruit down the line. Hence, a single-minded focus on structural reforms without adequate consideration to mitigating the short-run pain may be self-defeating. It may so exacerbate political and social tensions as to disable the viability of the reform effort. Thus, reconciling short-term social and economic concerns with long-term growth objectives is like walking on a tight rope. Ideally, in countries with space prudently to use foreign finance, the burden of the fiscal and external adjustment can be distributed over time while protecting the more vulnerable groups in society. Unfortunately, as illustrated throughout this report, maneuvering room is currently very unevenly distributed, with some countries being so constrained as to be compelled to adjust more rapidly.

Introduction

The South American (SA) sub-region of Latin America and the Caribbean (LAC), on which this report focuses for the most part, is experiencing another episode of stress and uncertainty, much of which is related to the bursting of the commodity price bubble. Unlike the systemic crises of the 1980s and 1990s, the current economic pain is not driven by a sudden stop in capital inflows—where investors engineer a massive run against the currency (fearing the abandoning of a peg), the banking system (fearing an imminent collapse), or the sovereign debt (fearing a default). Instead, the pain is unfolding in slow motion and affecting mainly (and so far) the real sector because its initial epicenter was located in the current account rather than in the capital account of the balance of payments. Like the major downturns of the past, however, this one also comes at the tail end of an externally driven world cycle that boosted the growth of domestic demand much beyond that of output.

But the LAC that is facing problems today is certainly not the LAC of the past. The region has changed in some fundamental ways over the past 15 years or so, and mostly for the better. For starters, many countries in the region now have a well-functioning macroeconomic and prudential policy framework that has helped keep the region close to a more sustainable macro path and deal better than in the past with external shocks. At the same time, the region has made great strides in the social front. There are now more Latin Americans in the middle class than in poverty, the inequality in income distribution, albeit still high, is visibly lower than it was at the beginning of the 2000s, and poverty rates are less than half of what they were. The macroeconomic dynamics unleashed by the boom in commodity prices certainly had a socially progressive effect. Last but not least, several countries in the region invested a significant fraction of the commodities windfall in physical infrastructure, education, and firms' productive capacity. Yet, looking back and with the benefit of hindsight, had the region saved more of the windfalls, it would be now in better shape.

This report complements a number of other reports in this series[1] that have analyzed salient aspects of the economic and social developments in the region, throughout the upswing and downswing phases of the cycle. This is the first report in the series that examines the macroeconomics of the cycle taken as a whole. As its title indicates, the report associates mirages with dilemmas. The mirages are the windfall gains of the recent past, the dilemmas are the tight policy constraints policy makers now face along various interacting dimensions, including monetary, fiscal, external

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[1] Past reports in this series can be found at http://go.worldbank.org/WTVI133GT0.

and social. As the report argues, one leads to and interacts with the other. This naturally brings up a series of important lessons for a smoother ride ahead.

As usual in this series, Chapter 1 sets the ground for the rest of the report. It covers the short-term prospects and attempts to sort out the common external factors driving these prospects from the domestic, country-specific factors. It concludes with a status report on the various policy constraints the region is facing and the progress it has made in adjusting to these constraints. Chapter 2 provides the core analytical and empirical content of the report. It takes a broad swipe at the cycle and looks at its external roots and channels through which the external shocks were transmitted to the region's economies. The chapter goes into some length trying to differentiate and sort out country experiences and performances according to a series of multiplier-dampener factors and effects. At the same time, it attempts to link the choices and mirages of the past with the constraints and dilemmas of the present. Chapter 3 concludes with a policy discussion that summarizes the lessons of the past and draws some of their implications for the future.

Chapter 1:
Landing to the New Normal, Hard and Not so Hard

Introduction

The growth rate for Latin America and the Caribbean (LAC) will continue trending downward in 2016, for the fifth consecutive year. What began as a slowdown in regional economic activity in 2012 turned into a contraction by 2015. Driven mainly by the downward pull of the Brazilian and Venezuelan economies, the region's economy, which had expanded by an average 2 percent per year during 2012-2014, declined by around half a percentage point in 2015 and is expected to contract further in 2016, by about 1 percent. It may shrink even more because the global and political risks seem tilted towards the downside. LAC is thus dealing with an economic contraction of a magnitude and duration not seen since the early 2000s.

As noted in previous reports in this series, this gradual but steep fall in growth rates is largely a reflection of a protracted and painful adaptation of the region's economies to a " new normal," that is, to a durable change in external conditions, a change that features in particular the bursting of the commodity price bubble and the sharp growth deceleration of China. The challenge is no longer to dampen a temporary, cyclical fluctuation around a stable growth trajectory, but rather to steer the macro economy towards a new equilibrium. This entails a tough transition process, particularly for SA, whereby aggregate spending needs to decline and the real exchange rate to depreciate. As the region makes this transition, the scope for countercyclical policy is limited. At best, it can help make the transition less inefficient from a social point of view, by avoiding an unnecessary undershooting of economic activity and employment generation and by distributing the pain more gradually over time and more equitably across different groups in society.

Against this background, this chapter:
  (i)   reviews the region's short-term growth performance and prospects, highlighting the differences between South America (SA)—a sub-region dominated by net commodity exporting countries—and Mexico, Central America and the Caribbean (MCC)—a sub-region made up mainly of countries that are either modest net commodity exporters or net commodity importers;
  (ii) assesses the extent to which current fluctuations in key real and financial variables of LAC countries can be attributed to the deterioration of (exogenous) global factors; and
  (iii) takes stock of where countries are in the process of adjustment to the "new normal," identifies the extent of pending adjustment and highlights the main external downside risks that may further complicate the adjustment process.

By reviewing the status of the adjustment process, the last section of this chapter provides a bridge to the core analytical part of this report, that is, the discussion in Chapters 2, on how and why did the region get entangled in the current difficulties, and Chapter 3, on what might be done about it. Since the adjustment largely reflects the macroeconomic and distributional implications of an unusually long and powerful commodity price cycle, much of the analysis in Chapter 1 and all of the analysis in Chapter 2 focuses on South America, the part of LAC that is more deeply dependent on commodity exports and where economic activity is more directly linked to China.

Short-term growth performance and prospects

LAC's lackluster growth performance was largely unexpected, although the forecasting errors since the beginning of the great deceleration in 2012 show a marked contrast between those for South America (SA) and those for Mexico, Central America and the Caribbean (MCC) (Figure 1.1, Panels A and B). In the case of SA, the forecasts have repeatedly erred in being too optimistic—predicting at the beginning of each year higher growth rates than those that subsequently materialized—and they have erred by relatively wide margins. Instead, in the case of MCC, the forecasting errors are neither systematic (a mix of errors on both the upside and the downside) nor of a large magnitude. This suggests that the shift to the new normal in SA implies important structural changes and inherent uncertainties, such that the past (i.e., the historical patterns and relations between key macroeconomic variables) is not a sufficient guide to predict the future.

FIGURE 1.1. Real GDP Growth in LAC: Actual and January Consensus Forecasts

PANEL A. *South America*
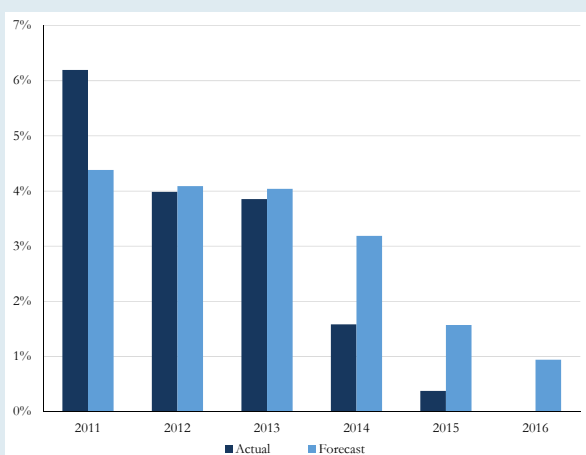
PANEL B. *Mexico, Central America and the Caribbean*
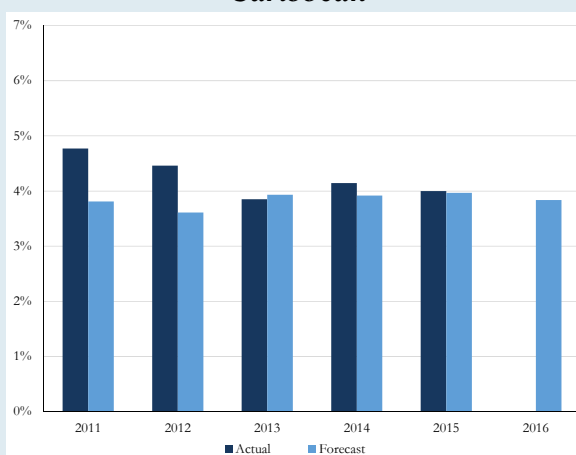
Notes: *Simple averages for the actual growth rates and January forecasts for each year. In Panel A SA includes Argentina, Brazil, Chile, Colombia, Ecuador, Peru, Uruguay, and Venezuela. In Panel B MCC includes Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Panama. Sources: Consensus Forecasts, IMF's WEO and national sources.*

The downward slide of growth rates in LAC is concentrated in SA and has by far been the most pronounced in the world (Figure 1.2). SA is the only region in the emerging world experiencing a significant economic *contraction* (of about 2 percent per annum), one that is disproportionate large relative to the deceleration in China. In contrast, the emerging economies of South East Asia (SEA MICs), which are even more connected to China than SA, have managed to keep their growth rates stable in the 4-5 percent range since 2012, the year when China clearly started its shift to a lower growth path. The relevance of commodity-dependence of export structures is underlined by the contrast in growth between SA and MCC. Growth fell precipitously from about 5-6 percent in the "good years" (2003-2012) to negative territory for SA while it has remained relatively stable at around a modest 2.5 percent during 2012-2015 for MCC.

The bifurcation in short-run growth performance and prospects between SA and MCC is illustrated in greater detail in Figure 1.3, which shows the growth estimates for 2015 and forecasts for 2016 published in the March 2016 issue of the Consensus Forecasts. The heterogeneity within the region is quite obvious—in 2015, for instance, growth rates ranged from a *negative* 5.7 percent in Venezuela to a positive 6.5 percent in Dominican Republic. While 2015 growth rates were clustered around a lower level for SA countries compared to MCC countries—*minus* 1.6 for SA and 2.8 percent for MCC—the variance within each sub-region is rather striking, particularly in the case of SA. Notably, the two largest economies in the region, Brazil and Mexico, are expected to continue on diverging paths in 2016, with Brazil's economy projected to shrink by 3.5 percent, and Mexico's expected to expand by about 2.5 percent. By and large, and as will be discussed in greater detail in Chapter 2, the countries that have been able to deliver higher growth rates since 2012 have also been those where saving rates through the cycle were higher, allowing investment rates to remain strong.

FIGURE 1.2. Real GDP Growth: International Comparison
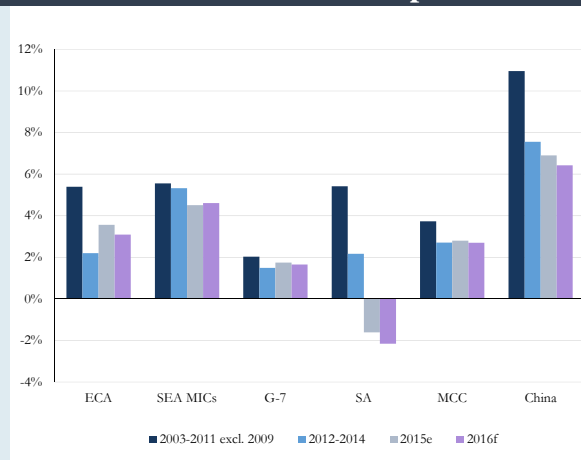
Notes: Weighted averages. ECA includes Croatia, Czech Republic, Hungary, Lithuania, Poland, and Turkey. SEA MICs includes Indonesia, Malaysia, Philippines, and Thailand. Sources: Consensus Forecasts, IMF's WEO and national sources.

The role of global vs. local factors

A significant part of what is currently happening in key economic and financial variables in LAC reflects the impact of exogenous global factors, that is, factors that are beyond the control of the region's policy makers. This section illustrates this phenomenon by isolating the relative importance of global factors in the evolution of short-term growth and two key financial variables, the nominal exchange rate and the sovereign risk premium (as measured by the EMBI spreads).

Consider first *short-term growth*. As argued repeatedly in previous reports in this series, much (unfortunately too much) of the ups and downs of growth in Latin America can be almost fully explained by external factors. Using a simple OLS regression—our so-called Wind Index Model (WIM)—to estimate regional growth as a function of four exogenous variables (growth in the G7 countries, growth in China, commodity prices, and the US interest rate) yields a strikingly close prediction (Figure 1.4, Panel A).[2] The explanatory power of external factors remains very high throughout the period but weakens somewhat toward the end, when actual growth dips below the WIM prediction. In any case, this suggests that, while global factors dominate, region- and country-specific factors seem to be now playing a larger role compared to the past, possibly by amplifying the domestic effects of global factors.

Different external factors matter differently across countries in LAC, however. This can be seen in Figure 1.4 (Panel B), which compares the actual growth in 2015 with the WIM prediction.

FIGURE 1.3. Latin America: Real GDP Growth by Country

Notes: Figures reported are from the March 2016 Consensus Forecasts. For those countries that are not included in the Consensus Forecasts, estimates are from the October 2015 WEO. Forecasts by World Bank country economists for Ecuador and Venezuela are below Consensus, at minus 3-4 and minus 10 percent, respectively. Sources: Consensus Forecast, IMF's WEO and national sources.

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[2] The long-run growth rate in LAC, which arguably hinges on the country-specific underlying economic strengths, has been rather low for more than a century. In the early part of the 20th century, for instance, Latin America's per capita income was around 30 percent of that of the US. At present, it continues to hover around 30 percent of that of the US. Latin America has been a century-old example of a "lack of convergence" to the standards of living of the advanced economies.

FIGURE 1.4. LAC Real GDP Growth: Actual and Predicted by the Wind Index Model

PANEL A. *LAC Average Actual and Predicted Growth Across Time*	**PANEL B.** *Actual and Predicted Growth for 2015 by Country*
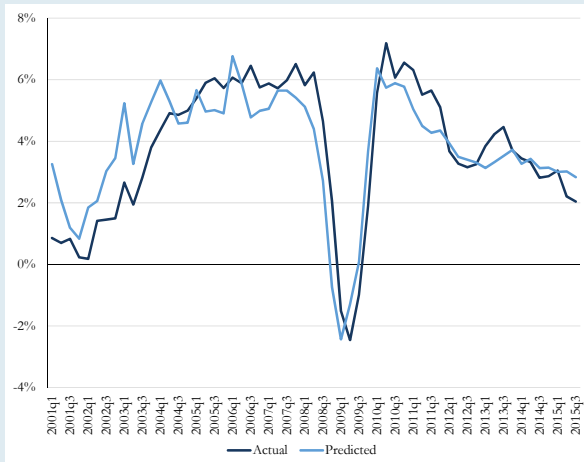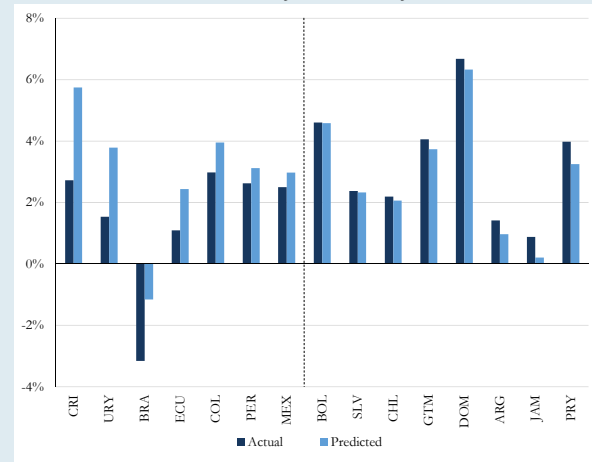
Notes: In Panel A, simple averages are taken over a set of fifteen LAC countries with available quarterly data, namely: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Jamaica, Mexico, Paraguay, Peru, and Uruguay. Average predicted growth is calculated by averaging the fitted values of country regressions of GDP growth on G-7 growth, China's growth, the CRB commodity index growth, and the U.S. 10 year treasury rate. In Panel B, simple averages are taken for the available 2015 quarterly data, and the corresponding fitted values from the aforementioned specification. Countries are ordered by the difference between the predicted growth rates from the WIM and the actual growth rates. Sources: LCRCE Staff calculations based on Bloomberg and national sources.

A pattern can be discerned: the WIM-predicted growth rate tends to be higher than the actual growth rate among the commodity-exporting countries in SA (particularly Brazil), suggesting that domestic factors in these countries (more than in MCC countries) are magnifying the adverse impact of exogenous changes in commodity prices, world demand, and international liquidity conditions. A similar conclusion, albeit one that puts the emphasis on different poles of external demand, can be inferred from Figure 1.5. It shows that growth in SA tracks closely the changes in economic activity in China (which is pulling global growth down at the margin, via lower investment and trade), whereas growth in MCC tracks closely economic developments in the US (which is pushing global growth up at the margin, via higher consumption).

Consider now the role of global factors on the financial side. While LAC's *financial stress index*[3] is highly correlated with that for the US (Figure 1.6), the co-movement between the two indices weakens in the recent period, with financial stress rising disproportionately more in LAC than in the US. Again, this suggests that the relative role of region- and country-specific factors is growing.

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[3] See Balakrishnan et al (2009) for a detailed explanation on the calculation and the workings of the Financial Stress Index.

