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Tale of Two Adjustments

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Preface

The April 2017 *Regional Economic Outlook: Western Hemisphere* was prepared by a team led by Hamid Faruqee and S. Pelin Berkmen under the overall direction and guidance of Alejandro Werner and Krishna Srinivasan. The team included Steve Brito, Carlos Caceres, Yan Carrière-Swallow, Roberto García-Saltos, Carlos Gonçalves, Kotaro Ishi, Anna Ivanova, Carlos Janada, Emanuel Kopp, Genevieve Lindow, Nicolas E. Magud, Udi Rosenhand, Galen Sher, Bert van Selm, and Juan Yépez. In addition, Chapter 1 included guidance and review from Nigel Chalk, Stephan Danninger, and Cheng Hoon Lim; Michal Andrle, Valentina Flamini, Benjamin Hunt, and Jaume Puig contributed to Chapter 2, and Yixi Deng and Victoria Valente provided research assistance for the Central America section; Sergi Lanau contributed analysis to Chapter 3; Carolina Osorio Buitrón provided data used in Chapter 4; and Chapter 5 was produced by a team led by Jan Kees Martijn and comprised of Kimberly Beaton, Svetlana Cerovic, Misael Galdamez, Metodij Hadzi-Vaskov, Zsoka Koczan, Franz Loyola, Bogdan Lissovolik, Yulia Ustyugova, and Joyce Wong. Production assistance in the Western Hemisphere Department was led by Misael Galdamez, with assistance from Adrean Howes in the Special Office Support division of the Human Resources Department. Linda Long of the Communications Department coordinated editing and production, with editing help from Lucy Morales and Sherrie Brown. The Grauel Group provided layout services. From the Corporate Services and Facilities Department, Carlos Viel and Virginia Masoller, with the administrative support of María Fraile de Manterola, led the translation and editing team in the production of the Spanish edition. This report reflects developments and staff projections through early March 2017.

Executive Summary

Shifts in the global landscape are taking place following disappointing growth in 2016. Momentum picked up in the second half of 2016, and the outlook for advanced economies has improved for 2017–18. Better growth prospects in the United States, Europe, and Japan reflect some rebound in manufacturing and trade, as well as prospects of likely U.S. fiscal stimulus in the wake of the November elections. As it seeks a new policy course, the *United States* should see solid economic growth in the near term with job creation and rising inflation. With a shift in the direction of U.S. policies, market sentiment has strengthened alongside advancing equity markets, a stronger U.S. dollar, and higher U.S. interest rates. Meanwhile, growth prospects marginally worsened for emerging market and developing economies compared to last fall. However, financial conditions have improved here too, though financial risks and market volatility remain elevated. Stronger growth this year and next is projected for these economies, including China, given its stronger-than-expected policy support. On balance, global growth is envisaged to rise modestly in 2017 and 2018 but with widely dispersed risks. Global vulnerabilities include a rising tide of economic nationalism in major advanced economies marked by greater antipathy toward trade, immigration, and globalization.

In this global setting, economies of *Latin America and the Caribbean* are recovering from a recession at the regional level in 2016. In a tale of two adjustments, growth has been held back by weak domestic demand. This reflects both the ongoing external adjustment to earlier terms-of-trade shocks and, in some cases, fiscal adjustment, in addition to other country-specific domestic factors. The regional recession, however, masks divergent outcomes across countries, with relatively robust growth in Central America; deep contractions in a handful of countries such as Argentina, Brazil, Ecuador, and Venezuela; and generally modest growth elsewhere.

Regional activity overall is expected to pick up gradually this year and next, but the outlook is weaker than projected last fall. The projection for medium-term growth remains modest at about 2.6 percent. The outlook is shaped by key shifts in the global economic and policy landscape, including a modest rebound in commodity prices and in partner demand and higher policy uncertainty at the global level. Domestic fundamentals and developments, however, will continue to play a significant role in determining growth in many economies. At the same time, risks to regional growth have widened in a setting of higher global policy uncertainty.

In this challenging external context, countries should aim for completing fiscal and external adjustments to preserve or rebuild policy buffers. Charting a course toward higher, sustainable, and more equitable growth will also require strengthening structural reforms aimed at closing infrastructure gaps; improving the business environment, governance, and education outcomes; and encouraging female labor participation to boost medium-term growth and foster income convergence.

In *South America*, weaker domestic fundamentals combined with a large terms-of-trade shock took a toll on economic performance and led to sharp recessions in some major economies. Despite the improved external outlook, extending external and fiscal adjustment domestically to structurally lower commodity revenues should continue. Continued efforts are also needed to reduce domestic distortions, resolve policy uncertainties, improve governance, and further structural reforms.

The outlook and risks for *Central America* and *Mexico* are influenced by their exposure to the United States through trade, migration, and foreign direct investment linkages. In this context, maintaining macroeconomic stability and market confidence in an environment of heightened uncertainty is crucial. Prospects for the *Caribbean* are improving, but public sector debt remains a major vulnerability.

This issue of the *Regional Economic Outlook* features three analytical chapters that assess the progress in external adjustment to terms-of-trade shifts, analyze drivers of capital flows, and examine migration and remittances in Latin America and the Caribbean. Key findings are:

- Past external adjustment to negative terms-of-trade shocks in Latin America has worked through a compression of domestic demand and imports rather than growth of supply and exports. In the ongoing adjustment, real depreciations have boosted noncommodity exports and lowered imports more than in the past, and demand has shifted toward locally produced goods unlike in past adjustments. This has alleviated the domestic demand compression needed to achieve external adjustment—that is, a lower sacrifice ratio—for countries with flexible currencies. At the same time, the cost of external adjustment has increased for countries with more rigid exchange rate regimes, given increasing use of flexible regimes in trading partners and competitors. Finally, the overall sluggish response of exports to real depreciations masks differences across industries, including a stronger export performance response for manufacturing goods than for commodities.

- Following a decade of strong capital inflows, Latin America and other emerging markets are now facing the prospects of weaker economic growth and financial flows. Overall, capital inflows are strongly influenced by global cyclical factors as well as country-specific structural factors. In particular, good governance and solid institutional and regulatory frameworks play a key role in attracting inflows over periods longer than the usual business cycle. At the same time, having deeper domestic financial markets with a large and stable domestic investor base, as well as allowing for more exchange rate flexibility, are effective ways to reduce the vulnerability of capital flows to external shocks.

- Migration from and remittance flows to Latin America and the Caribbean have major economic and social ramifications for the migrants' home countries. Outward migration in isolation may lower growth in home countries by reducing the labor supply and productivity, but the remittances sent home by migrant workers serve as a mitigating factor. Remittances serve as a large and relatively stable source of external financing, notably in Central America and the Caribbean, and help cushion the impact of economic shocks. However, the region's dependence on remittances primarily from the United States can pose risks, due to both cyclical reasons and to possible changes to immigration-related policies in host countries. Targeted reforms aimed at leveraging the pool of high-skilled and highly educated workers at home can help reduce outward migration and the attendant adverse consequences. Similarly, given the key financing and stabilizing roles played by remittances, policies to reduce transaction costs and promote the use of formal channels of intermediation merit support.

1. A Shifting Global Landscape and the Outlook for the United States and Canada

Against the backdrop of lackluster global growth in 2016, the world economy is seeing underlying shifts in its economic and policy landscape. Since last October, the outlook for advanced economies for 2017–18 has improved, reflecting better growth prospects in the United States, Europe, and Japan—alongside some rebound in manufacturing and trade and likely U.S. fiscal stimulus. With the anticipated change in the U.S. policy mix, including faster monetary tightening and a stronger U.S. dollar, market sentiment in advanced economies has improved and equity markets have been buoyant. Domestic financial conditions initially tightened in emerging markets, where growth prospects have worsened slightly, but market conditions have since noticeably improved. On balance, global growth is expected to rise modestly in 2017 and 2018 but with widely dispersed risks around this baseline. Longer-term uncertainty surrounds the direction and extent of shifts in U.S. policies. Global vulnerabilities include a rising tide of economic nationalism in major advanced economies—marked by higher antipathy toward trade, immigration, and globalization.

Global growth in 2016 was the weakest since 2008–09. However, economic momentum improved in the second half of last year, notably in major advanced economies. Recent signals—including global indicators of manufacturing activity and trade flows—indicate improved growth momentum in 2017. With this momentum, global growth is expected to rise modestly from 3.1 percent in 2016 to 3.4 percent in 2017 and 3.6 percent in 2018 (Figure 1.1; see also Chapter 1 of the April 2017 *World Economic Outlook*). This forecast envisages a stronger rebound in advanced economies since last October, while weaker-than-expected activity in some emerging market economies has led to small downward revisions to their overall growth prospects for 2017–18.

The improved outlook for advanced economies for 2017–18 reflects a somewhat stronger pace of activity in the second half of 2016, an assumed fiscal stimulus and improved confidence in the United States, and better growth prospects in Europe and Japan associated with a manufacturing and trade rebound. Since last November's elections, expectations of looser fiscal policy in the United States have contributed to a stronger dollar and higher interest rates, pushing up bond yields elsewhere. Market sentiment and risk appetite have also strengthened—generating appreciable gains in equity markets—although financial risks in emerging markets remain elevated amid higher volatility. Growth prospects worsened marginally for emerging market and developing economies, including in Latin America, as growth outcomes in the latter half of 2016 were generally slower than expected. Better growth performance, however, is expected this year and next for these economies. China's growth in 2017, for example, has been marked up owing to stronger-than-expected policy support. Also, conditions in commodity exporters with macroeconomic strains should gradually improve as a result of firming commodity prices since last October.

Risks to global growth have risen and are slanted to the downside, largely reflecting uncertainty about policies. Buoyant markets and sentiment portend a tangible upside for near-term growth. However, risks to the medium-term outlook for growth appear more negative. Policy support for growth in the United States and China will have to be unwound or reversed down the road. More generally, uncertainty stems from risks of an inward shift in policies, including trade or immigration restrictions; the possibility that U.S. fiscal stimulus will trigger a quicker tightening in global financial conditions; and factors including geopolitical tensions, domestic political discord, and terrorism and security concerns. These risks are interconnected. For instance, more insular policies could be associated with heightened

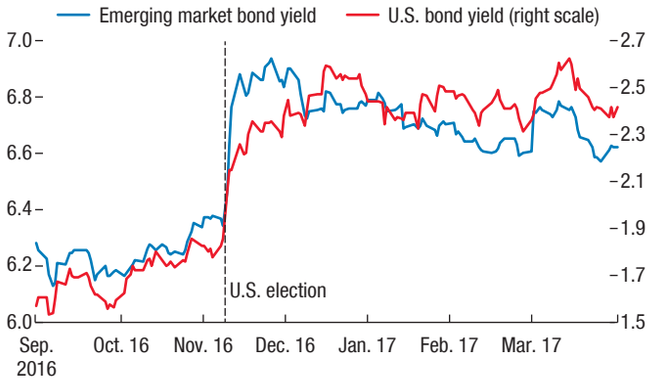
This chapter was prepared by Hamid Faruqee with Kotaro Ishi and Emanuel Kopp. Genevieve Lindow provided excellent research assistance.

Figure 1.1. Global Growth, Financial Conditions, and Commodity Markets

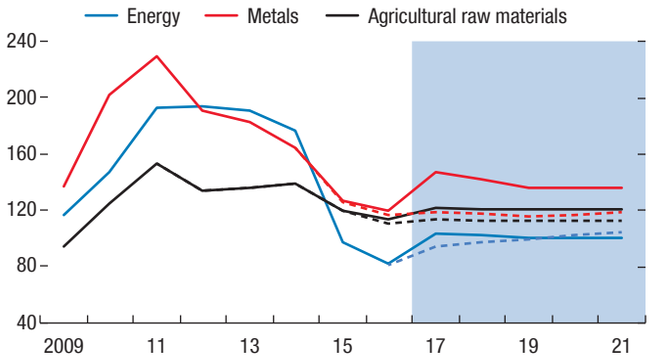
1. Real GDP Growth
(Percent; annual rate)

			Projections	
	2015	2016	2017	2018
World	**3.4**	**3.1**	**3.5**	**3.6**
Advanced economies	2.1	1.7	2.0	2.0
United States	2.6	1.6	2.3	2.5
Euro area	2.1	1.8	1.7	1.6
Japan	1.2	1.0	1.2	0.6
Emerging market and developing economies	4.2	4.1	4.5	4.8
China	6.9	6.7	6.6	6.2
Russia	–2.8	–0.2	1.4	1.4

2. Ten-Year Bond Yields[1]
(Percent)



3. Global Commodity Prices[2]
(Index: 2005 = 100)



Sources: Bloomberg L.P.; and IMF, World Economic Outlook database.
[1]Bond yield for emerging markets refers to J.P. Morgan Government Bond Index–Emerging Markets (GBI-EM).
[2]Dotted lines refer to the October 2016 *World Economic Outlook* global assumptions.

geopolitical tensions as well as heightened risk aversion and tighter financial conditions.

Shifts in the Global Landscape

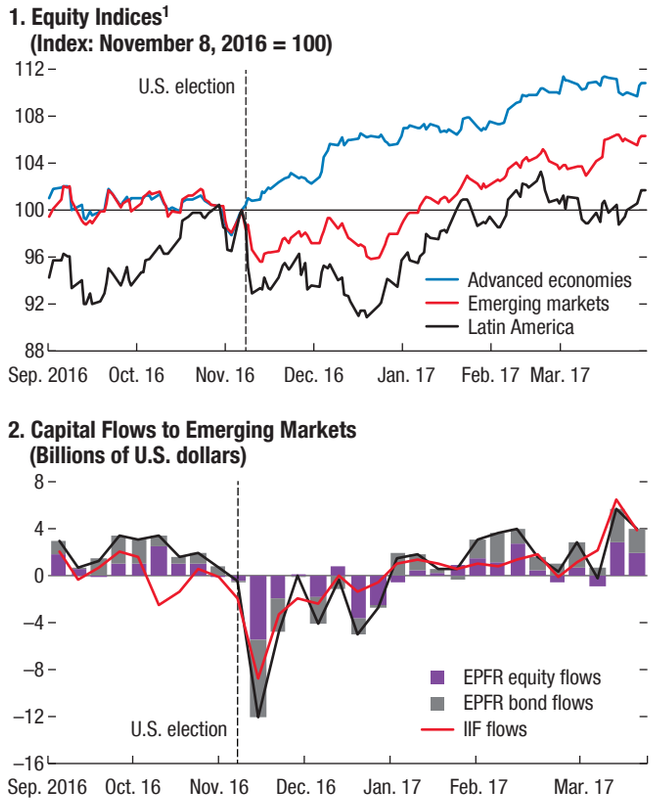
In a setting of disappointing global growth over the past several years, important shifts are taking place in the economic and policy landscape affecting the outlook. A key assumption underlying the forecast is a *changing policy mix* in the United States and its possible global spillovers. Following the November elections, near-term fiscal stimulus and a faster pace of monetary policy normalization are now assumed relative to previous forecasts. See the U.S. section in this chapter for details of potential policy changes and Chapter 2 for a discussion of the regional implications.

Other developments include *commodity markets* where agriculture, metals, and energy commodity prices have firmed (Figure 1.1). For example, the latest forecasts incorporate higher oil prices following the agreement among members of the Organization of the Petroleum Exporting Countries and several other major producers to limit supply. However, the medium-term outlook for oil markets is broadly unchanged around "lower for longer" oil prices (Figure 1.1).[1] In many emerging markets, previous downward pressures on headline inflation have receded, in part owing to the recent firming of commodity prices and a pickup in growth. An exception is Latin America, where inflation has been easing, as discussed in Chapter 2.

In *financial markets*, a significant repricing of assets ensued in the wake of the U.S. presidential elections, with an initial divergence seen in equity prices between advanced and emerging market economies (Figure 1.2). Notable market developments included a steepening of the U.S. yield curve and upward movements in the U.S. dollar as term premiums decompressed. Portfolio

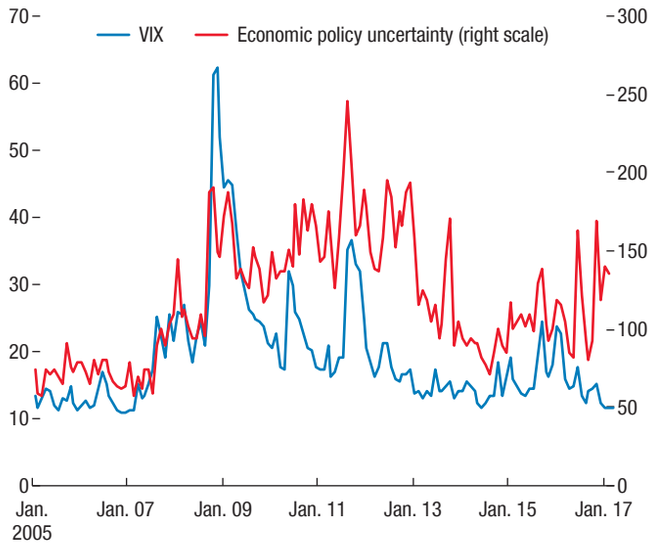
[1]See the April 2016 *Regional Economic Outlook*: *Western Hemisphere* for a discussion of global trends in oil demand and supply and factors behind lower-for-longer oil prices, including the role of unconventional oil producers.

Figure 1.2. Global Equity Markets and Capital Flows



Sources: Bloomberg L.P.; Haver Analytics; and Institute of International Finance (IIF) database.
Note: EPFR = Emerging Portfolio Fund Research.
[1]Refers to Morgan Stanley Capital International (MSCI) local currency indices.

Figure 1.3. Policy Uncertainty and Stock Market Volatility
(Index)



Sources: Bloomberg L.P.; and Haver Analytics;
Note: The economic policy uncertainty index for the United States was developed by Scott Baker and Nicholas Bloom of Stanford University and Steven Davis of the University of Chicago (2012). VIX = Chicago Board Options Exchange Volatility Index.

reallocation produced a selloff in U.S. Treasury markets and a rally in equity markets in advanced economies, where market-based measures of inflation expectations have risen from low levels.

At the same time, equity prices in emerging markets broadly retreated in late 2016 as their currencies weakened, especially in Mexico, but stock prices and currency values have largely recovered since. In parallel, high-frequency indicators of capital flows suggest a recovery in financial flows to emerging markets following their initial drop in November 2016. Uncertainty remains, however, about the economic outlook—including the nature and extent of possible changes to U.S. tax, trade, and immigration policy, as well as to financial and business regulation.

Indicators of global policy uncertainty, for example, have risen noticeably over the past year, seemingly at odds with declining measures of volatility in major equity markets (Figure 1.3 and Chapter 1 of the April 2017 *Global Financial Stability Report*). Policy uncertainties create risks and possible spillovers.

Wider Range of Global Risks

The range of risks around the global forecast is thus wider than usual:

- Although a moderate pace of *U.S. interest rate hikes* is envisaged in line with achieving the Federal Reserve's price stability mandate, changes to the policy mix entail risks, depending on the supply side of the economy. If fiscally driven increases in demand collide with more rigid capacity constraints, a steeper path for interest rates will be necessary to contain stronger incipient inflation pressures. Sharp movements in U.S. term premiums tend to spill over into other financial markets and

may produce an abrupt tightening of global financial conditions. With tighter financial conditions, the U.S. dollar would appreciate more sharply, which may create difficulties for economies that manage their currencies to closely align with the dollar. In turn, a stronger dollar could contribute to widening U.S. external deficits and larger global imbalances.

- At the global level, *policy uncertainty* has risen appreciably—including from the potentially far-reaching changes in the direction of U.S. policies, which are not yet known. In Europe, the terms of Britain's exit from the European Union and the single market remain unsettled. Pervasive sources of policy uncertainty can trigger heightened risk aversion in markets and a reversal of recent market trends. Other key risks include building vulnerabilities in China's financial system as policy stimulus is extended and continued, and balance sheet weaknesses and currency mismatches in other emerging market economies that could amplify tightening financial conditions.
- Vulnerabilities globally include the rise of *economic nationalism*, accompanied by higher antipathy toward trade, immigration, and globalization in Europe and the United States. Risk associated with protectionist measures and retaliatory responses would lower global growth through reduced trade, migration, and cross-border investment flows. These risks also heighten policy uncertainty and imply a potential sharper-than-expected tightening of global financial conditions, with possible stress on many emerging market economies and some low-income countries.

Policy choices and a reduction in policy uncertainty will therefore be crucial in shaping the outlook and reducing risks. At a global level, IMF staff continue to recommend a *three-pronged* policy approach that relies on fiscal and structural policies alongside monetary policy and is tailored to country circumstances to strengthen growth prospects (Chapter 1 of the April 2017 *World Economic Outlook*). Safeguarding an open, rules-based, multilateral trading system will also be critical for preserving the global economic expansion. At the same time, governments will need to do more to ensure that gains from technological progress and economic integration are shared more widely through redistributive policies and investments in skills and high-quality education, and by facilitating labor market adjustment.

U.S. Outlook: More Growth, Higher Risks

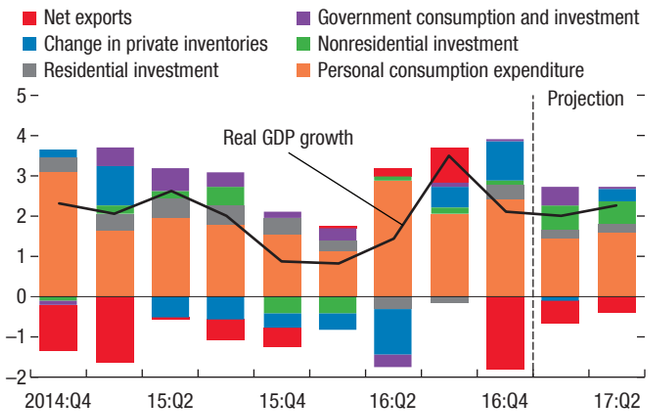
The U.S. economy regained momentum in the second half of 2016, with strong job creation, solid growth in disposable income, and robust consumer spending. Real GDP growth settled at 1.9 percent (seasonally adjusted annual rate) in the last quarter of 2016, after substantial quarterly volatility during the course of the year (largely tied to swings in inventories). Throughout the year, consumption remained the engine of growth, while a stronger dollar and restructuring in the oil sector weighed on business investment (Figure 1.4).[2]

Headline inflation has been slowly rising, although at 1.8 percent, core personal consumption expenditure inflation is still running below the Federal Reserve's 2 percent objective. Past U.S. dollar appreciation and a drag from non-oil import prices have kept inflation pressures subdued, but those effects are now waning. The economy is approaching full employment, and tightening labor markets allowed average hourly earnings to rise by 2.7 percent over the past 12 months, while labor force participation continues to drop. As economic slack continues to diminish, core inflation is projected to gradually pick up and reach the Federal Reserve's target by mid-2018.

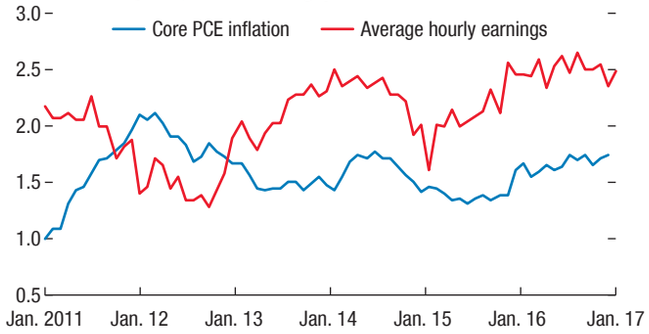
[2]In recent years, corporate profits have been used to a large extent for dividend growth, share buy-backs, and mergers and acquisitions. Since 2015, corporate payouts have been exceeding earnings—a phenomenon observed around the time of the last three recessions, but not during expansions.

Figure 1.4. U.S. Growth and Inflation, Dollar Index, and Interest Differentials

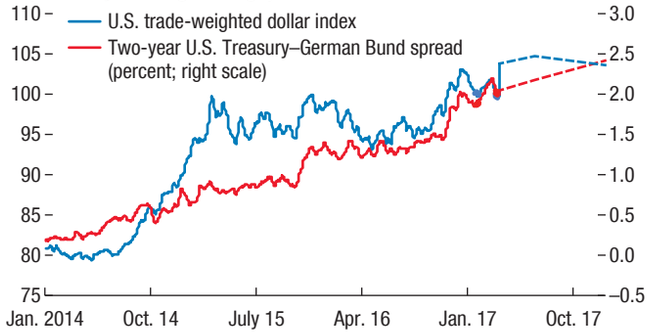
1. United States: Contributions to GDP Growth
(Percent change from previous quarter; seasonally adjusted annual rate)



2. United States: Inflation and Wage Growth
(Year-over-year percent change)



3. United States: Dollar Index and Yield Spread[1]
(Five-day moving average)



Sources: Bloomberg L.P.; Haver Analytics; U.S. Bureau of Economic Analysis; U.S. Bureau of Labor Statistics; and IMF staff calculations.
Note: PCE = personal consumption expenditure.
[1]Dashed lines based on median private sector forecasts of U.S. dollar index and calculated forward rates of the U.S. Treasury and the German Bund.

U.S. economic activity is projected to expand solidly by 2.3 and 2.5 percent in 2017 and 2018, respectively. Private consumption and fixed investment should benefit from actual and anticipated fiscal stimulus. IMF staff forecasts assume a fiscal expansion over 2017–19, mainly from a reduction in taxes on both households and firms. Over time, the U.S. current account deficit is projected to widen (to about 3 ½ percent of GDP by 2020), and public finances are expected to worsen (with debt held by the public approaching 110 percent of GDP by 2022). Although near-term prospects appear favorable, there are sizable longer-horizon uncertainties from the possible shifts in the direction of U.S. policies.

Changes in U.S. Policy Direction

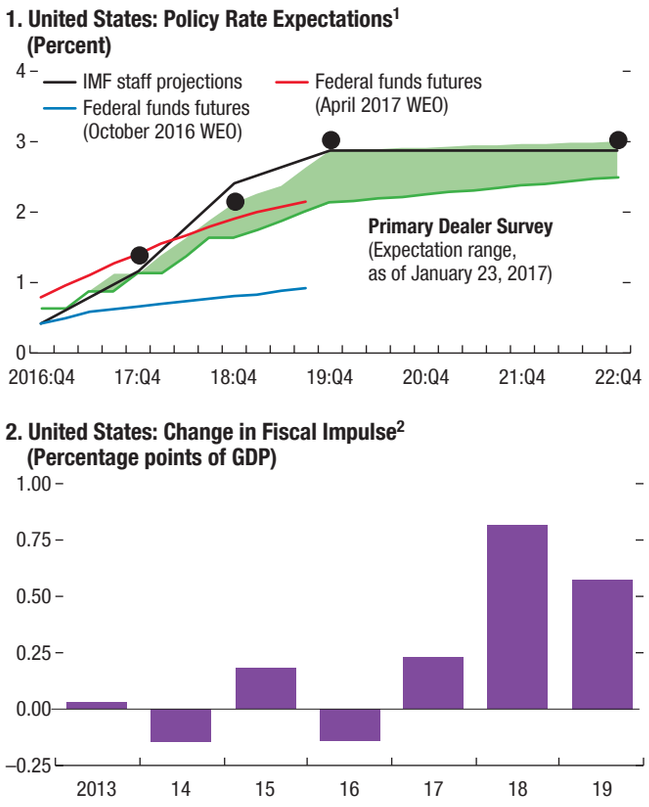
Policy Mix

Under the new administration, a shift in the U.S. *policy mix*—with more fiscal stimulus and a faster pace of monetary policy normalization—is assumed under the baseline projection. These anticipated policy changes appear to be largely priced in by markets, with a steepening yield curve, higher equity prices, and an appreciation of the U.S. dollar since November.

- On the *fiscal* side, the direction of existing proposals points to expansionary policies through personal income and estate tax cuts, reform of the corporate income tax, and, possibly, public or government-supported private infrastructure investment. Accordingly, IMF staff expect a higher fiscal impulse relative to the October *World Economic Outlook* forecasts (Figure 1.5). Specifically, IMF staff assume a 1.2 percent GDP increase in the federal primary deficit in cyclically adjusted terms from 2017–19, driven by personal and corporate income tax cuts.[3] Previous forecasts

[3]The baseline projection includes several policy assumptions. Relative to the October baseline, fiscal stimulus is estimated at 2 percent of GDP, cumulated over the period 2017–19, and consisting of personal income tax rate cuts equivalent to 1.1 percent of GDP over three years and corporate tax cuts equivalent to 0.9 percent

Figure 1.5. Changing U.S. Policy Mix



Sources: Bloomberg L.P.; Federal Reserve Board; IMF, World Economic Outlook (WEO) database; and IMF staff calculations.
[1]Black markers refer to the December 2016 Federal Open Market Committee median dots.
[2]Difference in fiscal impulse in April 2017 versus October 2016 WEO forecasts. The fiscal impulse is the negative change in the structural primary balance.

envisaged steady consolidation. While stimulating growth, such a fiscal expansion would likely cause a durable increase in the budget deficit and rising public debt, adding to existing budgetary pressures caused by population aging.

- With regard to *monetary policy*, a more assertive pace of policy rate increases by the Federal Reserve is assumed to keep inflation contained. Specifically, IMF staff forecasts assume three policy rate hikes in 2017 and five hikes in 2018, in line with the most recent guidance from Federal Open Market Committee members (Figure 1.5). Futures markets now also expect a steeper path for the central bank's policy rate compared with last October. Inflation is expected to rise modestly above 2 percent and then converge, from above, to the Fed's medium-term goals—a broadly unchanged inflation path relative to IMF staff's October 2016 forecast.

Finally, for *near-term risks*, the combination of fiscal expansion and monetary tightening may well induce further upward pressure on the U.S. dollar, especially if fiscal stimulus turns out to be larger than currently anticipated or if inflation pressures become evident more quickly.

Strategic Shifts and Two-Way Risks

Beyond a new policy mix, potentially far-reaching changes in the underlying direction of U.S. policies are being considered. Depending on how they are executed, they represent both upside and downside risks to the U.S. outlook over the medium term.

- *Corporate tax reform.* A structural overhaul of the U.S. corporate income tax is expected to involve a simplification of the tax system with lower average tax rates and a broader base. This change should be positive for long-term growth and, insofar as it is revenue losing, would also provide near-term demand stimulus. One key proposal under consideration is the destination-based cash-flow tax (DBCFT), which, if implemented, would likely boost business investment and economic growth domestically and encourage corporations to shift income or production from other tax jurisdictions to the United States (see Box 1.1). However, the border adjustment inherent in a DBCFT may create tensions with existing World Trade Organization rules, which could precipitate trade disputes and possible retaliation from partner countries. If such a move from the current open trading system were to occur,

of GDP. Other policy measures have not been included in the projection because of uncertainty around their final format and parameterization.

it would represent a negative risk to the U.S. outlook.

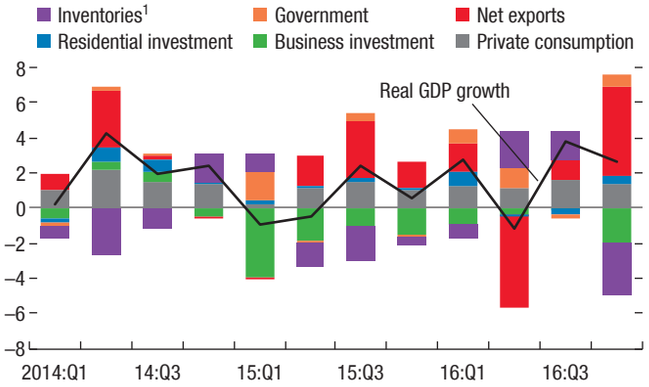
- *Business regulation*. The new administration has ordered a reexamination of existing federal regulations affecting businesses across a range of areas, with a view to scaling them back. Targeted deregulation that leads to simplification and streamlining of existing rules, harmonization of regulations across states, or better coordination of tax reform with regulatory reform could present an upside to the outlook by stimulating efficiency, growth, and job creation. Unintended negative side effects from deregulation efforts could occur for the environment, workplace safety, or protections for those with lower incomes.
- *Financial regulation*. The administration also plans to pursue changes in regulation of the financial industry, including reconsidering some aspects of the Dodd-Frank Act. There appears to be scope to make such legislation less burdensome, particularly for smaller financial institutions—including by adapting some elements of the current regulatory framework (for example, higher asset size thresholds in the application of enhanced prudential standards) or granting regulatory relief for small and community banks. However, many provisions of the existing regulatory rules have helped make the U.S. and global financial system considerably safer and more resilient. Diluting these provisions may lead to stronger near-term growth but would weaken the financial system's ability to manage stability risks and cope with financial stress, thus raising the likelihood of future economic dislocation.
- *Trade policy*. The United States has recently declared its intentions to reopen existing trade agreements, including renegotiation of the North American Free Trade Agreement (NAFTA). If well executed, cooperative efforts to update NAFTA (for example, in areas such as e-commerce and financial and other services) could potentially generate growth dividends for all the signatories. However, unilateral imposition of tariffs or other trade barriers on imports would prove damaging for both the United States and its trading partners—especially given the predominance of intermediate goods trade and established value chains across borders. Implications from trade restrictions would be manifested through weaker trade, higher production costs, more expensive imported consumer goods, and lower potential growth (see Chapter 2). Tariff retaliation by trading partners would deepen these adverse effects.
- *Immigration reform*. Currently, about 1.3 million immigrants enter the United States legally each year, supporting the workforce and positively affecting productivity. Skills-based immigration reform could create an upside for U.S. potential growth by increasing human capital, labor force participation, and productivity. However, a more restrictive approach to U.S. immigration policy, if broadly applied, would slow the influx of both skilled and unskilled workers, potentially depress innovation and productivity growth, and reinforce demographic trends of an aging population. These outcomes would have untoward effects on potential growth. Depending on the scale of the restrictions, they could also create upward pressure on U.S. production costs including wages (although this would be beneficial for low-income households). These restrictions would create negative spillovers for countries that rely on remittances from, and migration flows to, the United States (see Chapters 2 and 5).

U.S. Policy Priorities

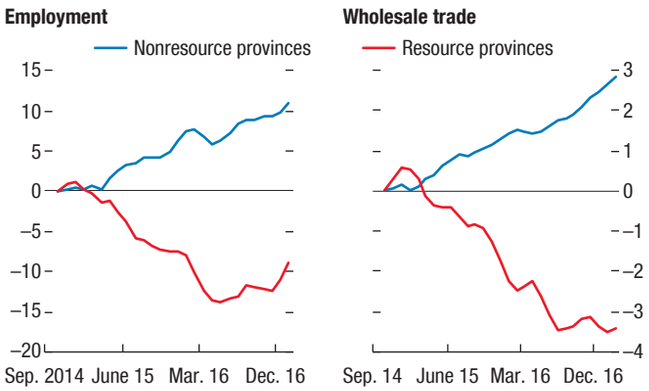
Over the longer term, U.S. *public finances* are on an unsustainable path given future increases in health and pension outlays as the population ages and potential output slows. A credible deficit- and debt-reduction strategy continues to be absent. By tackling medium-term fiscal imbalances, the United States could create more room for policies

Figure 1.6. Canada Growth, Sectoral Shifts, and Lower Oil Prices

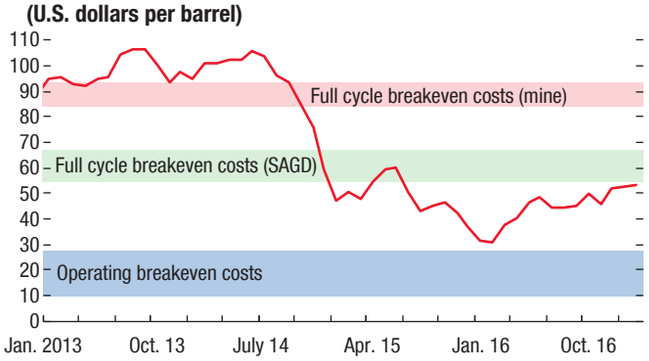
1. Canada: Contributions to GDP Growth
(Percent change from previous quarter; seasonally adjusted annual rate)



2. Canada: Regional Economic Indicators[2]
(Change from October 2015; three-month moving average; percentage points)



3. Canada: West Texas Intermediate Oil Prices and Breakeven Costs of Oil Sands Projects
(U.S. dollars per barrel)



Sources: Haver Analytics; IHS Markit; and Statistics Canada.
Note: SAGD = steam-assisted gravity drainage.
[1]Includes statistical discrepancy.
[2]Nonresource provinces are British Columbia, Ontario, and Quebec; resource provinces are Alberta and Saskatchewan.

that improve the nation's infrastructure, boost the labor force, and improve human capital.

Structural policies should prioritize those measures that can lift potential output and reduce poverty rates. These measures include infrastructure investment, education spending, stronger social safety nets (such as expanded earned income tax credits), tax and pension reform, and a higher minimum wage. Measures to expand the pool of skilled labor include skills-based immigration reform, job training, and child care assistance. U.S. immigration system reforms would need to balance being skills-based to raise the human capital of the workforce with being sufficiently broad-based to reverse underlying demographic trends toward a rising elderly dependency ratio. The path of future health care costs also needs to be lowered, particularly for vulnerable groups, to secure the sustainability of public finances.

Canada: Promising Prospects, Higher Uncertainty

In a year of transition, Canada's economy has undergone important structural shifts. Investment and employment have been reallocated from the resource sector to other areas of the economy, most notably services. Quarterly GDP was volatile in 2016 in the aftermath of severe Alberta wildfires and swings in oil production over the course of the past year. Overall, the economy posted modest growth of 1.4 percent for 2016, up from 0.9 percent in 2015, as the drag from lower commodity prices dissipated. Personal consumption remained resilient, supported by fiscal stimulus and expansion of the Canada Child Benefit program. However, business investment continued to be a drag on growth, while exports were lackluster, reflecting external competitiveness challenges for nonresource goods sold in the U.S. market. Nonetheless, signs of economic momentum have emerged since the second half of 2016 (Figure 1.6), and GDP growth is projected to strengthen to 1.9 percent in 2017 and 2 percent in 2018. After the IMF forecast was

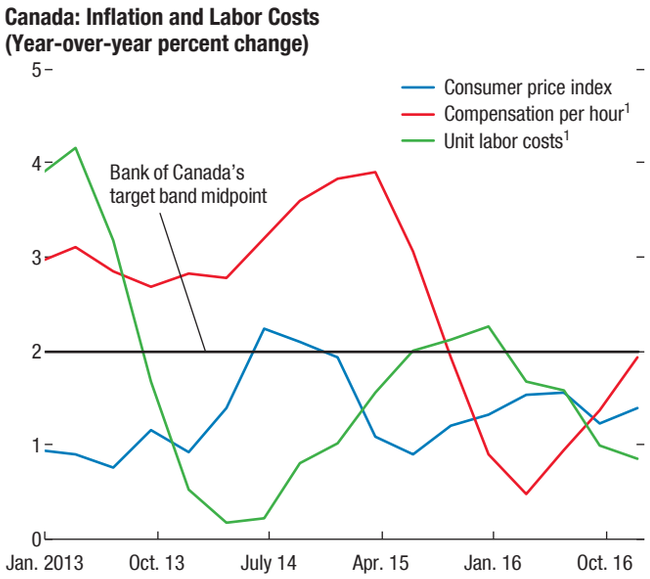
made, the release for January GDP and March housing starts were stronger than expected.

From the supply side, the services sector (accounting for about 70 percent of GDP) has been expanding steadily. Finance and real estate activities have also been boosted by the boom in housing markets. Reorientation toward nonresource sectors has proceeded gradually,[4] supported by accommodative monetary and fiscal policy as well as flexible labor markets (which facilitate interprovincial migration). At the provincial level, divergent regional indicators underscore an underlying sectoral shift in the economy (Figure 1.6). Resource-rich provinces have contracted but have shown signs of stabilizing more recently, and higher oil prices since mid-2016 are now well above operating costs for many oil sands producers (though still below their full-cycle breakeven costs). Market sentiment and corporate stress indicators related to energy firms have improved noticeably.

