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# JOBS, WAGES

## and the Latin American Slowdown





## **Jobs, Wages and the Latin American Slowdown**

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**October 2015**



## *Structure of the Report*

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This semiannual report – produced by the Office of the Chief Economist for Latin America and the Caribbean (LAC) of the World Bank – reviews the economic and financial outlook for LAC at a time when growth in the region and most of the world has decelerated significantly.

As usual in this series, Chapter 1 of the report covers the short-term prospects and provides an analysis of the external factors affecting the region's economic slowdown. The focus is on the adjustment challenges faced by those Latin American countries experiencing a major adverse terms of trade shock, which comes after an unprecedented (in magnitude and duration) period of terms of trade bonanza. Chapter 2 discusses the implications of the slowdown for labor markets – on jobs, wages and income distribution. We describe the broad labor market trends observed during the boom and contrast them with the patterns observed during the slowdown. We document the facts on the distributional progressivity of labor market dynamics during the boom, manifested in the rise of low-skill wages relative to high-skill wages. We propose a new explanation on how the surge in terms of trade-induced domestic demand reduced labor income inequality in the boom, an explanation based on asymmetric supply elasticities of unskilled versus skilled labor. We also argue that the terms-of-trade induced contraction in domestic demand continued to have distributional implications during the slowdown, but through different channels, namely, (i) asymmetries in downward real wage rigidities for unskilled versus skilled workers, leading to greater adjustments in employment quantities (and lesser adjustment in wages) for low skill workers relative to high skill workers; and (ii) a significant decline in labor force participation, especially of young and less educated male workers. A corollary of the observed labor market patterns during the slowdown is that some of the gains towards greater income equality achieved in the past decade or so may be reversed, at least in part, and that we may see a divergence between labor income inequality and household income inequality, whereby the latter may rise more than the former.

**October 2015**



## *Executive Summary*

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*After a decade of strong growth, Latin America and the Caribbean (LAC) started to decelerate in mid-2011, on the wake of falling commodity prices and slower growth in the rest of the world, particularly China. The deceleration has been unexpectedly acute. LAC's average GDP-weighted growth is now estimated to completely stagnate in 2015, whereas according to the December 2014 Consensus Forecasts it was expected to reach 1.5 percent. While 2016 is still expected to be a year of economic recovery, growth forecasts have also become less bullish, reflecting mounting uncertainties about the world economy in general and China in particular, but also limited and narrowing domestic policy space.*

*While the lower growth prospects for LAC are largely a reflection of world events, the latter have a clearly differentiated impact across the LAC region, reflecting distinct patterns of commodity dependence and international trade integration. Thus, Mexico, Central America and the Caribbean (MCC), which grew less rapidly during the commodity boom and experienced a more prolonged period of depressed growth after the 2008-2009 global financial crisis, are now recovering faster under the pull of the consumption-led US recovery and favorable (on average) terms of trade developments. Instead, growth in South America (SA) is at present being severely affected by worsening (again on average) terms of trade and China's investment-led deceleration, with the recent downturn in China's (as well as South East Asia's) export and imports casting a further ominous shadow. Of course, MCC and SA will continue growing on such different paths only as long as events in Asia and the US remain decoupled, itself a major source of world uncertainty.*

*Yet, domestic factors and responses also appear to matter, as some SA countries are faring better than others. In particular, the SA High Growth group—composed of Colombia, Peru and Uruguay—is estimated to grow in 2015 at a still respectable average yearly rate of about 3 percent, while the SA Low Growth group—composed of Argentina, Brazil and Ecuador—is envisaged to experience slightly negative average growth. Chile is an intermediate but somewhat atypical case in that it is the only economy in SA clearly expected to be on the rebound in 2016. The growth differences across the sub-groups in SA reflect in large part distinct timing and extent of proactive stimulus policies, themselves a reflection of fiscal fundamentals. There is a question, however, as to whether the stronger growth rates in SA High Growth countries will be sustainable in the current world environment as they appear to be heavily dependent on continued high private consumption spending. Moreover, despite better fiscal positions, the current account deficit of the SA High Growth group continues to widen and is no longer fully financed by foreign direct investment, which has nonetheless remained stable as a share of GDP during the post-2011 slowdown.*

*In addition, the region must also deal with its narrowed monetary, fiscal and exchange rate policy space. In general, ample access to foreign financing and strong external accounts (themselves a reflection of structurally high domestic saving rates), as well as strong fiscal fundamentals and monetary policy flexibility will play a key supporting role in smoothing out the transition costs. Unfortunately many regional economies, particularly in SA, are either facing stringent external adjustment needs (due to declining terms of trade) or limited fiscal or monetary policy space.*

*The space for policy maneuver is heavily dependent on the degree of exchange rate flexibility, which is in turn dependent on the extent of dollarization. The least dollarized countries have by and large been more willing and able to let their exchange rates depreciate. The consequent, significant gains in external competitiveness should help these countries promote their exports, thereby gradually offsetting the decline in domestic demand. However, the switch of economic activity in favor of exports will likely take time, reflecting not only the weak world demand and declining world trade, but also the shrinkage of the non-commodity tradable sectors these countries have experienced after a decade of exceptionally strong domestic demand-induced real exchange rate appreciations. For partially or totally dollarized economies, where exchange*

*rates are significantly less flexible, the steep losses in external competitiveness will likely require stronger fiscal adjustments, a doubly challenging proposition in a context of declining tax revenue from commodity exports.*

*The pressures arising from falling or stalling job creation and possibly deteriorating household income distribution, the keynote topic of this report, will further clutter the policy space, especially in SA. During the boom, employment rates and average real wages in SA surged. During the slowdown, employment has been contracting and wages are still increasing but at a much reduced rate. Labor force participation followed a broadly similar pattern, rising during the boom but falling during the slowdown. The somewhat puzzling fact is that inequality in labor income, although flattening, has continued to decline during the slowdown.*

*From a policy perspective, the key question is whether and how will labor market conditions and income distribution, two important underlying determinants of social pressures, be affected in the months and years ahead. This in turn raises two major questions: (i) what is the relative importance of micro-economic (typically supply-side) factors and macroeconomic (aggregate demand fluctuations) factors in determining the trajectory of income distribution since the mid-1990s? and (ii) which are the channels through which such factors operated?*

*Three relevant (and by now well established) stylized facts offer the empirical basis on which one can try to answer the above questions. First, the trajectory of household income inequality shows a visible kink around 2003—it rose during the 1990s and until about 2002, and then it entered into a descending trend, a trend that was particularly steep during the boom period of 2003-2011 and then flattened during the post-2011 slowdown. Second, while the path of household income inequality was not independent of (redistributive) social policy, it was mainly driven—throughout the entire period—by pro-poor labor market dynamics that led to a trajectory in labor income inequality that closely mirrored that of household income inequality. Third, the reduction in labor income inequality was, in turn, largely driven by changes in the skill premium (as measured by the wage returns to tertiary vs. primary education), which again followed a path that broadly mirrored—over the entire period—that of labor income inequality. Against these three stylized facts, the two key mentioned questions are tantamount to asking about the relative contributions of supply versus demand determinants to the evolution of the skill premium and the channels through which such determinants were transmitted.*

*An explanation that is solely based on the quantity of education (skills) supplied—whereby the reduction of inequality between high- and low-skill labor earnings observed during the boom was brought about by an increase in the supply of workers with tertiary education—does not fit well the LAC experience during the 1990s and early 2000s when household and labor income distribution worsened but the rates of increase in the supply of education were very similar (and even higher) than during the boom years (2003-2011), when income inequality declined. By contrast, an explanation that is largely based on aggregate demand fluctuations fits well with the income inequality trajectory in the 1990s and until the end of the boom period, but clashes with the fact that income inequality did not increase during the post-2011 slowdown, i.e., in a context of a rapidly declining rate of aggregate demand expansion.*

*This report examines in some depth labor market developments in LAC during the last decade, based on standardized labor survey data for about ten LAC countries. It finds that aggregate demand fluctuations (together with underlying supply-side trends) have been a key driver of the evolution on income distribution since the mid-1990s and until the end of the boom period in 2011. A prominent channel through which aggregate demand affected income distribution during that period was that of a lower elasticity (responsiveness) of low-skill labor supply to changes in wages, relative to the elasticity of high-skill labor supply. Remarkably, this asymmetry in supply elasticities was matched by lower unemployment rates for unskilled workers than for skilled workers. This suggests that the combination of an increasingly smaller reservoir of low-skill workers (which is the other side of the coin of the rising share of workers with tertiary education) and a (possibly related) less elastic supply of such workers resulted in higher increases in low-skill wages in response to aggregate demand boosts, thereby reducing income inequality. Fully uncovering the behavioral reasons underlying the asymmetry in supply elasticities, however, is an important topic for follow-up research.*

*During the slowdown, by contrast, a rapidly declining rate of aggregate demand expansion did not immediately lead to a reversal of the reduction in labor income inequality that had occurred during the boom years. This report argues that this was because, during the slowdown, falling aggregate demand interacted with asymmetric downward real-wage rigidities, with the wages of unskilled workers becoming less responsive to market forces (i.e., as they were comparatively more downwardly rigid) while those of skilled workers continuing to be market responsive. This can explain why the index of labor income inequality did not rise during the slowdown. Institutional features, such as minimum wage regulations, may have been at least partially responsible for the asymmetries in downward wage rigidity. But these asymmetries could also reflect composition effects, as firms may have more flexibility in replacing higher paid skilled workers with lower paid skilled workers.*

*What happened with employment of skilled and unskilled labor during the slowdown is consistent with the asymmetry in downward wage rigidities. In effect, the employment rate of high-skill workers flattened but tended to stay high while that of low-skill workers followed a relatively steep downward trajectory, with young males within the low-skill category dropping out at a particularly fast pace. (The implied possibility of a tradeoff between wage and employment flexibility is an important topic for further research). In addition, during the slowdown, there were important shifts within the employed, from salaried work to self-employment and from larger firms to in smaller firms.*

*The usually tight relationship between wage income and household income inequality may become looser in the near future due to the decline in labor force participation. We know that the decline in household income inequality that occurred during the boom years in part reflected an increase in labor force participation, that is, an increase in the share of members of a household who became employed and thus earned positive incomes. Thus, the drop in labor force participation observed during the current slowdown (combined with a likely increase in unemployment rates) may raise household income inequality. As less members of the household work, labor-originated family incomes, particularly those of poor households, are likely to fall. As a result, we may see a decoupling in the trajectories of household versus labor income inequality, with the former rising relative to the latter.*

*The connection between aggregate demand shifts and income distribution has important policy implications. First, it magnifies the relevance of well-designed safety nets, such that they cushion the distributional impact of economic downturns without further lowering the labor supply elasticity of low-skill workers. Second, regulations such as minimum wages, which reflect societies' search for fairness, may raise the welfare of low-skill workers during upturns but undermine low-skill employment generation during downturns if they unduly stiffen the downward rigidity of low-skill wages. Third, the link between aggregate demand and income distribution raises a somewhat more speculative but no less important question regarding a possible policy-sensitive tradeoff between growth and distribution. Fiscal and other policies aimed at raising domestic saving rates may raise long-term growth but at the expense of reducing aggregate demand and thus worsening income distribution, at least in the short run.*



## *Chapter 1:*

# *Recent Economic Developments*

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### *Introduction*

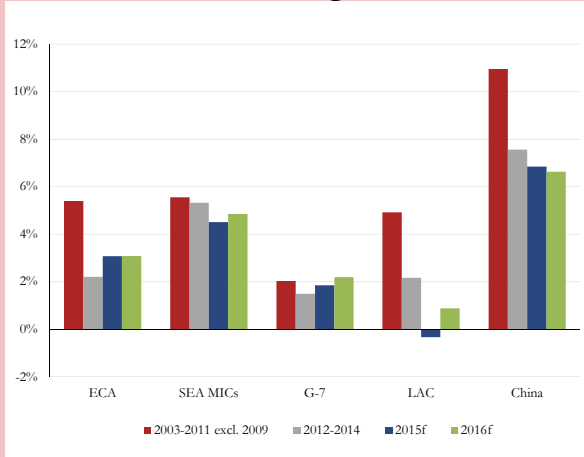
After a decade of strong growth, Latin America and the Caribbean (LAC) started to decelerate in mid-2011, on the wake of falling commodity prices and slower growth in the rest of the world, particularly in China and the G7 countries (Figure 1.1, Panel A). While other emerging countries, especially in Eastern Europe, have followed similar growth trajectories, the deceleration in LAC has been particularly acute and unexpected. Thus, LAC's growth (measured as a GDP-weighted average of individual countries) is now expected to completely stagnate in 2015, whereas according to December 2014 Consensus Forecasts it was expected to reach 1.5 percent (Figure 1.1, Panel B). This worsening is largely influenced by Brazil, the largest economy in the region. Indeed, when measured as a simple average of individual countries' growth rates, the region's economy is estimated to expand by 2.3 percent in 2015. The region's systematic growth underperformance since 2011, relative to other regions, is mirrored in the worse performance of its stock markets (Figure 1.1, Panel C).

To be sure, some countries in LAC have fared better than others, with a cleavage arising roughly along the sign of the terms of trade shock experienced by each country as a result of the commodities boom. Thus, the commodity exporting South American (henceforth SA) countries, which grew substantially faster during the boom years (roughly the 2003-2011 period), are now experiencing, with some exceptions, a more marked slowdown (Figure 1.2). By contrast, Mexico and countries in Central America and in the Caribbean (henceforth MCC), which typically did not experience significant terms of trade gains (or actually experienced terms of trade losses), grew less rapidly during the boom, experienced a more prolonged period of depressed growth after the global financial crisis, and are now recovering faster. There are however islands of more sustained growth in SA, reflecting more proactive stimulus policies, themselves a reflection of stronger fiscal positions. There is a lingering question, however, as to whether these higher growth rates will be sustainable in the current world environment.

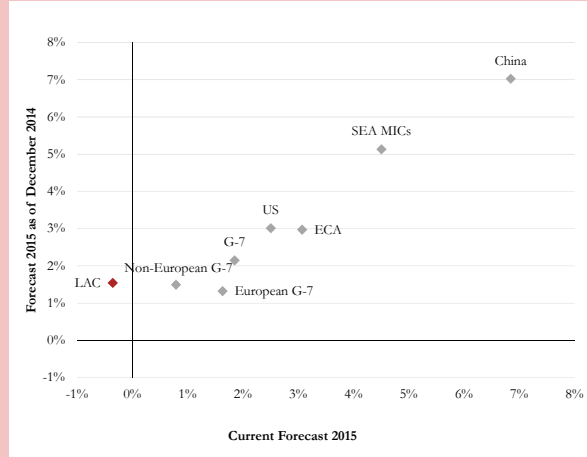
The coming year is still expected to be a year of economic recovery for the LAC region. However, consensus forecasts for 2016 have also become less bullish, reflecting mounting uncertainties, mainly as regard the immediate future of the world economy, China's in particular. In addition, the region must also deal with its narrowed margins of maneuver, the topic of our previous Semi-Annual Report (Latin America Treads a Narrow Path to Growth, April 2015). Given the adverse terms of trade shock, the space for policy maneuver is, of course, not independent of the degree of exchange rate flexibility. Even the SA countries with greatest exchange rate flexibility are being squeezed between falling economic activity, on the one hand, and upward price pressures, widening current account deficits and weakening fiscal positions, on the other hand. The rise in external competitiveness resulting from the depreciating real exchange rates should help promote the region's exports, thereby gradually

**FIGURE 1.1. Regional GDP Growth and Perspectives**

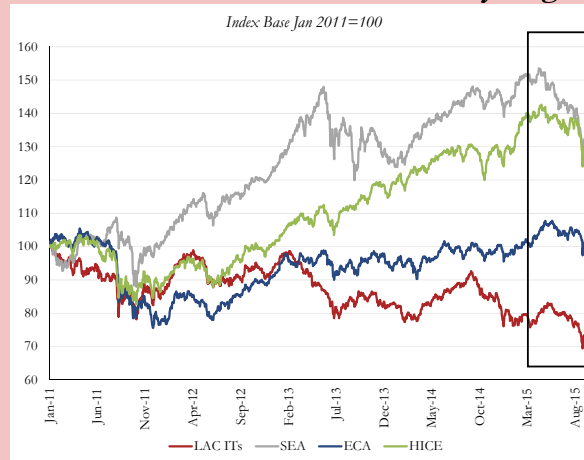
**PANEL A. GDP Growth and Forecasts Across Regions**



**PANEL B. Change in the Growth Forecast for 2015**



**PANEL C. Stock Market Returns by Region**

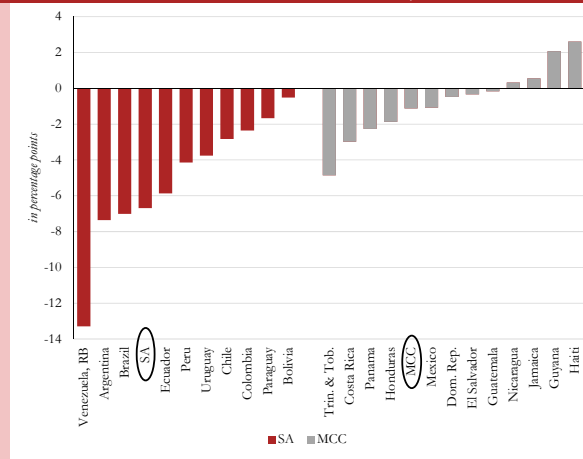


Notes: ECA includes Croatia, Czech Republic, Hungary, Lithuania, Poland, and Turkey. SEA MICs includes Indonesia, Malaysia, Philippines, and Thailand. HICE includes Australia, Canada, New Zealand, Norway, and Sweden. In panel C LAC ITs includes Brazil, Chile, Colombia, Mexico, and Peru. Sources: LCRCE based on Consensus Forecasts, Bloomberg and IMF's WEO.

offsetting the decline in domestic demand. However, the switch will likely take time, reflecting not only the weak world demand and declining world trade, but also the much shrunken size of the tradable sectors in many LAC countries after a decade of exceptionally strong domestic demand and real exchange rate appreciations. Where exchange rates are significantly less flexible, by contrast, the steep decline in external competitiveness will likely require stronger fiscal adjustments, a doubly challenging proposition in a context of declining tax revenue from commodity exports. In both cases, the pressures arising from falling or stalling job creation and deteriorating income distributions, the topic of the next chapter of this report, will further clutter the policy maneuvering space.