PANEL A. *Growth in SA and China*   **PANEL B.** *Growth in MCC and the US*
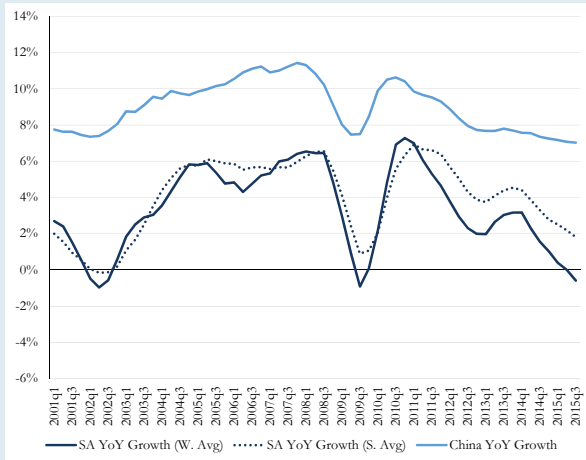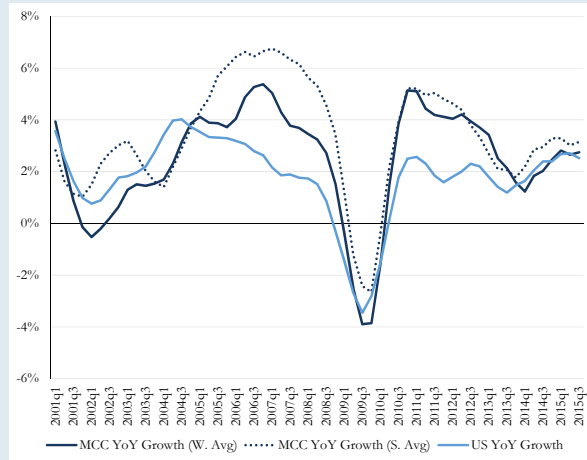
Notes: Four-quarter moving averages. SA includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Peru, and Uruguay. MCC includes Costa Rica, Dominican Republic, El Salvador, Guatemala, Jamaica, and Mexico. Sources: national sources.

Consider next the depreciation of the *nominal exchange rate* and the rise of the *EMBI*. The exchange rates of the larger LAC countries have shown significant volatility around a steep devaluation trend since at least 2014 (Figure 1.7, Panel A). Isolating the contribution of global factors from country-specific factors is non-trivial, due to the fact that LAC exchange rates have co-moved with an index of the value of the dollar against other major currencies. A simple econometric analysis leads to the conclusion that, for the countries in the region with more flexible exchange rate regimes, (exogenous) external factors tend to explain a significant share of the recent exchange rate changes, on average around 40 percent, or up to 60 percent when including the terms of trade (Figure 1.7, Panels B and C). This result of course still leaves a significant fraction of the exchange volatility explained by domestic factors.
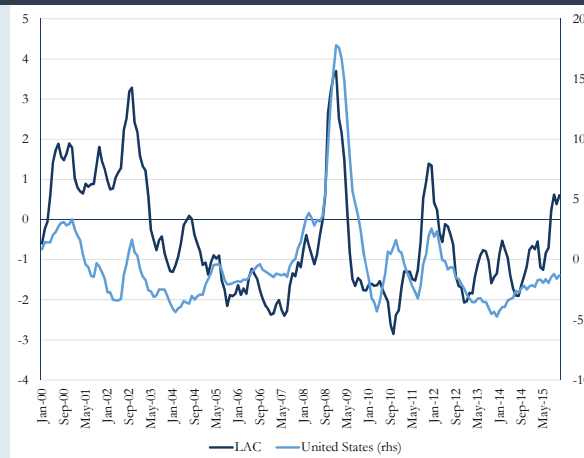
Notes: The series shown are four-quarter moving averages. LAC is the simple average of Argentina, Brazil, Chile, Colombia, Mexico, and Peru. Sources: IMF.

FIGURE 1.7. LAC's Nominal Exchange Rate: Trend and Volatility

PANEL A. *Nominal Exchange Rates for Selected LAC Countries and the Dollar Index*

Index Base Jan 2011=100

Brazil — Chile — Colombia — Mexico — Peru — Dollar Index
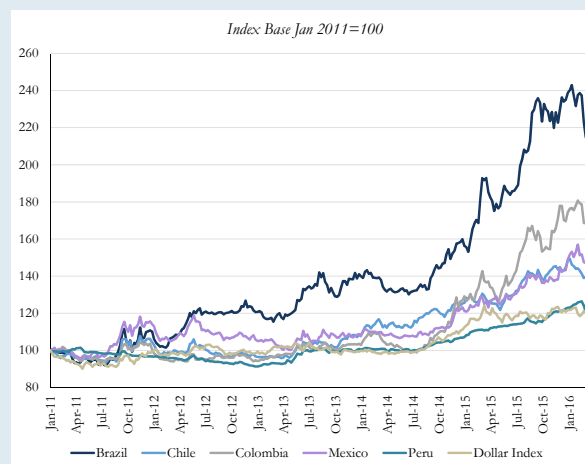
PANEL B. *Explained Change in the Nominal Exchange Rate, 2014*

VIX ■ Dollar ■ Commodities ■ TOT ■ Domestic Factors and Errors
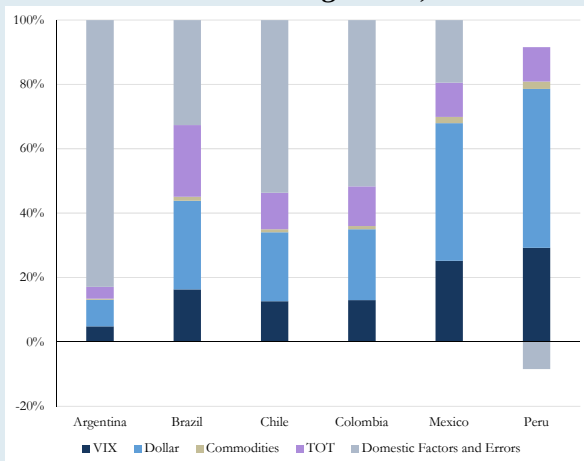
PANEL C. *Explained Change in the Nominal Exchange Rate, 2015*

VIX ■ Dollar ■ Commodities ■ TOT ■ Domestic Factors and Errors
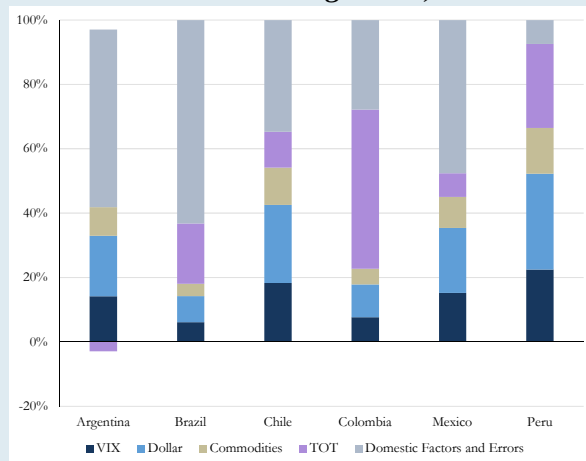
Notes: Panels B and C in the figure show the decompositions of the year-on-year changes in the nominal exchange rates of different LAC countries based on the coefficients of a weekly-frequency regression of the change in the nominal exchange rate on the change of the VIX, the dollar index, the CRB commodity index, and the terms of trade. Sources: LCRCE based on Bloomberg.

The rise of LAC's average EMBI spread since mid-2014 has mirrored the depreciation of nominal exchange rates (Figure 1.8). Remarkably, after having fallen below the level of the spread for US High Yield spread during most of the commodity cycle, it is now back nearly at par with the US High Yield bonds and substantially above the EMBI Global. The main factor explaining the region's higher vulnerability is of course the stronger dependence of its exports on commodities, a feature that is analyzed in some detail in the next chapter. But idiosyncratic policy-related features, such as the average saving performance or the quality of the enabling environment, have also played an important role (see Appendix 1.1). Notably, the countries in LAC that retain their "investment grade status" have experienced the mildest increase in their EMBI spreads. Yet, the

FIGURE 1.8. EMBI Spreads for LAC and Non-LAC Emerging Economies
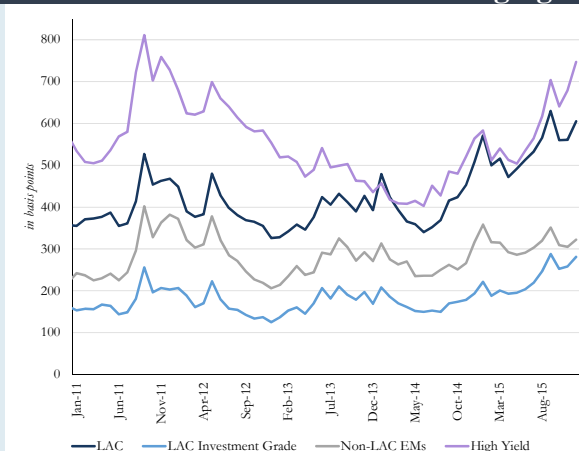
Notes: LAC Investment Grade includes Chile, Colombia, Mexico, Peru, and Uruguay. Sources: Bloomberg.

low saving commodity exporting countries have been more severely affected, thereby constraining their capacity to finance counter-cyclical policies. Brazil lost its investment grade last September and some countries in the region have been given negative outlooks by rating agencies. The macroeconomic impact of this risk shift is now being magnified by the fact that the current account deficit is no longer fully financed by FDI (see Figure 1.14A below).

Status of the adjustment

This section provides a brief update on the key features and status of the adjustment along four dimensions: monetary, fiscal, external, and social. In all four dimensions, policy makers are typically caught up in the tension between what they would like to do (ease) and what they are compelled to do (tighten). At the same time, what they do or fail to do along one dimension is likely to affect the policy space along any of the other three dimensions. We consider each of these dimensions in turn.[4]

Monetary adjustment. For most countries, the space for counter-cyclical monetary policy has drastically shrunk or altogether disappeared. As argued previously (see, for instance, the April 2015 report in this series), monetary policy is severely constrained by the absence of "divine coincidence" (i.e., the conflict between containing inflation and sustaining output). As illustrated in Figure 1.9 (Panel A), in recent years central banks have been compelled to act pro-cyclically, keeping monetary policy tight in spite of a widening output gap. While the exchange rate pass-through fell dramatically during the commodity price boom (it even became negative during the global crisis), it has been rising steadily since 2010 in response to the large and systematic currency depreciations (Figure 1.9, Panel B). As a result, inflation has tended to exceed the ceilings of the

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[4] Given that the economic adjustment is being forced on the region mainly by the bursting of the commodity price bubble, the section focuses mainly on SA countries. However, it includes MCC countries where appropriate for comparison.

FIGURE 1.9. LAC Inflation Targeters: Lack of Divine Coincidence, Pass-through, Target Bands and Expectations

PANEL A. *Lack of Divine Coincidence*

— Difference in Gap relative to GDP Trend: LAC Average minus US
— Difference in Inflation Rate: LAC Average minus US (rhs)
— Difference in Interest Rate: LAC Average minus US (rhs)
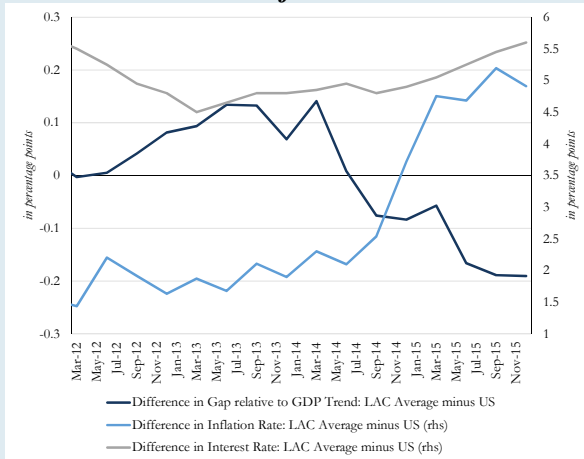
PANEL B. *Pass-through Coefficient*
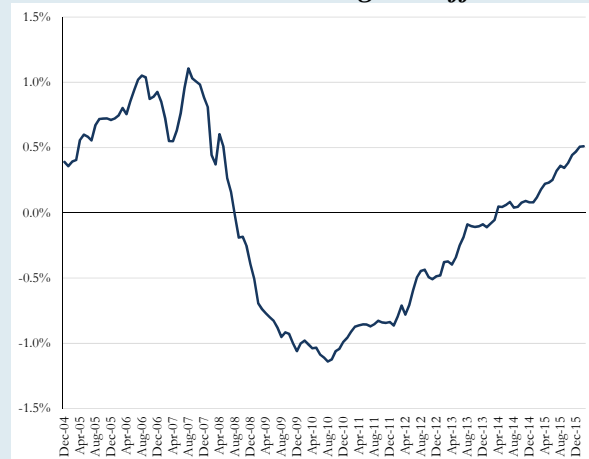
PANEL C. *LAC Inflation Targeters (excl.) Brazil: Actual Inflation vs Target Bands*

— Inflation --- Targeted Band
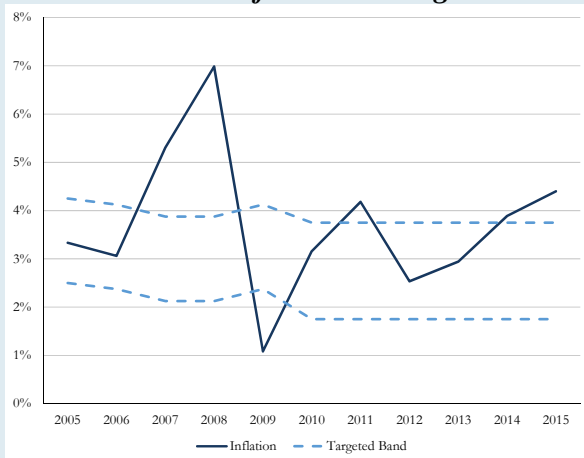
PANEL D. *Brazil: Actual Inflation vs Target Bands*

— Inflation --- Targeted Band
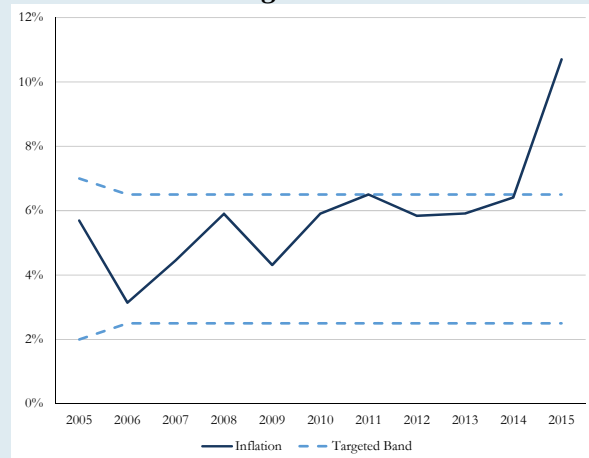
PANEL E. *Actual Inflation vs Expectations*

— Inflation — Expectations --- Targeted Band
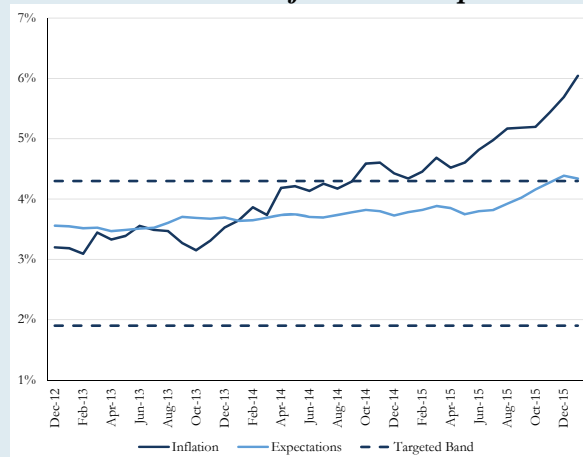
Notes: Panels A, B and E, show simple averages for Brazil, Chile, Colombia, Mexico, and Peru. In Panel A, Gaps relative to trend are calculated using a Hodrick-Prescott filter. In Panel B, correlation coefficients are calculated regressing monthly year-on-year inflation in time t on the accumulated year-on-year depreciation from t-23 to t, and using a 48-month rolling window. Panel C shows the average for Chile, Colombia, Mexico, and Peru. Sources: LCRCE based on Bloomberg and national sources.

target bands set by central banks (Figure 1.9, Panels C and D). At the same time, inflation expectations have tended to slowly drift above central targets and are beginning to exceed the ceiling of the target band (Figure 1.9, Panel E), which militates in favor of keeping monetary policy tight.

There are important interactions between the monetary adjustment and those along the other policy dimensions. For example, for Colombia the decision not to lower (or raise) interest rates is further supported by the need to keep domestic demand in check so as to curb the external current account deficit. In Brazil, the central bank faces constraints to easing as well as tightening due to fiscal dominance—a tighter monetary policy raises the fiscal deficit because a large share of local-currency denominated government debt is subject to adjustable interest rates.

Fiscal adjustment. Fiscal adjustment needs are large in many SA countries. Commodity related revenues have taken a nosedive since 2012, with a particularly abrupt collapse in 2015 (Figure 1.10, Panel A). But little progress towards fiscal consolidation is visible, so far. Except for some countries (such as Peru and Colombia), SA governments have continued to expand expenditures (Figure 1.10, Panel B). This stands in sharp contrast with MCC countries, where fiscal spending has remained stable. As a result, fiscal balances have deteriorated significantly and steadily, albeit again not in all countries (Figures 1.10, Panels C and D). Some countries have some room to borrow (or draw down the fiscal savings accumulated in good times), so as to implement a gradual fiscal adjustment. In other cases, however, frontloading fiscal adjustment would be recommendable from the economic point of view but has been postponed due to strong political resistance, incurring in the process the risk of undermining fiscal viability and further raising the sovereign risk premium. The latter point is important, considering that changes in the sovereign risk premium appear to be highly non-linear and particularly sensitive to fiscal deficits in the SA region compared to the MCC region (Figure 1.11, Panels A and B). Insufficient fiscal adjustment could thus hinder access to external finance and exert additional pressures on monetary policy rates.

