

RETHINKING REFORMS



**How Latin America and
the Caribbean Can Escape
Suppressed World Growth**

Coordinated by
ANDREW POWELL

2013 Latin American and Caribbean Macroeconomic Report



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the Caribbean Can Escape
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Inter-American Development Bank

March 2013

**Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library**

Rethinking reforms : How Latin America and the Caribbean can escape suppressed world growth / Andrew Powell, coordinator.

p. cm.

Includes bibliographical references.

“2013 Latin American and Caribbean Macroeconomic Report.”

1. Economic development—Caribbean Area. 2. Economic development—Latin America. 3. Fiscal policy—Caribbean Area. 4. Fiscal policy—Latin America. 5. Monetary policy—Caribbean Area. 6. Monetary policy—Latin America. 7. Caribbean Area—Economic conditions—21st century. 8. Latin America—Economic conditions—21st century. I. Powell, Andrew (Andrew Philip). II. Inter-American Development Bank. HC125.R48 2013

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Acknowledgments

This report was prepared by a team of economists within the Research Department of the Inter-American Development Bank. The team consisted of Eduardo Cavallo, Andrés Fernández, Eduardo Fernández-Arias, Luca Flabbi, Andrew Powell, and Alessandro Rebucci. The report was coordinated by Andrew Powell. Santiago Levy and José Juan Ruiz provided many suggestions. Invaluable research assistance was provided by Juan Herreño, Luca Mazzone, Mathieu Pedemonte, Sergio Rodríguez-Apolinar, and Pilar Tavella. Further inputs were provided by Eduardo Borensztein, Matías Busso, Julián Caballero, Arturo Galindo, Daniel Hernaiz, Alejandro Izquierdo, Musheer Kamau, Rodrigo Mariscal, Inder Ruprah, and Tomás Serebrisky.

Rita Funaro oversaw the editing and production of the report; John Dunn Smith and Cathleen Conkling-Shaker provided editorial assistance. The Word Express created the cover design and typeset the publication.

Foreword

Latin America and the Caribbean is a region of small open economies and global factors have a large impact on the region's economic progress. As discussed in the 2012 Latin American and Caribbean Macroeconomic Report, the region survived the Great Recession relatively well and appears to have gained ground in terms of resilience to negative shocks. However, global growth is likely to be suppressed below potential in the coming years, real commodity prices may decline, and trade growth is expected to slow; this will have a dampening effect on growth in the region.

Growth theory remains an area of controversy. In an influential paper entitled, "Was Prometheus Unbound by Chance? Risk, Diversification and Growth", Daron Acemoglu and Fabrizio Zilibotti argued that developing countries that may not be able to fully diversify risks are likely to have limited capital accumulation and more variable growth patterns. Some lucky countries, however, may escape this stage and develop faster; Prometheus may be unchained by chance.

But perhaps policymakers can also help to break Prometheus' chains. This report argues that there is limited space for traditional fiscal and monetary macroeconomic policies and countries should consider more structural reforms. The report presents evidence of great potential to enhance growth in the region by reallocating existing resources. While all economic projections are subject to uncertainty, given lower expected growth in the world economy, governments would do well to pursue growth enhancing reforms and attempt to free their economies with specific policy actions, rather than simply relying on chance.

José Juan Ruiz
Chief Economist

CHAPTER 1

Executive Summary

Global growth projections have waned since last year and growth may be suppressed below potential for several years to come. Compared to the favorable winds before the Great Recession of 2008–09, headwinds from the four main world economic blocs may lower growth in Latin America and the Caribbean in the coming years. Global growth may be 0.5 percent lower in the next five years than it was during the Great Moderation (2003–07), as advanced economies adjust to maintain fiscal sustainability and China gradually slows and rebalances. Moreover, given the limits in monetary and fiscal space in advanced countries, any negative shock may be persistent, increasing the risk that the world may be at the doorstep of a Great Suppression.

Lower global growth will, all things being equal, imply lower growth in Latin America and the Caribbean. Growth in 2013–17 is likely to be almost one full percentage point lower than that of 2003–07. Projections suggest lower real commodity prices, lower terms of trade, and lower growth in private consumption, and to keep external accounts in balance, an even sharper adjustment in imports may be in the offing. Slower growth may also be accompanied by a sharp fall in the growth rate of investment. And without sufficient investment, the region will be unable to close its deep infrastructure gaps. Indeed, if the relatively poor stock of infrastructure is a barrier to growth, as argued in Chapter 7 of this report, then growth in the region may be even lower than projected.

At the same time, clear limits to the potential use of monetary and fiscal policy measures in the region pose another constraint. Fiscal balances have deteriorated over the past year and remain considerably weaker than before the Great Recession. As reviewed in Chapter 4, a danger exists that what was conceived as successful countercyclical policy will now be considered simply expansionary, as most countries have chosen not to reduce primary expenditures, even as output gaps have closed. Compared to before the Great Recession, the space for monetary policy action has shrunk and sustained lower growth expectations place a limit on what monetary policy can achieve. Moreover, strong expansionary fiscal measures would erode fiscal credibility and reduce fiscal space—a critical element in the event of another negative shock. These issues are more acute for countries where fiscal revenues linked to commodity prices are projected to decline significantly over the medium term, and uncertainty over future revenues calls for a higher degree of prudence. Inappropriate expansionary fiscal policies

would also accentuate exchange rate appreciations which, given strong capital inflows, would underscore the current dilemma for monetary policy. An optimal policy mix likely includes tighter fiscal and looser monetary policy to resist exchange rate appreciations, assuming price pressures remain under control.

However, such a policy mix will not by itself boost growth, nor could it be expected to do so. Rather, countries should consider further structural reform measures to enhance economic prospects, and to escape suppressed global growth. A review of the current status of reforms in the region in Chapter 5 suggests that despite some advances, including financial reforms that have rendered the region more resilient, there is considerable space for further action. Moreover, estimates of how increasing productivity by reducing resource misallocation can impact growth are significant indeed. Over a 10-year period, as a result of higher productivity, if the median country could enact reforms to reduce those misallocations to the level of those in the United States, then it could enjoy at least an additional 1 percent annual growth over that decade, and likely considerably more.

Where should the region focus its reform efforts? The IDB has done a considerable amount of work in recent years on precisely this question. Much work must be done to improve education, support healthy product market competition, ensure equitable tax systems that promote development, develop labor markets that function well, and establish regulatory frameworks and institutions that favor sufficient investment while encouraging ample savings to finance that investment in a safe manner.¹ Different countries are in different positions and hence may wish to focus on particular areas or specific constraints to growth. Considering the region as a whole there have been significant advances, particularly in trade and finance, but other areas have lagged. This report focuses largely on labor market reforms and investment in infrastructure but other areas remain important, and indeed they tend to interact with one another.

In the area of labor market reform, there appears to be considerable space for further reforms and a clear association between economic misallocation, including labor and firm informality, and lower productivity. Chapter 6 suggests an integral approach to labor market reforms that should be tailor-made to individual countries' institutions. In countries with high rates of informality, reforms may focus on this problem. Informality tends to go hand in hand with a higher proportion of smaller, less-efficient firms, high worker turnover, a less-educated and less-trained workforce, the likelihood of illegal practices, and reduced access to credit. These features tend to reduce productivity; thus, a strategy that seeks to reduce informality could potentially have a large payoff.

¹ See Pagés (2010) for analysis of the determinants of productivity, Corbacho, Fretes Cibils, and Lora (2013) for a review of tax systems in Latin America and the Caribbean and how they may be reformed to promote development, and Bassi et al. (2012) and Cabrol and Székely (2012) for work on the current state of education in the region and suggestions regarding priority areas for reform.

Latin America and the Caribbean also suffers from a significant gap in the quantity and quality of infrastructure services, with low investment in this sector. While there is a chicken-and-egg debate on whether low savings are a determinant of low investment or vice versa, Chapter 7 suggests that countries may wish to work on both fronts. On the one hand, countries could enact measures to deepen long-term domestic savings in domestic currency. On the other hand, they could improve regulatory and institutional environments to attract greater investment. Given the region's enhanced resilience to macroeconomic volatility and low world interest rates, there is a clear window of opportunity to increase domestic savings. Pension, social security, and tax reform may have the most significant impact on savings levels and, as in the case of labor markets, these reforms should be tailored to individual countries. While public-private partnerships do not necessarily increase aggregate investment, they may offer one vehicle to enhance existing regulatory or institutional arrangements. More generally, enhancements can be made whether the investments are public, private, or some combination of the two. International experience suggests that increases in domestic savings combined with improvements in regulatory institutions are feasible and may yield significant payoffs in terms of infrastructure provision and growth.

Reducing economic misallocation can significantly impact growth. In general, thanks to the spillovers between countries, growth accelerations in larger countries may impact the growth rate of a region. However, if the two largest economies in Latin America and the Caribbean, Brazil and Mexico, pursue reforms to boost growth by one standard deviation of their respective growth rates, the regional spillovers are limited, and the typical third country would only grow an additional 0.25 percent per annum. However, if all countries pursue reforms to enable growth to accelerate, again calibrated at one standard deviation of each country's respective growth rate, then the effect on the region as a whole may reach 2.3 percent additional growth per annum. Given the estimates on the economic impact of reducing economic misallocations, a one standard deviation growth shock is a relatively conservative estimate of the effect of a comprehensive reform effort. However, if all countries experienced such a growth spurt, the regional spillovers would then lift projected growth of less than 4 percent to more than 6 percent, somewhat higher than that projected for ASEAN-5.²

² The ASEAN-5 group is comprised of Indonesia, Malaysia, Philippines, Thailand, and Vietnam. International Monetary Fund (2013) projects their growth at 5.5 percent for 2013 and at 5.7 percent for 2014.

CHAPTER 2

A Suppressed World Economy

Growth weakened in both advanced and emerging economies through 2012 and projections of 2013 growth have fallen.¹ In the 2012 Latin American and Caribbean Macroeconomic Report, a relatively optimistic baseline was assumed and the effects of certain negative scenarios were considered. While a financial crisis was avoided, European growth has been weak and growth in China fell below the assumed baseline, thereby affecting commodity prices and trade, which then impacted Latin America and the Caribbean.

This report outlines a weaker baseline than the 2012 report, with global growth 0.5 percent lower when the *Great Moderation* (2003–07) is compared with the upcoming five years (2013–17). How long this weaker growth persists may depend largely on the policies in advanced economies.² Given the lack of monetary space and restrictions on fiscal accounts, any negative shock to this baseline may have persistent effects. There is then a risk, if further negative shocks materialize, that the world may enter a *Great Suppression*.

In the U.S., the recent news is mixed.³ Growth has been suppressed with private sector deleveraging and significant policy uncertainty, particularly over fiscal policy.⁴ Concern remains over the resolution of medium-term fiscal issues.⁵ Monetary policy is likely to remain highly accommodating for some time, but can do little more to boost growth.⁶ The projection is for a steady recovery but with

¹ Comparing recent IMF World Economic Outlooks and the recent World Bank *Global Economic Prospects* report, see IMF (2012c) compared to IMF (2012d), and World Bank (2013) versus IMF (2012c), and IMF (2013) versus IMF (2012c).

² See the October 2012 *World Economic Outlook* by the IMF for a discussion (IMF, 2012c).

³ See, for example, Federal Reserve System (2012) and Federal Reserve System (2013) for an assessment of the mixed signals on the U.S. recovery.

⁴ See Baker, Bloom, and Davis (2013) for the description of an index to measure policy uncertainty and references on potential impacts. See also the discussion in IMF (2012c), Box 1.3.

⁵ See, for example, “U.S. Fiscal Package Has Limited Positive Credit Implications,” Moody’s Investors Service (2013).

⁶ See the discussion regarding the efficacy of nonconventional monetary policies in Federal Reserve System (2012 and 2013).

suppressed growth rates relative to potential.⁷ These projections are based on a gradual unwinding of policy uncertainty and pickup in investment. Of course, these projections could be revised upwards if policy uncertainty is reduced more quickly. On the other hand, setbacks regarding finding an adequate resolution to fiscal issues could imply a weaker recovery.

The situation has improved considerably in Europe since the last Latin American and Caribbean Macroeconomic Report. Growth remains suppressed in the periphery, however, with considerable private sector deleveraging, as countries strive to improve competitiveness and fiscal sustainability.⁸ At the same time, European authorities have agreed on a path to institutional strengthening that includes significant movement toward a full fiscal and banking union. Core countries continue to recover but growth has been suppressed by the problems in the periphery and structural issues.⁹ The expectation is for close to zero growth in 2013 and then a recovery.¹⁰ These projections are based on periphery countries overcoming competitiveness problems, fiscal problems being gradually resolved over time and a smooth path to institutional strengthening within the currency union. Obstacles on the way to these objectives may lead to greater uncertainty and lower growth.¹¹

Growth in Japan has been weighed down by structural issues as well as high levels of debt.¹² Monetary policy has been highly accommodating with short-term interest rates at the zero bound. Recently, a new fiscal stimulus program and nonconventional monetary operations have been announced. These policies may enhance growth but may also increase uncertainty.¹³

The Chinese economy has slowed from the high growth of 2010 and 2011 of around 10 percent. The baseline projection in last year's 2012 Latin American and Caribbean Macroeconomic Report was for growth of 8.5 percent in that year, but the

⁷ The January *World Economic Outlook* update projects 2.0 percent growth for the U.S. in 2013 and then a recovery in future years. Consensus forecasts are also at 2 percent growth for 2013.

⁸ The actions of the European Central Bank in providing liquidity ahead of the other European country assistance mechanisms have been critical to ensure that the significant private sector sudden stop experienced in some countries did not imply a full sudden stop, which would require yet sharper adjustments in current accounts, and push interest rates higher.

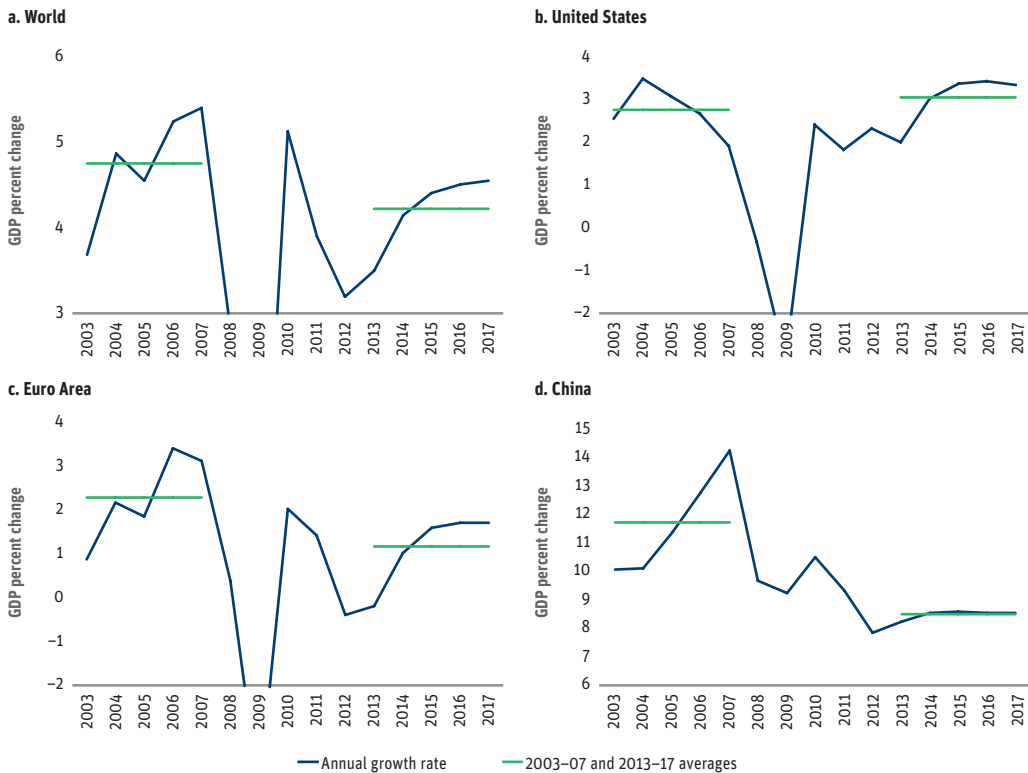
⁹ See Allard and Everaert (2010) for an interesting discussion of structural issues in Europe.

¹⁰ The January 2012 *World Economic Outlook* projects -0.2 percent growth for the Euro area in 2013, with a recovery thereafter to 1 percent in 2014. Consensus forecasts indicate a median of 0.3 percent for 2013 and a somewhat faster recovery to 1.3 percent for 2014. Economic growth in the UK is projected to be 1 percent in 2013, well below potential. Bloomberg Online Surveys.

¹¹ See the IMF's *World Economic Outlook* (2012c) for a discussion of risks in Europe.

¹² See, for example, Berkmen (2011), Callen and Ostry (2003), Tanaka (2003) and IMF (2012c) for a discussion on Japan and structural and macroeconomic challenges.

¹³ The January 2013 *World Economic Outlook* (IMF, 2013), projects 1.2 percent growth in 2013 for Japan and then 0.7 percent growth in 2014. Consensus forecasts are at 1.0 percent for 2013. Bloomberg Online Surveys.

FIGURE 2.1 LOWER WORLD GROWTH: MEDIUM-TERM PROJECTIONS

Source: *World Economic Outlook*, IMF (2012c).

actual will be close to 7.8 percent. Current projections for the Chinese economy range from the official target of 7.5 percent growth to somewhat above 8 percent. One view expects the growth rate to slow gradually towards the official target of 7.5 percent. In the baseline of this report, it is assumed that the 8.5 percent growth rate is maintained until 2017 but uncertainty accompanies these projections.¹⁴ At some point, the Chinese economy will likely rebalance in favor of more domestic sources of growth, greater consumption, and a somewhat lower investment-to-GDP ratio. This may imply a lower pull for global growth and also changes in how the Chinese economy interacts with the rest of the world, including Latin America. In the 2012 Latin American and Caribbean Macroeconomic Report, simulations indicated that such a rebalancing would imply lower metals prices.

Actual and projected growth rates to 2017, used as baseline projections for this report, are illustrated in Figure 2.1. These projections are broadly consistent with those

¹⁴ The January 2013 *World Economic Outlook* update forecasts some 8.2 percent growth in 2013 and 8.5 percent in 2014.

of the *World Economic Outlook* and consensus views. They imply that average world growth in 2013–17 will be about 0.5 percent lower than in 2003–07. According to this scenario, growth will be significantly lower in Europe and China and roughly the same for the U.S. As detailed in the following chapter, this pattern of lower world growth will impact growth in Latin America and the Caribbean. Moreover, risks remain, although given the lower baseline projections they are more balanced than in last year’s report, in terms of the upside vs. downside risks.

The interest in stimulating growth through economic reforms in advanced economies is not new. Within the wide literature on the topic, Blanchard and Giavazzi (2003) make the case that both product and labor market deregulation may be growth-inducing. They also show the two may be linked. Bayoumi, Laxton, and Pesenti (2004) estimate that the quantitative impact of such reforms may be large—specifically, structural differences may account for over half of the income gap between Europe and the U.S. Nicoletti and Scarpetta (2003) conclude that as OECD countries have reformed, their economic performance has actually become more heterogeneous. These differences are then exploited to show that liberalizing markets, when countries are furthest from the efficient frontier of production, tends to have larger growth impacts and that the slower speed of structural reform in Europe has significantly lowered its growth trajectory. Ostry, Prati, and Spilimbergo (2009) consider structural reforms and economic performance in both advanced and developing countries. They argue that real and financial reforms have helped to boost growth and that in particular financial, trade, and agricultural market liberalization impacted growth the most by attracting greater foreign direct investment and improved allocation of economic resources. They also find that sequencing matters, both for the size of the growth impact and for the effects on stability. Liberalizing trade before finance is better for growth and liberalizing domestic financial sectors before the external capital account may help to avoid financial instability.

There was an intense reform effort in Latin America and the Caribbean during the 1990s. While growth improved in some cases, a mixture of inappropriate reform measures, poor reform sequencing, and the lack of political viability or institutional capacity linked to the incomplete reforms, led to weaker-than-expected results in terms of growth in some countries and to increased vulnerability to economic instability in others.¹⁵ The experience led to what was labeled “reform fatigue” and in general terms reform activity fell in the following decade. On the other hand, the 2012 Latin

¹⁵ See Lora (2000), (2001), (2012), Lora and Panizza (2002), and Lora, Panizza, and Quispe-Agnoli (2004) on the measurement of reforms, on their determinants, and for a discussion of the links between the capacity to implement reforms, whether reforms were incomplete and what may have led to reform fatigue. See Correa (2002) for a skeptical empirical analysis of the effects of the 1990s reform agenda in the region.

American and Caribbean Macroeconomic Report highlighted the subsequent enhanced resilience of the region to crises, in part explained by continued reforms in financial sectors including improvements in financial regulation and surveillance.¹⁶

This report argues that the moment has come to reignite the reform agenda. Rethinking reforms requires learning from the lessons of the past, and from other countries' experiences, designing reforms that are feasible in terms of implementation capacity and politics, and that yield widespread benefits that do not increase vulnerability (or that protect negatively affected groups). As the world moves to a lower growth path, finding ways to unleash growth through domestic policy actions is likely to become critical. However, a theme of this report is that reforms should be carefully designed to match countries' institutions and implementation capacity. The following chapter explores the implications of lower world growth for Latin America and the Caribbean and the potential for unleashing growth through a domestic and regional growth reform agenda. Chapter 4 considers the limitations of monetary and fiscal policy given that lower growth is likely to be persistent. The remaining chapters consider in greater detail the potential to unleash growth through domestic reform measures.

¹⁶ See Chapter 5 for a discussion of where the region has pursued reforms subsequent to the 1990s.

CHAPTER 3

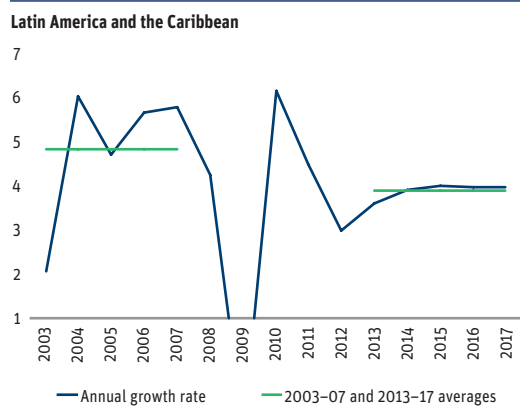
Unleashing Growth in the Face of Global Headwinds

Given headwinds blowing from the major economic blocs of the world economy, the Latin American and Caribbean region is expected to grow more slowly in the medium term. Building on the projections for the region from the IMF and other sources, growth is likely to be some 3.9 percent for the period 2013–17, almost a full percentage point lower than the 4.8 percent recorded in 2003–07, the five-year period before the Great Recession (see Figure 3.1).

One driver for slower growth in Latin America and the Caribbean is the projected decline in real commodity prices.¹ Lower commodity prices imply a drop in the terms of trade for most countries in the region and, therefore, a negative shock to income. In turn, this is likely to provoke a lower growth rate in private consumption and, if external balance is to be maintained, then import growth must be curtailed. Furthermore, the rate of investment is expected to decelerate from a growth rate of 10 percent to just 5 percent per annum (see Figure 3.2, which illustrates the components of demand). As reviewed in more detail in Chapter 7, this low investment rate will preclude the region from closing its infrastructure gap, and if the low and relatively inefficient stock of infrastructure in the region is a critical barrier to growth, then the danger exists that growth would be lower than indicated in these projections, which rely on a growth-accounting framework.