Turning to prices, inflation pressures remain subdued. For most of last year, headline consumer price index inflation was in the range of 1 to 1.5 percent, below the midpoint of the Bank of Canada's target band of 1 to 3 percent, although it has risen to about 2 percent more recently due to gasoline price increases. Core inflation measures have remained below 2 percent since late 2016, because of the diminishing effects of exchange rate pass-through, lasting excess capacity in the economy, and weak growth in unit labor costs (Figure 1.7). With business productivity running about 1 to 1.5 percent over the past year, growth of unit labor costs has hovered around 1 percent, posing little upward price pressure.

[4]Canada's initial weakened competitiveness position in the U.S. market helps explain the slow export response of nonresource goods to a more competitive exchange rate, as evidenced by stagnant Canadian goods exports in recent years (see also Chapter 3). Consistent with "Dutch disease," the oil boom of the past decade was accompanied by a significant rise in the value of the Canadian dollar, which partly explains an erosion of external competitiveness for its nonresource-exporting industries. Canada's share of nonresource goods exports dropped from nearly 20 percent in the mid-1990s to about 10 percent during the oil boom period.

Figure 1.7. Subdued Inflation and Cost Pressures



Source: Statistics Canada.
[1]Business sector; three-quarter moving average.

Elevated Macro-Financial Vulnerabilities

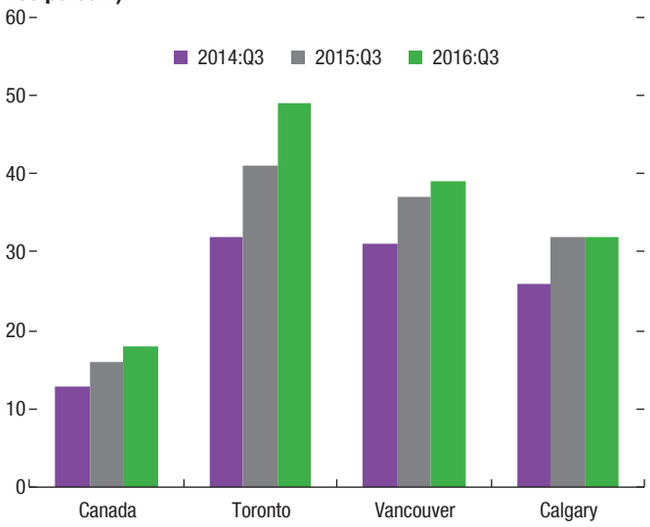
The housing sector continues to pose risks to macro-financial stability. High or rising house prices in key real estate markets have driven an increased number of borrowers to acquire larger mortgages with higher loan-to-income ratios.[5] The highly leveraged mortgage borrowers tend to be concentrated in the most expensive metropolitan housing markets (Figure 1.8). Overall, household indebtedness continued to rise (approaching a historic high of nearly 170 percent of disposable income). Households' total debt-service ratio has been broadly unchanged, with lower interest payments (reflecting lower rates) offsetting higher principal repayments (reflecting larger debt) (Figure 1.9).

Although the banking system is sound and profitability is high, banks' exposures to highly indebted households has risen. Mortgage and

[5]The share of mortgage borrowers with loan-to-income ratios greater than 450 percent increased from 32 percent in 2014 to 49 percent in 2016 in Toronto, and from 31 percent in 2014 to 39 percent in 2016 in Vancouver. See Bank of Canada (2016).

Figure 1.8. Increased Mortgage Borrowing

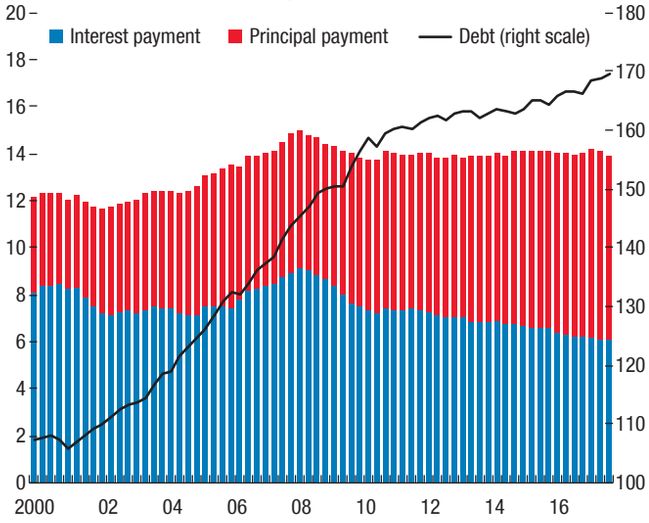
Canada: Share of Borrowers with High Mortgage Debt (Percentage share of mortgages with loan-to-income ratio over 450 percent)



Source: Bank of Canada 2016.

Figure 1.9. High and Rising Household Debt

Canada: Household Debt and Debt Service Ratios (Percent of disposable income)



Source: Statistics Canada.

consumer loans account for about one-third of bank assets. If risks were not sufficiently addressed, a plausible (but tail) risk scenario would involve a severe recession and a large and persistent rise in unemployment that could trigger a negative macro-financial spillover, resulting in an increase in mortgage defaults and a deep correction in house prices. Banks' profitability and capital positions would be hurt, leading to a credit crunch, magnifying the negative spillovers.

The authorities remain proactive in containing housing sector vulnerabilities. Over the past year, they have introduced new macroprudential policy measures—including requiring lenders to subject all insured borrowers to mortgage rate stress tests, tightening eligibility criteria of low loan-to-value ratio mortgages for portfolio insurance, and implementing tighter supervisory expectations for mortgage underwriting standards and strengthened bank capital requirements.[6] Some housing markets have recently shown signs of cooling. In Vancouver, for example, house prices and home sales have both fallen, likely reflecting the macroprudential tightening measures that have been taken, as well as new tax measures at the provincial and municipal level introduced in the past year (Figure 1.10).[7]

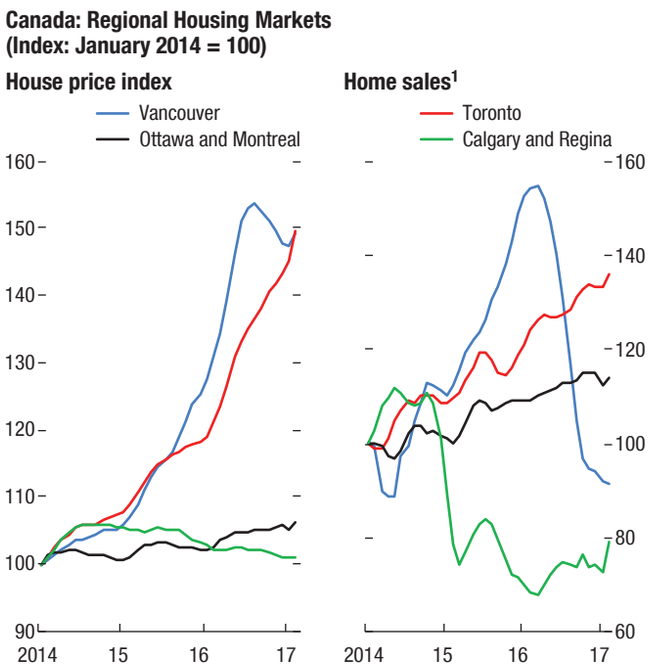
Higher Upside and Downside Risks

The medium-term outlook for the Canadian economy is somewhat clouded by uncertainty about external demand, the new U.S. administration's policies, and the lack of a clear driver for growth as sectoral shifts continue. Also, population aging is set to accelerate, albeit from a relatively low level compared with other advanced economies, with working-age individuals (ages 15–64) already starting to fall as a share of the total population. Both upside and downside risks to the outlook are significant:

[6]Other announced measures included closing tax loopholes pertaining to capital gains tax exemptions for principal residences and launching consultations on lender risk sharing (which would require mortgage lenders to bear a portion of loan losses on insured mortgages).

[7]In 2016, the British Columbia government introduced a 15 percent property transfer tax for foreign buyers in the Greater Vancouver area, and Vancouver city introduced a new empty-home tax.

Figure 1.10. Cooling in Some Housing Markets



Source: Canadian Real Estate Association.
[1]Three-month moving average.

- *Higher uncertainty about the U.S. policy stance and its spillover impact*. The United States is Canada's dominant trading partner (receiving about 75 percent of Canada's goods exports), and U.S. fiscal stimulus could benefit growth in Canada, depending on how changes in the U.S. policy mix are implemented. If the United States were to move ahead with protectionist trade measures, foreign demand would be reduced, putting a drag on Canadian exports and business investment.
- *A sharp correction in domestic housing markets*. This correction could be triggered by a sharper-than-expected increase in mortgage interest rates, along with tighter global financial conditions, or a sudden shift in price expectations, especially in the booming housing markets. Financial stability risk could emerge if the housing market correction were to be accompanied by a severe recession with a sharp and persistent rise in unemployment.

Policy Priorities in Canada

Given the still-weak economy, the key policy challenge is to bolster near-term growth while preventing the further buildup of imbalances, strengthening resilience to shocks, and vigorously pursuing structural reform to enhance external competitiveness and long-term growth.

From the standpoint of *macroeconomic policies*, the current policy mix is appropriate. The Bank of Canada has maintained an accommodative stance, with the policy rate at 0.5 percent since July 2015, given persistent economic slack, and markets assume that the rate will be kept unchanged until mid-2018. The federal government has fiscal space and is committed to expansionary policy to support the economy. The 2017 federal budget expects the deficit to widen slightly from 1.1 percent of GDP in FY2016/17 to 1.4 percent of GDP in FY2017/18, largely due to higher infrastructure spending. At the provincial level, the deterioration of fiscal balances is expected to come to an end, with economies in resource-rich provinces stabilizing. If downside risks materialize, there is scope for monetary and fiscal policy to provide additional stimulus, but more fiscal and less monetary support would help discourage households from taking on more debt.

The impact of recent *macroprudential policy measures* should be carefully watched before deciding on another move. If housing imbalances continue to grow, additional macroprudential policy measures, possibly targeting regional imbalances, may be needed. In contrast, if housing markets start correcting much faster than expected, and raise financial stability concerns, there may be a case for easing macroprudential measures.

With regard to *structural policy*, the authorities should continue to take bold actions to improve productivity and external competitiveness. Building on recommendations put forward by the Advisory Council on Economic Growth,[8] the

[8]In March 2016, the Minister of Finance established the Advisory Council on Economic Growth. In October, this council put forward its initial set of recommendations: (1) establishment of a new infrastructure bank to attract private infrastructure financing, (2) creation

2017 federal budget proposed detailed measures to enhance innovation, upgrade labor skills, and empower women in the workplace. The government is also committed to establishing a new infrastructure bank by late 2017 to leverage private sector expertise and capital. Beyond these measures, further efforts to diversify Canada's trade partners (including by implementing its free trade agreement with the European Union) and reduce non-tariff barriers across provinces would be beneficial to boost productivity.

of an Investment in Canada Hub to strengthen federal-provincial coordination to attract foreign direct investment, and (3) creation of a global skills strategy to help companies hire highly skilled immigrants more quickly. In February 2017, the council published a second set of recommendations, including measures to boost innovation, labor skills, and trade.

Box 1.1. The Destination-Based Cash Flow Tax

The U.S. House of Representatives' proposal for fundamental tax reform seeks to replace the corporate income tax with a *cash flow tax with border adjustment* and a lower tax rate for U.S. firms. The idea is to reduce the tax burden and relevant distortions by transforming the current 35 percent corporate income tax rate—which is the highest among Organisation for Economic Co-operation and Development economies—to a 20 percent destination-based cash flow tax (DBCFT) to encourage investment and employment in the United States.

How would it work? The tax has two basic components.[1] As a *cash flow tax*, corporate taxes would be paid on revenues less expenses—including wages, investment, and intermediate inputs used for production. Thus, the existing system of depreciation allowances and net interest payment deductions would be eliminated and replaced by immediate expensing of capital investment. This strategy would help eliminate tax bias for U.S. firms toward debt finance (since interest costs would no longer be tax deductible) and would tax economic rents rather than the normal return to capital (and, in so doing, remove an existing tax distortion on investment decisions).

Second, the *destination-based* component would mean "border adjusting" the tax by exempting exports and taxing imports (or equivalently, not allowing imports to be a deductible expense when calculating the firm's tax liability). Together, this would shift corporate taxation from a source basis (place of production) to a destination basis (place of consumption) analogous to a value added tax (VAT). Essentially, moving to a DBCFT is equivalent to raising the VAT and reducing payroll taxes or subsidizing wages:

$$\underbrace{\textit{Revenue} - \textit{intermediate purchases} + \textit{imports} - \textit{exports}}_{\textit{VAT base}} - \textit{wages}$$

Moving to a tax on a destination basis would, in effect, remove incentives for corporations to shift income or production from the United States to lower-tax jurisdictions (including through relocating intellectual property, transfer pricing, and thin capitalization). This change would limit problems of tax-base erosion and profit-shifting out of the United States.

If adopted, what are the broader implications of the DBCFT? The *macroeconomic effects* for the U.S. economy would depend on the precise specification of the tax and its impact on the fiscal deficit. Under an assumption of revenue neutrality, the proposed tax system should boost U.S. investment and induce a reallocation of productive capacity to the United States (see Box 1.1 of the *April 2017 Fiscal Monitor*). Benefits would largely stem from removing existing tax distortions on investment. However, any tax change of this magnitude would face numerous legal, practical and political hurdles. For example, adoption of the tax would require designing transition rules for existing capital and debt of firms, solving complications linked to taxation of the financial sector, and addressing how to provide refunds to sectors that are likely to face persistent tax losses. The change would also have uncertain distributional effects on income depending on implementation and the uniform tax treatment across all sectors and transactions might be hard to sustain in the face of lobbying pressures.

The proposal also carries significant *spillover implications*. Moving to a DBCFT could generate significant appreciation of the U.S. real exchange rate through a stronger dollar. A potentially large shift in the dollar's value would affect balance sheets, particularly for those economies that have unhedged and leveraged dollar positions. Nevertheless, many of the effects remain uncertain and difficult to assess, including the impact on exchange rates and prices. From a design standpoint, a potential inconsistency of the border adjustment

This box was prepared by Emanuel Kopp with input from the U.S. team.
[1]See Auerbach and others (2017) for a detailed discussion.

Box 1.1 *(continued)*

with World Trade Organization principles and existing tax treaties may open the door for retaliatory measures by trading partners. Furthermore, many countries would face the challenge of attracting foreign direct investment, as well as controlling tax-base erosion and profit-shifting to the United States from their home jurisdictions.

References

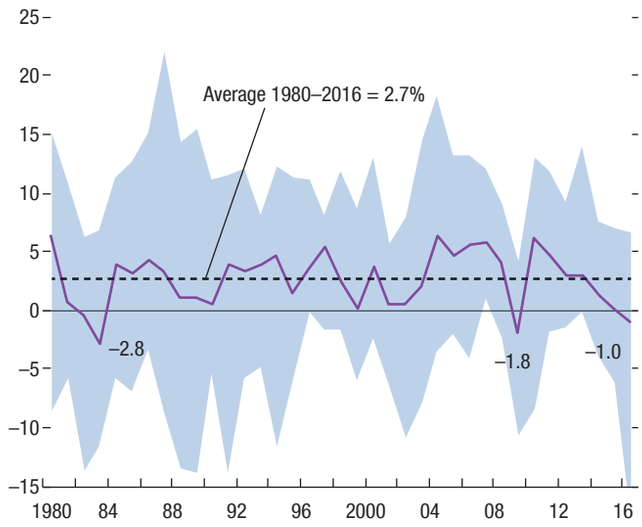
Auerbach, A., M. Devereux, M. Keen, and J. Vella. 2017. "Destination-Based Cash Flow Taxation." Working Paper 17/01, Oxford University Centre for Business Taxation, Oxford, UK.

Bank of Canada. 2016. *Financial System Review*. Bank of Canada, Ottawa, December.

2. Latin America and the Caribbean: Setting the Course for Higher Growth

Alongside important shifts elsewhere in the global landscape, the economies of Latin America and the Caribbean are recovering from a regional recession in 2016. Activity is expected to pick up gradually this year and next, but the outlook is weaker than projected last fall, and medium-term growth remains modest at about 2.6 percent. Inflation is easing in many economies as the pass-through from past depreciations is fading. At the same time, risks to growth have widened in a setting of higher growth in advanced economies but also higher global policy uncertainty involving possible changes in the underlying direction of U.S. policies, a rising tide of economic nationalism in advanced economies, and potential tightening of financial conditions. In this challenging external context, countries should aim for completing fiscal and external adjustments to preserve or rebuild policy buffers. Charting a course toward higher, sustainable, and more equitable growth will also require strengthening structural reforms aimed at closing infrastructure gaps; improving the business environment, governance, and education outcomes; and encouraging female labor force participation to boost medium-term growth and foster income convergence.

Figure 2.1. Historical Real GDP Growth in Latin America and the Caribbean
(Year-over-year percent change)



Source: IMF, World Economic Outlook database.
Note: Shaded region refers to the maximum and minimum range.

Recent Developments and Outlook: Shifts in the Global Landscape

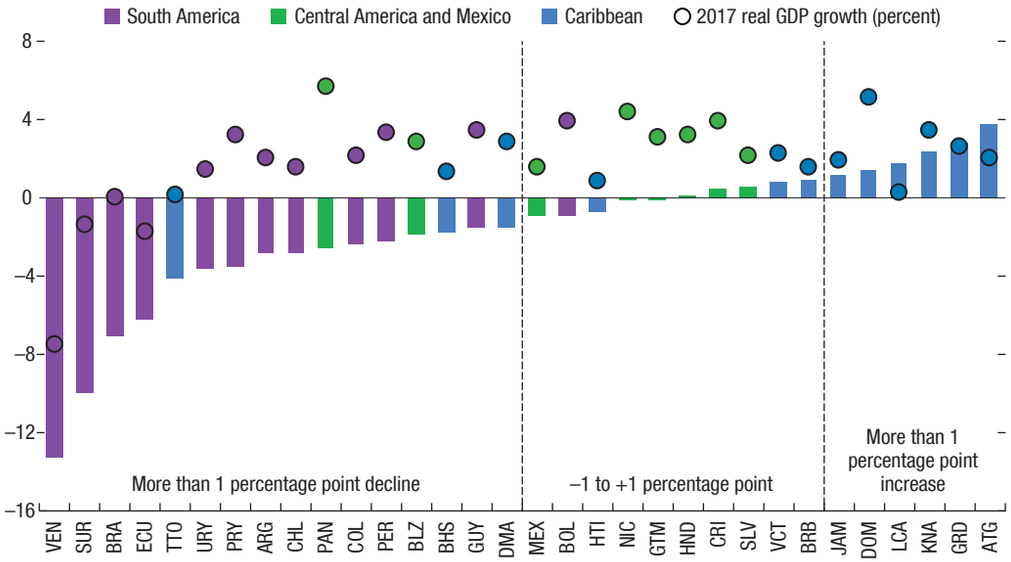
Economic growth in Latin America and the Caribbean in 2016 was the third-lowest in some 30 years, contracting by 1 percent in 2016 after stagnating in 2015 (Figure 2.1). Growth was held back by weak domestic demand, reflecting both the ongoing adjustment to earlier terms-of-trade shocks and country-specific domestic factors. The regional recession, however, masks divergent outcomes across the region, with relatively robust growth in Central America, deep contractions in Argentina, Brazil, Ecuador, and Venezuela, and modest growth elsewhere (Figure 2.2).

The region is expected to gradually emerge from recession in 2017. Economic activity is expected to expand by 1.1 percent in 2017 and 2 percent in 2018 (Table 2.1). Over the medium term, growth is expected to remain subdued at 2.6 percent. The outlook is shaped by key shifts in the global economic and policy landscape as well as by domestic factors (Figure 2.3):

- *An improved near-term outlook for advanced economies and China*—reflecting the cyclical recovery and the expected fiscal stimulus in the United States, cyclical factors in Europe and Japan, and stronger-than-expected policy support for China—indicates higher external demand. This is expected to support

This chapter was prepared by S. Pelin Berkmen and Juan Yépez, with contributions from Valentina Flamini and Jaume Puig. The section on Central America was coordinated by Anna Ivanova, Carlos Janada, and Roberto Garcia-Saltos, with excellent research assistance by Yixi Deng and Victoria Valente. The section on the Caribbean was coordinated by Bert van Selm. Model simulations for Box 2.1 were done by Michal Andrle and Benjamin Hunt. Genevieve Lindow provided excellent research assistance.

Figure 2.2. Latin America and the Caribbean: Change in Real GDP Growth and Growth Projections
(Average over 2010–14 to average over 2015–16; percentage points)



Sources: IMF, World Economic Outlook database; and IMF staff calculations.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137.

the region's exports, contributing positively to growth and facilitating further external adjustment (Chapter 3). Over the medium term, however, external demand is likely to be lower than its historical standard, particularly given China's transition to a more sustainable growth pattern that is less reliant on investment and commodity imports.

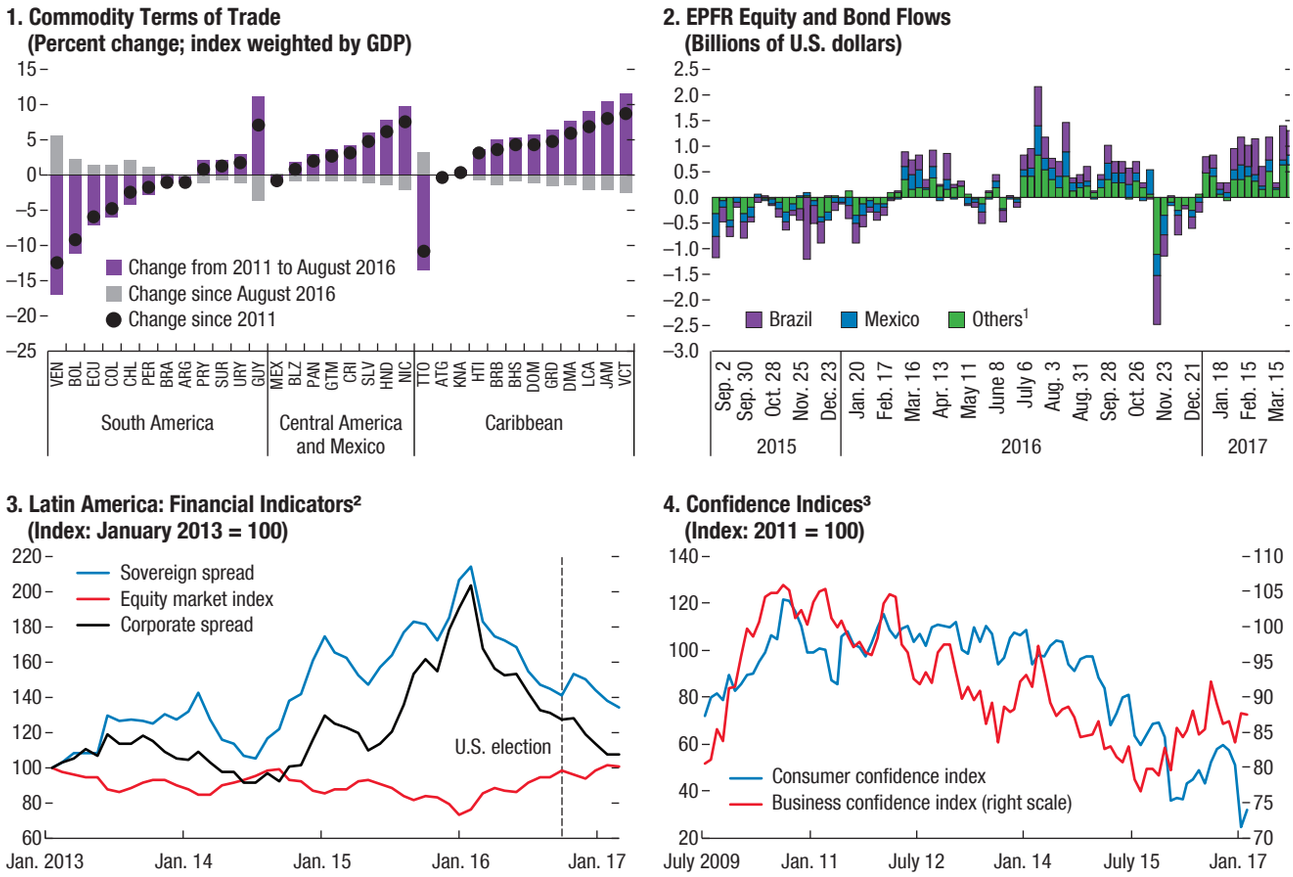
- *A modest recovery in commodity prices* has reversed some of the earlier terms-of-trade losses and helped ease pressures on the region's commodity exporters. Nevertheless, commodity prices are still expected to remain low by historical standards, and the adjustment to these new levels will continue to play a key role in the outlook for some countries.
- *Financial conditions have eased* after the short-lived tightening in the aftermath of the U.S. election. Expectations of looser fiscal policy in the United States have contributed to a stronger dollar and higher U.S. Treasury interest rates. This upward pressure on yields so far has been offset by the decline in sovereign spreads in the region (except for Mexico), reflecting improved global market sentiment and other domestic factors in stressed economies. At the same time, equity markets have strengthened and corporate spreads have narrowed, further easing financing conditions. Although capital flows have been volatile over the last year, portfolio

Table 2.1 Real GDP Growth in Latin America and the Caribbean
(Percent)

			Projections	
	2015	2016	2017	2018
LAC	**0.1**	**−1.0**	**1.1**	**2.0**
South America	−1.2	−2.7	0.6	1.8
CAPDR	5.1	4.5	4.3	4.3
Caribbean				
Tourism-dependent	0.8	1.4	1.9	2.3
Commodity exporters	−0.4	−4.8	0.6	3.1
Memorandum				
LA6	−0.3	−0.3	1.2	2.1
Brazil	−3.8	−3.6	0.2	1.7
Mexico	2.6	2.3	1.7	2.0

Sources: IMF, World Economic Outlook databases; and IMF staff calculations.
Note: Purchasing-power-parity GDP-weighted averages. For country group information, see page 137. CAPDR = Central America, Panama, and the Dominican Republic; LAC = Latin America and Caribbean.

Figure 2.3. Recent Developments: External Conditions Easing but Domestic Confidence Subdued



Sources: Bloomberg L.P.; Emerging Portfolio Fund Research (EPFR) database; Gruss 2014; Haver Analytics; IMF, Information Notice System database; IMF, World Economic Outlook database; national authorities; and IMF staff calculations.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137.
[1]Others include Argentina, Chile, Colombia, Peru, Uruguay, and Venezuela.
[2]Sovereign spread refers to J.P. Morgan Emerging Market Bond Index Global; equity market index refers to Morgan Stanley Capital International (MSCI) local currency index; and corporate spread refers to J.P. Morgan Corporate Emerging Markets Bond Index Broad Diversified.
[3]Consumer confidence index is the simple average of Brazil, Chile, Colombia, and Mexico. Business confidence index is the simple average of Brazil, Chile, Colombia, Mexico, and Peru.

inflows have recovered after sharp declines following the U.S. election, and overall inflows to the region have proven to be resilient, particularly relative to other emerging markets (Chapter 4).

- *Higher policy uncertainty at the global level*—notably in the United States, including about the nature and extent of possible reforms in tax, trade, and immigration policies—has reduced business and consumer confidence in Mexico, and is expected to weigh on the investment and consumption decisions of Mexican firms and households. At the same time, preempting potential changes in U.S. immigration policy, remittances to Mexico and some countries in Central America have recently increased.
- *Domestic fundamentals and developments* will continue to play a significant role in many economies. The progress in ongoing reforms and in reducing political uncertainty in *Brazil*, a lingering crisis in *Venezuela*, the fiscal rebalancing and disinflation process in *Argentina,* and limited fiscal space,

overvaluation, and the need for structural reforms in *Ecuador* will continue to dominate their outlooks. At the same time, continuing corruption scandals are weighing on sentiment in many countries in the region.

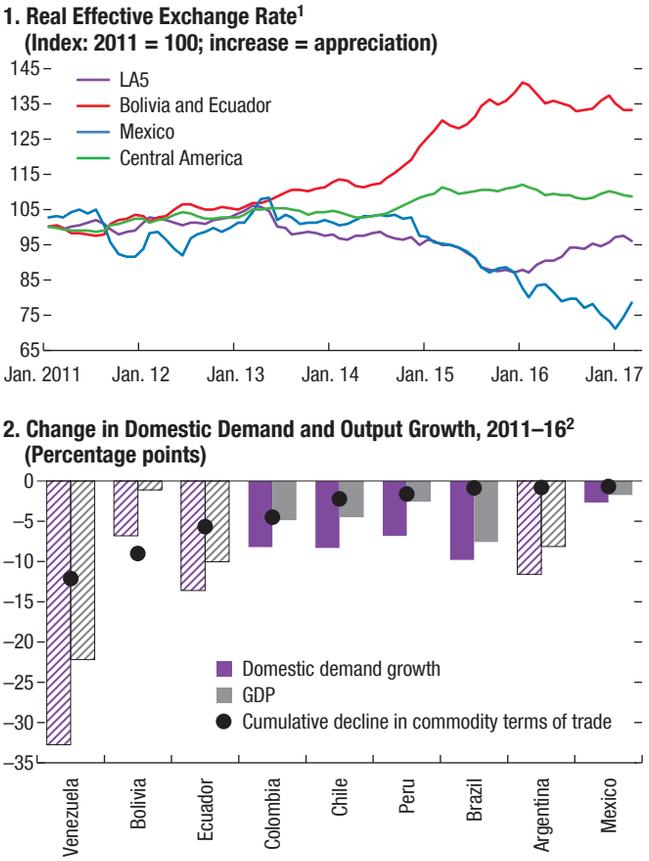
Tale of Two Adjustments: First, External

Against the backdrop of lower commodity prices from their past peak, many countries had allowed their currencies to depreciate, mainly starting in 2013, in a setting of weak external demand. The currencies of these countries generally strengthened in 2016 in response to the recovery in commodity prices, bouts of strong capital inflows, and a reduction in domestic policy uncertainties. An exception is Mexico, where the currency movements reflected delayed restructuring of the state-owned oil company Pemex, some deterioration in the perception of the health of public finances, and the uncertainty surrounding the possible direction of U.S. policies. Countries with less flexible exchange rate frameworks, in contrast, have faced persistent appreciations in real effective terms (Figure 2.4). Indeed, the cost of adjustment has increased for these countries, as increasing use of flexible regimes in trading partners and competitors led to sharper effective appreciations (Chapter 3).

Increased exchange rate flexibility has made the ongoing external adjustment less painful. For many countries facing negative terms-of-trade shocks, a major portion of the external adjustment has been attributable to import compression (Figure 2.5). Nevertheless, the amount of demand compression needed to narrow external imbalances (defined in Chapter 3 as the *sacrifice ratio of external adjustment*) has been considerably smaller in countries with flexible exchange rate regimes (Figure 2.4). At the aggregate level real exports do not seem to react significantly to sizable depreciations, but exports and value added of noncommodity sectors have increased. In addition, real imports have declined in some economies as consumer spending has switched between foreign-produced to domestically produced goods in response to these depreciations (Chapter 3).

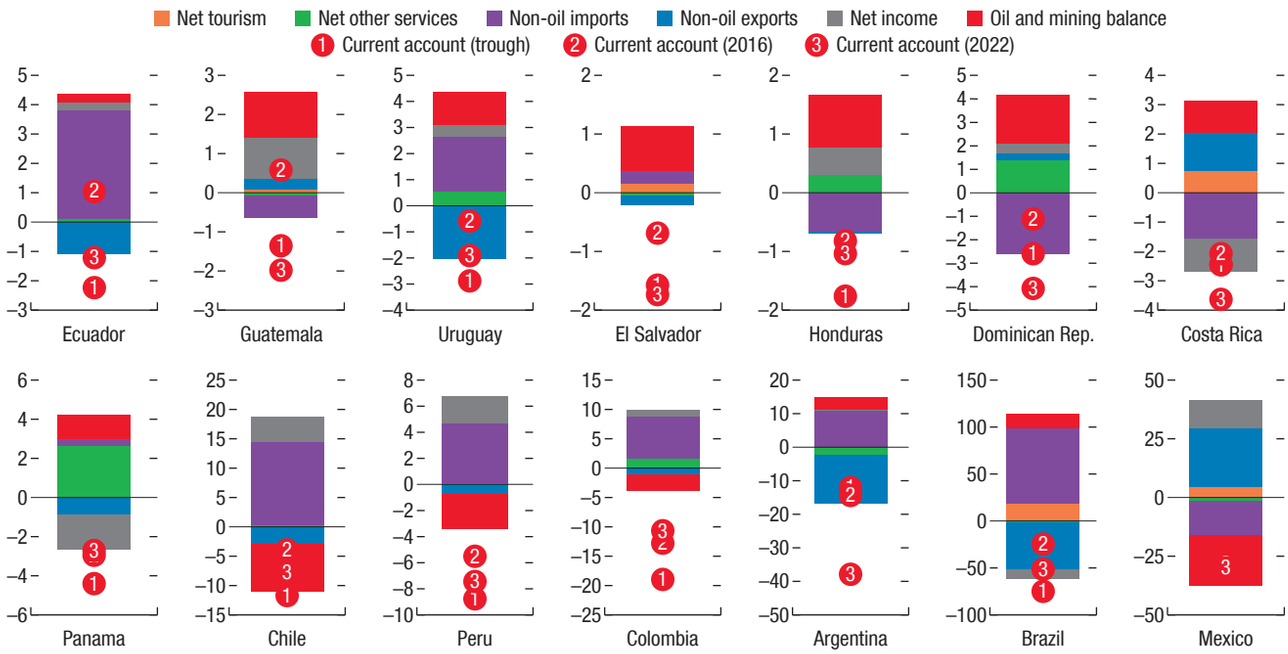
External adjustment is ongoing at the regional level, but progress differs across countries. After worsening from -2.1 percent of GDP from 2010–12 to -3.5 percent of GDP in 2015, the region's current account deficit narrowed by 1.4 percentage points in 2016:

Figure 2.4. Exchange Rate Adjustment and Domestic Demand Compression



Sources: IMF, Information Notice System database; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Central America = Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama; LA5 = Brazil, Chile, Colombia, Peru, Uruguay.
[1]Aggregates are simple averages.
[2]Data for 2016 are estimates. Bars with pattern denote country with a managed exchange rate regime. Argentina was reclassified as a floating exchange rate arrangement in December 2015.

Figure 2.5. Contributions to Current Account Adjustment, Trough to 2016
(Cumulative change; billions of U.S. dollars)



Sources: Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Trough is 2013, except for Colombia and Ecuador, for which it is 2015.

- Within the region, metal-exporting countries (Chile and Peru) appear to have already adjusted to the terms-of-trade shock, with current account balances improving by about 2 percentage points of GDP from their trough. In the medium term, current account balances are expected to widen given the trend decline in savings that reflects the impact of aging in Chile and the recovery of private investment in Peru.
- Oil-exporting countries are still adjusting to the drop in prices that began in 2014. In Colombia, the pace of adjustment picked up in 2016 and is expected to continue as public savings increase. In Ecuador, given dollarization, the adjustment has come mainly as a result of fiscal consolidation, a fall in private investment, and balance of payments safeguards. In Venezuela, the current account deficit narrowed as a result of a reduction in the government's foreign exchange allocation for public and private imports and lack of access to external financing.
- Argentina and Brazil are going through structural changes that are affecting their equilibrium current account dynamics. In Brazil, the current account deficit has contracted sharply, mostly reflecting the contraction in investment, which has both cyclical elements and a more permanent component as a consequence of the reduction of Petrobras's medium-term investment plans. However, most of the improvement in the current account is likely to be durable, given the projected increase in public savings. In Argentina, continued capital inflows and a structural increase in investment from its current low levels are expected to lead to higher current account deficits over the next five years. However, productivity gains resulting from the reversal of the microeconomic distortions inherited from the previous administration and further

investment in the energy sector will likely support a lower current account deficit over the long term.

- Lower commodity prices have translated into lower external imbalances for net commodity importers in *Central America*. From a historical perspective, the improvement in the terms of trade and the subsequent currency appreciation have been larger than previous terms-of-trade booms in other emerging markets (Adler and others 2017). Overall, the current account balance for the region improved, on average, from -7 percent of GDP in 2013 to -3.6 percent in 2016, and is expected to reach -4.4 percent in the medium term.

Exchange rate flexibility has also helped smooth the response of capital flows to shifts in the global landscape, including swings in global risk aversion, monetary policy normalization in the United States, and changes in commodity prices. In particular, exchange rate flexibility, along with deeper financial markets with an important presence of domestic investors, has helped countries experience less capital flow volatility in the face of external shocks (Chapter 4).

Despite a sizable weakening in regional currencies, inflation has increased less than during previous episodes of similar depreciations, reflecting lower rates of pass-through and improved credibility of the monetary policy frameworks (Chapter 4 of the April 2016 *Regional Economic Outlook: Western Hemisphere*). After peaking in early 2016, inflation has been declining in many countries in the region (with a few exceptions such as Mexico) despite the recovery in commodity prices, reflecting still-negative output gaps and receding depreciation pressures (Figure 2.6).

Tale of Two Adjustments: Second, Fiscal

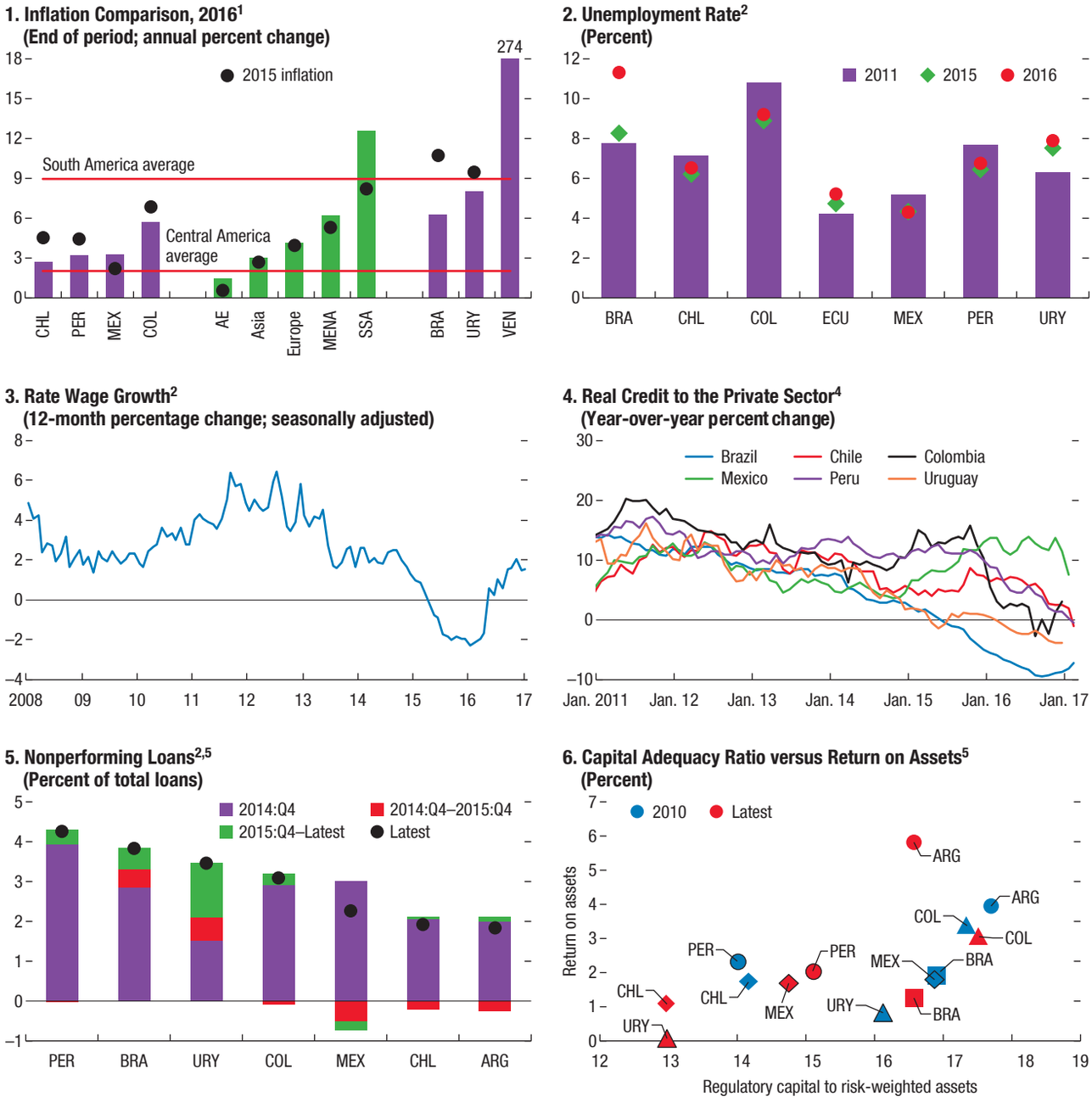
Latin America's countercyclical fiscal response to the global financial crisis was helpful in containing output losses, but many countries did not fully rebuild their fiscal space during the subsequent period of buoyant commodity revenues and strong growth (Celasun and others 2015). With the decline in commodity prices and slowing growth, the primary fiscal deficit in the region increased from 0.2 percent in 2013 to 2.6 percent in 2016. In South America and commodity-exporting Caribbean countries, along with the decline in revenues from their peaks in 2014, capital expenditures were cut by about 1–1½ percent of GDP, but current expenditures continued to increase until 2015 and remain high. Overall, debt-to-GDP ratios in countries with slumping commodity revenues have continued to increase. Facing structurally lower revenues, elevated expenditure levels, and an increasing debt burden, many countries have put consolidation plans in place, but primary balances remain below historical and debt-stabilizing levels (Figure 2.7).