FIGURE 1.10. Fiscal Indicators in LAC

PANEL A. *Commodity Related Revenues*
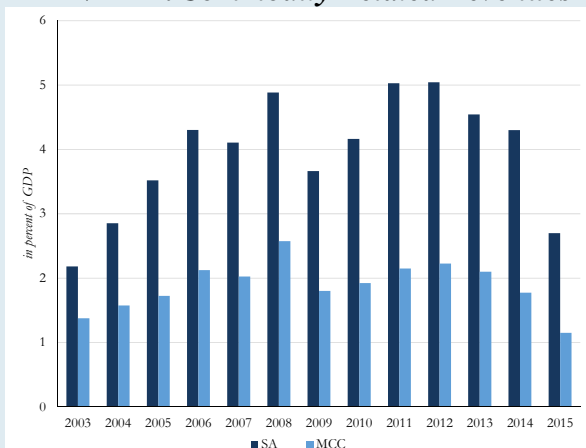
PANEL B. *Government Expenditures*
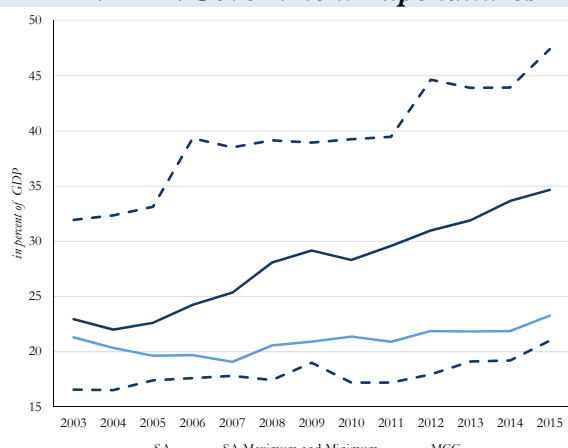
FIGURE 1.10 (Cont.). Fiscal Indicators in LAC

| PANEL C. *Overall Fiscal Balances* | PANEL D. *Primary Fiscal Balances* |

Notes: SA includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, and Peru. MCC includes Costa Rica, Dominican Republic, Mexico, and Panama. Sources: national sources and World Bank calculations.
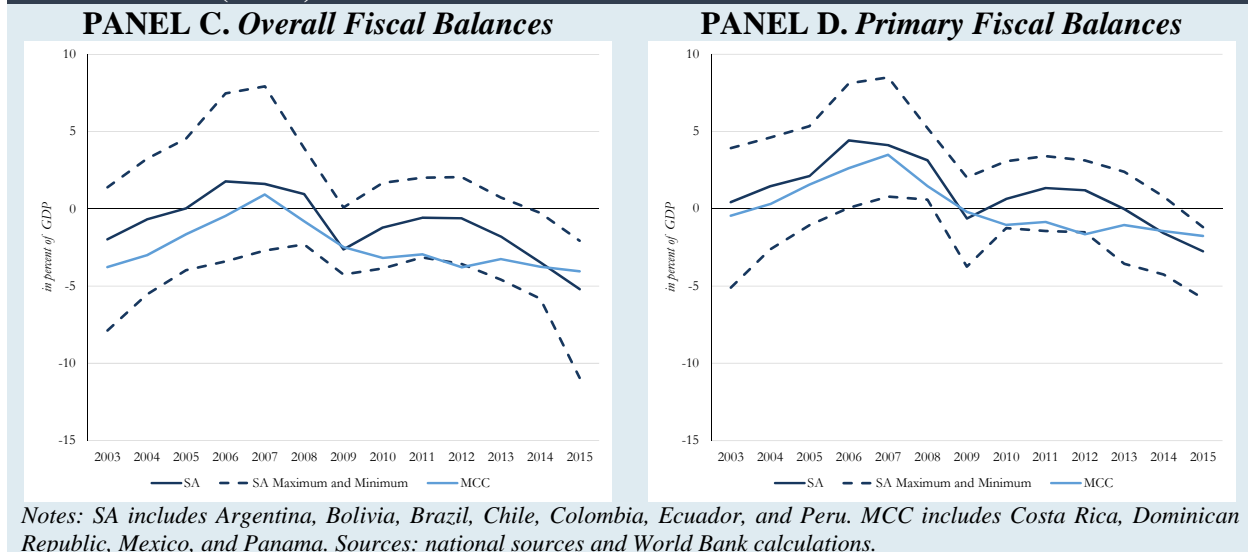
External adjustment. As explained in Chapter 2, the terms of trade windfalls have had a considerable impact on SA's current accounts. During the boom they boosted aggregate demand expansion, pushing (real) current accounts into deficit territory as early as 2007-2008, i.e., well before the steady decline in commodity prices that started around 2012 (Figure 1.12, Panel A). During the slowdown, the fall in the terms of trade drove the downward trend in domestic demand and economic activity. Despite the depreciations, current account deficits have not narrowed yet. In part this is because foreign direct investment (FDI) has remained stable. However, SA has stopped accumulating international reserves since around 2012. The bursting of the commodity price bubble now implies bringing aggregate domestic demand down to a level that can generate a growth-consistent, sustainable current account position. There is substantial heterogeneity within SA in this regard. The current account deficit in several countries (Uruguay, Brazil, Argentina) would be much wider if investment rates were kept at the regional average of the 2000-2011 period (Figure 1.12, Panel B).[5] In addition, where current account deficits have been reduced (e.g., Brazil), it has been mainly on the strength of import contraction, in turn driven by the decline in growth rates (Figure 1.13, Panel A).

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[5] Using the regional average investment rates may distort the results for individual countries that have had historic rates significantly different than the regional average. Colombia is unique in that the current account deficit is large (at 6.5 percent of GDP) and has been rising (despite the TOT fall and major real exchange rate depreciations) reflecting an investment rate that is well above the historical average and may thus not be sustainable over the medium term.

FIGURE 1.11. EMBI Spreads and Primary Fiscal Balances for LAC Countries, 2014

PANEL A. *South America*
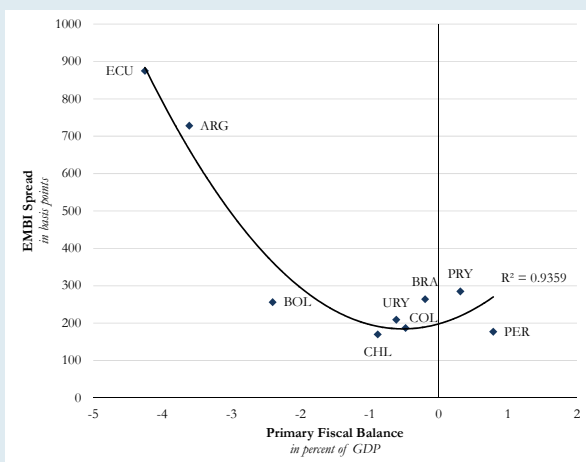
PANEL B. *Mexico, Central America and the Caribbean*
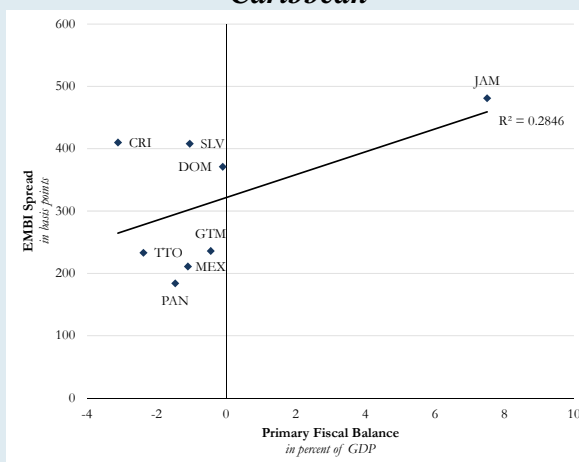
Notes: The EMBI spreads in the figures are for the last week of 2014.Sources: Bloomberg, IMF's WEO and World Bank calculations.

FIGURE 1.12. Current Account Financing and Growth-consistent Balances

PANEL A. *SA: Current Account and it's Financing*
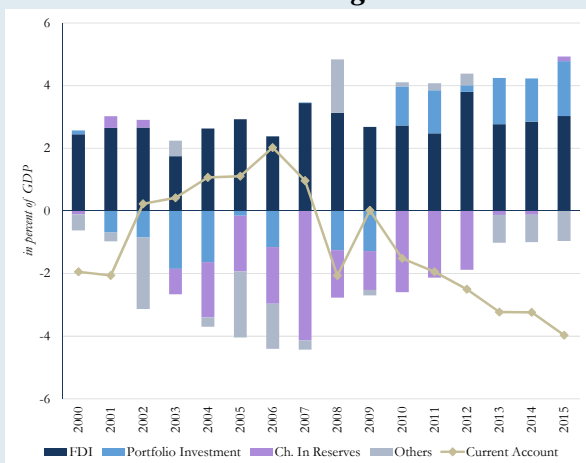
PANEL B. *Observed and Growth Consistent CA Balances, 2015*
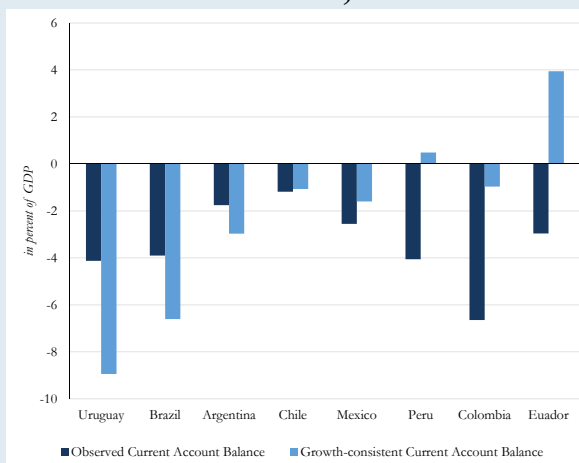
Notes: Panel A shows the simple average for Argentina, Brazil, Chile, Colombia, and Peru. The components financing the current account are expressed as net inflows in percent of GDP. In panel B, the observed and growth-consistent current account balances are the simple average for the available quarters in 2015. The growth-consistent balance is calculated by subtracting 21.55 percentage points of GDP (the average quarterly investment rate for 2000-2015 for all the countries shown) to the actual saving rate. Sources: LCRCE based on national sources.

Only a very limited export response to the real exchange rate depreciations is visible yet. While it appears that in some countries the volume of agricultural commodity exports is increasing, in the case of non-commodity exports the response appears to be limited to a break in downward trend, as in the case of the Brazilian manufacturing sector (Figure 1.13, Panel B). This limited response is in part a reflection of the weakness in global demand, in particular that stemming from China (Figure 1.14, Panel A). It also may reflect the fact that exchange rate depreciations do not necessarily imply a gain in competitiveness in third markets relative to competitor countries that

have similarly depreciated. In addition, and importantly, it may reflect the fact that non-commodity tradable production lost considerable ground in SA during the commodity cycle, with countries most likely experiencing in the process a weakening of their connections to international non-commodity markets. As shown in Chapter 2, this phenomenon was more pronounced in countries where domestic demand expanded faster and real exchange rates appreciated more. Thus, in the immediate future, the production of import substitutes may play a more important role than that of non-commodity exports in helping reactivate the tradable sector. Indeed, in countries with more robust domestic demand (Colombia, Peru), manufacturing production has of late been picking up steam (Figure 1.14, Panel B).

FIGURE 1.13. Brazil: Trade Balance, Selected Items

PANEL A. *Brazil: Merchandise Exports and Imports*
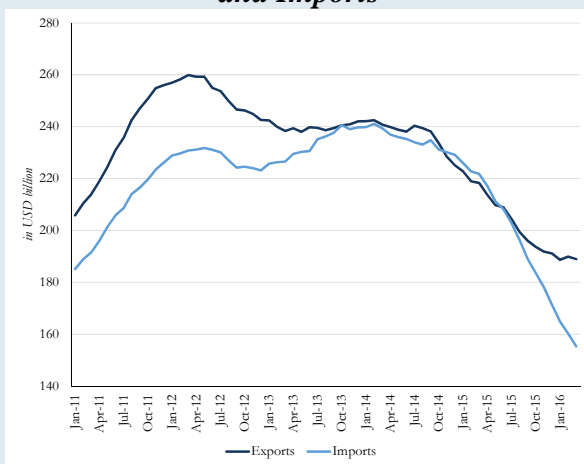
PANEL B. *Brazil: Exports of Manufactured Goods*

Notes: Panel A shows the 12-month moving sum. Sources: national sources.

FIGURE 1.14. Weakness in Global Demand and Scope for of Import Substitution

PANEL A. *China: Growth in Real GDP and Import Volume*
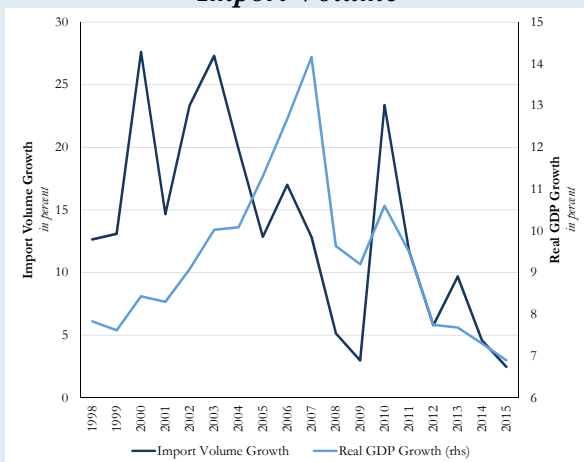
PANEL B. *Manufacturing Production Growth in LAC*
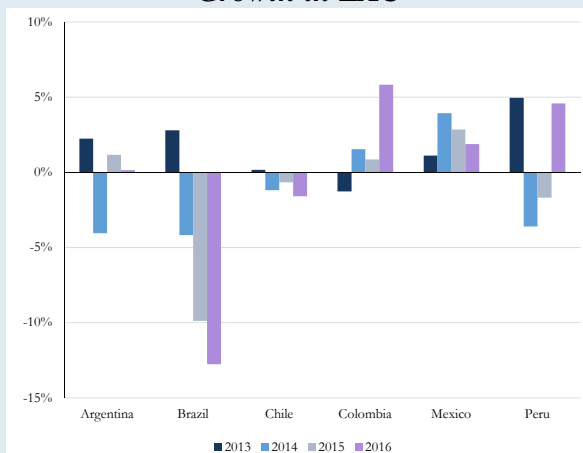
Notes: In Panel B, 2016 shows growth for the average of the last three available months with respect to the equivalent period in the previous year. Sources: IMF's WEO and national sources.

Social adjustment. Labor market conditions are tightening substantially in Argentina and Brazil, where growth has decelerated the most, with a strong decline in both employment and labor force participation rates between 2012 and 2015 (Figure 1.15, Panel A). Worrisomely, Mexico, although benefiting from the US recovery, continued to register declines in employment and labor force participation rates. Thus far, excepting Brazil, unemployment rates seem to be holding relatively steady.

FIGURE 1.15. Labor Market Trends in LAC during the Slowdown

PANEL A. *Decomposition of the Change in Labor Force Participation, 2012-2015*
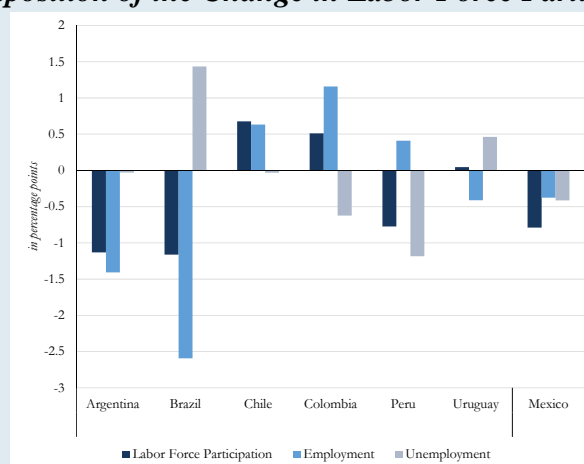
PANEL B. *Change in Real Wages, 2012-2015*
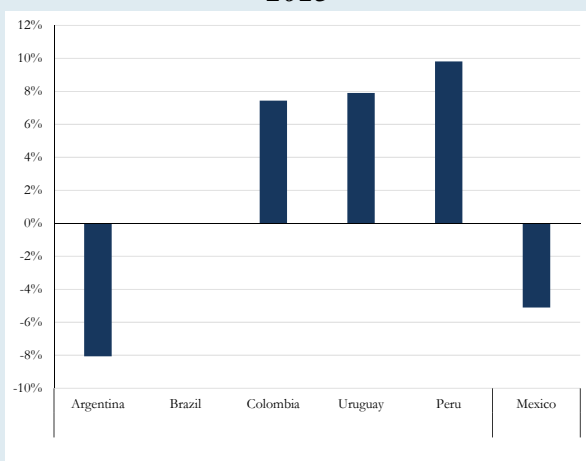
PANEL C. *Change in Employment by Type, 2012-2015*
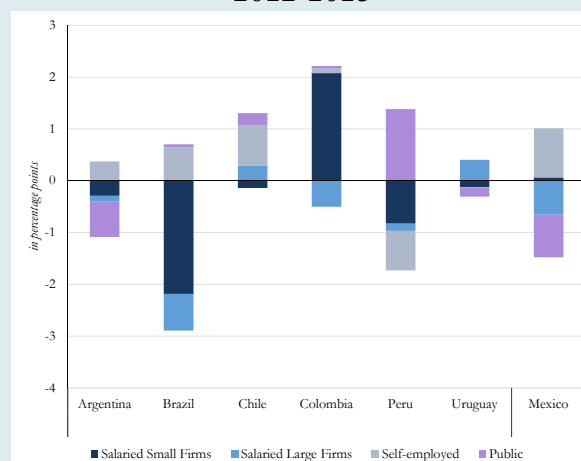
Notes: In Panels A and C, economically active population are all workers (self-employed, salaried, employers) or unemployed in the labor force age range (15-65). In Panel B, the sample includes full-time (having worked more than 35 hours a week) workers, including salaried, self-employed and employers; the education level and gender 99th and 1st percentiles of main occupation wages were trimmed for each year- country subgroup. In Panel B, Brazil is zero. In Panel C, the changes shown are in the ratios to working age population. Sources: LCRCE based on LABLAC (CEDLAS and the World Bank).

FIGURE 1.16. Poverty and Inequality Trends in LAC during the Slowdown

PANEL A. *Change in Moderate Poverty, 2012-2014*	PANEL B. *Change in Household Income Gini, 2012-2014*
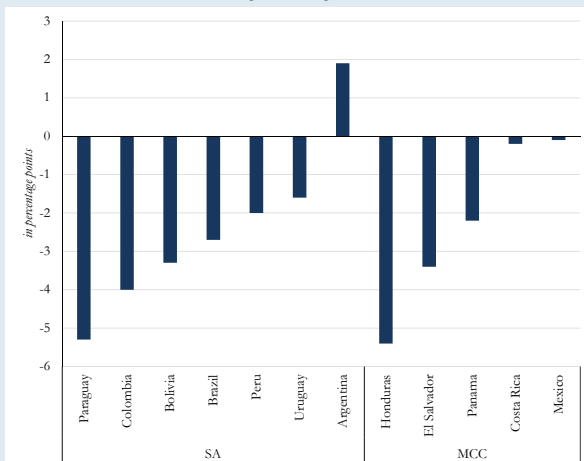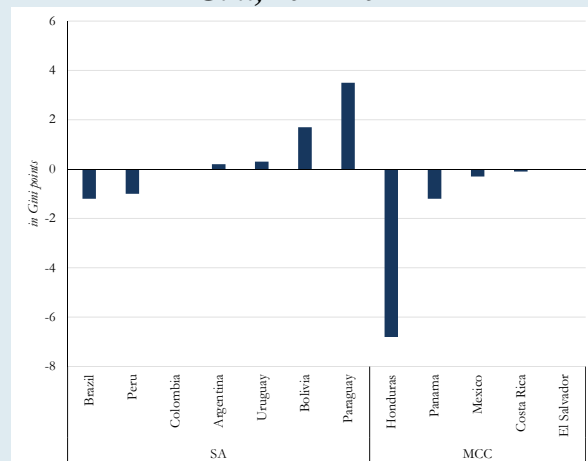
Notes: In Panel A poverty is measured using 2005 USD purchasing parity power per day; moderately poor households are those earning less than $4 per day. In Panel B, Colombia and El Salvador are zero. Sources: SEDLAC (CEDLAS and the World Bank).