These baseline projections raise difficult issues for the region regarding

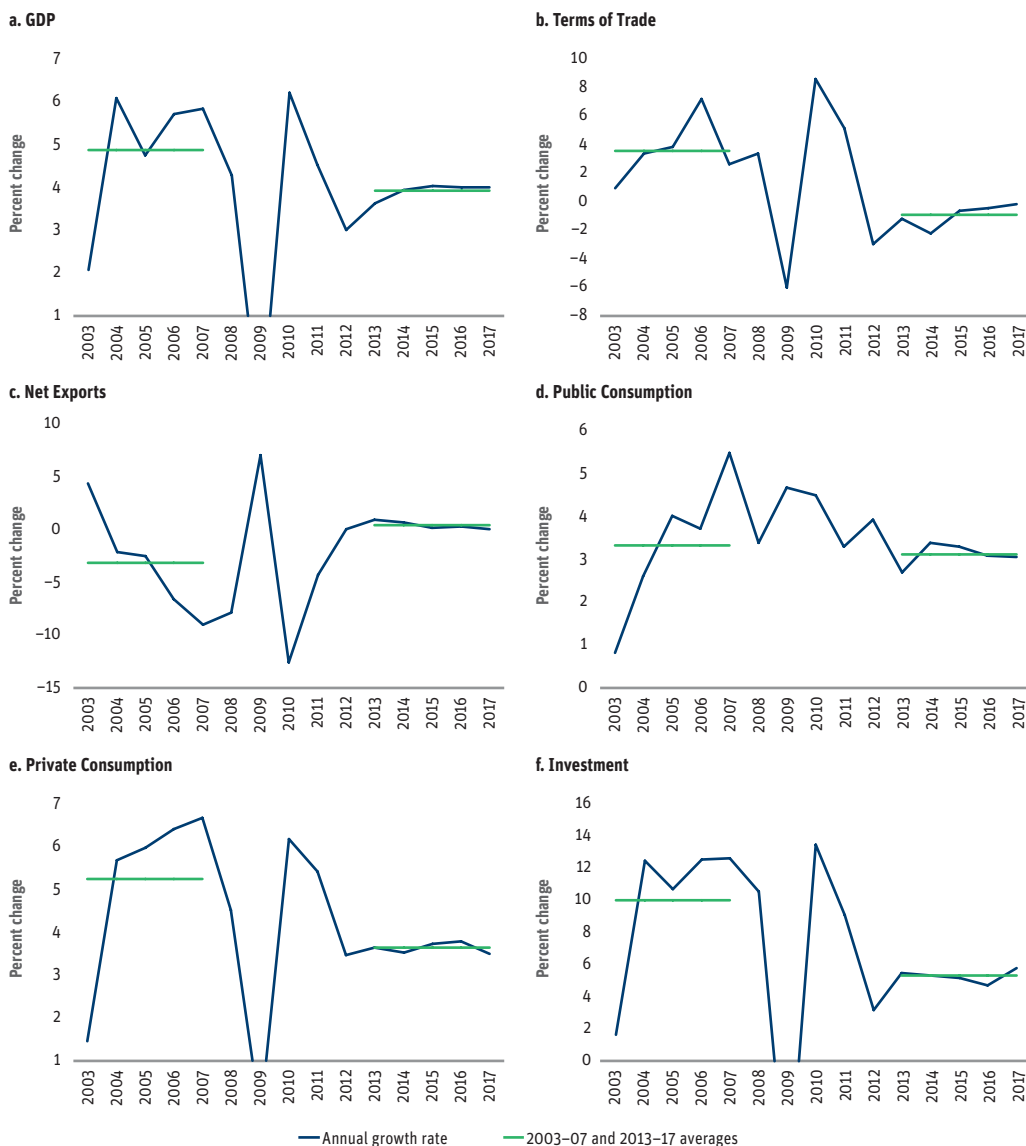
FIGURE 3.1 LOWER GROWTH IN THE REGION



Source: World Economic Outlook, IMF (2012c).

¹ The baseline fall in a real commodity price index for the region is discussed in Chapter 4. More generally, the growth in world trade is also expected to slow, from about 8 percent in the pre-crisis period to about 5.5 percent in the upcoming years.

FIGURE 3.2 COMPONENTS OF AGGREGATE DEMAND FOR LATIN AMERICA AND THE CARIBBEAN
GROWTH RATES



Source: IMF (2012c).

Note: Net exports are defined as the simple difference between export and import growth. Note that the regional trade balance is roughly balanced in 2012.

how best to respond. As detailed in the following chapter, the region has less fiscal space, and there may be little that monetary policy can do to respond to a more sustained drop in growth. On the other hand, as argued in Chapter 5, there is space to effect structural reforms, which may have a significant growth payoff. Several countries are already considering a pro-growth reform agenda. An interesting question is whether

individual country reform efforts set off substantial multiplier effects and regional spillovers and, if so, how large may they be? As reviewed in the previous chapter, the baseline projections are also not without risks. Given normal fluctuations in growth in the major world economic blocs, how large are these risks for the region? Would a concerted reform agenda allow the region to escape suppressed world growth? Would it compensate negative shocks if they arose? This chapter tackles these questions.

Reforms to Unleash Growth: Is a Regional Effort Required?

Since spillover effects from reform efforts tend to be greater from the larger economies, a natural place to start is with the two largest economies in the region: Brazil and Mexico. Would reforms in Brazil and Mexico, leading to positive growth shocks in those countries, spark multiplier effects and spillovers across the region, and would that be sufficient to counter the projected lower growth in the global economy?^{2,3}

To address these questions, a methodology was adopted, capable of modeling the various interactions among the economies in the region.⁴ Fourteen countries in the region were included in the analysis and each country's growth was modeled as dependent on a set of variables: the growth histories of each country, growth in other countries in the region, growth in other major global economies, commodity prices, world interest rates, and financial asset prices. Assuming the model includes all the global variables important for explaining individual country growth, domestic factors are then likely to explain the greater part of the actual growth that is not explained by this approach. One standard deviation of these errors is then a measure of the normal (unexplained) fluctuations in growth. However, the effect of structural reform measures would be expected to be relatively persistent in nature. In what follows a one period (temporary) shock to growth of one standard deviation is applied in the first quarter of each of five years to produce a relatively sustained cumulative growth shock.⁵

Considering positive growth shocks applied in this manner to both Brazil and Mexico, Mexico's growth rate increases by about 0.8 percent per annum on average

² The recently announced changes in the labor market may be the first steps toward considering a wider reform agenda.

³ In the case of Brazil, two mega-events are upcoming (the 2014 World Cup and the 2016 Olympics), the authorities are considering an ambitious investment program, and they have started to implement a new framework for infrastructure investments. Empirical studies suggest mega-events, or the anticipation of those events, may have a significant impact on growth and on exports (Rose and Spiegel, 2009; Brückner and Pappa, 2011).

⁴ The model is described in Cesa-Bianchi et al. (2012) and the 2012 Latin American and Caribbean Macroeconomic Report. The innovation in this year's report is the extension to include 14 countries in the region; these countries are listed in Table 2.1.

⁵ The growth equations are estimated using quarterly data and the magnitude of the shock is one standard deviation of unexplained quarterly growth.

TABLE 3.1 COUNTRY-SPECIFIC AND REGIONAL GDP SHOCKS

One-standard-deviation shocks; average effects over 2013–17 period, in percent

	Country-specific shock ¹	Brazil and Mexico shock ²	Brazil, Mexico, and Colombia shock ³	Regional shock ⁴
Argentina	2.08	0.65	0.93	3.07
Bolivia	1.02	-0.03	0.07	1.06
Brazil	2.07	1.83	1.83	3.32
Chile	0.87	-0.26	-0.18	2.06
Colombia	0.97	0.25	1.07	1.63
Costa Rica	1.50	0.41	0.73	0.29
Ecuador	1.42	0.23	0.49	2.14
El Salvador	0.76	0.02	0.12	1.14
Jamaica	2.23	-0.20	-0.21	1.98
Mexico	0.53	0.76	0.85	0.82
Nicaragua	1.05	0.25	0.15	1.74
Paraguay	2.16	0.38	0.63	3.96
Peru	3.92	0.18	0.21	4.39
Trinidad and Tobago	2.99	0.29	0.37	3.70
Median	1.46	0.25	0.43	2.02
Simple average	1.68	0.34	0.50	2.24
Weighted average (PPP GDP weights)	1.54	0.98	1.12	2.33

Source: Authors' calculations.

¹ Effect on each country of its own growth shock.² Effect on all countries of growth shock in Brazil and Mexico.³ Effect on all countries of growth shock in Brazil, Mexico, and Colombia.⁴ Effect on each country of growth shock in all countries.

for the next five years, while Brazil's growth accelerates by some 1.8 percent on average (see Table 3.1, column 2).⁶ In the case of Mexico, this is a little higher than the assumed growth shock itself, implying that there is a positive but relatively small multiplier effect.⁷ In the case of Brazil, there is no discernible multiplier effect.⁸ The impact on the median country in the region is just a quarter of one percent of growth.

⁶ The different magnitudes reflect the standard deviation of unexplained growth in the two economies.

⁷ The International Monetary Fund's *Regional Economic Outlook* regarding Latin America and the Caribbean (2012b) addressed a similar question with a different methodology, and finds small spillovers driven by common shocks rather than regional interdependencies.

⁸ The impact on Brazil of a combined shock with Mexico is even lower than one in which Brazil alone suffers a shock because Mexico has no significant trade linkages with Brazil, and growth accelerations were historically associated with higher oil prices.

Regional spillovers are then quite limited. Indeed, Latin America and the Caribbean is considerably less integrated than developing countries in Asia and significantly less integrated than Europe. For the median country, some 25 percent of trade is with the region in the case of Latin America and the Caribbean, compared to 66 percent in Europe and 40 percent in developing Asia. The largest impact of a growth acceleration in Brazil and Mexico is on Argentina whose growth is boosted by 0.6 percent per annum; the impacts on countries in Central America are negligible. Interestingly, there are actually negative impacts on some countries, including Jamaica and Chile. The conclusion is that the spillovers from growth accelerations in the two largest countries in the region are unlikely to counter the effect of lower world growth.

As an example, consider the situation of a third country, Colombia. Colombia only benefits to the tune of 0.25 percent from a growth acceleration in Brazil and Mexico. However, if Colombia pursues reforms that increase growth by one standard deviation then this will have an impact of some 0.9 percent per annum (Table 3.1, column 1). If Brazil, Mexico, and Colombia all pursue growth, inducing reforms of one standard deviation of their respective growth rates, then this rises to 1.1 percent (Table 3.1, column 3). However, suppose that all 14 countries experience a growth spurt at the same time; this would have a much more powerful impact. In the case of Colombia, the effect on growth is now 1.6 percent per annum—far exceeding the effects of slower world growth.

Generalizing this result, if only Brazil and Mexico pursued reforms to increase growth by one standard deviation of their respective growth rates, the increase in the growth rate of the region as a whole is almost 1 percent, but this is highly concentrated in Brazil and Mexico themselves with very little spillover effect; the impact on the other countries in the region is a meager 0.2 percent growth per annum. On the other hand, a concerted effort across the 14 countries would boost regional growth about 2.3 percent, and benefit all countries. The median country is Chile, which would enjoy an annual increase in its growth rate of about 2.1 percent. Peru is the greatest beneficiary, with a boost to growth of over 4.4 percent. Assuming a baseline growth rate of 3.8 percent for the region as a whole, a boost of some 2.3 percent then propels growth in the region beyond 6 percent. This would more than offset lower world growth and would lift the growth performance of Latin America and the Caribbean above that projected for the ASEAN-5.⁹

Assessing the Balance of Risks

Risks to the baseline appear more balanced in this year's report than those considered in the 2012 Latin American and Caribbean Macroeconomic Report, which posited a

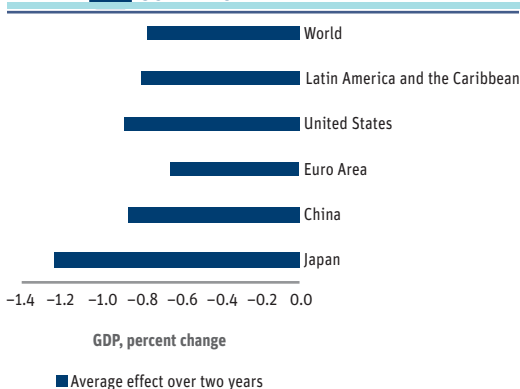
⁹ The ASEAN-5 group is comprised of Indonesia, Malaysia, Philippines, Thailand, and Vietnam. International Monetary Fund (2013) projects their growth at 5.5 percent for 2013 and 5.7 percent for 2014.

more optimistic baseline. Moreover, risks appear less concentrated, with potential risks in the four main world economic blocs: China, Europe, Japan, and the U.S. Given this context and considering normal fluctuations in growth, this section considers the effect of a negative shock (or positive, as the model is symmetric) to the four major economic blocs (China, Europe, Japan, and the U.S.), calibrated to one standard deviation of the unexplained growth fluctuations.

Most likely, news of any changes in economic prospects will first be picked up by financial markets and changes in financial asset prices generally preempt any actual change in growth, either positive or negative. The methodology adopted is then to presume a shock to asset prices in the major world economic blocs but this shock is calibrated to be consistent with a one standard deviation change in growth for each. This turns out to be a median 6 percent fall in asset prices, considering the U.S., Europe, and Japan. In China, asset prices tend to be relatively less important for macroeconomic outcomes and the shock is modeled directly as a shock to growth.

The results are depicted in Figure 3.3. For the case of a negative shock to growth in the four economic blocs, global growth drops by some 0.75 percent per year on average over the next two years. This implies a world growth rate of just 3 percent^{10,11}. The effect on Latin America and the Caribbean would be to reduce growth by 0.8 percent —again expressed as an average over the next two years. If there is no growth acceleration from

FIGURE 3.3 CHANGE IN GROWTH, NEGATIVE SCENARIO



Source: Authors' calculations.

Note: The negative scenario is a combination of equity shocks in the United States, Euro Area, and Japan and a GDP shock in China. Equity price shocks are such that each individual shock is associated with a change of one standard deviation in the GDP of the respective country. For China, the size of the shock is one standard deviation of GDP.

reforms and this negative scenario materializes, growth in the region would be just 2.5 percent per annum for the next two years. If this negative scenario is coupled with a regional reform scenario, growth would be 4.8 percent. While the model assumes a temporary shock in this case, given the limitations to fiscal and monetary policy actions in advanced countries, such a shock may be more persistent than the average shock in the sample, raising the risk of more persistent lower growth and a Great Suppression. A push for regional reforms would help counter the risk of such a negative shock to the four main global economic blocs.

¹⁰ In the case of a positive growth shock, growth in Latin America and the Caribbean would be some 4.7 percent.

¹¹ Global growth of less than 3 percent has frequently been considered a global recession, as given a population growth rate of 3 percent, per capita growth would then be negative.

CHAPTER 4

The Limits of Fiscal and Monetary Policy

In the Great Recession of 2008–09, the region showed that active monetary and fiscal policy may be used to respond to negative shocks, but if the expectation is now a sustained period of lower growth, what can such policies be expected to achieve? A complete answer depends on current fiscal and monetary positions and an assessment of the policy space. This chapter assesses current fiscal and monetary policy dilemmas and concludes with observations regarding the likely optimal policy mix.

The Limits of Fiscal Policy

The 2012 Latin American and Caribbean Macroeconomic Report raised the concern as to whether the fiscal policy response to the Great Recession was truly countercyclical or simply expansionary in nature. It was argued that many countries had less fiscal space in 2011 compared to before the crisis, indicating that retrenchment was not symmetric to the stimulus applied and resulting in weaker fiscal sustainability. One year later, retrenchment generally continues to be overdue. The danger of expansionary rather than countercyclical fiscal policy is an erosion of credibility and fiscal space to counter any further downturns. Concerns with high levels of capital inflows and exchange rate appreciation strengthen the case for tighter fiscal policy. Still, the pace and composition of fiscal retrenchment deserves careful consideration given uncertainties including the future course of commodity prices.

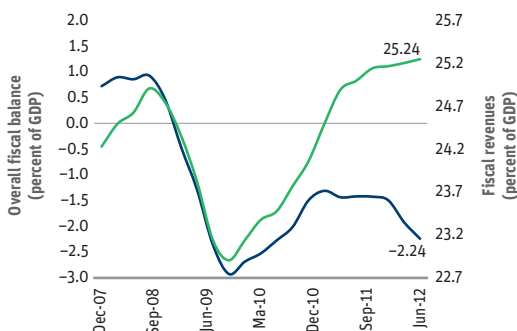
Fiscal normalization is overdue on macroeconomic grounds...

Fiscal balances recovered somewhat from their 2009 floor but remain substantially below pre-crisis levels, and they deteriorated in the last year (Figure 4.1).¹ Only three of the 21 countries analyzed here have stronger balances (Figure 4.2). At the same

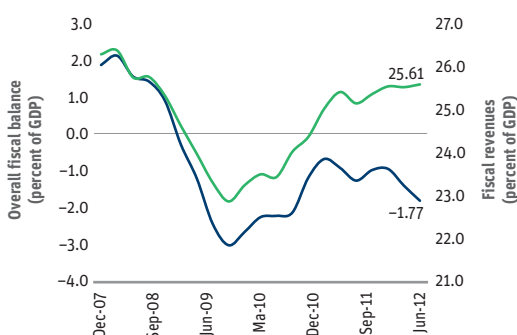
¹ LAC-7 includes Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela.

FIGURE 4.1 OVERALL FISCAL BALANCE AND FISCAL REVENUES

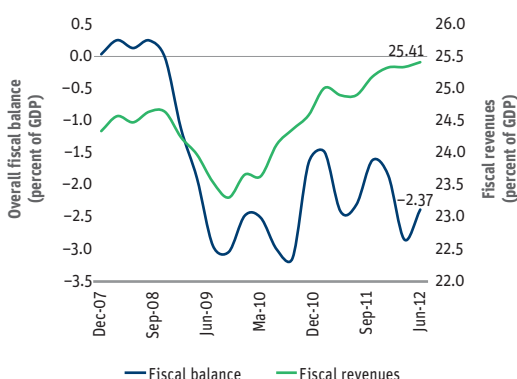
a. Typical Latin American and Caribbean country



b. Typical country from the 7 largest Latin American economies



c. Latin American region



Source: Latin Macro Watch, IDB (2012c). *World Economic Outlook* IMF (2012c) and authors' calculations based on national sources.

time, fiscal revenues regained and even surpassed their pre-crisis level (Figure 4.1).

Weaker fiscal balances are a cause for concern under current circumstances. Output gaps relative to potential have closed, and with them the macroeconomic space for expansionary fiscal policy (Figure 4.3). Fiscal multipliers may be larger during recessions² and fall in normal times, in part due to the countervailing effect of tighter monetary policy, suggesting fiscal stances in the region should roughly be neutral, comparable to those observed before the Great Recession; Figure 4.3 indicates that in general this is not the case.

Countercyclical fiscal policy was engineered, to a large extent, through an expansion of primary fiscal spending of more than 2 points of GDP in the period 2008–09, and even more for commodity-dependent countries that benefited from higher export prices. This response ameliorated the effects of recession, but subsequent fiscal retrenchment was limited. This is best illustrated comparing primary expenditure as a percentage of potential output, thus abstracting from cyclical fluctuations (Figure 4.4). The plateau observed in 2010 in the typical country was followed by an expansion rather than a contraction

² This point is argued by the IMF's October *World Economic Outlook* (IMF, 2012c) in relation to the plight of some advanced economies.

in 2011 and 2012. Using the change in this indicator as a metric, most countries now have a weaker fiscal stance, especially commodity-dependent countries (Figure 4.5)³.

...and critical to preserve fiscal space

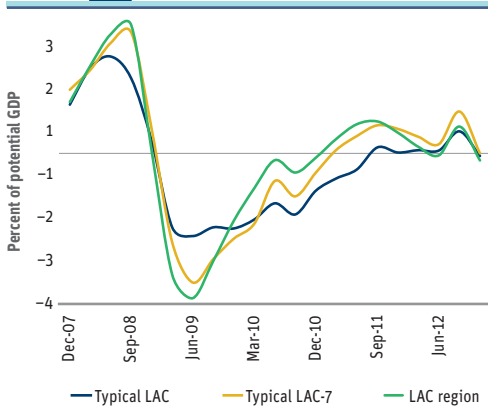
The lower expected growth reflected in this report's baseline scenario is reducing fiscal space. A serious concern is that the current fiscal stance may be unwarranted given the current phase of the economic cycle, and it is likely to erode the fiscal credibility the region worked hard to gain. If the perception is that if expansionary fiscal policy packages in the wake of downturns will not be retired, this lowers future fiscal space. Expansionary policy will be met

FIGURE 4.2 CHANGE IN OVERALL FISCAL BALANCE
DEC 2012 VIS-À-VIS DEC 2007



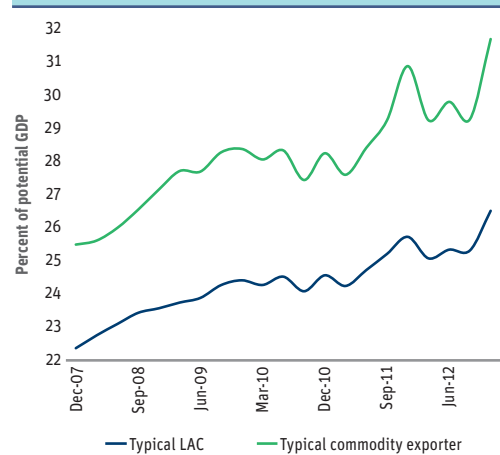
Source: Latin Macro Watch, IDB (2012); World Economic Outlook, IMF (2012c); and authors' calculations based on national sources.

FIGURE 4.3 OUTPUT GAPS



Source: Latin Macro Watch, IDB (2012); World Economic Outlook Database, IMF (2012c); and authors' calculations based on national sources.

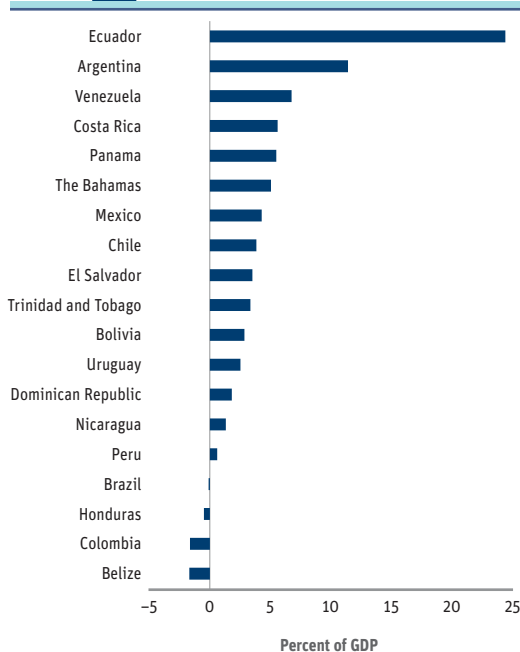
FIGURE 4.4 PRIMARY EXPENDITURE



Source: Latin Macro Watch, IDB (2012); World Economic Outlook Database, IMF (2012c); and authors' calculations based on national sources.

³ The group of countries whose fiscal revenues are commodity intensive includes Argentina, Bolivia, Chile, Colombia, Ecuador, Mexico, Peru, Trinidad and Tobago, and Venezuela.

FIGURE 4.5 CHANGE IN PRIMARY EXPENDITURE
DEC 2012 VIS-À-VIS DEC 2007



Source: Latin Macro Watch, IDB (2012); *World Economic Outlook Database*, IMF (2012c); and authors' calculations based on national sources.

with increasing borrowing costs, offsetting the benefits of such policies and, in the extreme, condemning the region to the acyclical or even procyclical policies of the past. Currently, strong international liquidity and low yields on public debt may be obscuring such issues.⁴ But in the medium term, the end of such exceptional circumstances may reveal any underlying weaknesses.⁵

Finally, fiscal revenues were boosted in a group of commodity-dependent countries (Figure 4.6), but commodity-linked revenues are substantially more volatile than those linked to GDP (Ossowski and Gonzáles, 2012).⁶ This group increased primary spending more than the average (Figure 4.4) and is therefore vulnerable to a persistent decrease in commodity prices. Figure 4.7 illustrates the substantial revenue impact (as a

percentage of potential GDP) of a reduction of 25 percent in commodity prices across the board, which would restore the index to its past decade average.⁷

The 2012 Latin American and Caribbean Macroeconomic Report focused on the uncertainties linked to future commodity prices. A sharper slowdown in China would be a direct hit to the high commodity prices observed in the decade, and a rebalancing of China's economy away from investment may hit metal prices. Commodities have

⁴ Low world interest rates mean not only low risk-free benchmark rates but, importantly, also lower sovereign risk spreads (because capacity to pay is akin to a stock valuation; see Fernández-Arias 1996).