The rest of this chapter discusses in greater detail LAC's recent growth performance and prospects in the context of the current global juncture. It focuses on the adjustment challenges faced by the countries in LAC that are experiencing a major adverse terms of trade shock, after a prolonged period of an arguably unprecedented period of terms of trade bonanza. That is, it focuses on SA countries. In the first section, the chapter reviews the role of external factors in explaining the overall regional slowdown and the substantial dispersion in growth performances across specific countries, reflecting

**FIGURE 1.2. Growth Deceleration in LAC Countries, 2015f vs 2003-2011 (excluding 2009)**



Sources: LCRCE based on Consensus Forecasts and IMF's WEO.

the diversity of impacts. In the second section, the chapter explores the diversity of country responses, reflecting both differences in exposures and in fundamentals. The chapter concludes with a brief review of the mounting constraints and policy challenges faced by the region going forward.

### *The External Roots of the Deceleration and Their Diverse Impact*

The fact that forecasters have consistently underestimated LAC's slowdown since 2011 suggests a difficult to predict but systematic regional downward growth bias (Figure 1.3, Panel A). As suggested by the Wind Index Model (WIM), common external factors track the region's growth rate quite well over time when the latter is measured as simple averages (Figure 1.3, Panel B)<sup>1</sup>. Yet, changes in external factors explain less than half of the change in expected LAC growth for 2015 (Table 1.1 and Figure 1.3, Panel C). The latter underscores the importance at this time of purely domestic dynamics (even when induced by prior external factors), a topic to which the report will return to in the next section.

After underperforming relative to its WIM prediction during 2014, reflecting the unaccounted negative impact of other factors (particularly domestic), the region is expected to return during 2015 toward its WIM predicted level of close to three percent. This disparity between simple and weighted averages growth forecasts is a useful reminder of the long shadow cast by the poor growth performance of some of the larger economies in the region, Brazil in particular. But it also underscores the wide growth differences resulting from the diversity of impacts, vulnerabilities and policy responses across countries.

**TABLE 1.1. Expected External Factors for 2015, 2014q4 vs Now**

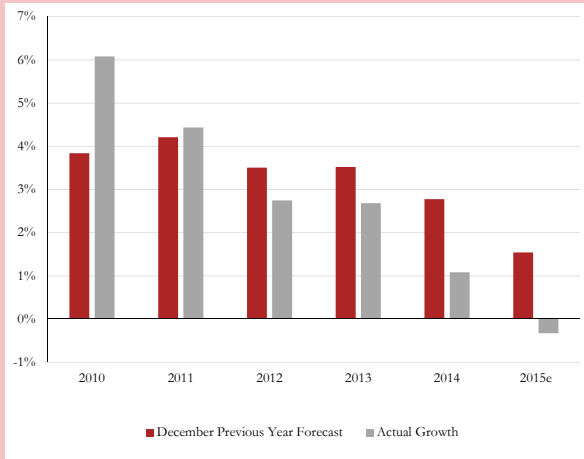
Variable	China Growth YoY	G-7 Growth YoY	CRB Commodity Index Growth YoY
2014q4	7.03%	2.15%	7.25%
Current	6.84%	1.85%	-9.32%

Sources: LCRCE based on Consensus Forecasts and Bloomberg.

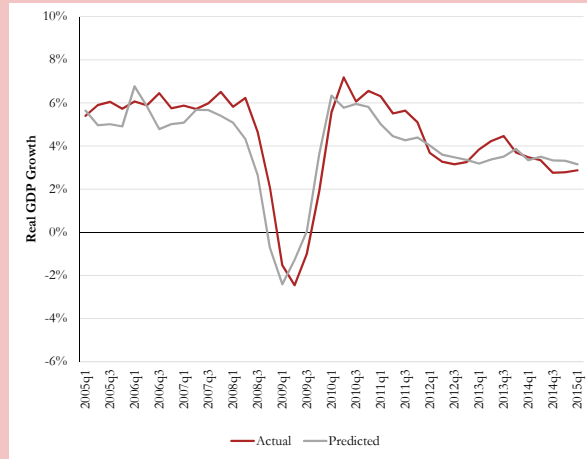
<sup>1</sup> The WIM model was extensively used in previous editions of the LAC Semiannual Report series. It estimates the impact of external factors on every LAC country, depending on their exposure to changes in four variables, commodities prices, the rates of growth of the G7 countries and China, and the US 10-year interest rate.

**FIGURE 1.3. Growth, Forecasts and the Impact of External Factors in LAC**

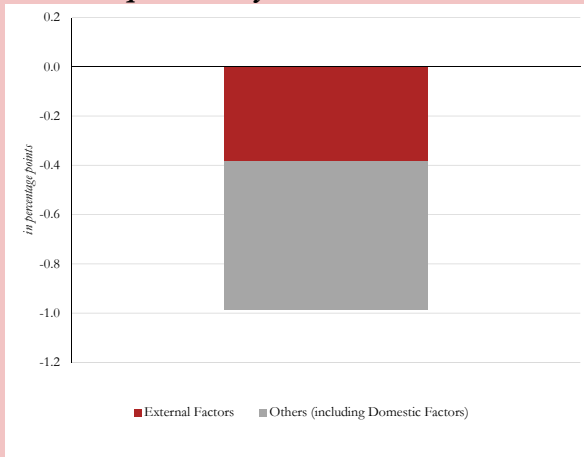
**PANEL A. Forecasted and Actual Growth**



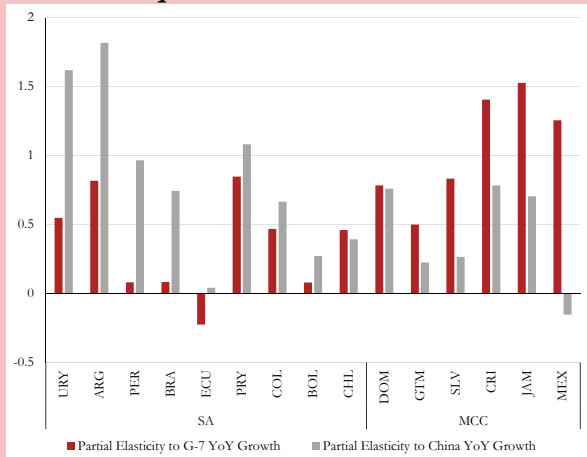
**PANEL B. The Predictive Power of External Factors on Growth**



**PANEL C. Worsening in 2015 Forecast Explained by Different Factors**



**PANEL D. Elasticity of Countries with respect to External Factors**



Notes: In Panels B and C averages are taken over a set of fifteen LAC countries with available quarterly data, namely: Argentina, Brazil, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Jamaica, Mexico, Paraguay, Peru, and Uruguay. In panel B, average predicted growth is calculated by averaging the fitted values of country regressions of GDP growth on G7 growth, China's growth, the CRB commodity index, and the U.S. 10 year treasury rate. In panel C the worsening of the forecast attributed to external factors is calculated as the difference between the predicted growth rates (resulting from the regression specification detailed for panel B) using the values of the explanatory variables forecasted for 2015 in December 2014 and the predicted growth rates using the current forecasted values for 2015. Panel D shows the partial elasticities to G-7 growth and China's growth derived from the aforementioned regression specification; countries are ranked by the difference between the elasticities with respect to China's growth and the G7 growth. Sources: LCRCE based on Consensus Forecasts, Bloomberg and national sources.

The differences in foreign growth elasticities (G7 versus China) of individual LAC countries estimated using the WIM model illustrate the bipolarity of the region's world trade connections<sup>2</sup>. In SA, China's pull clearly dominates; in MCC, it is the G7's (Figure 1.3, Panel D)<sup>3</sup>. In turn, this reflects the fact that

<sup>2</sup> The differential evolution of trade connections across LAC countries is examined in detailed in our 2015 Regional Flagship study on *Latin America and the Rising South: Changing World, Changing Priorities*.

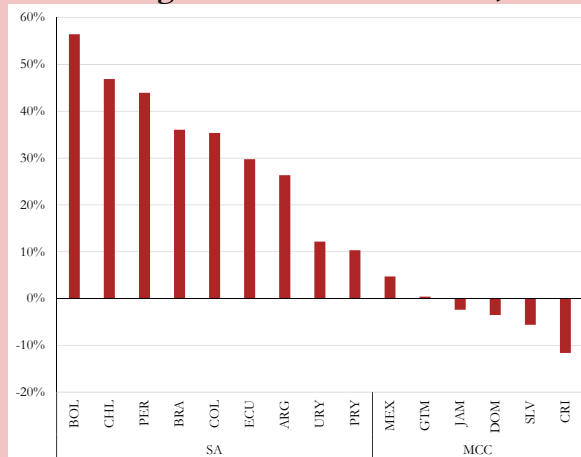
<sup>3</sup> Rather remarkably, Chile and The Dominican Republic are the only two countries switching places (Chile having a slightly smaller difference than the DR) when ranking all countries according to the difference between China and G7 elasticities.

SA primarily includes commodity exporters, MCC primarily commodity importers.<sup>4</sup> Hence, the terms of trade effects of the decline in commodity prices have been radically distinct across the two sub-regions (Figure 1.4, Panel A). At the same time, SA trades mainly with China, MCC with the US. This bipolarity is clearly reflected in the different cycles followed by the two regions (Figure 1.4, Panels B and C). Thus, the current declining growth in SA mirrors that of China, the rising growth in MCC that of the US.

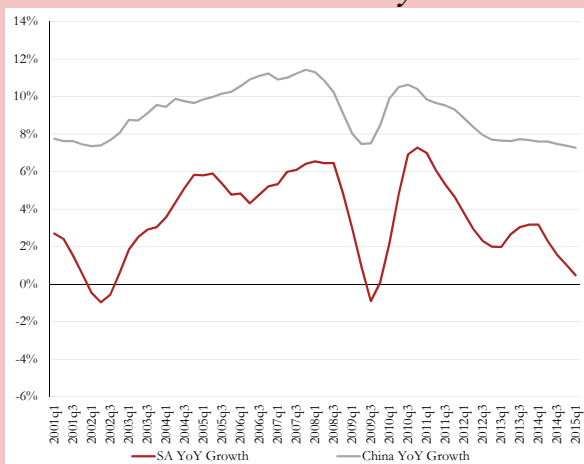
The growth prospects for SA and MCC are therefore largely a reflection of those of China and the US, respectively. In China, the dominant factor driving the deceleration is the decline in investment—the largest component of aggregate demand, accounting for about 45 percent of China’s GDP), which has not yet been matched by a comparable surge in consumption—which remains a limited (albeit rising) component of aggregate demand, at around 37 percent of GDP (Figure 1.5, Panels A and B).

**FIGURE 1.4. Terms of Trade and Different Cycles in LAC**

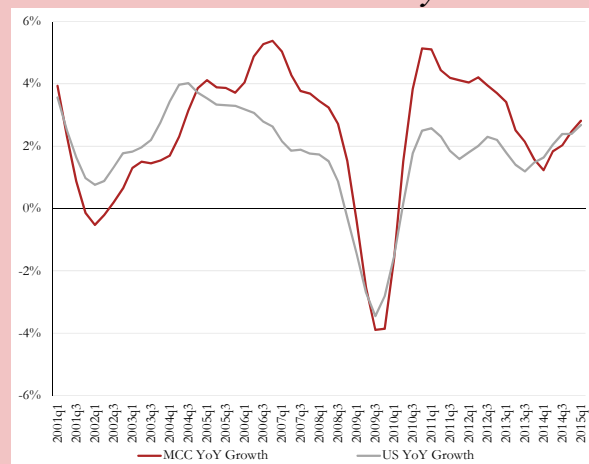
**Panel A. Change in the Terms of Trade, 2005-2011**



**Panel B. The SA Cycle**



**Panel C. The MCC Cycle**

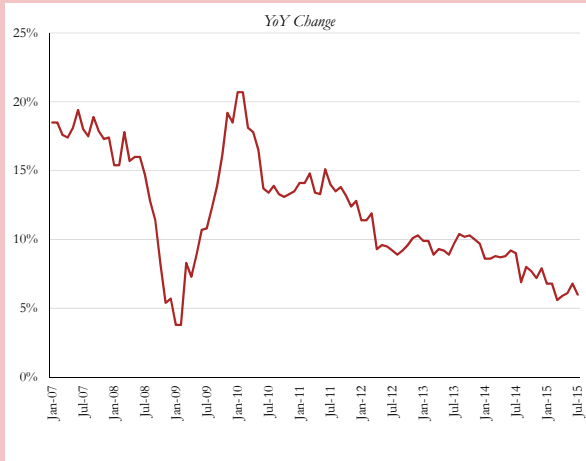


Notes: In panels B and C growth rates are smoothed out using a 4-quarter moving average, and the series for SA and MCC are weighted averages. In panel B SA includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Peru, and Uruguay. In panel C, MCC includes Costa Rica, Dominican Republic, El Salvador, Guatemala, Jamaica, and Mexico. Sources: WDI, Bloomberg and national sources.

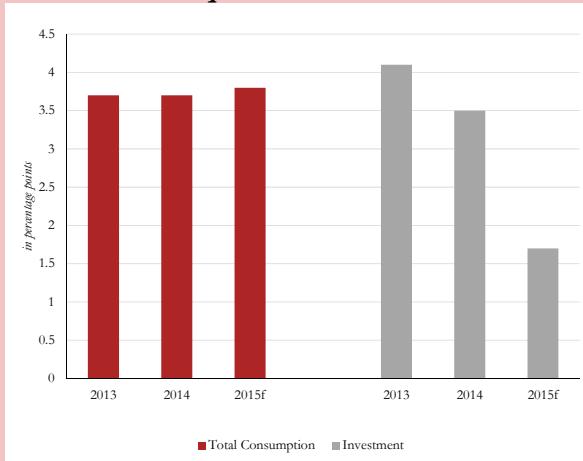
<sup>4</sup> Admittedly, Mexico is also a net commodity exporter. However, the share of commodities in total exports is limited (22.5 percent).

**FIGURE 1.5. Economic Outlook for China and the SEA MICs**

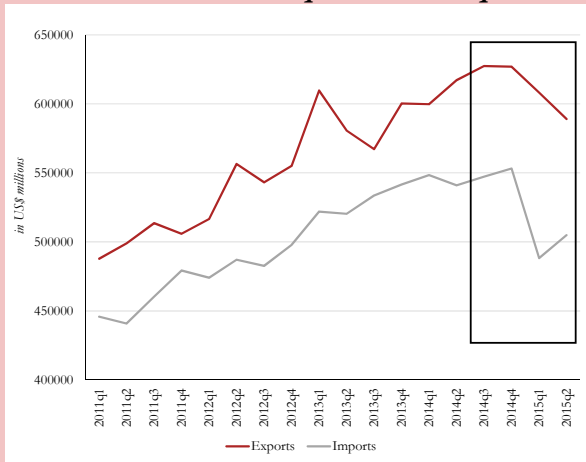
**Panel A. China: Industrial Production**



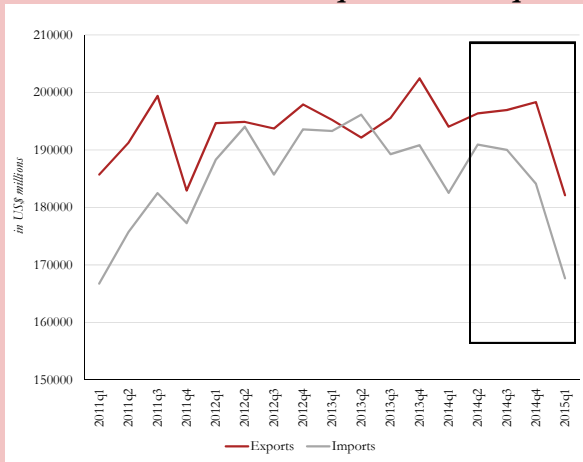
**Panel B. China: Contribution to Growth of Consumption and Investment**



**Panel C. China: Exports and Imports**



**Panel D. SEA MICs: Exports and Imports**

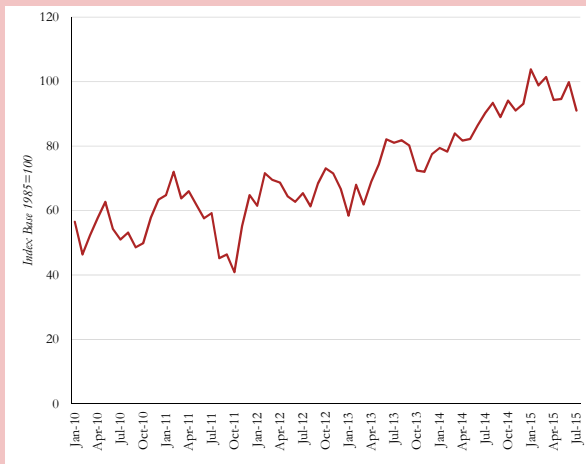
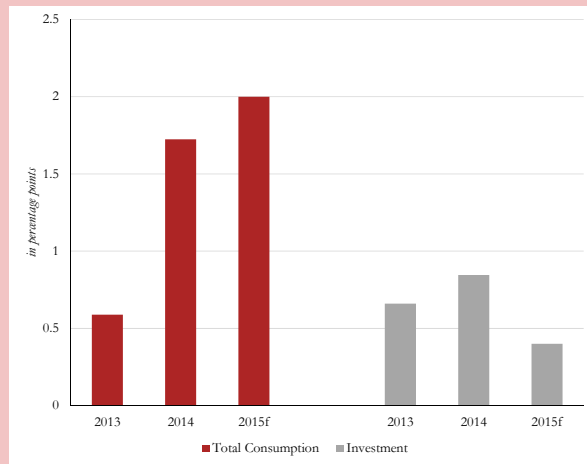


Notes: In panel D, SEA MICs includes Indonesia, Malaysia, Philippines, and Thailand. Sources: Economist Intelligence Unit and national sources.