At the same time, reflecting downward nominal wage rigidities, real wages (which fell in Mexico) have continued to rise steadily in most SA countries between 2012 and 2015, with the exception of Argentina, where inflation eroded real wages, and Brazil, where real wages are starting to reflect the recession-driven softening of the labor market (Figure 1.15, Panel B). In addition, the quality of employment seems to be deteriorating in SA, with significant reductions in the share of salaried employees working in firms in Argentina, Brazil and Peru, and rises in the share of self-employed in Brazil and Argentina (Figure 1.15, Panel C)[6]. However, poverty rates continued to decline throughout most of the region between 2012 and 2014, including in SA, with the exception of Argentina (Figure 1.16, Panel A). Likewise, with the exception of Bolivia and Paraguay, Gini indices of household income inequality did not deteriorate through 2014 (Figure 1.16, Panel B). However, the ongoing drops in labor force participation (which are higher for young and less educated males, as documented in the October 2015 report in this series) could well lead to an increase in household income inequality that may be reflected in post-2014 Gini data. Coming in the wake of a decade or more of sustained improvements in social welfare, the deterioration of social indicators is likely to generate political pressures that will further stress the policy dilemmas, particularly in regard to their fiscal dimension.

Summing up, the tensions that the region is enduring as part of the adjustment to the new normal are not yet easing. Moreover, external conditions may take a turn for the worse if China's growth weakens more than expected, commodity prices soften further, or the US economic recovery loses steam. Thus, while there may be some rays of light at the end, the tunnel is proving to be longer and more treacherous than anyone expected. As argued in this and the next chapter, countries' adjustment position and policy space to maneuver their way into a smoother adjustment path differ

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[6] These are changes in shares relative to the labor force (instead of the employed).

greatly. Why such differences? How did the region get to where it is now? What lessons can be learned from this experience? What more can policy do? These questions are all tackled in the next two chapters.

Chapter 2:
Lessons from the Commodity Cycle

Introduction

This chapter analyzes the roots of the policy dilemmas the South America (SA) region is now facing by taking a broad macroeconomic perspective over the entire commodity cycle. It quantifies the external shocks to which countries were submitted and analyzes the factors that amplified or dampened the impact of these shocks on domestic demand. The chapter contains three core messages.

First, the chapter stresses a well-recognized yet perhaps underestimated stylized fact, namely, that SA is uniquely exposed to world commodity price turbulence, to the point where fluctuations in the key macro indicators (growth, current account, investment, real exchange rate, etc.) have very closely tracked the terms of trade fluctuations. The tight link between commodity prices, terms of trade and macroeconomic fluctuations, and the associated volatility costs, naturally calls for a unique set of policies aimed at smoothing out the cycles. While some countries in the region have already made significant progress in this direction, much more is needed in both depth and breadth.

Second, while aggregate demand has responded to the terms of trade in all countries, the intensity of response has varied by country. The chapter points toward domestic saving rates as one of the key factors that has affected this intensity of transmission of external shocks on domestic demand—both via the *marginal* propensity to save more out of the terms of trade windfall and through the *average* or structural saving rate. Saving rates underlie the ability to dampen the multiplier effects of a terms of trade change on domestic demand. The expansion in domestic demand, in turn, drives the degree of real exchange rate appreciation, which creates a windfall of its own. Both the terms of trade and real appreciation windfalls can produce a "mirage" effect if the rise in purchasing power is temporary and not accompanied by an increase in output or productivity. In the terms of trade windfall, the mirage is associated to the ability to buy more imports with the same quantity of exports; it should disappear if the terms of trade gain is permanent. In the real exchange rate appreciation windfall, the mirage is associated with the ability to buy more tradables with the same quantity of non-tradables; it should disappear if the productivity of tradables rises relative to that of non-tradables so as to sustain the stronger real exchange rate.

In all cases, spending out of the terms of trade windfall strains the economy as it leads to overheating and amplification effects via real exchange rate appreciations. Both of these evils are now haunting the adjustment. The overheating because it seems to have contributed in some countries to a post-boom (incipient) stagflation problem; the real appreciation because it is exacerbating the wage-employment trade-off and delaying the expansion of the non-commodity tradable sector and, thus, the speed of economic recovery. To compound it all, countries that saved less are now facing higher EMBI spreads, hence have less room to maneuver and less scope to smooth out and distribute over time the pain of the adjustment through additional external finance.

Third, the question naturally arises regarding the extent to which saving can be influenced by policy. Although the evidence is mainly suggestive, the chapter detects some tantalizing patterns that are policy relevant and deserve further attention. In particular, because the private sector's marginal propensity to consume out of real exchange rate windfalls appears to be high, countries with fixed or more heavily managed exchange rates seem to have saved significantly more than floating rate countries, which experienced substantially larger real exchange rate windfalls. The extent to which the terms of trade windfall went to the private sector also seems to have mattered. Countries where the state captured more of the windfalls have done generally better because they were better able to modulate the rhythm of spending in accordance with the economy's absorptive capacity. Yet, the report also detects a disturbing negative correlation between national saving and the size of the state, which suggests that public appropriation of the windfalls may end up being counterproductive if it leads to a permanently bigger state.

The rest of the chapter is organized as follows. The next section presents an analytical framework that sorts out price windfalls from quantity effects based on an accounting decomposition approach. The following section reviews the unique dependence of SA on commodity prices, and portrays its overall impact on the region's macroeconomic performance. The subsequent section delves into the transmission process going from terms of trade changes to aggregate domestic demand and looks into the factors affecting marginal propensities to consume during the cycle. The last section focuses on the adjustment costs that SA countries now face and relates them to their saving performance throughout the cycle.

The framework: windfalls measurement

The commodity boom gave rise to increases in income from two sources, one based on pure valuation or relative price effects (terms of trade and real exchange rate) and the other based on volume responses. This section spells out their macroeconomic impacts and presents a summary table that breaks down the sources and uses of the price windfalls based on an accounting methodology that decomposes national accounts into price and quantity effects.

Because a pure terms of trade price windfall has no output counterpart, *any spending* out of the windfall creates excess demand on impact. In the absence of a local supply response, the increase in demand must be fulfilled through imports. It therefore triggers a Dutch disease-type problem.

With a fixed supply of non-tradables, the increase in demand raises their price relative to that of tradables, thereby appreciating the real exchange rate, which discourages the production of non-commodity tradables.

Whether the recorded saving rate rises or falls in the process depends on accounting conventions and the extent to which price windfalls are accompanied by quantity responses. In the absence of an increase in the quantity supplied, if the price windfalls are counted as part of income but are not entirely consumed, the *nominal* saving rate (nominal saving divided by nominal GDP) should rise. Instead, if the price windfalls are not counted as part of income yet are partially consumed, the *real* saving rate (real saving divided by real GDP) should decline (see Appendix 2.1). Thus, a mirage appears: in one case, the country's fundamentals (saving) appear to improve, in the other they worsen.

The trajectories of the nominal and real saving rates followed by SA neatly illustrate this effect (Figure 2.1). Before the global crisis, the nominal saving rate rose ahead of the terms of trade, implying that countries saved most of the price windfall (the sum of terms of trade and real exchange rate windfalls). As a result, real saving rose in tandem with nominal saving. Instead, after the 2009 crisis, nominal saving fell behind the terms of trade as countries consumed a larger part of the windfall. As a result, real saving moved in the opposite direction to nominal saving. Thus, based on the rise in nominal saving, policy makers had no apparent reason to worry. Yet, when looking at real saving, policy makers should have been genuinely worried because, as we argue in later sections, substantial but temporary spending booms (particularly consumption booms) can have lasting costs.

A meaningful assessment requires appropriately separating price from volume effects. The methodology presented in Appendix 2.1 does precisely this. From an accounting perspective, it identifies two types of price windfalls, one derived from terms of trade changes—whose impact is proportional to a country's exports (the greater the share of exports in GDP, the larger the impact)—and the other derived from real exchange rate changes—whose impact depends on the sign of the trade account (with a trade deficit, the windfall gains to consumers who can purchase more imports with a stronger currency exceed the profit losses incurred by producers of exportables and importables). Yet, from a behavioral perspective, the gains and losses from a real exchange rate windfall do not offset each other if the gains accrue primarily to economic agents with higher propensities to consume and the losses to agents with lower propensities to consume. In practice, losses on exports tend to accrue to non-residents, the state, and high-income residents (all of which have low propensities to consume out of the windfall). Instead, the gains on imports are more widely distributed as they accrue to society at large, including the liquidity-constrained lower-income groups with very high propensities to consume.[7] Hence, because it assumes equal distribution across the population of import gains and export losses, using the trade deficit in the

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[7] Household surveys provide ample evidence of very high marginal propensities to consume windfall income gains during booms among the lower income groups. For example, household survey data from Peru show that during the

FIGURE 2.1. SA Average: Terms of Trade, Nominal and Real Saving
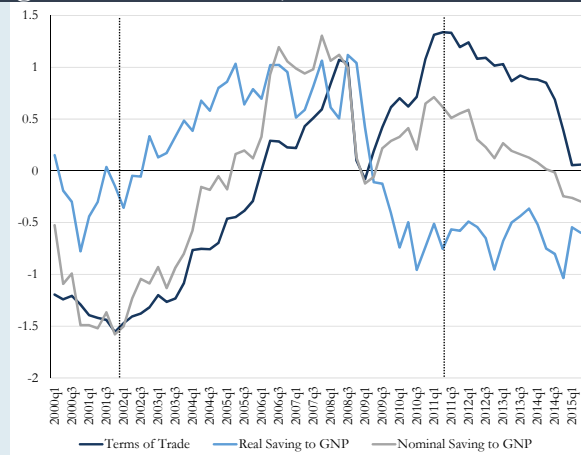
Notes: The figure shows the average standardized series for Argentina, Brazil, Chile, Colombia, Ecuador, and Peru. Standardized series are obtained by subtracting the mean and dividing by the standard deviation. Sources: LCRCE based on Bloomberg and national sources.

calculation of the magnitude of the real exchange rate windfall yields a lower bound estimate of its amplification effect. Instead, using total imports yields an upper bound because it assumes a completely one-sided distribution. When needed for estimation purposes, we will thus use the mid-point of this range.

From an accounting perspective, as long as the terms of trade windfalls are not spent locally, they would be left invested abroad and have no impact on demand or the current account. However, as they are spent locally, whether through consumption or investment, they provoke an increase in demand over and above output (e.g., an "excess demand") and, correspondingly, a (real) current account deterioration. The effect of spending out of a real exchange rate windfall compounds the impact of spending out of the terms of trade windfall, except that in the former case there is no "money in the bank" accruing from the increase in export revenues. Instead, a real exchange rate appreciation represents a lasting increase in real income and wealth only if supported by rising productivity gains in tradable relative to nontradable production. In fact, absent such productivity increases, spending the windfall may achieve precisely the opposite. Boosting appreciation can delay productivity improvements and undermine the growth of the tradable sector.

By comparing the profile over time of the excess demand (e.g., the increase in the ratio over GDP of aggregate domestic spending) with that of the terms of trade windfall, the accounting decomposition allows us to track down how much of this windfall was spent and with what lag (Figures 2.2, Panels A to H). It is also possible to relate the sources of the windfalls (terms of trade and real exchange rate) to their allocation (to residents vs. non-residents, to the public sector vs. the private sector) and their uses (whether the spending was in the form of consumption or investment). Results are summarized in Table 2.1, which measures the average windfalls over the

boom years (2004-13), the correlation between income and consumption for the lowest income quintile of the population was statistically not different from one.

whole cycle and compares them to the average increases (as a proportion of GDP) in different types of expenditures. We will use the results of this analysis further down in the chapter.

FIGURE 2.2. SA: Excess Demand and Terms of Trade Windfalls

PANEL A. *Argentina*

PANEL B. *Bolivia*

PANEL C. *Brazil*

PANEL D. *Chile*

PANEL E. *Colombia*

PANEL F. *Ecuador*
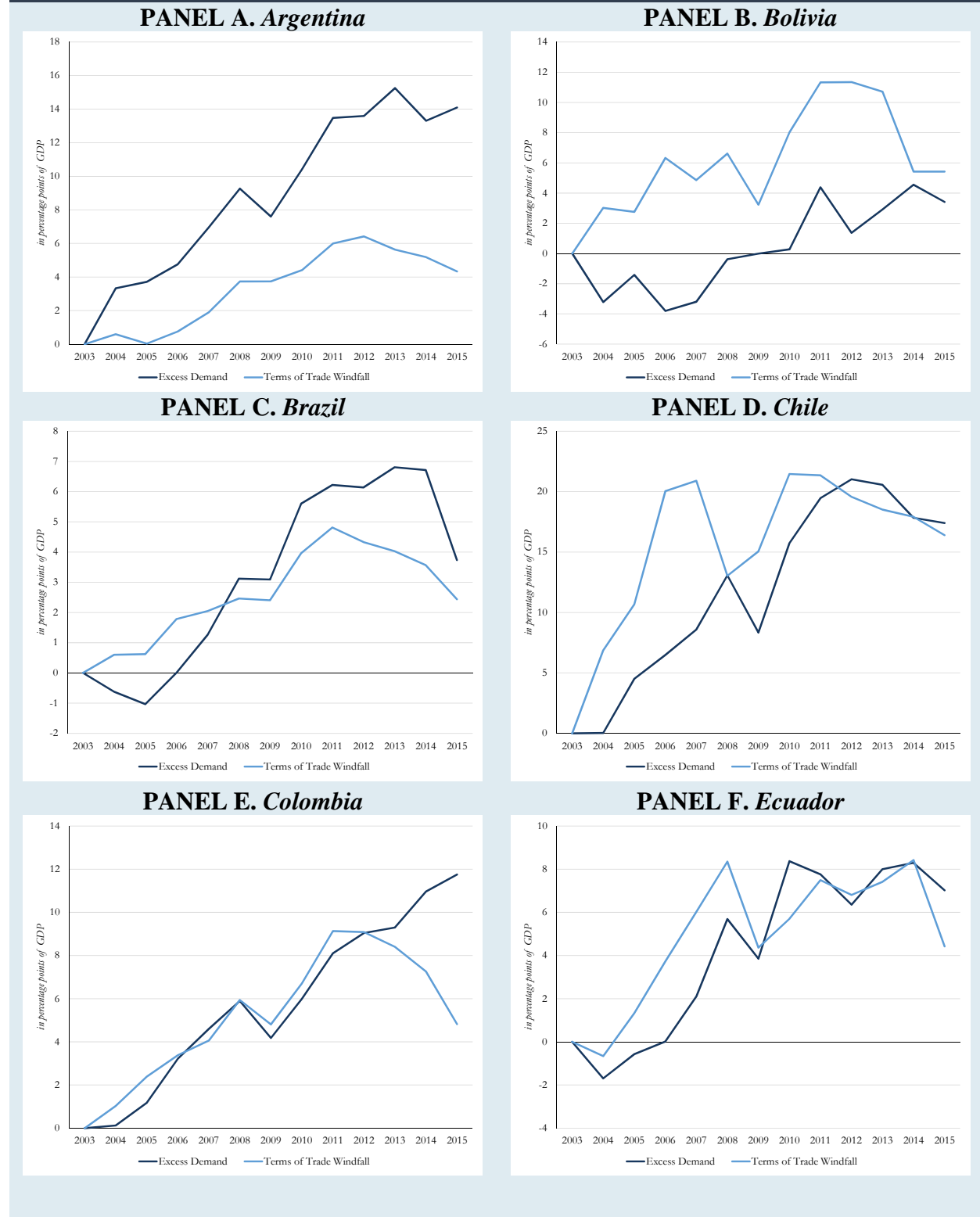
FIGURE 2.2.(Cont.) SA: Excess Demand and Terms of Trade Windfalls

PANEL G. *Peru*	PANEL H. *Uruguay*

Notes: The figure shows the accumulated changes. See Appendix 2.1 for the detail on how Excess Demand and Terms of Trade Windfalls are calculated. Sources: LCRCE based on WDI, Economist Intelligence Unit and national sources.
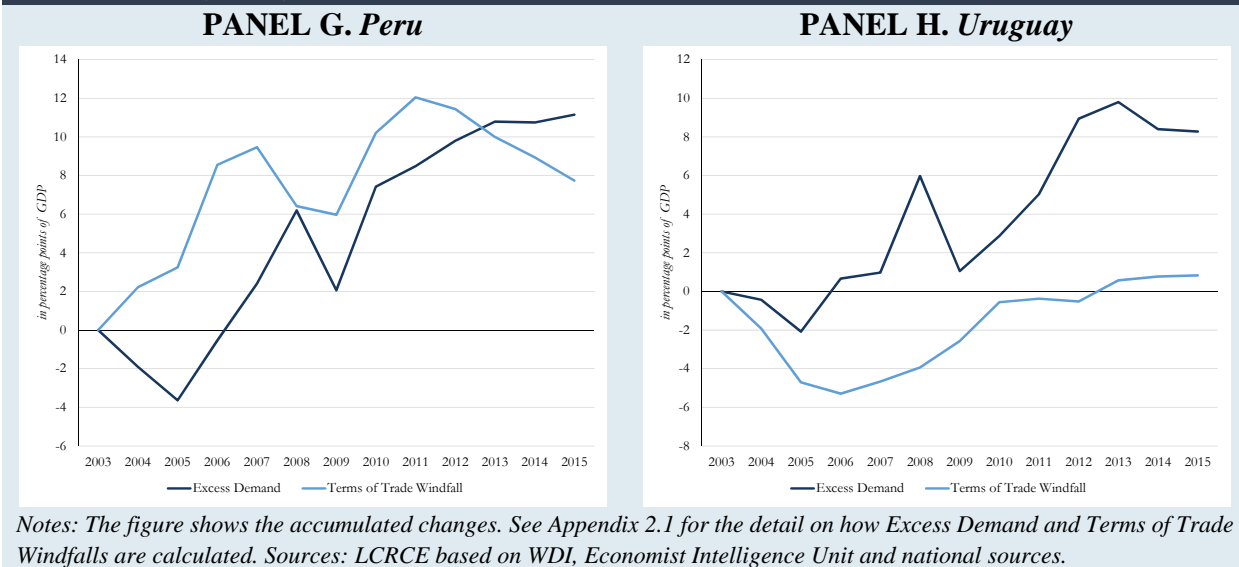
The roots: commodity dependency

Before conducting the analysis of the sources and uses of windfalls, this section takes a step back to emphasize the uniqueness, from an international perspective, of SA's dependence on commodity prices. The latter is a result of the concentration of the region's exports in commodities, which heavily conditions its terms of trade. Measured on the basis of the correlations between commodity prices and terms of trade, the SA's extreme commodity dependence clearly stands out, being even higher than that of middle-income African countries (Figure 2.3, Panel A). Note the contrast with MCC, where the correlation of commodity prices with the terms of trade is very small, and actually negative in the case of energy and foodstuffs. Indeed, when seen over time, the terms of trade for SA very closely tracked the composite index of commodity prices (Figure 2.3, Panel B). Moreover, while LAC experienced similar commodity cycles frequently in the past, the magnitude, coverage and duration of the recent cycle exceeds by far those of the past, no doubt because of the historically unique impact of the rise of China (Figure 2.3, Panel C).