⁵ As the 1970s ended, the fall in commodity prices and rise in world interest rates were important factors weakening Latin America and the Caribbean's fiscal positions and revealing underlying weaknesses (Powell, 1989). As world interest rates rose in 1994, a similar argument could be made in the lead-up to the Tequila crisis.

⁶ The decade average real commodity price index is about 25 percent below the current one. The share of commodity-related revenues in total revenues in Argentina, Bolivia, Chile, Colombia, Ecuador, Mexico, Peru, Trinidad and Tobago, and Venezuela is close to 30 percent for the typical country in this group, ranging from about 10 percent to over 40 percent.

⁷ To illustrate the order of magnitude of that impact, a unitary commodity revenue elasticity was assumed. This appears reasonable for public exporting companies and ad valorem taxes, but it may be an overestimate in other cases.

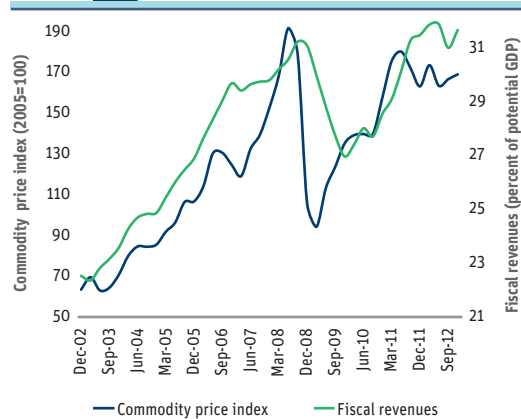
also increasingly been viewed as an investment class, and current low world interest rates and high global liquidity may have pushed up commodity prices and increased their volatility.⁸ A relevant question, then, is whether current relatively high commodity prices will fall towards the decade average or even further. As argued in more depth in Appendix A, uncertainty regarding commodity prices is another reason for fiscal prudence.⁹

Preparing the Fiscal Arsenal

The experience of the Great Recession in the region shows that countercyclical fiscal policy is possible and useful to attenuate the effects of global downturns. As the current low growth baseline is not without downside risks, how should countries prepare in the face of the current situation and its risks?

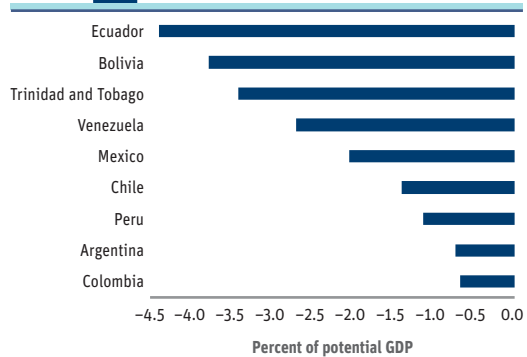
One key preparation is to establish a medium-term fiscal framework oriented toward generating fiscal space and securing sustainability under different scenarios. This means saving a large proportion of temporary revenues in boom times and ensuring that revenue windfall-related spending is growth inducing.

FIGURE 4.6 REAL COMMODITY PRICES AND FISCAL REVENUES
TYPICAL COMMODITY EXPORTER



Source: Latin Macro Watch, IDB (2012); World Economic Outlook Database, IMF (2012c); and authors' calculations based on national sources.

FIGURE 4.7 ESTIMATED IMPACT ON TOTAL REVENUES AS A RESULT OF A 25 PERCENT DECLINE IN REAL COMMODITY PRICES



Source: Authors' calculations based on national sources.

⁸ Powell (1991) identifies three negative structural breaks in about 100 years of real commodity prices. The two major breaks followed somewhat similar periods of asset price booms and speculative interest in commodity markets. Using new techniques, Mariscal and Powell (forthcoming) endogenously identify such structural breaks.

⁹ Moreover, most commodity-dependent countries in the region are dependent on nonrenewables. Mining normally commences with the most profitable mines (with the highest quality relative to cost) and while new discoveries are always possible, over time profitability and hence fiscal revenues are likely to trend down as reserves diminish. Similar considerations are also generally present for oil and gas and call for further prudence when revenues are dependent on such commodities.

A credible framework provides more space for stimulus, and a structural balance approach may be useful to guide fiscal policy. In that context, automatic fiscal stabilizers (e.g., unemployment benefits or transfers tightly linked to the economic cycle) that are deployed and withdrawn quickly as contingencies arise appear to be a very useful implementation of countercyclical fiscal policy once a credible framework is in place. Automatic stabilizers have the advantages of speed and credibility, but they tend to be small and ineffective throughout the region. This is a good time for establishing the institutions needed for this framework.¹⁰

It is also important to prepare fiscal measures and projects ready to be launched when conditions call for them. They should be measures that can take effect relatively quickly and that can be phased out when the downturn ceases (e.g., front-ending infrastructure maintenance). Such measures are preferable to those that may become permanent, destroying fiscal space. A further important criterion is fiscal measures' expected multiplier effects. The preparation of those measures needs to be accompanied by speedy budgeting procedures, and ideally the budget would include contingent provisions to expedite implementation.

Infrastructure investment should be a high priority. Public works may be planned ahead of time and can be made shovel-ready. Being intensive in domestic production and labor, public works' multiplier effects are high and, as they tend to be pro-growth, they create fiscal space. Chapter 7 suggests there is also a serious infrastructure gap in the region and provides a deeper discussion on how to address it.

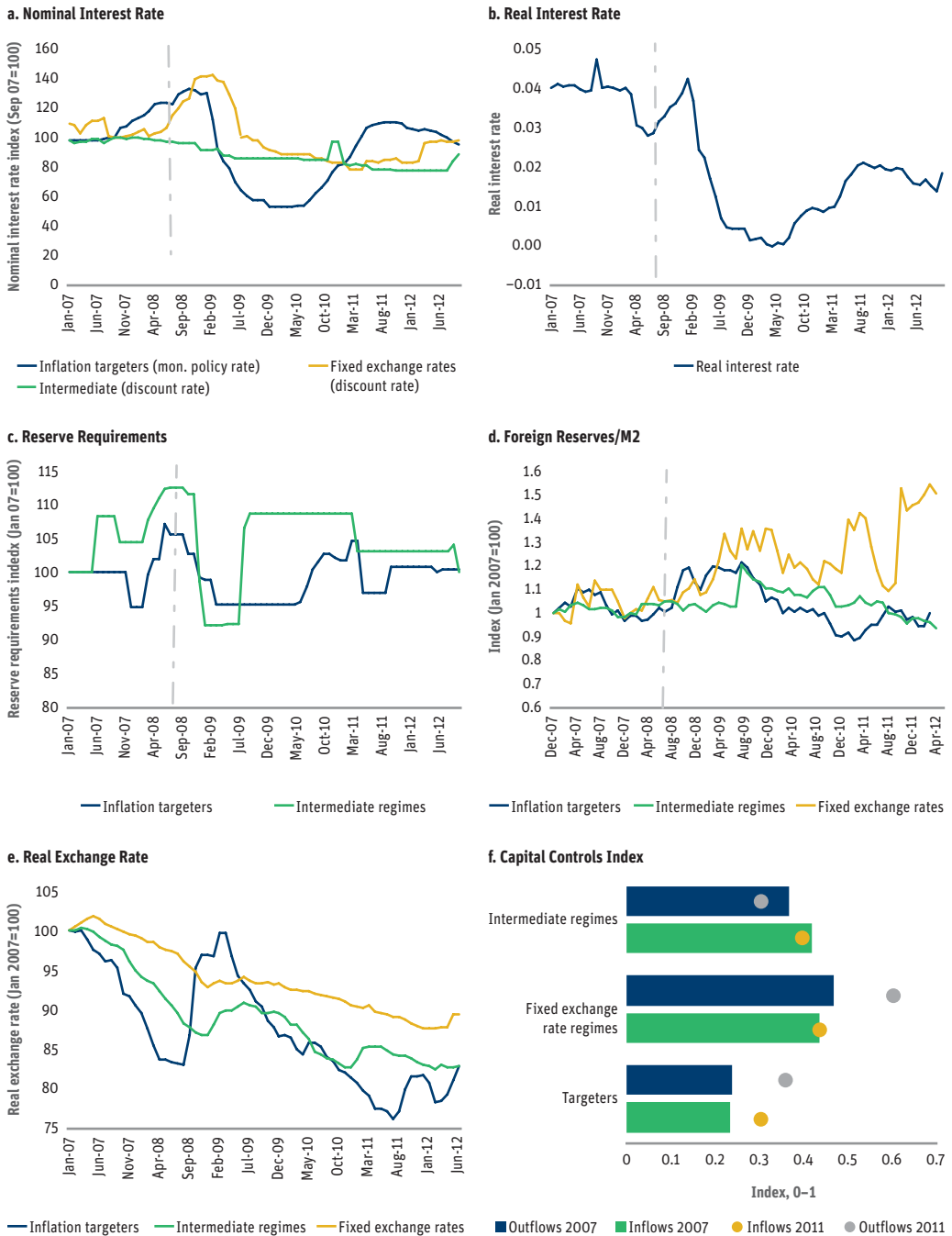
The Limits of Monetary Policy

Monetary policy was also used successfully in the region in the Great Recession. Is the region in a position to repeat this policy response if necessary? And how does the prospect of suppressed growth affect the appropriate monetary stance going forward?

Monetary policy space is now lower . . .

Countries with different monetary policy frameworks employ different policy tools. The panels of Figure 4.8 plot the dynamics of these various policy tools, distinguishing between three types of monetary policy regimes: (i) inflation targeters with relatively more flexibility in the nominal exchange rate; (ii) exchange rate fixers; and (iii) intermediate regimes (see Appendix B for further details regarding this classification).

¹⁰ Corbacho, Fretes Cibils, and Lora (2013) analyze the limited role of fiscal stabilizers in the region and draw policy recommendations on how to expand their application.

FIGURE 4.8 INDICATORS OF MONETARY POLICY SPACE

Source: Latin Macro Watch, IDB (2012); IMF (2012a); Central Banks; Schindler (2009) and updates based on authors' calculations.

Interest rate policy space has narrowed relative to the last crisis (Figure 4.8, panel A).¹¹ Prior to the Great Recession, policy rates were higher in response to inflation concerns, but they are now lower, as are real rates (Figure 4.8, panel B).¹²

Reserve requirements, a second tool of monetary policy, are also lower (Figure 4.8, panel C).¹³ As documented in the 2012 Latin American and Caribbean Macroeconomic Report, reserve requirements were increased in the pre-crisis period as a complement to higher interest rates in an attempt to contain inflationary pressures. When the real effects of the crisis were felt, however, both reserve requirements and policy interest rates were reduced.¹⁴ The room for such actions today is clearly narrower, particularly for the group of countries that are inflation targeters.¹⁵

One of the key propagation channels of the 2008 financial crisis was the sudden outflow of capital. While dollar international reserves have risen, as a percentage of M2 reserve levels for inflation targeters and intermediate regimes are no higher today than compared to the pre-crisis period (Figure 4.8, panel D). At the same time, there has been a sharp, real exchange rate appreciation (Figure 4.8, panel E), and among inflation targeters levels of deposit dollarization (identified as a key vulnerability in the face of a sudden stop) remain at roughly the same level as before the Lehman period. On the other hand, reserves expressed as months of import cover have indeed increased for this group. The choice of denominator for assessing reserve adequacy, particularly as insurance against a sudden stop in capital flows, remains somewhat controversial.¹⁶ However, given the relation to M2 and the movement of deposit dollarization, it would appear imprudent to conclude that the region has

¹¹ Interest rates are the policy rate for inflation targeters and central bank discount rates otherwise. Real interest rates are only computed for inflation targeters and are ex ante rates computed employing inflation expectations. Nominal policy rates are expressed as an index given the different levels across countries. The figure plots simple averages across the three groups and normalizes each series to facilitate the comparison between today and the pre-Lehman period.

¹² Inflation expectations in inflation targeting countries fell from 5.3 to 4.6 percent between August 2008 and October 2012, while nominal interest rates fell during the same period from 8.7 to 5.8 percent.

¹³ Figure B.3 plots an index of reserve requirements on short-term local currency deposits, but the argument generalizes to other requirements see Appendix B for more detail. Data on reserve requirements for inflation targeters were used for Brazil, Chile, Colombia, the Dominican Republic, Guatemala, and Peru, and data for the intermediate regimes for Bolivia, Costa Rica, Honduras, and Nicaragua.

¹⁴ When the crisis first materialized, some countries first relaxed reserve requirements, given liquidity concerns, while maintaining higher policy interest rates, given continued concerns regarding inflation. As argued in Powell (2012), reserve requirements and the policy interest rate were used in different ways to react to different shocks.

¹⁵ While reserve requirements for fixed exchange rate regimes were not analyzed, considering Ecuador as an example, a similar pattern emerges: reserve requirements were halved on financial institutions in the midst of the financial crisis in 2008 and have been kept at that level ever since.

¹⁶ For example, in a recent study of optimal reserves, Calvo, Izquierdo, and Loo-Kung (2012) find that the reserves-to-M2 ratio does not help to predict the occurrence of sudden stops, nor the costs associated with those episodes.

strengthened its defenses very significantly in terms of reserve holdings in comparison to the pre-crisis period.

Another tool for managing a sudden outflow of capital is the use of restrictions on the flow of capital between residents and nonresidents. Exchange rate fixers have a higher level of restrictions on capital flows, followed by the intermediate regimes. The inflation-targeting group had the lowest level of restrictions before the 2008–09 crisis (Figure 4.8, panel F).¹⁷ There has been a substantial increase in the use of inflow restrictions by inflation targeters, but not by the other groups. Fixers and inflation targeters have also increased the use of outflow restrictions. Intermediate regimes have roughly maintained the level of restrictions. It might be argued that the generally higher level of restrictions in the region may provide greater protection against any new financial crisis.¹⁸

Overall, while a higher level of restrictions may provide some protection against a sudden change in capital flows, there is less monetary policy space in the region today than before the Great Recession.

The Monetary Policy Dilemma

As the region faces suppressed world growth, what role can monetary policy play? Latin America and the Caribbean is close to its long-run trend growth rate (see Figure 4.9). While monetary shocks have real effects to the extent that nominal rigidities affect economic outcomes, but for economic circumstances that are persistent such as a prolonged period of lower growth, the effects of these rigidities will be relatively short-lived.¹⁹ An inappropriate loosening of monetary policy may then simply lead to pressure on prices with little real impact on growth.

Given strong global liquidity and low world interest rates, however, the region is also likely to continue to face strong, yield-searching capital inflows. Central banks may wish to resist appreciations of the exchange rate. Here, other tools may also be considered, such as the sterilization of capital inflows, anti-cyclical reserve requirements, capital requirements, or provisioning requirements on banks to dampen credit cycles and selected capital controls²⁰. However, the literature suggests the effect of such

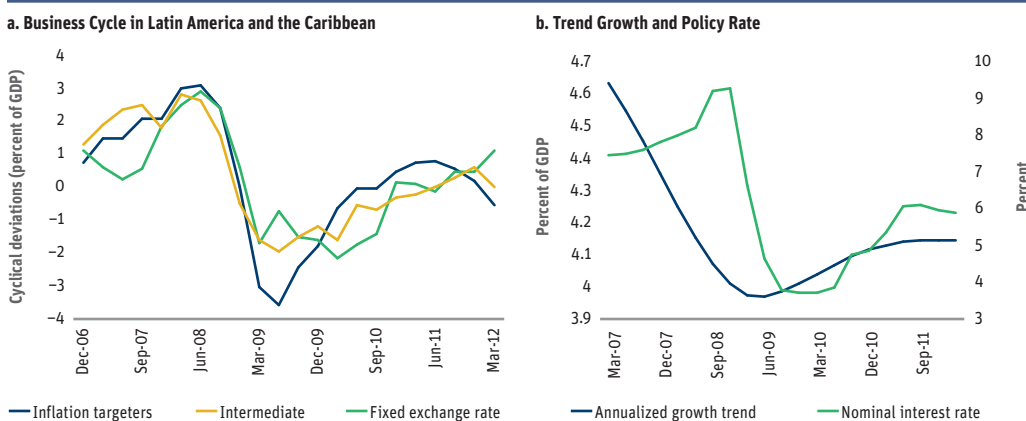
¹⁷ The data represents an update of Schindler's (2009) index on de jure restrictions on cross-border financial transactions for countries in Latin America and the Caribbean up to 2011. The indicators of inflow/outflows are bounded between zero (no restrictions) and one (full restrictions).

¹⁸ A counter-argument is that, as restrictions are already higher, there may be less space to increase them even further. However, it should be noted that the deployment of such tools and their impact remain an area of continued debate.

¹⁹ This may be true even with substantial nominal rigidities given some positive inflation as such rigidities are normally stronger for reductions in nominal prices.

²⁰ See Galindo, Rojas-Suárez, and del Valle (2013) for a review of the use of macro-prudential tools applied in the financial system in the case of the Andean countries.

FIGURE 4.9 INDICATORS OF MACROECONOMIC CYCLE ACROSS REGIMES



Source: Latin Macro Watch, IDB (2012); and IMF (2012a).

macro-prudential tools may be at best partial, and they may induce other distortions.²¹ Lower policy rates may then be a useful complement to counter real appreciations.²² However, a sufficient level of monetary policy credibility is a prerequisite to employing a looser monetary policy to resist real appreciation. For inflation targeters, credibility has risen in the region, and a looser monetary policy can only be recommended to the degree that this credibility is maintained. If inflation rises above targets, central banks must manage this trade-off very carefully—see Appendix A for an analysis of the credibility of inflation-targeting regimes and how credibility may suffer if inflation rises above the target.

Final Remarks and Policy Suggestions

Given the baseline scenario of persistent lower growth, aggressive countercyclical fiscal or monetary policy would appear to be inappropriate and may endanger the hard-won credibility of macroeconomic policymaking in the region. A somewhat tighter fiscal policy is warranted to complete the cycle of fiscal stimulus and to maintain fiscal space, particularly for those countries that are more dependent on commodity exports, to employ in the event of a more severe downturn—a negative shock to the baseline.

²¹ See Binici, Hutchison, and Schindler (2010) for evidence regarding the effectiveness of capital controls in affecting both the volume and composition of capital flows. In addition, Garcia (2011) provides an argument as to why sterilization may affect the real exchange rate with persistent effects. The Latin American and Caribbean Macroeconomic Report (2012, Appendixes D and F) discusses in further detail the use of macro-prudential tools in Latin America.

²² See Hofstetter (2008) for an analysis of the costs of disinflation in LAC economies from moderate levels of inflation.

Moreover, a tighter fiscal policy would also allow a somewhat looser monetary policy to counter exchange rate appreciation pressures. To the extent that fiscal policy is too expansionary, monetary policy will need to be tightened, adding to the problem of currency appreciation; this is an inefficient policy mix. If monetary policy is not tightened, though, there is the danger that inflation will rise, monetary credibility will be eroded, and the eventual tightening of monetary policy to reduce inflation in the future will be made more costly. These considerations indicate that a somewhat tighter fiscal policy combined with a somewhat loose monetary stance may be the appropriate mix. However, this will not yield growth rates beyond the baseline projections and should not be expected to do so. Rather, the region may wish to consider more fundamental reform measures in order to boost growth.

CHAPTER 5

Growth, Productivity, and the Allocation of Resources

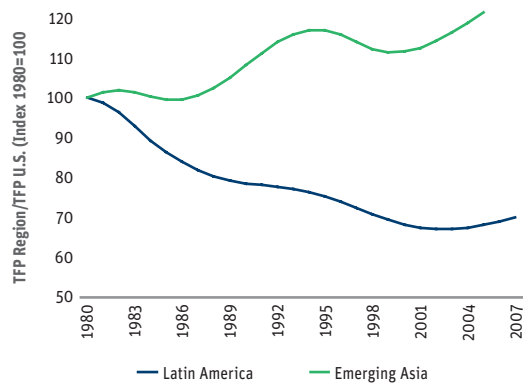
Given suppressed world growth and the limits of fiscal and monetary policy in boosting growth in the region, policymakers may wish to consider pro-growth structural reforms to improve economic conditions. As modeled in Chapter 3, reforms that lead to a persistent growth acceleration of only a normal size (one standard deviation of growth rates) in each country in the region would, given spillovers, lead to a substantial boost to growth for the region as a whole. But where might this growth acceleration come from? This chapter argues that there is considerable room for reforms and that there is a significant misallocation of resources in the region. Reforms that have the potential to rectify these misallocations may then have significant impacts on productivity and growth.

Allocation, Productivity, and Growth

Economists have long argued that improving productivity is essential for long-run, sustainable growth in per capita income.¹ Unfortunately, productivity growth in Latin America and the Caribbean has lagged both advanced economies, such as the U.S., and particularly the emerging economies in Asia (see Figure 5.1). While the region has not kept pace with productivity growth in the U.S., it has fallen further behind that of emerging economies in Asia.

A country that accumulates labor and capital resources at a steady pace may still lag behind in terms of income relative to the rest of the world. Low growth in productivity

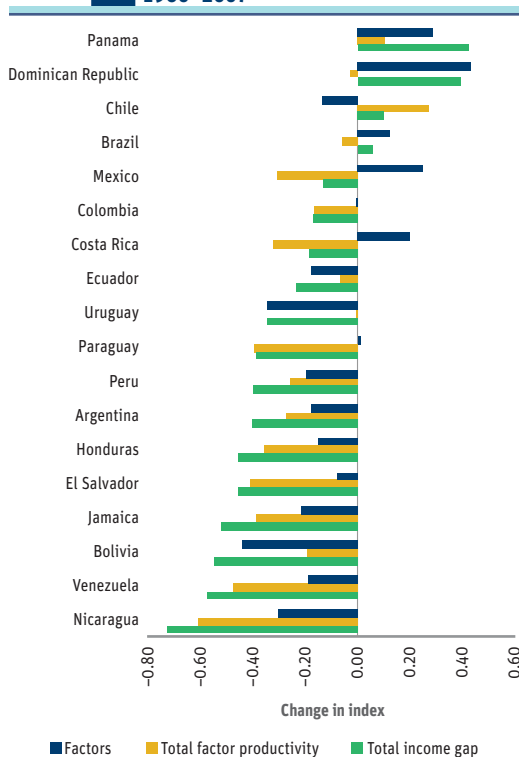
FIGURE 5.1 THE RELATIVE PRODUCTIVITY DECLINE IN LATIN AMERICA AND THE CARIBBEAN



Source: Daude and Fernández-Arias (2010).

¹ See the seminal contribution by Solow (1956).

FIGURE 5.2 DECOMPOSITION OF THE INCOME GAP WITH RESPECT TO THE UNITED STATES, 1960–2007



Source: Daude and Fernández-Arias (2010).

Note: The figure illustrates the change in an index between 1960 and 2007, normalized to 1.0 in 1960, that represents the gap in income per capita between each country and the U.S. For example, Panama reported 0.42, meaning that income per capita in Panama relative to the U.S., increased by 42 percent between 1960 and 2007.

measured via aggregate total factor productivity (TFP), and not the accumulation of the factors of production, has been the main culprit behind the widening income gap between the economies of the region and those of developed economies. To illustrate this issue, Figure 5.2 plots the income per capita gap between 18 economies of the region and the United States for the period between 1960 and 2007.² The gap is decomposed between total factor productivity and factor accumulation (capital and labor). The relative income gap has decreased in only four of the 18 economies, and in some cases the gap has increased substantially; this poor performance is largely driven by a widening gap in TFP. Only in Chile and Panama did TFP grow strongly relative to the United States. In two additional cases the income gap with the United States decreased, but only because the extent of factor accumulation outweighed a decrease in TFP relative to the United States. To realize sustainable gains in income per capita

in the region, the barriers to stronger productivity growth must be reduced.

How can policies promote stronger productivity growth? By construction, barriers that prevent efficient factor reallocation will result in lower productivity levels. Thus, one clear point of departure is to think about policies that would create the proper economic environment for firms and agents to reallocate factors efficiently. To what extent would such a reallocation increase productivity? And how much more economic growth would this generate?