Thus, the fall in Chinese investment over the last three to four years is having a global decelerator effect on world growth. The more recent downturn (over the last 6 months) in China's trade (both imports and exports), which is mirrored by similar declines in the trade of South East Asia's middle-income countries, casts a further and perhaps even more ominous shadow on SA's growth prospects (Figure 1.5, Panels C and D). In the US, on the other hand, it is consumption that is leading the growth recovery, under the pull of improving confidence (Figure 1.6, Panels A and B). Thus, as long as events in Asia and the US remain decoupled, growth in the two LAC sub-regions, SA and MCC, are likely to follow quite distinct dynamics (Figure 1.7).

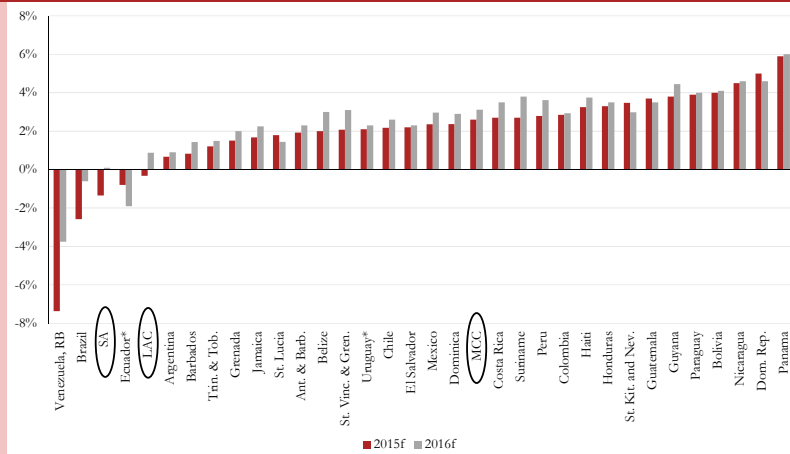
### ***The Country Responses***

As noted, domestic factors and responses also appear to matter, as some SA countries are currently faring better than others, as regard their growth rate. Thus, Colombia, Peru and Uruguay (henceforth SA High Growth) are expected to grow in 2015 at a still respectable yearly rate of about 3 percent, while Argentina, Brazil and Ecuador (henceforth SA Low Growth) are expected to experience,

**FIGURE 1.6. The Performance of the U.S. Economy**
**PANEL A. Consumer Confidence**

**PANEL B. Contribution to Growth of Consumption and Investment**


Sources: The Conference Board and Economist Intelligence Unit.

taken as a group, zero growth, as negative growth in Brazil and Ecuador more than outweigh a small but positive growth in Argentina (Figure 1.8, Panel A). And Chile is somewhat of an intermediate case of its own, as its growth is expected to remain in between that of the other two groups (at around 2 percent). In addition, Chile's economy is expected to be on the rebound in 2016, which contrasts with the continued growth decline expected in SA High Growth, SA Low Growth, MCC, by contrast, is expected to maintain a rather steady growth rate of between 3 to 4 percent.<sup>5</sup>

**FIGURE 1.7. Real GDP Growth Forecasts within LAC**


Notes: SA includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela. MCC includes Antigua and Barbuda, Barbados, Belize, Costa Rica, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago. \*: Adjusted according to projections by the World Bank's country economists. Sources: Consensus Forecasts and IMF's WEO.

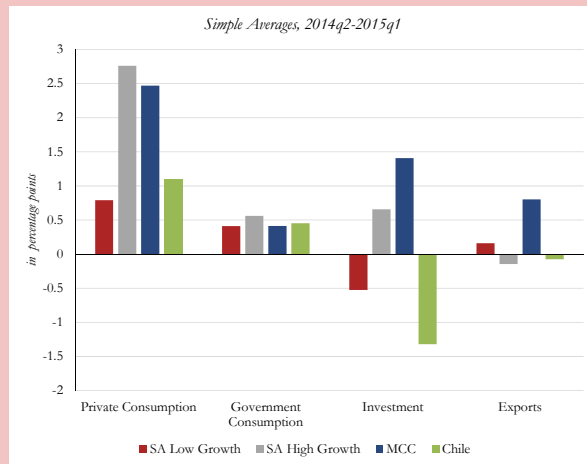
<sup>5</sup> This expected growth is partly a reflection of the Dominican Republic's particularly strong but somewhat atypical growth performance (expected to reach 5 percent in 2015). Without including the Dominican Republic, MCC's average expected growth for 2015 declines to 2.5 percent.

**FIGURE 1.8. LAC: Economic Outlook by Groups**

**PANEL A. GDP Growth**



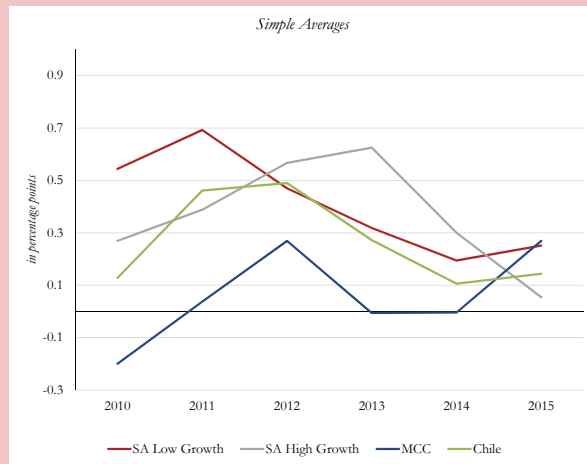
**PANEL B. Contributions to Growth**



**PANEL C. Contribution of Government Consumption to Growth**



**PANEL D. Contribution of the Construction Sector to Growth**



**PANEL E. Fiscal Balances**



**PANEL F. Current Account Balances**



Notes: In panels A to F, SA Low Growth includes Argentina, Brazil, and Ecuador; SA High Growth includes Colombia, Peru and Uruguay. In panels A and B, MCC includes Costa Rica, Dominican Republic, and Mexico. In panel D, MCC includes Costa Rica and Mexico. In panels D and F figures shown are average of the available quarterly data. Sources: Consensus Forecasts, IMF's WEO and national sources.

The contrasting growth rates across LAC sub-groups reflect quite different growth patterns for key components of aggregate demand (Figure 1.8, Panel B). Private consumption is clearly the key differentiating factor between SA High Growth and SA Low Growth. The contrasting propensities to consume of these two groups are likely in turn to be largely a reflection of distinct public consumption and investment trajectories. While public spending peaked in early 2012 in SA Low Growth, it remained high until early 2014 in SA High Growth (Figure 1.8, Panel C). Similarly, construction (a proxy for public investment in infrastructure) peaked earlier, in 2011, in SA Low Growth but only in 2013 in SA High Growth (Figure 1.8, Panel D). This suggests that the growth gap between country groups largely reflects differences in timing and duration of buoyant private spending and of stimulative public spending policies. SA High Growth countries injected stimulus later and sustained it longer, thereby allowing private consumption spending (and, to a more limited extent private investment) to remain more vigorous.

The differences in stimulative policies between SA High Growth and SA Low Growth in turn seem to reflect differences in fundamentals, with SA High Growth exhibiting substantially better fiscal positions than SA Low Growth (Figure 1.8, Panel E). It is thus likely that SA High Growth was better able to afford and sustain expansionary public spending policies. At the same time, however, it is also worth noting that, while growing faster than SA Low Growth, SA High Growth's contributions to growth from both investment and exports are much below those of MCC (Figure 1.8, Panel B). This may be a first warning that the comparatively higher growth rates in SA High Growth may not be sustainable. A second warning comes from the external accounts. Despite a better fiscal position, the current account deficit of SA High Growth continues to widen and has fallen more deeply into negative territory than that of SA Low Growth (Figure 1.8, Panel F). Moreover, while the SA High Growth's current account deficit was, until 2013, fully financed by foreign direct investment (FDI), this is no longer the case for 2014-15, even though FDI flows have remained fairly stable (as a share of GDP) throughout the entire slowdown period so far.

### *The Policy Challenges Looking Forward*

In view of the magnitude of its adverse terms of trade shock, SA obviously faces a more difficult policy challenge than MCC, where the terms of trade have rather tended to improve. For SA, the adjustment to the new configuration of external factors is tantamount to an adjustment to a new equilibrium of lower income. It will require a reduction in overall spending (to achieve external balance, i.e., reach a sustainable current account position), combined with a real exchange depreciation (to achieve internal balance, i.e., restore full employment in a non-inflationary manner). Moreover, adjustment to the new equilibrium can entail important transition costs that can be mitigated if countries have sufficient policy maneuvering space. In particular, monetary and real exchange rate flexibility can be crucial to achieve the necessary real exchange rate adjustment through a nominal depreciation rather than through downward nominal adjustments in price and wages, and to reduce the output gap without sacrificing inflation. Access to foreign financing, large external reserves, and strong fiscal positions can all play an important supporting role in smoothing out transition costs.

Box 1.1 provides a panoramic view of both the policy adjustment needs and the policy space available for meeting these needs across LAC's larger countries.

The degree of dollarization provides a convenient way to classify the degree of monetary and exchange rate flexibility within SA. SA countries can be accordingly assembled into three groups, non-dollarized countries (Argentina, Brazil, Chile, Colombia); partially (or de facto) dollarized countries (Peru, Bolivia, Paraguay, Uruguay); and fully dollarized countries (Ecuador). From 2011 to 2013, the three groups followed roughly similar real exchange rate trajectories. After 2013, however, the non-dollarized countries depreciated sharply, while the fully and partially dollarized countries continued to appreciate in real terms relative to the dollar (Figure 1.9, Panel A). Rather remarkably, however, the fully dollarized and partially dollarized countries crossed paths during the last year. The latter were able to use their limited margin of exchange rate flexibility to hold off and revert their appreciation path, while Ecuador veered toward a much sharper rate of real exchange rate appreciation.

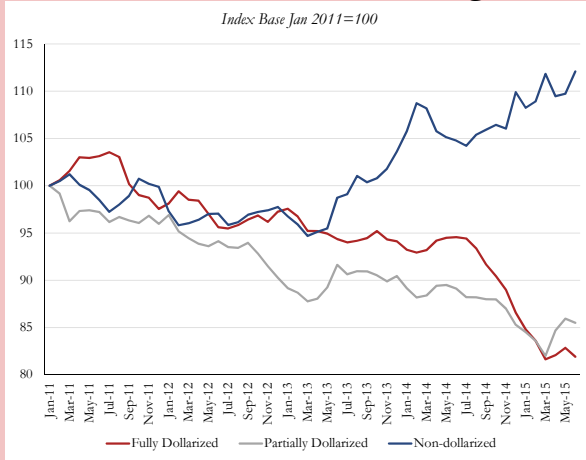
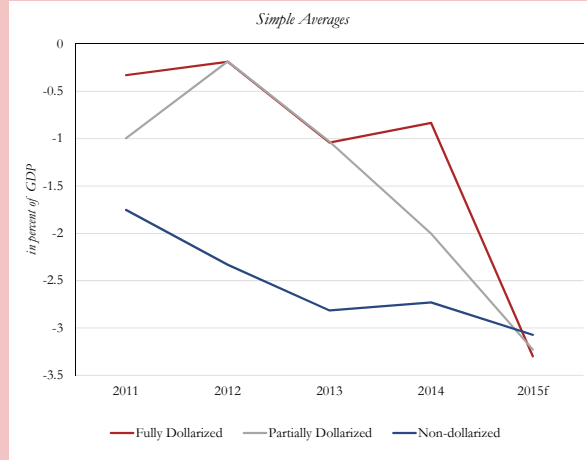
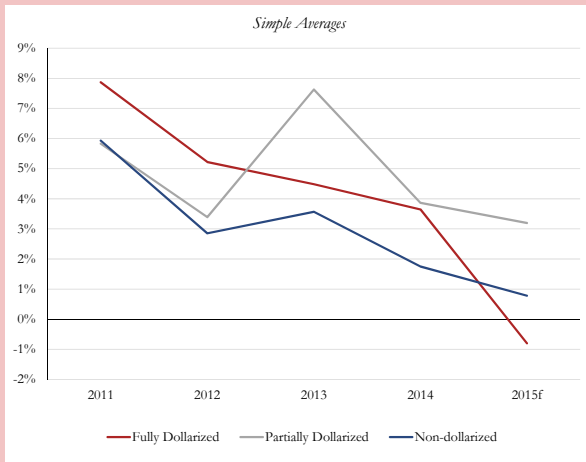
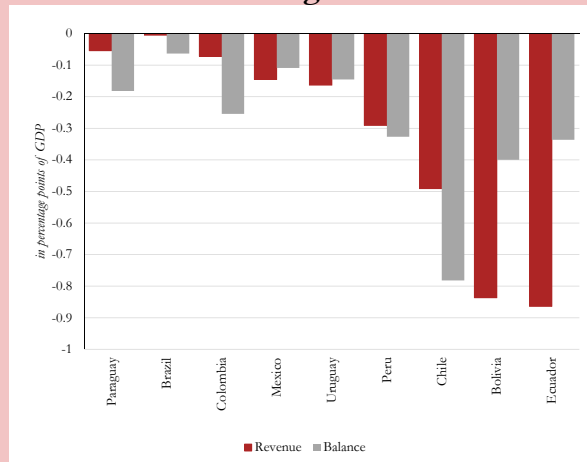
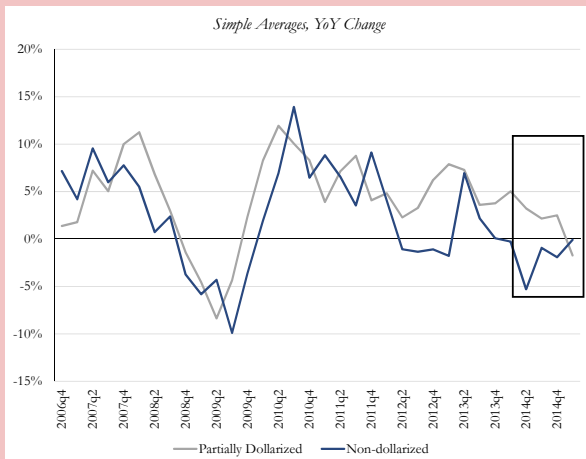
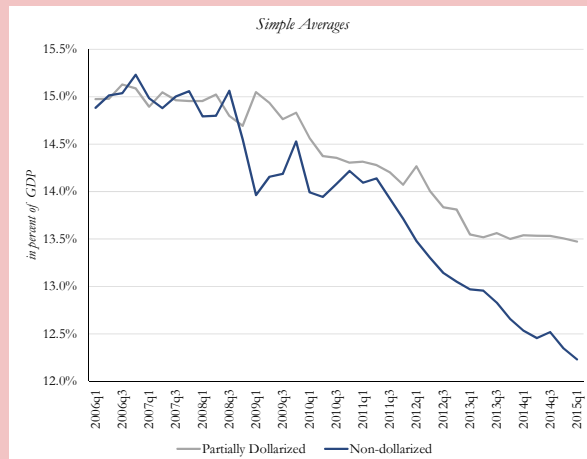
To be sure, while the partially dollarized countries have more room for maneuver than the fully dollarized, the real exchange rate (hence external competitiveness) of the partially dollarized countries is lagging behind that of the non-dollarized countries. It is of course possible that the real exchange rates of the latter are currently overshooting and will revert at some point toward a more appreciated long-run equilibrium level, partly perhaps as a reflection of corrections in the value of the US dollar against world currencies. If so, it makes sense for the partially dollarized to just follow their current course. But it is also possible that the partially and the totally dollarized countries will need to close at least part of their external competitiveness gaps. Indeed, the current account deficits of the dollarized and partially dollarized have dipped more steeply than that of the non-dollarized countries, which suggests the need for some correction (Figure 1.9, Panel B).<sup>6</sup> And while the adjustment needs in some of the partially dollarized countries may be comparatively small, the fact that they are growing relatively fast (at least relative to the non-dollarized) suggests that their current account gaps may widen further, thereby amplifying the need for real exchange rate corrections (Figure 1.9, Panel C).

The partially dollarized countries have in principle the option of speeding up their rate of depreciation. However, possible currency mismatches may create tensions in their financial systems. Alternatively, larger fiscal adjustments may be required to close the external gaps. However, such fiscal adjustments may be hard to mobilize in view of the heavy dependence of many dollarized countries on the declining tax revenues from natural resources (Figure 1.9, Panel D). Moreover, the larger fiscal contractions are likely to raise the transition costs resulting from deeper dips in output growth.