Domestic Developments

As economies in the region continue to adjust, unemployment has remained relatively stable in most countries except for a few that are still contracting. At the same time, real wages are increasing, as a result of declining inflation, and are expected to support the gradual recovery in consumption.

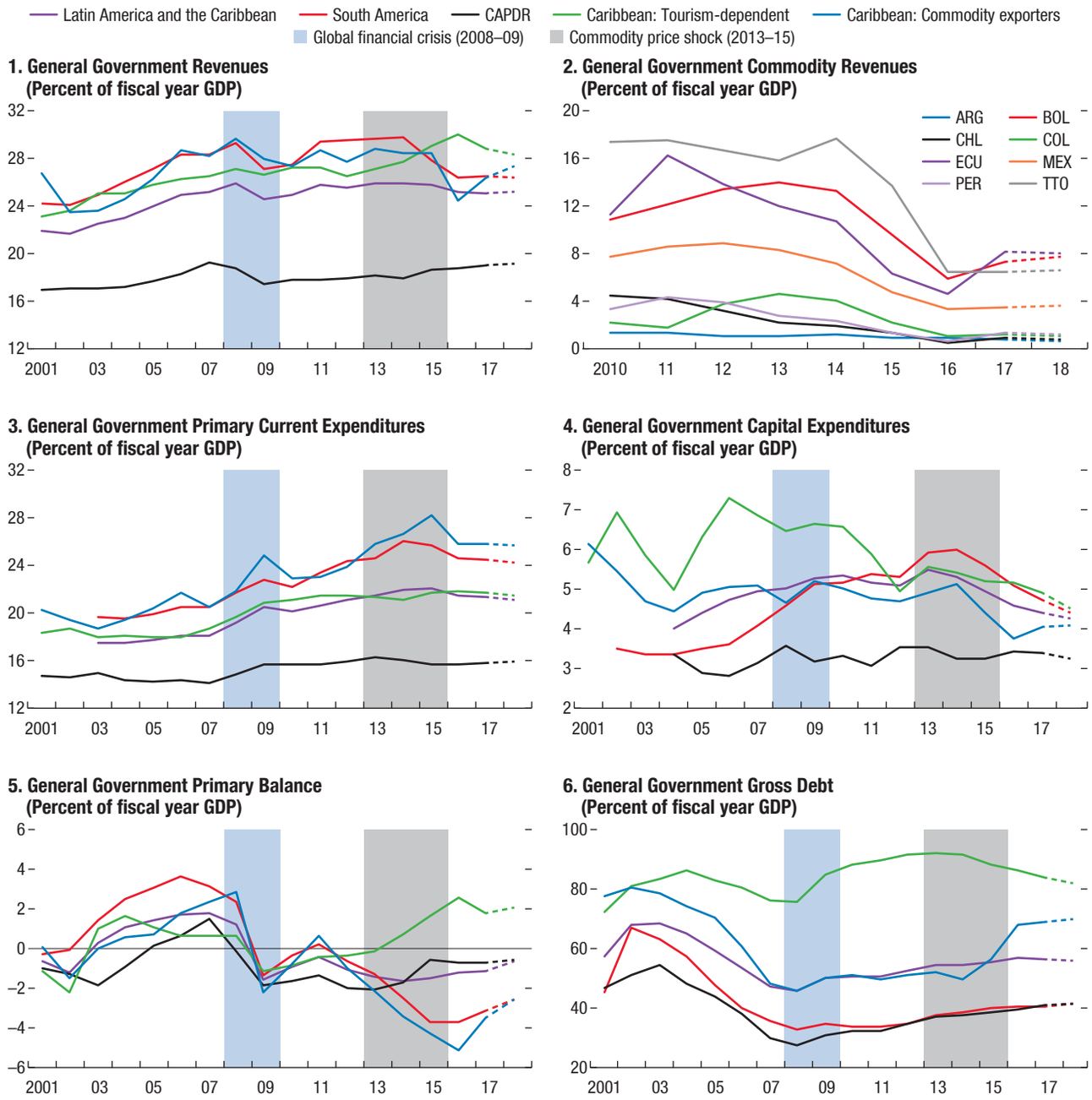
With weaker domestic demand, real credit growth decelerated in many countries, with a few exceptions such as Mexico. Nonperforming loans have been increasing (albeit from a low base) and, given subdued growth, warrant close monitoring. Overall, even though banking sector profitability has declined for many countries, the capital ratios of financial institutions in the region remain above regulatory requirements (Figure 2.6). While Latin American firms have benefitted from a narrowing of corporate spreads as well as a partial recovery in equity prices, corporate profitability has remained low and leverage remained high for listed companies as of the first half of 2016.

Figure 2.6. Domestic Developments: Declining Inflation and Real Credit, Recovering Real Wages, and Stable Unemployment



Sources: Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137. AE = advanced economies; Asia = emerging and developing Asia; Europe = emerging and developing Europe; MENA = Middle East and North Africa; SSA = sub-Saharan Africa.
[1]South America average excludes Argentina and Venezuela. Venezuela's end of period inflation for 2015 was 181 percent.
[2]Definitions may vary across countries.
[3]Simple average of Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Uruguay. Peru data are minimum wage real index.
[4]Deflated by Consumer Price Index inflation.
[5]Latest data for Colombia and Peru are 2016:Q4; Argentina, Mexico, and Uruguay are 2016:Q3; Brazil are 2016:Q2; and Chile are 2016:Q1.

Figure 2.7. Fiscal Indicators: Lower Revenues, Elevated Current Expenditures and Debt



Sources: IMF, World Economic Outlook database; and IMF staff calculations.
Note: Aggregates are simple averages. Dashed lines refer to projections. For International Organization for Standardization (ISO) country codes used in data labels, see page 137. For country group information, see page 137. CAPDR = Central America, Panama, and the Dominican Republic.

Wider Range of Risks

Shifts in the global landscape have also contributed to a wider range of risks around the baseline. The region is subject to risks and uncertainty at the global level, in particular to uncertainty around the U.S. policy mix, tighter financial conditions for emerging market

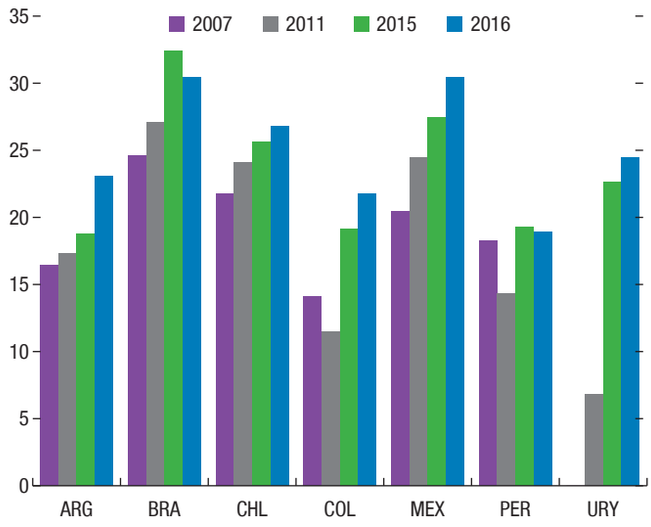
economies, and an inward shift in policies in advanced economies, including toward protectionism.

With the expected change in the policy mix in the *United States* (Chapter 1), the near-term fiscal stimulus is expected to support its trading partners' growth, particularly if U.S. imports increase, but a faster pace of monetary policy normalization and higher level of U.S. public debt may lead to tighter financial conditions as global real interest rates increase (Box 2.1). Although sovereign spreads in the region have declined over the last year, they are highly responsive to shifts in both global risk aversion and regional market spillovers, and therefore can easily revert back if these conditions deteriorate (Caceres forthcoming). In addition, such a change in global conditions could reduce capital inflows (Chapter 4) and raise corporate sector stress (Chapter 3 of the April 2016 *Regional Economic Outlook: Western Hemisphere*), given high corporate leverage in some countries (Figure 2.8). In a subdued growth environment, corporate sector problems could spill over to the banking system by reducing collateral values and increasing nonperforming loans further.

Central America and Mexico are vulnerable to possible spillovers from changes in U.S. trade and immigration policies, given their close ties (Box 2.1 and Chapter 1). In this context,

- Renegotiation of the North American Free Trade Agreement (NAFTA) could have considerable implications for Mexico. If well executed, cooperative efforts to update the agreement (for example e-commerce and financial and other services) could potentially generate growth dividends for all signatories. However, renegotiation based on the objective of affecting the bilateral trade balance, including a unilateral imposition of tariffs or other trade barriers on imports, would prove damaging. In the meantime, uncertainty regarding the exact nature and outcome of such negotiations has already taken a toll on confidence and may weigh on investment in the short term.

Figure 2.8. Corporate Leverage
(Median across firms; percent of debt to assets)



Sources: Bloomberg L.P.; and IMF staff calculations.
Note: For 2016, the numbers refer to the average of the first and second quarters. For International Organization for Standardization (ISO) country codes used in data labels, see page 137.

- A more restrictive U.S. immigration policy would reduce remittances, which have played a key financing and stabilization role for the Caribbean and Central America. At the same time, lower immigration or intensified deportations could depress productivity in countries where emigration tends to be lower skilled (Mexico and Central America) and put downward pressure on wages. In some countries, absorbing additional labor could prove challenging if unemployment is already high, investment response is sluggish, or there are skills mismatches (Box 2.1 and Chapter 5). Furthermore, a sudden increase in unemployment, even a temporary one, may lead to additional social costs, including heightened security concerns. Overall, in the near term, the positive effects of reverse migration on growth are likely to be offset by these transitional factors, particularly for Central America and Mexico.

Finally, a renewed decline in commodity prices caused by a global slowdown could add to the

earlier terms-of-trade losses, reduce capital inflows, and further elevate corporate and sovereign sector risks.

Policy Priorities: Setting the Course for Higher Growth

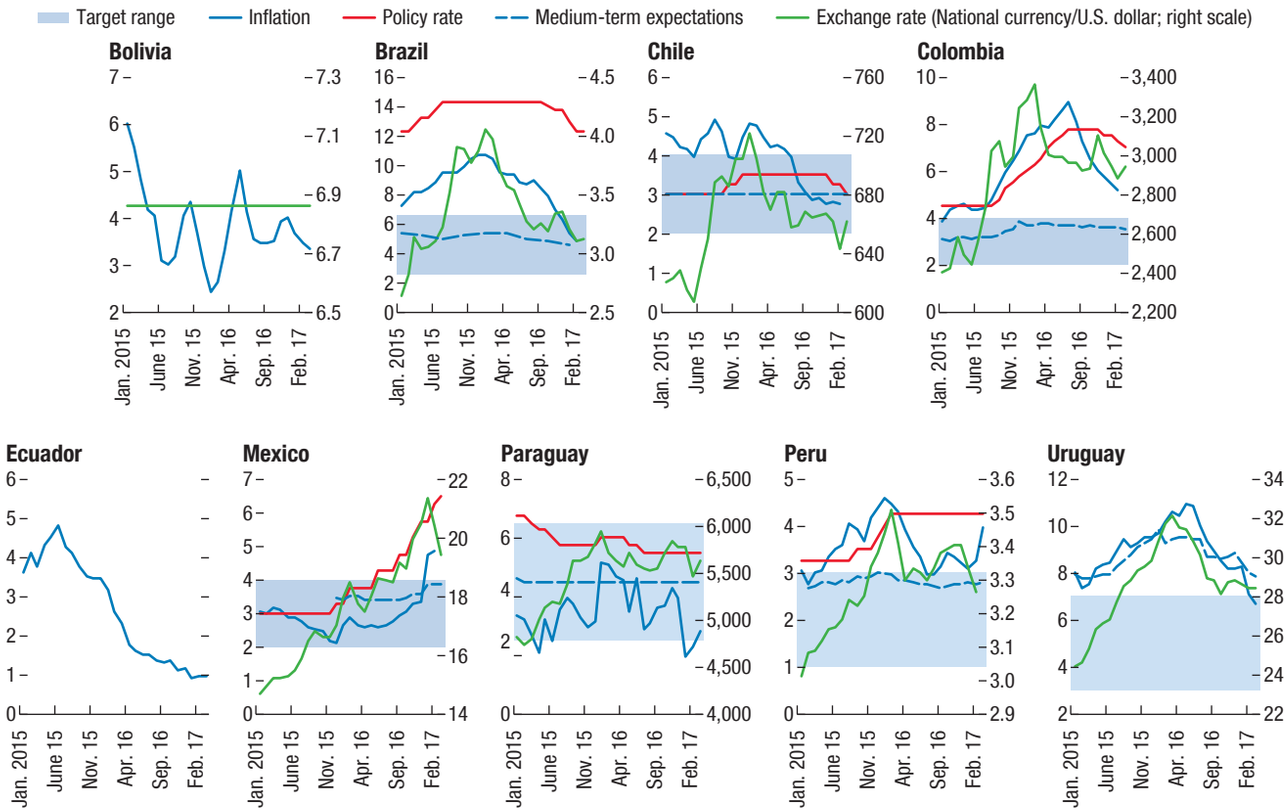
The region has experienced large shifts in its external landscape characterized by sharp declines in commodity prices (despite the recent recovery), weak trading partner demand, and bouts of financial volatility. The domestic landscape is also shifting, reflecting a combination of factors, including the removal of economic distortions in some countries, ongoing economic contractions and crisis in others, and the emergence of regionwide corruption scandals. Many countries have allowed the exchange rate to absorb these shifts, and the improved credibility of many central banks has helped contain inflation. Although the slowdown in growth and the reduction in commodity revenues have worsened fiscal balances, banking and corporate sector stress remains contained.

Furthermore, the external environment facing the region is likely to be less supportive over the medium term (Chapter 2 of the April 2017 *World Economic Outlook*), and global risks and uncertainties have widened despite the modest improvement in the region's terms of trade. Weaker potential output growth is plaguing advanced and emerging economies alike, and countries in Latin America and the Caribbean are no exception. In this increasingly complicated setting, policies should be tailored toward setting a course for higher growth. Such a course would require completing the external and fiscal adjustment, managing risks during this transition process, and shifting focus toward policies to raise medium-term growth, including efforts to improve infrastructure and human capital, domestic governance, institutions, and the business environment. In this context, priorities include the following:

- *Maintaining exchange rate flexibility.* Exchange rate flexibility has served the region well. Given the heightened global risk environment, maintaining this flexibility will help facilitate the ongoing external adjustment, counter sudden shifts in external conditions, and smooth the response of capital flows to these shocks.
- *Easing trade-offs for monetary policy.* During 2015 and late 2016, many central banks in the region preemptively raised their policy rates in response to rising inflation (Figure 2.9). Relative to the past, the needed rate hikes to keep medium-term inflation expectations anchored were more muted, and the pass-through of depreciations to inflation has been limited (Chapter 4 of the April 2016 *Regional Economic Outlook: Western Hemisphere*). Inflation began to decline in early to mid-2016 with the pass-through of earlier depreciations fading. As a result, the trade-off many countries faced last year—high headline inflation but weak growth—has eased, allowing central banks to shift to a holding or easing cycle, with some exceptions such as Mexico, where inflation has been increasing in recent months.

  The limited pass-through of sizable depreciations, which took one to two years to complete, demonstrates the improved credibility of monetary frameworks. In this context, where central banks enjoy strong credibility, policies should aim to keep inflation at the midpoint of the target range over the medium term, seeing through temporary deviations particularly in the context of weak demand and lower global neutral rates. In particular, in countries where inflation and inflation expectations are converging toward the target range and credibility is strong, continued easing would create the monetary space needed to deal with future inflationary shocks. In countries where inflation and inflation expectations are above targets, the appropriate monetary policy stance should depend on the evolution of inflation and medium-term

Figure 2.9. Inflation and Monetary Policy Developments: Declining Inflation and Cuts in Policy Rates
(Percent)



Sources: Bloomberg L.P.; Global Data Source; Haver Analytics; national authorities; and IMF staff calculations.
Note: Medium-term expectations refer to two-year ahead inflation expectations except for Uruguay, which is one-year ahead.

inflation expectations. In the meantime, clear communication of policy goals is of utmost importance to maintain policy credibility and to continue anchoring inflation expectations.

- *Managing corporate and financial sector risks.* Despite sizable depreciations, the region has avoided systemic stress in sovereign, corporate, and banking sectors, reflecting improved policy and supervisory frameworks, increased hedging practices, and reduced financial dollarization. With wider global risks and high corporate and public sector leverage in some countries, policies should be geared toward ensuring that corporate balance sheets are not overstretched and that banks' asset quality remains sound. Adequate consolidated supervision where financial and nonfinancial companies are interlinked is important, in particular to identify sources of risk and their transmission channels. In countries with high or increasing nonperforming loans, efforts should focus on identifying whether there are pockets of excessive leverage, making sure that appropriate macroprudential and resolution frameworks are in place. In this context, financial stability reports, a common feature of financial communication in the region, can be an effective form of financial surveillance if done well. These reports can help identify potential and emerging risks and promote public debate about policies, thereby encouraging more prudent behaviors and prompting the authorities to take actions that enhance financial system stability (Lim and others 2017).

- *Completing the fiscal adjustment.* Given structurally low commodity prices in

commodity exporters, subdued potential output, and projected demographic trends, completing the fiscal adjustment is important. The desired size and pace of adjustment will vary across countries depending on debt dynamics, fiscal risks, the macroeconomic outlook, and market conditions. Fortunately, some of this adjustment is already under way, but more needs to be done given that primary balances remain below debt-stabilizing levels. Particular attention should be paid to designing growth-friendly and inclusive adjustment plans and to raising the efficiency of public spending to improve the quality of public goods and to maintain expenditures related to human and physical capital, while containing overall spending growth (April 2017 *Fiscal Monitor*).

On the institutional front, efforts should focus on strengthening fiscal frameworks by moving toward credible fiscal rules with built-in features that avoid procyclicality, ensuring a more symmetric response to both downturns and expansions, and creating a rolling medium-term expenditure framework. Over a longer horizon, given the projected demographic patterns, carefully designed reforms will be needed to ensure fiscal sustainability while providing adequate levels of pensions and health care (Box 2.2).

- *Tackling structural bottlenecks.* With adjustments ongoing and medium-term growth projected to remain subdued at 2.6 percent, attention should shift to tackling structural bottlenecks. Although the region has made progress in closing the income gap with advanced economies—with median real income per capita increasing from 16 percent of that of the United States in 2003–07 to 22 percent in 2010–14—all countries in the region remain below 60 percent of U.S. income levels (Figure 2.10; and Chapter 3 of the April 2017 *World Economic Outlook*). In this context, priorities include (1) closing infrastructure gaps to support productivity and competitiveness (Chapter 5 of the April 2016 *Regional Economic Outlook: Western Hemisphere*), (2) increasing female labor force participation where it is low to help improve fiscal sustainability and potential growth (Novta and Wong 2017), (3) further investing in human capital, and (4) improving the business environment and governance and tackling corruption. Along with the appropriate macro mix, these policies would help raise potential growth by increasing contributions from labor, capital, and productivity. At the same time careful consideration should be given to the sequencing of reforms and to building broad consensus around them to avoid any potential short-term costs.

Figure 2.10. Latin America and the Caribbean: Real Income Per Capita Relative to the United States
(Average; frequency)

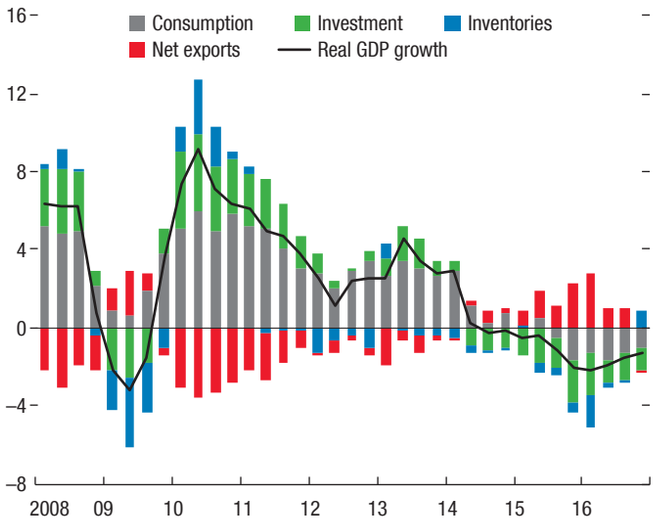
Sources: Feenstra, Inklaar, and Timmer 2015; and IMF staff calculations.

South America

Developments, Outlook, and Policies

Growth in South America bottomed out in 2016. Domestic fundamentals compounded by a large terms-of-trade shock took a toll on

Figure 2.11. Selected Latin American Countries: Contributions to Real GDP Growth
(Year-over-year percent change)



Sources: Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Seasonally adjusted. Purchasing-power-parity GDP-weighted averages of Argentina, Brazil, Chile, Colombia, Peru, and Uruguay. Inventories include statistical discrepancies.

the region's economic performance and led to sharp recessions in some major economies. Domestic demand in particular has been weak, while net exports have started to provide some support (Figure 2.11). The outlook is shaped by a combination of key domestic developments and shifts in the global landscape. Overall, despite the improved external outlook—including some recovery in partner demand and commodity prices, and relatively accommodative financial conditions—the recovery in domestic demand remains muted.

For some countries domestic fundamentals continue to dominate the outlook.

In *Argentina*, the economic recovery is under way, as real GDP grew (on a sequential basis) in the second half of 2016 after three quarters of contraction. Real GDP is expected to grow 2¼ percent in 2017, driven by a rebound of private consumption (as real wage growth turns positive amid falling inflation), stronger public capital spending, and a pickup of exports reflecting more favorable external demand and the exceptionally good harvest season. Growth is projected to remain at about 2½ in 2018 and 2019, when fiscal rebalancing accelerates, whereas the rebound of private investment and exports continues at a gradual pace, against the backdrop of a strong exchange rate and slow progress of structural reforms.

Progress toward reversing the macroeconomic imbalances inherited from the past administration (including the adoption of an inflation targeting regime, the move to a floating exchange rate regime, and the introduction of medium-term fiscal targets) are expected to strengthen medium-term growth prospects. The successful tax amnesty helped the authorities close 2016 with a better-than-targeted fiscal outcome, and IMF staff expects the fiscal targets for 2017–19 to be met, mainly through a reduction in energy subsidies and continued restraint with the rest of primary spending, in line with the authorities' plans. Although the government's gross financing needs for 2017 remain high, the authorities have already funded most of the foreign exchange needs for the year, which reduces the risks from tighter external financial conditions. Inflation fell sharply in the second half of 2016 and is expected to decline further in 2017 and afterward, but at a somewhat slower pace than implied by the official inflation targets, reflecting second-round effects from the planned increases in utilities tariffs and persistent (though falling) inertia in inflation expectations. While lower fiscal deficit and lower inflation are expected to pave the way for stronger growth in the medium term, a more robust, sustainable, and equitable acceleration of economic activity would require decisive progress in addressing the structural bottlenecks that hinder productivity and capital accumulation, including reforms that reduce the tax burden on firms and households, bolster the development of local capital markets, help close the infrastructure gap, and increase domestic competition.

In *Brazil*, after two years of recession, growth is expected to return to positive territory—estimated at 0.2 percent in 2017 and 1.7 percent in 2018.

Growth in 2017 will be supported by a bumper soybean crop, a boost to consumption from the release of inactive severance accounts, the gradual resumption of investment, and higher iron ore prices. Inflation has been falling fast, and in fact ended 2016 within the target band at 6.3 percent. The constitutional amendment mandating a constant real level of federal noninterest spending was approved in December 2016. This amendment is welcome, because it aims to ensure a return to primary surpluses and to debt sustainability, though on its own, it may entail a relatively slow pace of consolidation. In this context, meeting or exceeding the established primary surplus targets is important; over time increasing the fiscal effort would be desirable as the economy regains its strength. An ambitious social security reform was submitted to Congress and is expected to be approved later this year, although some of its elements are under intense debate. Social security reform is needed to ensure that the federal spending cap is viable and that the retirement system will remain capable of supporting future generations of Brazilians. Explaining the importance of this reform is key to avoiding its dilution. To complement this initiative, modifying the minimum wage indexation policy should be considered as well. Several states, notably Rio de Janeiro, Minas Gerais, and Rio Grande do Sul, continue to face financial stress. A durable solution requires the adoption by these states of programs of adjustment and reform (including, as appropriate, in the retirement schemes for state civil servants) in addition to any support by the federal government.

The central bank commenced its easing cycle last October and has accelerated the pace of monetary easing since January, prompted by faster-than-expected disinflation, a still-weak economic recovery, and progress with fiscal reforms. Although the easing cycle can still safely continue for some time given the large output gap and inflation expectations near the target, it is important for the central bank to closely monitor progress on fiscal reforms. From the perspective of medium-term growth, reforms to strengthen competitiveness and reduce business costs are key. Although there is significant uncertainty about the prospects for global trade, Brazilian efforts to negotiate bilateral trade deals are welcome. Also, a revenue-neutral reform of the system of indirect taxes could help reduce large compliance costs, while reforms to reduce state intervention in the allocation of credit (including some ongoing initiatives) should help reduce distortions in the economy.

In *Venezuela*, the economy is expected to remain in a deep recession and on a path to hyperinflation, driven by wide fiscal imbalances combined with extensive distortions and a severe restriction on the availability of intermediate goods imports. Because there is no sign of a shift in economic policies, real GDP is expected to fall by 7.4 percent in 2017, after falling by an estimated 18 percent in 2016 and 6.2 percent in 2015. The monetization of large fiscal deficits, scarcity of goods, and the loss of confidence in the currency fueled a rise in Consumer Price Index (CPI) inflation to 274 percent (and wholesale price inflation to about 470 percent) in 2016. Inflation, measured by the CPI, is projected to accelerate to about 1,134 percent during 2017. The current account deficit is projected to be $8.2 billion in 2017 (3¼ percent of GDP). Although oil exports are projected to remain lower than their historical levels, higher oil prices in 2017 are expected to create space to increase imports by about $4 billion. International reserves are projected to fall to $6 billion in 2017, about one-third the level in 2015.

Venezuela's social conditions continue to deteriorate rapidly, with poverty in 2016 rising to 82 percent of households, 50 percent of which are classified as being in extreme poverty, according to the 2016 Living Conditions Survey, *Encuesta Condiciones de Vida* (ENCOVI). The situation is further aggravated by lack of medicines and the collapse of the health system. Violence is also a concern, with the homicide rate increasing to 92 murders per 100,000 inhabitants in 2016, up from 79 in 2013, according to the Observatario Venezolano de Violencia.

For other commodity exporters, the moderate recovery in commodity prices will provide some relief.

Growth in *Bolivia* remains among the highest in the region, but the country faces important medium-term risks. Real GDP growth moderated from about 6 percent annually in 2013–15 to 4.1 percent in 2016, reflecting lower gas production and a drought. Real GDP is expected to expand by about 4 percent in 2017 and 3.5 percent over the longer term. Accommodative fiscal policy and rapid credit growth are supporting activity but are also contributing to fiscal and external imbalances and financial sector risks, and draining Bolivia's sizable buffers. To contain risks and boost potential growth, the government should contain the nonhydrocarbon fiscal deficit and overall deterioration of the headline balance, gradually increase exchange rate flexibility, and accelerate structural reforms, among other measures.

Despite slightly better external conditions, the outlook for *Chile* remains subdued, reflecting lingering domestic weaknesses. As a result, growth in 2017 is expected to remain well below 2 percent, at 1.7 percent, only slightly up from 1.6 percent in 2016. This small increase reflects disruptions in copper production from extended labor strikes and extensive wildfires, dampened consumption from a weakened labor market, and subdued confidence and investment, as upcoming presidential elections add uncertainty about the direction of policies. However, the recovery is expected to gain traction later this year and more strongly in 2018, helped by firmer growth in the country's main trading partners and looser monetary conditions. Monetary policy is appropriately accommodative, but there is scope for further easing given downward pressures on inflation expectations from weaknesses in domestic demand. With the subdued growth outlook, fiscal consolidation can be gradual but needs to continue given the economy's lower growth potential.

In *Colombia*, guided by timely policy tightening, the orderly economic slowdown continued last year as domestic demand (investment, in particular) has been adjusting to a permanent shock to national income. At the same time, a nationwide strike and other one-off factors led to weaker-than-anticipated growth, although a mild rebound is expected for 2017. With inflationary pressures dissipating, the central bank has started an easing cycle to support the recovery while protecting well-anchored inflation expectations and a declining current account deficit. The infrastructure agenda, the tax reform's positive impact on public and private investment, and improved confidence stemming from peace will buttress medium-term growth.

The economic outlook for *Ecuador* continues to improve owing to better access to international capital markets prompted by the moderate recovery in oil prices. Growth for 2017 is now expected to be higher than projected earlier, but to remain in negative territory because of the persistent real exchange rate appreciation and limited fiscal space. Over the medium term, weak competitiveness, structural labor market rigidities, and a burdensome regulatory environment are expected to continue constraining private sector activity.

Peru's economy grew at a rapid pace in 2016 (3.9 percent), supported by expanding copper production and robust private consumption. Investment, however, continues to lag, and is expected to post a third consecutive annual decline. Domestic headwinds related to a political bribery probe in connection with the Brazilian company Odebrecht, along with the worst flooding and landslides in decades, may put a drag on 2017 investment and growth.

With inflation excluding food and energy within the central bank's 1–3 percent target range and the output gap still negative, the authorities announced an economic stimulus plan aimed at promoting employment and keeping 2017 growth at about 4 percent. Given implementation and impact lags, growth is likely to remain below the government target (though still robust). For the medium term, the authorities remain focused on attaining a gradual fiscal consolidation that brings the headline deficit to 1 percent within five years (from 2.6 percent in 2016).

Regional developments shape the outlook for other South American countries.

Uruguay has managed the recessions in its large neighbors relatively well. The economic slowdown in Uruguay bottomed out in 2016, with growth picking up in the second half of the year. Inflation has decreased toward the upper bound of the central bank's target range. Given rising debt and still-elevated inflation, the room for countercyclical fiscal or monetary policy is limited. The fiscal consolidation package for 2017 is a crucial step for putting net debt on a downward trajectory, while tight monetary conditions are needed to keep supporting continued disinflation.

Paraguay's economy grew at a solid rate of about 4 percent in 2016, largely due to strong energy production and construction activity, and IMF staff expect growth to moderate in 2017 as supply-side tailwinds dissipate. In the wake of a rare presidential veto on this year's budget, a broadly neutral fiscal stance is expected, while a moderately accommodative monetary policy stance remains appropriate. Actual and expected inflation are evolving in line with the central bank's recently lowered midpoint of the target range, but policymakers should remain vigilant to external shocks that may arise from an uncertain global environment.

Common Policy Priorities

Many commodity exporters in South America are going through a protracted adjustment to structurally lower commodity revenues and external demand, particularly given China's transition to a more sustainable pattern of growth that is less reliant on investment and commodity imports. In this context, a priority for the region is to put fiscal balances on a sustainable footing and strengthen fiscal frameworks. The desired pace of the fiscal adjustment varies across countries and depends on debt levels and market pressures. Given large infrastructure gaps, prioritizing such spending over other current expenditures will help support medium-term growth.

Improved monetary policy frameworks have kept inflation contained despite sizable depreciations. In this context, the central banks should continue to tailor their monetary policy stance based on the evolution of medium-term inflation expectations as disinflation continues.

Given the importance of domestic factors for the region's outlook, continued efforts toward reducing domestic distortions, resolving policy uncertainties, tackling corruption, and furthering structural reforms are needed to set a course to higher medium-term growth. Priorities include improving infrastructure, reducing red tape and economic informality, enhancing the business climate, deepening credit markets further, and reforming education.

Mexico, Central America, Panama, and the Dominican Republic

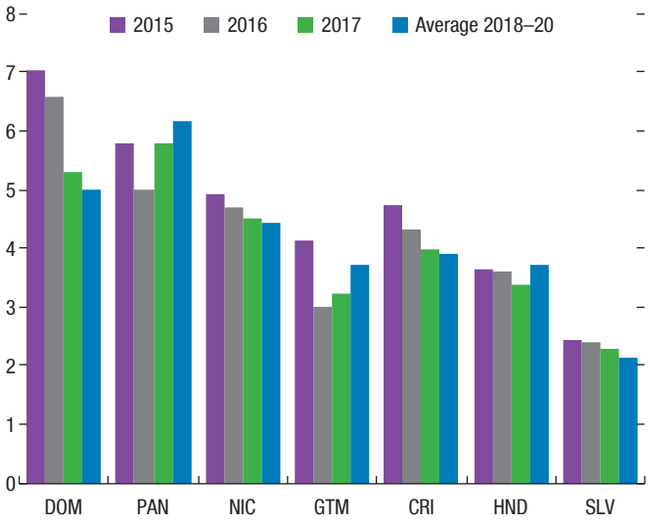
Developments and Outlook

The outlook and risks for *Central America* and *Mexico* are being influenced by their exposure to the United States through trade, migration, and foreign direct investment (FDI) linkages (Box 2.1).

Mexico's real GDP growth is expected to decelerate to 1.7 percent in 2017 (down from 2.3 percent in 2016), before recovering somewhat to 2 percent in 2018. Uncertainty about future trade relations with the United States and higher borrowing costs are expected to weigh particularly on investment but also on consumption, more than offsetting the positive impulse stemming from stronger U.S. growth and the sharp depreciation of the currency in real effective terms. Downside risks remain elevated because protracted NAFTA negotiations would prolong the current uncertainty and increase financial market volatility. Persistently high uncertainty could further depress investment and consumption, pushing output growth lower.

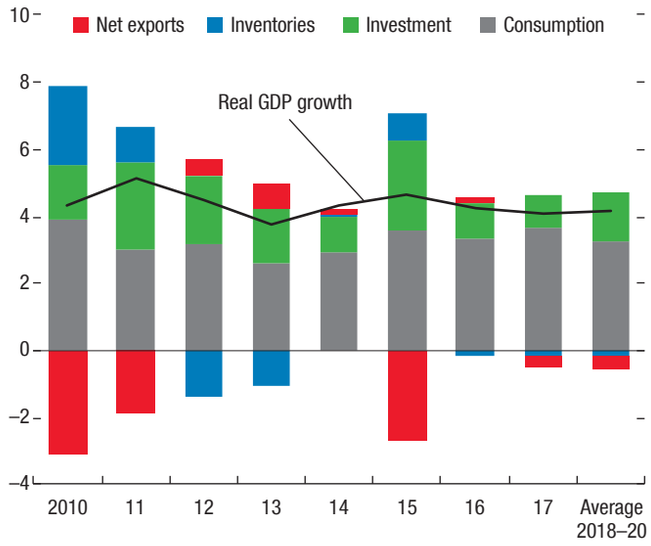
Inflation is running above target mainly as a result of the liberalization of gasoline prices in January

Figure 2.12. CAPDR: Real GDP Growth
(Year-over-year percent change)



Sources: IMF, World Economic Outlook database; national authorities; and IMF staff calculations.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137. CAPDR = Central America, Panama, and the Dominican Republic.

Figure 2.13. CAPDR: Contributions to Real GDP Growth
(Year-over-year percent change)



Sources: IMF, World Economic Outlook database; national authorities; and IMF staff calculations.
Note: Seasonally adjusted. Purchasing-power-parity GDP-weighted averages of Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama. Inventories include statistical discrepancies. CAPDR = Central America, Panama, and the Dominican Republic.

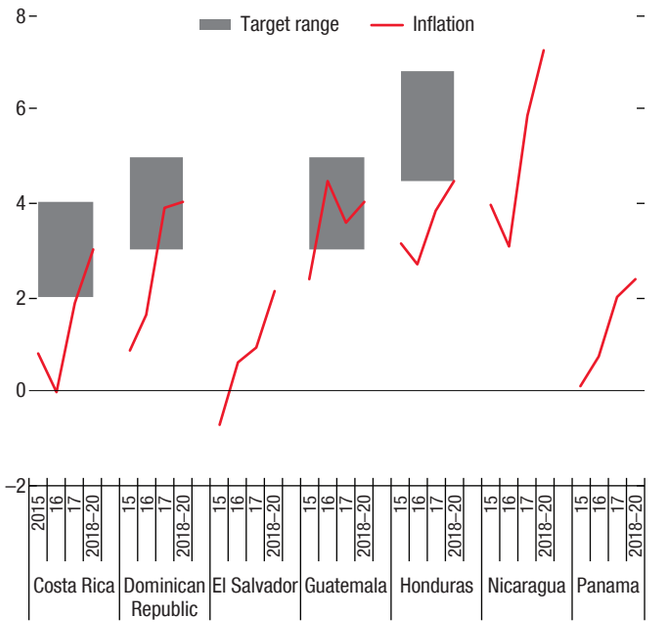
2017, compounded by the pass-through of the depreciation of the exchange rate to domestic prices. The central bank has continued to tighten monetary policy, increasing its policy rate to 6½ percent in March to ensure that medium-term inflation expectations remain anchored. In this context, inflation is projected to temporarily exceed 5 percent in 2017, before declining rapidly, nearing the central bank's 3 percent target toward the end of 2018. To smooth exchange rate volatility and provide a means of foreign-currency hedging to market participants during times of market dislocation, the central bank introduced a new foreign-exchange intervention strategy based on nondeliverable forwards to be settled in pesos. The peso has strengthened vis-à-vis the U.S. dollar since January, reflecting the effects of conciliatory remarks by U.S. officials as well as the strength of macroeconomic policies.

Growth in *Central America*, *Panama*, and the *Dominican Republic* (CAPDR) has remained broadly unchanged at about 4¼ percent in 2016 (Figures 2.12 and 2.13), supported by a recovery in the United States—with a robust labor market—and low oil prices. Consumption, the main driver of growth, was also supported by strong remittances in the Northern Triangle countries.[1] Investment in the region has returned to normal levels with the completion of energy projects in *Honduras* as well as nonresidential investment projects in *Costa Rica*, *Guatemala,* and *Nicaragua*.