² For the graph, the gaps in income per capita, TFP, and factor accumulation between LAC countries and the United States are all normalized to 1.0 in 1960, and the figure then reports the change in this index between that base year and 2007. For example, in the case of Panama, the gap in income per capita between Panama and the United States increased by 42 percent between 1960 and 2007, so the number reported is 0.42.

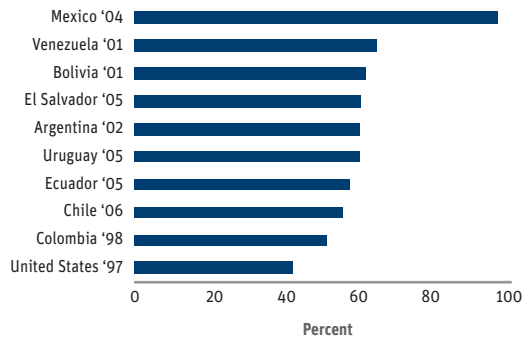
The gains in productivity are very large indeed: 50–100 percent, as shown in Figure 5.3, panel A, which plots the estimated TFP gains for nine countries in the region.³ Such gains, moreover, represent only the manufacturing sector and only the specific years for which micro-data for each sector are available.

Commensurate with the large gains in productivity, the increases in growth would also be large. Suppose a country in the region reforms to reduce the misallocation of resources to the level of the United States over a decade.⁴ How much extra growth would this produce? For the median country, the answer is about 1 percent per annum additional growth, which when accumulated over, say, a 10-year period is a very significant amount indeed (see Figure 5.2, panel B for detailed results for the same nine countries).⁵

While this counterfactual exercise is an approximation, for three reasons it is likely to result in a lower bound for the potential gains obtained by a more efficient allocation of resources. First, the accounting exercise only reallocates resources within narrowly specified (4-digit) industries and not across industries. Second, while estimates of misallocation from the manufacturing sector are applied to the entire economy, there are many indications that the degree of misallocation in the service sector is considerably higher than that of manufacturing. Third, the estimates of misallocation are based on firm census data that tend to exclude very small (and likely very inefficient) firms.

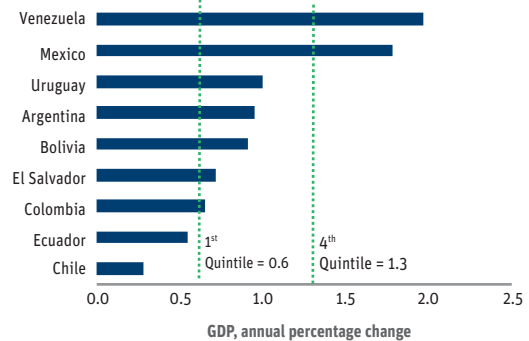
FIGURE 5.3 ECONOMIC GAINS AS A RESULT OF REALLOCATION

a. Increase in Total Factor Productivity



Source: Pagés (2010).

b. Increase in Growth



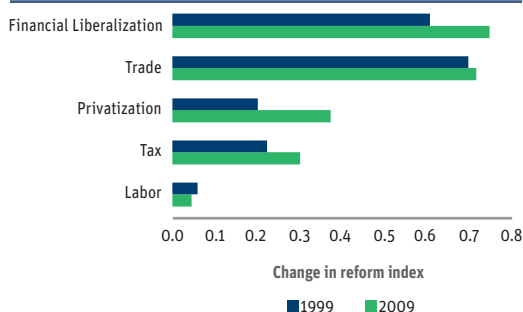
Source: Authors' calculations using data from Pagés (2010).

Note: Estimated impact on annual growth of reducing economic misallocations to the level of the United States. Impact is averaged over the decade ending in the year TFP gains are illustrated in the figure above.

³ The data for this figure are taken from Pagés (2010).

⁴ Note that the allocation in the U.S. is 40 percent away from the optimum.

⁵ The decade considered is that which ends in the year in which data are available, as reported in Figure 5.3, panel A. In the case of Mexico, for example, it is the decade 1994–2004. The reported growth figures are the difference between the actual and the counterfactual growth over that decade.

FIGURE 5.4 CHANGE IN REFORM INDEX FROM 1985

Source: Lora (2012).

Room for Reforms

The above makes the case that reducing misallocations may be important for enhancing productivity and, hence, growth in the region. How can such misallocations be reduced? The so-called Lora Index attempts to measure what types of distortion-reducing reforms have been conducted in Latin America and, hence, the potential room for future reforms.⁶ The index

assumes values between 0 and 1, where 1 indicates that the “room for reform” has been exhausted in the sense that the country has done the best possible job in the region in implementing reforms, fostering favorable conditions for the proper working of markets. A low score, however, would indicate that there was still substantial space for reforms to reduce distortions and improve economic efficiency.

The decade of the 1990s was a period of quite intense reform activity in the region. Even so, building on the 1990s and comparing 2009 with 1999, the region has been more successful in pursuing reforms in some areas than in others. Figure 5.4 reports the average Lora Index for the region by area of reform activity. Reforms in this last period have been focused particularly on the areas of trade and financial markets. In terms of privatization and tax reforms the values of the index are lower, but recent years have seen some improvement. The lowest level of reform activity has been in the area of labor markets, where there has been deterioration in the index in recent years.

There are clearly many areas in which reforms may be pursued that could have significant growth impacts, including those covered by the Lora Index, and others. This report does not attempt to identify those reforms with the highest potential payoffs. Moreover, countries are in different positions and may wish to focus on particular areas or specific constraints to growth that would have the greatest payoffs in their particular case⁷. Indeed, a theme of this report is that reforms should be tailored to individual country circumstances and institutions. No doubt some countries will wish to focus on improving education, enhancing competition in product markets, or ensuring

⁶ See Lora (2001) and Lora (2012).

⁷ The wide literature on “growth diagnostics” has precisely this objective in mind; see Hausmann, Rodrik, and Velasco (2008) for a description of this methodology.

equitable tax systems that promote development.⁸ In this report, the focus is on two other important areas; (1) labor markets where, as reported above, progress has lagged, and (2) domestic savings and investment in infrastructure, which remain substantially below the level of peer countries and the region's needs.

⁸ Cabrol and Székely (2012) and Bassi et al. (2012) discuss current issues and ideas for improving educational quality and quantity in the region. Corbacho, Fretes Cibils, and Lora (2013) are devoted to a detailed analysis of tax systems in Latin America and the Caribbean. Their focus is that tax systems should be considered as a set of tools to promote development rather than simply a source of revenues.

CHAPTER 6

Reforming Labor Markets

The misallocation of resources reviewed in the previous chapter can be explained by a variety of structural causes including distortionary fiscal policies, financial frictions that restrict access to credit markets, and inefficient production structures, such as monopolies or oligopolies. While these causes should not be ignored, the focus in this chapter is on dysfunctional labor markets,¹ i.e., those where resources are not allocated efficiently. Labor markets in Latin America and the Caribbean have high degrees of informality—both a symptom and a cause of labor market dysfunctionality—with significant impacts on productivity. As a result, an integrated approach capable of addressing informality without placing additional constraints on resource allocation may be needed to improve productivity and long-run growth. This chapter argues that in those countries where informality rates are high, the key to unlock higher productivity may be to address this problem. The chapter concludes by outlining the types of reforms that may then be required.

The Characteristics of Informal Labor Markets

The definition of informality varies in the literature both conceptually and empirically. Some authors emphasize the lack of registration; others identify tax evasion; still others note the difference between workers covered and not covered by contributory social insurance. An additional issue is the difference between formal and informal workers and formal and informal firms, two concepts that only partially overlap. For example, a worker can be hired informally from a formal firm; or a formal worker may formally declare only a portion of her total labor income. One definition popular in worldwide comparisons is provided by the Key Indicators for the Labor Market (KILM) compiled by the International Labour Organization (ILO): “The informal labor sector comprises all jobs in unregistered and/or small-scale private unincorporated enterprises that produce goods or services meant for sale or barter.” A better definition of labor market informality in the region, however, and one that is gaining ground internationally is based on participation

¹ Moreover, there may be links between labor and other distortions. For example, high taxes on formal labor may only be viable given high markups in product markets; see Blanchard and Giavazzi (2003).

in Contributory Social Insurance (CSI):² the subset of the labor force covered by CSI is defined as formal, and the subset not covered is considered informal. The CSI-based definition has the conceptual advantage of identifying the crucial distinctions between workers with and without access to social insurance and providing a feasible means of identifying the formal labor force in census data and household surveys.

The precise characteristics of the informal labor sector vary from country to country, but there are a series of common features: informal firms are usually small, informal workers are frequently self-employed, or hired illegally by firms, and they experience a high turnover rate. Both informal firms and informal workers are at higher risk of engaging in illegal activities than formal firms. However, this does not mean that informal workers only work in small firms, that all small firms are informal,³ that employees of formal firms are not working informally,⁴ or that the entire informal sector is illegal.⁵ Moreover, some firms hire both formal and informal workers, and some workers work as illegal salaried workers. There is, moreover, high mobility with workers moving from formal to informal and vice versa.⁶

These features tend to lead to low productivity for three reasons. First, a smaller firm size frequently implies little labor training, limited adoption of new technologies or innovation, and, in general, unexploited economies of scale or scope.^{7,8} For example, Pagano and Schivardi (2003) show that larger size fosters productivity growth by allowing firms to take advantage of all the increasing returns associated with R&D. Second, high job turnover and occupational choices concentrated in low-skilled, frequently self-employed jobs imply that human capital accumulation is discouraged.⁹ For example,

² Contributory Social Insurance comprises the bundle of benefits (typically, retirement benefits and death and disability insurance) and the method of financing them (typically, wage taxes), as discussed in Levy and Schady (2013). For a similar approach to the definition of informality, see also Busso, Fazio, and Levy (2012) and Kanbur (2009).

³ In Mexico, for example, Levy (2008, Table 7-2) nonetheless reports a significant discrepancy between the total number of firms and registered firms in firms with more than 50 employees. At the same time, about 15 percent of even the smallest firms (less than 2 employees) are officially registered. In Chile, Busso, Madrigal, and Pagés (2012) show that larger firms are actually those that engage in the most tax evasion.

⁴ *Comisionistas* in Mexico, for example, even if they are officially unsalaried, frequently work in a subordinate capacity for a firm.

⁵ Illegality is frequently limited to the lack of registration of the labor relation, with a large portion of the economic activity generated being fully legal.

⁶ Since the influential works by Maloney (2004) and Heckman and Pagés (2004), the collection of this evidence has been growing and expanding to most countries in the region. In Mexico, Antón, Hernández, and Levy (2012, Table 3) report that 8.6 percent of formally employed workers in 2007 moved to the informal sector within a year. In Brazil, Meghir, Narita, and Robin (2012, Table 3) report that about 1 percent of informal workers move to the formal sector within four months.

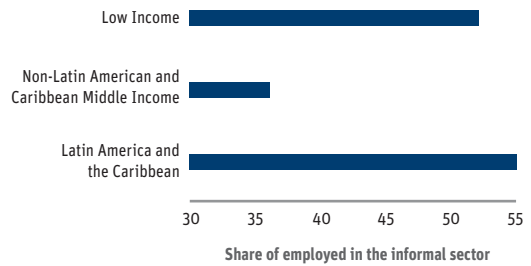
⁷ See, for example, Busso, Madrigal, and Pagés (2012), Levy (2008), and Heckman and Pagés (2004).

⁸ Even if small firms may show unexpected dynamism in adopting innovations, the bulk of R&D is still concentrated among the largest firm (Acs, Audretsch, and Feldman, 1994).

⁹ D'Erasmus, Moscoso Boedo, and Senkal (2012) is a recent contribution providing theoretical foundations and calibrations results on the interaction between labor market institutions, informality, and

D’Erasmus, Boscoso Boedo, and Senkal (2012) show how entry costs in the formal sector generate a sizable informal sector that depresses the stock of skilled workers in the economy. Third, relatively high degrees of illegal activity combined with small firm size imply that access to credit markets is limited.¹⁰ For example, Straub (2005) shows how the procedures and institutions necessary to support an efficient credit market exclude most informal producers. The weight of empirical evidence, reviewed below, indicates a strong association between high informality and low productivity.

FIGURE 6.1 INFORMALITY AROUND THE WORLD



Source: ILO (2012).

Informality and Misallocation: Empirical Evidence

Informality is a distinctive and persistent feature of labor markets in Latin America and the Caribbean.¹¹ Figure 6.1 shows the informality rate across world regions, computed following the KILM definition. Countries in the region not only have a higher informality rate than other middle-income countries (by almost 20 percentage points) but also higher informality than the average of all low-income countries available in the sample. Figure 6.2 shows the dispersion of the informality rate across the region using the CSI-based definition. The average over all countries and quintiles is less than 50 percent, with only Chile reporting good coverage over the entire income distribution. Within each country, dispersion by income quintiles is significant: the bottom quintile rarely exceeds 20 percent coverage.

The relation between informality and productivity is shown by using panel data techniques to analyze a set of countries over time. Table 6.1 reports the results of such an analysis for 12 countries in the region.¹² The results confirm a significant correlation between the TFP gap (between the country considered and the United States) and the informality rate. For example, a conclusion from the results presented in column (4) is that a 1 percentage point increase in the informality rate is correlated with about

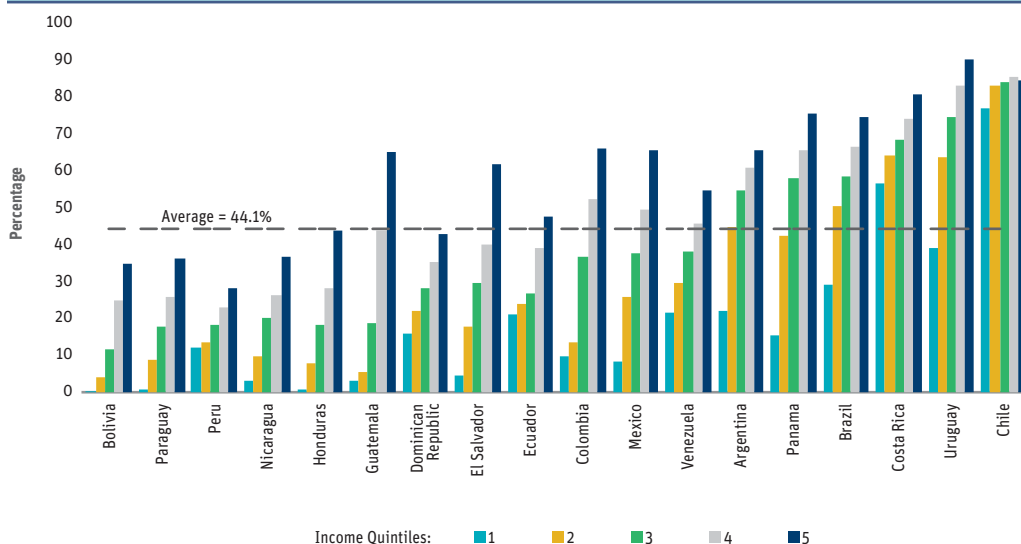
human capital accumulation. Atkin (2012) is an empirical paper showing how the increase in local demand for unskilled workers in Mexico in the years 1986–2000 contributed to school dropouts.

¹⁰ For empirical evidence, see, for example, McKenzie and Woodruff (2008).

¹¹ See Maloney (2004), Levy (2008), and Meghir, Narita, and Robin (2012).

¹² The 12-country panel is unbalanced, and the regression controls for income (GDP per capita), labor market conditions (the unemployment rate), and the state of labor market reforms (the Lora Index of labor market reforms, as introduced in the previous chapter).

FIGURE 6.2 INFORMALITY IN THE REGION
EMPLOYED WORKERS CONTRIBUTING TO SOCIAL SECURITY



Source: Levy and Schady (2013).

Note: Each bar represents the percentage of employed workers in each income quintile aged 20 and older who are currently contributing to social security. The horizontal line corresponds to the population-weighted average.

TABLE 6.1 RELATION BETWEEN TOTAL FACTOR PRODUCTIVITY (TFP) AND INFORMALITY

Variables	(1) TFP Gap	(2) TFP Gap	(3) TFP Gap	(4) TFP Gap
Informality	0.47*** (0.14)	0.48*** (0.15)	0.40* (0.20)	0.49** (0.21)
Reform index (Lora, 2012)		-0.78 (0.81)	-0.24 (0.94)	-0.14 (0.93)
GDP per capita			1.66* (0.91)	1.13 (0.91)
Unemployment rate				1.02*** (0.35)
Constant	-7.68 (6.88)	43.97 (50.66)	-1.60 (59.22)	-18.08 (58.68)
Observations	99	85	72	68
R-squared	0.11	0.13	0.21	0.32
Number of countries	13	12	12	12

Source: Authors' calculations based on Daude and Fernández-Arias (2010), Lora (2012), and ILO (2012).

Notes: Standard errors are reported in parentheses. *Coefficient is significant at the 10 percent level; ** at the 5 percent level; *** at the 1 percent level; no asterisk means the coefficient is not different from zero with statistical significance.

a 0.5 percentage point increase in the gap between Total Factor Productivity (TFP) in Latin America and the Caribbean versus the United States.¹³ The coefficient representing the conditional correlation between informality and TFP is always significant across different econometric specifications, and the magnitude of that coefficient is relatively stable.

A second approach to analyzing this relationship is to consider micro evidence. Busso, Madrigal, and Pagés (2012) employ firm-level data on a relatively large set of countries in Latin America and the Caribbean,¹⁴ to estimate within-industry TFP gap dispersions. In this analysis, TFP gap dispersions are correlated with firm size. Informality tends to be concentrated among smaller firms, which provides indirect evidence of the relation between productivity and informality. Firm size is negatively correlated with informality but remains a highly imperfect proxy for informality because i) large firms may have informal as well as formal workers; and ii) even very small firms may be formal. The results show that in all countries the productivity gap is higher in smaller firms: for example, for Bolivia, Colombia, El Salvador, and Venezuela productivity in firms with more than 250 workers is more than 150 percent higher than productivity in firms with less than 20 workers.

A third method of analyzing this issue is to use detailed firm-level information that specifically identifies whether the firm is informal or not. Such data are quite rare, but Busso, Fazio, and Levy (2012) locate and use such information for the case of Mexico. They then estimate similar within-industry TFP gap dispersions and are able to correlate them, not only with firm size, but also with informality directly. Formal firms were found to be 84 percent more productive than informal firms, even when controlling for a wide set of firm-level controls.

The results discussed in this section—both the review of the characteristics of an informal labor market and the empirical evidence on informality and productivity—suggest that where informality rates are high, a strategy to increase productivity in the region may need to include reforms to decrease those rates as a key component.

Towards an Agenda for Labor Market Reforms

Since the labor market has been one of the more neglected areas for reform in the region in the past, it is one of the ripest areas for action in the future. Reforms have

¹³ The TFP gap corresponds to the one studied in Chapter 5, and it is measured relative to the United States. See that chapter for further details.

¹⁴ Colombia, Ecuador, Chile, Uruguay, El Salvador, Bolivia, Venezuela, Brazil, and Argentina. Years vary by country, but they are all in the mid-2000s. See Table 7 in Busso, Madrigal, and Pagés (2012) for details.

focused on trade and the financial sector, while labor market reforms have occurred in only a handful of countries, and even there they have been quite limited. In fact, Lora (2012) indicates that little action was taken in any country over the decade ending in 2009. When action has been taken, it has usually involved only one relevant area of reforms. For instance, in 2003 high firing costs were lowered in the Colombian formal sector, but social security contributions remained high, to be lowered in the coming months as a result of a labor market reform—see Box 6.1. In Peru, the high level of the minimum wage as a proportion of GDP per capita has been reduced, but firing costs remain high compared to others in the region.

Designing a labor market reform that will be effective in reducing informality and enhancing productivity and growth is no easy matter. Difficulties arise in part from the many equilibrium and spillover effects implied by any significant reform¹⁵ and in part by lack of experience in implementing actual comprehensive reforms in this area. Moreover, informality levels are influenced not only by labor market institutions but also by the characteristics of other markets such as credit markets. Recent literature focusing on Latin American and Caribbean countries, for instance, shows that increasing access to credit is associated with higher formalization.¹⁶ Indeed, the technical complexity of such a package of reform measures and the political issues involved in reaching agreement on them may present obstacles to the enactment of reforms.

A broad range of institutional features may create incentives to work or hire informally. The fiscal system may generate “tax discrimination,” penalizing the formal sector with a much higher tax rate than the informal sector. Social insurance programs, when linked to labor market status, may provide benefits to both formal and informal workers but collect contributions only from formal workers. In addition, administrative and registration costs necessary to establish a business in the formal sector may be so high as to outweigh their benefits, effectively creating barriers to entry in the sector. Finally, labor market regulations may create severe rigidities in labor mobility, increasing the appeal of the flexibility enjoyed by the informal sector.

¹⁵ Meghir, Narita, and Robin (2012) focus on Brazil and provide a careful treatment of many of these effects, including the endogenous choices of firms on posting formal or informal jobs. The importance of equilibrium channels is highlighted by their conclusion: if a reduction in current levels of informality is welfare improving for both workers and firms, abolishing informality completely may actually reduce firms’ profits. Levy (2008) focuses on Mexico and is also careful in spelling out the trade-offs of a labor market with a large proportion of informal workers.

¹⁶ See Catão, Pagés, and Rosales (2009) for Brazil, Gandelman and Rasteletti (2012) for Uruguay, Morón, Salgado, and Seminario (2012) for Peru, and Caro, Galindo, and Meléndez (2012) for Colombia. The general idea emerging from these contributions is that since access to bank credit typically requires compliance with tax and employment legislation, firms are more likely to incur formalization costs once bank credit is more widely available at lower cost. Moreover, in the case of Peru, Morón, Salgado, and Seminario (2012) find that the effect is quantitatively larger for smaller-sized firms.

Box 6.1 The Recent Colombian Labor Reform

The Colombian Congress has recently approved a revenue-neutral tax reform that aims at lowering payroll taxes. Traditionally, Colombia has financed a variety of expenditures through payroll taxes. In addition to the usual health care and retirement plans, in the Colombian case payroll taxes were collected to finance the governmental agencies for childhood (ICBF) and for job training (SENA), as well as leisure activities for workers. The burden of payroll taxes was shared between the employer and the employee in the case of health care and retirement plans, but paid exclusively by the employer in the other cases.

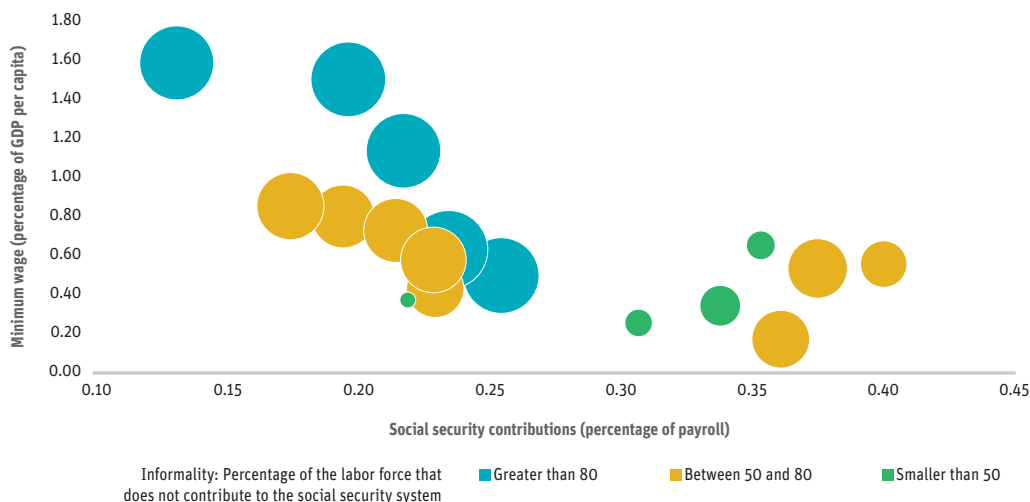
The tax reform is designed with the specific features of Colombian institutions in mind. It will move funding for ICBF and SENA and for the portion of health care paid by the firm from payroll taxes to consumption and corporate income taxes. The corporate income tax is raised by a percentage point, at 34 percent, of which 9 percentage points (now called corporate income tax for equity) have lower deductions and are intended to fund the aforementioned expenditures.