In the non-dollarized camp of SA, by contrast, countries have achieved substantial gains in external competitiveness (Figure 1.9, Panel A). Such gains should help them rekindle their growth. However, the full effects are likely to take time. This is not just due to lags in the production of exports (they are only starting to react—see Figure 1.9, Panel E). It is also due to the current context of depressed

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<sup>6</sup> Although the data is not readily available, central banks in fully or partially dollarized countries may also have made an increasing use of their foreign reserves.

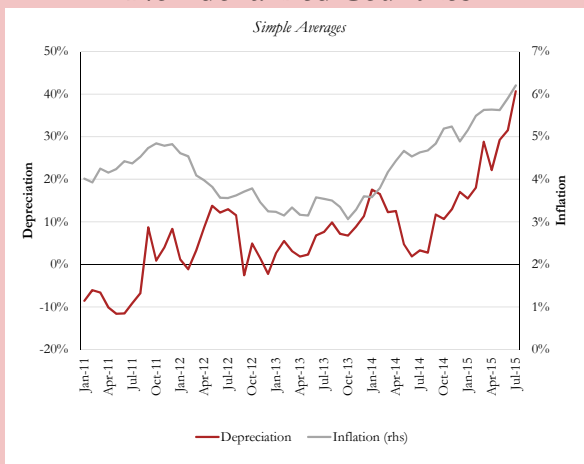
**FIGURE 1.9. Evolution of Key Macroeconomic Variables by Dollarization Levels**
**PANEL A. Real Effective Exchange Rates**

**PANEL B. Current Account Balances**

**PANEL C. Real GDP Growth**

**PANEL D. Response of Fiscal Revenue and Balance to a Negative CTOT Shock**

**PANEL E. Real Export Growth**

**PANEL F. Share of the Manufacturing Sector in GDP**


Notes: Fully dollarized includes Ecuador. Partially dollarized includes Bolivia, Paraguay, Peru, and Uruguay. Non-dollarized includes Argentina, Brazil, Chile, and Colombia. CTOT is Commodities Terms of Trade. Sources: Consensus Forecasts, IMF's WEO, IMF's IFS and national sources; IMF staff calculations.

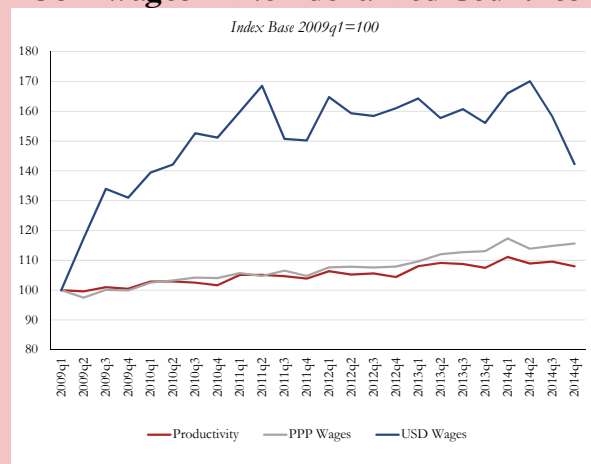
global demand as well as to the fact that their manufacturing sectors have shrunk as a result of large past appreciations (Figure 1.9, Panel F). The main immediate issue non-dollarized countries are facing is rising inflation on the wake of the pass-through to prices of rapid and sustained depreciations (Figure 1.10, Panel A). These inflationary pressures are compounded by persistent wage pressures, as real wages continue to increase ahead of labor productivity (Figure 1.10, Panel B). While thus far inflationary expectations appear to remain anchored (Figure 1.10, Panel C), central banks are facing a difficult policy dilemma between monetary tightening, to ensure that such anchors remain steady, and monetary easing, to mitigate some of the output contraction (Figure 1.10, Panel D).<sup>7</sup>

**FIGURE 1.10. Inflationary Pressures and Monetary Policy Space**

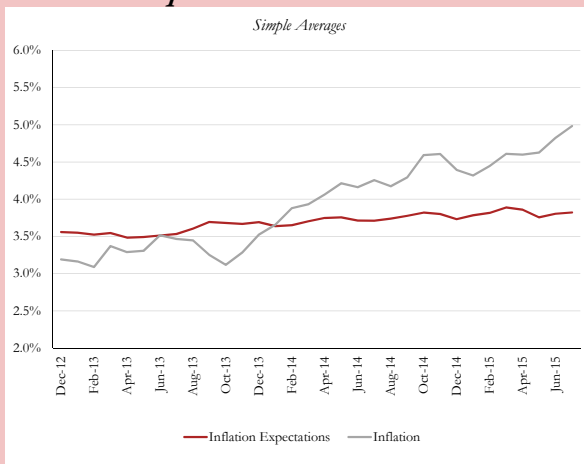
**PANEL A. Depreciation and Inflation in Non-dollarized Countries**



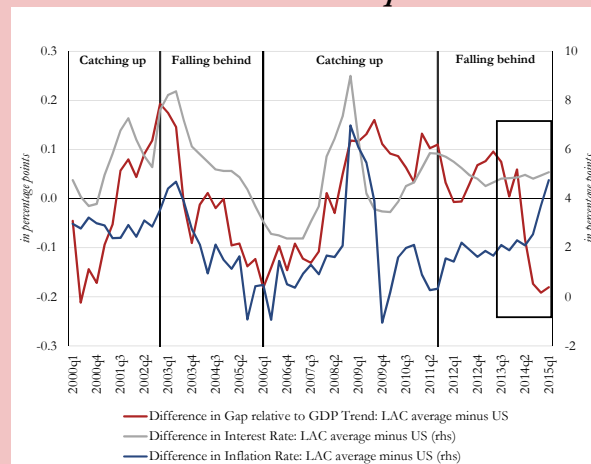
**PANEL B. Productivity versus PPP and USD Wages in Non-dollarized Countries**



**PANEL C. Inflation and Inflation Expectations in LAC ITs**



**PANEL D. Output, Inflation and Policy Rate Differentials with respect to the US**

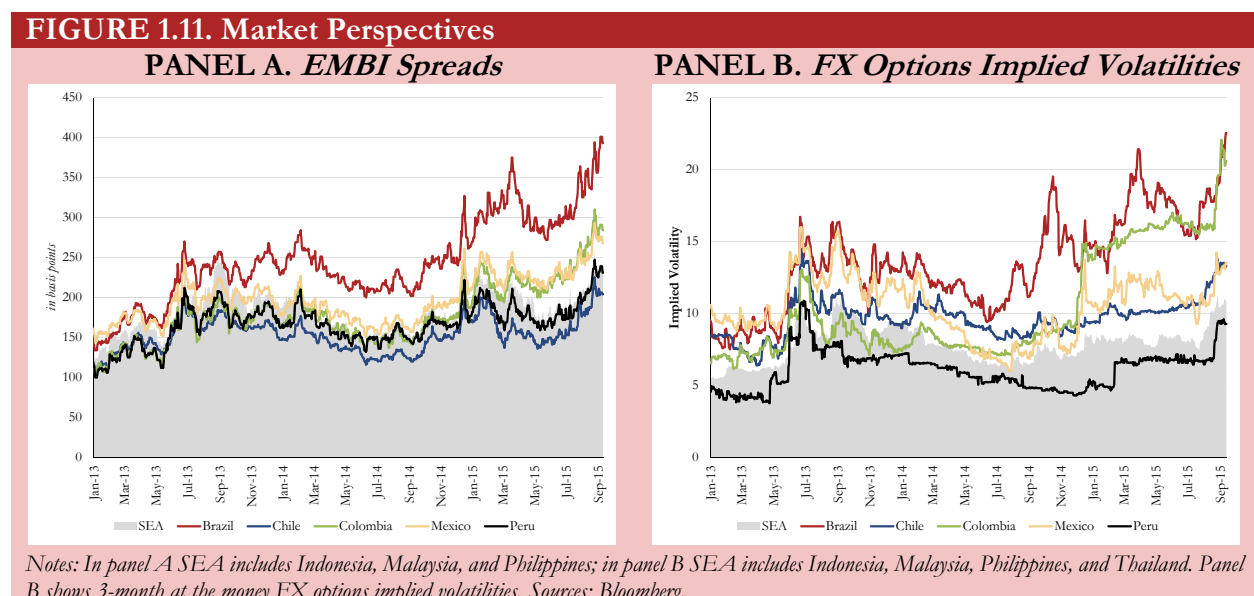


*Notes: Non-dollarized includes Brazil and Colombia. In panels C and D figures shown are for the fully fledged inflation targeters in LAC, namely, Brazil, Chile, Colombia, Mexico, and Peru. Sources: LCRCE based on LABLAC, Bloomberg and national sources.*

<sup>7</sup> Figure 1.11, Panel D shows the de-trended growth rates, inflation rates and interest rates for the average of the five main LAC IT countries, all expressed as differences with respect to the US. As can be seen in the chart, the data for 2014-15 show a clearly rising trend for inflation contrasting with a steep decline for de-trended output growth, reflecting the mounting asynchronicity of the US and LAC cycles.

In the coming months and years, policy makers in the region are likely to face two key complicating factors. The first is the rising cost of foreign finance, which has materialized in the last few months in the form of rapidly rising EMBI spreads (Figure 1.11, Panel A). While such trends follow changes in world appetite for risk and are thus affecting virtually all emerging markets, the magnitude of the spreads respond to country-specific fundamentals, particularly fiscal. In parallel with the rise in EMBI spreads, the implied volatility of foreign exchange options has also jumped in recent months (Figure 1.11, Panel B). Such jumps suggest that markets are increasingly contemplating the possibility of further large exchange rate adjustments, perhaps in response to eventual sudden stops in capital inflows. Thus, both indicators may be interpreted as warning signals against heavy reliance on foreign finance.

The second key complicating factor for policy making, particularly for fiscal policy, is the mounting pressure coming from labor markets, as unemployment is starting to rise and the hard-won gains in income distribution that were achieved during the last decade may become partially unraveled. To this topic we now turn.



### ***BOX 1.1. Adjustment Needs and Policy Space: A Simple Typology of LAC Countries***

This box provides a broad typology of LAC countries' adjustment needs and policy space available to conduct these adjustments. The adjustment needs have two dimensions, internal and external. The former reflect the fiscal position, the latter the terms of trade shock incurred since the peak of the commodities boom (in mid-2011).

We first organize the policy space according to three dimensions: external, fiscal, and monetary. The indicators to measure space within each of these three dimensions are as follows:

- Monetary
  - The (last observed) level of inflation
  - The (de jure or de facto) degree of dollarization (as a measure of the scope for monetary capacity and exchange rate flexibility)
- Fiscal
  - The (last observed) general government's fiscal deficit
  - The most recent EMBI spread (as a measure of fiscal sustainability)
- External
  - The (last observed) current account deficit
  - The country's saving gap relative to benchmark (as a measure of the structural pressure on the external accounts)

The larger LAC countries are ranked according to each of these indicators and a threshold is set that divides the group approximately evenly into two cohorts (higher vs. lower) for each indicator. Tables B1.1 and B1.2 presents the variables, the thresholds, and the data sources used.

Internal adjustment needs are measured on the basis of a single dimension, namely, the fiscal deficit, which we then contrast with fiscal space, as measured by fiscal sustainability, itself proxied by the EMBI spread.<sup>8</sup> We thus derive a two-by-two table contrasting the adjustment needs to correct short-term imbalances with the fiscal space available for spreading out these adjustments over time, depending on the underlying inter-temporal solvency position (Figure B1.1, Panel B). Fiscal adjustment needs may or may not be related to the terms of trade shock. Countries that face higher adjustment needs and have more limited space to borrow due to fiscal sustainability concerns have the hardest task ahead. The ones with lower fiscal deficits today and robust fiscal sustainability have the easiest task. In between, countries that do not face fiscal sustainability concerns but face a higher fiscal deficit today confront a short-term adjustment problem. However, they have more flexibility

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<sup>8</sup> Admittedly, the EMBIs may reflect market perceptions of fundamentals, rather than true fundamentals. Moreover, they may reflect other factors, in addition to fiscal sustainability. However, they have the advantage of being readily available. At the same time, the construction of fiscal debt sustainability indicators, which would be the best alternative to the EMBIs, is subject to many caveats and judgment calls, particularly as regard the growth potential of countries.

regarding the timing of this adjustment. Countries in the opposite cell (lower current fiscal deficits but problematic fiscal sustainability) still face hard fiscal adjustments ahead, even though they may already have made much progress toward this adjustment.

External adjustment needs are measured exclusively on the basis of the terms of trade shock during the slowdown. As regards policy space, a synthetic indicator is obtained by summing up for each country the number of appearances in the higher vs. lower groups for each of the above indicators. A country is classified in the lower space category when summing up 4 or more (out of 6) marks on the lower side of the threshold for the individual indicators. Four cells interacting external adjustment needs and policy space are thereby obtained (Figure B1.1, Panel A), providing a convenient typology of countries whose meaning can be interpreted broadly as follows. Countries with lower external adjustment needs and higher policy space have the easiest time, those with higher adjustment needs and limited policy space the hardest. In between, countries with higher external adjustments needs but higher policy space have a challenging but in principle manageable task ahead of them. By contrast, countries with lower external adjustments needs but equally lower policy space have in principle an easier, yet not obvious, task.

**TABLE B1.1. Thresholds and Data Sources**

	ToT	Inflation	Dollarization	Fiscal Balance	CA Balance	Saving Gap	EMBI
Threshold	-2%	4%	40%	-4%	-3%	-1%	300
Source	GEM	Bloomberg	Expanded version of the database in Levy Yeyati (2006)	WEO	WEO	De la Torre and Ize (2015)	Bloomberg

Sources: LCRCE.

**FIGURE B1.1. Relative Adjustment Needs and Policy Space: A Typology**

**PANEL A. Relative External Adjustment Needs and Policy Space**

		Relative Policy Space	
		Lower	Higher
Relative Adjustment Needs	Lower	Argentina*, Costa Rica, El Salvador, and Uruguay	Chile, Dominican Republic, Mexico, and Panama
	Higher	Brazil and Ecuador	Bolivia, Colombia, Paraguay, and Peru

**PANEL B. Relative Internal Adjustment Needs and Fiscal Space**

		Relative Fiscal Space	
		Lower	Higher
Relative Fiscal Needs	Lower	Dominican Republic and Paraguay	Chile, Colombia, Panama, Uruguay, and Peru
	Higher	Argentina, Brazil, Costa Rica, and Ecuador	Bolivia, El Salvador, and Mexico

Notes: The numbers used for the typology are the latest available (or 2015 forecast) for each variable. \*: Based on the methodology, Argentina appears in the same group as Chile, Dominican Republic, Mexico, and Panama (lower adjustment need, higher policy space). However, it was reclassified in the group lower adjustment need, lower policy space because the current account indicator, while above the threshold, did not reflect the lack of access to foreign financing that clearly constrains the capital account. Since there are no EMBI spreads for Bolivia, El Salvador and Paraguay, the interest rate these countries pay on sovereign debt was compared to that of the countries for which such measure exists. Sources: LCRCE based on World Bank's GEM, Bloomberg, Levy Yeyati (2006), IMF's WEO and De la Torre and Ize (2015).

**TABLE B1.2. LAC Country Classification According to Various Economic Indicators**

Country	ToT	Inflation	Dollarization	Fiscal Balance	CA Balance	Saving Gap	EMBI
Argentina	14.5%	14.7%	7.9%	-4.1%	-1.7%	8.7%	546
Bolivia	-5.0%	3.2%	53.0%	-4.5%	-2.8%	2.1%	
Brazil	-5.7%	9.5%	0.0%	-5.3%	-3.7%	-4.4%	452
Chile	-0.6%	5.0%	12.6%	-2.1%	-1.2%	0.6%	210
Colombia	-7.7%	4.7%	2.0%	-3.2%	-5.8%	-5.3%	275
Costa Rica	0.6%	-0.7%	40.3%	-5.8%	-3.6%	-4.1%	457
Dominican Republic	1.2%	0.4%	25.0%	-2.4%	-2.4%	-10.6%	388
Ecuador	-7.1%	4.1%	100.0%	-5.4%	-3.3%	-2.7%	1284
El Salvador	0.1%	-2.0%	100.0%	-4.4%	-4.3%	-4.6%	
Mexico	0.5%	2.6%	6.2%	-4.1%	-2.2%	-0.4%	259
Panama	-1.8%	0.3%	100.0%	-3.8%	-10.4%	7.1%	199
Paraguay	-4.4%	3.9%	44.4%	-1.1%	-1.7%	5.5%	
Peru	-2.5%	4.0%	58.0%	-1.7%	-4.6%	0.6%	218
Uruguay	-1.0%	9.5%	79.2%	-2.8%	-3.8%	-6.0%	252

Notes: This table divides, for each of the above indicators, the larger LAC countries into two groups (yellow and green) where the thresholds between the groups are set so as to obtain groups of about even size. Venezuela is not included in the table because the adjustment needs it faces are not really comparable to the other countries in LAC. Sources: LCRCE based on World Bank's GEM, Bloomberg, Lery Yeyati (2006), IMF's WEO and De la Torre and Ize (2015).

## *Chapter 2:*

# *Jobs, Wages and the Slowdown*

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### *Introduction*

The commodities cycle has had a well-marked differentiated impact on wages and employment in the countries of SA (much less so in MCC). During the boom (2003-2011), employment rates surged. During the slowdown (since 2012), they have started to contract. Labor force participation has followed a broadly similar pattern. And so have real wages, rising much more during the boom than during the slowdown. The somewhat puzzling contrasting fact is that household income distribution has not deteriorated for the region as a whole, even during the slowdown. And so has the wage ratio between unskilled and skilled workers.