TABLE 2.1. SA Purchasing Power Disposable Income: Accounting Decomposition

	PPNI		Excess Domestic Demand					Price Windfalls		
	PPDI	NFP	Total	C		I		TOT	RER	
				Cp	Cg	Ip	Ig		MIN	MAX
Argentina	2.6%	**3.1%**	**10%**	**4.3%**	0.0%	4.7%	0.6%	3.6%	**-2.4%**	**7.1%**
Bolivia	**9.0%**	0.9%	0%	**-2.8%**	-0.7%	1.4%	**2.5%**	**6.6%**	**-8.8%**	1.7%
Brazil	6.2%	0.2%	3%	**2.9%**	-1.4%	1.7%	0.2%	2.8%	-0.9%	**4.9%**
Chile	**15.2%**	0.3%	**13%**	**7.2%**	0.3%	4.8%	0.4%	**16.8%**	-1.8%	**4.9%**
Colombia	5.9%	**-1.8%**	**6%**	-1.7%	0.6%	**6.7%**	0.5%	5.6%	0.7%	**5.7%**
Ecuador	**9.8%**	**1.6%**	5%	-1.8%	**1.3%**	3.4%	**1.7%**	5.3%	**-3.2%**	**-0.1%**
Peru	**7.5%**	-2.7%	5%	**-2.2%**	0.3%	**6.2%**	0.9%	**8.0%**	-0.8%	0.5%
Uruguay	1.3%	0.7%	4%	-0.8%	**-2.3%**	5.6%	1.2%	**-2.1%**	-0.1%	4.3%

Notes: Figures shown are the average accumulated changes between 2004 and 2015 in percent of GDP. See appendix 2.1 for details on how the decomposition is calculated. Figures in bold are above the median (red when alternative sign).

FIGURE 2.3. SA's Commodity Dependence

PANEL A. *Commodity Prices and Terms of Trade Correlations, 2000-2015*

Legend: Industrial Metals, Energy, Foodstuffs
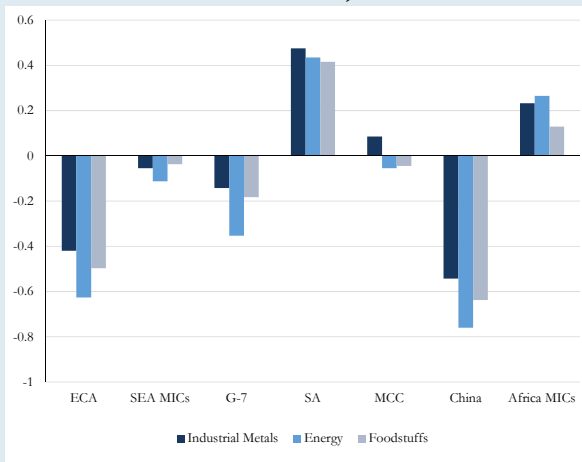
PANEL B. *Commodity Price Index and SA Average Terms of Trade*

Legend: Terms of Trade, Commodity Price Index
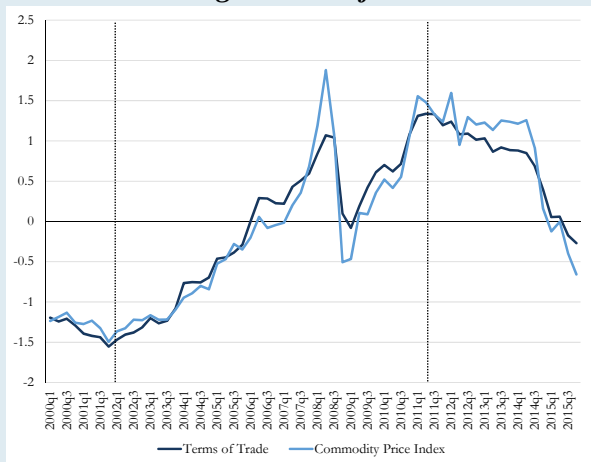
PANEL C. *LAC-7: Share of Commodities in Total Exports Experiencing Booms and Busts*

Legend: LAC-7 commodity index in boom, LAC-7 commodity index in bust
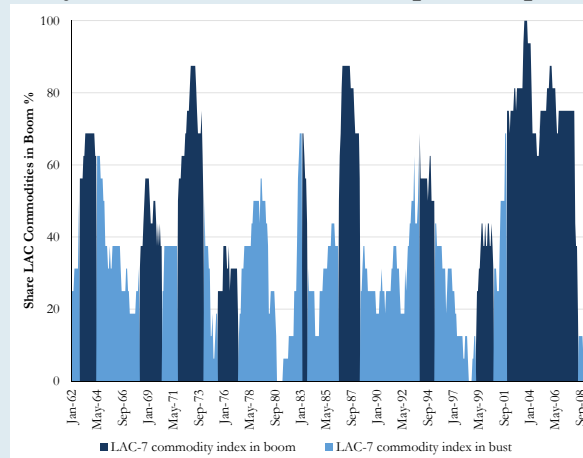
Notes: In Panel A, Africa MICs includes the 15 middle income countries, following the World Bank classification. In Panel B, the terms of trade series is the average of the standardized series for Argentina, Brazil, Chile, Colombia, Ecuador, and Peru. Standardized series are obtained by subtracting the mean and dividing by the standard deviation. Panel C shows the share of commodities experiencing a price "boom" for each period of time. Sources: LCRCE based on World Bank's GEM, Bloomberg, IMF and national sources; and Natural Resources in Latin America and the Caribbean: Beyond Booms and Busts, World Bank, 2010.

The commodities-terms of trade cycle permeated SA's macroeconomic performance. All broad macro-financial indicators closely tracked the terms of trade, including output growth (Figure 2.4, Panel A), investment (Figure 2.4, Panel B), the stock markets (Figure 2.4, Panel C), and the accumulation of net foreign assets (Figure 2.4, Panel D). Remarkably, except for Chile (and more marginally Colombia), the intensity of the demand response (e.g., its elasticity) exceeded that of output, clearly indicating that the transmission of the shock was more through demand than through supply (Figure 2.5). At the same time, while the terms of trade set the trajectory of macroeconomic variables in all countries, demand elasticities varied substantially across countries. This therefore points toward the existence of country-specific multipliers or buffers that expanded

FIGURE 2.4. SA: Average Terms of Trade and Selected Macroeconomic Indicators

PANEL A. *Real GDP Growth*

PANEL B. *Real Investment*

PANEL C. *Stock Market Returns*

PANEL D. *Net Foreign Assets*
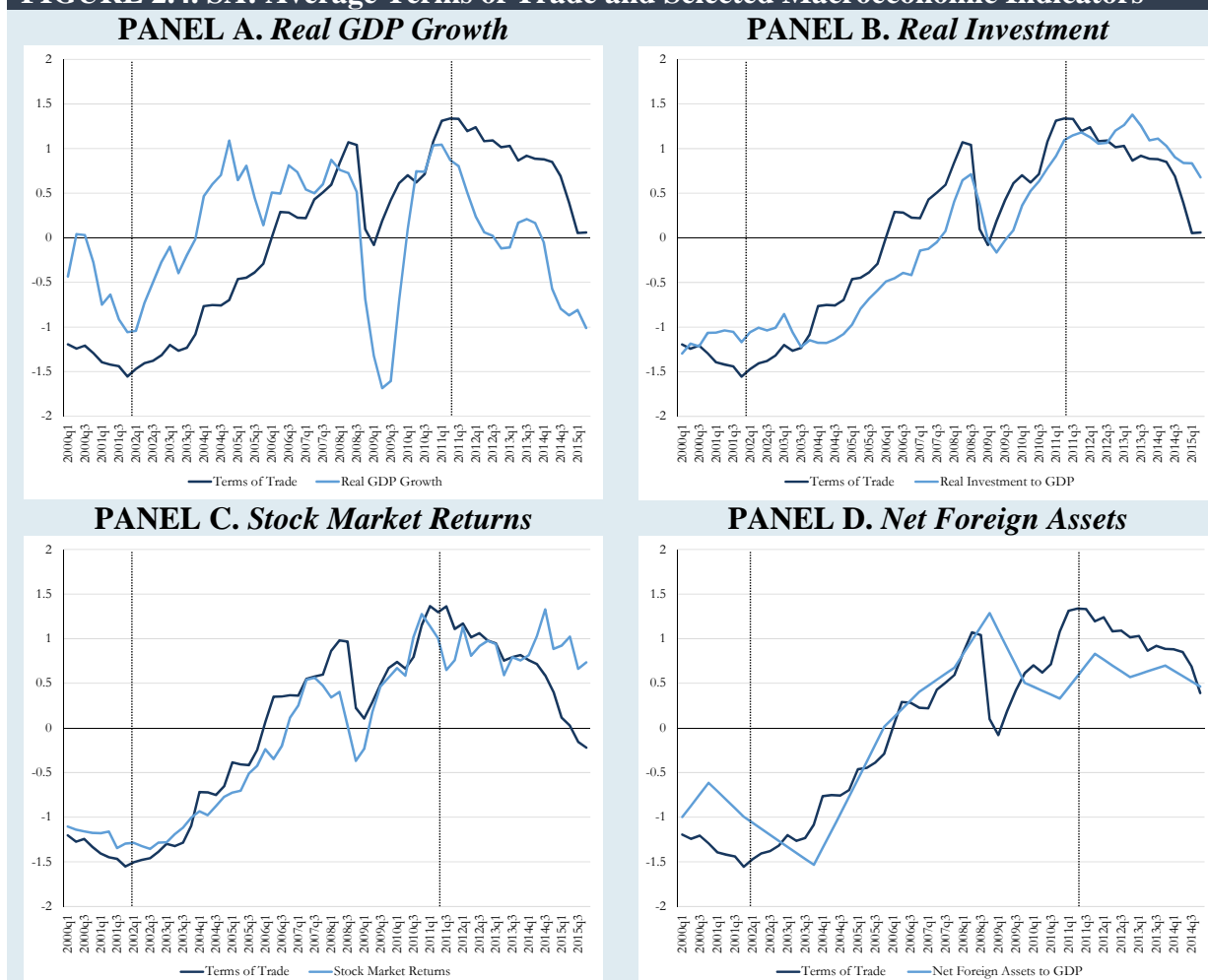
Notes: Panels A, B and D show the average standardized series for Argentina, Brazil, Chile, Colombia, Ecuador, and Peru. Panel C shows the average standardized series for Argentina, Brazil, Chile, Colombia, and Peru. Standardized series are obtained by subtracting the mean and dividing by the standard deviation. Sources: LCRCE based on Bloomberg, national sources and an updated and extended version of the dataset constructed by Lane and Milesi-Ferretti (2007).

or dampened the domestic demand impact of windfalls. We will take full stock of what these multipliers might be in the next section. But some of these factors already jump to sight.

In particular, the real exchange rate evolved very differently for different groups of countries. For countries with more flexible exchange rate regimes (Brazil, Chile, Colombia), the real exchange rate correlated positively and very highly with the terms of trade (Figure 2.6, Panel A). In higher inflation countries with managed floating (Uruguay) or heavily managed exchange rates (Argentina), the correlation was less tight but the two series still followed the same basic trend (Figure 2.6, Panel B). While in the first group of countries the real exchange rate adjustment took place nearly instantly via the numerator (i.e., the nominal exchange rate), in the second group the adjustment took place via the denominator (i.e., inflation). Finally, in lower inflation countries with heavily managed floating regimes (Bolivia and Peru) and in formally dollarized Ecuador, the

FIGURE 2.5. SA: Domestic Demand and Real GDP Elasticities with Respect to Terms of Trade
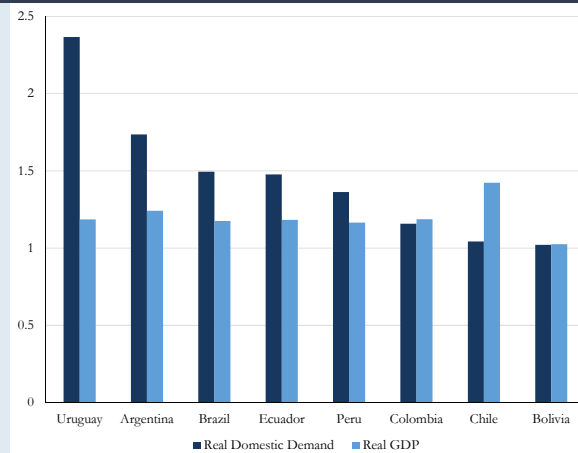
Notes: The elasticities were calculated using annual data for the 2000-2015 period. Sources: LCRCE based on Bloomberg and national sources.

link between terms of trade and real exchange rate went in the opposite direction (Figure 2.6, Panel C). This reflected mainly the fact that these countries' nominal exchange rates closely tracked the US dollar. Because commodity prices are quoted in dollars and, hence, go down when the dollar appreciates, this gave rise to an inverse correlation between the terms of trade of these countries and their real exchange rates. As we will see below, these differences affected saving (consumption).

Next, note that the rise and fall of LAC's terms of trade triggered contrasting shifts in aggregate domestic demand across the region, depending on whether countries are net commodity exporters or net commodity importers. In the case of the former, domestic demand rose significantly over the boom and fell over the bust. As can readily be seen in Figure 2.7, the aggregate domestic demand fluctuations for SA countries (which are typically net commodity exporters) clearly exceeded those of MCC countries (which are typically net commodity importers or minor net commodity exporters). However, some SA countries (Argentina, Brazil, Chile, Uruguay) experienced stronger demand increases during the boom than others (Colombia, Ecuador Bolivia). Rather remarkably, the two latter groups then switched places during the bust. The high domestic demand growth group during the boom became the low demand growth group during the bust. Instead, the low demand group during the boom tended to experience a relatively smaller reduction in demand growth during the bust. The low demand group was joined by Peru, the only country where demand (driven largely by investment) rose strongly during both boom *and* bust.

These stark differences in the dynamics of aggregate domestic demand and terms of trade fluctuations can be traced back to very different *real* consumption, saving and investment behaviors among SA countries. In a first group of countries (Argentina, Brazil, Chile, Uruguay), the "consumption boomers," real consumption (as a ratio to real GDP) went steeply up; in the other group (Colombia, Bolivia, Ecuador, Peru), the "investment boomers," real consumption went

FIGURE 2.6. SA: Average Terms of Trade and Real Exchange Rates

PANEL A. *Free Floaters*

PANEL B. *Higher Inflation Managed Exchange Rate Countries*

PANEL C. *Lower Inflation Fixers and Managed Exchange Rate Countries*

Notes: An increase of the real exchange rate means an appreciation. Panel A shows the average standardized series for Brazil, Chile, and Colombia. Panel B shows the average standardized series for Argentina and Uruguay. Panel C shows the average standardized series for Bolivia, Ecuador, and Peru. Standardized series are obtained by subtracting the mean and dividing by the standard deviation. Sources: LCRCE based on Bloomberg, national sources and IMF's IFS.

down or remained steady (Table 2.1). Accordingly, the consumption boomers saved and invested less, whereas the investment boomers saved and invested more throughout the 2005-2014 period.

Thus, while external current accounts steadily deteriorated for both groups, reflecting the terms of trade-driven expansion in real domestic demand relative to output, they did so through dramatically distinct routes, as depicted in Figure 2.8, Panel A. The investment boomers kept real saving high (and rather stable) while steadily increasing real investment between 2005 and 2015. In contrast, the consumption boomers were hardly able to keep real investment up while their real saving steadily fell. In addition, the consumption boomers had weaker current account balances throughout most of the cycle but were compelled to close their current account deficits earlier during the bust than the investment boomers (Figure 2.8, Panel B). Moreover, during the bust, the consumption boomers experienced an earlier and greater decline in growth rates compared to the

FIGURE 2.7. LAC: Changes in Terms of Trade and Domestic Demand, Boom and Slowdown
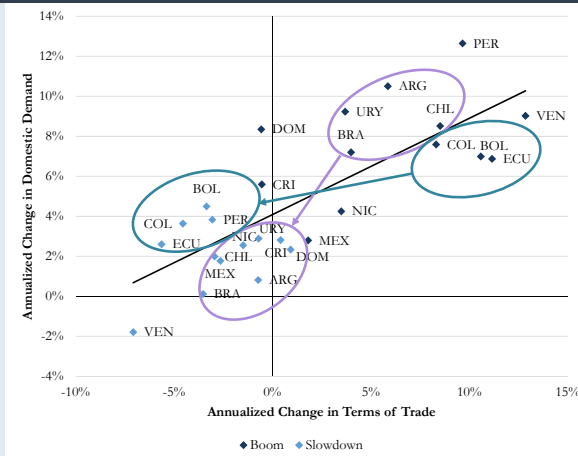
Notes: Boom is 2005-2011 and Slowdown is 2012-2015. Sources: Bloomberg, WDI, World Bank's GEM and national sources.

investment boomers (Figure 2.8, Panel C) and higher inflation rates (Figure 2.8, Panel D). We investigate the possible roots of these different trajectories in the rest of this chapter.

The transmission: demand multipliers

This section identifies the factors that are most likely to have exerted a multiplier or dampener effect on the transmission of terms of trade changes to aggregate domestic demand. It first argues that saving, rather than investment, played the key role in channeling the pressures of terms of trade changes to aggregate domestic demand. It then breaks down the possible factors that affected the evolution of domestic demand during the cycle or conditioned its macroeconomic impact.