According to official sources,^a the reform will lower the effective payroll tax from almost 30 percent to 16 percent, benefiting firms in the formal sector, especially labor-intensive firms. By doing this, the government expects to lower the costs of formality, and thus to increase the incentives for firms and workers to enter the formal sector in Colombia, an economy where around 60 percent of workers are informal. The government also expects the reform to reduce the Gini coefficient by 1.9 points through increasing formal employment by 11 percentage points. This increase in formal employment would increase the relative size of the formal sector in the economy between 10 and 15 percent.

^a See the presentation by the Minister of Finance, *Reforma Tributaria* 2012.

The relative weight of each of these factors in contributing to the observed share of informal labor varies from country to country. This is in part due to different initial conditions in the institutional setting of each country and in part due to the lack of a clear one-dimensional institutional feature correlating informality and labor market characteristics. Figure 6.3, based on data in Lora (2012), illustrates this issue. Two important labor market institutional features are plotted: minimum wage (as a proportion of GDP per capita) and social security contributions (as a proportion of payroll salaries) together with the size of the informal sector for each available Latin American and Caribbean country. A larger circle denotes a higher informality rate, computed following the CSI-based definition. No clear pattern emerges: a first group of countries (top left) has high informality and a high minimum wage but low social security contributions. A second group of countries is at the opposite side of the spectrum: relatively low informality and a low minimum wage but high social security contributions. Finally, a third group is in the middle, with intermediate levels of minimum wage and social security contributions, and both high and low levels of informality.

For these reasons, policy recommendations should be specifically tailored to the country under consideration following a careful diagnosis of which institutional features contribute the most to the distortion of the incentives to work and hire in the formal

FIGURE 6.3 LABOR MARKET INSTITUTIONS AND INFORMALITY

Source: Lora (2012) and Levy and Schady (2013).

sector. For example, Lora (2012) reports the level of social security contributions in Colombia in the formal sector at about 35 percent, one of the highest in the region. The source of such a high contribution level is that Colombia finances through payroll taxes not only the usual health care and retirement plans, but also governmental agencies for childhood and job training, as well as recreational activities for workers. This anomaly suggests that a reform of the payroll tax system could be a promising tool to reduce distortionary incentives. In fact, a tax reform recently approved by the Colombian Congress moves exactly in this direction (see Box 6.1).

In conceiving and implementing labor market reforms, it is crucial to have an integrated view of both social and economic objectives and to consider the incentives provided to both the demand and supply side of the labor market. In some cases, well-meaning policies may generate incentives for firms to operate at an inefficient scale, hampering growth and productivity.

Several countries have introduced a special tax regime with certain exemptions offered to small firms. The exemptions usually include more favorable rates and less cumbersome processes. An example is the *Repeco* system in Mexico.¹⁷ These policies appear logical and may have benefits in simplifying procedures for smaller firms but they may also have the effect of concentrating many firms just below an artificial threshold, and creating a bias in favor of firms remaining small. As a result, firms may not be the

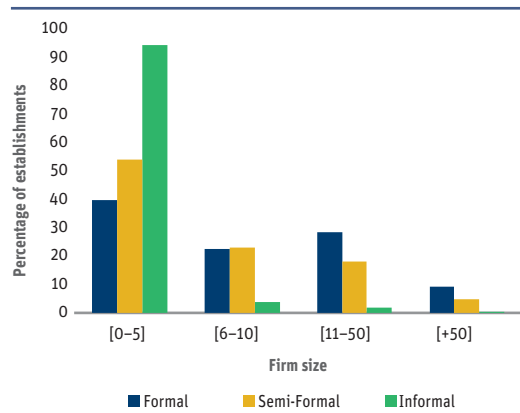
¹⁷ *Repeco* stands for *Régimen de Pequeños Contribuyentes* (Small Taxpayers Regime) and allows for exemptions from the standard VAT and income tax regimes.

most efficient size and resources are not allocated optimally; rather, the economy may end up with too many, smaller firms that remain small and, therefore, qualify for the relevant exemptions.¹⁸ Moreover, the smaller firms in these particular tax regimes may perceive that the likelihood that they will be audited by the authorities is low, reducing their incentives to formalize all of their activities. Figure 6.4 reports on the case of Mexico: most small firms remain informal and more than 95 percent of informal firms remain small, employing less than five workers. In contrast, the distribution of firm size for formal firms is comparable with that of other middle-

income countries; about 40 percent have at most five employees and almost 30 percent have between 11 and 50 employees. Also note that while about 6 percent of all formal firms have more than 50 workers, there are no informal firms in this size category.¹⁹

Another example of well-meaning policies that have become common in the region but with potentially perverse effects, are noncontributory social insurance programs. A first prominent example are noncontributory pensions, which are now present in 13 countries in the region, with an average coverage of about 27 percent of the elderly population.²⁰ Some of these programs have been extremely successful in increasing pension coverage: for example, Brazil's *Previdência Rural* increased coverage by 40 percentage points in less than a decade; Mexico's *Programa 70 y más* covered about 45 percent of the elderly in 2011; the *Renta Universal de Vejez* in Bolivia covers the entire population over the age of 60.²¹ A second example is that of non-contributory health programs that provide health benefits to informal workers. For example, Colombia's *Régimen Subsidiado en Salud* covers more than 90 percent of

FIGURE 6.4 FIRM DISTRIBUTION BY SIZE AND FORMALITY STATUS: MEXICO 2008



Source: INEGI (2009).

Note: Informality is defined following Busso, Levy, and Fazio (2012). Informal firms pay no social security taxes. Formal firms only hire salaried workers and pay social benefits. Semi-formal firms are intermediate cases.

¹⁸ For detailed evidence showing this effect by comparing Mexico and the United States, see Leal Ordóñez (2010). For a broader description of firm size in the region, see Pagés (2010).

¹⁹ The figure also reports an intermediate case: semi-formal firms, i.e., firms that pay some social security taxes but less than they should to fully comply with the law (Busso, Fazio, and Levy, 2012). While this case highlights how the categories “formal” and “informal” can be quite flexible, it is still informative since semi-formal firms are also an intermediate case in terms of size distribution.

²⁰ See Table I in Levy and Schady (2013).

²¹ Clearly, the size of the transfer necessary to finance such an ambitious program is quite large: 1.25 percent of Bolivia's GDP is transferred through the program.

informal workers; Mexico's *Seguro Popular* has reached more than 43 million affiliates among informal workers in 2010 (Levy and Schady, 2013). Although these programs have been successful in expanding social insurance coverage, they may generate an effective subsidy to the informal sector since informal workers receive a benefit without directly contributing to its cost, while formal workers receiving the benefit are forced to contribute to it. As a result, such programs may have the unintended consequence of incentivizing informality. For example, Bosch, Cobacho, and Pagés (2013) estimate that Mexico's *Seguro Popular* may have prevented between 160,000 and 400,000 jobs from becoming formal, or between approximately 8 percent and 20 percent of the total number of formal jobs created over the period.

These examples illustrate that a successful reform should be based on a comprehensive diagnosis. It should identify any institutional features that may create distortionary incentives. Alternative policies may be considered that have similar objectives but that reduce resource misallocations, including informality. It is likely that an integrated design to balance economic and social objectives, capable of forecasting the incentives provided to both the supply side (workers) and the demand side of the market (firms), is required.

Conclusion

Labor market reforms have the potential to unleash growth in the region thanks to the impact on productivity and resource allocation. There is considerable room for reforms in the labor market area, but designing effective labor market reforms is no easy matter. The following recommendations flow from the analysis:

- Institutional features, distortions, and misallocations in labor markets vary greatly across countries; reforms should therefore be tailored to particular country characteristics and should also take into account implementation capacities.
- In countries where informality rates are high, reducing informality may be among the key reform objectives, as a reduction in informality may significantly increase productivity and, hence, long-term growth.
- Labor market reforms to tackle informality are necessarily complex and may also require the reform of social protection programs, which may then require alternative forms of financing.
- As a result, reform design may need to take into account the following:
 - a comprehensive diagnosis, to identify which institutional features are creating the most distortionary incentives;
 - an integrated design to balance economic and social objectives;
 - appropriate incentives for both the supply side (workers) and the demand side (firms) to operate in the formal economy.

CHAPTER 7

Making Room to Grow: Domestic Savings and Infrastructure Investment

Deficient infrastructure in Latin America and the Caribbean (LAC) is a constraint on economic growth. Across the region, the quantity and quality of infrastructure networks are poor, and investment is insufficient to upgrade capital stocks. The problem encompasses both the public and private sectors as, despite infrastructure's evident public good component, investment can be financed by the private sector or co-financed by the private and public sectors via public-private partnerships (PPPs).¹ There are, however, two main impediments to raising infrastructure investment in Latin America and the Caribbean: i) insufficient long-term financing in local currency; and ii) regulatory impediments that prevent available financing from reaching infrastructure investment. Each of these problems has different causes and requires different treatments. However, the two reinforce each other in constraining investment, and the solution to the problem requires action on both fronts.

The problem of insufficient long-term financing in local currency is directly related to low public and private savings in the region. While in principle financing for infrastructure investment could come from either domestic or external sources, there are several reasons why relying on foreign savings alone may be insufficient. First, foreign capital inflows tend to be volatile; moreover, international lending to developing countries is predominately in foreign currencies.² These characteristics do not bode well for the type of financing required for infrastructure. In fact, the available international evidence shows that foreign savings have not provided a reliable source of financing

¹ The economic justification for a certain level of public investment is well known. But the role of the public sector as the sole provider and financier of infrastructure investment via public investment is more contentious. See Isham and Kaufmann (1999) for a thorough discussion and Engel, Fischer, and Galetovic (forthcoming) for a discussion of public-private partnerships to finance infrastructure.

² International sovereign bond issuance in local currency remains limited. This could be explained by the liquidity advantage that the U.S. dollar and a very few other global currencies continue to enjoy in financial markets. See Powell (forthcoming).

domestic capital in developing countries.³ Second, while foreign direct investment (FDI)—which is the least volatile component of capital flows—has increased in recent years, on average only approximately 10 percent of capital inflows to the region have gone to infrastructure investments. This is not enough to finance its investment needs. Third, there are complementarities between domestic and foreign savings. In particular, domestic savings are like collateral that encourage the participation of foreign investors in infrastructure projects. That is, by saving and investing locally, residents are revealing information about the quality of investment opportunities to potential foreign investors with less information. This facilitates investments in a world of asymmetric information.⁴ Fourth, there is evidence that in low domestic savings environments, increasing public investment usually crowds out private investments, making it more difficult to increase aggregate investment.⁵

Domestic savings rates in Latin America and the Caribbean have remained stagnant at approximately 18 percent of GDP on average since the 1980s, compared to over 30 percent in fast-growing East Asia. These low rates have been accompanied by lower investment in physical capital. In order to raise potential GDP growth, Latin America and the Caribbean needs to increase infrastructure investment by as much as 4 percentage points of GDP. This, in turn, requires increasing domestic savings. Achieving higher levels of savings may be challenging, but it is not unprecedented by international standards. Several East Asian countries, for example, have maintained domestic saving rates in excess of 30 percent of GDP. In the region, Chile was able to increase domestic savings from almost zero in the early 1980s to nearly 30 percent of GDP in the early 1990s. In both cases, private savings played a key role in the surge in savings and its subsequent sustainability.

What can countries do to increase domestic savings on a sustainable basis? This is the question addressed in this chapter. To set the scene, the stylized facts are first revisited: savings have remained stuck at low levels in the region for decades, and this problem is generalized across countries and encompasses both private and public savings. The focus then turns to policy issues: the roles of macroeconomic stability, the protection of property rights, fiscal policy, and pension system reform in promoting domestic savings. The chapter also considers a further impediment to increasing infrastructure investment in Latin America and the Caribbean: regulatory frameworks that may not favor the flow of domestic and foreign savings into productive investment opportunities. The region clearly needs to enhance institutional capabilities to promote

³ See Aizenman, Pinto, and Radziwill (2007).

⁴ See Aghion, Comin, and Howitt (2006).

⁵ See Cavallo and Daude (2011).

infrastructure investment. Some countries are already moving in that direction, but there is room for further action.

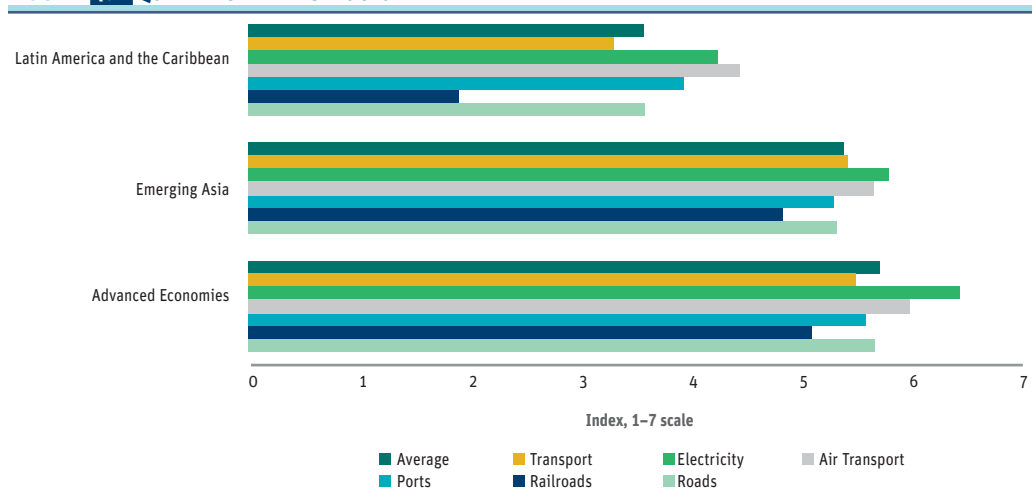
The Infrastructure Problem

There is a gap in terms of the quantity and quality of the stock of physical infrastructure in Latin America and the Caribbean compared to: i) the region's needs; ii) advanced economies; and iii) emerging Asian countries. The infrastructure gap is visible in deficient transportation and communication networks, low energy-generating capacity to meet rising demand, and deficient water and sanitation services.

The World Economic Forum conducts surveys that ask investors to evaluate, on a scale from 1 (worst possible situation) to 7 (best possible situation), twelve aspects related to their perceptions about the quality of domestic infrastructure. The results of the latest survey (Figure 7.1) show that Latin America and the Caribbean ranks significantly below advanced economies and fast-growing East Asian countries in investor evaluations of the quality of overall infrastructure. In turn, this serves to reduce the region's competitiveness and constrain economic growth.

The root cause of the infrastructure deficit in Latin America and the Caribbean is insufficient investment to replace depreciating capital and build up better stocks. Infrastructure investment is a component of fixed capital investment: i.e., construction and investment in physical assets such as machinery. Latin America and the Caribbean annually invests approximately 22 percent of GDP in fixed capital, compared

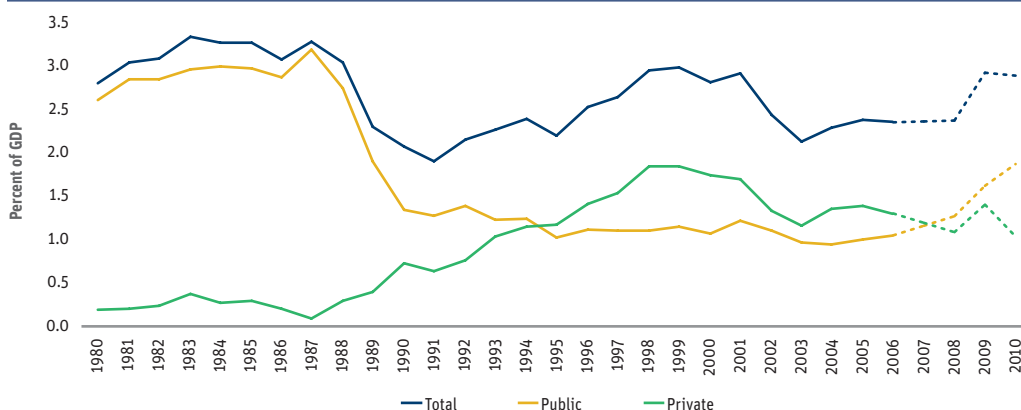
FIGURE 7.1 QUALITY OF INFRASTRUCTURE



Source: World Economic Forum (2012).

Note: Simple averages by regions. Index 1 = Extremely underdeveloped; 7 = Sufficient and reliable.

Latin America and the Caribbean: 18 countries. Advanced Economies: 19 countries. Emerging Asia: 7 countries.

FIGURE 7.2 INFRASTRUCTURE INVESTMENT
SIMPLE AVERAGE

Source: Data for the period 1980–2006: solid lines are from Calderón and Servén (2010). Data for the period 2008–10: dashed lines are from Barbero (2012). Data for 2007 imputed.

Note: Simple average for Argentina, Brazil, Chile, Colombia, Mexico, and Peru.

to 30 percent in Emerging Asia. Although disaggregated data on infrastructure investment are scarcer, the data available suggest that the infrastructure investment shortfall in the region is even larger. According to data from Calderón and Servén (2010), based on a small sample of countries with available data, total infrastructure investment in the region fell from close to 4 percent of GDP in the early 1980s to between 2 and 2.5 percent of GDP in the mid-2000s (Figure 7.2). It is noticeable that private investment increased significantly beginning in the late 1980s due in part to privatizations, concessions of public works projects, and the increasing role of PPPs in the region; this has not, however, made up for the retrenchment in public investment. Since 2008, public investment infrastructure has increased, driven mostly by stimulus packages in response to the global financial crisis. A retrenchment in private investment at the same time, however, has limited the increase in total investment in infrastructure.⁶

How much more would the region have to invest in infrastructure in order to close the gap? The empirical evidence suggests that if the region could double its infrastructure investment, potential real GDP growth could increase by as much as 2 percent per year.⁷ Moreover, if infrastructure investment rates of 4–6 percent of GDP could be maintained for over 20 years, then the region’s infrastructure could catch up to the levels of the median East Asian country.⁸ Taken together, the evidence suggests that Latin America and the Caribbean needs to increase infrastructure investments by 2 to 4 percentage points of GDP for a prolonged period of time.

⁶ Data since 2008 come from Barbero (2012).

⁷ Calderón and Servén (2010).

⁸ Fay and Morrison (2005).

Domestic Savings Are Low

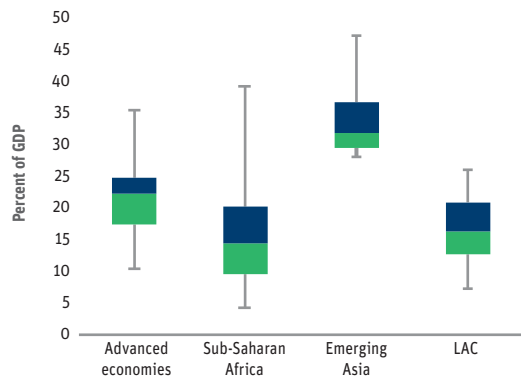
Over the last 30 years, domestic savings in Latin America and the Caribbean has stagnated at around 18 percent since the 1980s.⁹ In Emerging Asia over the same period, savings rose from 28 percent of GDP to over 35 percent of GDP.

In addition to the low mean, the distribution of saving rates in the region exhibits relatively low dispersion.¹⁰ Figure 7.3 presents the distribution of domestic savings across selected regions based on annual data for the 2000 decade. Average savings

rates are close to those of sub-Saharan Africa, a region with a significantly lower level of income per capita, and they are significantly below Emerging Asian countries and advanced economies. Interestingly, not even the high-saving countries of Latin America save as much as the low-saving countries of East Asia.

What is behind this stagnation in domestic savings? In Latin America and the Caribbean, both public and private savings have drifted around low averages since the 1980s.¹¹ While the problem of low public savings can be traced back to relatively weak structural fiscal balances and government expenditures that are frequently biased towards current spending, the underlying causes of the stagnation in private savings are more difficult to pin down. It is possible, for example, that the private sector is saving adequately but not doing so domestically. The economic literature has identified a set of policy and non-policy determinants of private savings across the world,¹² and one striking conclusion in the case of Latin America and the Caribbean is that the most robust correlate of private savings in cross-country regressions is its own lag. This shows that there is a high degree of persistence in saving habits in the

FIGURE 7.3 GROSS DOMESTIC SAVING



Source: *World Economic Outlook*, IMF (2012c).

Note: Latin America and the Caribbean: 18 countries. Advanced Economies: 19 countries. Emerging Asia: 7 countries. Line-ends give minimum and maximum; box-edges give 25th and 75th percentiles.

⁹ We adopt the terminology proposed by Plies and Reinhart (1999) whereby domestic savings is defined as the portion of national income not devoted to consumption or government purchases, minus the external component of savings (i.e., capital flows and foreign aid). In order to ensure consistency of the data across countries, we use the IMF's WEO database, which provides a decomposition of domestic savings between private and public components for a large set of countries starting in 1980.

¹⁰ The dispersion of the distribution is illustrated in Figure 7.3, for example, by the difference between the 25th and the 75th percentiles.

¹¹ In savings accounting, public savings is the overall fiscal balance plus public investment. Private savings is the sum of savings of firms (i.e., retained profits) and savings of households.

¹² One of the most comprehensive papers in this literature is Loayza, Schmidt-Hebbel, and Servén (2000).

region and that breaking from the past will likely require concerted and sustained measures over time.

Why Is Increasing Domestic Savings Important for Infrastructure Investment?

Low domestic savings is a central part of the puzzle that explains low infrastructure investment in the region. First, infrastructure investment requires long-term financing in local currencies. This is difficult, if not impossible, to achieve through foreign savings, particularly when local capital markets remain underdeveloped, thereby reducing hedging opportunities.¹³

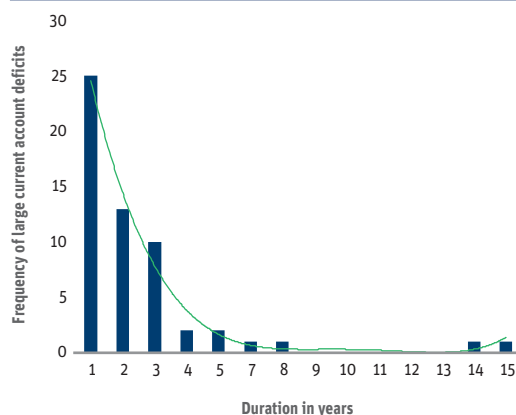
In addition, the effort to raise infrastructure investment must be maintained over time. If higher investments were to be financed only via foreign savings, then the current account deficits (i.e., the domestic savings-investment shortfall) would have to increase above current levels, requiring steady inflows of foreign capital. While in principle this is feasible in open economies, in the experience of Latin American and Caribbean countries excessive reliance on foreign capital flows has contributed to a buildup of vulnerabilities in external accounts. Few countries in the region have been able to maintain large current account deficits for prolonged periods of time without abrupt reversals or incurring severe external indebtedness problems. The following exercise provides a simple illustration: by country, take the existing current account balance (as a percentage of GDP) and add to it the gross financing needs that would arise if all investment needs were to be financed from abroad. Then, using historical balance of payments data for Latin America and the Caribbean, compute the average number of years for which each country was able to maintain a current account deficit (as a percentage of GDP) that was at least as large as that threshold. In approximately 80 percent of the cases, the average duration spell (in number of years) of large current account deficits was less than three years (Figure 7.4); moreover, in only two cases did the duration of large current account deficit episodes exceed a decade: Guyana and Nicaragua, both highly indebted poor countries (HIPC). This evidence suggests that it would be very difficult for countries in Latin America and the Caribbean to finance the required surge in infrastructure investment from external sources alone.

The composition of capital flows and its sectoral allocation are also relevant. While FDI inflows to Latin America and the Caribbean—the most stable component of foreign capital flows—have increased significantly since the 1990s, on average the amount of FDI that is dedicated to infrastructure is only some 0.5 percent of GDP

¹³ This problem is not unique to Latin America and the Caribbean. International experience shows that on average, 90 percent of the stock of capital in developing countries has been self-financed. See Aizenman, Pinto, and Radziwill (2007).