This in turn raises two major questions: (i) whether the changes in income distribution were primarily caused by supply side effects or by aggregate demand changes; and (ii) which are the supply or demand channels that could have brought about such distributional improvements. It is broadly recognized that labor market dynamics that led to a reduction in the education premium (i.e., to a reduction in the inequality of labor income) was a key driver behind the decline in household income inequality. One explanation for this phenomenon is that it was caused by an increase in the supply of high-skill workers (an increase in the supply of education) and a consequent reduction in the supply of low skill laborers. However, this explanation cannot be the main story because it does not fit well the experience of the 1990s where income distribution worsened in spite of shifts in the supply of education that were similar to those observed during the 2000s, where income inequality decreased.

This chapter examines in some depth labor market developments in LAC during the last decade, based on standardized labor survey data for about ten LAC countries. The key findings are as follows:

- Aggregate demand, together with underlying supply-side trends, appears to have been a main driver of income distribution changes in LAC, both during the last decade and in the 1990s.
- During the boom years, the channel through which demand appears to have exerted its impact is through different labor supply elasticities between high-skill and low-skill workers, rather than through asymmetric skill intensities between tradable and non-tradable industries.
- In addition, during the slowdown, declining demand appears to have interacted with downward real wage rigidities, particularly affecting low-skill and less educated young male workers, who seem to be dropping out of the labor market.

- In the near future, we may observe a break (or divergence) in what has been a tight relationship between *labor income* and *household income* inequality, precisely because of the decline in labor force participation by low-skill workers. Since standard indicators of labor income inequality do not account for changes in the quantity of employed workers (hence, in the quantity of unemployed workers or of workers who drop out of the labor force altogether), we may observe declining labor income inequality at a time where household income inequality rises. This is because the disappearance of labor income from household members that would otherwise be employed would tend to lower the income of poorer households more than that of richer households.

The significant relevance of aggregate demand fluctuations for income distribution has salient implications. First, it magnifies the importance of well-designed safety nets aimed at cushioning the distributional impact of economic downturns. Second, it underscores the need to adjust regulation, such as minimum wage regulations, to ensure that efforts to raise the welfare of low-skill, low-income workers during the upturns do not conflict with the need to protect their employment during the downturns. Third, it raises the need to analyze in greater depth the possible emergence of policy-sensitive tensions and tradeoffs between growth and income distribution. Policies aimed at raising domestic saving rates, thereby restraining domestic demand, may promote long-term growth at the expense of income distribution, at least in the short-term.

The rest of this chapter is organized as follows. The next section reviews key wage and employment developments in LAC's labor markets over the last decade. The following section motivates the income distribution interpretation challenge by briefly reviewing the puzzles the LAC evidence poses about the determinants of the trajectory of wage (labor) inequality, particularly the reversal of such trajectory (i.e., the rising trend in labor income inequality during the 1990s followed by a falling trend after 2002 and until very recently) even as the supply of educated workers experienced a secular rise throughout the entire period. The next three sections explore the three main channels through which aggregate demand (combined with the secular increase in the share of educated workers) affected income distribution. The last section concludes with a brief overview of key policy implications.

### ***Key Wage and Employment Trends over the Commodity Cycle***

The impressive growth rates of Latin America and the Caribbean (LAC) during the past decade brought about remarkable improvements in social indicators for the region taken as a whole—extreme poverty was reduced by 12.6 percentage points, moderate poverty by 4.8 percentage points and the household income Gini index (a measure of household income inequality) dropped 6 percentage points. These notable social gains were driven, to a lesser extent, by social policies—such as the expansion of non-contributory social benefits (pensions, health) and conditional cash transfer programs—and, to a larger extent, by labor market developments and dynamics. In this section we analyze the trends in aggregate labor market outcomes during the boom years and contrast those with the patterns during the slowdown. Given the relatively large movements in employment, unemployment, and labor force participation, we also study which segments of the population most benefited during the boom years and which groups are being most affected during the slowdown.

The bonanza period (roughly 2003 to 2011) brought about a remarkable increase in the employment rates of the region (Figure 2.1, Panel A), particularly in South America (SA). For countries classified (see Chapter 1) as SA Low Growth, which were recovering from crises they experienced at the end of

the 1990s and beginning of the 2000s, this implied strong reductions in unemployment rates (Figure 2.1, Panel C). For countries classified as SA High Growth, the soaring employment rates pulled into the labor force previously inactive potential workers, particularly prime-aged and older women both low skilled and medium and high skilled<sup>9</sup> (Figure 2.1, Panel E).

Accompanying the rise in the employment rate during the boom was an equally striking growth of average hourly earnings (Figure 2.1, Panel A). Considering the hourly earnings of all workers<sup>10</sup> measured in purchasing power parity (PPP) terms, we note that the boom years were also characterized by a 35 and 15 percent growth in hourly earnings for SA Low Growth and SA High Growth country groups, respectively. The slowdown brought about a strong deceleration in the pace of wage increases, but did not bring them to a complete stop (Figure 2.1, Panel B). In SA Low Growth countries, hourly labor earnings still grew by 3.5 percentage points above the economy growth rates, which were near zero. SA High Growth countries, which were able to maintain a higher economic growth rates during 2012-2015, experienced an even stronger wage growth of almost 8 percent. As with employment, the case of Mexico stands in sharp contrast to SA. Hourly earnings in Mexico declined strongly after the financial crisis and have not recovered—actually, they have continued to erode—through the modest recovery period of 2012-2015.

As discussed in the previous chapter, although the growth slowdown is generalized throughout SA, countries such as Argentina and Brazil have been particularly affected. The difference in growth rates during the slowdown is reflected to a large extent in aggregate labor market outcomes. The capacity of the economy to create more jobs than the increase in workers has declined in all countries but particularly so for the SA Low Growth group where it is now close to zero (Figure 2.1 Panel B). Somewhat surprisingly, despite the near zero economic growth rates in the SA Low Growth group, unemployment rates did not rise until very recently (Figure 2.1, Panel D). In what follows we argue that this puzzling pattern is partially explained by workers dropping out the labor force, as opposed to actively looking for work while unemployed. Another piece of the puzzle is the re-composition of employment shares, with salaried employment in decline and self-employment on the rise.

In part, the fact that open unemployment rates did not rise can be explained by a drop in labor force participation. As shown in Figure 2.1 Panel F, labor force participation has dropped by 1.3 percentage points. We can only speculate as to why potential workers who lost their jobs are deciding not to look for jobs at all (which would classify them as unemployed). It may possibly be due to the ‘discouraged worker effect,’ whereby during economic downturns workers assume that the probability of finding a job is so low that it doesn’t warrant the cost of searching. An alternative explanation is that the expansion of non-contributory pension and health benefits and conditional cash transfer programs may have reduced the cost of inactivity (and also the cost of informality) and raised the benefits of staying out of the labor force. In what is perhaps an early indication that labor markets are ‘softening’ in SA High Growth countries as well, we note that labor force participation has also dropped, although by a comparatively moderate rate of 0.5 percentage points.

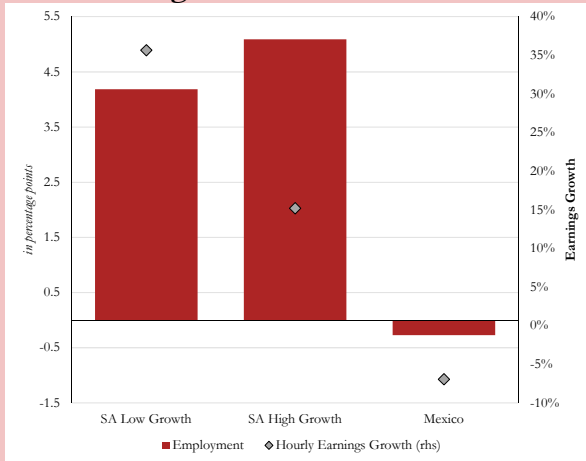
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<sup>9</sup> Throughout this report, low skill workers are defined those that have completed primary education *or* have some (incomplete) secondary education. Medium and high skill workers are those with completed secondary or incomplete tertiary and completed tertiary education, respectively.

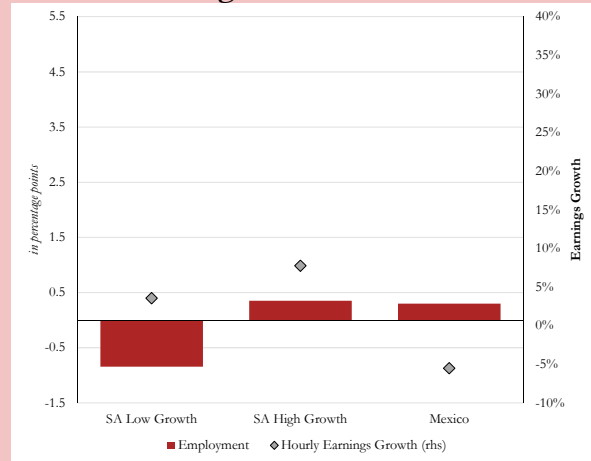
<sup>10</sup> Self-employment is fairly high in LAC, where informality in the labor market is high. However, a great difficulty in analyzing the labor income of self-employed and small employers is how to differentiate genuine returns to labor from returns to capital they have invested in.

**FIGURE 2.1. Labor Market Trends During the Boom and Slowdown**

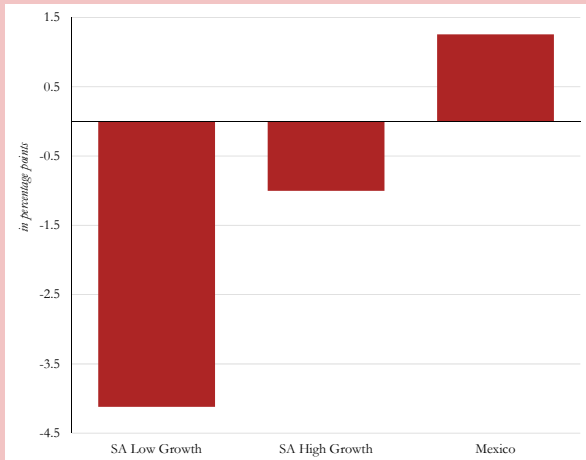
**PANEL A. Change in Employment Rates and Wage Growth circa 2005- 2011**



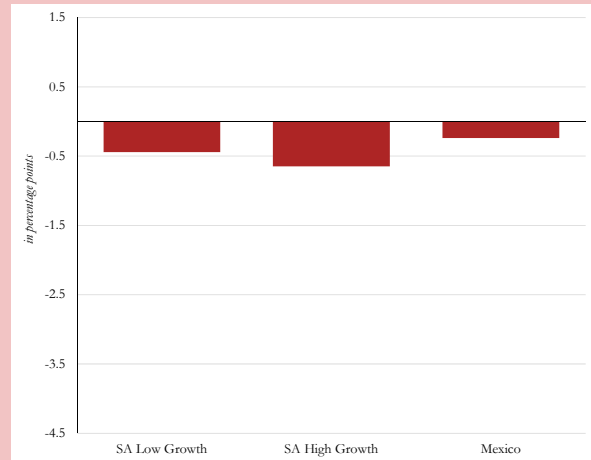
**PANEL B. Change in Employment Rates and Wage Growth 2011-2014**



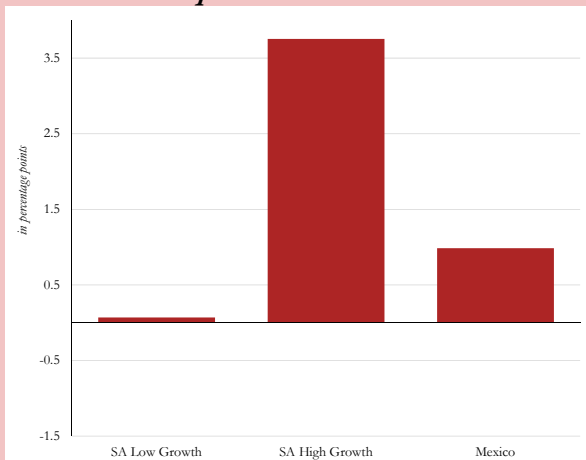
**PANEL C. Change in Unemployment Rates circa 2005- 2011**



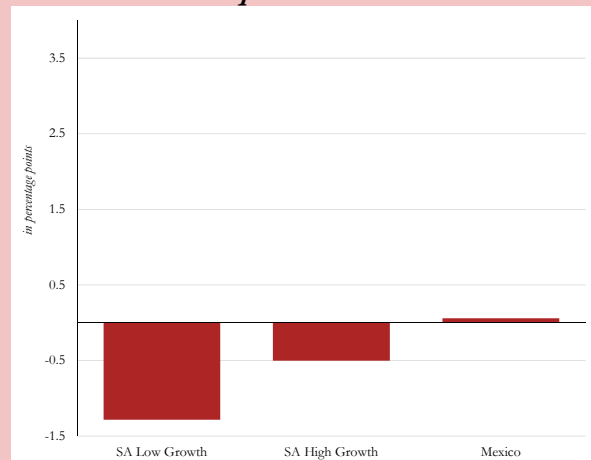
**PANEL D. Change in Unemployment Rates 2011-2014**



**PANEL E. Change in Labor Force Participation circa 2005-2011**



**PANEL F. Change in Labor Force Participation 2011-2014**



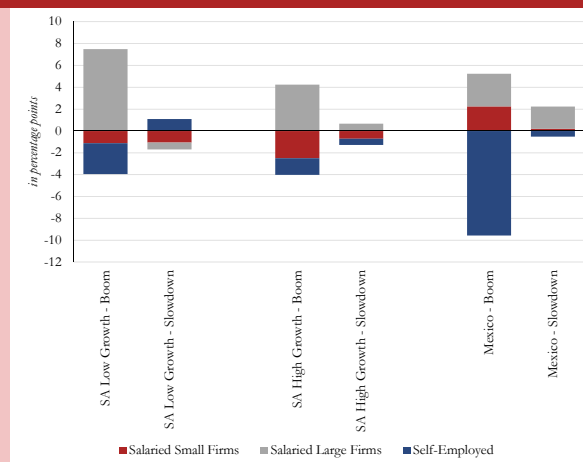
Notes: SA Low Growth includes Argentina and Brazil; SA High Growth includes Colombia, Peru, and Uruguay. Argentina starts in 2003; Brazil, Chile, and Peru in 2005; Uruguay in 2006; and Colombia in 2008. Sources: LCRCE based on LABLAC.

During the boom years, we can identify two big shifts in the composition of employment. First, there was a big movement away from self-employment towards salaried work. Second, there was a shift from salaried employment in small firms (less than 5 employees) towards salaried work in medium and large firms (Figure 2.2). In addition, salaried work in small firms dropped by more than 1 percentage point and 2.5 percentage points in the SA Low Growth and SA High Growth groups, respectively. Meanwhile, the share of salaried jobs in medium and large firms exhibited striking increases. This should generally be regarded as positive news for the region. Larger firms tend to have higher productivity levels than smaller firms. And, from the point of view of workers, employment in larger firms tends to be formal, better paid and generally more compliant with labor regulations.

The positive process in re-composition of employment towards salaried jobs in medium and large firms that was observed in the boom, is starting to revert during the slowdown in the SA Low Growth country group (Figure 2.2). This is a worrying trend because it suggests that good, formal, salaried jobs are no longer being created fast enough and workers are now turning to lower productivity self-employment to generate income. In SA High Growth economies the re-composition of employment process has not been reverted, but seems to be faltering.

The evidence shows that it was women—particularly prime-aged and older<sup>11</sup>—who significantly increased their propensity to participate in the labor force in SA High Growth countries during the boom (Figure 2.3, Panel A). We can speculate that the high growth rates of the boom years, which brought about dramatic increases in employment and wages, enticed women who were previously out of the labor force, to participate and take advantage of high earnings. Instead, during the slowdown it is young workers in general, and young, unskilled, male workers in particular, who are dropping out of the labor force during the slowdown (Figure 2.3, Panel B). In both SA Low Growth and SA High Growth economies, the young, less educated, male workers have lowered their propensity to participate in the labor force by 0.5 percentage points since 2011.

**FIGURE 2.2. Change in Shares of Employment Categories During the Boom and Slowdown**

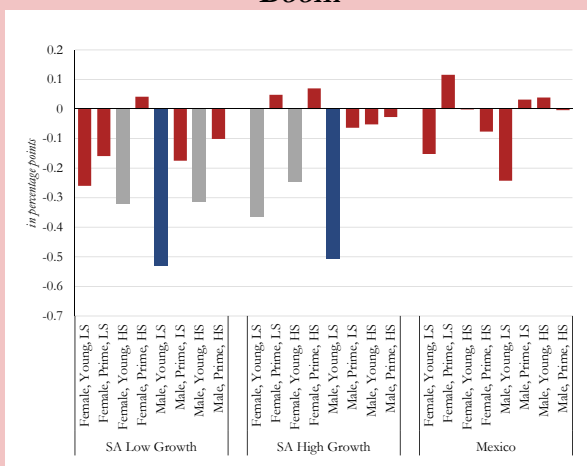


Notes: SA Low Growth includes Argentina and Brazil; SA High Growth includes Chile, Peru and Uruguay. The graph plots the change in the share of each employment category between the first and last years of the boom and of the slowdown. Boom years: 2002-2011 when available. Chile and Ecuador start in 2003; Mexico ends in 2010. Slowdown years: 2011-2014 when available. Uruguay ends in 2013. Sources: LCRCE based on LABLAC and SEDLAC.

<sup>11</sup> Prime-aged and older refers to individuals between 35 and 64 years of age.