A variance decomposition analysis of the *yearly* current account balance (saving minus investment) over the period 2000-2015 indicates that real investment tended to dominate real saving in shaping the average real current balance *over time* for any given SA country (Figure 2.9, Panel A). However, the variance decomposition analysis of the *average* real current account for the same period *across* SA countries indicates that it was real saving that clearly dominated real investment (Figure 2.9, Panel B). Indeed, when plotting average real saving and investment rates against the real current account, we find that SA countries closely align along the saving (rather than the investment) dimension (Figure 2.9, Panels C and D). This largely reflects the fact that on average over-the-cycle saving—because of either idiosyncratic country features or policy choices—varied across countries more than investment, as can be checked based on the range of observations along the horizontal axes in Figures 2.9, Panels C and D.

In sum, the differences in macroeconomic performance across countries over the whole cycle came mainly from the saving side rather than from the investment side. The countries that saved the most in real terms were better able to moderate their aggregate demand expansion, thereby limiting the size of their current account deficits. As a result, SA countries with larger average current

FIGURE 2.8. SA: Consumption Boomers and Investment Boomers

PANEL A. *Real Saving and Investment Trajectories by Group, 2005-2015*
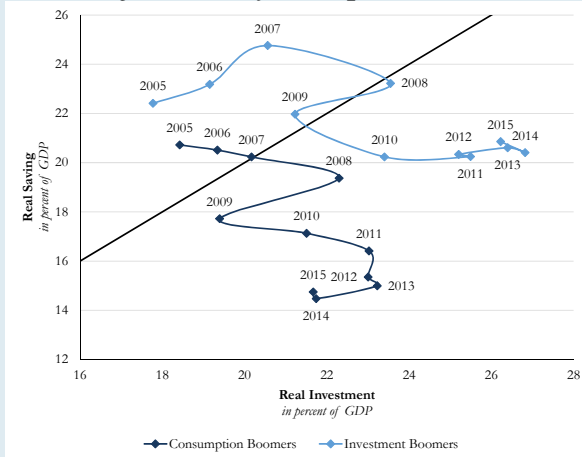
PANEL B. *Real Current Account Balance by Group*
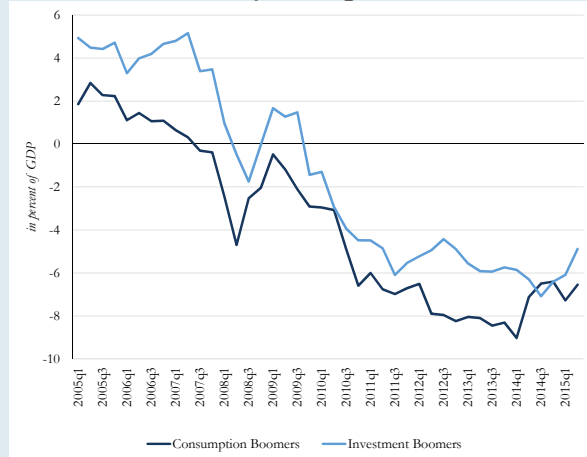
PANEL C. *Real GDP Growth by Group*
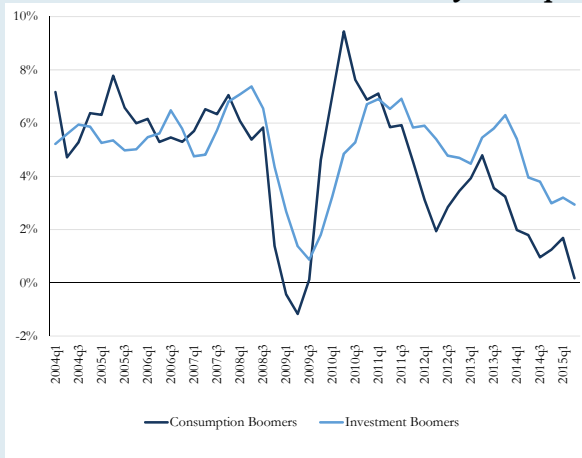
PANEL D. *Inflation Rates by Group*
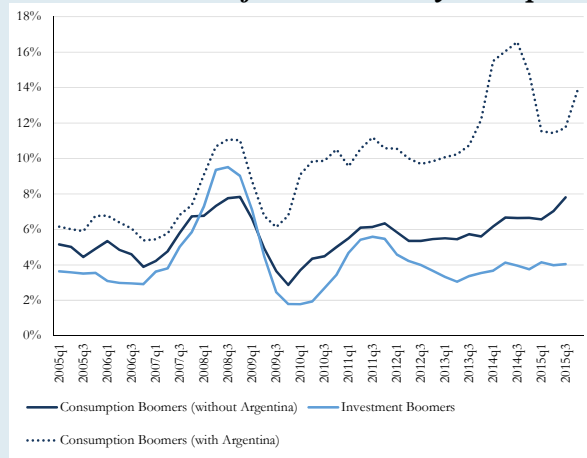
Notes: Consumption Boomers includes Argentina, Brazil, Chile, and Uruguay. Investment Boomers includes Bolivia, Colombia, Ecuador, and Peru. In Panel A the diagonal line shows a balanced current account. In Panel D, because of Argentina's statistical emergency, the San Luis CPI is used from 2007 onwards. Sources: LCRCE based on national sources.

account deficits are not typically the countries with larger average real investment rates but rather the countries with lower real saving rates.[8]

To rationalize these outcomes, note first that, in accordance with a conventional Keynesian-type consumption function, the higher the average real saving rate over the commodity cycle, the lower the multiplier effect on domestic demand of a price windfall. In turn, the average saving rate over the cycle depends on both the "structural" saving habits of the economy (a first key factor affecting the size of the multiplier) and the changes in the marginal propensity to save over the cycle.

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[8] This finding is consistent with the Gourinchas and Jeanne (2013) "allocation puzzle," whereby foreign savings tend to flow more towards countries with lower investment and growth rates. Stated differently, the puzzle is that countries with larger current account deficits tend to have lower investment and growth performance.

FIGURE 2.9. Saving and Investment Contributions to Real Current Account Balances

PANEL A. *Current Account Variance Decomposition by Country over Time*
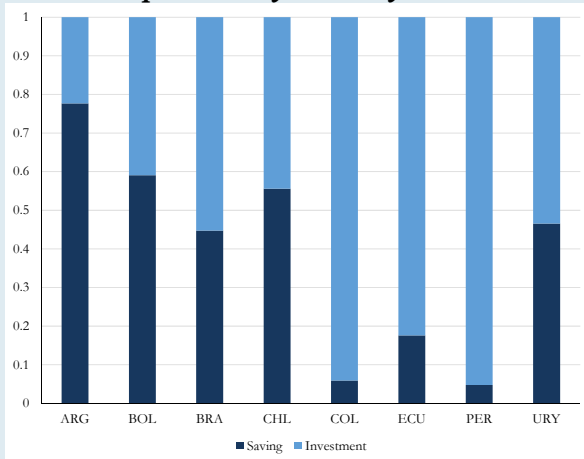
PANEL B. *Cross-country CA Variance Decomposition by Country, Averages*
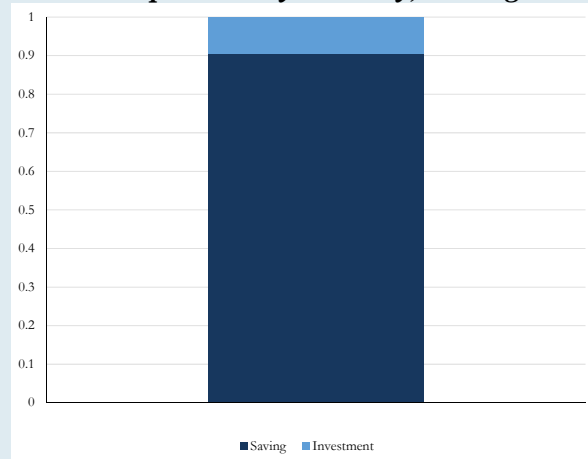
PANEL C. *Real Saving against Real Current Account Balances*
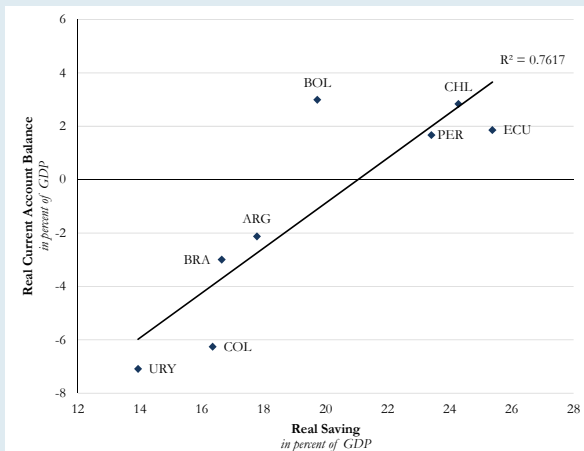
PANEL D. *Real Investment against Real Current Account Balances*
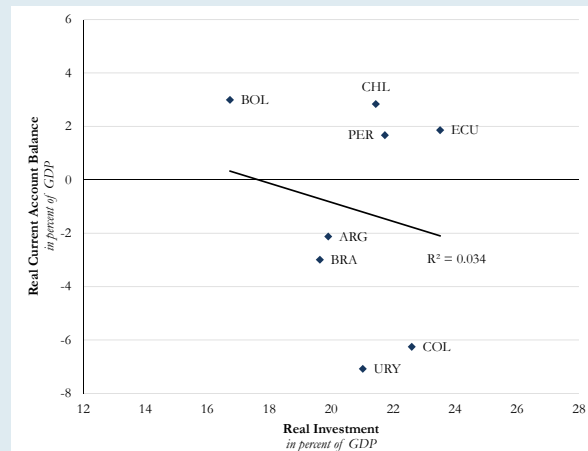
Notes: In Panel A, the variance decomposition is for 2000-2015. In Panel B, the variance decomposition is for the 2000-2015 period average for the countries shown in Panel A Sources: LCRCE based on national sources.

To check how marginal saving (consumption) propensities varied during the cycle we regress consumption against output and the two price windfalls (all in first differences). The results of this exercise, reported in Table 2.2, show that the estimated propensity to consume out of output rose after the global crisis, which is consistent with the decline in saving noted earlier in Figure 2.1. At the same time, the estimated propensity to consume out of real exchange rate windfalls comes out quite high.[9]

Using these marginal consumption propensities, we then calculate the *predicted* effects that the terms of trade and real exchange rate windfalls would have had on the saving rate during the boom

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[9] This latter estimate should be viewed with some caution because the basis on which it is derived (the mid-point of the real exchange rate windfall range) is somewhat arbitrary. Moreover, it does not correct for possible reverse causality (from spending to the real exchange rate). Nonetheless, it is intriguing enough to warrant attention.

TABLE 2.2. SA's Marginal Propensities to Consume: by Real Income and Price Windfalls

	(1) Full Sample 2000-2015	(2) Full Sample 2000-2008	(3) Full Sample 2009-2015	(4) w/o Ecuador 2009-2015
Real Income	0.314***	0.313***	0.401***	0.352***
TOT Windfall	0.284***	0.212**	0.289***	0.184**
RER Windfall	0.592***	1.089***	0.228	0.695**

Notes: The panel dynamic regression was run in changes in the logs of the variables using quarterly data for Argentina, Brazil, Chile, Colombia, Ecuador, and Peru (unless otherwise noted). The Windfall calculations follow the methodology describes in Appendix 2.1. Sources: LCRCE based on national sources.

(i.e., the predicted change in the saving rate from 2004 to 2012) and the bust (i.e., the predicted change in the saving rate from 2012 to 2015). The results are shown in Figure 2.10, Panels A and B, respectively.[10] As expected, for all the countries in the figures, terms of trade windfalls during the boom are estimated to have put significant upward pressures on consumption, whereas terms of trade losses during the bust are estimated to have exerted strong downward pressures on consumption. The latter is arguably an important factor behind the significant and prolonged decline in growth rates throughout SA countries discussed earlier in this report.

FIGURE 2.10. Predicted Changes in Saving

PANEL A. *2004-2012*

PANEL B. *2012-2015*
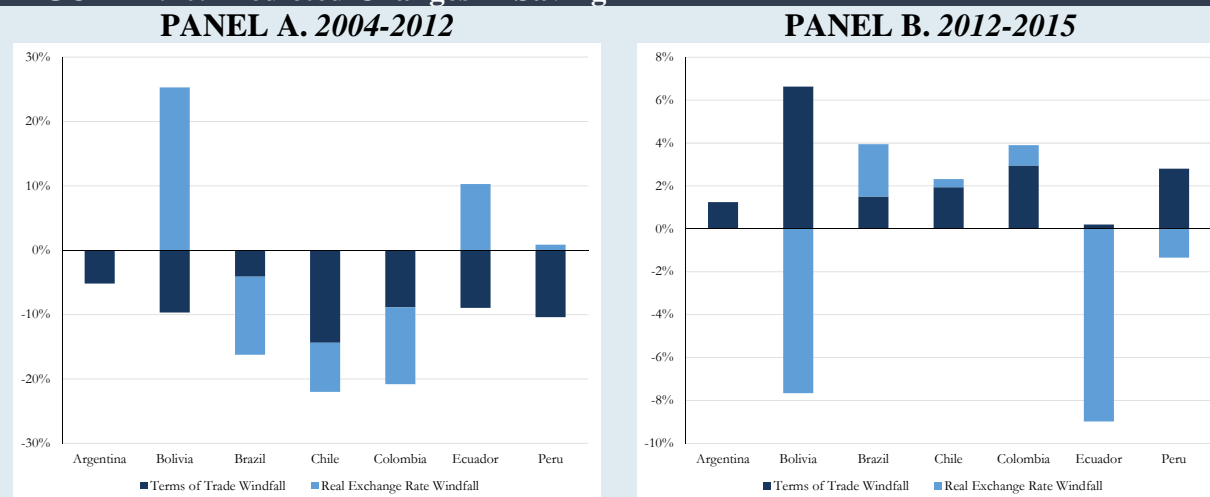
Notes: The figures show the percentage of the predicted change in the real saving rate that each type of windfall accounts for, and are based on the coefficients of the regressions shown in Table 2.2. See Appendix 2.1 for details on how the windfalls are calculated. Sources: LCRCE based on national sources.

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[10] The changes in saving rates that can be predicted on the basis of the estimated price (terms of trade and real exchange rate) windfalls and marginal propensities to consume do not always match the size or direction of the changes in the actual saving rates. This reflects the presence of other factors driving consumption (saving) over the cycle, including, importantly, the changes in the volume of output.

As regards the predicted effects of the real exchange rate windfall, however, a clear difference emerges between countries with more flexible and less flexible exchange rate regimes. In the boom, real exchange rate windfalls are estimated to have stimulated consumption very strongly in countries with greater exchange rate flexibility (particularly Brazil and Colombia, two low saving countries that incurred severe real exchange rate appreciations, but also Chile, where the real appreciation was still significant but less strong). By contrast, countries with inflexible exchange rate regimes (Bolivia and Ecuador) and heavily managed regimes (Peru) actually experienced *negative* real exchange rate windfalls, which are estimated to have significantly dampened (Bolivia and Ecuador) or at least not magnified (Peru) consumption. Worrisomely for Ecuador and Bolivia, however, their real exchange rates appreciated strongly (following the dollar appreciation in the world) precisely at the time that their terms of trade imploded. Hence, the predicted expansionary effect on consumption of the associated real exchange rate windfall is estimated to be strong for these countries (Figure 2.10, Panel B) and it comes at a very inopportune time, to say the least.

Next, we estimate the magnitude of various domestic demand multipliers/dampeners of the terms of trade windfall and present the results in Table 2.3. A first, and arguably most fundamental, factor that magnified or dampened the domestic demand effects of the terms of trade is, of course, the structural real saving rate. The higher this rate, the lower the impact of a terms of trade change on domestic demand. As shown above, a second factor is the size and sign of the real exchange rate windfall. A third factor that should also matter is the degree of trade openness. The more open the economy, the greater the scope for a terms of trade gain to "leak" abroad via increased imports; conversely, the lower the degree of trade openness, the more demand will remain bottled up inside the economy, hence the stronger the final impact of the terms of trade windfall on aggregate domestic demand.

In addition, we identify two other magnifiers/dampeners, both related to the allocation of windfalls and whose relevance was detected and discussed earlier. They are:

- The initial allocation of the windfalls (net of the share distributed to non-residents in the form of net factor payments) to the public sector versus the private sector. The public sector can decide how much of the windfalls to spend and when, based on countercyclical demand stabilization policies and targets. To measure this effect, we use the elasticity of total public revenue with respect to changes in the terms of trade, scaled by the ratio of public revenue to GDP.

- The public sector's capacity to control its total absorption (current plus capital spending) in response to the terms of trade windfall it appropriates. To measure this effect, we also use the elasticity of total public spending with respect to changes in the terms of trade, adjusted by the ratio of public spending to GDP (the more negative this elasticity, the more control the state has on its spending).

In Table 2.3, we use red shading to underscore the factors with the highest relative impact for a

TABLE 2.3. Terms of Trade Windfall, Multipliers and Dampeners

	Shock	Demand Response	Multipliers/Dampeners				
	ToT Windfall	TOT Elasticity	Real Saving Rate	Trade Openness	RER Windfall	Pub. Sector Revenue Capture	Pub. Sector Expenditure Control
Argentina	3.6%	1.74	17.8%	15.9%	2.3%	0.12	0.11
Bolivia	6.6%	1.02	19.7%	34.3%	-3.6%	0.04	0.19
Brazil	2.8%	1.50	16.2%	12.9%	2.0%	0.08	0.03
Chile	16.8%	1.04	25.2%	34.7%	1.6%	0.08	0.11
Colombia	5.6%	1.16	16.3%	18.1%	3.2%	0.08	0.03
Ecuador	5.3%	1.48	25.6%	28.5%	-1.6%	0.27	0.24
Peru	8.0%	1.36	23.7%	23.3%	-0.2%	0.16	0.00
Uruguay	-2.1%	2.37	14.0%	25.9%	2.1%	0.04	0.00
Median	*5.4%*	*1.42*	*18.8%*	*24.6%*	*1.8%*	*0.08*	*0.07*

Notes: See Appendix 2.1 for details on how the windfalls are calculated. Capture, expenditure control and demand response are elasticities of fiscal revenues, fiscal expenditures, and domestic demand, respectively, with respect to the terms of trade. Sources: LCRCE based on national sources and World Bank's GEM.

given country, measured relative to the median. As a consistency cross-check, we also include in the last column of the table the demand elasticities with respect to the terms of trade that were calculated earlier. Key messages from this multipliers table are as follows:

- Peru comes out as the country with the greatest dampening capacity. While it was exposed to a relatively large positive terms of trade shock, it benefitted from a high structural saving rate, a low real exchange rate windfall (resulting from the combination of a heavily managed exchange rate regime and low inflation), a relatively open economy, a concentrated capture of the windfalls by the public sector, and well-controlled public spending.