(Figure 7.5). This is equivalent to about 10 percent of total FDI inflows for the group of countries illustrated in this figure. Moreover, all FDI to the region represents less than 3 percent of GDP on average. Therefore, even in the hypothetical case that all FDI went to finance infrastructure, the region would still require additional financing. These observations underscore two points that are core themes of this chapter. First, to attract more FDI, the region would benefit from higher domestic savings because it is more likely that foreign investors would want to invest in a country if residents are also investing locally (see Box 7.1). Moreover, to increase the share of financing that is allocated to infrastructure, the region has to improve its investment frameworks (see Box 7.2).

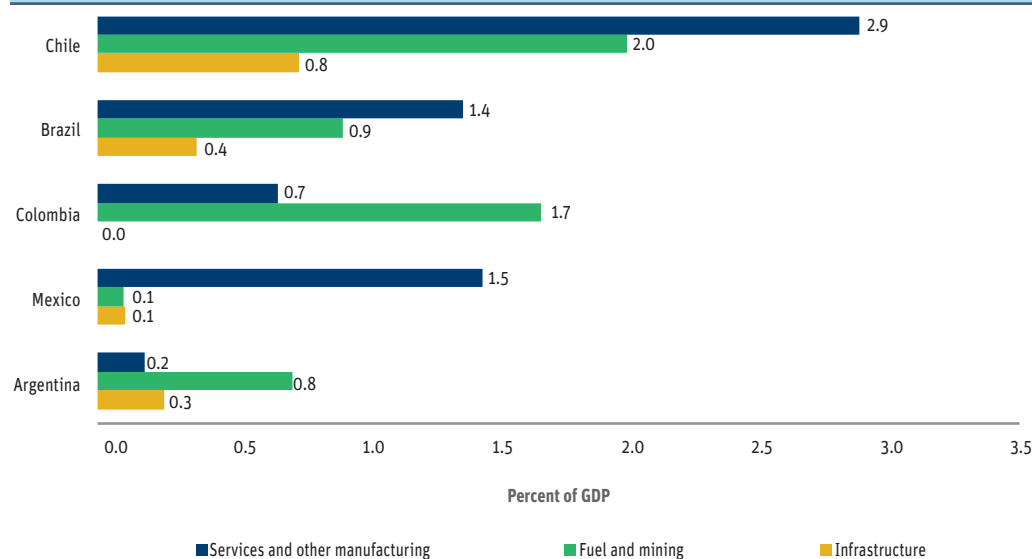
FIGURE 7.4 LARGE CURRENT ACCOUNT DEFICITS IN LATIN AMERICA AND THE CARIBBEAN



Source: World Economic Outlook, IMF (2012c).

Note: Every column shows frequency (number) of events in Latin America and the Caribbean that satisfy a specified criterion. The criterion is the duration (in years) of a current account deficit (as a percentage of GDP) that exceeds a determined threshold. The threshold by country is given by the latest current account balance (percentage of GDP) minus the external financing needs that would arise if all the required investment surge were financed from abroad. Latin America and the Caribbean: 18 countries. Advanced Economies: 19 countries. Emerging Asia: 7 countries.

FIGURE 7.5 COMPOSITION OF FDI BY SECTOR



Source: Central Bank of Argentina (2012), Central Bank of Brazil (2012), Central Bank of Chile (2012), Bank of Colombia (2012), Bank of Mexico (2012). World Economic Outlook Database, IMF (2012c).

Note: Latest available data for each country (Argentina 2010, Brazil 2011, Chile 2011, Colombia 2009, Mexico 2011).

Box 7.1 What Comes First: Savings or Growth?

Even if higher savings would effectively provide more financing for infrastructure investment, what if domestic savings is just the by-product of growth rather than a cause of it? There is a still-unresolved debate on this issue between two contrasting positions. The first is that Latin America and the Caribbean's low rate of savings is primarily the consequence of the region's history of low economic growth, while the high saving observed in the East Asian economies is due to their high rate of economic growth.^a Therefore, policymakers would be well advised to focus on policy interventions that promote growth rather than savings.

The alternative position traditionally stresses the causal link from savings to growth via capital accumulation.^b More recent incarnations of this view emphasize other channels through which savings leads to growth. For example, Aghion, Comin, and Howitt (2006) present a model in which domestic savings matters for growth because it enables local entrepreneurs to put equity in collaboration with foreign investors. In their model, domestic savings is a form of collateral that enables foreign investors' participation in local investment. Without that collateral, foreign investment in local projects would be reduced due to agency problems (i.e., local investors have more knowledge of local conditions) and, as a result, growth would remain constrained.

The details of the debate, however, mask an inescapable fact: policies that promote domestic savings and policies that promote growth should be internally consistent. The corollary is that if pro-savings policies have the unintended consequence of hurting long-term growth, then those policies will probably ultimately fail. This is not merely an abstract debate; some popular pro-savings policies, for example, providing incentives for savings locally via tax breaks or creating mandatory savings vehicles, have backfired in some countries because the overall consistency of policies was not taken into account in the policy design. With sound and stable policy frameworks, Latin America and the Caribbean would likely achieve both higher growth and higher domestic savings. Without them, economic agents will probably always find ways to protect the real value of savings—via capital flight, for example—and low domestic savings will remain a binding constraint on investment financing.

^a See Gavin, Hausmann, and Talvi (1997).

^b See Levine and Renelt (1992) and Mankiw, Romer, and Weil (1992).

Finally, empirical evidence shows that in countries with low savings rates, there is greater crowding out between public and private investment.¹⁴ That is, private and public investments compete for resources from a limited financing pool; increasing one therefore usually comes at the expense of the other. The potential crowding-out effect makes it more difficult to increase aggregate investment.

How to Increase Domestic Savings?

What can Latin American and Caribbean countries do to raise domestic savings on a sustainable basis? Promoting and maintaining macroeconomic stability is important

¹⁴ See Cavallo and Daude (2011).

Box 7.2 Policies to Enhance the Flow of Savings to Infrastructure

Increasing domestic savings is a key component of increasing infrastructure investments. However, these savings need to be employed effectively. A deficient investment framework characterized by burdensome regulations and lack of institutional capacity, coupled with the underdevelopment of local capital markets in Latin America and the Caribbean, constitute significant constraints to increase investment in infrastructure.

A fair question to ask is why governments in the region do not increase public investment to close the infrastructure gap? The most immediate answer is that governments do not have a large fiscal space available to invest in infrastructure.^a However, the existence of weak institutional frameworks rivals the lack of budgetary resources as an explanation of why public investment in infrastructure in Latin America and the Caribbean has been low. Countries in the region should act on two fronts simultaneously: i) develop national infrastructure strategies to define a vision for the country and establish how much and what type of infrastructure is needed, and ii) strengthen institutions in all infrastructure sectors (transport, water and sanitation, energy and telecommunications) to improve their planning, cost-benefit analysis, regulatory and monitoring and evaluation capacities. Better public institutions in infrastructure will not only increase the quantity of publicly financed projects but also their quality, avoiding unnecessary projects (“white elephants”) and providing improved services.

A stronger institutional framework has a direct impact on the efficiency of public sector expenditures, as well as the potential to enhance private sector investment in infrastructure. The lack of technically competent regulators and the weak enforcement of sector laws and concession contracts are factors that increase the risk profile of projects to levels unacceptable to pension funds and other institutional long-term investors.

In addition, the private sector presents other barriers to infrastructure investment. These include, first, the lack of a predictable and well prepared pipeline of infrastructure projects, which creates entry barriers for prospective investors and hinders the development of private firms specialized in infrastructure.^b Second, the underdevelopment of local capital and insurance markets limits opportunities for portfolio managers to improve the risk-return profile of infrastructure projects. A case in point is the bust of *mono-line* insurance, which provided insurance to infrastructure bonds. This has severely limited prospective investors’ risk mitigation opportunities.

Countries in the region should also review pension fund investment allocation rules for infrastructure investments. Presently, assets under management by private pension systems in the region exceed 50 percent of GDP in Chile (an early reformer). They are close to 20 percent of GDP in Peru, Mexico, and Colombia, and they are projected to continue growing.^c While these sums are still low compared to advanced economies,^d they are nonetheless sizable. This is potentially very important for funding infrastructure investment because pension funds accumulate long-term savings in domestic currency. According to market research, the risk profile of infrastructure investment projects is attractive for investors with long-term horizons such as pension funds. However, on average only about 2 percent of the total portfolio of pension funds in Latin America and the Caribbean is invested directly in infrastructure projects. This compares to between 10 and 15 percent of such investment portfolios in Australia and Canada.^e Conversely, a relatively high share of pension funds’ portfolios is invested in government bonds in Latin America and the Caribbean.^f In some countries the problem is compounded by the fact that the lack of alternative financing options increases governments’ temptation to capture the resources of institutional investors in order to cover their own current financing needs.^g

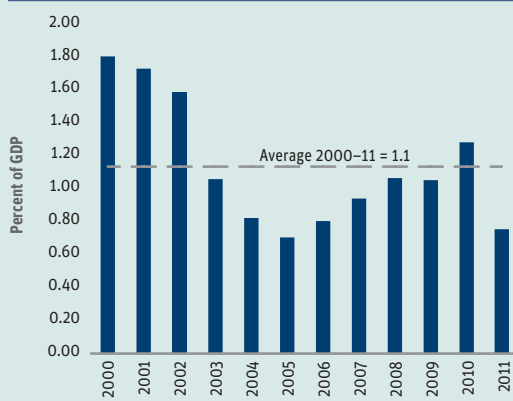
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Box 7.2 Policies to Enhance the Flow of Savings to Infrastructure *(continued)*

In the last decade or so several countries in the region became aware that public sector investment has not been enough to close the infrastructure gap, and they have launched reforms aimed at attracting private investment through public-private partnership (PPP) programs [“Participation” or “Partnership”?]. PPP laws were enacted, and PPP units and economic regulators were created. Guarantees (exchange rate, political risk, minimum revenue) were also instituted as a tool to provide more certainty to private operators. In addition to providing more financing, PPPs have the potential, if properly designed and supervised, of bringing about efficiency gains in the delivery of infrastructure services.^h

The success with PPPs in Latin America and the Caribbean so far has been mixed, with more success in some sectors (telecom and energy) and countries (Chile and most recently, Brazil) than in others. Private participation in infrastructure investment in the region only accounts for about 1 percent of GDP, as shown in Figure B.7.1. Countries will have to intensify their efforts to attract more private investment in infrastructure to achieve levels of investment compatible with those needed to sustain high rates of economic growth.

FIGURE B7.1 PRIVATE INVESTMENT IN INFRASTRUCTURE IN THE REGION



Source: World Bank (2012a, 2012b).

^a See Chapter 3 for a detailed explanation of the status of public sector accounts in the region.

^b This problem is not unique to Latin America or to developing countries in general. The production of a predictable pipeline of projects was highlighted as a priority policy in a recent report produced by Infrastructure UK (http://www.hm-treasury.gov.uk/d/national_infrastructure_plan_051212.pdf)

^c Dos Santos, Torres, and Tuesta (2011) project that by 2050 assets under management by pension funds could reach 94 percent of GDP in Chile, 57 percent in Peru, and close to 40 percent in Mexico and Colombia.

^d The OECD weighted average asset-to-GDP ratio for pension funds was 72.4 percent of GDP in 2011. See OECD (2012a).

^e See Dos Santos, Torres, and Tuesta (2011).

^f According to OECD (2012a), as of end-2011 some 76 percent of total pension fund assets in Brazil were allocated to government bonds, 85 percent in Colombia, 82 percent in Jamaica, 81 percent in Costa Rica, 79 percent in Mexico, 46 percent in Chile, and 45 percent in Peru. In Australia, the same share in 2011 was only 22 percent, and in Germany it was 8 percent.

^g Becerra, Cavallo, and Scartascini (2012) show that, in countries where governments have lower state capacities, governments are more likely to direct credit to finance their own operations, thereby curtailing credit flows to the private sector.

^h For a detailed analysis of the conditions required for PPPs to generate efficiency gains and recent evidence in Latin America and the Caribbean, see Engel, Fischer, and Galetovic (forthcoming).

because crisis-related uncertainty distorts savings decisions. Who, for example, wants to save in domestic instruments of a country that is periodically subject to economic crises that can wipe out the real value of savings? Latin America and the Caribbean has

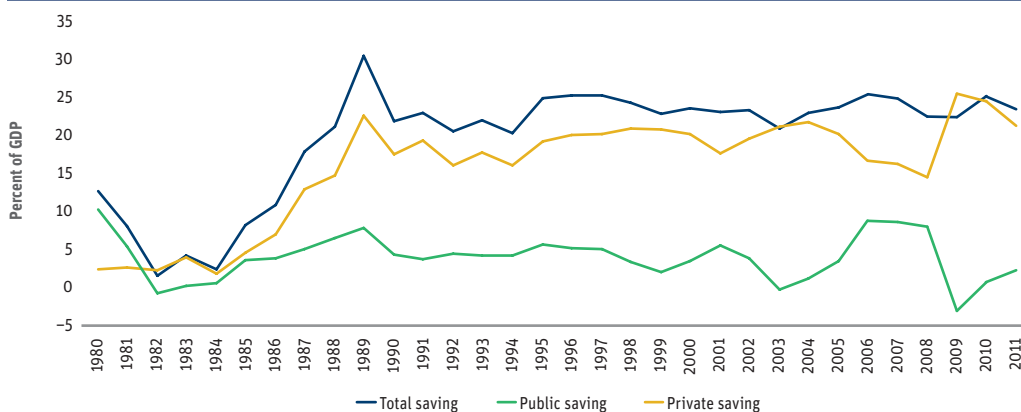
historically been the region with the largest share of systemic banking crises, and other forms of financial collapse that have dented the confidence of agents in the domestic financial system. While the region has made noticeable progress in improving macroeconomic policy frameworks, which has reduced volatility, this may not be enough. It is noticeable that, despite widespread financial liberalization efforts in the last four decades, there is still very limited availability of long-term, local currency financing in the region. Imperfections and frictions at the microeconomic level in the way financial markets work may call for policies specifically designed to promote financial development and stability (Pagés, 2010).

A second pillar of a comprehensive strategy to raise voluntary savings is to improve the effective protection of property rights. Global governance indicators show that Latin America and the Caribbean ranks poorly in several dimensions of the legal framework, including the rule of law, regulatory quality, and government effectiveness.¹⁵ The combination of stable macroeconomic environments and protection of property rights can be powerful tools for promoting domestic savings, particularly private savings. A case in point is Chile, the only country in the region that was able to undertake a successful savings transition in the late 1980s. Savings rates in Chile increased from 1.5 percent of GDP in 1982 to 30 percent of GDP in 1989, and they have remained close to 25 percent of GDP since then. While part of the increase is probably attributable to recovery from the bust of the debt crisis in the early 1980s, observers of the Chilean case have singled out the commitment of successive governments to stability and the increased confidence in the government's economic management as important determinants of the savings transition.¹⁶ More prudent and stable macroeconomic policies reduced the expropriation risk and encouraged private savings by firms and households. This is consistent with the fact that private savings—rather than fiscal thrift alone, as usually thought—were the main driver of increased domestic savings in Chile (Figure 7.6).

The case of Chile also underscores that the role of fiscal policy in promoting domestic savings is complex. This is because, while government thrift would increase public savings, there is—all else being equal—usually an offset in private savings. In fact, under the conditions specified by Barro (1974) in his seminal contribution on Ricardian Equivalence—including complete capital markets and perfect foresight by households—the offset could be complete. However, those conditions are too stringent in practice. As a result, the empirical literature has focused on trying to assess the degree of substitutability between private and public savings. Estimates vary across studies, but they tend to cluster in the range of 0.4 to 0.6, suggesting that for every dollar by

¹⁵ See the World Bank's Worldwide Governance Indicators: <http://info.worldbank.org/governance/wgi/index.asp>.

¹⁶ See, for example, Rodrik (2000).

FIGURE 7.6 DOMESTIC SAVINGS IN CHILE

Source: *World Economic Outlook*, IMF (2012c).

which public savings is increased, private savings tend to fall by 40 to 60 cents.¹⁷ The bottom line is that the fiscal effort that would be required to raise domestic savings to the desired levels in Latin America and the Caribbean via public thrift alone could be too high given the partial Ricardian offset. This reinforces the point that, in the quest to increase domestic savings, governments should not overlook the policies promoting private savings.

There is a role, however, for fiscal policy to augment domestic savings. On the expenditure composition side, governments in the region can increase the share of capital expenditures, which is low in the region, vis-à-vis less productive current spending, which is high.¹⁸ Increasing the ratio of capital-to-current expenditure would have the added benefit of increasing public savings, leaving the fiscal balance unchanged. This is because, in the savings accounting, public savings is the overall fiscal balance *plus* public investment. Therefore, increasing public investment without raising the overall fiscal balance—through expenditure switching—would result in higher public savings.

On the revenue side, the allocation of windfall income from commodity price booms matters for savings. Since at least part of the surge in commodity prices may be transient, standard economic theory prescribes saving part of the windfall. In Chapter 3, it was argued that public savings may have been too low given the likely size of the temporary component of the commodity resource boom. In addition, the composition of savings is equally important. In a recent paper, van der Ploeg and Venables (2011) show that for capital-scarce economies, optimal policies for credit-constrained economies suggest that incremental savings from resource rents should be allocated to a mix of

¹⁷ See, for example, Röhn (2010).

¹⁸ In Latin America and the Caribbean, capital expenditures represent only 16 percent of total government expenditures, less than half the level in Emerging Asia.

infrastructure investment and external debt reduction rather than to the accumulation of foreign assets. This highlights the importance of appropriate infrastructure investment frameworks that enhance the flow of savings to socially more productive uses.

Another focus area is pension reform. Pension systems play key roles in intermediating private savings, particularly household savings. The region has been a pioneer in reforming pension systems from unfunded pay-as-you-go systems to fully funded schemes beginning in the 1980s, with the double aims of increasing social security coverage and reducing long-term fiscal vulnerabilities.¹⁹ A priori, increased mandatory savings could be undone via lower voluntary savings in non-pension instruments. However, intertemporal consumption smoothing is difficult to achieve in the presence of borrowing constraints and other credit market frictions. Moreover, given the low starting point on voluntary household savings in the region, there is limited scope for substitution. Against this background, the existing empirical evidence suggests that there is a positive *net* effect of increased pension savings in funded schemes on domestic savings: for every dollar increase in mandatory pension savings, it is estimated that domestic savings increase by up to 50 cents.²⁰ This suggests that the introduction of fully funded pension plans, along with efforts in many countries where they already exist to increase the coverage and lower participation costs, could effectively promote long-term household savings.²¹ In addition, pension reform could be particularly important for infrastructure investment because the savings that are accumulated in pension funds are by definition long-term savings in local currency—precisely the type of funding required for infrastructure investment (see Box 7.2).

Conversely, government attempts to capture the resources of pension funds are counterproductive because they diminish households' trust in those systems—thereby increasing evasion—and because they reduce the resources available for productive investments. Moreover, other policies in the social security sphere could partially or totally undo the augmenting effects on domestic savings of the introduction of fully funded pension contributions. For example, many governments in the region have recently introduced noncontributory pension schemes in order to provide social security coverage to the elderly poor. To the extent that these new programs are financed through taxes paid by current workers—as is usually the case—they could lower

¹⁹ The introduction of fully funded pension schemes in Latin America and the Caribbean to replace unfunded pay-as-you-go systems, began in Chile (1981), followed by Peru (1993), Argentina and Colombia (1994), Uruguay (1996), Bolivia and Mexico (1997), El Salvador (1998), Costa Rica (2000), Dominican Republic (2003), and Panama (1997) for public employees, then 2005 for all workers. See, AIOS, multiple reports.

²⁰ See López-Murphy and Musalem (2004) and Bebczuk and Musalem (2006).

²¹ Coverage rates for the employed population average only 44 percent in Latin America and the Caribbean, meaning that more than half of the labor force is not covered by a pension plan. See Rofman and Oliveri (2012).

domestic savings. This is because young workers have a lower propensity to consume than retirees, particularly the elderly poor.²² Alternatively, governments could finance these programs by cutting current expenditures in order to make these policies overall savings neutral. Coincidentally, the same is true for the overall transition costs associated with shifting from pay-as-you-go to fully funded systems. The option chosen to finance the transition costs will determine the impact of the reform on savings during the transition period.

Finally, large informal sectors can hinder household savings. This is because informal workers do not contribute to mandatory pension plans. Moreover, to the extent that these workers save voluntarily, their informality status limits access to financial services. This means that their savings are not intermediated by local financial systems and therefore are less likely to flow to productive investments. In addition, in order to mitigate the social costs of informality, governments oftentimes implement programs that, as was argued before, may further hamper domestic savings.²³ Therefore, policies aimed at reducing informality—rather than those designed to mitigate its consequences—are also likely to have positive effects on private savings.

Conclusion

Latin America and the Caribbean needs to increase infrastructure investment in order to raise potential GDP growth. Achieving higher investment rates, in turn, requires long-term financing. Where could the required financing come from? Relying on foreign savings alone may not be enough. Therefore, the region has to increase domestic savings. The following policy recommendations follow from the analysis:

- Private savings are critical for raising domestic savings and for maintaining higher saving rates over time. Government thrift by itself may not be enough if it is not accompanied by policies that promote private savings. Policymakers should take a fresh look at pension systems, the structure of tax regimes and social policies, taking into account their impact on incentives for private savings.
- Pursuing and persevering in prudent macroeconomic policies are powerful tools to promote private savings. Few people will save voluntarily in economies that are periodically subject to volatility and where the real value of savings erodes over time. In Latin America and the Caribbean, there is no conclusive evidence that the private sector saves inadequately—just not enough domestically.

²² Expansions of noncontributory pension schemes that are financed via worker contributions are one example of social policies that are created with good intentions, but may cause unintended outcomes. See Levy (2008) for a broader discussion of this topic.

²³ See Levy (2008) for an analysis of the policy dilemmas associated with high informality.

- Fiscal policies have a role to play in promoting domestic savings. On the spending side, government can promote higher domestic savings through expenditure-switching policies: shifting expenditures from current expenditures to capital expenditures. In addition, this would be compatible with optimal policies to manage windfall revenues coming from transient commodity price booms.
- Increasing pension savings would promote long-term financing in domestic currency, the type of funding required for infrastructure investment. Total assets under management by pension funds in Latin America and the Caribbean are growing in many countries, but there is room for improvement by increasing coverage ratios—i.e., reducing informality—and lowering participation costs.
- Incorporating the objective of promoting domestic savings into the policymaking process would help to avoid costly mistakes. Policies to promote domestic savings should be internally consistent. For example, even a well-designed pension reform's positive effects on domestic savings could be undone by the unintended consequences of other government policies.
- Beyond the specific policies to be implemented, efforts to raise domestic savings need to be sustained over time. Escaping the low savings trap requires building up institutional capabilities, strengthening the rule of law, and solidifying stable macroeconomic policy frameworks. None of these are done overnight.
- Efforts to increase savings should be complemented by mechanisms to enable domestic *and* external savings to flow into infrastructure investments. Even if the region could miraculously increase savings overnight, presently, the red tape, outdated regulatory frameworks, and low bureaucratic capabilities are constraints that prevent increases in infrastructure investment.
- Finally, the quality of investment is essential. The most important concern in infrastructure investment, for example, is project selection. Selecting projects with the greatest impact is critical; thus, it is crucial that countries set up institutions capable of undertaking appropriate planning and cost-benefit analysis, as well as ongoing monitoring and evaluation.

CHAPTER 8

Conclusions and Recommendations

The baseline projection of this report is for several years of lower world growth suppressed below potential and, hence, lower growth in Latin America and the Caribbean.

Fiscal balances in the region have deteriorated over the last year and in general are weaker than before the 2008–09 Great Recession. As output gaps close, fiscal stances should tighten in order for fiscal policies to be seen as countercyclical rather than expansionary. Ensuring that expansionary policies employed in downturns are retired in the upswing expands future fiscal policy space. Given the current point in the economic cycle, tighter fiscal policy now would then give countries more fiscal space to react to downturns that may lie ahead. Enhancing fiscal institutions to underline that truly countercyclical policies will be followed would further add to credibility creating more fiscal space to react to any unexpected contraction. These issues are more acute for countries dependent on commodities for fiscal revenues, where uncertainty over projections suggests greater prudence in policymaking.