Stable performance at the regional level masks divergence across countries. Growth in the *Dominican Republic* softened from 7 percent in 2015 to 6½ percent in 2016 because of weaker investment growth in construction and manufacturing, but remains the highest in the region. Growth in *Panama* in 2016 remained high at 5 percent, though lower than expected as maritime trade decelerated and revenues from the

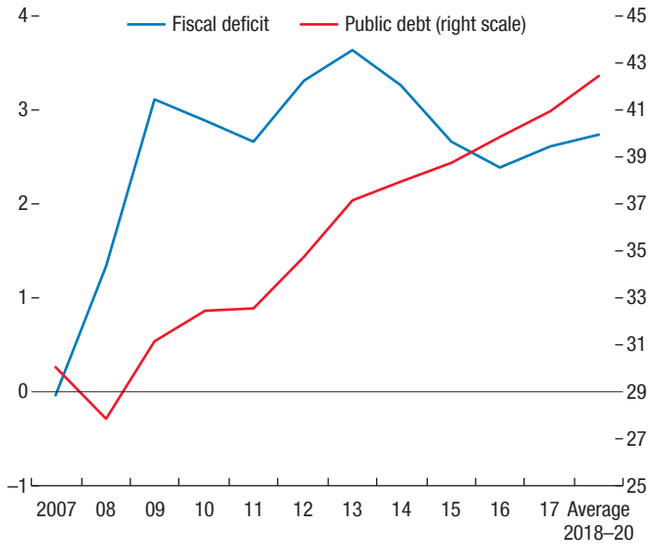
[1]The Northern Triangle countries are El Salvador, Guatemala, and Honduras.

Figure 2.14. CAPDR: Inflation Rate versus Target Rate
(Percent)



Sources: IMF, World Economic Outlook database; and national authorities.
Note: CAPDR = Central America, Panama, and the Dominican Republic.

Figure 2.15. CAPDR: Fiscal Deficit and Debt
(Percent of fiscal year GDP)



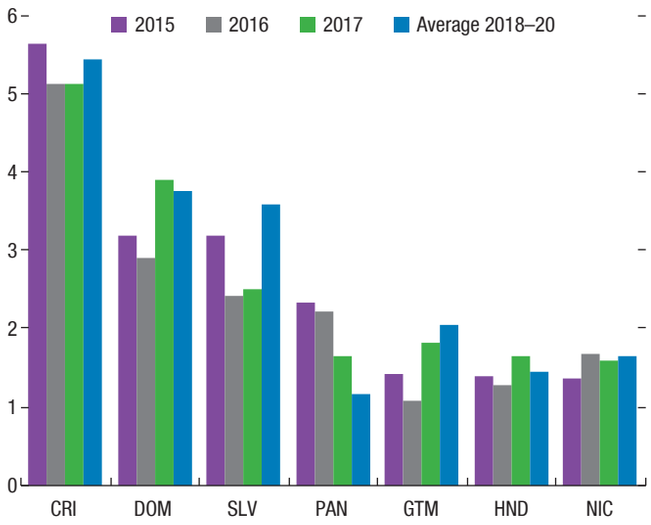
Sources: IMF, World Economic Outlook database; national authorities; and IMF staff calculations.
Note: For country group information, see page 137. CAPDR = Central America, Panama, and the Dominican Republic.

expanded Panama Canal disappointed. Growth in *Costa Rica* was robust at 4¼ percent in 2016, propelled by stronger harvests and higher exports. Growth in *Guatemala* decelerated from 4 percent in 2015 to 3 percent in 2016 in the wake of losses in competitiveness related to unexpected appreciation in the real effective exchange rate, a slowdown in public spending, and heightened domestic policy uncertainty.

Inflation, at 2 percent at the end of 2016, remains below or within target ranges in countries with an inflation targeting framework (Figure 2.14). The uptick in inflation in *Guatemala* was driven by weather supply shocks that affected food items. External current account deficits for the region, largely financed by FDI, have improved as a result of still-low commodity prices and strong remittances. Reserves are generally adequate.

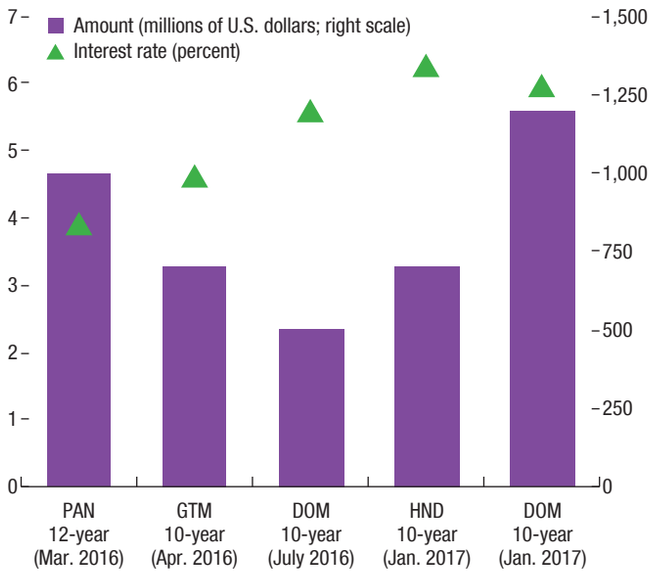
Fiscal consolidation in 2016 continued, albeit at slower pace than in the past (Figures 2.15 and 2.16). In *Costa Rica*, the fiscal deficit, the highest in the region, continued shrinking, reflecting

Figure 2.16. CAPDR: Fiscal Deficit
(Percent of fiscal year GDP)



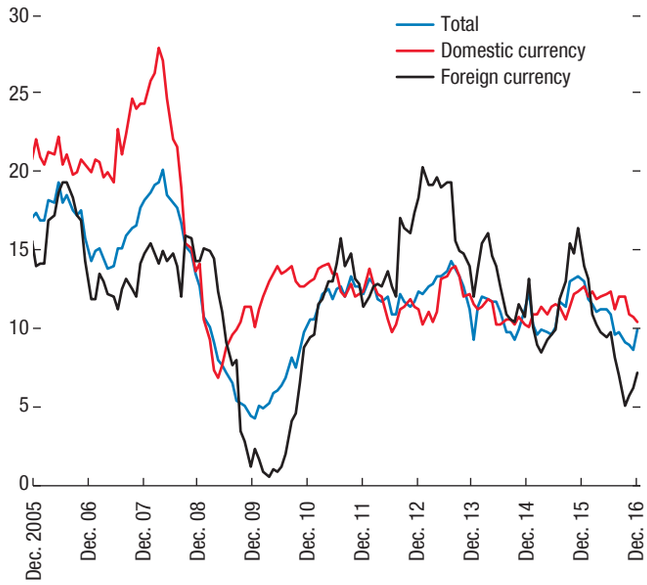
Sources: IMF, World Economic Outlook database; and IMF staff calculations.
Note: For 2015–16, Dominican Republic fiscal deficit excludes a one-off debt restructuring operation. For International Organization for Standardization (ISO) country codes used in data labels, see page 137. Note: CAPDR = Central America, Panama, and the Dominican Republic.

Figure 2.17. CAPDR: Eurobond Issuance, 2016–17



Source: National authorities.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137. CAPDR = Central America, Panama, and the Dominican Republic.

Figure 2.18. CAPDR: Average Credit Growth by Currency
(Year-over-year percent change)



Sources: National authorities; and IMF staff calculations.
Note: For country group information, see page 137. CAPDR = Central America, Panama, and the Dominican Republic.

the government's administrative efforts to raise tax revenue and contain wage and investment spending. In *Nicaragua*, the increase in the fiscal deficit reflected somewhat higher infrastructure spending. Overall, the average public debt-to-GDP ratio in CAPDR has been increasing amid relatively favorable external financing conditions (Figure 2.17). In the absence of additional consolidation measures, fiscal vulnerabilities are expected to persist in the medium term in the *Dominican Republic, Costa Rica*, and *El Salvador*.

The financial sector appears sound. Credit growth, in particular in foreign currency, decelerated in 2016 and remains consistent with healthy financial deepening (Figure 2.18). Although regulatory frameworks are at various stages of implementing the Basel Accords, banks are already moving toward Basel III capital and liquidity requirements, and provisioning coverage appears adequate, while nonperforming loans remain low. De-risking by international banks has been limited. The high degree of dollarization and increased reliance on external financing continue to represent vulnerabilities.

The outlook for the region remains favorable. Growth is expected to stabilize at an estimated average potential rate of 4 percent in the medium term. Strong U.S. growth will help support exports and remittances. Higher global interest rates will have only a limited impact on economic activity given weak financial linkages of many CAPDR countries. However, risks are tilted to the downside and include weaker-than-expected global growth, higher-than-expected global interest rates, a stronger dollar—while exchange rates fail to adjust—political uncertainties, and a retreat from cross-border integration.

Only modest acceleration of inflation and deterioration in external positions are expected over the medium term, in line with the trend in global commodity prices and continued trade volume adjustments to the recent terms-of-trade shocks.

Policy Priorities

Mexico's policy priorities are maintaining macroeconomic stability and market confidence in an environment of heightened uncertainty. Strengthening the fiscal framework will bolster the credibility of fiscal policy and help reduce public debt, which reached 58 percent of GDP in 2016. Specific reforms to the Fiscal Responsibility Law should include tightening the link between the desired level of public debt and the public sector borrowing requirement, limiting the use of exceptional circumstances clauses, and establishing a nonpartisan fiscal council. At the same time, it will be important for the government to stick to its policy to lower the fiscal deficit to 2.5 percent of GDP by 2018. In addition, it would make sense to use any positive revenue surprises and all profit transfers from the Bank of Mexico to reduce public debt.

The flexible exchange rate should remain the main shock absorber to help the economy adjust to external shocks. Increases in the monetary policy rate over the past year will help keep medium-term inflation expectations well anchored. Given the expected sharp slowdown in economic activity, the temporary nature of the inflation pressure, wage growth remaining in check, and the recent introduction of foreign-exchange hedges by the central bank, there is scope for a pause in monetary tightening in the near term. To this end, clear communication by the central bank remains important for guiding market expectations. On the structural front, greater diversification of export markets and further efforts to improve security and strengthen the rule of law would help boost potential growth. Despite significant efforts to enhance social and economic inclusion, important challenges also remain to reduce poverty and inequality.

Central America would benefit from institutionalizing fiscal discipline and strengthening fiscal policy frameworks. In the short term, achieving fiscal sustainability remains an immediate priority. *Costa Rica*, the *Dominican Republic*, and *El Salvador* need to rebuild their fiscal buffers through higher revenues and lower and more efficient spending. Establishing fiscally robust medium-term institutional frameworks, for example by means of fiscal rules such as the ones recently implemented by some countries in the region, is key to minimizing the potential negative impact on growth from fiscal consolidation. In *Guatemala*, in contrast, where levels of poverty and inequality are high and fiscal sustainability is not in jeopardy, fiscal policy should focus on supply-side and social objectives, including raising revenues to finance higher government spending to close social and physical infrastructure gaps. Over the medium term, pension and health care system reforms in the region are needed to counter pressures from population aging (see Box 2.2).

Maintaining and increasing exchange rate flexibility in countries with flexible exchange rates could help improve economies' resilience to shocks, given the risks associated with tighter global financial conditions, continued appreciation of the U.S. dollar, and increased episodes of market volatility. More robust monetary policy frameworks would require completing the transition to a full-fledged inflation-targeting framework, strengthening monetary transmission mechanisms by reducing dollarization, and improving financial infrastructure, mainly in the money, foreign exchange, and domestic debt markets.

Protecting financial stability would require continuing transition toward Basel III, stepping up consolidated supervision frameworks, implementing risk-based supervision, integrating systemic risk in the regulatory and supervisory frameworks, strengthening supervision of non-banks, and fortifying bank resolution frameworks. Given the risks arising from the potential withdrawal of correspondent banks, strengthening and proactively enforcing anti–money laundering/combating the financing of terrorism (AML/CFT) frameworks is also high on the agenda (Box 2.3). Regional cooperation on AML/CFT as well as cross-border prudential supervision are important for building resilience of CAPDR financial systems to global and regional shocks.

On the structural front, progress on improving productivity remains high in the agenda to accelerate potential growth and reduce poverty. Hence, long-term growth would be supported by improving the business environment, including through better security; prioritizing spending on education, health, and infrastructure; removing barriers to regional market integration; and strengthening the legal basis for financial deepening and inclusion.

The Caribbean

Developments and Outlook

Prospects for the Caribbean region are improving, with growth in both tourism-dependent economies and commodity exporters projected to be in the 1½ –3 percent range for 2017 and 2018 (Figure 2.19).

Several countries in the region registered strong growth in tourism in 2016—in particular *Belize, Grenada, Jamaica*, and *St. Vincent and the Grenadines*—as a result of higher arrivals in both the stopover and cruise segments. This trend is expected to continue in 2017, supported by higher economic growth in the United States, the main market for most destinations in the region. There are a few exceptions, however, such as Barbados, which is heavily dependent on tourism from the United Kingdom. The Zika epidemic appears to have had limited impact on the tourism industry in 2016 and early 2017.

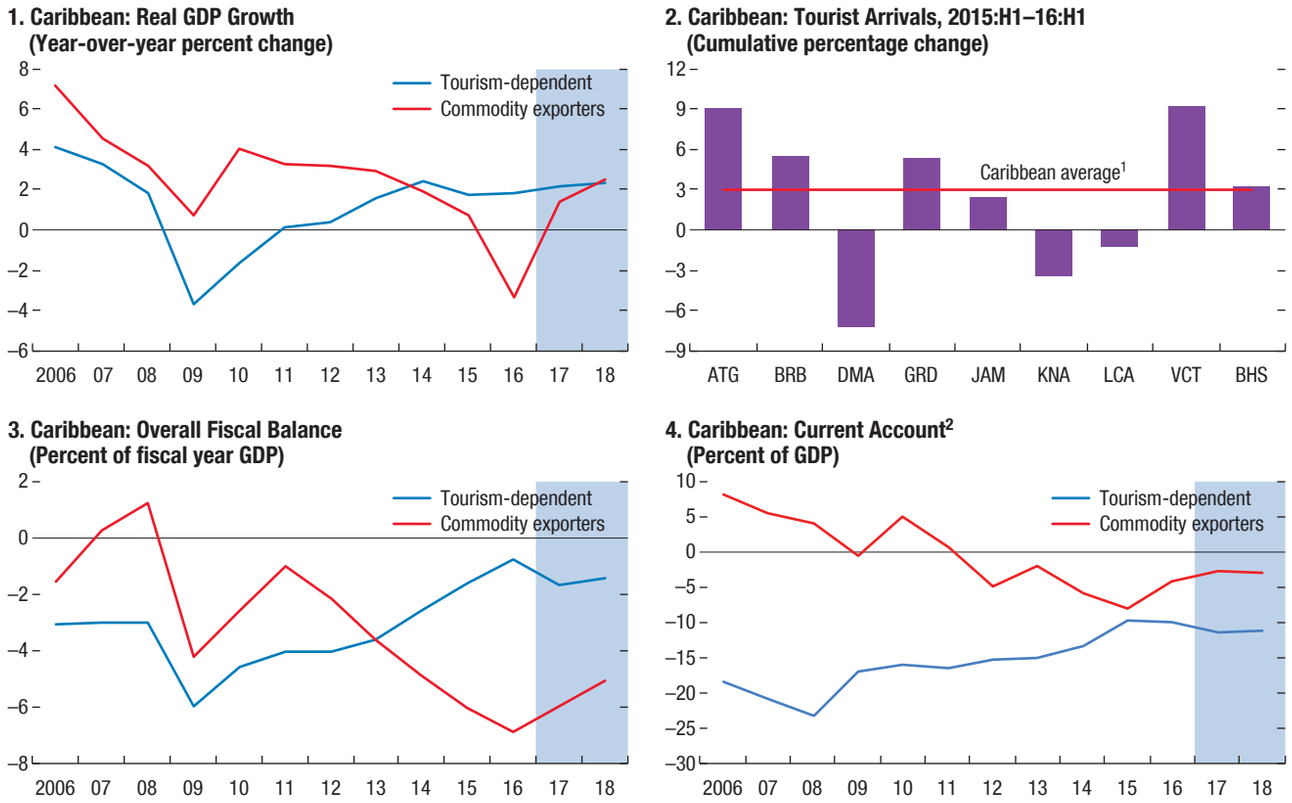
Commodity exporters, including *Trinidad and Tobago* and *Suriname*, were hit hard by much lower commodity prices in 2015 and 2016, and are projected to return to modest positive growth in 2017 and 2018, benefiting from somewhat higher (though still low) commodity prices. Higher commodity prices should also help improve the external position of these countries in 2017 and 2018.

The impact of the expected shift in the U.S. policy mix (with more expansionary fiscal policy and tighter monetary policy, relative to earlier projections) on the Caribbean region through the interest rate channel is likely to be limited, given limited capital flows and financial integration with the United States. Appreciation of the U.S. dollar could have a negative impact on competitiveness, particularly in countries with currencies tied to the U.S. dollar. Other downside risks include further loss of correspondent banking relationships (Box 2.3).

Policy Priorities

Public sector debt remains a major vulnerability for the region. In several tourism-dependent economies, the public-debt-to-GDP ratio is now declining from very high levels, with several countries, including *Grenada*, *Jamaica*, and *St. Kitts and Nevis*, engaged in multiyear fiscal consolidation efforts. In these cases, continued fiscal prudence will be necessary to gradually reduce debt-to-GDP ratios to sustainable levels and to build and preserve buffers against adverse shocks. In *Barbados* and *Belize*, public debt has continued to increase in recent years, and fiscal consolidation combined with structural reform is needed to put public debt on a clear downward trajectory. The situation in *Barbados* is becoming increasingly complex given the public sector's large financing requirements, and as a result of the slow implementation of planned fiscal measures and reforms. In *Belize*, the debt restructuring agreed upon with external bondholders in March 2017—the third such operation in a span of just 10 years—provides meaningful cash flow relief but will not put public debt on a sustainable path unless supported by an ambitious economic reform program. In commodity-exporting countries, such as *Trinidad and Tobago* and *Suriname*, the decline in commodity prices exposed weaknesses in fiscal policy and led to large deficits, contributing to a rapid increase in public debt. In these cases, there is a clear need for tighter fiscal policies in the context of medium-term macroeconomic adjustment to reestablish a sustainable fiscal path and ensure debt sustainability.

Figure 2.19. Caribbean: Recent Developments



Sources: Caribbean Tourism Organization; Eastern Caribbean Central Bank (ECCB); IMF, World Economic Outlook database; national authorities; and IMF staff calculations.
Note: Aggregates are simple averages. Shaded area refers to projections. For International Organization for Standardization (ISO) country codes used in data labels, see page 137. For country group information, see page 137.
[1]Caribbean average includes Antigua and Barbuda, The Bahamas, Barbados, Dominica, Grenada, Jamaica, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines.
[2]Data for the Eastern Caribbean Currency Union countries do not reflect ECCB provisional estimates for 2014 following a fundamental revision in balance of payments methodology. The ECCB will release final numbers for 2014 in early 2017.

In some countries in the region the financial sector is still burdened by poor asset quality, low profitability, and insufficient capital. As a result, banks are unable to play a positive role in sustaining the ongoing recovery. In the *Eastern Caribbean Currency Union (ECCU)*, the authorities have taken important steps to enhance the resilience of the banking sector, including by passing key legislation and through the successful resolution of problem banks. Further reforms will be required to durably strengthen the banking system, including strengthening the supervision of banks and nonbank financial institutions and increasing the capital adequacy of indigenous banks. Efforts to strengthen the financial sector are also under way in other countries in the region.

To improve long-term prospects, stronger implementation of structural reforms is necessary. Notably, efforts are needed to better align wage setting with productivity and to reduce energy and business financing costs. Measures to boost competitiveness include improving education, mitigating skills mismatches, accelerating contract dispute resolution processes, and reforming insolvency regimes.

Box 2.1. Exposures to the United States

Given the ongoing uncertainty about U.S. policies, as described in Chapter 1, this box summarizes the region's main exposures to the United States and analyzes possible spillovers using model simulations.

Trade Linkages

Canada, Central America, and *Mexico* are highly exposed to the United States through trade. The United States accounts for close to 80 percent of total goods exports from Canada and Mexico (about a quarter of their GDPs) and 40 percent of exports from Central America (Figure 2.1.1). Central American countries' indirect exposure to the United States is also high through intraregional trade, at about 20 percent of total exports. The United States has been running a trade deficit in goods with both Mexico and Canada, but it has a trade surplus in services. Conversely, the Central American Free Trade Agreement (CAFTA) is the only trade deal under which the United States has a trade surplus in goods but a trade deficit in services. *South America* has lower exposure to the United States, mostly through commodities. Apart from commodity-based economies (Guyana, Suriname, and Trinidad and Tobago), goods exports from the *Caribbean* to the United States are modest, and the main exposure is through the tourism sector. Overall, the region's exports to the United States, particularly in Mexico, have a high degree of concentration in manufactured goods.

In this context, renegotiation based on the objective of affecting the bilateral trade balance, including a unilateral imposition of tariffs or other trade barriers on imports, would prove damaging. For example, if tariffs for NAFTA and CAFTA countries are increased to the World Trade Organization's most-favored nation levels, lower U.S. demand for these countries' exports would initially worsen their trade balance and reduce domestic demand and real GDP growth. Through time, trade balances of these countries would improve gradually as imports decline and currencies depreciate. In addition, more widespread protectionist policies across the world could create additional spillovers to the region through lower export demand and commodity prices.

Remittances and Immigration Linkages

Remittance flows sent by migrant workers in the United States, principally to Northern Triangle countries in Central America (El Salvador, Guatemala, and Honduras), account for a significant share of GDP (Chapter 5). Although the United States is the main source of remittance flows to Mexico, the share of remittances in domestic GDP is much lower. Overall, South America has a low exposure, with remittance flows originating in a wider range of countries, mainly in Europe, but within South America, some Andean countries are more exposed than others. In the *Caribbean*, remittance flows from the United States to Belize, Guyana, and Jamaica are sizeable.

Mexican and *Central American immigrants* constitute the bulk of the Latin American migrant population in the United States (Chapter 5). In 2015, immigrants from Central America residing in the United States represented close to 10 percent of the subcontinent's entire population (compared with less than 1 percent in South America). El Salvador has by far the largest number of emigrants relative to the population of the country of origin, followed by Mexico. In the Caribbean, the migrant population living in the United States is substantial relative to the population of the countries of origin (about 23 percent).

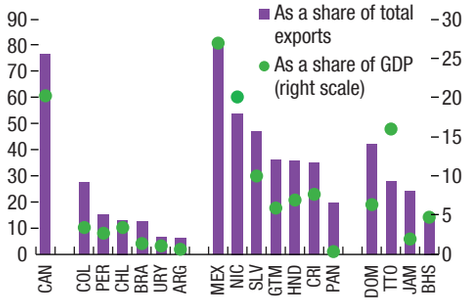
An intensification of the recent trends in deportations would likely reduce per capita GDP of countries in Central America, Panama, and the Dominican Republic, and to a lesser extent, in Mexico. The magnitude of the impact would depend on the skill composition and degree of labor market integration of returning migrants, the degree of average wage differentials with the United States, and a possible deterioration in confidence and country risk premia.

This box was prepared by S. Pelin Berkmen and Juan Yépez, based on a compilation of Western Hemisphere Department intradepartmental work on possible U.S. policy spillovers. Model simulations were prepared by Michal Andrle and Benjamin Hunt.

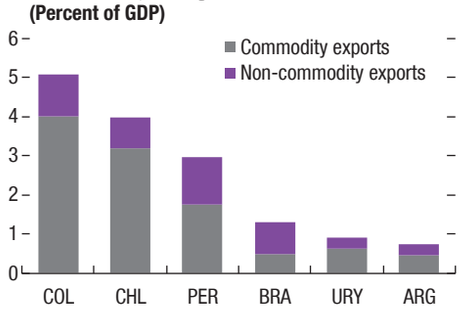
Box 2.1 *(continued)*

Figure 2.1.1. Exposure to the United States

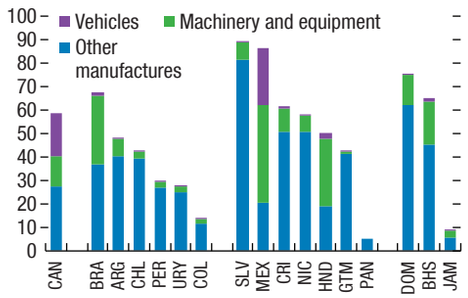
1. Goods Exports to the United States, 2015 (Percent)



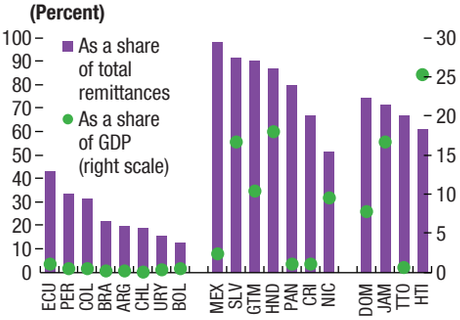
2. South America: Composition of Exports to the United States, Average over 2013–15[1] (Percent of GDP)



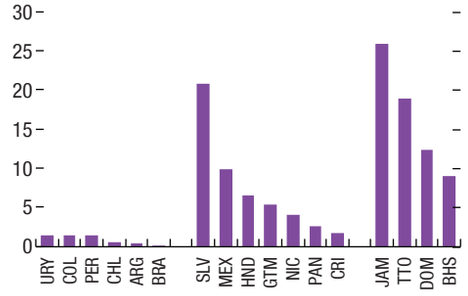
3. Manufactured Exports to the United States, 2015[2] (Percent of total exports of goods to the U.S.)



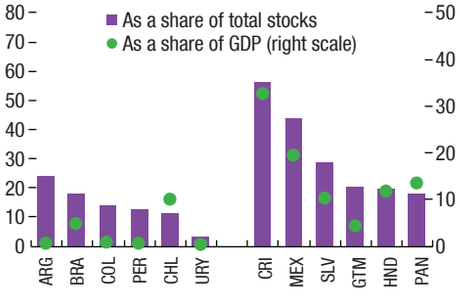
4. Remittances from the United States to Latin America and the Caribbean (Percent)



5. Total Migrant Population in the United States (Percent relative to the population of the country of origin)



6. Direct Investment from the United States, 2015 (Percent)



Sources: IMF, Coordinated Direct Investment Survey database; IMF, Direction of Trade Statistics database; IMF, World Economic Outlook database; UN Comtrade; United Nations, Department of Economic and Social Affairs 2015; World Bank, Migration and Remittances database; and IMF staff calculations.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137.
[1]Commodity exports include agricultural raw materials, food, fuel, and ores and metals.
[2]Manufactured exports include chemicals and related products, machinery and transport equipment, manufactured goods, and miscellaneous manufactured articles. The data for Honduras correspond to 2014.

Box 2.1 *(continued)*

Foreign Direct Investment Linkages

U.S. *foreign direct investment* (FDI) in the region is concentrated mainly in Costa Rica and the United States' partners in NAFTA. Out of the total stock of FDI, U.S. FDI represents 60 percent in Costa Rica and 50 percent in the NAFTA partners, respectively (representing 26 percent and 18 percent of GDP). El Salvador and Honduras are also exposed to the United States, with the stock of U.S. FDI representing 9 percent and 11 percent of GDP, respectively. In South America, exposure to U.S. FDI is lower, with the exception of Brazil and Chile. U.S. FDI in the Caribbean is modest.

Spillovers: Illustrative Model Simulations[1]

Spillovers from a change in the U.S. policy mix are analyzed using an illustrative scenario involving a debt-financed fiscal expansion (through reduced labor and corporate income taxes and increased infrastructure spending). Details of the scenario and its impact on the United States are summarized in Chapter 1 of the April 2017 *World Economic Outlook*.

If the fiscal measures are highly productive, U.S. GDP rises notably, peaking at 1 percent above the no-policy-change case in 2021. This higher demand triggers a tightening in U.S. monetary policy and a real appreciation of the U.S. dollar. Abstracting from policy uncertainty, in the short term there could be positive spillovers to the United States' main trading partners. Countries with currencies that are pegged to the U.S. dollar would suffer from appreciation in effective terms.

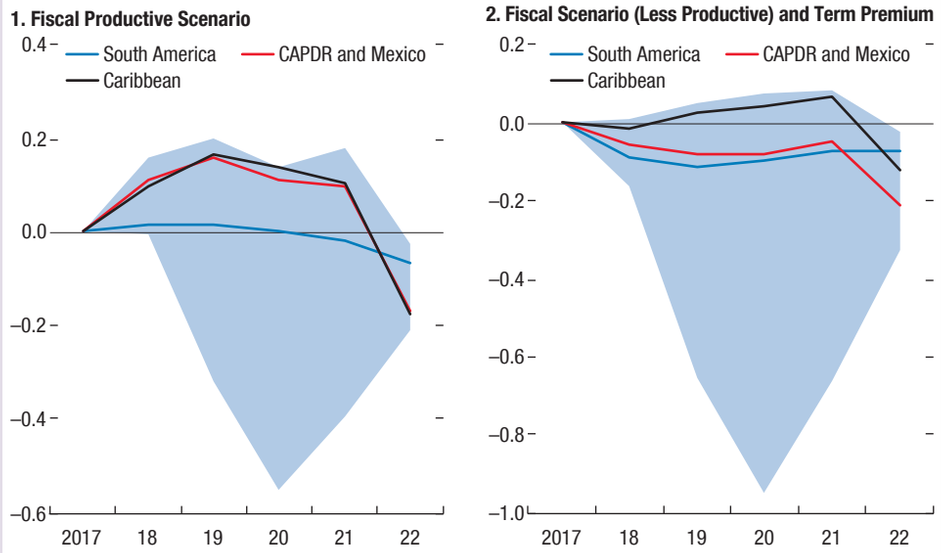
If the fiscal measures are not productive and financial markets deliver faster normalization of the U.S. term premium, U.S. GDP rises by roughly ½ percent by 2021, and the spillovers to the region are mostly negative, with tighter global financial conditions offsetting the effects of higher partner demand.

In the long term, under both scenarios spillovers to the region are small, but negative, because the permanently higher level of U.S. public debt raises global real interest rates and the cost of capital, more than offsetting the increase in the return to private capital coming from higher U.S. demand (Figure 2.1.2). The negative spillover effects of unproductive U.S. fiscal measures coupled with the higher U.S. term premium are larger for the most financially integrated economies in the region.

[1]The structural simulations were estimated using the IMF's Flexible System of Global Models (FSGM). This is an annual, multiregional general equilibrium model that combines both micro-founded and reduced-form formulations of various economic sectors. It has a fully articulated demand side and some supply-side features.

Box 2.1 *(continued)*

Figure 2.1.2. Illustrative Scenarios: Potential Changes in U.S. Policies
(GDP levels; percent of deviation from no policy change)

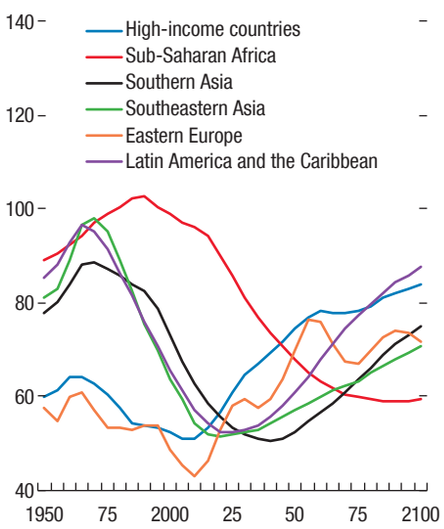


Source: IMF staff calculations.
Note: Aggregates are purchasing-power-parity GDP-weighted averages. Shaded region refers to the maximum and minimum range. For country group information, see page 137. CAPDR = Central America, Panama, and the Dominican Republic; Caribbean = Jamaica; South America = Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay.

Box 2.2. Long-Term Fiscal Gaps

Although Latin American countries are still younger than most advanced economies, population aging is expected to accelerate. For the past 65 years, the region has enjoyed a significant demographic dividend as it experienced the world's steepest decline in the total dependency ratio (population younger than age 15 and older than age 64 as a ratio of population ages 15–64). But Latin America is approaching the turning point to a new era of rapid aging, with the United Nations predicting that by 2080 it will overtake advanced economies as the region with the highest share of elderly population (Figure 2.2.1).

Figure 2.2.1. Total Dependency Ratio
(Population <15 and >64/population 15–64; percent)



Source: United Nations, *World Population Prospects: 2015 Revision.*

Several aspects of current pension and health care systems in Latin America make the region's long-term fiscal positions particularly vulnerable to population aging. Average public pension and health care spending in Latin America is lower than in high-income countries and emerging Europe, but already twice as high as in emerging Asia, a region with a more similar demographic structure (Figures 2.2.2 and 2.2.3). Most Latin American countries have defined-benefit pay-as-you-go pension systems that are relatively generous and typically underfunded. Although retirement ages are in line with international averages in many countries, in several cases replacement rates are above, and contributions below, those in high-income countries.[1] On the other hand, defined-contribution systems introduced in the 1990s are generating replacement rates that may be below socially acceptable levels (Table 2.2.1) and as such may ultimately not meet their intended objectives of reducing long-term fiscal liabilities due to the public cost of noncontributory pension schemes needed to alleviate poverty. At the same time, coverage by contributory pension and health care systems is relatively limited, reflecting the large incidence of informality in the region. Although many countries have achieved higher coverage through minimum noncontributory pensions and health insurance, this approach might have negative implications for fiscal sustainability down the road.

The projected fiscal costs of population aging are not sustainable under current policies in Latin America. A stylized cross-country exercise, drawing on demographic projections from the United Nations and methodologies developed by the IMF to derive public spending projections, is used to quantify long-term fiscal gaps generated by population aging in 18 Latin American countries (Clements and others 2015). Average pension spending in these countries, currently at 3½ percent of GDP, is projected to increase to 4 percent and 7 percent of GDP in 2030 and 2065, respectively, with a high of 30 percent of GDP in Brazil in 2065 (Figure 2.2.4). Long-term fiscal gaps, measured as the present discounted value (PDV) of the increase in

This box was prepared by Jaume Puig and Valentina Flamini based on a study by a team led by Lorenzo Figliuoli analyzing long-term fiscal gaps in Latin America and the Caribbean up to 2100.

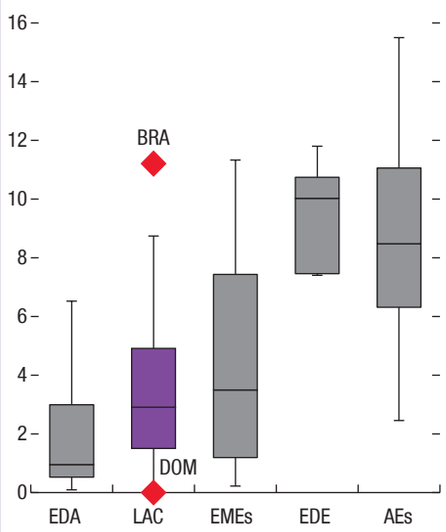
[1]As an exception, in Brazil the effective retirement age is low, while contributions and replacement rates in some components of the system are high by international standards. A parametric reform that aims to contain the growth in social security expenditure is also currently being discussed in Congress. Projections presented in this box reflect current policies under a no-reform scenario, and pension spending in 2015 includes some noncontributory benefits. See IMF 2016 for a detailed discussion of the Brazilian pension system and related challenges.

Box 2.2 *(continued)*

pension spending between 2015 and 2030—a measure of how much future government liabilities could add to public debt burdens—would on average be about 5 percent of GDP and creep up to 50 percent of GDP by 2065, again with a startling high of 365 percent of GDP in Brazil (Figure 2.2.6).

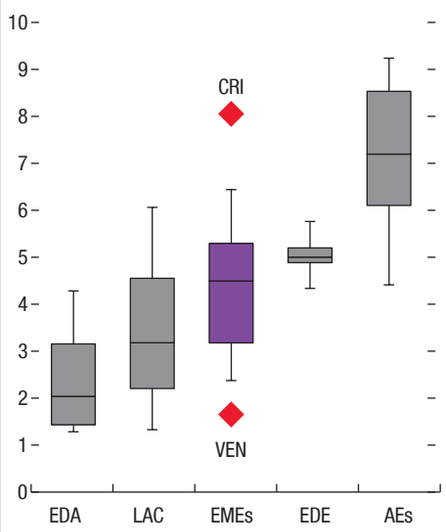
While countries with a funded component would experience a smaller increase in pension spending—and even a decline in some cases—there is still a trade-off between fiscal sustainability and social sustainability of current pension systems, given that average replacement rates tend to be lower than regional and international benchmarks in countries that have made the transition to defined-contribution systems. Health care expenditure is projected to rise even more, driven not only by demographic trends but also by excess cost growth due to technological improvements.[2]

Figure 2.2.2. Public Pension Spending, 2015
(Percent of GDP)



Sources: National authorities; and IMF staff estimates.
Note: The upper end of the box represents the 75th percentile of regional spending, the middle line is the median, and the bottom end of the box is the 25th percentile of spending. The ends of the whiskers represent the 5th and 95th percentiles of regional pension spending in 2015. AEs = advanced economies; BRA = Brazil; DOM = Dominican Republic; EDA = emerging and developing Asia; EDE = emerging and developing Europe; EMEs = emerging market and middle-income economies; LAC = Latin America and the Caribbean.

Figure 2.2.3. Public Health Spending, 2015
(Percent of GDP)



Sources: National authorities; World Health Organization; and IMF staff estimates.
Note: The upper end of the box represents the 75th percentile of regional spending, the middle line is the median, and the bottom end of the box is the 25th percentile of spending. The ends of the whiskers represent the 5th and 95th percentiles of regional health spending in 2015. AEs = advanced economies; CRI = Costa Rica; EDA = emerging and developing Asia; EDE = emerging and developing Europe; EMEs = emerging market and middle-income economies; LAC = Latin America and the Caribbean; VEN = Venezuela.

[2]Based on historical trends in advanced economies, technological improvements could result in 1 percent annual excess cost growth in health care expenditure.

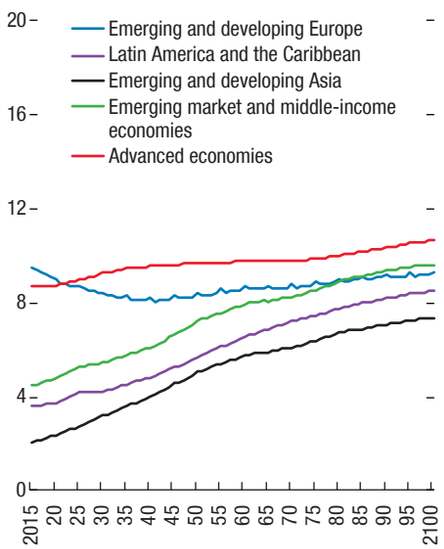
Box 2.2 *(continued)*

Reflecting the region's greater progress toward universal coverage relative to other emerging and developing regions, average regional health care expenditure is expected to increase to 6 and 10½ percent of GDP by 2030 and 2065, respectively (Figure 2.2.5). The average PDV of these spending increases up to 2030 is only about 10 percent of GDP, but almost 100 percent by 2065 (Figure 2.2.7). These projections are subject to greater uncertainty than in the case of pensions because of the wide range of possible outcomes regarding future costs of technological improvements.

Carefully designed reforms will be needed to ensure financial sustainability while providing socially acceptable levels of coverage and adequacy of pensions and health care. Policies aimed at promoting labor participation—particularly by females and the elderly—and formality would help delay the impact of aging. However, parametric reforms will be critical to ensure the long-term sustainability of pension systems in both unfunded and funded schemes. As in the rest of the world, these reforms should include not only increases in the retirement age in line with increases in life expectancy, but also a combination of increases in contributions and reductions in benefits, though these changes would have to be carefully balanced with concerns about incentives for informality. Higher contribution rates will also be needed to ensure pension adequacy in countries with defined-contribution systems.