- Chile is not too far from Peru. While it experienced a comparatively large gain in the terms of trade, dampening effects came from its high structural saving rate and trade openness.

- At the other end of the spectrum are Argentina and Brazil. Both countries experienced moderate terms of trade gains, but their effects on domestic demand were magnified by a number of mutually reinforcing multiplier effects: low structural saving rates and a relatively low degree of trade openness in both countries; a relatively large allocation of the terms of trade windfall to the private sector (especially to lower-income groups) and a relatively high real exchange rate windfall in Brazil; and a sharp rise in total public sector expenditure in Argentina. Consistent with these multiple multiplier effects, both countries experienced very high demand elasticities.

- Uruguay and Colombia sit somewhere in the middle. In Colombia the terms of trade gain was of intermediate magnitude but its effects on domestic demand were magnified by a low structural saving rate, a large real exchange rate windfall, and a more closed economy. In Uruguay, by contrast, amplification effects were large—despite a very small terms of trade gain and a high degree of trade openness—on account of a low structural saving rate and a dispersed capture of the terms of trade windfall. As a result, Uruguay's aggregate demand elasticity with respect to its terms of trade was also very high.

- Ecuador is an interesting case in that it experienced a large terms of trade gain (similar in magnitude to that of Peru) but the domestic demand effects were dampened during the boom by a high structural saving rate, a negative real exchange rate windfall (as the real

exchange rate actually depreciated during the boom), a comparatively open economy, and a concentration of the windfall in the hands of the public sector. However, it registered by far the largest expansion of public sector expenditure. As a result its aggregate demand elasticity was also high.

We now go back to Table 2.1 and Figure 2.2 to examine the data in greater detail, both in terms of how spending pressures evolved over time and what type of spending was mostly behind it. Looking first at Table 2.1, it can be readily checked that among consumption boomers, consumption indeed accounted for the larger share of the total demand increase. Instead, among investment boomers, it was investment: public in Bolivia and Ecuador, private in Colombia and Peru.

When looking back at Figure 2.2, countries may be sorted according to whether the excess of (real) aggregate domestic demand over output remained contained within the terms of trade windfall (hence countries were able to avoid current account deficits and keep at least part of the windfall invested abroad, in foreign assets) or burst beyond the windfall (hence countries consumed or invested locally more than the entire windfall). The main findings are quite consistent with those coming from the multipliers assessment table:

- As expected, Bolivia and Peru (both investment boomers) kept domestic demand contained within the terms of trade windfall. By contrast, Argentina, Brazil and Uruguay (all consumption boomers) expanded domestic demand beyond the confines of the windfall.
- Chile and Colombia are again in the middle of the pack if the entire cycle is considered, although Colombia's domestic demand spiraled above the trajectory of the terms of trade windfall during the bust. During most of the cycle, Chile was able to contain its domestic demand within the terms of trade windfall, Colombia was not (albeit marginally so). The contrast between these two countries during the bust could be a reflection of Chile's much higher structural real saving rate. But it could also reflect Chile's more elastic supply response, as noted above in Figure 2.5. At the same time, the large differences between the absolute sizes of the windfalls in Chile and Colombia may explain why the saving rate declined so abruptly *during the cycle* in Chile while remaining steady in Colombia.
- Ecuador, again, is an interesting case. It was able to contain domestic demand within the windfall until 2014 but in 2015 domestic demand burst beyond the windfall, reflecting the inertia in the much expanded level of government total spending.

We end this section with a word of caution. While it appears that countries where a larger fraction of the term of trade windfalls were captured by the public sector were better able to curb the propensity to consume, Figure 2.11, Panel A suggests the existence of a strong negative correlation between the size of the state (total public spending) and structural saving rates (average savings over the cycle). Thus, should the larger capture of windfalls by the public sector eventually lead to larger states, the short-term saving benefits might be more than offset by longer-term saving losses. It is also worth noticing that structural saving rates in the region also seem to bear relation

FIGURE 2.11. Factors influencing Real Saving

PANEL A. *Total Government Expenditure*
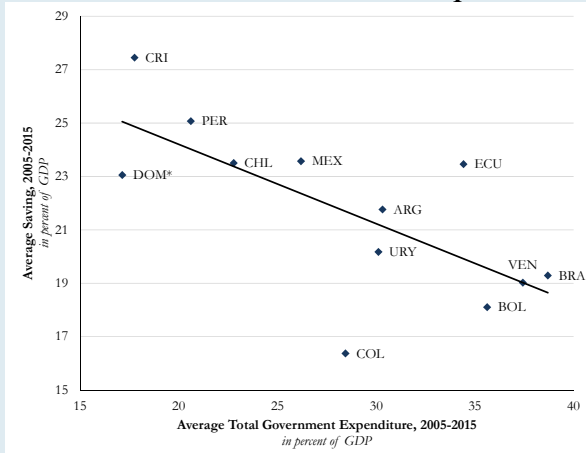
PANEL B. *Personal Credit, 2011*
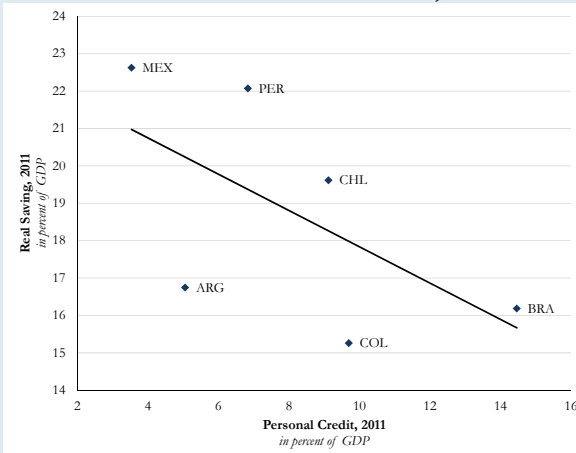
Notes: In Panel A, average saving was adjusted for fuel exports and old age dependency. Sources: LCRCE based on national sources, IMF's WEO and WDI.

with consumer credit (Figure 2.11, Panel B). Both observations provide a useful preamble to the policy discussion in Chapter 3 of this report, as they suggest that the conventional view of saving as an entirely endogenous variable that is beyond the reach of policy may not be fully warranted.

The aftermath: adjustment costs

This section examines the macroeconomic and social costs of low savings. It looks at how countries' saving rates, in addition to affecting their performance during the cycle, appear to be now conditioning their adjustment capacity and policy maneuvering room. While the evidence shown to support the claims in this section is admittedly not always statistically overwhelming given the very small sample size, it is nonetheless consistent enough to deserve attention.

One would expect that countries with the lowest average or structural saving rates should tend to experience larger domestic demand expansions following a positive terms of trade shock and, hence, stronger inflation and real exchange rate appreciation pressures. This proposition is broadly supported by the data. First, the SA countries with higher average savings had less appreciated real exchange rates at the top of the commodities cycle than countries with lower average savings (Figure 2.12, Panel A). In countries where central banks did not conduct monetary policy based on inflation targeting-cum-exchange rate flexibility, such as Argentina, the consumption-biased domestic demand pressures raised inflation over time. In other consumption boom countries, such as Brazil, Chile and Uruguay, which are all inflation targeters, monetary policy contained inflation, but at the expense of large nominal exchange rate appreciations.

Yet, for the SA consumption boomers, current inflationary pressures appear to have built up earlier than for investment boomers, as shown in Figure 2.8 Panel D earlier. During the boom years, the higher domestic demand pressures may have added to the pass-through that came from the supply side (i.e., the upward pressures on the price level that countries experienced in the episodes of fast

FIGURE 2.12. Real Saving versus Selected Macroeconomic Indicators

PANEL A. *Real Exchange rate*
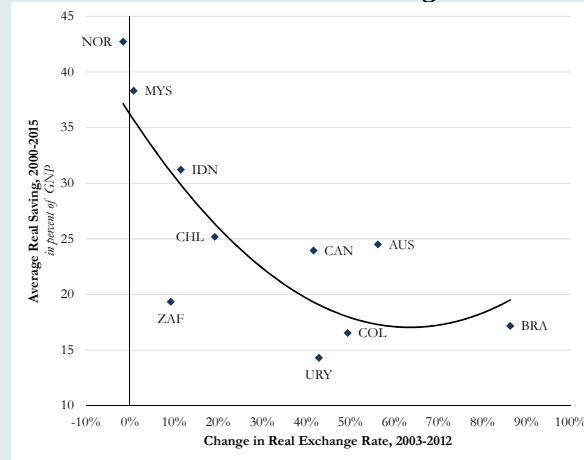
PANEL B. *Inflation*
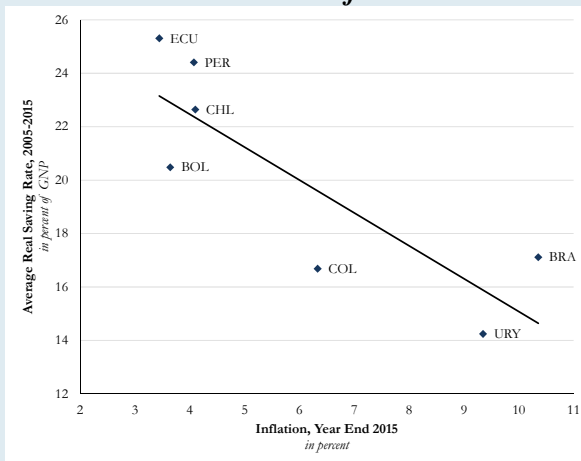
PANEL C. *Real GDP Growth*
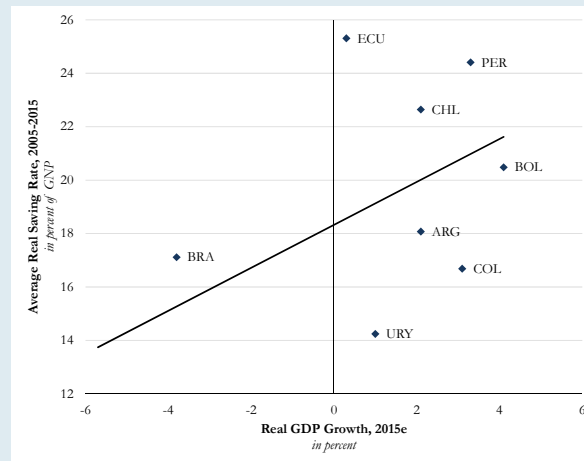
Notes: In Panel A, a positive change in the real exchange rate implies an appreciation. Sources: LCRCE based on IMF's WEO and national sources.

rising food prices, particularly in 2007-2008 and 2010-2011). During the slowdown, they may be compounding the upward price pressures coming from the exchange rate pass-through. Indeed, current inflation rates tend to be higher in the countries that saved less during the cycle (Figure 2.12, Panel B), and current growth seems to be lower (Figure 2.12, Panel C), although the evidence here is admittedly weak.

Countries that experienced the largest real exchange rate appreciations during the boom seem to be now paying three additional adjustment costs. First, tradable sectors contracted the most in countries that appreciated the most, as evidenced by the steeper drop in the participation of the manufacturing sector in GDP (Figure 2.13, Panel A). In turn, the response of tradable output to the real exchange rate depreciations that have been taking place since 2012-3013 exhibits more inertia in the countries where the real exchange rate appreciations during the boom were larger and more sustained. Testing this hypothesis on non-commodity exports is difficult because the estimated

FIGURE 2.13. The Impact of Real Appreciations on the Tradable Sector

PANEL A. *Real Appreciation and Manufacturing Sector Contraction*
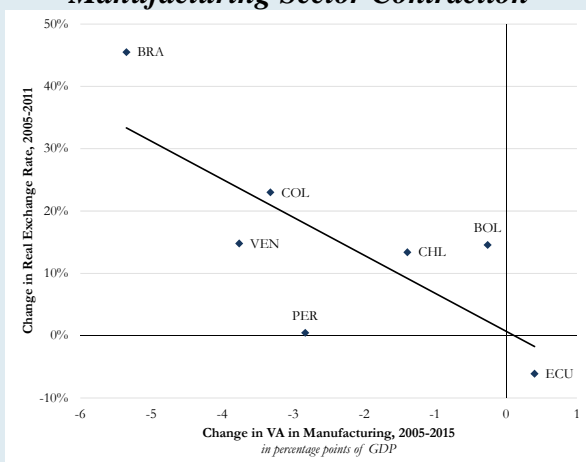
PANEL B. *Real Appreciation and Speed of Adjustment of Tradable Sector*
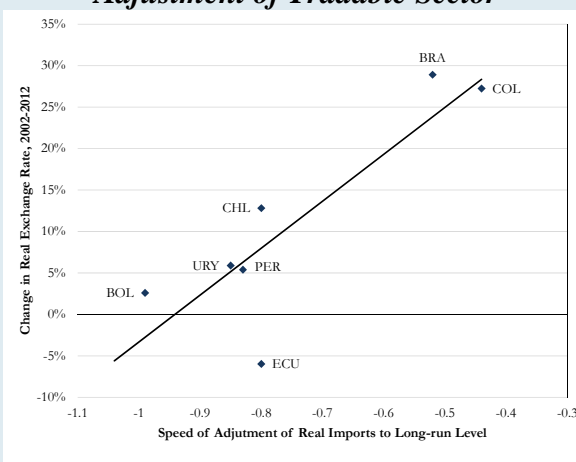
Notes: A positive change in the real exchange rate implies an appreciation. In Panel B, the speed of adjustment is the error correction coefficient from an error correction model regressing real imports on GDP growth, the real exchange rate and several short-run regressors such as the dollar index and the terms of trade. Sources: LCRCE based on IMF's WEO and national sources.

price elasticities tend to be very low.[11] However, it can be more easily tested on imports, which typically have higher and more stable price elasticities, and can become, over time, the mirror image of the local supply of importables.[12] In an error correction model linking imports to local demand and real exchange rates, the speed of adjustment (the coefficient of the error correction term) is indeed lower the greater the country's past real exchange rate appreciation (Figure 2.13, Panel B).[13]

Second, countries that appreciated more during the boom appear to have also experienced larger real wage increases (Figure 2.14). To the extent that these wage increases need to be now partly reversed in order to mitigate unemployment, this exacerbates the social policy dilemma (more on this below).

Third, low historic saving rates also appear to be affecting access to (and the cost of) external finance, thereby limiting countries' scope for easing their adjustment through external finance. Average saving rates correlate negatively with the sovereign risk premium, as measured by the

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[11] This may reflect, at least in part, the growing importance of supply value chains that create durable bonds across countries that are not very sensitive to short-term fluctuations in relative labor costs.

[12] After the initial impact of an aggregate demand contraction on imports, in countries where the production of importables has a more delayed response to a real exchange rate depreciation, consumers' only option should be to continue importing. Thus, imports should fall less rapidly in countries where the supply of importables responds more elastically to a real exchange rate depreciation.

[13] More generally, one would expect that the countries that appreciated the most during the boom would confront now larger required changes in relative prices, hence larger adjustment costs for relocating factors across sectors. If so, total factor productivity should also fall more in those countries.

FIGURE 2.14. Real Exchange Rate Appreciation and Real Wage Increases
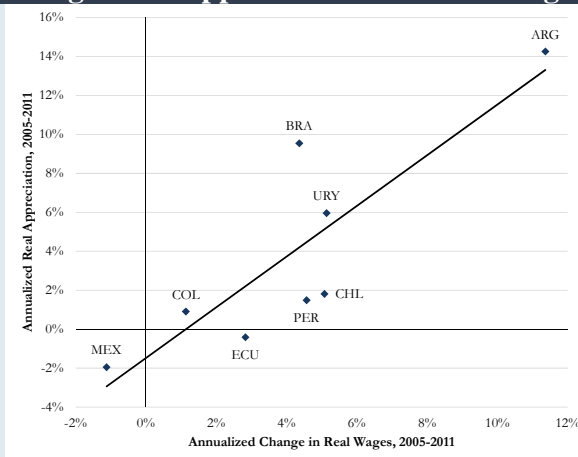
Notes: Real exchange rate figures were annualized to match the periods from the available wage data. Ecuador and Uruguay start in 2006, and Colombia in 2008. Sources: LCRCE based on IMF's WEO and LABLAC (CEDLAS and the World Bank).

EMBI spreads, during bust periods (Appendix Table A1.1 and Figure 2.15). Thus, higher saving countries were penalized less (they experienced smaller rises in their EMBI spreads) in the downturn.

At the same time, the adverse consequences of low saving seem to become stronger past some threshold. Albeit the statistical evidence is not overwhelming given the limited sample sizes, there appear to exist significant nonlinearities in the link between EMBIs and their underlying fundamentals (see Appendix 1.1). As a result, countries where domestic demand amplifiers worked on steroids during the boom, are now more prone in the downturn to be moving into the "danger zone" of nonlinearities, where credit constraints can suddenly bind and the EMBI spreads rise steeply in response to concerns about the country's macro-financial viability.[14]

FIGURE 2.15. Real Saving and EMBI Spreads during the Slowdown
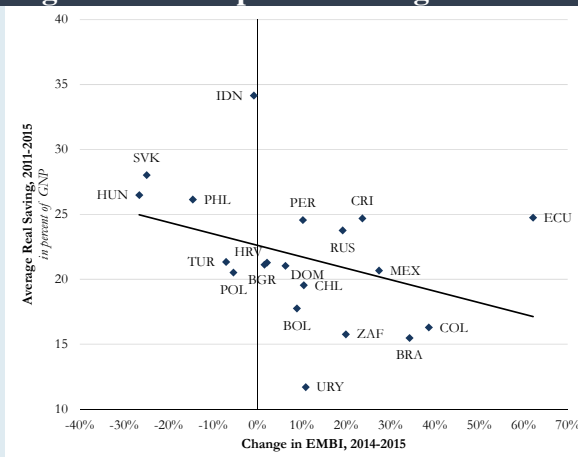
Sources: LCRCE based on Bloomberg and national sources.

[14] Thus, the travails to which a country such as Brazil is now subject are an order of magnitude above those faced by other countries.