The gap between current and potential output is relatively small, and there is little that monetary policy can be expected to do to boost medium term growth. Monetary policy space, considering both interest rates and other nonconventional policy tools, is also more limited now than it was before the Great Recession. The largely temporary effects of monetary policy are not likely to be very significant since lower growth is expected to continue for some years ahead. Inflation targeting regimes appear to have gained credibility. However, this asset—extremely valuable in the event of a negative shock, and hence worthy of protection—may wane if inflation rises significantly above target.

The likely continuation of strong capital flows into the region supports the argument to tighten fiscal policy and allow a looser monetary policy stance in order to lean against exchange rate appreciation pressures, assuming that price pressures remain under control.

Given likely sustained lower world growth, and the region growing close to its current potential, countries may wish to focus more on structural measures to boost

economic growth. Simulations suggest that reducing economic misallocation could impact growth significantly. For the median country in the region, reforms to reduce the current level of misallocation to that of the United States over a 10-year period are estimated to yield roughly an additional one percent per annum of growth for the median country and this is surely underestimated significantly.

Countries in the region are in quite different positions with regard to the structural impediments to growth and hence may wish to focus on different areas of reform. Considering the region as a whole, reforms in trade and finance have advanced well but other areas have lagged. There is surely much work to be done to improve education, competition in product markets, tax systems, domestic savings and investment, and the workings of labor markets. The IDB is working in many of these areas. Notably, the 2013 edition of the IDB's Development in the Americas flagship report focuses on tax systems as a tool for development. This macroeconomic report focuses on the last two topics: savings and investment, particularly in infrastructure, and labor market reforms.

Labor markets vary widely in the region, but several countries suffer from high rates of informality. High informality is associated with a low level of worker education and training, high worker mobility between firms, small firm size, poor access to credit and illegal behavior of firms. These features are normally drivers of low productivity. While planned reforms should be the result of a comprehensive diagnosis and tailored to reflect individual countries' circumstances and institutions, countries with high informality rates may wish to consider reforms to reduce this serious misallocation of resources. In some instances, high costs of employment in the formal sector and implicit subsidies in the informal economy, due to the way in which social protection and other programs are financed, may actually provide incentives for higher informality. Countries should consider reforms to find other ways to finance or otherwise reconfigure these valuable programs.

Domestic savings have been very low in Latin America and the Caribbean. The country with the highest level of domestic savings still does not match the developing Asian country with the lowest level. While causality may flow both ways, low domestic savings is likely one driver of low levels of investment, particularly for infrastructure, which demands long-term financing in domestic currency. As reviewed in the 2012 Latin American and Caribbean Macroeconomic Report, the region has gained considerable resilience against economic instability with stronger financial systems and better financial regulations. There is currently a window of opportunity to increase levels of domestic savings. Countries should consider reforms to pension and social security systems as well as further reforms in financial systems to enhance long-term savings in domestic currency. Moreover, reducing levels of informality and increasing the tax base and the proportion of the population that interacts with the formal financial system should also produce payoffs in this direction. If domestic savings increase and regulatory and

institutional frameworks improve, then the region may be able to reduce the significant gaps in infrastructure, and boost economic growth.

This report argues that there is considerable space and a significant potential return in terms of growth for individual countries to pursue a new wave of tailor-made reforms. However, there is an additional payoff to a regional reform effort. While the spillovers from the two largest economies in the region, Brazil and Mexico, are relatively modest, if all countries pursue a reform agenda, then spillovers become significant. As mentioned, if the median country pursued reforms over a decade to reduce economic misallocation to the level of the U.S. today, then a very conservative estimate would have growth increasing by about 1 percent per annum. If all countries in the region pursued a reform effort commensurate with their normal fluctuations in growth, which on average turns out to be roughly of the same magnitude, then regional growth would increase by more than double, some 2.3 percent. This would then increase growth in the region from less than 4 percent per annum to more than 6 percent in the coming years.

References

- Acemoglu, D., and F. Zilibotti. 1997. Was Prometheus Unbound by Chance? Risk, Diversification, and Growth. *Journal of Political Economy* 105(4) August: 709–51.
- Acs, Z. J., D. B. Audretsch, and M. P. Feldman. 1994. R & D Spillovers and Recipient Firm Size. *Review of Economics and Statistics* 76(2) May: 336–40.
- Aghion, P., D. Comin, and P. Howitt. 2006. When Does Domestic Saving Matter for Economic Growth? NBER Working Paper no. 12275. National Bureau of Economic Research, Cambridge, MA.
- Aizenman, J., B. Pinto, and A. Radziwill. 2007. Sources for Financing Domestic Capital: Is Foreign Saving a Viable Option for Developing Countries? *Journal of International Money and Finance* 26(5) September: 682–702.
- Allard, C., and L. Everaert. 2010. Lifting Euro Area Growth: Priorities for Structural Reforms and Governance. IMF Staff Position Note no. SPN/10/19. International Monetary Fund, Washington, DC.
- Antón, A., F. Hernández, and S. Levy. 2012. *The End of Informality in Mexico? Fiscal Reform for Universal Social Insurance*. Washington, DC: IDB.
- Atkin, D. 2012. Endogenous Skill Acquisition and Export Manufacturing in Mexico. NBER Working Paper no. 18266. National Bureau of Economic Research, Cambridge, MA.
- Baker, S. R., N. Bloom, and S. J. Davis. 2013. Measuring Economic Policy Uncertainty. Available at <http://www.policyuncertainty.com/media/BakerBloomDavis.pdf>. Accessed February 2013.
- Barbero, J. A. 2012. *La infraestructura en el desarrollo integral de América Latina: IDeAL 2012*. Bogotá: Corporación Andina de Fomento.
- Barro, R. J. 1974. Are Government Bonds Net Wealth? *Journal of Political Economy* 82(6): 1095–1117.
- Bassi, M., M. Busso, S. Urzúa, and J. Vargas. 2012. *Disconnected: Skills, Education, and Employment in Latin America*. Washington, DC: IDB.
- Bayoumi, T., D. Laxton, and P. Pesenti. 2004. Benefits and Spillovers of Greater Competition in Europe: A Macroeconomic Assessment. Staff Report no. 182. Federal Reserve Bank of New York, New York.
- Bebczuk, R. N., and A. R. Musalem. 2006. Pensions and Saving: New International Panel Data Evidence. Documento de trabajo no. 61. Departamento de Economía, Facultad de Ciencias Económicas, Universidad Nacional de La Plata, La Plata, Buenos Aires.

- Becerra, O., E. Cavallo, and C. Scartascini. 2012. The Politics of Financial Development: The Role of Interest Groups and Government Capabilities. *Journal of Banking and Finance* 36(3) March: 626–43.
- Berkmen, S. P. 2011. The Impact of Fiscal Consolidation and Structural Reforms on Growth in Japan. IMF Working Paper no. 11/13. International Monetary Fund, Washington, DC.
- Binici, M., M. Hutchison, and M. Schindler. 2010. Controlling Capital? Legal Restrictions and the Asset Composition of International Financial Flows. *Journal of International Money and Finance* 29(4) June: 666–84.
- Blanchard, O., and F. Giavazzi. 2003. Macroeconomic Effects of Regulation and Deregulation in Goods and Labor Markets. *Quarterly Journal of Economics* 118(3): 879–907.
- Bosch, M., B. Cobacho, and C. Pagés. 2013. Taking Stock of Eight Years of Implementation of *Seguro Popular* in Mexico. In M. Frölich, D. Kaplan, C. Pagés, J. Rigolini, and D. Robalino, eds., *Social Insurance and Labor Markets: How to Protect Workers while Creating Good Jobs*. Oxford, UK: Oxford University Press. Forthcoming.
- Brückner, M., and E. Pappa. 2011. For an Olive Wreath? Olympic Games and Anticipation Effects in Macroeconomics. CEPR Discussion Paper no. 8516. Centre for Economic Policy Research, London.
- Busso, M., M. V. Fazio, and S. Levy. 2012. (In)Formal and (Un)Productive: The Productivity Costs of Excessive Informality in Mexico. IDB Working Paper no. 341. Inter-American Development Bank, Washington, DC.
- Busso, M., L. Madrigal, and C. Pagés. 2012. Productivity and Resource Misallocation in Latin America. IDB Working Paper no. 306. Inter-American Development Bank, Washington, DC.
- Cabrol, M., and M. Székely, eds. 2012. *Educación para la transformación*. Washington, DC: IDB.
- Cacciatore, M., R. Duval, and G. Fiori. 2012. Short-Term Gain or Pain? A DSGE Model-Based Analysis of the Short-Term Effects of Structural Reforms in Labour and Product Markets. OECD Economics Department Working Paper no. 948. Organisation for Economic Co-operation and Development, Paris.
- Calderón, C., and L. Servén. 2010. Infrastructure in Latin America. Policy Research Working Paper no. 5317. World Bank, Washington, DC.
- Callen, T., and J. D. Ostry, eds. 2003. *Japan's Lost Decade: Policies for Economic Revival*. Washington, DC: International Monetary Fund.
- Calvo, G. A., A. Izquierdo, and R. Loo-Kung. 2012. Optimal Holdings of International Reserves: Self-Insurance against Sudden Stop. NBER Working Paper no. 18219. National Bureau of Economic Research, Cambridge, MA.

- Calvo, G. A., and C. M. Reinhart. 2002. Fear of Floating. *Quarterly Journal of Economics* 117(2) May: 379–408.
- Caputo, R., and M. Fuentes. 2012. Government Spending and the Real Exchange Rate: A Cross-Country Perspective. Documento de trabajo no. 655. Banco Central de Chile, Santiago.
- Caro, L., A. J. Galindo, and M. Meléndez. 2012. Credit, Labor Informality and Firm Performance in Colombia. IDB Working Paper no. 325. Department of Research and Chief Economist, Inter-American Development Bank, Washington, DC.
- Carroll, C. D., and D. N. Weil. 1994. Saving and Growth: A Reinterpretation. *Carnegie-Rochester Conference Series on Public Policy* [North-Holland] 40(1994): 133–92.
- Catão, L. A. V., C. Pagés, and M. F. Rosales. 2009. Financial Dependence, Formal Credit and Informal Jobs: New Evidence from Brazilian Household Data. IDB Working Paper no. 118. Department of Research and Chief Economist, Inter-American Development Bank, Washington, DC.
- Cavallo, E., and C. Daude. 2011. Public Investment in Developing Countries: A Blessing or a Curse? *Journal of Comparative Economics* 39(1): 65–81.
- Cesa-Bianchi, A., M. Pesaran, A. Rebucci, and T. Xu. 2012. China's Emergence in the World Economy and Business Cycles in Latin America. *Journal of the Latin American and Caribbean Economic Association* 12(2): 1–75.
- Cesa-Bianchi, A., and A. Rebucci. 2013. Does Easing Monetary Policy Increase Financial Instability? IDB Working Paper no. 387. Inter-American Development Bank, Washington, DC.
- Christiansen, L., M. Schindler, and T. Tressel. 2009. Growth and Structural Reforms: A New Assessment. IMF Working Paper no. 09/284. International Monetary Fund, Washington, DC.
- Cohen Sabbán, V., M. González Rozada, and A. Powell. 2003. A New Test for the Success of Inflation Targeting. Business School Working Paper no. 03/2004. Universidad Torcuato Di Tella, Buenos Aires.
- Corbacho, A., V. Fretes Cibils, and E. Lora. 2013. *More than Revenue: Taxation as a Development Tool*. Development in the Americas series. Washington, DC: IDB and New York: Palgrave Macmillan.
- Correa, R. 2002. Structural Reforms and Economic Growth in Latin America: A Sensitivity Analysis. *CEPAL Review* 76 (April): 87–104.
- Daude, C., and E. Fernández-Arias. 2010. On the Role of Productivity and Factor Accumulation in Economic Development in Latin America and the Caribbean. IDB Working Paper no. 155. Inter-American Development Bank, Washington, DC.

- D’Erasmus, P. N., H. J. Moscoso Boedo, and A. Senkal. 2012. *Misallocation, Informality, and Human Capital: Understanding the Role of Institutions*. University of Virginia, Charlottesville. Unpublished.
- Dos Santos, E., D. Torres, and D. Tuesta. 2011. *A Review of Recent Infrastructure Investment in Latin America and the Role of Private Pension Funds*. Working Paper no. 11/37. Economic Research Department, Banco Bilbao Vizcaya Argentaria (BBVA), Madrid.
- Engel, E., R. Fischer, and A. Galetovic. 2013. *The Economics of Public-Private Partnerships: A User’s Guide*. Cambridge University Press. Forthcoming.
- Farhi, E., G. Gopinath, and O. Itskhoki. 2011. *Fiscal Devaluations*. CEPR Discussion Paper no. 8721. Centre for Economic Policy Research, London.
- Fay, M., and M. Morrison. 2005. *Infrastructure in Latin America and the Caribbean: Recent Developments and Key Challenges*. Report no. 32640-LCR. World Bank, Washington, DC. Available at http://siteresources.worldbank.org/INTLAC/Resources/LAC_Infrastructure_complete.pdf. Accessed February 2013.
- Federal Reserve System. 2012. Minutes of the Federal Open Market Committee meetings. December 11–12. Available at <http://www.federalreserve.gov/monetarypolicy/files/fomcminutes20121212.pdf>. Accessed January 2013.
- . 2013. Press Release on the Federal Open Market Committee meetings. January 30. Available at <http://www.federalreserve.gov/newsevents/press/monetary/20130130a.htm>. Accessed January 2013.
- Fernández-Arias, E. 1996. The New Wave of Private Capital Inflows: Push or Pull? *Journal of Development Economics* 48(2) March: 389–418.
- Galindo, A., L. Rojas-Suárez, and M. del Valle. 2013. *Macro-Prudential Regulations in Andean Countries*. Policy Brief no. 186. Inter-American Development Bank, Washington, DC.
- Gandelman, N., and A. Rasteletti. 2012. *The Impact of Bank Credit on Employment Formality in Uruguay*. IDB Working Paper no. 302. Department of Research and Chief Economist, Inter-American Development Bank, Washington, DC.
- Garcia, M. G. P. 2011. *Can Sterilized FX Purchases under Inflation Targeting Be Expansionary?* Texto para discussão no. 589. Departamento de Economia, Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro, Brazil.
- Gavin, M., R. Hausmann, and E. Talvi. 1997. *Saving Behavior in Latin America: Overview and Policy Issues*. OCE Working Paper no. 346. Office of the Chief Economist, Inter-American Development Bank, Washington, DC.
- Gavin, M., and R. Perotti. 1997. *Fiscal Policy in Latin America*. In B. S. Bernanke and J. Rotemberg, eds., *NBER Macroeconomics Annual 1997*. Volume 12. Cambridge, MA: MIT Press.

- Gutiérrez, M. 2007. Savings in Latin America after the Mid 1990s: Determinants, Constraints and Policies. Serie Macroeconomía del desarrollo no. 57. United Nations Economic Commission for Latin America and the Caribbean (ECLAC), Santiago.
- Hausmann, R., D. Rodrik, and A. Velasco. 2008. Growth Diagnostics. In N. Serra and J. E. Stiglitz, eds., *The Washington Consensus Reconsidered: Towards a New Global Governance*. Oxford, UK: Oxford University Press.
- Heckman, J. J., and C. Pagés. 2004. *Law and Employment: Lessons from Latin America and the Caribbean*. Chicago, IL: University of Chicago Press.
- Hevia, C., and J. P. Nicolini. 2009. Optimal Devaluations. Policy Research Working Paper no. 4926. World Bank, Washington, DC.
- Hofstetter, M. 2008. Disinflation in Latin America and the Caribbean: A Free Lunch? *Journal of Macroeconomics* 30(1) March: 327–45.
- Huang, W., and B. Trehan. 2008. Unanchored Expectations? Interpreting the Evidence from Inflation Surveys. *FRBSF Economic Letter* 2008(23) July: 1–3. Available at <http://www.frbsf.org/publications/economics/letter/2008/el2008-23.pdf>. Accessed February 2013.
- IDB (Inter-American Development Bank). 2005. *The Politics of Policies*. Economic and Social Progress in Latin America: 2006 Report. Washington, DC: IDB.
- . Various years. Latin American and Caribbean Macro Watch Data Tool. Online database. Available at <http://www.iadb.org/research/latinmacrowatch/lmw.cfm>. Accessed February 2013.
- . Various years. Productivity and Factor Accumulation in Latin America and the Caribbean: A Database. Online database. Available at http://www.iadb.org/en/research-and-data/publication-details,3169.html?pub_id=DBA-015. Accessed February 2013.
- ILO (International Labour Organization). 2012. Key Indicators of the Labour Market (KILM). Online research tool. Available at http://www.ilo.org/empelm/what/WCMS_114240/lang--en/index.htm. Accessed February 2013.
- IMF (International Monetary Fund). 2012a. International Financial Statistics database. Available at <http://elibrary-data.imf.org/FindDataReports.aspx?d=33061&e=169393>. Accessed February 2013.
- . 2012b. Spillovers from Large Neighbors in Latin America. In *Regional Economic Outlook: Western Hemisphere: Rebuilding Strength and Flexibility*. Washington, DC: IMF.
- . 2012c. *World Economic Outlook: Coping with High Debt and Sluggish Growth*. Washington, DC: IMF.
- . 2012d. World Economic Outlook Update. July. Available at <http://www.imf.org/external/pubs/ft/weo/2012/update/02/pdf/0712.pdf>. Accessed February 2013.

- . 2013. World Economic Outlook Update. January. Available at <http://www.imf.org/external/pubs/ft/weo/2013/update/01/pdf/0113.pdf>. Accessed February 2013.
- INEGI (Instituto Nacional de Estadística y Geografía). 2009. Censos Económicos 2009. Online database. Available at <http://www.inegi.org.mx/est/contenidos/proyectos/ce/default.aspx>. Accessed February 13.
- Isham, J., and D. Kaufmann. 1999. The Forgotten Rationale for Policy Reform: The Productivity of Investment Projects. *Quarterly Journal of Economics* 114(1): 149–84.
- Kanbur, R. 2009. Conceptualizing Informality: Regulation and Enforcement. *Indian Journal of Labour Economics* 52(1): 33–42.
- Karabarbounis, L., and B. Neiman. Declining Labor Shares and the Global Rise of Corporate Saving. NBER Working Paper no. 18154. National Bureau of Economic Research, Cambridge, MA.
- Leal Ordóñez, J. C. 2010. Informal Sector, Productivity and Tax Collection. Centro de Investigación y Docencia Económicas (CIDE), Mexico City. Unpublished.
- Levine, R., and D. Renelt. 1992. A Sensitivity Analysis of Cross-Country Growth Regressions. *American Economic Review* 82(4) September: 942–63.
- Levy, S. 2008. *Good Intentions, Bad Outcomes: Social Policy, Informality, and Economic Growth in Mexico*. Washington, DC: Brookings Institution Press.
- Levy, S., and N. Schady. 2013. Latin America's Next Challenge: Social Policy Reform. Inter-American Development Bank, Washington, DC. Unpublished.
- Levy Yeyati, E., and F. Sturzenegger. 2005. Classifying Exchange Rate Regimes: Deeds vs. Words. *European Economic Review* 49(6) August: 1603–35.
- Loayza, N., K. Schmidt-Hebbel, and L. Servén. 2000. What Drives Private Saving around the World? Policy Research Working Paper no. 2309. World Bank, Washington, DC.
- López-Murphy, P., and A. R. Musalem. 2004. Pension Funds and National Saving. Policy Research Working Paper no. 3410. World Bank, Washington, DC.
- Lora, E. 2000. What Makes Reforms Likely? Timing and Sequencing of Structural Reforms in Latin America. IDB Working Paper no. 424. Inter-American Development Bank, Washington, DC.
- . 2001. Structural Reforms in Latin America: What Has Been Reformed and How to Measure It. IDB Working Paper no. 466. Inter-American Development Bank, Washington, DC.
- , coord. 2008. *Beyond Facts: Understanding Quality of Life*. Development in the Americas series. Washington, DC: IDB and Cambridge, MA: DRCLAS/Harvard University.
- . 2012. Las reformas estructurales en América Latina: qué se ha reformado y cómo medirlo (versión actualizada). IDB Working Paper no. 346. Department

- of Research and Chief Economist, Inter-American Development Bank, Washington, DC.
- Lora, E., and U. Panizza. 2002. Structural Reforms in Latin America under Scrutiny. IDB Working Paper no. 470. Inter-American Development Bank, Washington, DC.
- Lora, E., U. Panizza, and M. Quispe-Agnoli. 2004. Reform Fatigue: Symptoms, Reasons, and Implications. *Economic Review* [Federal Reserve Bank of Atlanta] 89(2): 1–28.
- Maloney, W. F. 2004. Informality Revisited. *World Development* 32(7) July: 1159–78.
- Mankiw, N. G., D. Romer, and D. N. Weil. 1992. A Contribution to the Empirics of Economic Growth. *Quarterly Journal of Economics* 107(2) May: 407–37.
- Mariscal, R., and A. Powell. 2013. Commodity Price Trends and Breaks: Detection, Magnitude and Implications. IDB working paper. Department of Research and Chief Economist, Inter-American Development Bank, Washington, DC. Forthcoming.
- Mariscal, R., A. Powell, and P. Tavella. 2013. On the Credibility of Inflation-Targeting Regimes in Latin America. IDB working paper. Department of Research and Chief Economist, Inter-American Development Bank, Washington, DC. Forthcoming.
- McKenzie, D., and C. Woodruff. 2008. Experimental Evidence on Returns to Capital and Access to Finance in Mexico. *World Bank Economic Review* 22(3): 457–82.
- Meghir, C., R. Narita, and J. M. Robin. 2012. Wages and Informality in Developing Countries. NBER Working Paper no. 18347. National Bureau of Economic Research, Cambridge, MA.
- Moody's Investors Service. 2013. U.S. Fiscal Package Has Limited Positive Credit Implications. Available at http://www.alacrastore.com/research/moodys-global-credit-research-US_Fiscal_Package_Has_Limited_Positive_Credit_Implications-PBC_148908. Accessed February 2013.
- Morón, E., E. Salgado, and C. Seminario. 2012. Financial Dependence, Formal Credit and Firm Informality: Evidence from Peruvian Household Data. IDB Working Paper no. 288. Department of Research and Chief Economist, Inter-American Development Bank, Washington, DC.
- Nicoletti, G., and S. Scarpetta. 2003. Regulation, Productivity and Growth: OECD Evidence. *Economic Policy* 18(36) April: 9–72.
- OECD (Organisation for Economic Co-operation and Development). 2012a. Pension Markets in Focus no. 9, and Statistical Annex. September. Available at <http://www.oecd.org/finance/privatepensions/pensionmarketsinfoocus.htm>. Accessed February 2013.
- . 2012b. Structural Reforms to Create Balanced Growth and Resolve Imbalances. In *OECD Economic Surveys: Euro Area 2012*. Paris: OECD Publishing.

- Ossowski, R., and A. Gonzáles. 2012. Manna from Heaven: The Impact of Nonrenewable Resource Revenues on Other Revenues of Resource Exporters in Latin America and the Caribbean. IDB Working Paper no. 337. Inter-American Development Bank, Washington, DC.
- Ostry, J. D., A. Prati, and A. Spilimbergo. 2009. Structural Reforms and Economic Performance in Advanced and Developing Countries. IMF Occasional Paper no. 268. International Monetary Fund, Washington, DC.
- Pagano, P., and F. Schivardi. 2003. Firm Size Distribution and Growth. *Scandinavian Journal of Economics* 105(2) June: 255–74.
- Pagés, C., ed. 2010. *The Age of Productivity: Transforming Economies from the Bottom Up*. Development in the Americas series. Washington, DC: IDB and New York: Palgrave Macmillan.
- Perrotti, D. 2011. The Economic Infrastructure Gap in Latin America and the Caribbean. *FAL Bulletin [ECLAC]* 293(1): 1–7.
- Plies, W. A., and C. M. Reinhart. 1999. Saving in Latin America and Lessons from Europe. In C. M. Reinhart, comp., *Accounting for Saving: Financial Liberalization, Capital Flows and Growth in Latin America and Europe*. Washington, DC: IDB.
- Powell, A. 1989. The Management of Risk in Developing Country Finance. *Oxford Review of Economic Policy* 5(4): 69–87.
- . 1991. Commodity and Developing Country Terms of Trade: What Does the Long Run Show? *Economic Journal* 101(409) November: 1485–96.
- , coord. 2012. *The World of Forking Paths: Latin America and the Caribbean Facing Global Economic Risks*. 2012 Latin American and Caribbean Macroeconomic Report. Washington, DC: IDB.
- . 2013. Promoting the International Use of Emerging Country Currencies: The Case of Local Currency Debt Issuance for Latin America and the Caribbean. CIGI working paper. Centre for International Governance Innovation, Waterloo, Ontario Canada. Forthcoming.
- Reinhardt, N. 2008. The Conundrum of Low Saving Rates in Latin America. *Development Policy Review* 26(6) November: 727–44.
- Reinhart, C. M., and K. S. Rogoff. 2004. The Modern History of Exchange Rate Arrangements: A Reinterpretation. *Quarterly Journal of Economics* 119(1) February: 1–48.
- Rodrik, D. 2000. Saving Transitions. *World Bank Economic Review* 14(3) September: 481–507.
- Rofman, R., and M. L. Oliveri. 2012. Pension Coverage in Latin America: Trends and Determinants. Social Protection and Labor Discussion Paper no. 1217. World Bank, Washington, DC.