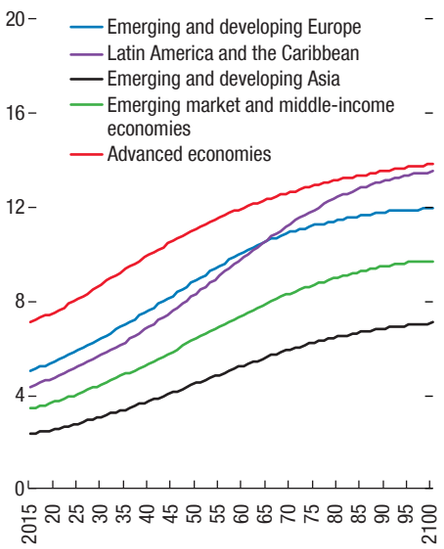
In health care spending, the emphasis should be on budget controls and efficiency-enhancing measures to contain spending while preserving health outcomes and ensuring equitable access to basic health care services, with the relative importance of each of these reforms varying across countries depending on the coverage of their current health care systems. In particular, countries that aim to expand the coverage of their public

Figure 2.2.4. Public Pension Expenditure Projections
(Percent of GDP)



Sources: National authorities; and IMF staff estimates.

Figure 2.2.5. Public Health Expenditure Projections
(Percent of GDP)

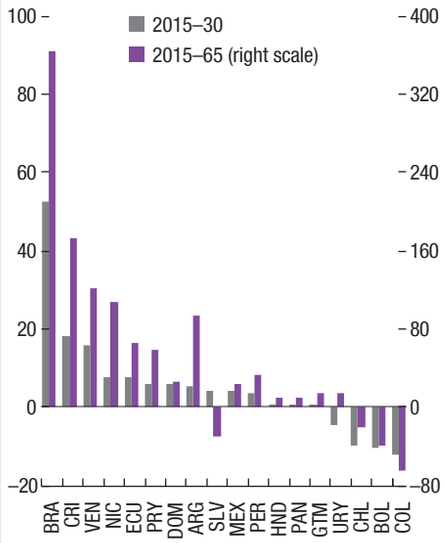


Sources: National authorities; World Health Organization; and IMF staff estimates.

Box 2.2 *(continued)*

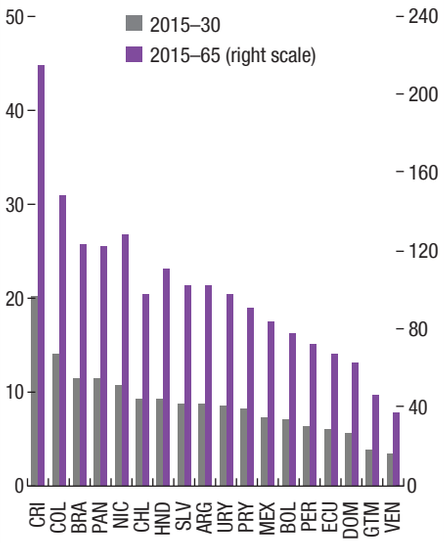
health care systems should first focus on providing essential services, with greater emphasis on preventive and primary care, infectious disease control, and better care in rural areas. Social-insurance-based systems could be expanded in countries where the informal labor market figures less prominently and revenue administration is of high quality, but tax-financed provision of universal basic health care may be the best starting point where informality is high. Countries with more extensive health care coverage should put greater emphasis on budget controls through a mix of instruments such as (1) budget caps with central oversight, (2) public management and coordination of services, (3) local and state government involvement in key resource decisions, (4) better use of market mechanisms, (5) increasing the share of costs borne by patients, and (6) restricting the supply of health inputs and outputs, or imposing direct price controls (Clements, Coady, and Gupta 2012).

Figure 2.2.6. Present Discounted Value of Public Pension Expenditure Increases
(Percent of GDP)



Sources: IMF staff estimates and projections.
Note: The present discounted value is estimated assuming an interest rate growth differential of 1 percent based on Escolano 2010 and Turner and Spinelli 2012. For International Organization for Standardization (ISO) country codes used in data labels, see page 137.

Figure 2.2.7. Present Discounted Value of Public Health Expenditure Increases
(Percent of GDP)



Sources: IMF staff estimates and projections.
Note: The present discounted value is estimated assuming an interest rate growth differential of 1 percent based on Escolano 2010 and Turner and Spinelli 2012. For International Organization for Standardization (ISO) country codes used in data labels, see page 137.

Box 2.2 *(continued)*

Table 2.2.1. Key Pension System Parameters in Latin America and the Caribbean

Country	Type of System[1]	Statutory Pensionable Age[2]	Vesting Period (Years)	Contribution Rates, 2015[3] Total (Percent)	Contribution Rates, 2015[3] Employer (Percent)	Gross Replacement Rate[4] (Percent)
Argentina	DB	65 (60)	30	21.2	10.2	71.6 (71.5)
Bolivia	DC	58	10	15.2	3.0	41.0
Brazil	DB	65 (60)	35 (30)	28.0	20.0	69.5 (52.9)
Chile	DC	65 (60)	20	11.2	1.2	32.8 (28.8)
Colombia	DB/DC	62 (57)	25	16.0	12.0	70.8 (64.1)
Costa Rica	DB/DC	65	25	12.2	8.3	79.4
Dominican Republic	DC	60	30	10.0	7.1	22.8
Ecuador	DB	60	30	10.7	1.1	94.2
El Salvador	DC	60 (55)	25	13.5	7.3	46.6
Guatemala	DB	60	20	5.5	3.7	67.8
Honduras	DB	65 (60)	15	6.0	3.5	64.9 (60.9)
Mexico	DC	65	24	8.7	6.9	25.5 (23.6)
Nicaragua	DB	60	15	13.0	9	94.2
Panama	DB/DC	62 (57)	20	13.5	4.3	78.4 (72.8)
Paraguay	DB	60	24	23.0	14.0	104.1
Peru	DB/DC	65	20	13.0	0.0	70.6
Uruguay	DB/DC	60	30	22.5	7.5	52.5
Venezuela	DB	60 (55)	15	13.0	9.0	94.2 (89.5)
OECD average	**N/A**	**64.7 (63.5)**	**N/A**	**19.6**	**11.2**	**52.9**

Sources: Organisation for Economic Co-operation and Development (OECD, 2013 and 2015) (average contribution rates; average pensionable age); OECD/IDB/World Bank 2014 (type of system; gross replacement rates); U.S. Social Security Administration 2016 (pensionable age; vesting period; contribution rates).

Note: Numbers in parentheses are for women where different from those for men. DB = defined benefit; DC = defined contribution; N/A = not applicable.

[1]DC systems may include a DB pillar in the process of being phased out. For countries with fragmented systems, the largest single component is taken as a benchmark.

[2]In many countries, the actual retirement age is lower than the statutory age because a large fraction of contributors retire several years earlier based on the length of their contributing history (for example, Brazil). In Ecuador, the pensionable age varies depending on years of contributions.

[3]In percent of reference salary. Includes old-age, disability, and survivors. Values for Argentina are net of location-based tax credits for employers.

[4]Latest available. Gross pension entitlement in percent of gross pre-retirement earnings. Comparisons are based on a specific set of assumptions. See OECD/IDB/World Bank 2014 for detailed information. Data for Argentina, Brazil, Chile, and Mexico are from OECD 2015.

Box 2.3. Correspondent Banking Relationships

A prominent risk faced by the Caribbean is the withdrawal of correspondent banking relationships (CBRs), which are critically important for the region because they enable cross-border payments, including remittances, and support economic growth through international trade and cross-border financial activity. Global banks have selectively withdrawn from CBRs over the past few years, reflecting banks' evolving cost-benefit assessments, including changes in the regulatory and enforcement landscape in advanced economies.

A recent survey conducted by the World Bank identified the Caribbean as the region most severely affected by this global trend, and smaller countries are particularly vulnerable. Several banks in the region across several countries (including Barbados, The Bahamas, Belize, the countries of the Eastern Caribbean Currency Union, Guyana, Haiti, Jamaica, Suriname, and Trinidad and Tobago) have lost some or all of their CBRs, including two central banks (Belize and Suriname). In Belize, the banks that have already lost major CBRs are of systemic proportions, with assets amounting to more than half of the domestic banking system's total assets. In other Caribbean countries, the affected banks are either not systemic or have other ongoing CBRs. In recent months some banks in the most affected countries have been able to secure new CBRs, but the potential loss of vital CBRs continues to be a major risk for all Caribbean banks.

In the most affected countries, the loss of CBRs has led to a rise in the costs of processing international transactions, including because of higher costs associated with more robust due diligence efforts and, in some cases, higher service fees for CBRs. The length of time to process international transactions has also increased. For example, in Belize, a large domestic bank reports that international wire transfer fees have increased from about $100 to about $300, with the processing time increasing from one to several days.

A recent survey of stakeholders by IMF staff in the Caribbean also provides evidence of a significant impact throughout the region on the money or value transfer services, which is important for international remittances (Chapter 5). This includes money transfer services in Jamaica (cambios), where a leading bank no longer accepts foreign instruments and remittances from some money services businesses. Limitations on this sector could have a detrimental impact on financial inclusion. For example, in Jamaica, cambios play a critical role in the market for foreign exchange by fostering increased competition, convenience, and wide access demanded by a tourism-driven economy.

Coordinated efforts by the public and the private sector are called for to mitigate the risk of financial exclusion. Home countries of global banks need to clearly communicate their regulatory expectations, and affected countries should put in place and strengthen implementation of their regulatory and supervisory frameworks to meet relevant international standards, including standards on anti–money laundering and combating the financing of terrorism and exchange of tax information. Several initiatives are under way to better understand the withdrawal of CBRs, address drivers, and assess and mitigate the potential impact, with efforts led by the IMF, the World Bank, and the Financial Stability Board. Caribbean regional bodies have stepped up efforts to raise awareness of the impact on the region of the withdrawal of CBRs.

Among possible solutions, strengthening of respondent banks' capacity to manage risks is an immediate priority. This strengthening can take the form of enhanced communication between correspondent and respondent banks to foster a common understanding of risks, issuance of policy statements by correspondent banks on transactions that are considered high risk, and the provision of technical assistance to strengthen respondent banks' capacity. In cases in which adequate capacity cannot be achieved at the level of the individual respondent bank, consolidation of transactional traffic and termination of some high-risk businesses could help address CBR pressures. The consolidation of transactional traffic through downstreaming (whereby the correspondent bank has a relationship with an intermediary bank, which has

This box was prepared by Bert van Selm based on Erbenová and others (2016) and IMF (forthcoming).

Box 2.3 *(continued)*

relationships with other respondent banks) has already gained traction in the region. The consolidation of small-sized respondent banks also has the potential to bolster the level of transaction flows with correspondent banks, as well as to provide economies of scale for due diligence processes.

Annex 2.1. Disclaimer

The consumer price data for Argentina before December 2013 reflect the consumer price index (CPI) for the Greater Buenos Aires Area (CPI-GBA), while from December 2013 to October 2015 the data reflect the national CPI (IPCNu). The new government that took office in December 2015 discontinued the IPCNu, stating that it was flawed, and released a new CPI for the Greater Buenos Aires Area on June 15, 2016. At its November 9, 2016, meeting, the IMF Executive Board considered the new CPI series to be in line with international standards and lifted the declaration of censure issued in 2013. Given the differences in geographical coverage, weights, sampling, and methodology of these series, the average CPI inflation for 2014, 2015, and 2016 and end-of-period inflation for 2015 and 2016 are not reported in the April 2017 *World Economic Outlook*.

Argentina's authorities discontinued the publication of labor market data in December 2015 and released new series starting in the second quarter of 2016.

Projecting the economic outlook in Venezuela, including assessing past and current economic developments as the basis for the projections, is complicated by the lack of discussions with the authorities (the last Article IV consultation took place in 2004), long intervals in receiving data with information gaps, incomplete provision of information, and difficulties in interpreting certain reported economic indicators in line with economic developments. The fiscal accounts include the budgetary central government and Petróleos de Venezuela, S.A. (PDVSA), and the fiscal accounts data for 2016–22 are IMF staff estimates. Revenue includes the IMF staff's estimated foreign exchange profits transferred from the central bank to the government (buying U.S. dollars at the most appreciated rate and selling at more depreciated rates in a multitier exchange rate system) and excludes the staff's estimated revenue from PDVSA's sale of PetroCaribe assets to the central bank. Fiscal accounts for 2010–22 correspond to the budgetary central government and PDVSA. Fiscal accounts before 2010 correspond to the budgetary central government, public enterprises (including PDVSA), Instituto Venezolano de los Seguros Sociales (IVSS—social security), and Fondo de Garantía de Depósitos y Protección Bancaria (FOGADE—deposit insurance).

Argentina's and Venezuela's consumer prices are excluded from all *World Economic Outlook* group aggregates.

Annex Table 2.1. Western Hemisphere: Main Economic Indicators[1]

	Output Growth (Percent)					Inflation[2] (End of period, percent)					External Current Account Balance (Percent of GDP)				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
			Est.	Projections				Est.	Projections				Est.	Projections	
North America															
Canada	2.6	0.9	1.4	1.9	2.0	2.0	1.3	1.4	2.1	2.2	−2.4	−3.4	−3.3	−2.9	−2.7
Mexico	2.3	2.6	2.3	1.7	2.0	4.1	2.1	3.4	4.6	3.1	−2.0	−2.9	−2.7	−2.5	−2.7
United States	2.4	2.6	1.6	2.3	2.5	0.5	0.7	2.2	2.3	2.7	−2.3	−2.6	−2.6	−2.7	−3.3
Puerto Rico[3]	−1.4	0.0	−1.8	−3.0	−2.5	0.1	−0.2	−0.2	1.5	0.5	...	...	...	...	...
South America															
Argentina[4]	−2.5	2.6	−2.3	2.2	2.3	23.9	...	...	21.6	17.2	−1.4	−2.7	−2.6	−2.9	−3.4
Bolivia	5.5	4.8	4.1	4.0	3.7	5.2	3.0	4.0	4.7	5.0	1.4	−5.6	−5.4	−3.9	−2.6
Brazil	0.5	−3.8	−3.6	0.2	1.7	6.4	10.7	6.3	4.4	4.5	−4.2	−3.3	−1.3	−1.3	−1.7
Chile	2.0	2.3	1.6	1.7	2.3	4.7	4.4	2.8	3.1	3.0	−1.7	−1.9	−1.4	−1.4	−1.7
Colombia	4.4	3.1	2.0	2.3	3.0	3.7	6.8	5.7	4.1	3.0	−5.1	−6.4	−4.4	−3.6	−3.3
Ecuador	4.0	0.2	−2.2	−1.6	−0.3	3.7	3.4	1.1	0.3	0.7	−0.6	−2.2	1.1	0.9	−0.1
Guyana	3.8	3.1	3.3	3.5	3.6	1.2	−1.8	1.5	2.6	2.7	−9.6	−5.7	3.5	−2.7	−3.5
Paraguay	4.7	3.0	4.1	3.3	3.7	4.2	3.1	3.9	4.1	4.0	−0.4	−1.1	0.6	−1.4	−0.5
Peru	2.4	3.3	3.9	3.5	3.7	3.2	4.4	3.2	2.9	2.5	−4.4	−4.9	−2.8	−1.9	−2.0
Suriname	0.4	−2.7	−10.5	−1.2	0.8	3.9	25.1	52.4	29.9	18.9	−7.9	−16.6	−4.4	2.8	1.2
Uruguay	3.2	1.0	1.4	1.6	2.6	8.3	9.4	8.1	8.4	7.1	−4.5	−2.1	−1.0	−1.5	−1.6
Venezuela[5]	−3.9	−6.2	−18.0	−7.4	−4.1	68.5	180.9	274.4	1,134	2,530	1.7	−7.8	−2.4	−3.3	−2.1
Central America															
Belize	4.1	2.9	−1.0	3.0	2.3	−0.2	−0.6	2.3	2.4	2.3	−7.5	−9.9	−11.0	−7.5	−5.9
Costa Rica	3.7	4.7	4.3	4.0	4.0	5.1	−0.8	0.8	3.0	3.0	−4.6	−4.5	−3.5	−3.8	−4.0
El Salvador	1.4	2.5	2.4	2.3	2.3	0.5	1.0	−0.9	2.7	2.0	−5.2	−3.6	−2.5	−3.2	−3.3
Guatemala	4.2	4.1	3.0	3.3	3.5	2.9	3.1	4.2	4.0	4.0	−2.1	−0.3	0.8	0.6	0.1
Honduras	3.1	3.6	3.6	3.4	3.6	5.8	2.4	3.3	4.7	4.5	−7.3	−6.2	−3.8	−3.8	−4.7
Nicaragua	4.6	4.9	4.7	4.5	4.3	6.5	3.1	3.1	5.9	7.4	−7.7	−8.2	−9.5	−9.4	−8.5
Panama[6]	6.1	5.8	5.0	5.8	6.1	1.0	0.3	1.5	2.5	2.3	−13.7	−7.3	−5.3	−4.7	−4.4
The Caribbean															
Antigua and Barbuda	4.8	3.8	3.7	2.2	1.7	1.3	0.9	−0.6	2.3	2.4	−12.5	−5.2	−5.9	−9.8	−9.6
The Bahamas	−0.5	−1.7	0.0	1.4	2.2	0.2	2.0	0.4	1.5	1.5	−22.0	−16.0	−11.4	−13.1	−10.8
Barbados	0.1	0.9	1.6	1.7	1.8	2.3	−2.5	0.8	2.4	2.5	−9.5	−5.9	−4.5	−4.0	−4.0
Dominica	4.2	−1.8	0.6	3.0	2.1	0.5	−0.5	−0.2	1.4	1.4	−9.5	−8.0	−7.8	−9.5	−10.3
Dominican Republic	7.6	7.0	6.6	5.3	5.0	1.6	2.3	1.7	4.3	4.0	−3.3	−2.0	−1.5	−1.9	−2.5
Grenada	7.3	6.2	3.1	2.7	2.7	−0.6	1.0	1.4	3.2	1.8	−17.5	−17.7	−17.6	−18.7	−18.5
Haiti[7]	2.8	1.2	1.4	1.0	3.0	5.3	11.3	12.5	11.0	5.0	−8.5	−3.1	−0.9	−2.6	−2.4
Jamaica	0.5	1.0	1.5	2.0	2.4	6.4	3.7	4.0	5.0	5.5	−7.5	−3.0	−2.7	−3.1	−3.3
St. Kitts and Nevis	5.1	4.9	2.9	3.5	3.4	−0.5	−2.4	0.9	1.5	1.6	−7.8	−8.5	−14.5	−18.3	−18.1
St. Lucia	0.4	1.8	0.8	0.5	1.5	3.7	−2.6	0.6	0.7	1.1	−8.9	−2.6	−6.7	−8.8	−9.3
St. Vincent and the Grenadines	0.2	0.6	1.8	2.5	2.8	0.1	−2.1	1.3	1.3	1.3	−25.1	−21.2	−18.9	−18.4	−17.5
Trinidad and Tobago	−0.6	−0.6	−5.1	0.3	3.4	8.4	1.6	3.4	3.7	4.7	1.4	−1.0	−5.5	−4.1	−3.7
Memorandum															
Latin America and the Caribbean	**1.2**	**0.1**	**−1.0**	**1.1**	**2.0**	**5.0**	**6.2**	**4.6**	**4.2**	**3.7**	**−3.2**	**−3.5**	**−2.1**	**−2.1**	**−2.3**
South America[8]	2.0	1.0	−0.9	1.0	1.9	4.9	5.6	4.4	4.0	3.7	−1.9	−3.8	−2.0	−2.0	−1.9
CAPDR[9]	4.4	4.7	4.2	4.1	4.1	3.3	1.6	1.9	3.9	3.9	−6.3	−4.6	−3.6	−3.8	−3.9
Caribbean															
Tourism-dependent[10]	2.5	1.8	1.8	2.2	2.3	1.5	−0.3	1.0	2.1	2.1	−13.4	−9.8	−10.0	−11.5	−11.3
Commodity exporters[11]	1.9	0.7	−3.3	1.4	2.5	3.3	6.1	14.9	9.7	7.2	−5.9	−8.3	−4.4	−2.8	−3.0
Eastern Caribbean Currency Union[12]	3.2	2.6	1.9	2.4	2.3	0.9	−0.9	0.5	1.7	1.7	−13.6	−10.0	−11.7	−13.8	−13.8

Sources: IMF, World Economic Outlook database; and IMF staff calculations and projections.

[1]Regional aggregates are purchasing-power-parity GDP-weighted averages unless noted otherwise. Current account aggregates are U.S. dollar nominal GDP-weighted averages. Consumer price index (CPI) series exclude Argentina and Venezuela. Consistent with the IMF *World Economic Outlook*, the cutoff date for the data and projections in this table is April 3, 2017.

[2]End-of-period (December) rates. These will generally differ from period average inflation rates reported in the IMF *World Economic Outlook*, although both are based on identical underlying projections.

[3]The Commonwealth of Puerto Rico is classified as an advanced economy. It is a territory of the United States but its statistical data are maintained on a separate and independent basis.

[4]See Annex 2.1 for details on Argentina's data.

[5]See Annex 2.1 for details on Venezuela's data.

[6]Ratios to GDP are based on the "2007-base" GDP series.

[7]Fiscal year data.

[8]Simple average of Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela. CPI series exclude Argentina and Venezuela.

[9]Simple average of Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

[10]Simple average of The Bahamas, Barbados, Jamaica, and Eastern Caribbean Currency Union (ECCU) members.

[11]Simple average of Belize, Guyana, Suriname, and Trinidad and Tobago.

[12]ECCU members are Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines, as well as Anguilla and Montserrat, which are not IMF members.

Annex Table 2.2. Western Hemisphere: Main Fiscal Indicators[1]

	Public Sector Primary Expenditure (Percent of GDP)					Public Sector Primary Balance (Percent of GDP)					Public Sector Gross Debt (Percent of GDP)				
	2014	2015	2016 Est.	2017 Projections	2018 Projections	2014	2015	2016 Est.	2017 Projections	2018 Projections	2014	2015	2016 Est.	2017 Projections	2018 Projections
North America															
Canada	35.5	37.2	37.8	38.3	38.1	0.2	−0.5	−1.2	−1.7	−1.6	85.4	91.6	92.3	91.2	89.8
Mexico[2]	25.3	24.2	23.0	21.2	20.2	−2.0	−1.1	0.2	0.3	1.1	49.5	53.7	58.1	57.2	56.8
United States[3]	33.1	32.9	32.7	32.4	32.0	−2.0	−1.6	−2.3	−1.9	−2.2	105.2	105.6	107.4	108.3	108.9
Puerto Rico[4]	20.5	19.6	19.8	20.4	21.0	−1.0	−0.1	−0.1	0.8	0.2	54.7	53.0	51.4	53.5	56.3
South America															
Argentina[5]	35.7	38.3	38.7	37.0	35.7	−3.2	−4.4	−5.0	−4.8	−3.6	43.6	52.0	51.3	49.4	49.2
Bolivia[6]	42.3	43.6	37.9	37.0	36.2	−2.4	−5.9	−5.5	−5.2	−4.2	37.0	40.6	42.1	42.4	43.3
Brazil[7]	32.5	33.2	32.9	32.7	32.0	−0.6	−1.9	−2.5	−2.3	−1.1	62.3	72.5	78.3	81.2	82.7
Chile	23.1	24.4	25.4	25.5	25.8	−1.3	−1.9	−2.6	−2.8	−2.0	14.9	17.4	21.2	24.8	27.4
Colombia[8]	26.9	26.6	24.7	24.6	24.3	0.3	−0.7	−0.3	0.2	0.5	44.2	50.7	47.6	45.7	45.3
Ecuador[9]	42.4	37.4	35.8	33.6	31.4	−4.2	−3.9	−5.0	−0.4	1.6	19.7	22.6	29.2	31.5	32.3
Guyana[10]	30.2	28.4	32.1	33.4	33.4	−4.4	−0.2	−3.4	−4.4	−4.1	51.2	47.9	48.3	53.9	57.4
Paraguay	22.7	24.3	23.1	23.4	23.0	0.1	−0.3	0.1	0.2	0.6	19.7	24.0	24.7	25.9	26.5
Peru	21.5	21.2	20.0	20.5	20.4	0.7	−1.3	−1.4	−1.2	−0.9	20.7	24.0	24.8	25.9	26.6
Suriname[11]	31.1	29.9	19.5	19.0	20.5	−7.0	−7.8	−4.4	−2.0	0.3	29.0	45.7	64.6	66.3	59.0
Uruguay[12]	29.5	28.7	29.3	29.3	29.0	−0.6	0.0	−0.7	−0.3	0.2	61.4	64.3	60.9	62.9	63.9
Venezuela[13]	43.3	35.1	28.4	28.4	28.4	−13.0	−15.9	−13.6	−13.9	−15.6	63.5	32.1	28.2	17.3	16.6
Central America															
Belize[10]	28.9	33.7	31.0	29.8	29.7	0.3	−4.7	−0.6	2.6	2.0	77.7	82.6	98.6	89.8	87.0
Costa Rica[10]	16.3	16.6	16.5	16.2	16.3	−3.0	−3.0	−2.3	−1.8	−1.7	38.3	40.8	43.7	46.7	48.8
El Salvador[14]	19.0	18.9	18.5	18.7	19.1	−1.0	−0.7	0.3	0.6	0.2	57.1	58.7	59.9	61.1	62.2
Guatemala[10]	11.9	10.7	10.5	11.5	11.8	−0.4	0.1	0.4	−0.3	−0.4	24.3	24.2	25.3	25.9	26.4
Honduras	26.3	25.0	25.6	25.3	25.1	−3.8	−0.3	−0.4	−0.5	0.1	45.9	46.2	45.4	45.9	46.7
Nicaragua[14]	24.0	24.7	26.4	26.3	26.1	−0.8	−0.9	−1.0	−0.8	−0.7	29.3	29.4	31.1	32.0	32.7
Panama[15]	21.9	21.0	21.1	21.4	20.8	−1.6	−0.7	−0.6	−0.2	0.2	37.1	38.8	39.2	38.9	37.5
The Caribbean															
Antigua and Barbuda[16]	19.9	23.9	22.0	19.8	18.6	−0.2	−0.1	3.6	3.0	3.2	102.7	99.1	92.7	90.1	87.1
The Bahamas[10]	20.0	21.2	22.1	22.1	21.7	−3.1	−1.7	−0.4	−0.4	0.7	60.2	64.5	66.9	69.3	69.6
Barbados[17]	38.3	39.4	38.1	37.9	37.8	−2.5	−1.8	−1.2	−0.2	0.4	100.0	106.7	107.9	107.4	108.7
Dominica[16]	30.6	32.8	33.5	33.1	31.2	−3.1	1.1	4.6	1.6	1.2	82.2	83.0	81.0	81.0	81.4
Dominican Republic[14]	15.3	15.1	14.7	15.2	14.8	−0.5	2.4	−0.2	−0.7	−0.4	33.7	33.0	34.4	36.0	37.3
Grenada[16]	25.6	22.6	21.7	22.3	21.8	−1.1	2.2	5.4	4.1	4.1	101.8	91.7	84.4	72.6	66.8
Haiti[10]	24.8	21.5	18.2	18.7	21.0	−5.9	−2.2	0.3	−2.1	−0.5	26.3	30.2	33.5	33.9	34.6
Jamaica[16]	18.7	19.8	20.9	21.6	20.2	7.5	7.1	7.0	7.0	7.0	137.6	120.2	115.2	108.6	102.7
St. Kitts and Nevis[16]	29.9	30.1	30.4	29.3	28.7	12.3	8.7	3.5	0.9	1.3	81.4	70.6	65.8	61.9	57.8
St. Lucia[16]	25.6	25.5	27.1	27.2	26.8	0.1	1.5	0.9	0.1	0.4	78.1	77.8	82.9	85.6	88.5
St. Vincent and Grenadines[16]	29.9	27.2	26.6	26.0	26.2	−1.5	−0.2	1.9	2.2	2.3	79.4	81.3	79.2	77.2	75.1
Trinidad and Tobago[18]	36.8	38.5	35.4	37.2	35.3	−2.1	−4.3	−11.9	−10.1	−8.0	41.7	49.5	61.0	65.8	75.7
Memorandum															
Latin America and the Caribbean	**30.0**	**29.8**	**28.8**	**28.9**	**28.1**	**−1.6**	**−2.8**	**−2.6**	**−2.3**	**−1.5**	**50.9**	**54.1**	**57.3**	**59.0**	**59.6**
South America[19]	32.0	31.3	29.6	29.2	28.6	−2.4	−3.6	−3.6	−3.0	−2.5	38.7	40.0	40.8	40.7	41.4
CAPDR[20]	19.3	18.9	19.0	19.2	19.1	−1.6	−0.4	−0.6	−0.5	−0.4	38.0	38.7	39.9	40.9	41.7
Caribbean															
Tourism-dependent[21]	26.5	26.9	26.9	26.6	25.9	0.9	1.9	2.8	2.0	2.3	91.5	88.3	86.2	83.7	82.0
Commodity exporters[22]	31.7	32.6	29.5	29.8	29.7	−3.3	−4.3	−5.1	−3.5	−2.4	49.9	56.4	68.1	69.0	69.8
Eastern Caribbean Currency Union[16,23]	26.6	27.5	27.3	25.3	24.6	1.4	1.1	2.4	3.4	3.8	83.3	81.3	80.4	76.3	72.9

Sources: IMF, World Economic Outlook database; and IMF staff calculations and projections.

[1]Definitions of public sector accounts vary by country, depending on country-specific institutional differences, including on what constitutes the appropriate coverage from a fiscal policy perspective, as defined by the IMF staff. All indicators reported on fiscal year basis. Regional aggregates are purchasing-power-parity GDP-weighted averages, unless otherwise noted. Consistent with the IMF *World Economic Outlook*, the cutoff date for the data and projections in this table is April 3, 2017.

[2]Includes central government, social security funds, nonfinancial public corporations, and financial public corporations.

[3]For cross-country comparability, expenditure and fiscal balances of the United States are adjusted to exclude the items related to the accrual basis accounting of government employees' defined benefit pension plans, which are counted as expenditure under the 2008 System of National Accounts (2008 SNA) recently adopted by the United States, but not for countries that have not yet adopted the 2008 SNA. Data for the United States in this table may thus differ from data published by the U.S. Bureau of Economic Analysis.

[4]The Commonwealth of Puerto Rico is classified as an advanced economy. It is a territory of the United States, but its statistical data are maintained on a separate and independent basis.

[5]Primary expenditure and primary balance include the federal government and provinces. Gross debt is for the federal government only.

[6]Nonfinancial public sector, excluding the operations of nationalized mixed-ownership companies in the hydrocarbon and electricity sectors.

[7]Nonfinancial public sector, excluding Petrobras and Eletrobras, and consolidated with the Sovereign Wealth Fund (SWF). The definition includes Treasury securities on the central bank's balance sheet, including those not used under repurchase agreements (repos). The national definition of general government gross debt includes the stock of Treasury securities used for monetary policy purposes by the central bank (those pledged as security in reverse repo operations). It excludes the rest of the government securities held by the central bank. According to this definition, general government gross debt amounted to 58.9 percent of GDP at end-2014.

[8]Nonfinancial public sector reported for primary balances (excluding statistical discrepancies); combined public sector including Ecopetrol and excluding Banco de la República's outstanding external debt reported for gross public debt.

[9]Public sector gross debt includes liabilities under advance oil sales, which are not treated as public debt in the authorities' definition. In late 2016, the authorities changed the definition of debt to a consolidated basis; both the historical and projection numbers are now presented on a consolidated basis.

[10]Central government only. Gross debt for Belize includes both public and publicly guaranteed debt.

[11]Primary expenditures for Suriname exclude net lending.

[12]For Uruguay, public debt includes the debt of the central bank, which increases recorded public sector gross debt.

[13]See Annex 2.1 for details on Venezuela's data.

[14]General government. The outcome for the Dominican Republic in 2015 reflects the inclusion of the grant element of the debt buyback operation with Petróleos de Venezuela, S.A. amounting to 3.1 percent of GDP.

[15]Ratios to GDP are based on the "2007-base" GDP series. Fiscal data cover the nonfinancial public sector excluding the Panama Canal Authority.

[16]Central government for primary expenditure and primary balance; public sector for gross debt. For Jamaica, the public debt includes central government, guaranteed, and PetroCaribe debt.

[17]Overall and primary balances include off-budget and public-private partnership activities for Barbados and the nonfinancial public sector. Central government for gross debt (excludes National Insurance Scheme holdings).

[18]Central government for primary expenditure. Consolidated public sector for primary balance and gross debt.

[19]Simple average of Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela.

[20]Simple average of Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

[21]Simple average of The Bahamas, Barbados, Jamaica, and Eastern Caribbean Currency Union (ECCU) members.

[22]Simple average of Belize, Guyana, Suriname, and Trinidad and Tobago.

[23]ECCU members are Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines, as well as Anguilla and Montserrat, which are not IMF members.

Annex Table 2.3. Western Hemisphere: Selected Economic and Social Indicators, 2007–16[1]

	2016				Average 2007–16					2016		Latest Available		
	GDP[2] (Billions of U.S. dollars)	Population (Million)	GDP per capita (PPP U.S. dollars)	Nominal output share of LAC region[2] (Percent)	Real GDP growth (Percent)	CPI inflation[3] (Percent)	Current account (Percent of GDP)	Domestic saving (Percent of GDP)	Trade openness[4] (Percent of GDP)	Gross reserves[5] (Percent of GDP)	Unemployment rate (Percent)	Poverty rate[6]	Gini coefficient[6]	Sovereign credit rating[7]
North America														
Canada	1,529.2	36.2	46,437	...	1.5	1.7	−2.4	21.4	63.2	5.4	7.0	...	31.3	AAA
Mexico	1,046.0	122.3	18,938	20.9	2.2	3.9	−1.7	21.0	64.4	16.6	4.3	11.7	51.8	BBB+
United States	18,569.1	323.3	57,436	...	1.3	1.8	−3.1	17.1	28.7	0.6	4.9	...	47.6	AAA
Puerto Rico[8]	101.3	3.4	38,393	...	−0.9	1.5	...	...	...	...	11.8	...	...	...
South America														
Argentina[9]	545.1	43.6	20,047	10.9	2.2	...	−0.3	17.2	32.7	6.7	8.5	5.4	42.1	B−
Bolivia	34.8	10.9	7,218	0.7	5.0	6.1	3.2	22.9	71.4	24.6	4.0	14.0	47.3	BB−
Brazil	1,798.6	206.1	15,242	36.0	2.1	6.2	−2.5	18.0	23.8	20.2	11.3	7.8	51.7	BB
Chile	247.0	18.2	24,113	4.9	3.4	3.7	−1.1	22.7	67.5	16.4	6.5	2.0	48.2	AA−
Colombia	282.4	48.7	14,130	5.6	4.1	4.3	−3.6	20.6	35.6	16.3	9.2	14.5	52.5	BBB
Ecuador	98.0	16.5	11,109	2.0	3.3	4.0	0.1	26.6	57.0	3.9	5.2	9.3	47.6	B
Guyana	3.4	0.8	7,873	0.1	4.2	3.7	−9.2	8.7	128.0	16.9	...	...	...	...
Paraguay	27.4	6.9	9,396	0.5	5.0	4.6	0.9	16.9	96.7	24.0	5.1	9.0	49.3	BB
Peru	195.1	31.5	12,903	3.9	5.5	3.4	−2.7	21.7	50.2	31.1	6.7	9.2	44.7	BBB+
Suriname	3.6	0.6	13,988	0.1	1.6	13.1	1.6	...	100.3	9.9	11.0	...	...	B+
Uruguay	54.6	3.5	21,527	1.1	4.5	8.1	−3.0	17.8	52.1	24.7	7.9	2.0	42.6	BBB
Venezuela[10]	287.3	31.0	13,761	5.7	−0.8	73.3	1.8	25.1	50.4	1.5	21.2	4.9	40.5	CCC
Central America														
Belize	1.7	0.4	8,220	0.0	2.1	1.4	−5.7	12.1	127.6	21.6	11.1	...	...	CCC−
Costa Rica	58.1	4.9	16,436	1.2	4.1	5.3	−4.7	15.8	70.1	13.0	8.2	4.6	50.6	BB
El Salvador	26.7	6.1	8,909	0.5	1.6	2.0	−4.5	9.8	66.5	11.9	7.0	12.3	42.6	B−
Guatemala	68.2	16.7	7,899	1.4	3.5	4.8	−2.0	12.8	59.4	13.1	...	36.9	50.6	BB
Honduras	21.4	8.2	5,271	0.4	3.3	5.7	−7.6	17.8	87.7	17.7	4.0	36.2	52.5	B+
Nicaragua	13.0	6.2	5,452	0.3	3.9	7.4	−11.0	17.9	97.8	18.1	5.9	20.3	51.5	B+
Panama	55.1	4.0	23,024	1.1	7.3	3.7	−8.9	33.1	78.2	7.0	5.5	10.2	50.2	BBB
The Caribbean														
The Bahamas	8.9	0.4	24,555	0.2	−0.2	1.7	−14.2	13.2	94.0	11.2	12.2	...	...	BBB−
Barbados	4.6	0.3	17,100	0.1	0.2	3.6	−7.7	6.8	95.2	11.6	9.9	...	...	CCC
Dominican Republic	72.2	10.1	16,049	1.4	5.3	4.7	−5.1	20.1	56.9	8.5	5.5	10.3	47.7	BB−
Haiti	8.3	10.8	1,784	0.2	2.0	7.8	−3.7	25.6	68.3	25.1	...	...	...	...
Jamaica	13.9	2.8	8,976	0.3	0.0	9.3	−9.8	11.8	87.7	23.6	12.8	...	...	B
Trinidad and Tobago	21.0	1.4	31,870	0.4	0.4	6.8	8.6	11.9	102.9	48.8	4.1	...	...	BBB+
Eastern Caribbean Currency Union	6.0	0.6	17,320	0.1	1.1	2.0	−17.9	7.9	93.4	26.8	...	...	...	...
Antigua and Barbuda	1.4	0.1	25,157	0.0	0.5	2.0	−14.8	13.1	104.5	23.6	...	...	...	...
Dominica	0.5	0.1	11,375	0.0	1.5	1.4	−15.4	1.6	89.7	42.6	...	...	...	...
Grenada	1.0	0.1	14,116	0.0	1.9	2.0	−22.8	−1.1	76.4	20.2	...	...	...	...
St. Kitts and Nevis	0.9	0.1	25,940	0.0	2.1	1.6	−15.2	17.0	88.7	35.5	...	...	...	...
St. Lucia	1.4	0.2	11,783	0.0	0.5	2.2	−14.8	10.7	103.5	21.1	...	...	...	...
St. Vincent and the Grenadines	0.8	0.1	11,271	0.0	0.5	2.2	−27.4	−1.0	83.9	24.8	...	2.9	40.2	...
Latin America and the Caribbean	**5,002.6**	**613.4**	**15,358**	**100.0**	**2.5**	**5.0**	**−2.0**	**19.6**	**42.6**	**16.3**	**...**	**12.8**	**49.5**	**...**

Sources: IMF, International Financial Statistics database; IMF, World Economic Outlook database; Inter-American Development Bank (IDB); national authorities; Socio-Economic Database for Latin America and the Caribbean (CEDLAS and World Bank); and IMF staff calculations.

Note: CPI = Consumer Price Index; PPP = purchasing power parity.

[1]Estimates may vary from those reported by national authorities on account of differences in methodology and source. Regional aggregates are purchasing-power-parity GDP-weighted averages, except for regional GDP in U.S. dollars and population where totals are computed. CPI series exclude Argentina and Venezuela. Consistent with the IMF, *World Economic Outlook,* the cut-off date for the data and projections in this table is April 3, 2017.

[2]At market exchange rates.

[3]End-of-period, 12-month percent change.

[4]Exports plus imports of goods and services in percent of GDP.

[5]Latest available data from IMF, International Financial Statistics database.