**FIGURE 2.3. Changes in the Propensity to Participate in the Labor Force During the Boom and Slowdown**

**PANEL A. Propensity to Participate in the Boom**



**PANEL B. Propensity to Participate in the Slowdown**



Notes: SA Low Growth includes Argentina and Brazil; SA High Growth includes Chile, Peru and Uruguay. The graph plots the change in LFP within gender, age and skill level group between the first and last years of the boom and of the slowdown. Young is 15-34 years old and prime is 35-64 years old; LS is low skilled (up to incomplete secondary education) and HS is high skilled (complete secondary or more). Boom years: 2002-2011 when available. Chile and Ecuador start in 2003; Mexico ends in 2010. Slowdown years: 2011-2014 when available. Uruguay ends in 2013. Sources: LCRCE based on LABLAC and SEDLAC.

Although less strong, we also observe important declines in the propensity to participate in the labor force during the slowdown for young female workers—both high and low skilled—in the entire SA group, as well as in high skill, young males in the SA Low Growth sub-group. Although understanding this particular phenomenon is beyond the scope of this report, we posit that it may be reflecting a mix of good and bad news. On the positive side, it may be that young workers facing a worsening labor market are dropping out of the labor force to get more or better education. On the negative side, it may be that young workers are the first to lose employment because of a regulatory-induced ‘last-in-first-out’ phenomenon, and the perceived bad labor conditions discourage them from seeking a new job.

The re-composition of employment during the slowdown is worrisome. Indeed, the reemergence of self-employment as a growing component of total employment may reflect the substitution of good paying jobs with subsistence level income from self-employment. The drop in labor force participation of young (particularly less educated male) workers may be reflecting optimal decisions of workers getting more educated and re-tooled but it also may be reflecting more nefarious patterns of young workers losing their jobs, being discouraged from looking for new employment, and becoming more prone to fall prey to anti-social or criminal activities. What is clear is that these large shifts in labor force participation, employment, and types of employment, may have important (regressive) distributional implications moving forward. We investigate the potential distributional impacts of these shifts in the next section by comparing labor-market dynamics during boom years with dynamics during the years of declining aggregate demand growth (the 1990s and the recent slowdown).

### *Income Equality in LAC: Supply, Demand, or Both?*

As noted, the LAC region has made spectacular gains toward greater income equality. After rising during the 1990s, household income inequality fell consistently during the 2000s and stagnated

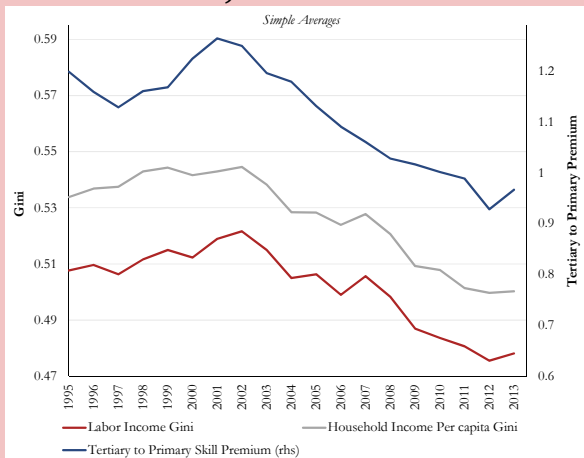
recently (Figure 2.4, Panel A). Remarkably, the evolution of labor income inequality closely paralleled that of household income—it rose during the 1990s and started falling *circa* 2003. Indeed, changes in labor income inequality explain most of the changes in household income inequality (Figure 2.4, Panel B). And the fact that the changes in the skill premium (as proxied by the returns to tertiary versus primary education) also closely mirror the evolution of both the household income and labor income Ginis strongly suggests that labor market dynamics affecting the skill premium were the key driver of the trajectory of income distribution since the 1990s, at both the individual labor income and household income levels.

However, the rising return to education during the late 1990s and early 2000s is inconsistent with the stable, secular increase in the supply of educated workers that spans over the entire *circa* 1995-2014 period (Figure 2.5, Panel A). Further, while the supply story is consistent with the decline of wage inequality and the parallel decline in the skill (education) wage premium, changes in demand for labor can also explain the decline in wage inequality. Of course, the change in the trend after 2002-2003 could reflect other more nuanced supply-side factors, such as deteriorations in the quality of education or skill obsolescence of older highly educated workers. However, these more sophisticated supply-side interpretations still cannot account for the sharpness of the break in the trends of the labor income Gini and the skill premium that occurred around 2003. Box 2.1 provides a summary of recent literature on the possible role played by supply-side factors in the evolution of the labor income Gini and the skill premium in LAC. It is also possible that mismatches in the labor market may have increased in the region after 2002-2003, further complicating the picture (see Box 2.2).

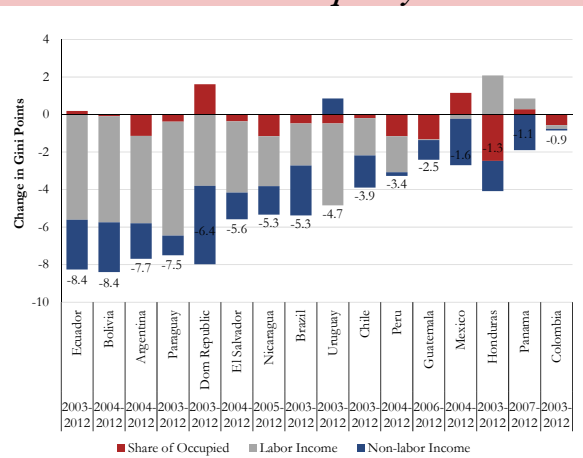
In any case, supply-side stories seem to fall short of providing a satisfactory explanation of the evolution of labor income inequality and the education premium in LAC since the mid-1990s. An alternative interpretation whereby demand matters crucially for income inequality seems to be called for. Such an interpretation is consistent with the observed much larger increases in low skill wages compared to high-skill wages in countries that experienced substantial spending (demand) effects from positive terms of trade shocks during the 2003-2011 boom period (Figure 2.6). In addition,

**FIGURE 2.4. Income Inequality and Skill Premium**

**PANEL A. Household Income Gini, Labor Income Gini, and the Skill Premium**



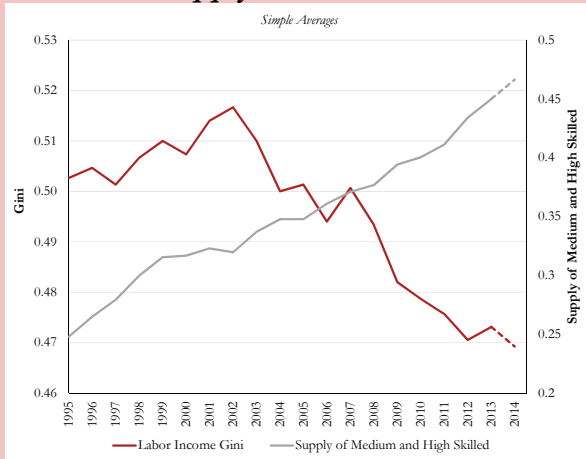
**PANEL B. Decomposition of Household Income Inequality**



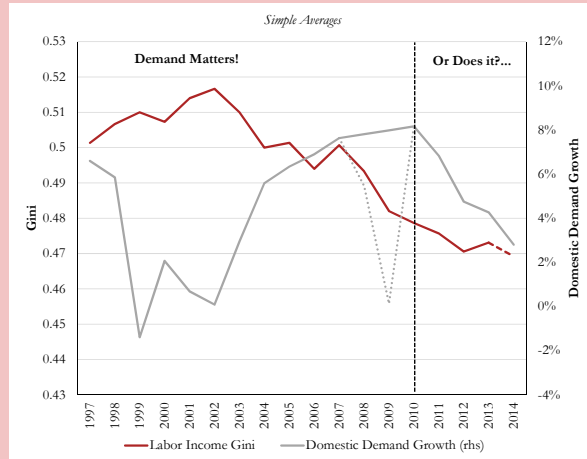
Notes: The graph in panel A plots the simple average across countries of the labor income gini and household income gini, and the skill premium of tertiary education relative to primary education. Countries included are: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Mexico, Panama, Paraguay, Peru and Uruguay. The graph in panel B plots the change in the composition of the household income gini between share of occupied people, labor income and non-labor income. Sources: World Bank (2014) and LCRCE based on SEDLAC.

**FIGURE 2.5. Income Inequality, Supply of Education and Domestic Demand**

**PANEL A. Labor Income Gini and the Supply of Education**



**PANEL B. Labor Income Gini and Domestic Demand**



Notes: The graph in panel A plots the simple average across countries of the labor income gini and the supply of skilled workers (complete secondary or more) and panel B plots the average across countries of the labor income gini and the growth of the domestic demand. Countries included are: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Mexico, Panama, Paraguay, Peru and Uruguay. The dashed lines in the gini and supply of education series use a different sample of countries due to availability of data (Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru and Uruguay). The dashed lines in the demand growth series (panel B) is the actual demand growth, and the solid line above it is the interpolation between 2007 and 2010. Sources: LCRCE based on LABLAC, SEDLAC and WDI.

simply plotting a demand index (the growth rate of domestic demand—the sum of consumption and investment—averaged over all LAC countries) against the average Gini for the region makes the point even clearer and applies to the entire period. Figure 2.5, Panel B shows that the demand index is quite clearly inversely correlated with the Gini and it appears to explain particularly well the regressive distributional trajectory of the late 1990s followed by the sustained progressivity in the boom years.

### **BOX 2.1. Supply-Side Focused Explanations of Falling Labor Income Inequality in LAC**

The recent literature on inequality in LAC highlights two main factors behind the recent gains: in order of importance, the change in the distribution of labor income and the broadening of government transfers and, for the countries in the Southern Cone with increasingly inclusive pay-as-you-go systems, the expansion of pension coverage (World Bank, 2014). It is not surprising then that this literature has focused on the recent evolution of labor income in the region, the key driver of the income equalization of most of LAC. It is by now widely recognized that the reduction in household income inequality is largely a reflection of a reduction in labor income inequality. To the question of what is behind the reduction in labor income inequality, available evidence points to a clear factor, the decline in the returns to education<sup>12</sup>. In contrast to what we observe in the US and

<sup>12</sup> Although the decline in returns to education is a clear factor throughout the region, we do not argue it is the only factor. Evidence for Brazil suggests that beyond the skill wage gap, other wage gaps, such as racial, gender and even spatial, have been closing substantially, contributing significantly to the reduction in labor income inequality (Ferreira et al., 2015). Moreover, Fernandez-Sierra and Messina (2012), find, for the cases of Argentina, Brazil, Chile and Mexico, that keeping composition of the labor force and the returns to education and experience fixed, residual wage inequality (the unexplained component) follows a very similar path to the observed wage inequality trends. De la Torre et al. (October 2012) based on that evidence conclude that “at least for men, the parallel trends in residual and observed wage inequality suggest that

other high income economies, Latin America has seen a reduction in the wage differential between workers with higher levels of education relative to those of lower levels of education.

What is really behind the reduction in the returns to education and, hence, in the wage differential? The education premium could be triggered by (micro) supply factors and by (macro) demand aspects, such as real devaluations or relative price changes that may affect differentially sectors with diverse demand for skills. The problem for supply side explanations (based on quantity) is that most supply-side factors show a rather steady increase during the 1990s and 2000s (with no clear kinks), whereas the return to education rose during part of the 1990s and fell mainly during the 2000s, a rise and fall pattern similar to that observed for the Gini. In studying the evolution of wage differentials and the trends in the supply of workers by educational level for 16 Latin American countries between 1990 and 2010, Gasparini et al. (2011) tease out the relative importance of supply and demand factors behind the recent trends in the education premia and conclude that supply-side factors (in terms of quantity) seem to have limited explanatory power relative to demand-side factors.

In light of these results, the recent literature has focused on supply-side hypotheses that go beyond the trends in quantity of education supplied, such as the composition and quality of education supply. One such hypothesis, known as the ‘degraded tertiary’ hypothesis (Lustig et al., 2014) posits that the notable expansion of coverage in post-primary education was accompanied by an increasing dispersion in the quality of education centers, pushing downwards the average quality of post-primary education, especially at the tertiary level. Indeed, some of this may have been happening, as evidenced by the increase in the dispersion of wages among workers with tertiary education. Moreover, the extension of tertiary education coverage mainly applied at the margin to students coming from the lower end of the income distribution, which are typically less well prepared for tertiary education. Thus, for a given quality of tertiary educational programs, the entrance of students coming from poorer households may also lead to a decline, on average, of tertiary education, which can also result in a reduction in the skill premium.

Evidence in favor of the later hypotheses is relatively scarce. One case study for Colombia (Camacho et al. (in progress)) tries to disentangle if the lower returns to tertiary education are coming from the expansion of lower quality educational programs (the “garage university” effect) or from an increase in access to tertiary education of students from disadvantaged backgrounds who come less prepared and thus end up performing worse in the labor market. The results obtained by Camacho et al. suggest that, in Colombia, it was mainly the characteristics of new students that explain the lower returns of graduates in the labor market. The validity of this hypothesis and the relevant magnitude of this effect are still open questions, as further research, especially in other countries of the region, is still much needed.

Another supply-side hypothesis relates to the composition of the supply of educated workers. According to this hypothesis, demographic changes have resulted in an increase in the share of older workers whose skills become obsolete at a more rapid pace due to the adoption of new technologies, and this effect outweighs the value of work experience. As a result, the wage premium for tertiary education (considering *all* tertiary educated workers) has fallen on average. Lustig et al., (2015) provide some preliminary evidence for Mexico where the real wages of older workers have

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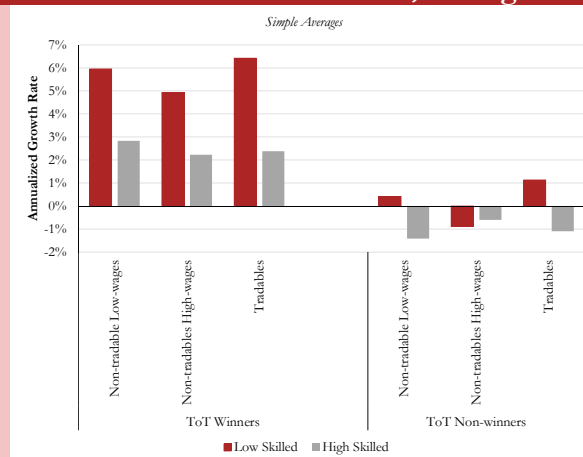
the evolution of returns to education, while being a very important part of the story of the reduction in wage inequality in the 2000s, it is not the whole story.”

actually declined in absolute terms. Replicating their analysis for other countries we find mixed evidence—the relative decline of the wages of older workers doesn’t appear to be a widespread phenomenon in LAC. Certainly more research is warranted in this area, however.

Finally, an alternative hypothesis also related to the composition of the supply of educated workers, in this case based on gender, could be put forward. Women in LAC have increased their labor force participation steadily at least since the 1970s. Also, during the 2000s women surpassed men in their education level (measured by average years of education). The female share of workers with tertiary education degrees has been increasing steadily, and now women constitute the majority in this group of workers. Moreover, once controlling for observable characteristics, it is the case that female workers earn less than men. This gender wage gap<sup>13</sup> exhibits a gradient in education, with the largest wage gap recorded among women with tertiary education. Hence, the decline in the measured *average* returns to tertiary education may be partially explained by the increase in the share of highly educated female workers. However, as with supply side explanation based on quantity, the increase in the share of workers with tertiary education that are women shows a rather steady increase during the 1990s and 2000s (with no clear kinks), whereas the return to tertiary education rose during part of the 1990s and fell sharply mainly during the 2000s. In addition, the gender wage gap for women with tertiary education has remained fairly constant since the 1990s, and hence cannot match the change in the trajectory of the overall tertiary education wage premium.

In turn, this visual fit is supported by econometric evidence (Table 2.1). In a pooled regression involving eight LAC countries (Argentina, Brazil, Chile, Colombia, Ecuador, Peru, Uruguay, and Mexico) over the period 1997-2014, aggregate domestic demand appears as a highly significant

**FIGURE 2.6. Wage Growth Across Sectors and Skills, during the Boom**



Notes: The graph plots the change in the simple average wage across countries for each sector and skill level between 2002 and 2011. ToT Winners are: Argentina, Brazil, Chile, Colombia, Ecuador, Peru; ToT Non-winners are: Mexico, Paraguay and Uruguay. Tradables sector includes primary and manufacturing; Non-tradables Low Wages includes construction, hotels and restaurants, public administration, wholesale retail and private households; Non-tradables High Wages includes all other services. Low Skilled is up to incomplete secondary education and High Skilled complete secondary or more. Sources: LCRCE based on SEDLAC.

<sup>13</sup> The presence of a wage gap could be a marker for several explanations. It could reflect discrimination in the labor markets, actual or expected. But it may also be related to an experience gap between men and women, women tend to interrupt their careers for childbearing or marriage. In fact, single women have a much smaller gender wage gaps at all levels of education. The wage gap may also reflect women’s choices, where they opt for careers which are less remunerated relative to men in order to make room for family responsibilities, or women’s willingness to trade higher wages for other job characteristics, such as time or location flexibility. For a detailed discussion see Chioda (2015).