- Röhn, O. 2010. New Evidence on the Private Saving Offset and Ricardian Equivalence. OECD Economics Department Working Paper no. 762. Organisation for Economic Co-operation and Development, Paris.
- Rose, A. K., and M. M. Spiegel. 2009. The Olympic Effect. NBER Working Paper no. 14854. National Bureau of Economic Research, Cambridge, MA.
- . 2011. Do Mega Sporting Events Promote International Trade? *SAIS Review* 31(1) Winter-Spring: 77–85.
- Schindler, M. 2009. Measuring Financial Integration: A New Data Set. *IMF Staff Papers* 56(1): 222–38.
- Solow, R. M. 1956. A Contribution to the Theory of Economic Growth. *Quarterly Journal of Economics* 70(1) February: 65–94.
- Straub, S. 2005. Informal Sector: The Credit Market Channel. *Journal of Development Economics* 78(2) December: 299–321.
- Tanaka, H. 2003. Fiscal Consolidation and Medium-Term Fiscal Planning in Japan. *OECD Journal on Budgeting* 3(2): 105–37.
- van der Ploeg, F., and A. J. Venables. 2011. Harnessing Windfall Revenues: Optimal Policies for Resource-Rich Developing Economies. *Economic Journal* 121(551) March: 1–30.
- World Bank. 2012a. Private Participation in Infrastructure (PPI) Project Database. Available at <http://ppi.worldbank.org/>. Accessed February 2013.
- . 2012b. World Development Indicators online. Available at <http://data.worldbank.org/data-catalog/world-development-indicators/wdi-2012>. Accessed February 2013.
- . 2013. *Global Economic Prospects: Assuring Growth over the Medium Term*. Volume 6. Washington, DC: World Bank.
- World Economic Forum. 2012. *The Global Competitiveness Report 2012–2013*. Geneva, Switzerland: World Economic Forum.

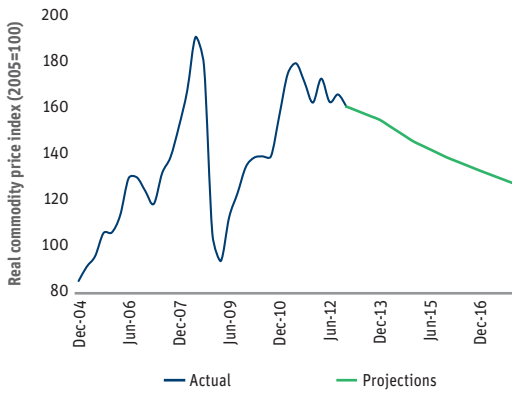


Appendices

APPENDIX A

On Commodity Prices and Fiscal Revenues

FIGURE A.1 REAL COMMODITY PRICE INDEX AND PROJECTIONS FOR TYPICAL COMMODITY EXPORTER



Source: *World Economic Outlook*, IMF (2012c), and authors' calculations.
Note: Nominal prices deflated by U.S. CPI.

To what extent are current higher commodity prices permanent (i.e., structural) as opposed to transitory? Estimating structural commodity prices is notoriously difficult and unreliable.¹ While standard methodologies do not always yield clear results, there are many indications that current commodity prices are above “normal levels.” The IMF projects commodity prices to decline in the next five years, and these projections would imply a reduction of about 19 percent in the country-specific real commodity price index over the next five years (see Figure A.1). Alternatively, if real com-

modity prices five years ahead are projected as the average over the previous decade, a method initially used by Chile to assess long-term copper prices and one within the spirit of current practice, the decline in the price index over the next five years would be approximately 25 percent. Other methods would, of course, yield different forecasts, but these two alternatives illustrate the risks.

There is an extensive literature regarding the optimal use of potentially transitory commodity revenues. A starting point is the permanent income hypothesis that would roughly state that countries should only spend the permanent component of any positive income shock. If the extra commodity-linked revenues were known to be transitory, then this might translate into a sovereign wealth fund for the temporary windfall, and then only the returns from that fund should be entered into the budget to be spent. However, for developing countries with distortionary tax systems and severe infrastructure deficiencies, things may be a little different. It can be argued that, rather than maintaining a constant structural position, developing economies should invest some portion of the transitory commodity revenues in badly needed infrastructure to

¹ For a succinct discussion, see Powell (2012), Appendix C.

support future growth (see Chapter 7)². Transitory commodity revenues could also be used to reduce distortionary taxes, although there is little evidence that the reductions in tax rates found in commodity-intensive countries have been focused on the most distortionary taxes.³

Given these risks, it is argued that countries should be more cautious in their use of commodity revenues. A further argument for caution is that all estimates of long-term prices, which are used to determine permanent income, are highly imprecise. Estimating methods yield highly variable estimations over time, and they may easily turn out to be too optimistic. Countries should consider methods to estimate the risks of budgeting with highly uncertain commodity revenues. A value-at-risk approach may be one route to consider, although even then consideration should be given to the fact that commodity prices may have structural breaks, again favoring prudent rules.⁴ The conclusion is that countries fiscally dependent on commodity prices need to be extremely conservative in light of the uncertainty accompanying their fiscal revenue flows.

² See van der Ploeg and Venables (2011) for a useful discussion.

³ See Corbacho, Fretes Cibils, and Lora (2013) for a comparison of the tax systems of commodity versus non-commodity-dependent countries in the region.

⁴ See Mariscal and Powell (forthcoming), which applies so-called saturation methods to identify breaks in commodity prices.

APPENDIX B

On Monetary Policy Regimes, Reserve Requirements, and the Credibility of Inflation Targeting

Monetary Policy Regimes

Latin America and the Caribbean is a diverse region in terms of monetary and exchange rate regimes, ranging from fully dollarized economies to hard pegs, to regimes with more flexible nominal exchange rates and an explicit inflation target, as well as a set of intermediate regimes.

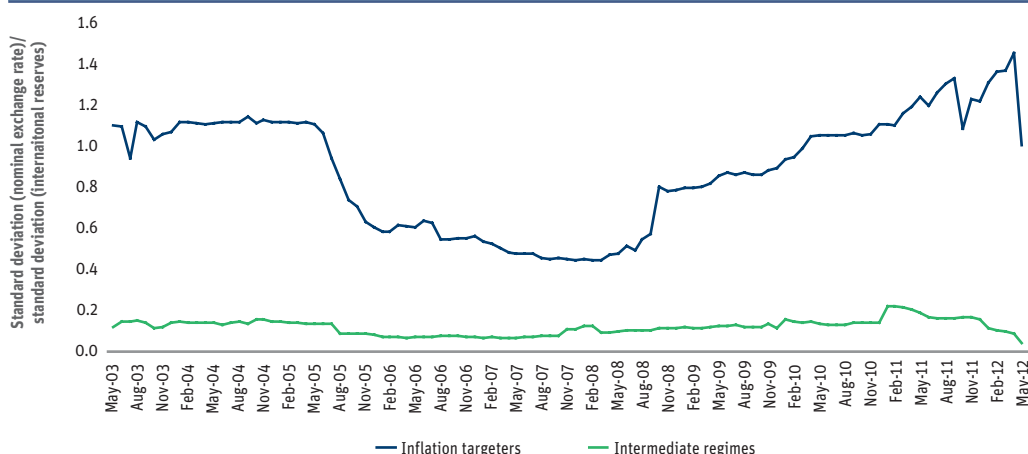
While inflation targeting is not the same as a regime with a freely floating exchange rate, there is an expectation that the move to an inflation target, as opposed to an exchange rate target, will imply higher volatility in the nominal exchange rate and lower volatility in international reserves. The ratio of nominal exchange rate volatility to international reserve volatility provides one possible indicator to see how countries have responded to shocks, whether through movements in the nominal exchange rate or through interventions deploying international reserves dampening exchange rate volatility.¹

Considering the evolution in time of this statistic for the countries in the region, it is clear that those countries that have explicitly adopted inflation targets have higher relative exchange rate volatility compared to other groups (see Figure B.1).² Interestingly, for this group the plot reveals a decrease in exchange rate flexibility in the period of the food crisis, and then a sharp increase with the Great Recession and a continued rise thereafter. Presumably this pattern reflects how inflation targeters have responded to different types of shocks, perhaps with an underlying trend of allowing more shocks to be felt through fluctuations in the nominal exchange rate.³

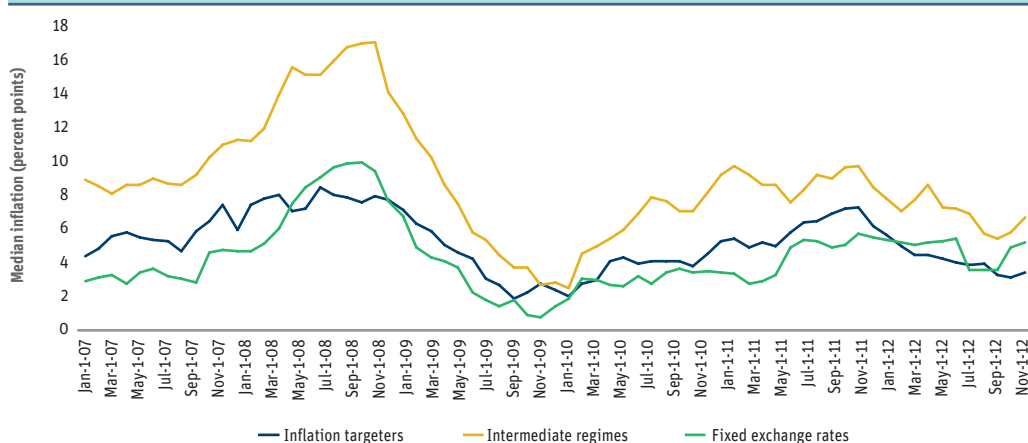
¹ Calvo and Reinhart (2002) construct a multivariate index to capture the volatility of the exchange rate relative to that of instruments that are at the disposal of the monetary authorities to stabilize the exchange rate. Their metric is slightly more comprehensive as they also explore the volatility of policy rates. See also Levy Yeyati and Sturzenegger (2005) and Reinhart and Rogoff (2004) for methods of classifying exchange rate regimes.

² Inflation targeters are Brazil, Chile, Colombia, Guatemala, Mexico, Paraguay, Peru, and Uruguay. Intermediate regimes are Argentina, Bolivia, Costa Rica, the Dominican Republic, Guyana, Haiti, Honduras, Jamaica, Suriname, Trinidad and Tobago, and Venezuela. Fixers are Bahamas, Barbados, Belize, Ecuador, El Salvador, Nicaragua, and Panama.

³ Cohen Sabbán, González Rozada, and Powell (2003) argue that the adoption of inflation targeting in Latin America led to substantial benefits in that the nominal exchange rate acted more as a shock absorber, as well as costs in the form of increased “non-fundamental volatility” in exchange rates.

FIGURE B.1 VOLATILITY OF THE NOMINAL EXCHANGE RATE RELATIVE TO THAT OF INTERNATIONAL RESERVES

Source: Latin Macro Watch, IDB (2012).

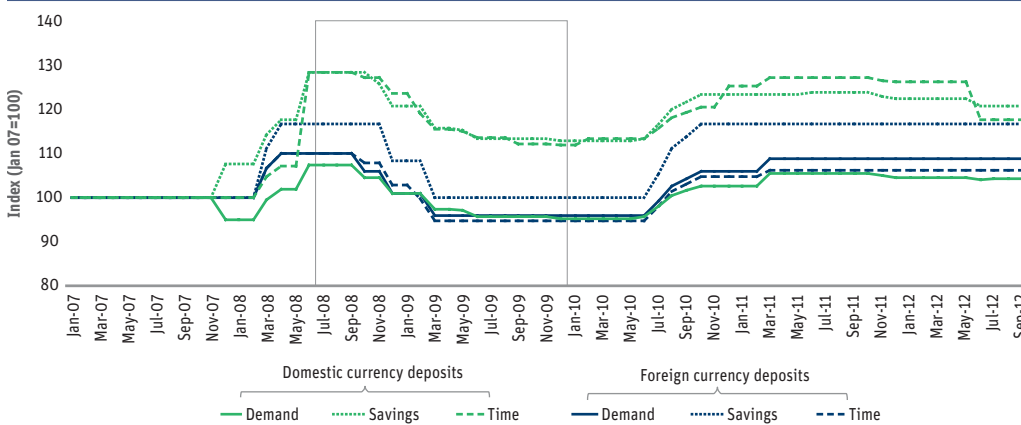
FIGURE B.2 MEDIAN INFLATION

Source: IMF (2012a).

The median inflation rate for each group has diminished since the food crisis of 2008, and for both fixers and inflation-targeting countries it is currently around 5 percent (see Figure B.2). Intermediate regime inflation rates appear more volatile according to this statistic.

Reserve Requirements in Latin America and the Caribbean

Reserve requirement policies come in many shapes and forms. In the main body of Chapter 4, the focus was on the behavior of the proportion of short-term deposits in

FIGURE B.3 RESERVE REQUIREMENTS, INFLATION TARGETERS


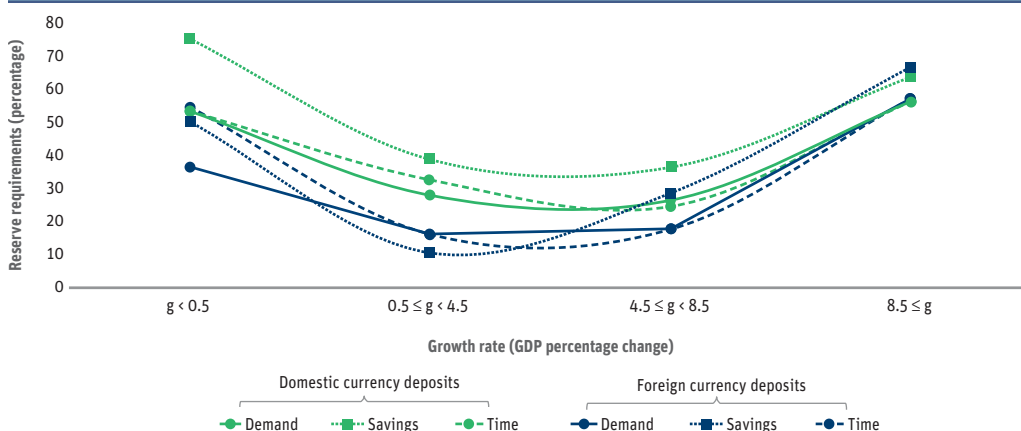
Source: Authors' calculations based on national sources.

local currency that banks must deposit in the central bank, referred to as the reserve requirement rate on short-term local currency deposits. In this section, the behavior of reserve requirement rates on different types of deposits is analyzed to see if the pattern of behavior is similar.⁴

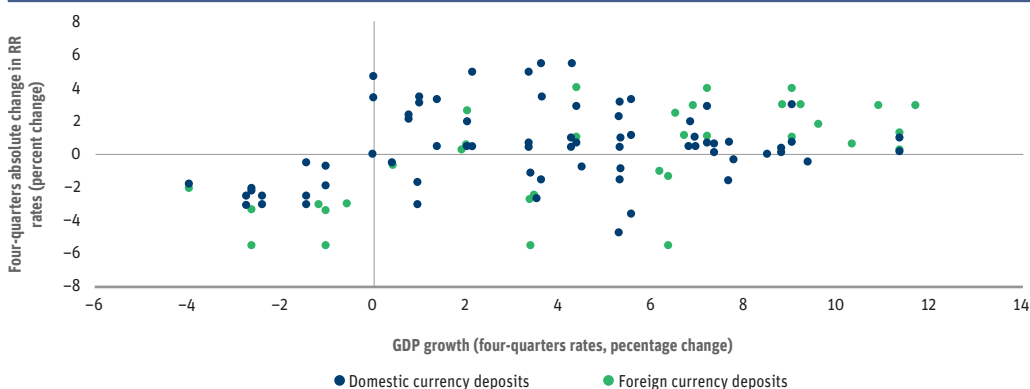
In general, the reserve requirement rates on demand and savings-type deposits and on deposits in foreign as well as domestic currency followed similar patterns (see Figure B.3). Rates increased during the high growth period preceding the Lehman collapse, decreased as the crisis unfolded in 2008 and 2009 and were raised again around the 2010 recovery.

Reserve requirements have become part of the arsenal of countercyclical policy tools in several Latin American and Caribbean countries; as shown in Figure B.4, reserve requirement rates have tended to move with economic growth. The horizontal axis shows different levels of real GDP growth (four-quarter rates), and the vertical axis shows the share of observations, across the sample of countries, with nonzero four-quarter changes in reserve requirement rates. Reserve requirements change more often when GDP growth is either atypically high or atypically low. Figure B.5 plots the actual data pairs (reserve requirement rate changes versus changes in growth, with different colors for reserve requirement rates in dollars versus local currency) and, as can be seen, when growth is negative all the respective data points are in the southeast quadrant (negative growth and negative changes in reserve requirement rates). While

⁴ For this analysis, the majority of those countries with inflation-targeting regimes are considered, including Brazil, Chile, Colombia, the Dominican Republic, Guatemala, Paraguay, and Peru. The analysis excludes reserve requirements applied to other types of liabilities as well as marginal requirements.

FIGURE B.4 RESERVE REQUIREMENTS AND GDP GROWTH

Source: Authors' calculations based on national sources.

FIGURE B.5 GDP GROWTH AND CHANGES IN RESERVE REQUIREMENT RATES

Source: Authors' calculations based on national sources.

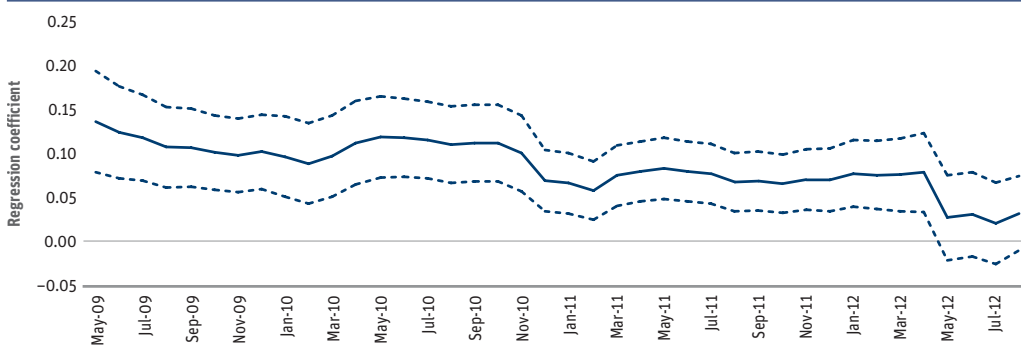
there is a positive relation overall, when GDP growth is positive some rates increase while others appear to decrease.⁵

On the Credibility of Inflation-Targeting Regimes

In a credible inflation-targeting regime, private analysts will anticipate the policy actions of central banks in attempting to correct inflation shocks that threaten an inflation

⁵ This may be related to countries facing different policy objectives, such as the need to apply countercyclical measures, capital flow management and, in the case of partially dollarized economies, fostering dedollarization.

FIGURE B.6 THE DECLINING IMPACT OF INFLATION SHOCKS ON INFLATION EXPECTATIONS
 ROLLING REGRESSION WITH A MOVING WINDOW OF TWO-AND-A-HALF YEARS



Source: Authors' calculations based on Central Bank data and www.iadb.org/revela.

target. If inflation expectations are well anchored, changes in the actual inflation rate should have a low impact on medium-term inflation expectations.⁶ On the other hand, if inflation is significantly above target, the credibility of the regime would be likely to suffer and inflation shocks would then have a stronger impact on inflation expectations. Using a dataset of inflation expectations taken from surveys of private analysts conducted by central banks in Latin America and the Caribbean,⁷ Mariscal, Powell, and Tavella (2013) investigate these issues by estimating the following panel regression:⁸

$$E_{t,k} \pi_{t+i,k} = \alpha_k + \beta \pi_{t,k} + \gamma E_{t-l,k} \pi_{t+i,k} + \delta \text{Max}\{\pi_{t-i,k} - T_{t-i,k}, l\} + \varepsilon_{t,k}$$

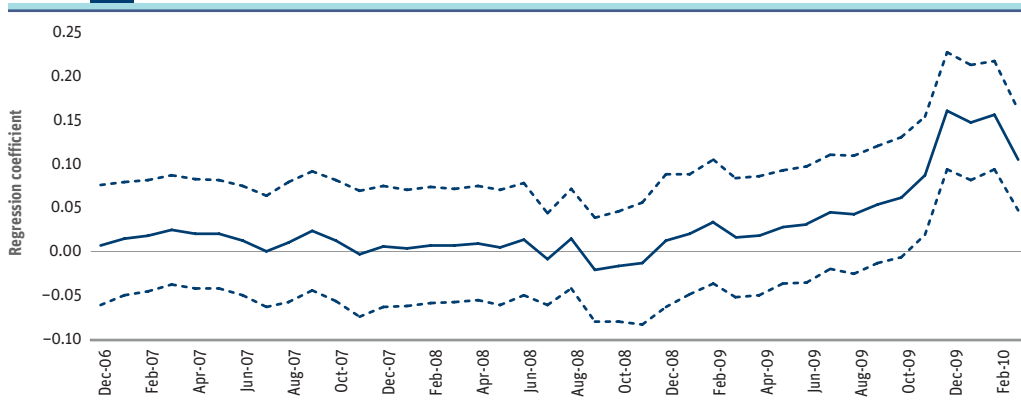
where π is the annual inflation rate and T is the inflation target; the subscripts t and k stand for time and country, respectively. E refers to expectation and so, for example, $E_{t-l,k} \pi_{t+i,k}$ is the expectation at $t-l$ of the inflation rate at a time period in the future labeled $t+i$ all for country k . The results below focus on inflation expectations of more than one year. Figure B.6 below presents the rolling estimates with a moving window of two-and-a-half years of the coefficient γ in the regression above. The credibility of inflation targeting regimes has improved as the level of this coefficient has been decreasing over time. Indeed, in the last period the coefficient is not significantly different from zero, indicating that an inflation shock has no discernible effect on inflation expectations. However, as illustrated in Figure B.7, the coefficient δ is also found to be positive and is significant towards the end of the sample. This implies that when actual inflation increases to more than 1 percent above the target,

⁶ See Huang and Trehan (2008), for a discussion of methodology and application to the U.S.

⁷ See REVELA, IDB. Data is available on <http://www.iadb.org/revela>.

⁸ Monthly data. Eight countries are considered: Brazil, Chile, Colombia, Guatemala, Mexico, Paraguay, Peru, and Uruguay. They use monthly information from December 2006 to August 2012.

FIGURE B.7 DE-ANCHORING OF INFLATION EXPECTATIONS WHEN INFLATION EXCEEDS TARGET BY ONE PERCENT
 ROLLING REGRESSION WITH A MOVING WINDOW OF TWO-AND-A-HALF YEARS



Source: Authors' calculations, data available at www.iadb.org/revela.

inflation expectations are affected by inflation shocks. The results then suggest that inflation targets in the region in general have become highly credible in the sense that inflation expectations are well anchored, but if inflation is more than 1 percent above the target then this measure of credibility appears to suffer.