[6]Data from Socio-Economic Database for Latin America and the Caribbean (SEDLAC), based on the latest country-specific household surveys. In most cases, the surveys are from 2014 and 2015, except for Chile which is 2013. Poverty rate is defined as the share of the population earning less than US$2.5 per day. For LAC, poverty is defined as share of population earning less than US$3.1 a day from the IDB. For Venezuela, poverty rate is defined as a share of the population in extreme poverty per national definition (INE). Gini index for aggregate is population-weighted average from the IDB. Data for the United States are from the U.S. Census Bureau; those for Canada are from Statistics Canada.

[7]Median of long-term foreign currency ratings published by Moody's, Standard & Poor's, and Fitch.

[8]The Commonwealth of Puerto Rico is classified as an advanced economy. It is a territory of the United States but its statistical data are maintained on a separate and independent basis.

[9]See Annex 2.1 for details on Argentina's data.

[10]See Annex 2.1 for details on Venezuela's data.

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3. External Adjustment to Terms-of-Trade Shifts

External adjustment in Latin America is ongoing in the wake of large and persistent shifts in the region's terms of trade. In the past, external adjustment to negative terms-of-trade shocks typically took place through a weakening of domestic demand and import compression (negative income effects) rather than stronger supply growth and export recovery, despite a real depreciation. In contrast, the ongoing adjustment reflects the increased use of exchange rate flexibility as a shock absorber. The real depreciation has led to a small boost to exports and a stronger reduction in imports than in the past, with demand shifting toward locally produced goods. Altogether, although the income effect still appears to be strong, the expenditure-switching effect seems to have become more relevant. These effects have alleviated the burden on domestic demand, thereby reducing the "sacrifice ratio" of external adjustment for flexible exchange rate regimes in Latin America. Moreover, with flexible regimes becoming more widespread, the cost associated with exchange rate rigidity has increased in the region, as common shocks have led to multilateral appreciation for less flexible currencies. The aggregate responsiveness of exports to real depreciation also masks differences within and across countries. In terms of global shares, export performance responds more significantly to changing relative prices for noncommodity products and for exporters that trade manufactured goods more heavily. Exchange rate flexibility can thus support structural policies aimed at shifting resources to noncommodity sectors.

Slowing global trade has affected all regions since 2012, as documented in the October 2016 *World Economic Outlook* (Figure 3.1, panel 1). The slowdown has coincided with the end of the commodity super-cycle that—starting in the early 2000s and peaking in 2011—benefited Latin America's commodity exporters. For these economies, the fall in export values has been large, declining by between 20 and 35 percent for some countries, including a substantial drop in noncommodity exports (Figure 3.1, panel 2).

This chapter was prepared by Yan Carrière-Swallow, Nicolas E. Magud, and Juan Yépez, with contributions from Sergi Lanau and excellent research assistance from Steve Brito.

The slowdown in exports, in turn, is linked to the deterioration in the region's terms of trade. The latter has been large, ranging from 5 percent in Mexico to over 65 percent in Venezuela (Figure 3.1, panel 3). From the perspective of each individual country, these declines are among the largest of the past 35 years (Figure 3.2). These are comparable to past episodes of large and persistent busts in the terms of trade that have affected emerging market and developing economies over the past half century.[1]

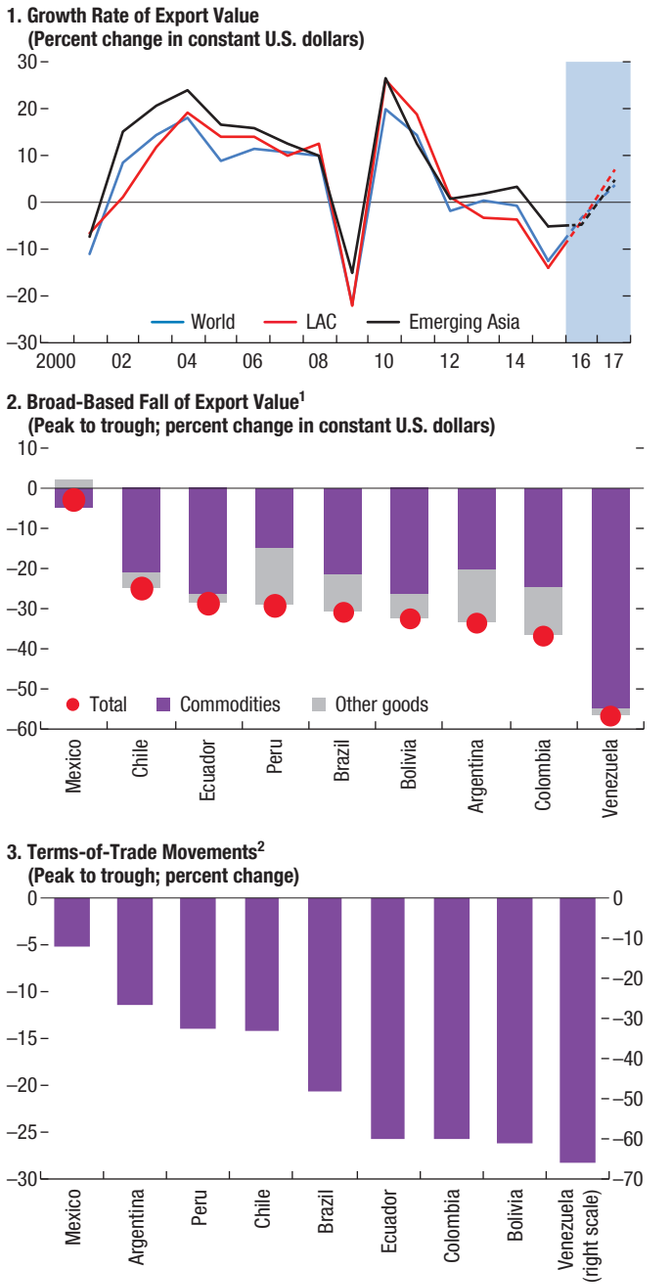
Conceptually, external adjustment to terms-of-trade shocks takes place through both income and expenditure-switching effects. On the one hand, the income effect reflects the reduction in purchasing power associated with weaker terms of trade, leading to a compression of domestic demand and thereby of imports. On the other hand, the relative price change results in an expenditure-switching effect that leads to higher exports and a shift in the composition of domestic consumption away from foreign goods toward domestic goods on the demand side, as well as a shift in resources from the nontradable to the domestic tradable sector on the supply side (Box 3.1).

Exchange rate flexibility is typically viewed as a key shock absorber for small open economies facing these types of real external shocks.[2] In response to weaker terms of trade, and despite large exchange rate depreciations in some cases, external adjustment in Latin America has largely taken place through import compression, with

[1]Adler, Magud, and Werner (2017), covering 150 countries during 1960–2015, document that periods of strong terms of trade last about 19 years on average, while weak periods last about 11 years, with terms of trade being about 50–60 percent higher during the strong phase of the cycle.

[2]See Graham and Whittlesley (1934) and Friedman (1953). Intuitively, as nominal prices tend to be sticky, exchange rate flexibility enables a faster accommodation of relative prices, helping to mitigate the real effects of external shocks, and thus facilitating the process of external adjustment.

Figure 3.1. Global Export Deceleration while Latin America's Terms of Trade Deteriorate Sharply



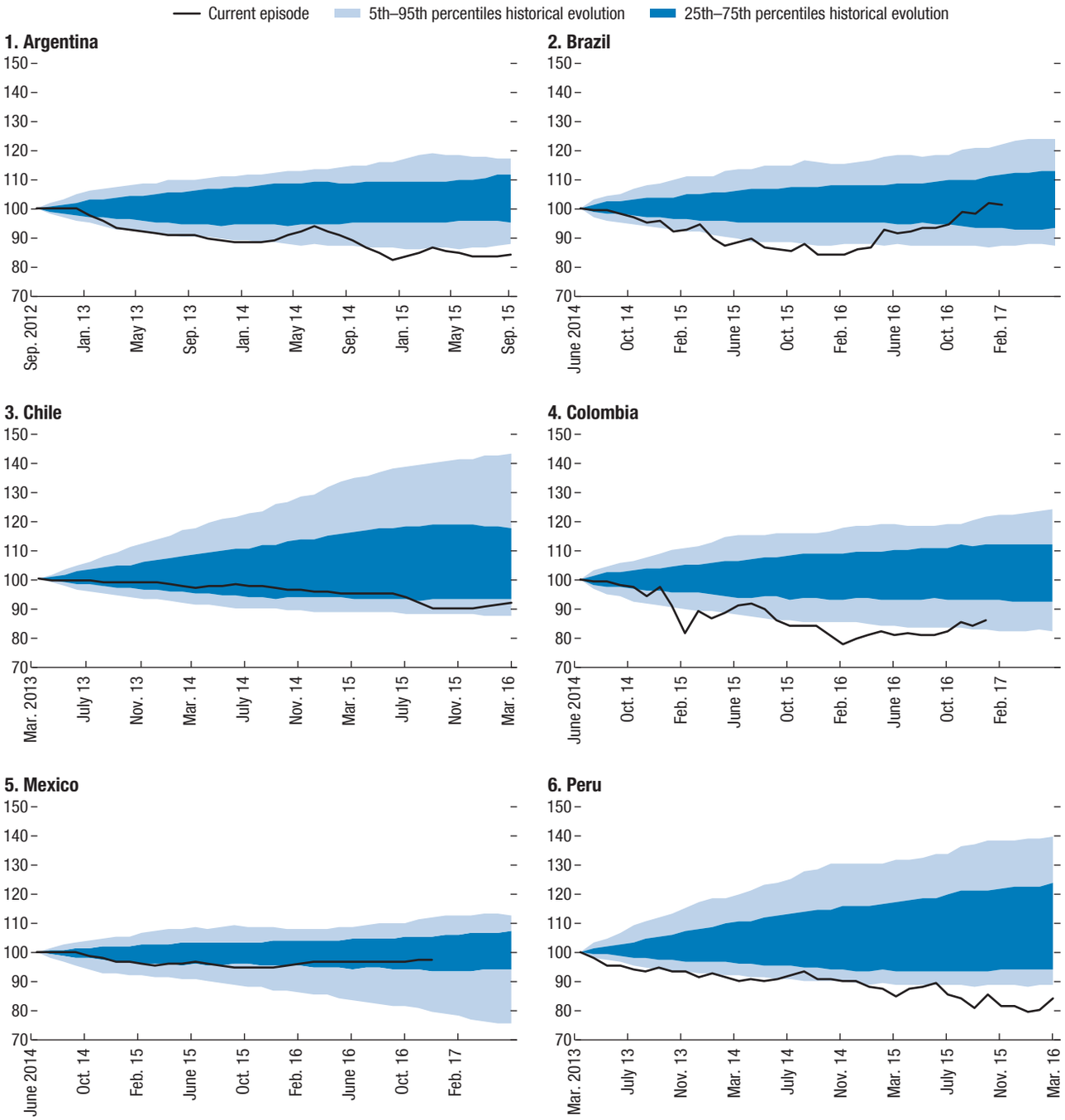
Sources: IMF, World Economic Outlook database; UN Comtrade; U.S. Bureau of Labor Statistics; and IMF staff calculations.
Note: Trade values in constant U.S. dollars have been deflated by the U.S. Consumer Price Index for all urban consumers (all Items). LAC = Latin America and the Caribbean.
[1]Peak and trough are defined using annual data for 2010–15. For export values the peak to trough years for Argentina, Brazil, and Chile correspond to 2011 to 2015; for Colombia, Peru, and Venezuela to 2012 to 2015; for Ecuador to 2013 to 2015; and for Bolivia and Mexico to 2014 to 2015.
[2]Peak and trough are defined using annual data for 2010–16. For terms of trade the peak to trough years for Bolivia, Colombia, and Venezuela correspond to 2012 to 2016; for Ecuador and Peru to 2011 to 2016; for Brazil to 2011 to 2015; for Chile to 2010 to 2016; for Argentina to 2014 to 2015; and for Mexico to 2013 to 2015.

exports performing sluggishly (Figure 2.5 in Chapter 2), as has historically been the case in emerging markets. At face value, this would suggest that part of the link between the real exchange rate and external adjustment remains weak. Indeed, the growth of global value chains, inelastic supply curves and related rigidities, and balance sheet effects have all been put forward as reasons why external adjustment may be becoming increasingly disconnected from exchange rate dynamics. This chapter seeks to quantify the role of the exchange rate regime in the adjustment process, to get a better sense of the strength of expenditure-switching effects during the recent adjustment in the region. Findings imply that exchange rate flexibility has, to some extent, lowered the output cost of external adjustment to terms-of-trade shocks.

The composition of external adjustment under way in Latin America suggests that the income effect has been stronger than the expenditure-switching effect, as in the past. But there is a difference. Recent real exchange rate depreciations in countries with flexible exchange rate regimes have supported the adjustment in the external account. Real depreciation has provided some boost to exports despite weak external demand and has helped shift demand from imports to domestic goods. This has lowered the cost of adjustment in terms of the compression of domestic demand, while helping boost domestic production.

Given the limited aggregate response of exports, to better understand the determinants of export elasticities this chapter uses granular trade data to document a wide variation in sensitivity across products. To some extent, a country's export elasticity depends on the product composition of its exports. The analysis finds that the response of manufactures and textiles has been stronger than that of commodities, and that exchange rate flexibility can facilitate the re-allocation of exports toward noncommodity products. In much of Latin America, where the starting point is an export basket that is concentrated in commodities, exchange rate flexibility tends

Figure 3.2. Recent Terms-of-Trade Movements in Historical Perspective
(Index; episode start date = 100)



Sources: Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.
Note: The bands report the empirical distribution of changes in the terms-of-trade index since January 1980, based on 36-month trajectories. The recent episode starts in September 2012 for Argentina; June 2014 for Brazil, Colombia, and Mexico; and March 2013 for Chile and Peru. For Argentina, the period before 1986 is interpolated annual data, while the period after 1986 is interpolated quarterly data. For Chile, the period before 1996 is interpolated annual data while the period after 1996 is interpolated quarterly data. For Peru, the period before 1996 is interpolated annual data.

to spur diversification and may support other structural policies with this objective.

This chapter begins by documenting the nature of the shock and subsequent adjustment in the region from a historical perspective. Next, it quantifies the relative importance of income and expenditure-switching effects, the shock-absorbing benefits of flexible exchange rates, and the increasing cost of currency rigidity. The chapter then explores product-level export performance in response to real depreciations, and how the response varies by product type. The final section puts forth policy implications.

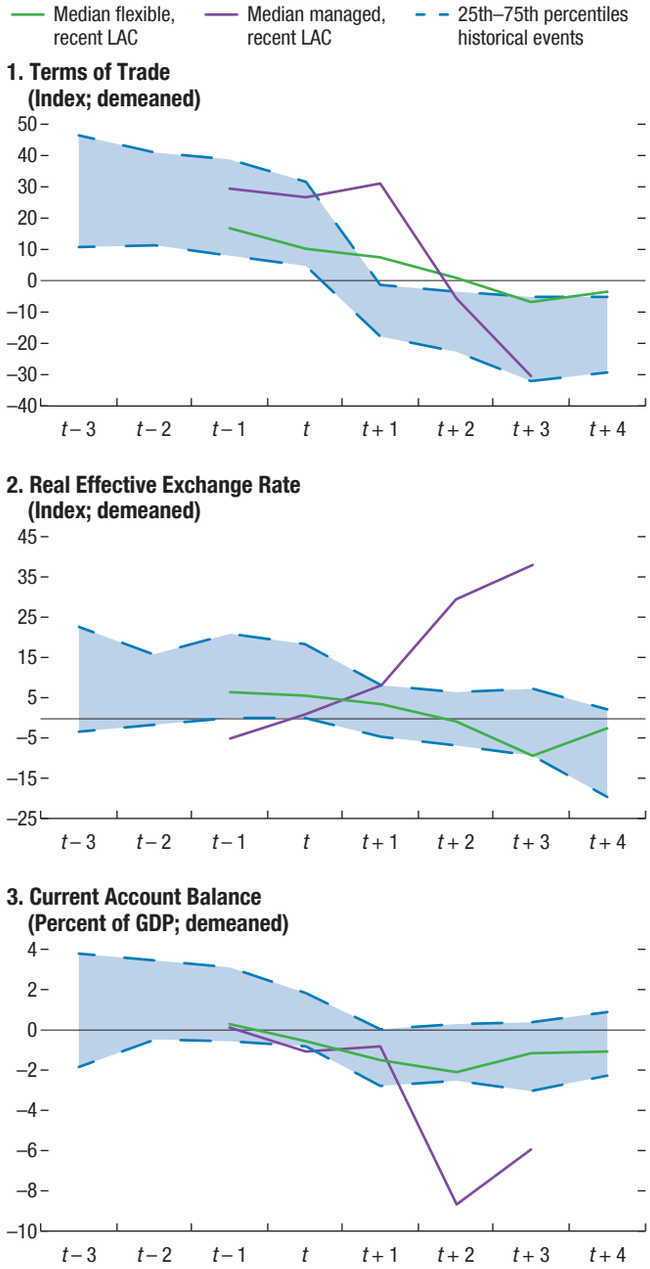
The Ongoing External Adjustment to Terms-of-Trade Shifts: A Historical Perspective

How did emerging market and developing economies adjust in the past in response to large declines in the terms of trade?[3] Based on the experience of 150 countries over the past half century, external current accounts deteriorate on impact. Then, as the real exchange rate depreciates, current accounts revert to their initial levels over a period of three to four years (Figure 3.3). In the most recent terms-of-trade bust, external adjustment in Latin American countries with flexible exchange rate regimes has proceeded in line with historical patterns. Countries with more rigid exchange rate regimes, however, have deviated from these patterns, with large real currency appreciations, widening current account deficits, and substantial reserve losses (Figure 3.4).[4]

[3]This section is based on Adler, Magud, and Werner 2017. Episodes are identified using a Markov regime-switching methodology, which only identifies statistically large and persistent terms-of-trade busts. The method identifies 59 episodes of terms-of-trade busts over the period 1960–2016. Historical inter-quartile ranges for managed and flexible regimes are similar to the full sample of emerging market and developing economies.

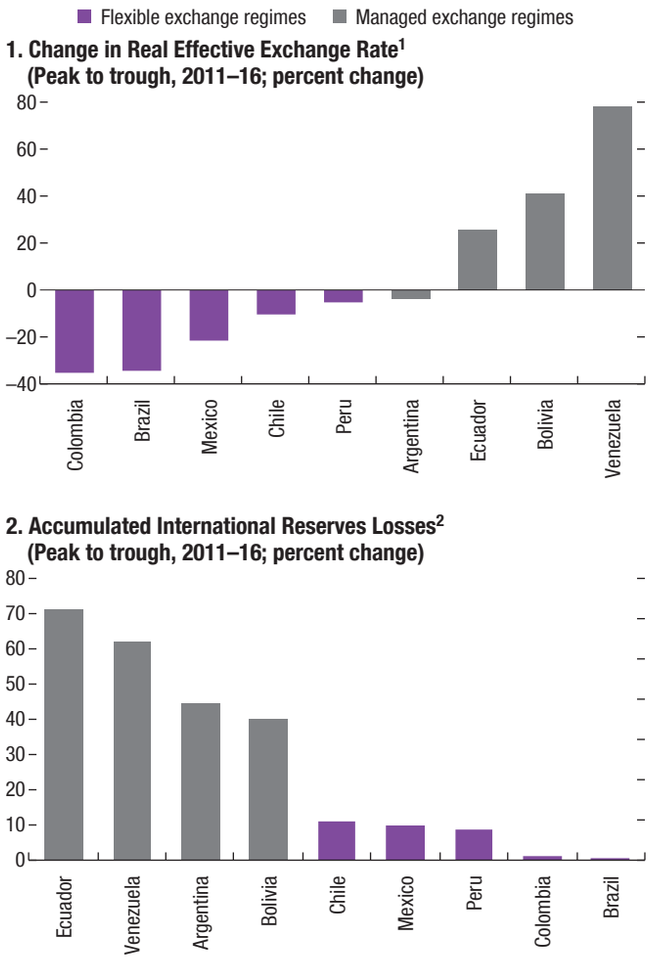
[4]The real appreciation occurred because of these currencies moving in sync with a strengthening U.S. dollar while the currencies of trading partners and competitors depreciated, and in some cases on the back of high domestic inflation.

Figure 3.3. External Adjustment during Terms-of-Trade Busts in Historical Context



Sources: Adler, Magud, and Werner 2017; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Flexible exchange rate regimes include Brazil, Chile, Colombia, Mexico, and Peru; managed exchange rate regimes refer to a diverse set of countries with more limited exchange rate flexibility and include Argentina prior to 2016, Bolivia, Ecuador, and Venezuela. Argentina was reclassified as a floating exchange rate arrangement in December 2015. Interquartile bands correspond to a large sample of emerging market and developing economies. Period *t* denotes the year in which the terms of trade begin to fall for each event. Observations are demeaned by event. LAC = Latin America and the Caribbean.

Figure 3.4. Exchange Rate Regimes and Change in International Reserves



Sources: IMF, Information Notice System database; IMF, World Economic Outlook database; and IMF staff calculations.
[1]The peak for Argentina is 2012:Q3; for Bolivia 2013:Q1; for Brazil 2011:Q3; for Chile 211:Q1; for Colombia 2011:Q4; for Ecuador 2012:Q1; for Mexico 2011:Q2; for Peru 2011:Q3; and for Venezuela 2014:Q2. For Venezuela commodity terms of trade from Gruss (2014) were used to identify the peak and trough.
[2]Argentina was reclassified as a floating exchange rate arrangement in December 2015. The peak year for Argentina correspond to 2011; for Chile and Venezuela to 2012; for Brazil, Ecuador, and Peru to 2013; for Bolivia, Colombia, and Mexico to 2014.

As the terms of trade weakened, the main source of the shock in emerging market economies had been a decline in export prices rather than an increase in import prices. However, quantity adjustment materialized through import compression rather than rising exports (Figure 3.5). This suggests that negative income effects had dominated expenditure-switching effects, which appear to have been weak despite significant real exchange rate depreciation.[5] The current episode is similar to past episodes in that the terms-of-trade shock has been largely driven by a large fall in export prices. With regard to the adjustment, export volume growth has been in line with historical experience for Latin American countries with flexible exchange rates, but lower than in past episodes for those with more rigid exchange rates. At the same time, import compressions have been large for both, but somewhat larger for countries with more rigid exchange rates.[6]

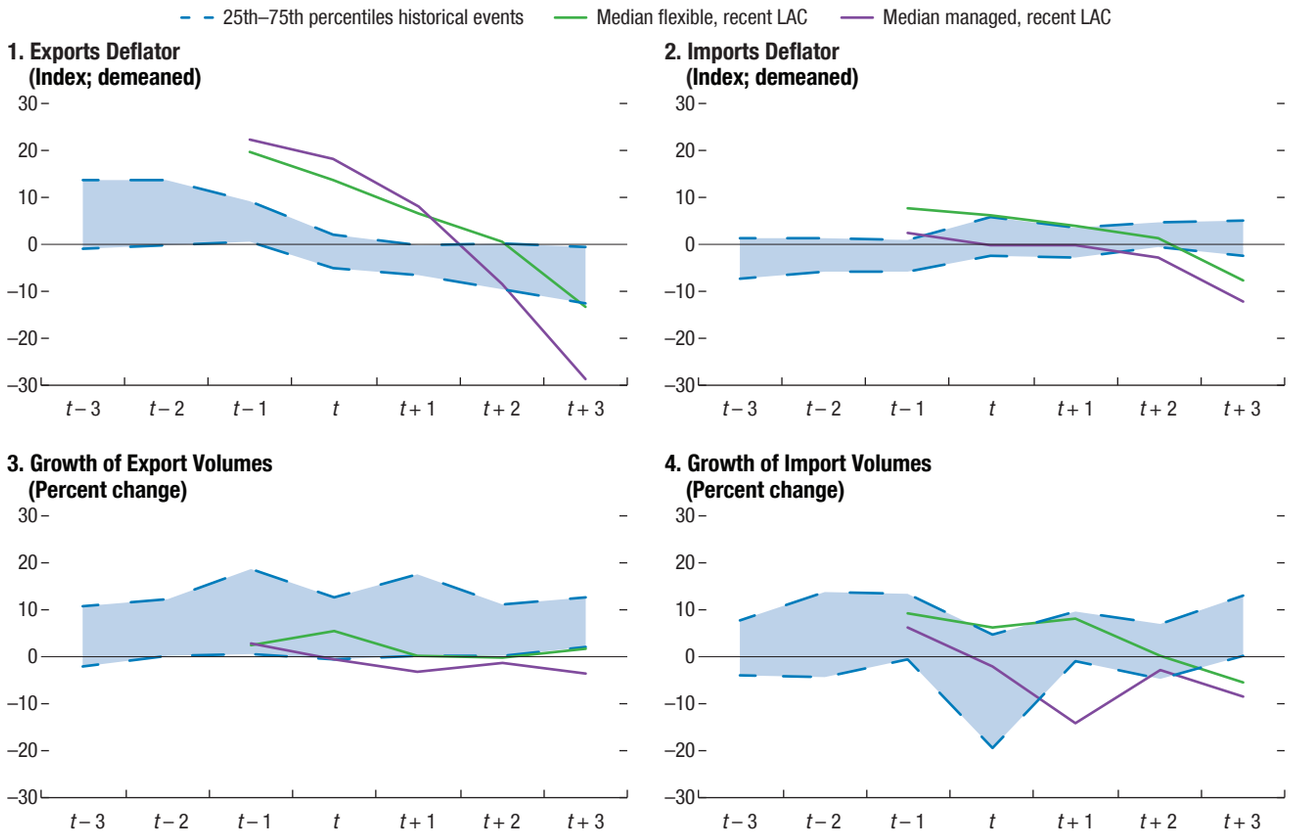
Differences in the exchange rate regime have led to differences in the composition of external adjustment in the most recent episode. Despite the negative income shock, Latin American economies with more flexible exchange rate regimes have experienced smaller reductions in output than those that are more rigid (see Chapter 2). The next section explores and quantifies the external adjustment mechanisms behind this finding.

Adjustment of the Current Account to Terms-of-Trade Shifts: Income Effect, Expenditure Switching, or Both?

The analysis above suggests that countries with flexible exchange rates have fared better following the recent terms-of-trade bust than those with more rigid exchange rate regimes. This could be a result of the presence of some expenditure-switching offsetting the negative income effect from the collapse in the terms of trade. To quantify the relative importance of these two effects in the recent adjustment process, this section computes a "sacrifice ratio" metric, which gauges the burden of external adjustment on domestic demand and the importance of exchange rate flexibility.

[5]Adler, Magud, and Werner (2017) documents this systematically.
[6]Casas and others (2016) also find that expenditure switching operates mostly through import compression rather than export expansion, owing to the predominance of the U.S. dollar in the invoicing of international trade.

Figure 3.5. Export and Import Volumes and Prices in Historical Perspective: Export Price Shock, but Import Volume Adjustment



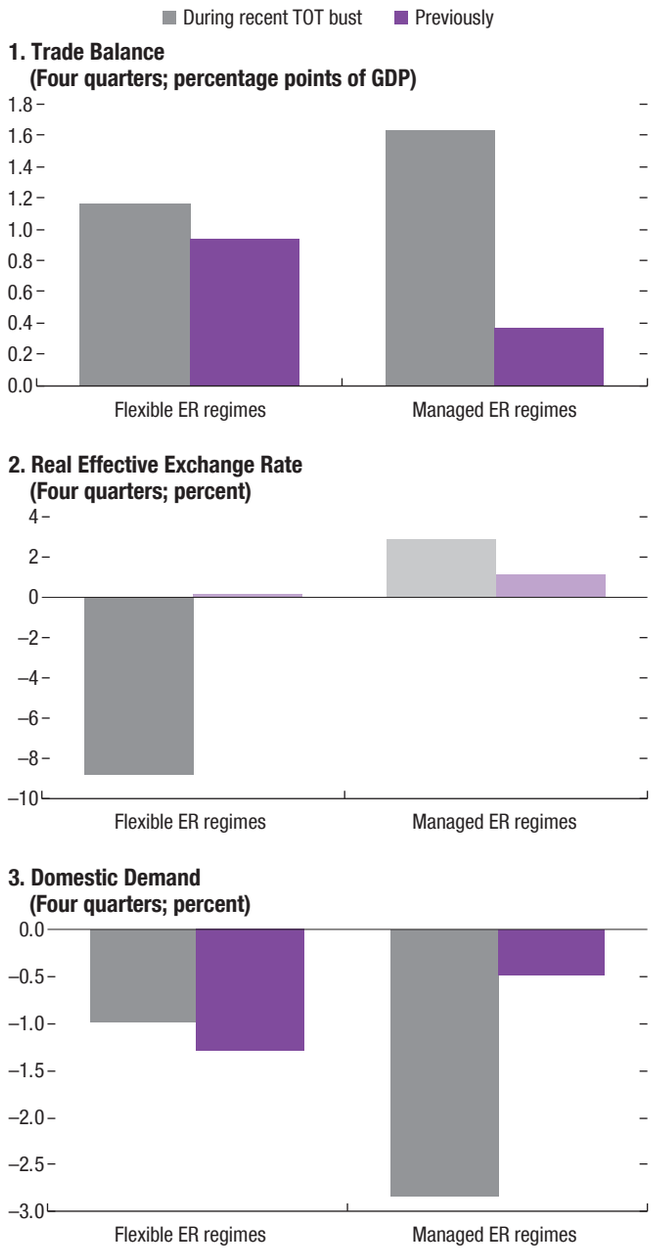
Sources: Adler, Magud, and Werner 2017; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Flexible exchange rate regimes include Brazil, Chile, Colombia, Mexico, and Peru; managed exchange rate regimes refer to a diverse set of countries with more limited exchange rate flexibility and include Argentina prior to 2016, Bolivia, Ecuador, and Venezuela. Argentina was reclassified as a floating exchange rate arrangement in December 2015. Interquartile bands correspond to a large sample of emerging market and developing economies. Period *t* denotes the year in which the terms of trade begin to fall for each event. Observations are demeaned by event. LAC = Latin America and the Caribbean.

The mechanics of external adjustment are captured using a panel vector auto-regression framework. This framework allows the dynamic relationship between changes in the trade balance, changes in domestic demand, and changes in the real effective exchange rate to terms-of-trade shocks (controlling for external demand conditions) to be estimated in a panel of 38 economies. The analysis in this section presents the response of Latin American economies to a terms-of-trade shock of the same magnitude in two periods, 2000–10 and 2010–16.[7] The relative importance of the expenditure-switching mechanism is estimated by computing a counterfactual scenario to a terms-of-trade shock in which the response in the real effective exchange rate is fixed at zero at all forecast horizons. Comparing the unconstrained responses of the trade balance (and its components) with this counterfactual scenario isolates the contribution from expenditure switching in the region's external adjustment process.[8]

[7]The sample is divided in these two periods (using an interaction term) to account for possible differences in exchange rate and demand elasticities arising from the strengthening of policy frameworks across the region. For example, the April 2016 *Regional Economic Outlook: Western Hemisphere* estimates that the exchange rate pass-through to inflation has significantly decreased in Latin America. This smaller pass-through in turn would allow for larger currency depreciations in real terms (Box 3.3).

[8]See Annex 3.1 for the data and the model's details.

Figure 3.6. Cumulative Response of Latin American Economies to a 10 Percent Reduction in the Terms of Trade, 2000–16



Sources: Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Lighter colors denote results that are not statistically significant. ER = exchange rate; TOT = terms of trade.

Results confirm that the composition of external adjustment varies with the exchange rate regime. In response to a 10 percent fall in the terms of trade, there were large and significant trade balance improvements after one year across exchange rate regimes. In flexible regimes, currencies depreciated in real terms, boosting exports and reducing imports, suggesting the presence of the expenditure-switching effect.[9] This lowered the burden of the adjustment process on domestic demand, which is estimated to have contracted about two and a half times less in economies with more flexible exchange rates (Figure 3.6).

The counterfactual analysis described above suggests that the contribution of the real exchange rate to the narrowing of the trade balance increased in recent years. In the past, most of the external adjustment in countries with flexible currencies was driven by the (negative) income effect. Recently, however, the income and expenditure-switching effects have been acting jointly (Figure 3.7).[10] The larger role of expenditure switching can be observed in the performance of exports and imports. Exports have responded positively to real depreciation as a result of a terms-of-trade shock in the recent episode, but this effect remains weak. In fact, a 10 percent reduction in the relative price of exports increased real exports by only 2 percent in one year but lowered real imports by close to 7 percent.

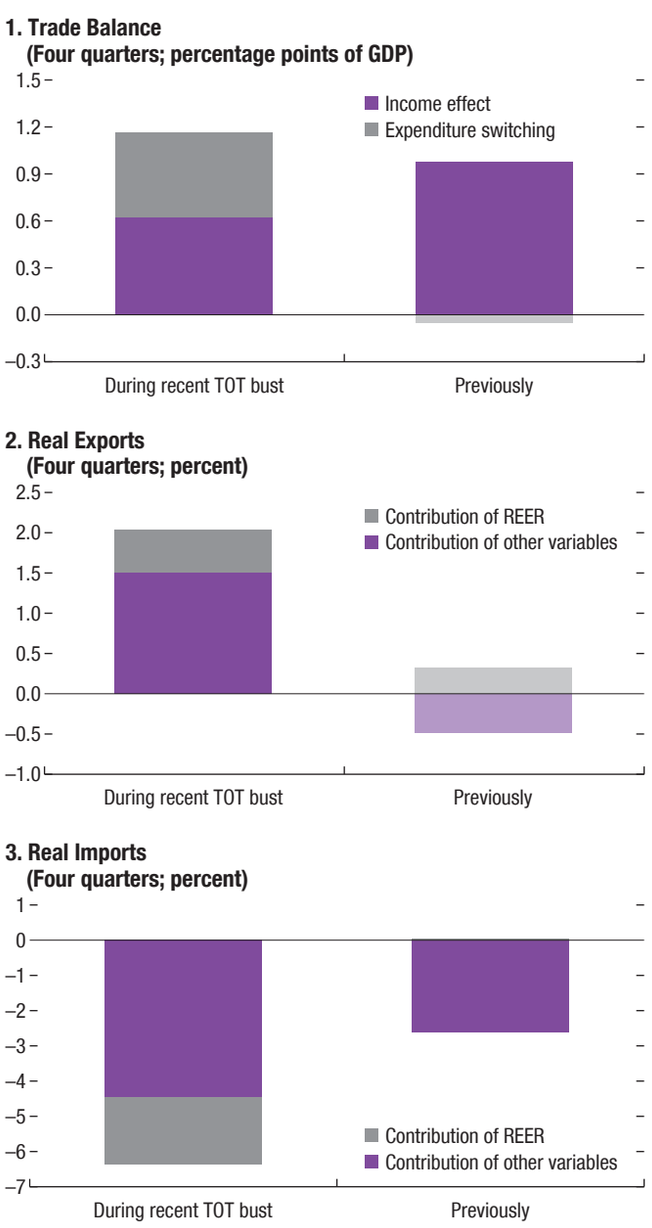
These findings can also be summarized in terms of a *sacrifice ratio of external adjustment*—defined as the extent to which domestic demand must compress for the trade balance to improve by 1 percentage point of GDP.[11] Following the

[9]The response of real exports and imports is obtained from estimating the same panel vector auto-regression specification described above and in Annex 3.1 but with real exports and imports (in log first differences) in lieu of the trade balance.

[10]Based on the counterfactual analysis described above, the real exchange rate explains close to 50 percent of the response of the trade balance in economies with flexible exchange rate regimes, while playing a negligible role in countries with fixed exchange rate regimes. Interestingly, the real exchange rate does not appear to have played an important role among flexible regimes between 2000 and 2010, because terms-of-trade busts during the 2008–09 global financial crisis were short-lived.

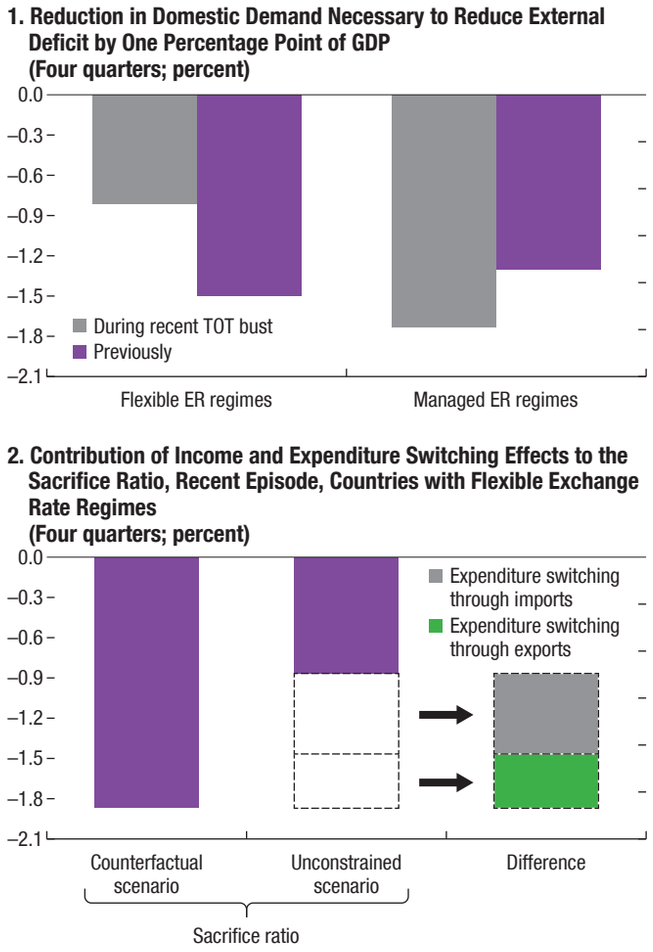
[11]Computed as the share of the cumulative response of domestic demand to the cumulative response of the trade balance to the terms-of-trade shock.

Figure 3.7. Decomposition of Responses to a 10 Percent Reduction in the Terms of Trade among Latin American Economies with Flexible Exchange Rate Regimes, 2000–16



Sources: Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Lighter colors denote results that are not statistically significant. REER = real effective exchange rate; TOT = terms of trade.

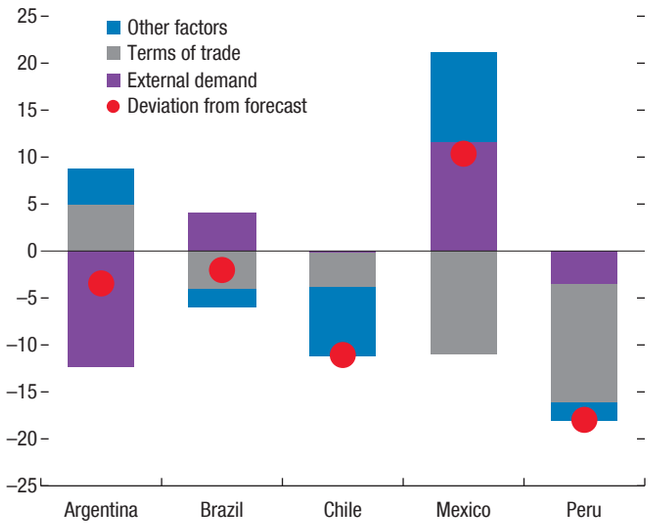
Figure 3.8. Exchange Rate Flexibility Reduces the Domestic Sacrifice Ratio of Adjustment in Latin America



Sources: Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.
Note: ER = exchange rate; TOT = terms of trade.

recent shock, the sacrifice ratio for economies with flexible exchange rate regimes is about half the ratio observed during previous episodes (Figure 3.8). At the same time, exchange rate rigidity has become costlier for economies in Latin America (Box 3.2 contrasts the cases of Bolivia, Brazil, Chile, Colombia, and Ecuador). External adjustment to exogenous shocks now requires a larger domestic demand compression in more rigid currencies as a result of the real appreciations of their currencies against major trading partners and, in particular, regional competitors (Box 3.3). Altogether, the cost of exchange rate inflexibility has increased, possibly owing to the migration of regional and global competitors to more flexible exchange rate frameworks.