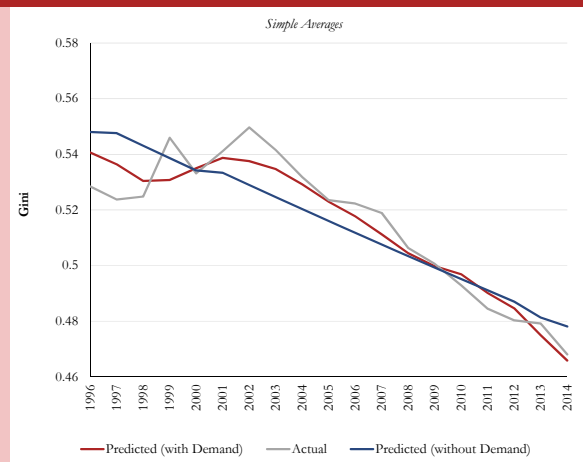
**TABLE 2.1. Demand, Supply and Inequality**

VARIABLES	(1) Log(labor gini)	(2) Log(labor gini)	(3) Log(labor gini)	(4) Log(labor gini)	(5) Log(hh income gini)
Log(Dom demand)		-0.180*** (0.0221)	-0.187*** (0.0234)	-0.169*** (0.0231)	-0.129*** (0.0184)
Years decline * Log(Dom demand)			0.00151*** (0.000540)		
Years decline * Trend			-0.00395** (0.00153)		
Trend	-0.00826*** (0.000975)	0.00676*** (0.00215)	0.00932*** (0.00238)	0.00707*** (0.00217)	0.00235 (0.00200)
Slowdown				-0.0236** (0.0110)	
Country FE	yes	yes	yes	yes	yes
Constant	-0.703*** (0.0221)	4.080*** (0.584)	4.247*** (0.616)	3.784*** (0.612)	2.762*** (0.483)
Observations	142	142	139	142	136
R-squared	0.672	0.792	0.820	0.798	0.875
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1					

Notes: The table reports the results of five specifications having the log of the labor income gini and the log of the household income gini as a dependent variables. Column (1) reports the results using the time trend and country fixed effects as regressors; Column (2) includes the log of domestic demand as a regressor; Column (3) includes the interaction of the log of domestic demand and a dummy for the years in which the domestic demand declined, and the interaction between the time trend and a dummy for the years in which the domestic demand declined; Column (4) reports the results for the same specification as Column (2) but adding a dummy for the slowdown years (2011-2014); Column (5) reports the results for the same specification as Column (2) but using the log of the household income gini as dependent variable. Sources: LCRCE based on LABLAC, SEDLAC and WDI.

determinant of the labor income Gini. Also significant is a dummy for the period 2011-2014, thereby supporting the hypothesis that an additional factor is at work in influencing labor income inequality during the slowdown. As shown in Figure 2.7, demand does indeed fit the actual labor income Gini much closer and explains most of the regression in income distribution experienced during the late 1990s.

This evidence raises two important analytical challenges that the next sections seek to address: (i) explaining the apparent breakdown during the slowdown period of the link between aggregate demand

**FIGURE 2.7. Actual vs. Predicted Gini: with and without Demand Effects**


Notes: The graph plots the simple average across countries of the labor income gini, and the predicted values of the labor income gini. The predicted value with demand comes from regressing the labor income against domestic demand, time trends and country FE; The predicted value without demand comes from regressing the labor income against time trends and country FE. Countries included are: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Mexico, Panama, Paraguay, Peru and Uruguay. Sources: LCRCE based on LABLAC, SEDLAC and WDI.

and income distribution; and (ii) identifying the channels through which demand has affected income distribution, both during the boom and during the slowdown.

### ***BOX 2.2. Mismatches of Skills between Jobs and Workers***

A first observation is that the share of tertiary educated workers in total employment increased in all economies over time, consistent with the evidence on educational upgrading in the region. Following Katz and Murphy (1992) it is possible to decompose these changes in employment in two components, a ‘between-sector’ effect which captures the impact of transformations in the sector structure of employment on the relative employment of a given factor (e.g. skilled labor); and, a ‘within-sector’ effect which captures changes in employment due to variations in the intensity of use of different types of labor within each sector. Gasparini et al. (2011) perform this exercise and conclude that most of the observed increase in skilled employment in the 2000s obeys within-industry skill upgrading. There does not appear to be a massive shift of employment between sectors, which suggests that factors such as changes in terms of trade will have limited explanatory power for the observed changes. Other explanations must be invoked to explain the simultaneous decline in the price of more educated workers and the increase in their share of employment across most sectors. Gasparini et al., (2011) suggest that technological diffusion or skill mismatches could have played a role in determining the evolution of returns to education.

The technology diffusion hypothesis posits that new technologies, particularly in information and communication, may have been more complementary to high-skill workers during the 1990s (Acosta and Gasparini, 2007, for the case of Argentina). But, as larger swaths of the population learned how to manage these technologies (during the 2000s), firms no longer payed large premiums for this technology-related knowledge.

Another hypothesis that may be playing a role relates to possible skill mismatches in the labor market. It may be that workers are obtaining skills which are not in demand by the market, and thus end up in lower paying jobs (and hence, depressing the returns to education). Indeed, enterprise surveys in the region suggest that employers have difficulties finding workers with the right set of skills, in particular technical skills (World Bank, 2011). Although preliminary and only suggestive, two pieces of evidence favor this hypothesis. First, when we analyze the correlation between the average increase in educational years by sector<sup>14</sup> with the average wage increase by sector, we find that the correlation was positive in the 1990s (0.48) but turned negative in the 2000s (-0.008). This implies that sectors with more skill upgrading during the 2000s are not necessarily the ones with higher average wage increases, as one would expect. Second, when we measure the returns to tertiary education by broad industry sectors<sup>15</sup>, we find that during the 2000s the largest declines in returns are in the least skill intensive sectors, namely primary and construction; while the smallest decline is in the sector with the highest skill intensity—high skilled services. This result, although only suggestive, is consistent with high-skilled workers ending up in jobs for which their skills are not being highly remunerated. Further research into the possible increase in skill mismatches in the labor market during the 2000s is very much warranted as it has important policy implications.

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<sup>14</sup> We use 16 sectors following 1 digit ISIC 3.1. We exclude Extraterritorial Organizations and Bodies.

<sup>15</sup> Broad industry definitions: Primary, Manufacturing, Construction, Low skilled services (wholesale and retail; hotels and restaurants; transport, storage and communications; other community, social and personal services; private households) and High skilled services (financial; real estate, business activities; public administration; education; health and social work).

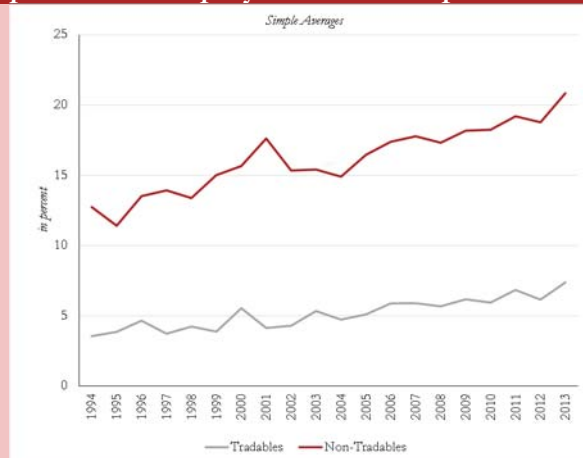
## *The Boom Channels: Asymmetric Labor-supply Elasticities and the Increase in the Supply of Skilled Workers*

One way to connect aggregate demand with labor income distribution would be to assume that the non-tradable sector is, on average, less skill intensive than the tradable sector. In this case, the logic would run as follows. An increase in domestic aggregate demand has a differentiated impact on the tradable and non-tradable sectors because the supply of tradables is more elastic (demand for tradables can be elastically satisfied via imports) than that of non-tradables. Hence, the real exchange rate appreciates as the price of non-tradables (which is set locally) rises while the price of tradables (which is set internationally) remains fixed. This change in relative prices would attract labor to the non-tradable sector. However, because the non-tradable sector is more intensive in low-skill labor than the tradable sector, the wage rate of low skill workers would rise more than that of high skill workers. Thus, the education premium would decline and the labor income distribution would improve.

The problem with this story, however, is that, in fact, the non-tradable sector in LAC does not seem to be more intensive in low-skill labor than the tradable sector, at least on average. The evidence rather points in the opposite direction, as the largest segment of the non-tradable sector, the high-wage service sector, is highly intensive in high skill labor.<sup>16</sup> This conclusion is supported by evidence based on labor composition (Figure 2.8). It is also consistent with evidence based on relative average wages, as the average wage in the non-tradable sector is higher than in the tradable sector, reflecting a higher skill mix.<sup>17</sup>

Instead, the data is consistent with a somewhat different story for the impact of demand on the

**FIGURE 2.8. LAC: Proportion of Employees with Completed Tertiary by Sector**



*Notes: The graph plots the average across countries of the share of workers within each sector that have completed tertiary education. Countries are: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru and Uruguay. Tradables sector includes primary, manufacturing, restaurants and hotels and financial services and Non-tradables sector includes all other services. Source: LCRCE based on SEDLAC.*

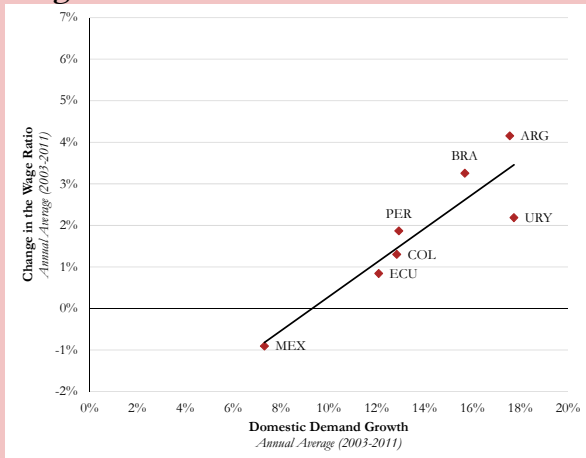
<sup>16</sup> The high-wage service sector is defined as the Education, Electricity, Financial, Health, Real Estate, and Transport.

<sup>17</sup> An important caveat, however, is that a finer distinction between tradable and non-tradable sub-sectors within each broad sector might uncover differential skill intensities that agree with the hypothesis of a less skill intensive non-tradable sector. Moreover, the asymmetric skill intensity hypothesis cannot be altogether discarded without further research. It may be possible, for example, to build an alternative skill-intensity story based on products, rather than sectors. Thus, it is conceivable that as aggregate demand rises, it might lead to a bias in demand toward more low-skill intensive goods.

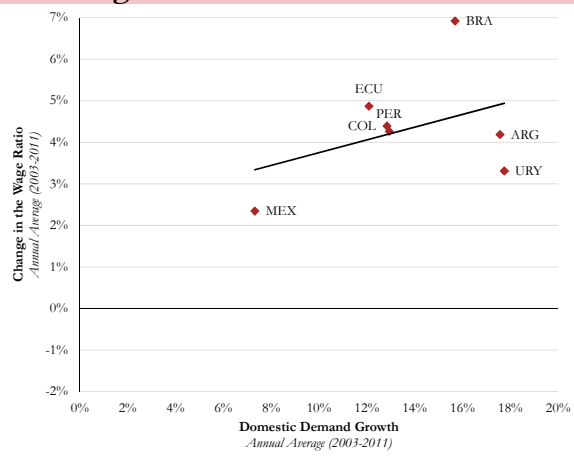
tradable versus non-tradable sector, one based on limited labor mobility rather than differential skill intensities. It is a fact that during the boom years, the ratio of unskilled to skilled wages rose in the non-tradable sectors of the countries for which detailed labor data is available, and this ratio commoved closely to the rate of expansion of aggregate demand these countries experienced (Figure 2.9 Panel A). The fact that a similar link does not seem to exist in the case of tradable sectors (Figure 2.9, Panel B) reflects two mutually supporting important features of labor markets in the region. First, as reflected in the real exchange rate appreciations (Figure 2.9, Panel C), the tradable sector was not exposed to the same demand pressures, as imports rose to satisfy the excess demand. Second, higher demand pressures led to stronger increases in low-skill wages in the non-tradable sector relative to low-skill wages in the tradable sector (Figure 2.9, Panel D). This suggests that the pockets of high demand in the non-tradable sector had a local effect on unskilled wages that was not perfectly arbitrated through labor mobility. Workers in the tradable sector preferred to stick around at lower

**FIGURE 2.9. Demand and Labor Income Distribution During the Boom**

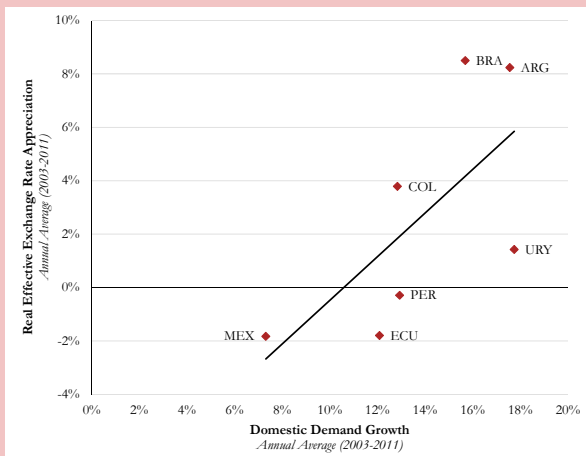
**PANEL A. Growth in the Low to High-Skill Wage Ratio in Non-Tradables vs. Demand**



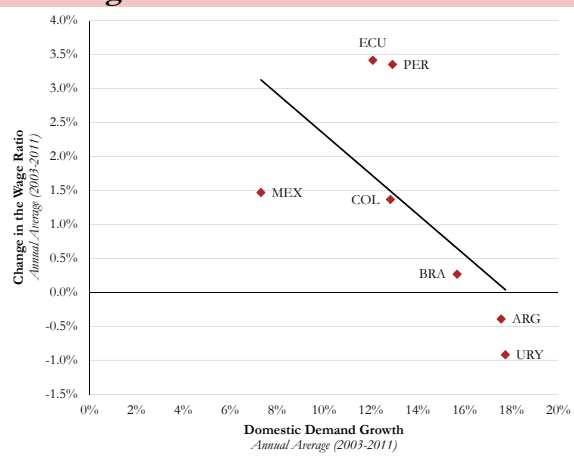
**PANEL B. Growth in the Low to High-Skill Wage Ratio in Tradables vs. Demand**



**PANEL C. REER Appreciation vs. Domestic Demand**



**PANEL D. Growth in the Ratio of Low Skill Wages in T to NT Sectors vs. Demand**



Notes: Annual average growth rates are the arithmetic mean of the accumulated growth between 2002 and 2011, except for Ecuador which takes 2003 as starting point (and is annualized accordingly). Due to inconsistencies in the data, domestic demand growth for Argentina was replaced by the projection for the country of a cross-sectional regression of domestic demand growth on GDP growth, which was run on the observations for the rest of the countries. In panel D, T and NT stand for Tradable and Non-tradable, respectively. Sources: LCRCE based on LABLAC, SEDLAC, WDI and IMF's IFS.

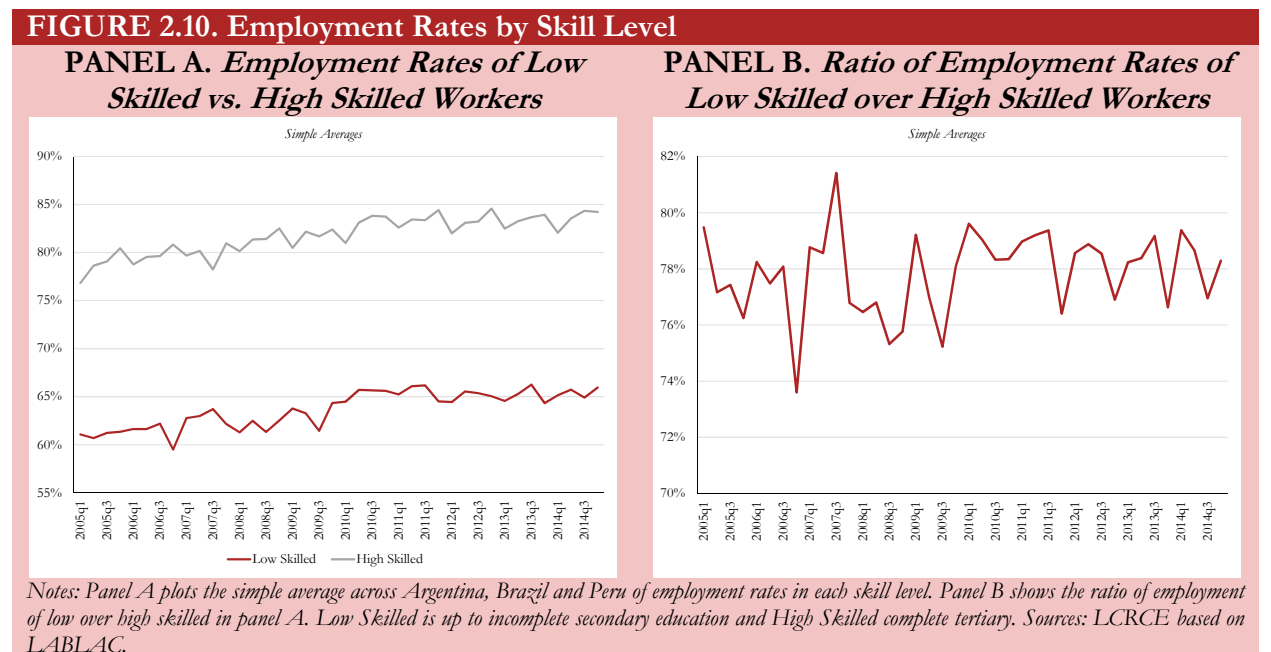
wages in a sector with which they were familiar with, rather than migrating to the non-tradable sector where they could obtain higher wages.<sup>18</sup>

Combining limited inter-sectoral labor mobility with asymmetric skill elasticities appears to fit well the following three key stylized facts regarding the evolution of wages and employment in LAC.

- The ratio of unskilled to skilled wages has risen throughout the last 15 years in most, if not all, LAC countries (Figure 2.4, Panel A).
- The share of educated workers in the total labor force grew steadily throughout the period (Figure 2.8).
- The rate of employment of skilled workers grew at a similar pace as that of unskilled workers (Figure 2.10, Panels A and B).