Chapter 3:
Policy Discussion

The policy issues revolve around two questions, one backward-looking (should policy makers have acted differently?) and the other forward-looking (what should policy makers do?). In turn, the latter question has both an immediate future and a medium-term component. These questions are of course interrelated as the future should benefit from the lessons of the past.

The past: what could have been done differently?

Looking back, a more prudent course of action aimed at containing domestic demand pressures while production capacity was being built up would have been advisable. This would have involved saving more of the terms of trade windfalls, thereby mitigating the negative side effects of the large appreciations during the upside of the cycle. More countercyclical fiscal policy would have been required and there is no substitute for it. However, it could have been complemented by a more active macroprudential policy, particularly one aimed at containing the exaggerated growth of consumer credit, which might have had the added benefit of contributing to maintain higher saving rates over the longer run. More action on the fiscal and macroprudential side should have, in turn, relieved monetary policy, allowing for lower interest rates than otherwise, hence, further discouraging surges in short-term capital inflows (carry trade inflows) and further dampening the extent of nominal exchange rate appreciations.

The above argumentation may seem unfair, given that it is based on hindsight. What now looks temporary may have been genuinely viewed then as permanent, given the information available then. There are, however, two strong counterarguments to this objection. First, uncertainty always requires prudence, and a prudent policy would largely consider the positive external shocks as temporary and the negative external shocks as permanent. Second, in view of the lasting costs of a temporary real exchange rate appreciation, even a permanent terms of trade gain would have required phasing in the domestic demand response more gradually. This said, it must also be recognized that the challenge policy makers faced was heightened by political economy and social considerations. From the perspective of a low income, liquidity-constrained consumer, it may be always optimal to consume as much as possible of a windfall, regardless of its temporariness. Internalizing the social costs of such individual behavior via policy is a particularly difficult yet central challenge for policy making in the region.

The immediate future: adjustment with the least pain

Looking ahead, as circumstances permit, policy makers in net commodity exporting countries will try to ease the transition to the new normal while stimulating short-term economic activity and employment. These efforts make sense, but to lead to lasting positive results, they should be complemented by a vigorous structural reform agenda aimed at boosting long-term growth. In doing so, however, as already underlined in Chapter 1, policy makers face four policy dilemmas: i) *monetary* (tightening to retain credibility in inflation under control vs. easing to stimulate growth and employment in the short-run); ii) *fiscal* (allowing the deficit to rise to boost short-run economic activity and avoid political conflict vs. reducing spending or raising taxes to ensure long-term fiscal solvency); iii) *external* (allowing the current account deficit to widen so as to maintain or increase national consumption vs. ensuring balance of payments sustainability); and iv) *social* (consolidating the social gains achieved during the boom vs. allocating across different groups in society the decline in purchasing power associated with the fall in commodity prices).

On all four fronts, the tension is between shorter-term goals and longer-run credibility—the achievement of the former may undermine the achievement of the latter. Easing one dilemma through structural reforms should help relax the others, however. For example, raising the country's saving capacity should lower the interest rates needed to keep inflation in check, which should in turn lower the public sector's interest rate bill, allowing for lower cuts in social spending. At the same time, up-front structural reforms aimed at strengthening fundamentals should have the benefit of mitigating the credibility-time inconsistency problem, thereby giving policy makers more breathing room toward easing the short-term pains of the transition.

Yet, structural reforms typically take time to implement and their salutary impacts are normally felt several years down the line. Moreover, a single-minded focus on strengthening long-run fundamentals through structural reforms without adequately mitigating the short-run pain may be self-defeating. It may unduly exacerbate political tensions and social discontent, thereby disabling the viability of the reform effort. Hence, a policy response that seeks to reconcile short-term social and economic concerns with long-term macro viability and growth must walk on a tight rope. To ease out these dilemmas requires a capacity to distribute the burden of adjustment over time, along a multi-year horizon, and fairly, across various groups in society (workers vs. capitalists, poor vs. rich; private sector vs. public sector, etc.). Both tasks would be more manageable if the country has space to finance a gradual adjustment in the fiscal and external fronts. Unfortunately, as illustrated throughout this report, maneuvering room is currently very unevenly distributed, with some countries being so constrained as to be compelled to adjust more rapidly.

Looking ahead: toward a more sustainable growth in a turbulent world

At the heart of the commodity cycle-related problems is the excessive expansion of domestic demand relative to supply. Hence, structural reforms need to focus both on the demand side and the supply side.

On the demand side, the focus would have to be on strengthening saving. This would involve stronger tools required for saving more of the windfalls *at the margin* (automatic fiscal stabilizers, stabilization funds, sovereign wealth funds, macroprudential norms, and the like). But it would also involve actions to raise *average* saving rates in order to more durably insulate the stability of aggregate demand and avoid episodes of large yet temporary real exchange rate appreciations. By limiting the size of macroeconomic disequilibria and providing more breathing room, higher saving rates should help reduce the risks of falling into the policy dilemmas discussed above. In particular, a sufficiently high saving rate provides protection against the risk of hitting the tipping point that can send the country into a bad equilibrium (characterized by a sharp tightening of credit constraints, sudden stops in capital flows, and rapidly rising EMBI spreads) under bad states of the world. In addition, it clearly pays to invest part of the terms of trade windfalls in liquid investments abroad. Beyond contributing to reducing domestic demand, such investments provide a liquidity buffer that certainly helps go through the bad times.

On the supply side, the analysis in this report leads to at least two key policy messages. The first concerns the importance of trade openness. The more integrated a country is to international trade, the less would the local economy be stressed during episodes of domestic demand surges, and the more would the economy be tilted in favor of producing tradables (relative to non-tradables). Both effects would reduce the volatility of the real exchange rate. The second message underlines the need for a more flexible and speedier re-allocation of productive factors. This would enable the economy to raise output with less overheating and greater efficiency in response to domestic demand expansions driven by favorable external shocks.

The analysis in this report also provides food for thought concerning monetary policy in at least two dimensions. First, the apparently high propensity to consume out of an exchange rate appreciation windfall militates in favor of revisiting the case for uninhibited floating. Provided that stronger fiscal and macro-prudential policies are in place, thereby allowing for a more neutral monetary policy over the cycle, a case can perhaps be made for intervening more systematically in the foreign exchange market so as to maintain the real exchange rate more closely tied to its longer run equilibrium value. This in turn points towards capital controls on short-term capital inflows as a potentially important component of the policy toolkit. Second, and again provided fiscal and macroprudential policies are sufficiently countercyclical, a case can in principle also be made for monetary policy to target non-tradable prices rather than the CPI. Doing so would ensure that the upward pressures on non-tradable prices arising from excess demand are immediately detected and counteracted through policy, rather than hidden from view by the decline in tradable prices that accompanies nominal appreciations.

On a final note, it may seem paradoxical to recommend higher saving for LAC in a world that is in the midst of a saving glut. Clearly, from a worldwide perspective, more demand coming from the region would be a blessing. The problem for LAC is that its income has significantly shrunk as a result of the bursting of the commodities price bubble and, hence, there is no solid ground to

sustain an expansion of domestic demand. The region could in principle resort to the use of foreign saving to finance a smoother adjustment process, one that avoids excessive spending contractions and distributes the adjustment gradually over a longer time horizon. But this option is not easy to implement where debt is already high and/or where collateral restrictions are tight. While the decline in commodity prices is likely to have contributed to tightening these restrictions, the evidence in Appendix 1.1 (which explores the short and long run determinants of the EMBI spreads) also points toward the importance of strengthening contract rights and other institutions as a way to help relax collateral constraints. This points toward the urgency (in the LAC region as a whole) to continue improving the enabling environment, including in particular the rule of law.[15]

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[15] The enabling environment indicator used in the EMBI analysis of Appendix 1.1 is the average of the rule of law and corruption indices published in the World Governance Indicators.

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Appendix 1.1. Determinants of the EMBIs: fundamentals vs external factors

This appendix describes the econometric approach used to explain recent increases of the sovereign bonds spreads, measured by the EMBIs. We use a pooled mean group (PMG) estimator, as proposed by Pesaran and Smith (1995) and Pesaran, Shin, and Smith (1999), to distinguish short-term from long-term determinants. The error-correcting version of the model (estimated in logs) is as follows:

$$\Delta x_{it} = \phi_i(x_{it} - \alpha \mathbf{y}_{it}) + \beta_i \Delta \mathbf{z}_{it} + u_{it}$$

where ϕ_i is the country-specific speed-of-adjustment of the error-correction term, $\mathbf{y}_{it}$ is the vector of long-term fundamentals, and $\Delta \mathbf{z}_{it}$ is the first-difference of the vector of short-term variables.

Short-term regressors are summarized by the cross-sectional means of the EMBIs (denoted *CS-EMBI*), which captures observed and latent (unobserved) *common* factors[16]. The long-term regressors include the proportion of international reserves to GDP, the level of real savings[17] to GNP and a measure of the enabling environment[18]. To test for possible non-linearities, the sample is broken down according to the real current account deficit as a ratio to GDP (denoted *RCABY*). The sample includes quarterly data since 2000 on Brazil, Bulgaria, Chile, Colombia, Croatia, Hungary, Malaysia, Peru, Philippines, Poland, Russia, Turkey and South Africa.

Three aspects of the regression results (reported in Table A1.1) deserve particular mention:
- The terms of trade are only significant in LAC. This is in line with Figures 2.3 and 2.4 in the text, which stress the unique importance of commodities as drivers of the cycle in LAC. It also underlines the important role that the fall in commodity prices has had in tightening collateral restrictions in the SA region.
- While the enabling environment variable does not come out as significant in LAC (perhaps due to the small variation of the indicator across the region), it is highly significant in the rest of the world. This stresses the importance of strengthening the enabling environment as a way to help release the external financing constraint.
- Regarding *non-linearities*, the short-term regression coefficients jump drastically and in most cases switch signs as the sample becomes restricted to the countries with current account deficits above 3 percent. One possible interpretation is that self-selection

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[16] See Chudik et al (2013).

[17] The construction of the real savings is explain in detail in Chapter 2.

[18] The enabling environment indicator is the average of the rule of law and corruption indicators published in the World Governance Indicators.

determines the country sample above this threshold. Countries with the best enabling environments are an "elite club" that can run larger current account deficits without major consequences. Thus, below the threshold, a better saving rate leads to a better EMBI. Instead, above the threshold, the better EMBI allows for a worse saving rate.

TABLE A1.1. Short and Long-run Determinants of the Sovereign Bonds Spread

	(1) Full Sample	(2) LAC	(3) Rest	(4) RCABY>-3	(5) RCABY<-3
			Long-Run		
(log) CS-EMBI	0.775***	0.768***	0.761***	0.811***	0.335***
Enabling Environment	-0.458**	0.191	-1.024***	-0.251	-2.695***
(log) Real Savings % GNP	-0.580***	-0.511**	-0.493***	-0.550***	4.124***
(log) Reserve % GDP	-0.306***	-0.230**	-0.178	-0.255***	0.922**
			Short-Run		
ϕ (error correction coefficient)	-0.170***	-0.201*	-0.191**	-0.190***	-0.185***
D.(log) CS-EMBI	0.860***	0.748***	0.892***	0.857***	0.857***
D.(log) ToT	0.847	-0.260*	1.47	0.53	1.095
Constant	0.428***	0.444*	0.518**	0.421***	-1.102***
Observations	855	306	549	587	219

*** p<0.01, ** p<0.05, * p<0.1

Notes: Coefficients displayed are the cross-country means, following the pooled mean group methodology proposed by proposed by of Pesaran and Smith (1995) and Pesaran, Shin, and Smith (1999). The rule of law index a composite of indicators from the World Governance Indicators. (log) CS-EMBI is the cross-country mean of the (log) EMBIs for the entire sample. RCABY denotes the real current account balance constructed as the difference between the real savings and the real investment. The real savings are computed according to the details presented on Appendix 2.1. The real investment comes from the national accounts. The sample included Brazil, Bulgaria, Chile, Colombia, Croatia, Hungary, Malaysia, Peru, Philippines, Poland, Russia, Turkey and South Africa, using quarterly data from 2000 up to the third quarter of 2015. Sources: LCRCE based on Bloomberg and national sources.

Appendix 2.1. Accounting Methodology

Measuring the Windfalls

In terms of purchasing power (e.g., private consumption), a country's real income, PPI, expressed in terms of GDP, can be written as:

$$PPI = \frac{P_Y}{P_C} \tag{1}$$

P_Y and P_C are the GDP and private consumption deflators. Using the national accounts identity, as usually defined, but expressed in terms of GDP weights[19], yields the following expression

$$P_Y = w_C P_C + w_I P_I + w_G P_G + w_X P_X + w_M P_M \tag{2}$$

Define the following relative prices:

Real exchange rate: $$e = \frac{P_M}{P_C} \tag{3}$$

Terms of trade: $$T = \frac{P_X}{P_M} \tag{4}$$

Price of investment: $$p_I = \frac{P_I}{P_C} \tag{5}$$

Price of government consumption: $$p_G = \frac{P_G}{P_C} \tag{6}$$

Using these relative prices, (2) becomes:

$$PPI = w_C + w_I p_I + w_G p_G + e(w_X T + w_M) \tag{7}$$

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[19] GDP weights (w) are calculated as the ratio between each of the elements of the GDP identity to GDP.

Taking the first differences of (2) leads, after rearranging terms, to the following expression:

$$\Delta PPI = \underbrace{[\Delta w_C + \Delta w_I p_I + \Delta w_G p_G]}_{A} + \underbrace{\Delta e(w_X T + w_M)}_{B} + \underbrace{e_{-1} w_X \Delta T}_{C} + \underbrace{e_{-1}(T \Delta w_X - \Delta w_M)}_{D}$$
$$+ \underbrace{[w_{I-1} \Delta p_I + w_{G-1} \Delta p_G]}_{E}$$

Where A is the *excess domestic demand* over GDP (EDD), B is the *real exchange rate windfall* (RERW), C the *terms of trade windfall* (TOTW), D is the *current account spillover* (CAS) and E is a *domestic valuation* term (DV) that accounts for changes in domestic relative prices.

Summing up the differentials over time starting in 2003 (the start of the commodity cycle) yields a path for each of the above aggregates that extends up to mid-2015. The average value of each aggregate over its whole path is used to construct the table below. The same procedure is used to derive a path for net factor payments, on the basis of which the table below is expressed in terms of national income rather than domestic income.

Table 2.1 in the text uses selected rows from Table A2.1 and takes for the real exchange rate windfall the following lower and upper bounds:

$$\text{RERW-MIN} = e_{-1}(T w_X - w_M)$$

$$\text{RERW-MAX} = e_{-1} w_M$$

TABLE A2.1. Purchasing Power Disposable Income: Full Accounting Decomposition

| | PPNI | | Excess Domestic Demand | | | | Price Windfalls | | CA Spillovers | | Domestic Valuation |
| | PPDI | NFP | C | | I | | TOT | RER | T. Balance | NFP | DV |
			Cp	Cg	Ip	Ig					
Argentina	2.6%	3.1%	4.3%	0.0%	4.7%	0.6%	3.6%	-2.4%	-9.9%	3.1%	1.7%
Bolivia	9.0%	0.9%	-2.8%	-0.7%	1.4%	2.5%	6.6%	1.7%	-1.1%	0.9%	1.4%
Brazil	6.2%	0.2%	2.9%	-1.4%	1.7%	0.2%	2.8%	-0.9%	-4.1%	0.2%	4.9%
Chile	15.2%	0.3%	7.2%	0.3%	4.8%	0.4%	16.8%	-1.8%	-13.0%	0.3%	0.4%
Colombia	5.9%	-1.8%	-1.7%	0.6%	6.7%	0.5%	5.6%	0.7%	-6.2%	-1.8%	-0.4%
Ecuador	9.8%	1.6%	-1.8%	1.3%	3.4%	1.7%	5.3%	-0.1%	-4.8%	1.6%	4.8%
Peru	7.5%	-2.7%	-2.2%	0.3%	6.2%	0.9%	8.0%	0.5%	-6.1%	-2.7%	-0.2%
Uruguay	1.3%	0.7%	-0.8%	-2.3%	5.6%	1.2%	-2.1%	-0.1%	-1.9%	0.7%	1.7%

Sources: LCRCE based on national accounts.

Real Saving vs. Nominal Saving

Define the nominal and real saving rates, expressed as ratios to GNP, respectively, as:

$$S = \frac{P_Y Y - NFP - P_C C}{P_Y Y - NFP} = 1 - \frac{P_C}{P_Y}\frac{C}{\tilde{Y}} \tag{8}$$

$$s = \frac{Y - NFP/P_C - C}{Y - NFP/P_C} = 1 - \frac{C}{\tilde{Y}[1 - n(\frac{P_Y}{P_C} - 1)]} \tag{9}$$

where C is real consumption, $\tilde{Y}$ is real GNP and n is net factor payments as a ratio to GNP:

$$\tilde{Y} = Y(1 - n) \tag{10}$$

$$n = \frac{NFP}{P_Y Y} \tag{11}$$

Substituting (8) into (9) and rearranging terms leads to the following expression relating real and nominal saving rates:

$$s = S - (1 - S)\frac{(1 + n)(P_Y/P_C - 1)}{1 - n(P_Y/P_C - 1)} \tag{12}$$

It immediately follows from this expression that a terms of trade or real exchange rate windfall that raises (reduces) P_Y/P_c above (below) one introduces a wedge between real and nominal saving rates such that real saving falls below (rises above) nominal saving.

Furthermore, differentiating (12), assuming $n = 0$ for simplicity, leads to:

$$ds = \frac{P_Y}{P_C}dS - (1 - S)d\frac{P_Y}{P_C} \tag{13}$$

Hence, following a terms of trade or real exchange rate windfall that raises P_Y/P_C above one ($d\frac{P_Y}{P_C} > 0$), the real saving rate will decline ($ds < 0$) if:

$$\frac{P_Y}{P_C}dS < (1 - S)d\frac{P_Y}{P_C} \tag{14}$$

Whether the above condition is verified depends on both the average nominal saving rate and the marginal propensity to save the windfalls. It will be verified if the nominal saving rate is less than one (agents save part of their income) but the marginal propensity to save does not rise ($dS = 0$) because agents treat the windfall as part of their regular income. In this case, nominal saving rises while real saving falls. Instead, if the marginal propensity to save rises so that the whole windfall is saved ($\frac{P_Y}{P_C} dS = d\frac{P_Y}{P_C}$), the condition will not be verified unless the average saving rate is zero. In this case, nominal and real savings will therefore both rise.

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