Figure 3.9. Historical Decomposition of Real Exports During Recent Terms-of-Trade Bust: Sizable Unexplained Factors Behind Real Export Performance
(Percent; cumulative)



Sources: Haver Analytics; and IMF staff calculations.
Note: For Argentina the period corresponds to 2012:Q3 to 2015:Q3; for Brazil from 2014:Q2 to 2015:Q4; for Chile and Peru from 2013:Q1 to 2015:Q4; and for Mexico from 2014:Q2 to 2015:Q4.

The composition of adjustment, mainly through import compression and despite large currency depreciations, raises the question of whether real export growth has been underperforming in recent years. Historical decompositions of real exports show that, not surprisingly, external demand and terms-of-trade shocks have been the main driving forces behind recent export performance in the region. However, except for Mexico and Argentina, exports appear to be underperforming, as suggested by the unexplained component in the model's forecast errors (Figure 3.9).

The results presented in this section highlight the role of the exchange rate as a shock absorber. Despite the large negative income effect during a terms-of-trade bust episode, exchange rate flexibility enables the expenditure-switching effect to take place, easing the burden of the adjustment process in terms of domestic demand and output growth. Although real depreciation has reduced the sacrifice ratio, most of the adjustment has come through import compression rather than export expansion.

To shed light on whether the limited response of aggregate real exports to currency depreciations is masking sector and product-specific export dynamics, the next section analyzes export reactions to real depreciation shocks by region and product groupings.

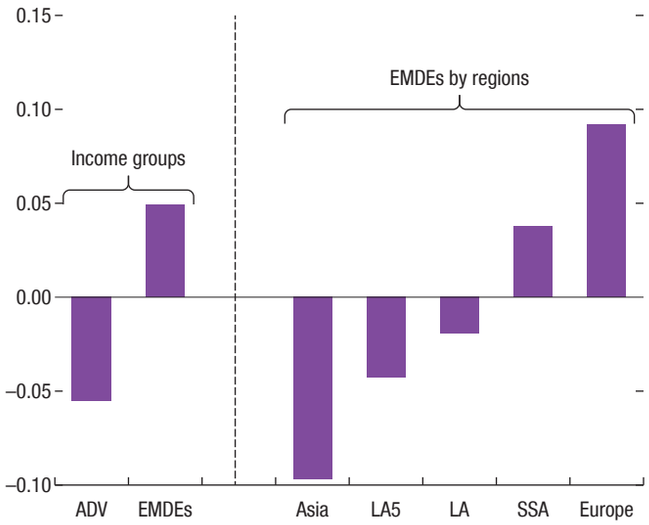
Do Depreciations Boost Short-Term Export Performance? Going Granular

The analysis in the previous section finds that the link between the real exchange rate and exports is significant, but nevertheless relatively small. Understanding how export performance is affected by changes in relative prices requires a more granular perspective, since demand and supply elasticities vary a great deal across sectors and goods, and along the global value chain (GVC). For instance, a producer may gain a competitive advantage following a real depreciation of the local currency, but this is unlikely to boost exports if its productive capacity is fixed in the short term, or if foreign buyers are largely indifferent to the relative price of the good. Likewise, exporters that use imported inputs in production will see their costs rise, reducing the gains to competitiveness (Box 3.4).

To gain a better understanding of the connection between the real effective exchange rate and exports, this section makes use of product-level trade data. Specifically, this section estimates the elasticity of a country's share in global exports of each product with respect to movements in its real effective exchange rate.[12] The average country-product responds strongly following depreciations,

[12]See Annex 3.2 for details. A difficulty in empirical studies of trade elasticities is the need to obtain a measure of prices to infer the quantities being traded, with results depending on the deflators used in the analysis. Unfortunately, the procedures used to construct border price indices vary considerably across countries, complicating cross-country analysis (Burstein and Gopinath 2014). To circumvent this difficulty, the strategy used here focuses on global market shares for four-digit products, which are assumed to have a single world price.

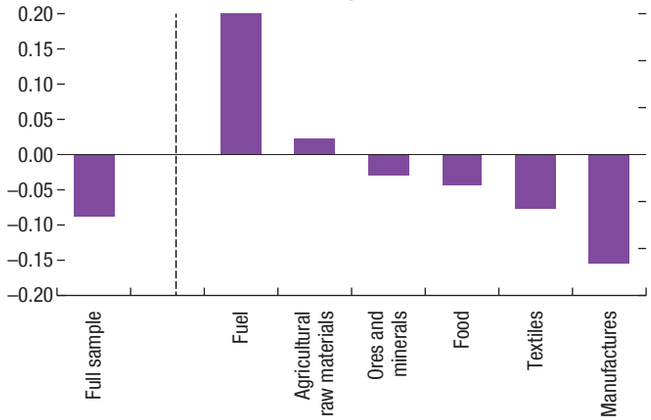
Figure 3.10. Pooled Real Effective Exchange Rate Elasticities of Export Market Shares, by Country Groups
(Elasticity)



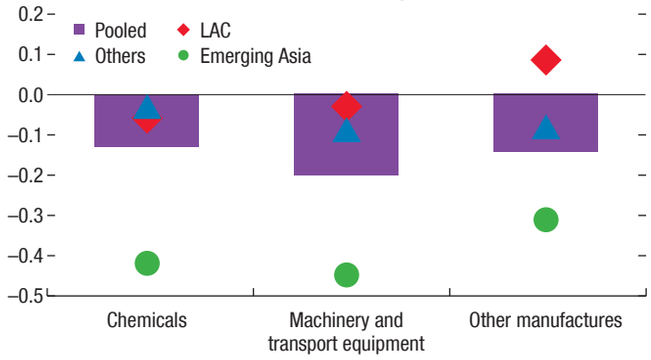
Sources: IMF, Information Notice System database; UN Comtrade; and IMF staff calculations.
Note: The bars show the sum of the coefficients for the pooled elasticity and the interaction term for each region. ADV = advanced economies; EMDEs = emerging market and developing economies; LA5 = Brazil, Chile, Colombia, Mexico, Peru; LA = Latin America; SSA = sub-Saharan Africa.

Figure 3.11. Pooled Real Effective Exchange Rate Elasticity of Export Market Shares, by Product Groups
(Elasticity)

1. By World Bank WITS Product Category



2. Subcomponents of Manufactures by Region



Sources: IMF, Information Notice System database; UN Comtrade; and IMF staff calculations.
Note: The bars show the sum of the coefficients for the pooled elasticity and the interaction term for each category. LAC = Latin America and the Caribbean; WITS = World Integrated Trade Solution.

with an elasticity of about –0.13.[13] This means that a 10 percent real depreciation increases the average country-product export share by about 1.3 percent with respect to its starting point.[14]

Elasticities, however, vary greatly across regions in the sample of 134 countries. On average, emerging market economies display less responsiveness to real depreciations than advanced economies (Figure 3.10). Latin America and emerging Asia, as well as advanced economies, stand out as having statistically significant responsiveness, whereas other emerging market and developing economies display a relative disconnect. Notably, emerging Asia's estimated elasticity is about twice as large as that of the LA5[15]—which is, in turn, larger than the rest of Latin America.

While the average product displays an elasticity of about –0.1, elasticities vary substantially over the 764 products in the sample. For about two-thirds of these products, a depreciation boosts the country's export share of that product, while for most of the others the impact is statistically indistinguishable from zero. This variation in elasticities can be broadly mapped to categories of products (Figure 3.11). Manufactures and textiles display higher market share responsiveness than

[13]Weighted least squares estimates are reported throughout, with country-product pairs weighted according to their relative trade value in the panel dimension of interest.

[14]An increase in the real effective exchange rate indicates appreciation. Thus, a negative elasticity implies that export shares increase when the real exchange rate depreciates.

[15]Brazil, Chile, Colombia, Mexico, and Peru.

commodities, which respond little to real exchange rate movements.[16] The responsiveness of manufactures is broad-based across more granular categories (such as chemicals, machinery and transport equipment, and other manufactures).

Putting this together, the degree to which depreciations boost exports is influenced by the composition of a country's exports.[17] Those economies that specialize in commodities generally observe a weaker response to a real depreciation than those that concentrate their production in manufactured goods. The response in emerging Asia is larger than that in Latin America, in part owing to the larger share of manufactures in total exports in the former (Figures 3.10 and 3.11). While exports of manufactures have consistently made up approximately 40 percent of total exports in Latin America and the Caribbean since 1990, their share in emerging Asia's total exports has risen to 80 percent over the same period. However, there is more to the story. Even within narrow categories of manufactures, emerging Asian economies display much larger responsiveness than other regions, including Latin America. Underlying structural factors may be behind this finding, including supply-side bottlenecks related to infrastructure gaps as documented in the April 2016 *Regional Economic Outlook: Western Hemisphere*.[18]

The extent to which depreciations boost gross exports is likely to depend on the extent to which a country is integrated into GVCs. While the effect of GVC integration on trade elasticities can be positive or negative according to a country's location along the supply chain, Ahmed, Appendino, and Ruta (2016) estimate that participation in GVCs reduces the real effective exchange rate elasticity of manufacturing exports by 22 percent on average. As the April 2015 *Regional Economic Outlook: Asia and Pacific* documents, Asia's emerging economies have become deeply embedded into GVCs, and are generally located downstream within these chains (that is, closer to final demand), such that the expansionary impact of depreciations is mitigated by the rising cost of imported inputs. In turn, the October 2015 *Regional Economic Outlook: Western Hemisphere* documents that the economies of Latin America and the Caribbean are less integrated into GVCs, with commodity exporters in the region positioned upstream (that is, further from final demand). On the other hand, Leigh and others (2017) show that there is limited evidence that participation in GVCs has significantly changed that exchange rate-trade relationship over time. These findings suggest that, all else being equal, observed participation in GVCs would tend to *raise* the relative export sensitivity of Latin America and the Caribbean with respect to emerging Asia, and are thus unlikely to account for the findings reported here.

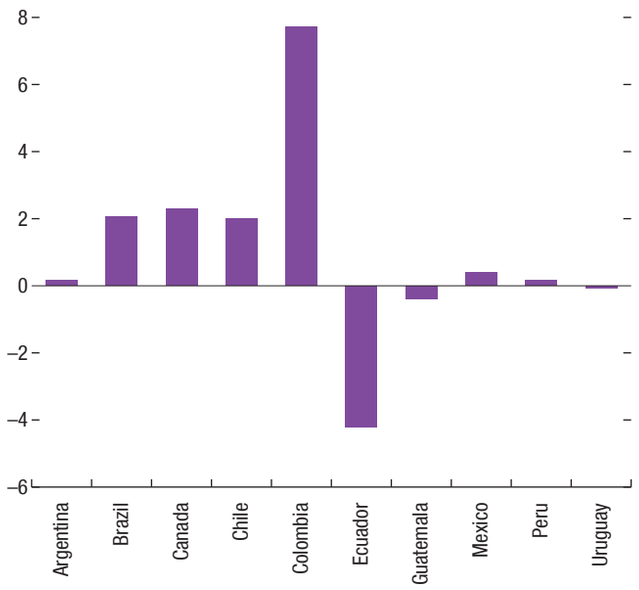
Results still show that recent real depreciations have boosted exports in many Latin American economies, once global demand conditions are controlled for. Figure 3.12 reports the boost that real effective exchange rates have provided to exports since 2013, expressed in terms of total exports in 2012. While the effects are modest in most cases, they are by no means negligible. For instance, the real depreciation of the Colombian peso over this period has boosted exports by 7.5 percentage points since 2012. This result compares with the fall of nearly 40 percent in export value that has been observed over this period, making clear that the boost—while substantial—has far from fully offset the external shock. In contrast, a similar counterfactual analysis suggests that Ecuador's real appreciation has placed a drag on exports of more than 4 percentage points since 2013.

[16]One possible interpretation is that short-term supply curves for commodities tend to be relatively inelastic in the presence of substantial fixed investment costs. It may also be that production of commodities relies more on imported capital inputs, and hence depreciations raise production costs along with revenue in local currency.

[17]Other factors no doubt affect this relationship, including the availability of credit (Paravisini and others 2015), and a battery of product- or sector-specific "real rigidities" that affect disaggregated real exchange rates (see Burstein and Gopinath 2014 for a survey).

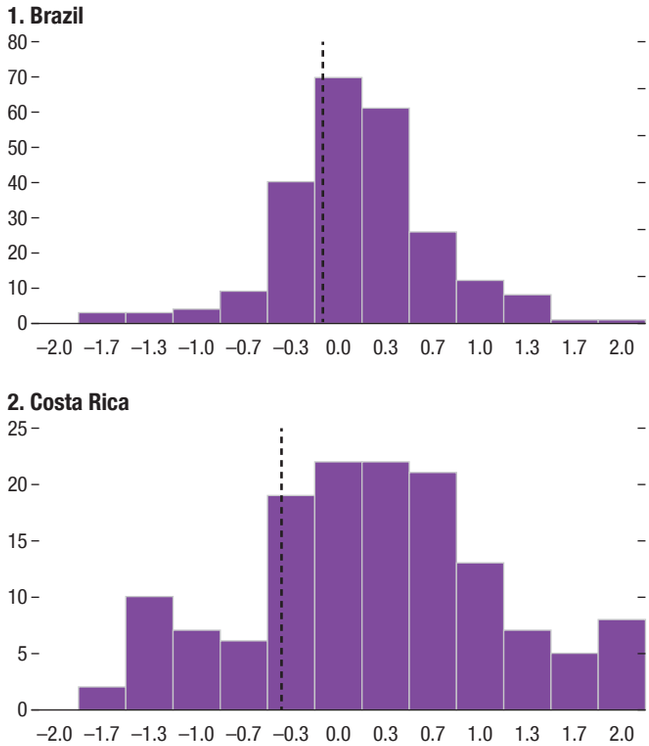
[18]Raissi and Tulin (2015) find that, in India, binding supply-side bottlenecks limit the response of exports to short-run real depreciations.

Figure 3.12. Estimated Contribution of Real Effective Exchange Rate to Export Values, 2014–16
(Percent of 2012 export value; constant U.S. dollars)



Sources: IMF, Information Notice System database; UN Comtrade; and IMF staff calculations.
Note: The figure shows the total estimated contribution of movements in the real effective exchange rate during 2013–15 to export values in 2014–16. Pooled product-level elastiticities are used, with countries varying according to the relative importance of each product in their export baskets and the variation in their real effective exchange rate.

Figure 3.13. Within-Country Variation of Export Elasticities across Products
(Number of four-digit SITC products)



Sources: IMF, Information Notice System database; UN Comtrade; and IMF staff calculations.
Note: Dashed lines correspond to the estimated pooled elasticity at the country level. SITC = Standard International Trade Classification.

Finally, even in countries whose aggregate exports appear disconnected from the real effective exchange rate, depreciations still lead to intersectoral reallocations. As an example, note that in Brazil, where aggregate export performance is relatively inelastic with respect to the real exchange rate, depreciations lead to larger market shares of many export products, just as they do in Costa Rica (Figure 3.13). This finding suggests that the disconnect at the macro level may hide substantial potential reallocation of resources across products and sectors, including within each country.[19] This result is supported by the analysis in Box 3.4, which shows that real depreciations affect the production of value added differently across sectors in Latin America, and provide a particularly strong boost to exporting sectors outside commodity production.

Policy Implications

The analysis in this chapter has three main policy implications for Latin American economies facing the end of the commodity super-cycle. First, exchange rate flexibility reduces the sacrifice ratio of external adjustment. Where currencies have depreciated in real effective terms, adjustment has benefited from somewhat stronger exports and output growth, as well as the redirection of consumer spending from imports to domestically produced goods, reducing the burden on domestic demand compression and thus supporting output.

[19]This result is in line with the finding in Freund and Pierola (2012), that real depreciations in developing countries stimulate exports in large part through entry into new export products and new markets.

Second, the cost of exchange rate rigidity has risen in Latin America. As exchange rate flexibility has become more widespread in the region, common external shocks have resulted in a greater loss of competitiveness for countries whose currencies move in sync with the U.S. dollar and strengthen against regional partners' currencies. The sacrifice ratio has increased for these countries, implying that external adjustment would impose larger output costs through a sharper compression of domestic demand.

Third, exchange rate flexibility can support structural policies aimed at shifting resources to the noncommodity sector, since depreciations boost exports of manufactures more than for other goods, especially in regions with a higher concentration of manufactures and adequate infrastructure. With regard to improving resilience to external shocks, a corollary of this result is that the closing of infrastructure gaps that support a dynamic manufacturing sector would reduce the sacrifice ratio of external adjustment going forward.

Box 3.1. Expenditure-Switching versus Income Effects

A permanent (or highly persistent) negative terms-of-trade shock—that is, a change in the relative price of exports and imports—could be driven by (1) a decrease in the price of exports; (2) an increase in the price of imports; or (3) both price shifts.[1]

Regardless of the nature of the relative price change, a permanent negative terms-of-trade shock implies *a negative income effect*; that is, the economy is poorer than before the shock. In equilibrium, its real exchange rate (the purchasing power of its basket of goods and services in terms of a foreign basket of goods and services) is expected to decrease, enabling the correction of external imbalances.

In turn, the relative price change makes exports relatively cheaper for the rest of the world. All else equal, then, external demand for the country's domestic goods—exports—would increase.

The composition of the domestic basket of goods and services of a representative consumer would also change as the relative price changes. As the relative price of foreign goods increases while the relative price of domestic goods decreases, imports would decrease while the demand for nontradable goods and for domestic tradable goods would increase (assuming that prices of domestic tradable goods increase less than the prices of foreign goods).

Overall, the relative price change would be expected to increase exports while shifting domestic demand to nontradable goods and to domestic tradable goods to substitute for imported goods. The change in the composition of the domestic basket of consumption and the increase in exports is typically referred to as the *expenditure-switching effect*.

Note that the negative income shock implies a reduction in the overall level of consumption, regardless of the change in the composition of the consumption basket.

If the expenditure-switching effect offsets the negative income shock, real depreciation would be expansionary. If, however, the income effect dominates, the expenditure switching would, at best, partially offset the contraction of overall consumption ensuing from the decline in income.[2]

This box was prepared by Nicolas E. Magud.

[1]Bems and Di Giovanni (2016), using evidence from Latvia, document the existence of an expenditure-switching effect even with no relative price changes. A negative income effect persuades consumers to switch from expensive foreign goods to cheaper domestic goods.

[2]This description ignores additional contractionary effects of real depreciations, such as balance sheet effects owing to liability dollarization, among others.

Box 3.2. A Comparative Analysis of External Adjustment in South America

Many economies in the region have been under pressure as a result of large terms-of-trade busts, tepid global demand, and idiosyncratic domestic shocks. These factors have translated into a significant deterioration of external and internal imbalances. This box looks at the experience of adjusting to these imbalances in countries that differ across two main dimensions: exchange rate flexibility and the extent of available fiscal space and fiscal buffers.

Although most of the adjustment has been taking place at the expense of import compression, the mechanics of the adjustment have differed greatly across the region. In countries with more flexible exchange rate regimes, expenditure switching has contributed significantly to external adjustment. In countries with less flexible exchange rate regimes or large negative output gaps (or both), expenditure reduction has been the main mechanism of adjustment. At the same time, some countries have used existing buffers or tapped international capital markets to smooth the shock. Growth performance in the region has varied depending on the nature of adjustment.

Chile and *Colombia* experienced a significant deterioration in their terms of trade, although of different magnitudes, in 2012 and 2014, respectively. As a result of the collapse in commodity prices, *Colombia*'s oil exports and *Chile*'s copper exports declined markedly (Figure 3.2.1, panel 1). Both economies allowed the exchange rate to absorb the shock, with currencies depreciating in real effective terms by 10 percent in *Chile* and 30 percent in *Colombia* in a two-year window from the onset of the shock (Figure 3.2.1, panel 4). Exchange rate flexibility provided a boost for nonmineral exports in *Chile* (Figure 3.2.1, panel 2) and so far has allowed for reallocation of consumer spending from imported to domestic goods in *Colombia* (Figure 3.2.1, panel 3). The presence of expenditure-switching effects in both economies lowered the burden of external adjustment on domestic demand (Figure 3.2.1, panel 5) and supported growth (Figure 3.2.1, panel 6).

In *Brazil* and *Ecuador*, economies that have experienced recessions, the narrowing of imbalances has come as a result of deep contractions in domestic demand (Figure 3.2.1, panels 5 and 6). In *Brazil*, although the deterioration in the terms of trade was a precursor to the external adjustment process, the adjustment was primarily driven by domestic factors and a large negative output gap. However, most of the improvement in the current account is likely to be durable, given the projected increase in public savings (see Chapter 2).

In *Ecuador*, dollarization coupled with limited access to external financing forced the adjustment to come primarily through fiscal consolidation and tighter import restrictions. Hence, as the economy recovers, output gaps will narrow, unwinding a part of the adjustment that has occurred so far.

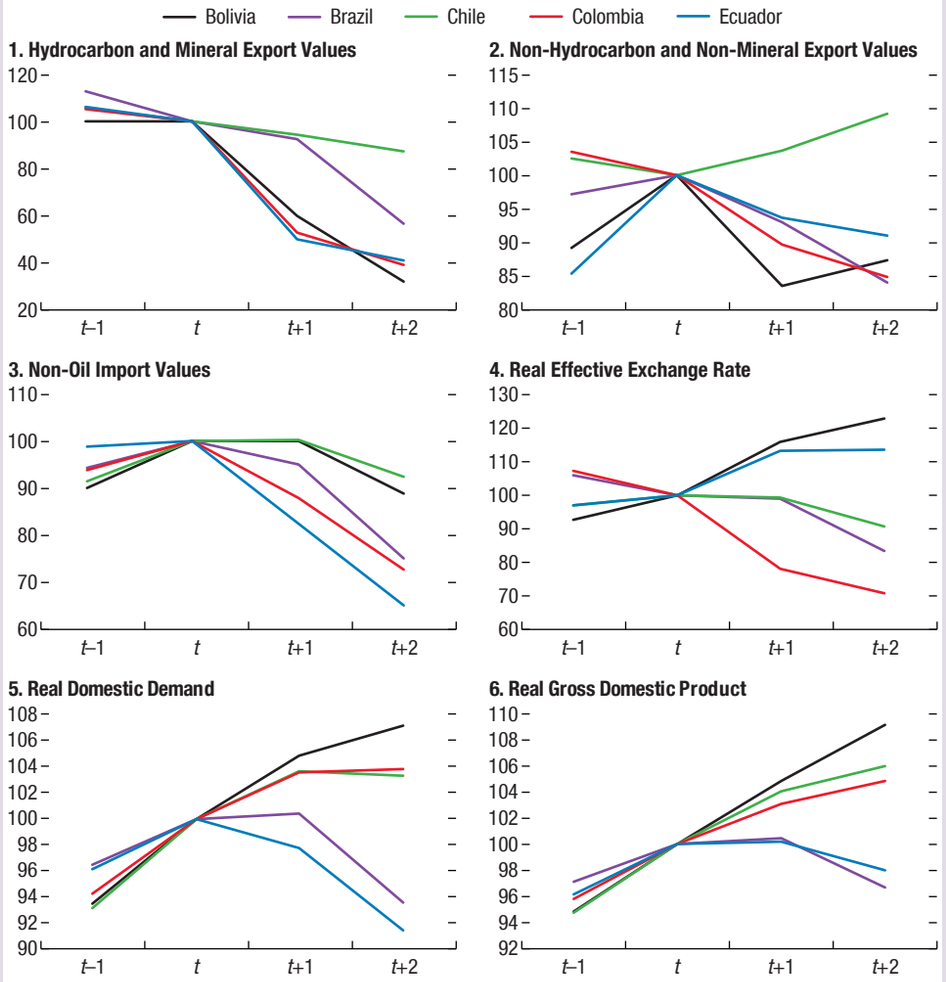
Bolivia's external balances deteriorated sharply, given that accommodative fiscal policy and rapid credit growth smoothed out the collapse in export prices. However, some external adjustment has started to take place through import compression (Figure 3.2.1, panel 3). These countercyclical policies have eroded the country's sizable buffers, but reserves remain adequate. The limited external adjustment observed to date (either through expenditure switching or expenditure reduction), coupled with still-low commodity prices, could exacerbate external imbalances and further erode policy buffers.

These country experiences show that the extent of the necessary adjustment depends not only on the size of the shock but also on the exchange rate regime, the degree of access to international markets, and the availability of fiscal space and fiscal buffers. In particular, when comparing the countries that have been hit the hardest by the commodity shock (*Bolivia, Colombia, and Ecuador*), it is evident that the adjustment has been harsher in *Ecuador* than in *Colombia* (where the effect was cushioned by exchange rate flexibility) and in *Bolivia* (where the adjustment is being smoothed by drawing on past buffers).

This box was prepared by Juan Yépez.

Box 3.2 *(continued)*

Figure 3.2.1. Adjustment to Terms-of-Trade Shock in Selected South American Countries
(Index: t = 100)



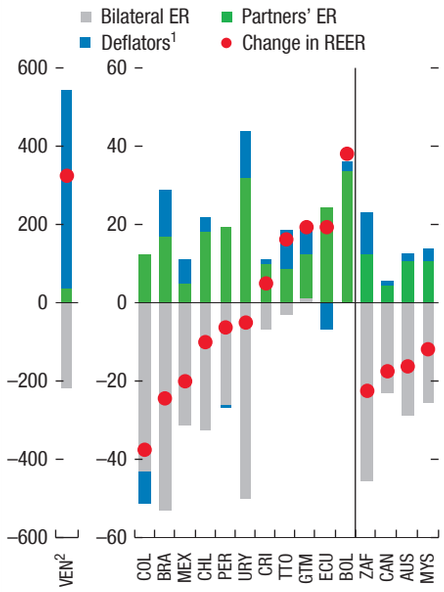
Sources: Haver Analytics; and IMF staff calculations
Note: Period *t* denotes the year in which the terms of trade begin to fall for each country. *t* = 2012 for Chile, 2013 for Brazil, and 2014 for Bolivia, Colombia, and Ecuador. Hydrocarbon exports are for Bolivia, Colombia, and Ecuador; minerals exports are for Chile; and for Brazil exports are hydrocarbon and minerals. Non-hydrocarbon exports are for Bolivia, Colombia, and Ecuador; non-minerals exports are for Chile; and for Brazil exports are non-hydrocarbon and non-minerals.

Box 3.3. The Exchange Rate and External Competitiveness

The spread of flexible exchange rates in Latin America has changed the relationship between the bilateral and effective exchange rates following a common external shock in two ways. Figure 3.3.1 shows changes in the real effective exchange rates (REERs) for selected Latin American and Caribbean economies from March 2013 through March 2016, during which many of these countries suffered major deteriorations in their terms of trade.

First, large bilateral depreciations against the U.S. dollar have translated into proportionally smaller multilateral depreciations. For example, the 32 percent depreciation of the Chilean peso against the U.S. dollar translated into a real effective depreciation of about 10 percent over this period. Second, efforts to maintain a stable nominal exchange rate against the dollar have not led to a stable real exchange rate, but rather to substantial appreciation.

Figure 3.3.1. Decomposition of Recent Real Effective Exchange Rate Movements
(Percent change from March 2013 to March 2016)



Sources: IMF, Information Notice System database; and IMF staff calculations.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137. ER = nominal exchange rate versus the U.S. dollar; REER = real effective exchange rate.
[1]Captures the relative change in price deflators with respect to trading partners.
[2]For Venezuela, the bilateral exchange rate is the weighted average of the multitier exchange rate system.

To understand these developments, recall that the REER is measured as a weighted average of bilateral real exchange rates:

$$Q_i = \Pi_j \left(\frac{P_i E_i}{P_j E_j}\right)^{w_{ij}}, \quad (3.3.1)$$

where E_i is the nominal exchange rate of country i versus the U.S. dollar, P_i the consumer price index (or some other price deflator), and w_{ij} is the weight of trading partner j for country i. By rearranging equation (3.3.1), variation in the real exchange rate comes from three sources:

$$\dot{q}_i = \dot{e}_i - \Sigma_j w_{ij}\dot{e}_j + \Sigma_j w_{ij}(\dot{p}_i - \dot{p}_j), \quad (3.3.2)$$

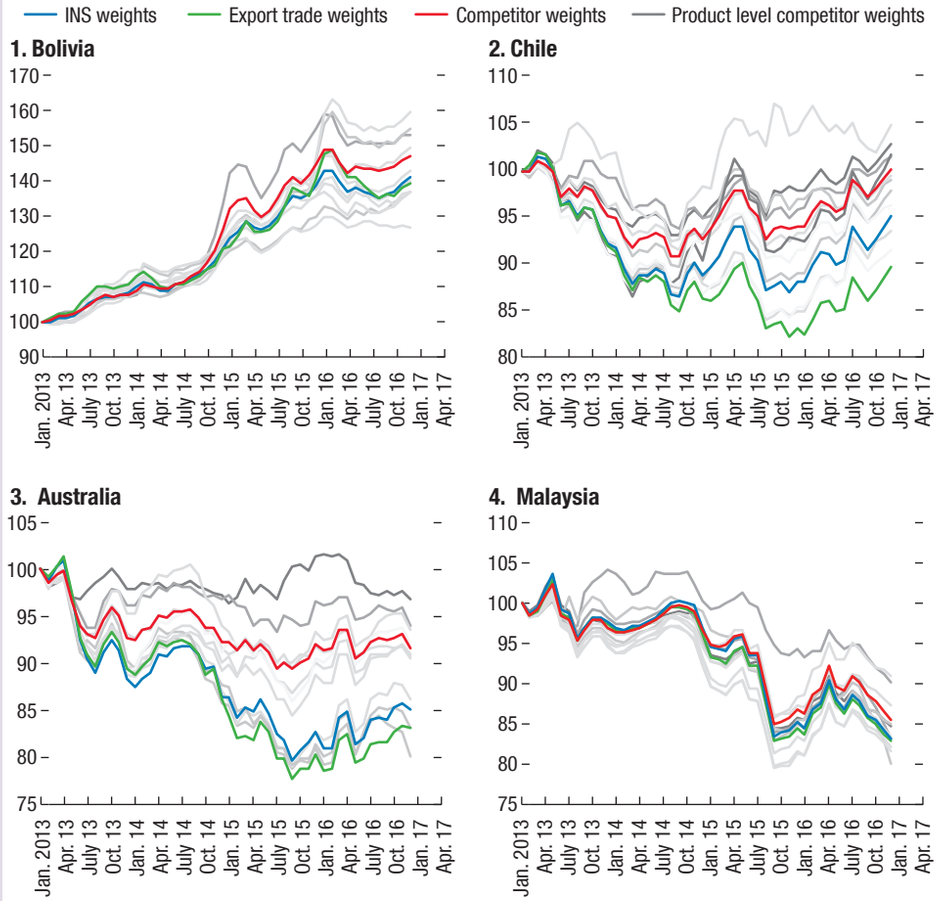
where lower-case variables are natural logarithms, and dots denote rates of change. The first term, $\dot{e}_i$, corresponds to the change in the country's own currency versus the U.S. dollar, and largely reflects domestic exchange rate policy decisions. The second term corresponds to the evolution of trading partners' exchange rates versus the U.S. dollar, and thus relates to *their* exchange rate policy decisions. Finally, the third term reflects changes in inflation dynamics with respect to partners.

Figure 3.3.1 shows the contributions of these three components to the overall change in the REER during this period, according to IMF methodology. Gray bars display the large bilateral depreciations against the U.S. dollar observed in countries with flexible exchange rate regimes and the stability of countries that have kept their bilateral rates relatively unchanged. Green bars show the appreciating pressures on real exchange rates that stem from trading partners that have made widespread use of exchange rate flexibility. Finally, blue bars display the secondary role played by relative inflation rates in most countries, reflecting limited

This box was prepared by Yan Carrière-Swallow.

Box 3.3 *(continued)*

Figure 3.3.2. Alternative Measures of the Real Effective Exchange Rate



Sources: IMF, Information Notice System (INS) database; UN Comtrade; and IMF staff calculations.
Note: Gray lines denote country's top ten export products.

exchange rate pass-through. A notable exception is Venezuela, where inflation explains an overwhelming share of the country's REER appreciation.

For countries facing large negative external shocks, pressure from trading partners—both destinations and competitors—is reframing the link between exchange rate policy and competitiveness, marking a break from the past, when most trading partners used less exchange rate flexibility. In countries that have allowed for very large nominal depreciations, this factor is largely responsible for the more tapered response of real exchange rates and has contributed to a relatively muted export response. Meanwhile, for countries that have maintained stable bilateral exchange rates, the result has been very large real appreciations and decreased competitiveness.

Box 3.3 *(continued)*

In assessing external competitiveness, many relative prices are relevant and can motivate alternative choices of weights w_{ij}. The first is the relative price of exports with respect to goods that are produced in the destination country, a concept that is approximated by weights equal to the shares of each partner j in country i's total exports. Another is the relative price of exports with respect to those of competing exporters that sell the same products, with which country i may or may not trade directly. The trade weights w_{ij} used to compute the REER indices disseminated in the IMF's Information Notice System (INS) incorporate information along both dimensions to provide a comprehensive metric of a country's competitiveness.[1]

Figure 3.3.2 shows the evolution of REERs constructed for selected economies using the standard INS weights (blue lines), direct export trade weights (green lines), and competitor-based weights (red lines).[2] As IDB (2017) highlights, Latin America's real exchange rates have depreciated further with respect to direct trading partners than they have with respect to indirect trade competitors, suggesting that the region's competitiveness may be evolving less favorably than is commonly assumed. For instance, Chile's real effective depreciation has generally been only half the magnitude when computed with respect to competitors of Chilean exports, rather than with respect to the export destinations to which Chile sells its goods. Focusing on some of the country's top export products, the real value of the Chilean peso has appreciated slightly with respect to competitors since 2013 (gray lines).

The divergence between the evolution of direct trading partners and competitors is also observed in advanced commodity-exporting economies, such as Australia. In contrast, while some East Asian exporters have also received appreciating pressures from their trading partners, they have seen less divergence between the evolution of relative prices with respect to direct partners and competitors, as in Malaysia.

[1]See Zanello and Desruelle (1997) for details on the construction of the Information Notice System REER indices.

[2]All bilateral exchange rates are deflated by the Consumer Price Index. See Ahn, Mano, and Zhou (2017) for a discussion of the contrast with REER measures that are deflated by unit labor costs.

Box 3.4. The Impact of Depreciations on Sectoral Growth

The section discussing the relationship between real depreciation and export shares shows that real exchange rate depreciations have heterogeneous effects on export performance across sectors and countries. This box addresses a related question: do real exchange rate depreciations have differentiated effects on real growth across sectors? The analysis focuses on three channels through which the real exchange rate could affect sectoral growth:

- An export channel: Depreciations make domestic products more competitive in international markets and could increase growth through higher exports.
- A cost channel: Depreciations make imported inputs more expensive, potentially reducing growth.
- An import-penetration channel: Depreciations make imported final demand more expensive. If consumers substitute domestically produced products for costly imported varieties, domestic industries could grow faster.

The analysis tests the existence and magnitude of the three channels in a panel of country-sector-year observations using a difference-in-difference methodology. The analysis is based on annual data from the Organisation for Economic Co-operation and Development for 61 countries and 33 sectors for the period 1995–2011. The sample includes Argentina, Brazil, Chile, Colombia, and Costa Rica among the Latin American countries.

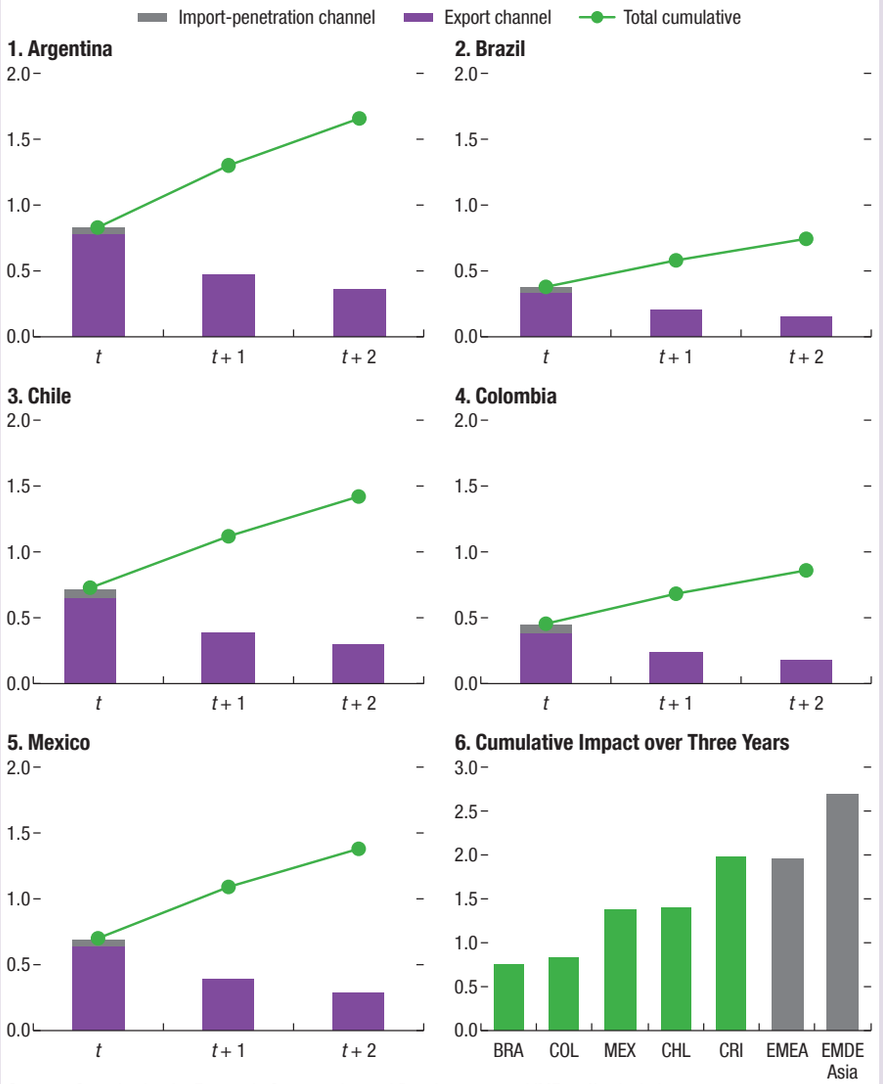
There are three identifying assumptions, linked to each of the channels above. Following a real depreciation, all else equal: (1) sectors that export relatively more should grow relatively faster; (2) sectors that import relatively more should grow relatively slower; and (3) sectors in which import penetration is relatively higher should grow relatively faster. Any remaining effects of the real exchange rate on growth that do not operate through these three channels are subsumed into a set of country-year fixed effects (which also capture the impact of factors such as real GDP growth and real global growth). Differences in growth rates due to country- or sector-specific factors, such as infrastructure, are captured by a set of country-sector fixed effects.

The results show the export channel is at work and quantitatively important for the nontraditional sector—that is, noncommodities (Figure 3.4.1). Evidence on the cost channel is inconclusive. The import-penetration channel is statistically significant but small in magnitude. A 10 percent real depreciation would increase growth of nontraditional sectors by 0.6 to 2 percentage points over three years (depending on the country), mostly through the export channel. The impact is generally lower than in other regions, but the analysis suggests that real exchange depreciations may help Latin American countries diversify away from commodities and grow in a world of low commodity prices.

This box was prepared by Sergi Lanau.

Box 3.4 *(continued)*

Figure 3.4.1. Effects of a 10 Percent Real Depreciation on Growth of Nontraditional Sectors
(Percent)



Sources: Organisation for Economic Co-operation and Development; and IMF staff calculations.
Note: Time in years. Growth rates are weighted by the size of sectors. The export channel takes into account the domestic value added embedded in exports, hence partially controlling for the cost channel. EMDE = emerging market and developing economies; EMEA = Europe, Middle East, and Africa. For International Organization for Standardization (ISO) country codes used in data labels, see page 137.