As shown more formally in the Appendix, the coexistence of asymmetric wage increases (rising faster for the unskilled than the skilled) *together with* asymmetric increases in skill shares over the labor force (rising faster for the skilled than the unskilled) and symmetric increases in rates of employment can be explained by simultaneous demand and supply shifts with asymmetric labor supply elasticities. The intuition is straightforward: if low-skilled workers have an inelastic labor supply, firms will need to pay them more. With a constant labor force growth, a relatively wage inelastic supply of low-skill labor would induce firms to hire less unskilled workers, resulting in lower employment rates for unskilled workers. However, the decline in the supply of unskilled workers (relative to skilled workers) allows their employment rate to remain constant.

The possible reasons for such elasticity asymmetries are of course key follow-up questions that remain to be explored. One possibility is that while there is a vast reservoir of non-participating lower-skill



<sup>18</sup> On labor market frictions and labor mobility costs across industries, see Artuc, Lederman and Porto (2014), Hollweg, et al. (2014), and references therein.

individuals in the labor force, these potential workers are less able to move into the labor force at short notice because they have families to attend or are culturally restrained from doing so. Thus, the low-skilled workers who are willing and able to work may already have a job, which they are not willing to leave (these individuals, especially the adult ones, “cannot afford not to work”, even if informally). And the rest of the unskilled individuals may be unable or unwilling to leave home. The fact that unemployment rates are lower for unskilled workers than for skilled workers is consistent with this interpretation (Figure 2.11).<sup>19</sup> In the event of a rise in aggregate demand, the lower reservoir of unskilled workers waiting for a job results in a less elastic supply of workers and, hence, higher wage increases.

The wage and employment dynamics of the last decade can also be viewed as consistent with both interpretations of informality found in the literature, one in which informality is viewed as a constrained choice that reflects the lack of better (formal) jobs, and the other in which informality is a free choice motivated by life styles or regulatory asymmetries between the formal and informal sectors. Indeed, the relatively low supply elasticity of unskilled labor appears to be consistent with informality as a life choice. To make appreciable inroads against informality, it took a large demand push leading to substantial wage increases. But the fact that informality was significantly reduced after all can also be viewed as evidence supporting informality as a constrained state out of which workers naturally migrate as the formal sector expands.

### *The Slowdown Channel: Asymmetric Downward Wage Rigidities*

During the slowdown, the impact of demand switched signs as aggregate spending decelerated throughout the SA. If the elasticity channel had continued to operate, it should have led to a reversal of the distributional gains, as falling demand should have led to larger drops in low-skill wages than in high-skill wages. That this did not happen points in the direction of an alternative channel. The evidence indeed indicates that low-skill wages remained on the same ascending trajectory while the rise in high-skill wages immediately flattened after the commodity cycle culminated (Figure 2.12, Panel A). This strongly suggests that the real wages of unskilled workers ceased to respond to market forces (i.e., were downward rigid), unlike the wages of skilled workers which continued to be market responsive. Hence, the flattening or fall in high-skill real wages, combined with the continued rise in low-skill real wages, provide a good explanation for the continued decrease in the Ginis during the slowdown so far.<sup>20</sup>

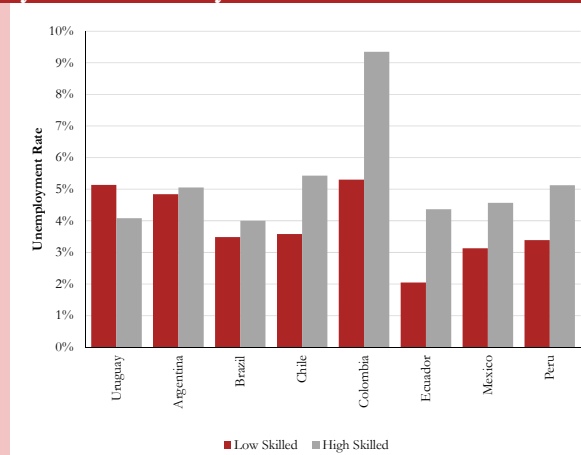
Institutional features, such as minimum wage regulations, may have been at least partially responsible for such asymmetries.<sup>21</sup> But the asymmetry in downward wage flexibility could also reflect composition

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<sup>19</sup> Rather remarkably, the only country where the unemployment rate for the unskilled is higher than for the skilled is Uruguay. Moreover, Brazil and Argentina are the two countries where the rates of unemployment between unskilled and skilled are the most similar. This different pattern may reflect the fact that all three countries may have more generous unemployment benefits for low-income workers that induce them to remain openly unemployed. This is another area for further research.

<sup>20</sup> The asymmetry between the late 90’s period, when declining demand led to a worsening of income distribution and the more recent slowdown period, when declining demand did not lead to a similar deterioration, could reflect differences in inflation rates throughout the region. Even with asymmetric downward wage rigidities, the higher rates of inflation of the 1990s eroded real wages more rapidly, thereby smoothing out the asymmetry in real wage changes between unskilled and skilled workers.

<sup>21</sup> Minimum wage legislations are not equally binding in all LAC countries. The Brazilian legislation appears to be the most binding, followed by Peru and Colombia. The extent to which these legislations are responsible for the downward wage

**FIGURE 2.11. Unemployment Rates by Skill Level**


Notes: The graph plots the average of the unemployment rate by skill level from 2011 to 2014, when available; Uruguay ends in 2013. Low Skilled is up to incomplete secondary education and High Skilled complete secondary or more. Source: LCRCE based on LABLAC.

effects over average salaries rather than individual salary effects. It is for example possible for all wages to be similarly downward rigid. However, within the category of skilled workers, firms may have more options to replace higher paid workers with lower paid workers. Instead, in the case of the unskilled, firms may not really have other options available except to keep the same workers or dismiss them.

Rather remarkably, there appears to be a substantial symmetry between wage and employment rigidities. The more downwardly rigid the wage, the more the adjustment comes from the side of employment. Thus, the employment rate of unskilled workers followed a steeper downward trajectory after the top of the commodity cycle than that of the skilled workers (Figure 2.12, Panel B). Such tradeoff between wage and employment flexibility seems to hold across countries and skill levels (Figure 2.12, Panel C). The lower the skill level, the less the wage flexibility, and the larger the decline in employment during the slowdown. While this does not necessarily prove causality, it suggests that more wage flexibility might help limit unemployment in downturns. If so, it could have important policy implications. This is another key topic for further research.

### ***The Possible Decoupling of Household Income Inequality and Labor Income Inequality***

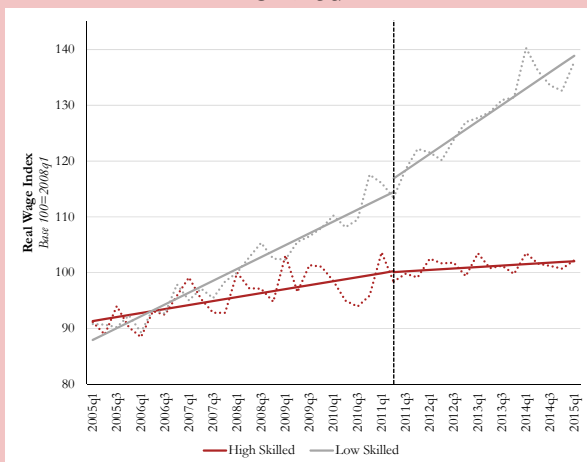
The decline in the rate of growth of the wages of high skill workers, combined with the continued relatively brisk rise in low skill wages, can explain the continued decrease in labor income inequality during the slowdown. However, this may not translate into lower household income inequality. Indeed, the labor income Ginis account for the employed, but not for the unemployed. Thus, the fact that low skilled wages remained high could have improved the labor income distribution yet led to the

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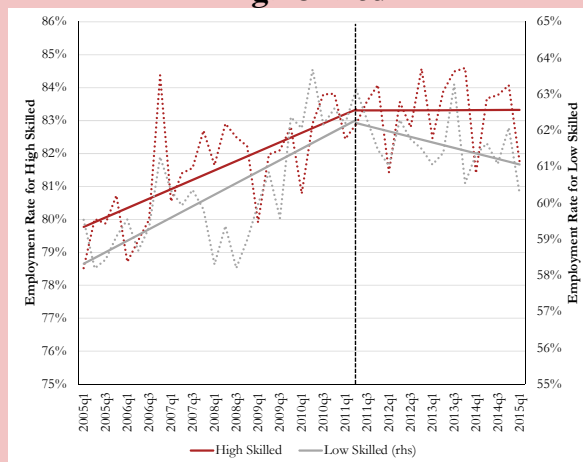
rigidities of the lowest skill workers is an important, policy-relevant topic for further research. Existing evidence indicates that, in the case of Brazil, the rise of the minimum wage due to automatic indexation was actually regressive during the low-growth period prior to the commodity boom. This appears to have happened because the rate of compliance with the minimum wage fell, thus increasing the share of workers earning less than the minimum wage. In contrast, during the period of demand growth, the rise of the minimum wage had equalizing effects as employers were able to increase the wages of workers earning near the minimum wage, implying an improvement in the compliance rate of employers and rising wages for the workers near the low end of the distribution. See, for example, Firpo et al. (2015) and Silva et al. (2015).

**FIGURE 2.12. Wages and Employment of Low Skilled and High Skilled Workers**

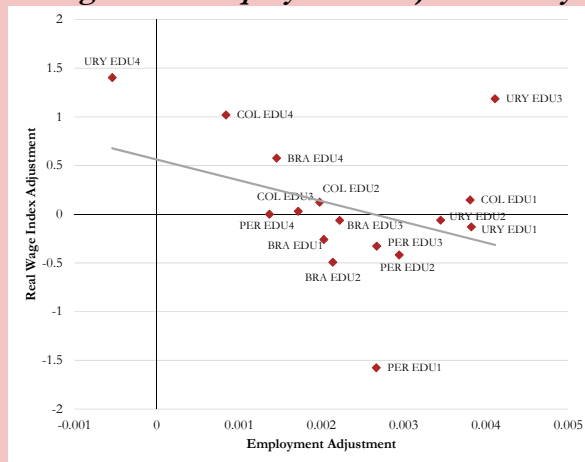
**PANEL A. Real Wages: Low and High Skilled**



**PANEL B. Employment Rates: Low and High Skilled**



**PANEL C. Wages and Employment Adjustment by Skill Level**



Notes: In panels A and B the figures shown are the simple averages for Brazil and Peru; solid lines represent the linear fit for the underlying dotted series for the two subperiods going from 2005q1 to 2011q2 and 2011q2 to 2015q1. In panel C the adjustments for each of the variables and education levels is calculated as the difference between the coefficients resulting of a regression of the variables of interest against a time trend for the 2005q1-2011q2 period and that of the one for the post-2011q2 period. In panel C EDU1 is complete primary or less, EDU2 is incomplete secondary, EDU3 is incomplete tertiary and EDU4 is complete tertiary. Sources: LCRCE from LABLAC.

dismissal or voluntary labor-market exit of low skilled workers whose income fell to zero. As noted earlier, this is indeed what is starting to happen throughout the region: unskilled, young, male workers are the ones who are primarily dropping out of the labor force.

Thus, when we consider measures of household income inequality, which account for the dismissed workers' declines in their contribution to their households' income, the income distribution might well deteriorate rather than improve. However, the message should come across clearly that further improvements in the labor income distribution may not necessarily be good news, but rather a reflection of high skilled wages continuing to decline and low skilled wages continuing to increase at the expense of job losses for low skilled workers.

We know that the decline in household income inequality was driven in the recent past not so much by social (redistributional) policy but mainly by a decline in labor income inequality. However, the

decline in household income inequality also reflected, albeit to a lesser extent, the increase in labor force participation, that is, the increase in the share of members of a household who became employed and thus earned positive incomes (Figure 2.4, Panel B). The observed drop in labor force participation during the current slowdown may revert this reinforcing effect, and in fact work in the opposite direction. As workers leave the labor force, labor-originated household incomes, particularly those of poor households, will fall. Although quantifying this effect is beyond the scope of this report, we note that it may have a significant distributional impact and, as noted, possibly result in the decoupling in the trajectories of household versus labor income inequality.

### *Concluding Policy Thoughts*

The most important conclusion of this chapter, from a policy perspective, is that demand (hence the economic cycle) matters for income distribution (probably more than supply from a short to medium-term perspective), at least in LAC. Indeed, this conclusion could be somewhat region-specific as LAC's experience with very large demand-induced swings may be somewhat unique.<sup>22</sup> Be as it may, it has potential implications for LAC policy-making.

One first implication concerns the short-run. Well-designed safety nets should matter a lot and perhaps receive more emphasis and resources. They should of course be designed in a way that minimizes labor market distortions, so as not to hamper the recovery of employment. But they are essential if one wishes to dampen the social impact of downturns, particularly when low-wage, low-skill workers drop out of the labor force. Perhaps importantly, the preliminary evidence reviewed herein suggests that since the slowdown started around 2011, quantity adjustments in the labor market have been particularly affecting low-skill, young males. The social consequences of this pattern of labor market exit can go well beyond household income inequality, perhaps even affecting crime rates and the long-run employability of the affected workers.<sup>23</sup>

Second, regulations such as minimum wages, which reflect society's search for fairness, may be effective to raise the welfare of low-skill, low-income workers during upturns, can unduly stiffen low-skill downward wage rigidities and thus undermine low-skill employment generation during downturns.

A last implication concerns the long run. There may be a policy-sensitive trade-off between growth and income distribution. The reasoning goes as follows. Policies aimed at restraining aggregate domestic demand (i.e., at raising domestic saving) should help promote growth by maintaining more competitive real exchange rates in the long run.<sup>24</sup> Yet, if the resulting increase in external demand is insufficient to offset the decline in domestic demand, such policies could skew the income distribution in favor of the higher skilled workers. Hence, faster growth could be obtained at the expense of worse income distributions. This is another area where follow-up research would be fruitful.

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<sup>22</sup> Indeed, the general emphasis of the income distribution literature on supply-side effects may at least in part reflect the fact that it largely originated in high-income countries, where business cycles are much more subdued.

<sup>23</sup> On crime in LAC see Chioda (2015); on the implications of unemployed, young males see de Hoyos, Rogers and Szekely (2015).

<sup>24</sup> This argument is developed in de la Torre and Ize (2015).



## Appendix 1. A Simple Labor Market Model

Consider the following demand and supply schedules for unskilled (U) and skilled (H) labor, where the  $\eta$ 's are elasticities (i.e., slopes of the schedules) and the  $b$ 's account for demand and supply shifts (i.e., shifts in the schedules):

$$L_i^S = b_i^S + \eta_i^S W_i, i = U, H$$

$$L_i^D = b_i^D + \eta_i^D W_i, i = U, H$$

In equilibrium:

$$L_i^* = \frac{b_i^S \eta_i^D + b_i^D \eta_i^S}{\eta_i^D + \eta_i^S} \quad (1)$$

$$W_i^* = \frac{b_i^S - b_i^D}{\eta_i^D + \eta_i^S} \quad (2)$$

The elasticities should be such as to give rise to market equilibria that match the five following stylized facts:

1) A symmetric demand shift (i.e., no differentials in skill intensities)

$$db_U^D = db_H^D = db^D \quad (3)$$

2) An asymmetric supply shock (reflecting the improvements in education)

$$db_H^S = db^S = -db_U^S > 0 \quad (4)$$

3) An asymmetric wage increase (reflecting the decline in the education premium):

$$dW_U > dW_H \quad (5)$$

4) A symmetric *rate of* employment increase (as depicted in Figure 2.10):

$$dL_U + db^S = dL_H = -db^S > 0 \quad (6)$$

Differentiating the equilibrium employment equation in (6) leads to:

$$dL_U = \frac{\eta_U^S}{\eta_U^D + \eta_U^S} (db^D + db^S) = \frac{\eta_H^S}{\eta_H^D + \eta_H^S} (db^D - db^S) > 0 \quad (7)$$

It thus follows from (7) that  $db^D > db^S$ : the demand shock must have dominated the supply shock. Differentiating the equilibrium wage equation in (5):

$$dW_U = \frac{db^D + db^S}{\eta_U^D + \eta_U^S} > \frac{db^D - db^S}{\eta_H^D + \eta_H^S} > 0 \quad (8)$$

Using (7) in (8) leads to:

$$\frac{\eta_U^S}{\eta_H^S} < 1 \quad (9)$$

After some algebraic manipulations, (7) can be rewritten as:

$$\eta_U^D - \eta_H^D = \frac{1}{db^S - db^D} [(\eta_U^D - \eta_H^D) \frac{\eta_H^D}{\eta_H^S} db^D + (2\eta_U^S + (\eta_U^S + \eta_H^S) \frac{\eta_H^D}{\eta_H^S}) db^S] \quad (10)$$

The first term on the right hand side of this expression is negative (check condition 8), the second is positive if  $db^S > 0$ . Thus as  $db^S \rightarrow 0$ :

$$\eta_U^D - \eta_H^D \rightarrow (\eta_U^S - \eta_H^S) \frac{\eta_H^D}{\eta_H^S} < 0 \quad (11)$$

Hence, in this case both sides of the market for low skill labor must be relatively inelastic. However, as  $db^S \rightarrow db^D$ :

$$\eta_U^D - \eta_H^D \rightarrow \frac{2\eta_U^S}{db^S - db^D} \left(1 + \frac{\eta_H^D}{\eta_H^S}\right) > 0$$

Thus, for sufficiently large supply shifts, the demand for unskilled labor must be relatively more elastic than that for skilled labor.

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