Annex 3.1. The Panel Vector Autoregression Model: Data and Methodology

The empirical strategy of the section discussing the mechanics of adjustment is based on a panel vector autoregression (PVAR) framework that captures the dynamic response of the trade balance (as a share of GDP), domestic demand, and the real effective exchange rate to a terms-of-trade shock akin to the one experienced by the region during the past five years.

Simultaneity issues are addressed in the identification of the empirical model by assuming that countries in the chapter's sample take the terms of trade as exogenously given—that is, variations in the terms of trade can be regarded as an exogenous source of aggregate fluctuations. This assumption is commonplace in existing related literature (Schmitt-Grohé and Uribe 2017). The model also controls for external domestic demand growth, also assumed to be block exogenous to the "domestic" variables in the model (that is, the trade balance, the real effective exchange rate, and domestic demand).

As mentioned, the PVAR is augmented to include interaction terms as in Towbin and Weber (2013) to allow the coefficients of the domestic variables to vary deterministically with structural country characteristics (fixed versus flexible exchange rates), regional characteristics (Latin America and the Caribbean versus other economies), and different sample periods (before or after the most recent terms-of-trade bust).

Denoting the vector of domestic variables as y_t and the vector of exogenously given variables as y_t^*, the model can be specified as follows:

$$\begin{pmatrix} y_t^* \\ y_t \end{pmatrix} = \begin{pmatrix} A_{11,i,t}(L) & 0 \\ B_{21,i,t}(L) & B_{22,i,t}(L) \end{pmatrix} \begin{pmatrix} y_t^{*}{}_{-1} \\ y_{t-1} \end{pmatrix} + \begin{pmatrix} 0 & 0 \\ 0 & C_{22} \end{pmatrix} \begin{pmatrix} I_i \\ X_{i,t} \end{pmatrix} + \begin{pmatrix} R_1 & 0 \\ R_2 & R_3 \end{pmatrix} \begin{pmatrix} \varepsilon_{i,t}^* \\ \varepsilon_{i,t} \end{pmatrix}. \quad (3.1)$$

$$B_{pq,i,t} = A_{pq,i,t} + D_{pq,i,t} X_{i,t}. \quad (3.2)$$

The matrix R is computed using a Cholesky factorization of the estimated covariance matrix of reduced-form PVAR residuals. Because the analysis focuses on the effects of terms-of-trade shocks, the ordering of the variables in the domestic variables vector, y_t, in the structural PVAR is immaterial. It is assumed that terms-of-trade innovations would affect external demand with a lag, and results are robust to alternative ordering in the external block (that is, assuming that terms-of-trade shocks affect external demand contemporaneously).

The mechanics of the adjustment to terms-of-trade shocks are illustrated using cumulative, conditional impulse response functions, at an eight-quarter horizon, of the real effective exchange rate (REER), domestic demand, and the trade balance. To capture the relative importance of expenditure switching in the external adjustment process after a terms-of-trade bust, counterfactual scenarios to an unanticipated reduction in the terms of trade were constructed, by holding the REER response fixed at all forecast horizons. Comparing the hypothetical impulse response with the actual response allows the importance of expenditure switching in the external adjustment to unanticipated terms-of-trade shocks to be quantified.

The vector y_t^* is given by

$$y_t^* = \begin{pmatrix} DD_{i,t}^* \\ ToT_{i,t}^* \end{pmatrix}.$$

The variable $DD_{i,t}^*$ denotes the quarter-over-quarter real GDP growth of G7 economies and China (purchasing-power-parity GDP-weighted averages). $ToT_{i,t}$ denotes the log first difference of terms of trade, defined as the relative price of exports in terms of imports.

The vector of domestic variables y_t is given by

$$y_t = \begin{pmatrix} DD_{i,t} \\ REER_{i,t} \\ TB_{i,t} \end{pmatrix}.$$

The variables *DD* and *REER* denote the log first differences of real final domestic demand and the Consumer Price Index (CPI)-based REER for country *i,* respectively. *TB* is the first difference of the real trade balance of country *i* as a share of real GDP.

National accounts data were obtained from Haver Analytics and the CPI-REER measure was obtained from the IMF's Information Notice System. Terms-of-trade data for all countries except Mexico were obtained from Haver Analytics. Terms-of-trade data for Mexico were obtained from the IMF's World Economic Outlook database.

All variables are seasonally adjusted. The panel contains the following 38 countries: Argentina, Australia, Botswana, Brazil, Bulgaria, Canada, Chile, Colombia, Costa Rica, Czech Republic, Ecuador, Egypt, El Salvador, Estonia, Guatemala, Honduras, Hungary, India, Indonesia, Israel, Korea, Lithuania, FYR Macedonia, Mexico, New Zealand, Norway, Peru, Paraguay, Philippines, Poland, Malaysia, Romania, Russia, Singapore, South Africa, Turkey, Thailand, and Venezuela. The panel covers the period 2000–16 at a quarterly frequency. Exchange rate classification is based in the 2015 IMF's Annual Report on Exchange Arrangements and Exchange Restrictions.

Annex 3.2. Export Shares Model

Trade data are from the United Nations Commodity Trade Statistics Database (Comtrade), downloaded with product lines in Standard International Trade Classification (SITC, Revision 2) at the four-digit aggregation level for the period 1995 to 2015. Following the literature, the chapter uses mirrored export data that are reported as imports (cost, insurance, freight [CIF]) by destination countries.

The market share of country i in global exports of four-digit product k during year t is defined as

$$S_{ikt} = \ln \frac{X_{ikt}}{\Sigma_{j \in J} X_{jkt}}.$$

The model estimates the elasticity between the market share and the lagged real effective exchange rate. Product and regional estimates reported in Figures 3.10 and 3.11 use interaction terms to estimate the elasticity for each category C:

$$\Delta S_{ikt} = \alpha_{ik} + \alpha_t + \beta \Delta q_{i,t-1} + \beta_C I_C \Delta q_{i,t-1} + \varepsilon_{ikt}; \forall\, C,$$

where I_C is an indicator variable for regional and product categories C, and q_{it} is the natural log of the real effective exchange rate index reported in the IMF's Information Notice System. This index is a geometric weighted average of bilateral exchange rates, deflated by the consumer price index, where the weights assigned to each trading partner are based on direct trade linkages and indirect competition. See Box 3.3 and Zanello and Desruelle (1997) for descriptions of this index and its properties.

To provide granular elasticities that are consistent with aggregate behavior, weighted-least-squares estimators are weighted by trade values. For instance, to estimate product category elasticities ($\hat{\beta} + \hat{\beta}_C$), the weight assigned to each country-product ik is its average share in global exports of product k between 2009 and 2015. Likewise, regional elasticities are estimated by weighting each country-product ik by its average share in the total exports of country i between 2009 and 2015.

The use of disaggregated product data is crucial to the analysis for two reasons. First, it motivates the assumption that prices in the numerator and denominator of the dependent variable behave similarly, such that the variable can be interpreted as a relative quantity. Second, the export performance of individual products is less likely to influence the country's REER, and thus allows for the assumption that $\Delta q_{i,t-1}$ is an exogenous variable. This exogeneity assumption is further supported by the lagged relationship. Additionally, product-country pairs that make up more than 15 percent of a country's total exports are excluded.

As is common in empirical work with disaggregated trade data, thresholds are imposed to exclude small or highly volatile observations, which may reflect measurement errors and would otherwise introduce noise to the estimations. First, small trade flows are excluded, defined as country-product pairs that are smaller than $500,000 in a given year. Second, highly volatile flows are excluded, defined as country-product pairs for which the growth rate of export values exceeds 1,000 percent or shrinks by more than 95 percent in a given year, or for which the change in global market share fell below the first percentile (–77 percent) or above the 99th percentile (+579 percent) of the distribution. Third, exporting countries with a population of less than 1 million in 2010 are excluded. Finally, country-product pairs for which there are positive export flows for fewer than 15 years between 1995 and 2015 are excluded. These four criteria exclude approximately 10 percent of the available observations and less than 1 percent of total export value. The final estimation sample includes 134 countries and 761 four-digit products, for a total of 716,325 observations over 35,117 country-product groups.

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4. Drivers of Capital Flows and the Role of the Investor Base in Latin America

Following a decade of strong capital inflows, Latin America is now experiencing weaker economic growth and financial inflows accompanying the end of the commodity super-cycle. Global factors, notably global commodity prices, are strongly associated with cyclical movements of capital inflows in emerging markets. This holds particularly true for Latin America. At the same time, country-specific structural factors, such as good governance and strong institutional and regulatory frameworks, play a key role in attracting inflows over longer time horizons. With regard to vulnerabilities, capital flows in countries with deeper financial markets and stable, large domestic investor bases exhibit lower sensitivity to external shocks, whereas a larger presence of foreign investors and more open capital accounts increase this sensitivity. Other policy dimensions, such as exchange rate flexibility, can also mitigate the vulnerabilities of capital flows to the region.

Starting in the early 2000s, Latin America experienced a decade of robust growth, partly boosted by relatively high global commodity prices, that was only briefly interrupted by the global financial crisis. This boom in economic activity, combined with increased financial integration with the rest of the world, was accompanied by an increase in capital flows to the region. Capital inflows provided ample funding and lowered borrowing costs, contributing to the financing of investment activities in these economies (Magud and Sosa 2015). However, despite its benefits, this increase in Latin American countries' exposure to foreign financing conditions and global market developments has also brought challenges.

With the ongoing growth rebalancing in China and the end of the commodity super-cycle, several Latin American economies are facing lower external demand (Chapter 3). Concurrently, capital flows to the region have already started to diminish noticeably, although they have been relatively resilient compared with other emerging market regions.

In the context of weaker growth prospects at home and faltering external demand, higher global policy uncertainty, and faster-than-expected monetary normalization in the United States (Chapter 1), it is crucial to understand the dynamics of capital flows to the region, and to emerging markets at large. In particular, what are the main drivers of capital flows in emerging market economies? Are these flows mainly driven by global ("push") factors or rather by country-specific ("pull") factors? Are these factors mostly cyclical or structural in nature? Is Latin America any different from other emerging market regions? Given the broadly documented vulnerabilities of emerging markets to external shocks, do the composition of the investor base and the characteristics of domestic financial markets act as mitigating (or amplifying) factors to the sensitivity of capital flows to these shocks? This chapter takes stock of the situation and addresses these important questions, including their policy implications.

Setting the Stage

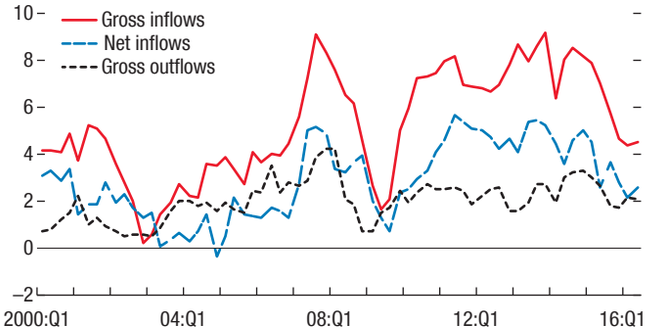
Since the turn of the century, capital flows in emerging markets have experienced significant fluctuations. In some of the largest economies of Latin America—Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Uruguay (the LA7)—gross capital inflows increased, on average, from about zero in the early 2000s to a remarkable 9 percent of GDP at the onset of the global financial crisis (Figure 4.1, panel 1).[1] Following

Prepared by Carlos Caceres, Carlos Gonçalves, and Galen Sher, with excellent research assistance from Genevieve Lindow. See Caceres and others (forthcoming a, b) for more technical details. Carolina Osorio Buitrón provided data on monetary shocks in the United States.

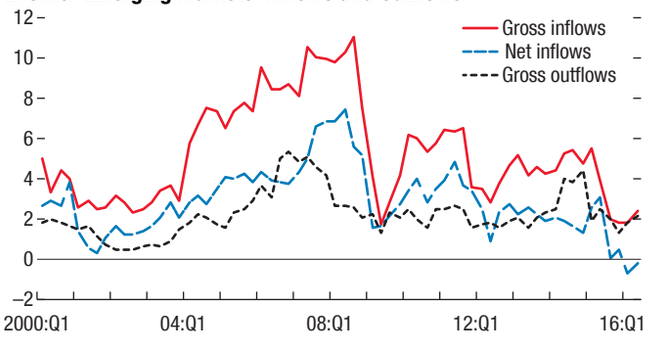
[1]Gross capital inflows are defined as the net purchases of domestic assets by nonresidents, whereas gross capital outflows relate to the net purchases of foreign assets by domestic agents. Gross total flows include foreign direct investment, portfolio, other investment, and

Figure 4.1. Capital Flows in Emerging Markets
(Percent of trend GDP; median)

1. LA7: Inflows and Outflows



2. Other Emerging Markets: Inflows and Outflows



Sources: Haver Analytics; IMF, Balance of Payments Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.
Note: LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay; Other emerging markets = Albania, Bangladesh, Bulgaria, China, Croatia, Egypt, Ghana, Hungary, India, Indonesia, Kazakhstan, Kenya, Malaysia, Morocco, Nigeria, Philippines, Poland, Romania, Russia, Saudi Arabia, South Africa, Thailand, Tunisia, Turkey, Vietnam.

a sharp yet brief decline during the crisis, gross inflows to the region remained robust (near their precrisis levels) until late 2014. That period marked the end of the commodity super-cycle, and at the same time gross inflows to the region started to soften.

In other emerging market regions, capital inflows grew in similar fashion up to the global financial crisis (Figure 4.1, panel 2). However, the recovery in gross inflows after the crisis was more moderate than that observed in Latin America. More recently, inflows to Latin America have proved to be more resilient than those to other regions, even after the end of the commodity super-cycle.[2]

Two important features have characterized capital flows in emerging markets over this period. First, gross inflows and gross outflows exhibit a strong positive correlation over time. That is, gross outflows tend to increase when gross inflows increase, and to fall when gross inflows fall. In other words, changes in gross inflows and outflows tend to be in the same direction; therefore, these flows tend to offset each other somewhat. Second, the overall magnitudes of gross inflows are generally significantly larger than the magnitude of gross outflows, despite a moderate increase in gross outflows in recent years. Hence, gross outflows play only a limited offsetting role against gross inflows, and in accounting terms, net inflows tend to be driven by gross inflows. Given the predominant role of gross inflows over gross outflows, some of the analysis in this chapter focuses on gross inflows.

These observations are true across all emerging market regions and can be documented not only since the turn of the century but also during the 1990s and earlier periods (Table 4.1).[3]

Common Cyclical Behavior of Capital Flows

Another interesting feature of capital inflows is that, even though they vary substantially over time, this time variation is broadly similar from one country to the next. In this sense, these cycles in capital flows are synchronized across countries. This holds particularly true for the LA5 countries—Brazil, Chile, Colombia, Mexico, and Peru (Figure 4.2). The common cyclical variation in capital inflows is probably due to common cyclical variation in each country's underlying macroeconomic and financial conditions

derivative flows. Net capital inflows are defined as the difference between gross capital inflows and outflows.

[2]Despite this recent resilience, Latin American countries have received lower capital inflows, on average, than other emerging markets since 2000. Gross and net inflows to the region averaged 5 percent and 2½ percent of GDP, respectively, over that period, compared with 7 percent and 3½ percent of GDP in other emerging markets.

[3]See Broner and others (2013) for more details.

Table 4.1. Cross-Correlations of Capital Flows in Selected Emerging Market Economies
(Percent of trend GDP)

	Net Inflows								
	1990–2016			1990–2002			2003–16		
	LA5	LA7	OEM	LA5	LA7	OEM	LA5	LA7	OEM
Gross inflows	0.59	0.71	0.77	0.70	0.80	0.91	0.51	0.66	0.75
Gross outflows	−0.31	−0.19	−0.03	−0.10	0.09	−0.20	−0.47	−0.37	−0.04
Subcomponents:									
FDI net inflows	0.28	0.40	0.68	0.37	0.33	0.36	0.20	0.47	0.75
Portfolio net inflows	0.61	0.60	0.31	0.40	0.42	0.39	0.74	0.71	0.29
Other net inflows	0.55	0.61	0.74	0.65	0.70	0.81	0.46	0.54	0.73
	Gross Inflows								
	1990–2016			1990–2002			2003–16		
	LA5	LA7	OEM	LA5	LA7	OEM	LA5	LA7	OEM
Gross outflows	0.59	0.56	0.61	0.64	0.67	0.23	0.51	0.46	0.64
Subcomponents:									
FDI gross inflows	0.67	0.55	0.84	0.73	0.52	0.48	0.60	0.56	0.87
Portfolio gross inflows	0.51	0.55	0.36	0.37	0.45	0.52	0.65	0.66	0.33
Other gross inflows	0.62	0.72	0.80	0.66	0.77	0.76	0.58	0.66	0.81
	Gross Outflows								
	1990–2016			1990–2002			2003–16		
	LA5	LA7	OEM	LA5	LA7	OEM	LA5	LA7	OEM
Subcomponents:									
FDI gross outflows	0.56	0.42	0.72	0.76	0.62	0.38	0.45	0.33	0.73
Portfolio gross outflows	0.82	0.71	0.47	0.82	0.66	0.39	0.83	0.73	0.47
Other gross outflows	0.70	0.77	0.73	0.82	0.82	0.87	0.62	0.75	0.71

Source: IMF staff calculations.
Note: FDI = foreign direct investment; LA5 = Brazil, Chile, Colombia, Mexico, Peru; LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay; OEM (other emerging markets) = Albania, Bangladesh, Bulgaria, China, Egypt, Ghana, Croatia, Hungary, India, Indonesia, Kazakhstan, Kenya, Morocco, Malaysia, Nigeria, Philippines, Poland, Romania, Russia, Saudi Arabia, South Africa, Thailand, Tunisia, Turkey, Vietnam.

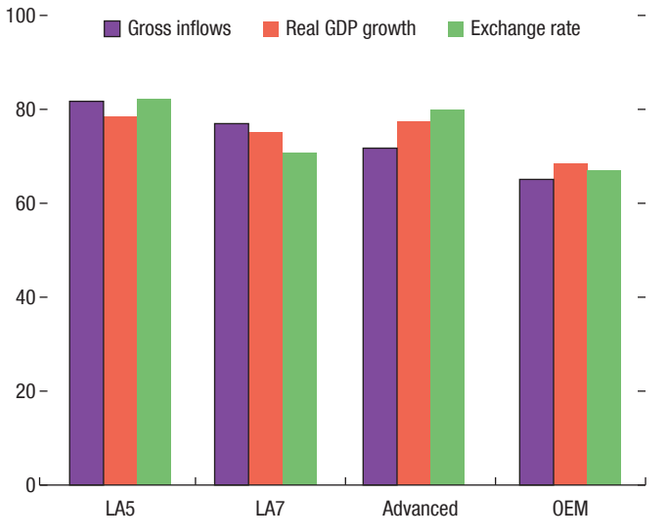
(Chapter 3 of the October 2015 *Regional Economic Outlook: Western Hemisphere*).

Focusing on the individual LA7 countries, it is interesting to note that capital inflows in Brazil and Mexico, the two largest economies in the region, tend to follow each other (and the LA7 median) quite closely (Figure 4.3, panel 1). Countries such as Chile, Colombia, and Peru also tend broadly to exhibit the same cyclical behavior (Figure 4.3, panel 2). Nevertheless, Chile's capital inflows relative to the size of its economy have been larger, on average, than those in the other countries in the region. Finally, capital inflows in Argentina and Uruguay are characterized by a higher degree of volatility relative to that of the other five LA7 countries (Figure 4.3, panel 3). In particular, both countries experienced a significant fall in capital inflows in the early 2000s (during the Argentine crisis). However, capital flows to Uruguay rebounded strongly following that crisis, whereas flows to Argentina remained subdued for most of the subsequent decade.

Structural Differences in Capital Flows

In addition to their variation over time, capital inflows vary substantially from one country to the next. In particular, the average level of capital inflows (relative to the size of the economy) attracted by the different emerging markets varies substantially from country to country (Figure 4.4). For instance, since 2000, gross inflows in countries such as Albania, Bulgaria, Kazakhstan, and Vietnam averaged more than 12 percent of GDP, while that number was less than 2 percent in countries such as Argentina, Egypt, and Indonesia. For the LA7 countries, Chile received the most gross capital inflows, averaging 7½ percent of GDP since 2000, whereas Argentina's

Figure 4.2. Synchronicity of Capital Inflows, Domestic Growth, and Exchange Rates across Countries
(First principal component; percent share explained)



Sources: IMF, Balance of Payment Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.
Note: For the exchange rate, all euro area countries are treated as a single entity. LA5 = Brazil, Chile, Colombia, Mexico, Peru; LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay; Advanced = Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong SAR, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States; OEM (other emerging markets) = Albania, Bangladesh, Bulgaria, China, Croatia, Egypt, Ghana, Hungary, India, Indonesia, Kazakhstan, Kenya, Malaysia, Morocco, Nigeria, Philippines, Poland, Romania, Russia, Saudi Arabia, South Africa, Thailand, Tunisia, Turkey, Vietnam.

gross capital inflows averaged ¾ percent of GDP over that period.

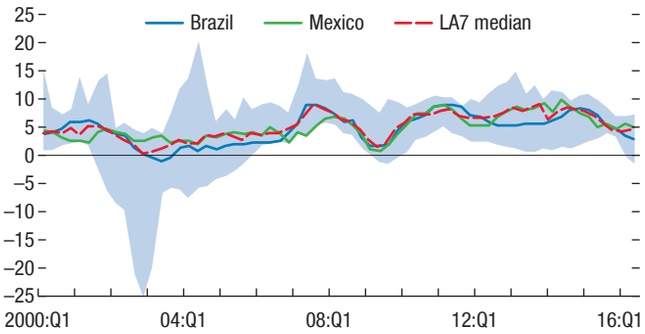
This significant heterogeneity across countries would suggest that there are important slow-moving or structural country-specific characteristics that make some countries more attractive to investors than others over periods longer than the usual business cycle.

Interestingly, the variation in capital inflows across emerging market economies is at least as large as the variation in these inflows across time (Table 4.2).[4] The relative importance of "between" country variation seems to be driven

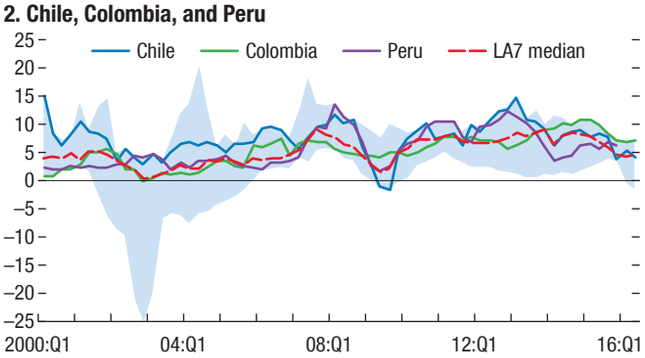
[4]For instance, 43 (47) percent of the variation in gross (net) inflows in emerging markets is attributable to variation "within" countries (across time), whereas 36 (41) percent is attributable to variation "between" countries (average over time).

Figure 4.3. LA7: Gross Inflows
(Percent of trend GDP)

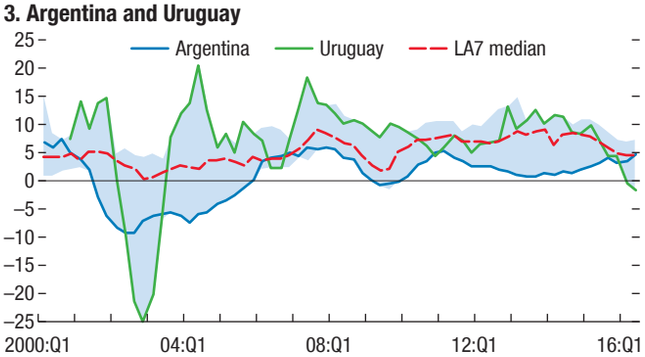
1. Brazil and Mexico



2. Chile, Colombia, and Peru



3. Argentina and Uruguay

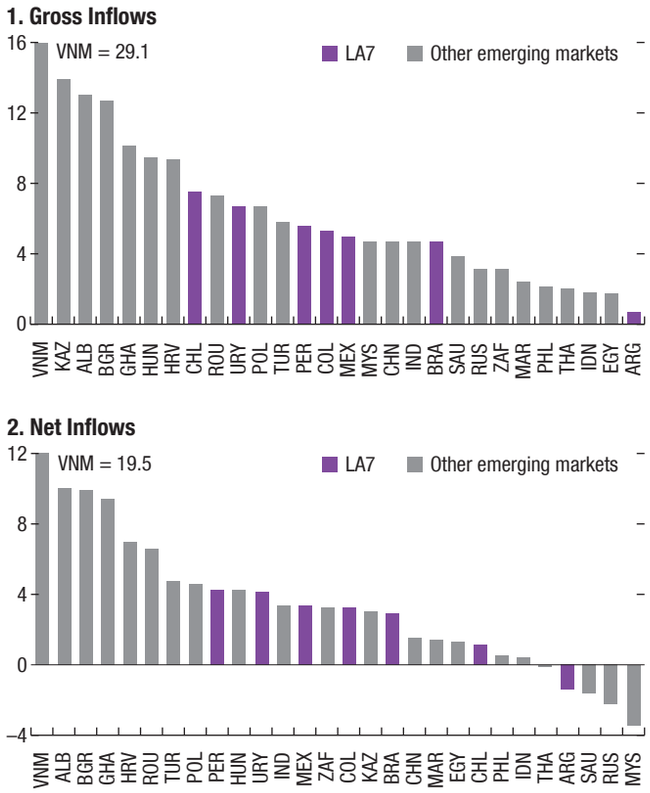


Sources: Haver Analytics; IMF, Balance of Payments Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Shaded areas denote the minimum and maximum of the LA7 sample. LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay.

by and large by the other emerging market regions in the sample. This would suggest that cyclical variables might play a more important role in explaining capital flows in Latin America than in other emerging markets.[5]

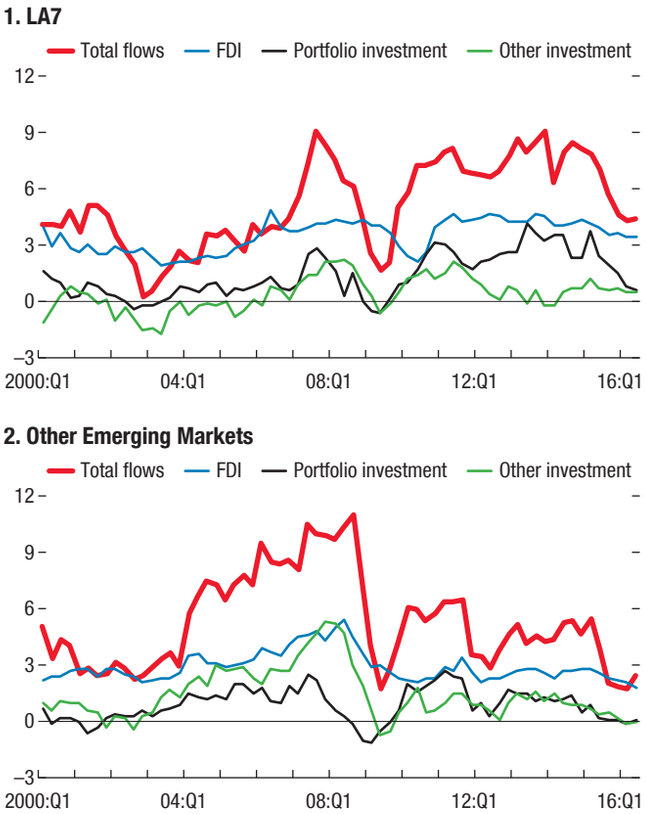
[5]For example, for emerging European and Asian economies, variation "within" ("between") countries accounts for 56 (7) percent

Figure 4.4. Average Inflows, 2000–16
(Percent of trend GDP)



Sources: Haver Analytics; IMF, Balance of Payments Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137.

Figure 4.5. Gross Inflows
(Percent of trend GDP; median)



Sources: Haver Analytics; IMF, Balance of Payments Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.
Note: FDI = foreign direct investment; LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay; other emerging markets = Albania, Bangladesh, Bulgaria, China, Croatia, Egypt, Ghana, Hungary, India, Indonesia, Kazakhstan, Kenya, Malaysia, Morocco, Nigeria, Philippines, Poland, Romania, Russia, Saudi Arabia, South Africa, Thailand, Tunisia, Turkey, Vietnam.

Subcomponents of Capital Flows

Gross and net capital flows can be decomposed into foreign direct investment (FDI), portfolio flows, and "other investment" flows.[6,7] The importance of gross inflows as compared with gross outflows, and the comovement between the different flow types, are also mirrored in these subcomponents of capital flows (Figure 4.5 and Table 4.1). Nevertheless, and despite their relatively strong cyclical comovement, these subcomponents also exhibit some singularities. First, FDI inflows in emerging markets are noticeably larger than portfolio and other investment inflows. For instance, in LA7 countries, FDI inflows have averaged 3¾ percent of GDP since 2000, while that number was 1¼ and ¼ percent of GDP for portfolio and other investment inflows, respectively.

Second, portfolio inflows are relatively more volatile than FDI inflows for emerging markets, in line with the fact that the share of the variation in portfolio inflows across time is noticeably larger than its share of variation across countries,

and 18 (82) percent, respectively, of total variation in capital inflows to these economies. Thus, the importance of cyclical factors for, say, Asian economies is likely to be substantially lower than for Latin America.

[6]For the countries in the sample, "other investment" flows include mainly bank loans and deposits.

[7]Strictly speaking, total flows also include financial derivatives, but for the countries in the sample, these tend to be minute compared with FDI, portfolio, and other investment flows.

Table 4.2. Data Variation across Countries and through Time
(Percent)

	LA5		LA7		OEM		EMs	
	"Within" variation	"Between" variation	"Within" variation	"Between" variation	"Within" variation	"Between" variation	"Within" variation	"Between" variation
Dependent Variables								
Net inflows	79	19	66	26	38	47	41	47
Gross inflows	86	14	67	22	33	43	36	43
FDI inflows	38	62	44	56	19	44	19	46
Portfolio inflows	93	6	77	22	56	18	61	18
Other investment inflows	89	8	57	3	48	25	48	24
Gross outflows	40	55	50	26	29	23	31	24
FDI outflows	26	60	20	62	11	12	11	14
Portfolio outflows	30	65	34	55	29	42	29	44
Other investment outflows	70	13	55	10	39	34	41	32
Cyclical Variables								
VIX (log)	100	0	100	0	100	0	100	0
G7 real GDP growth (year over year)	100	0	100	0	100	0	100	0
U.S. short-term interest rates	100	0	100	0	100	0	100	0
Global commodity price (log)	100	0	100	0	100	0	100	0
Real GDP growth differential	78	19	76	8	62	34	63	28
Short-term interest rate differential	29	71	41	19	23	55	28	40
Structural Variables								
Government effectiveness	3	97	3	97	7	93	6	94
Regulatory quality	5	95	6	94	7	93	6	94
Control of corruption	3	97	3	97	9	91	6	94
Rule of law	2	98	2	98	6	94	5	95
Voice and accountability	6	94	5	95	4	96	4	96
Political stability	8	92	7	93	11	89	10	90
Political risk	15	85	20	80	17	83	17	83
Polity synthetic index	15	78	9	86	3	96	3	96
Corporate tax rate	4	96	5	95	7	90	6	91
Credit rating	40	60	26	74	22	61	23	63

Source: IMF staff calculations.
Note: "Within" variation refers to the share of variation in the data through time; "between" variation refers to the share of variation in the data across countries. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; LA5 = Brazil, Chile, Colombia, Mexico, Peru; LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay; OEM (other emerging markets) = Albania, Bangladesh, Bulgaria, China, Croatia, Egypt, Ghana, Hungary, India, Indonesia, Kazakhstan, Kenya, Malaysia, Morocco, Nigeria, Philippines, Poland, Romania, Russia, Saudi Arabia, South Africa, Thailand, Tunisia, Turkey, Vietnam; EMs = emerging markets; VIX = Chicago Board Options Exchange Volatility Index.

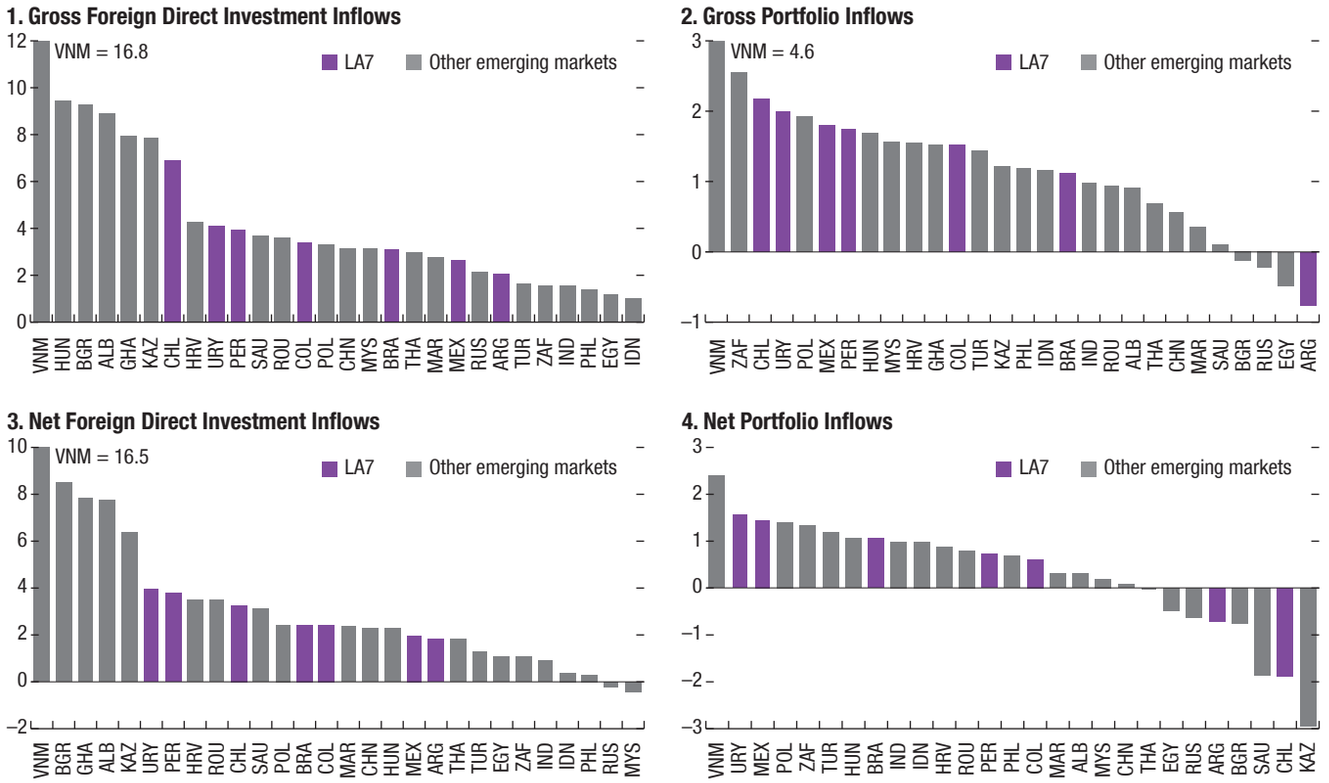
whereas it is the other way around for FDI inflows (Table 4.2).[8] Again, this holds particularly true for Latin American countries, where the "within" country variation in portfolio inflows accounts for most of the total variation in these flows.

Finally, as was the case with total capital flows, the average levels of FDI, portfolio, and other investment flows vary significantly from country to country (Figure 4.6). For instance, gross FDI inflows in such countries as Bulgaria, Hungary, and Vietnam averaged more than 9 percent of GDP since 2000, whereas that figure was less than 1½ percent of GDP for Egypt and Indonesia (Figure 4.6, panel 1). For LA7 countries, Chile and Uruguay have been the largest recipients of both gross FDI and portfolio inflows over that period, while Argentina recorded the lowest amount for both types of flows (Figure 4.6, panels 1 and 2).

In summary, capital flows exhibit strong cyclical and structural variation. To explore the global and country-specific factors that might be driving capital flows, the next section relates capital flows to these factors. It pays special attention to comparing the Latin American experience with that of other emerging markets.

[8]For emerging markets, 61 percent of the variation in portfolio inflows is attributable to variation "within" countries (across time), whereas 18 percent is attributable to variation "between" countries (average over time). In the case of FDI inflows to these countries, those numbers are 19 percent and 46 percent, respectively.

Figure 4.6. LA7 and Other Emerging Markets: Average Inflows, 2000–16
(Percent of trend GDP)



Sources: Haver Analytics; IMF, Balance of Payments Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137. LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay.

Drivers of Capital Flows

Following a vast literature on the determinants of capital flows, we separate the main drivers along global push factors and country-specific pull factors. Building on the main findings from other studies (in particular, Chapter 2 of the April 2016 *World Economic Outlook* and the studies reviewed in Koepke 2015), the core model specification includes the following global variables: a measure of global risk aversion proxied by the Chicago Board Options Exchange Volatility Index (VIX), a measure of global output growth, U.S. interest rates,[9] and an index of global commodity prices.

The country-specific explanatory variables are separated into those that may explain cyclical variation in capital flows and those that may explain structural variation in these flows. While all the country-specific variables vary across countries and over time, those characterized as "cyclical" factors tend to exhibit a much higher variation "within" countries (across time) relative to their variation "between" countries (average over time), and vice versa for the "structural" factors (Table 4.2).

The regression model includes the differential between domestic growth and global growth, the differential between domestic interest rates and the corresponding U.S. interest rates to describe the *cyclical* behavior of capital flows, and measures of governance, regulatory quality, business

[9]The main estimation results are broadly the same when short-term (three-month) or long-term (10-year) U.S. interest rates, and their difference ("yield curve slope"), are included in the regression.

climate, and political risk to explain the country-specific *structural* variation in capital flows.

The model is estimated using standard panel data techniques. Algebraically, the model for the cyclical variation in capital flows is

$$Y_{i,t} = a + \beta_1 G_t + \beta_2 C_{i,t} + \mu_i + \varepsilon_{i,t},$$

where $Y_{i,t}$ denotes the capital flow measure of interest as a percentage of trend GDP of country i at time t; G_t and $C_{i,t}$ are vectors containing the global and country-specific cyclical factors, respectively;[10] a, β_1, β_2 and contain the parameters to be estimated; μ_i denotes the unobserved country-specific fixed effects;[11] and $\varepsilon_{i,t}$ is the error term. The model is estimated using quarterly data, over the period from 2000:Q1 to 2016:Q2.

The model of the structural variation in capital flows is

$$\mu_i = \gamma + \rho Z_{i,t} + u_{i,t},$$

where μ_i is the fixed effects term from the cyclical model, γ and ρ are parameters to be estimated, and $Z_{i,t}$ refers to a country-specific structural factor. Given the high degree of multi-collinearity in the structural factors, these are included in the regression one at a time.[12]

Table 4.3 presents the fixed effect estimation results for gross inflows and outflows, as well as net inflows, for Latin American countries (both LA5 and LA7) and for other emerging market economies. Annex Table 4.1 presents the corresponding estimation results for gross inflows, including the country-specific structural factors.

In broad terms, the results obtained for net and gross inflows are largely similar. This outcome concurs with the finding that gross inflows are the main source of change in net inflows. By contrast, the regressions related to gross outflows differ substantially from those for gross or net inflows. The global and country-specific factors in the regression tend to explain less of the variation in gross outflows,[13] which is a common finding in the literature.

Focusing on capital inflows, higher global commodity prices appear to be strongly associated with higher inflows to all emerging markets (Annex Table 4.1).[14] Indeed, the cyclicality of capital flows tends to follow the global commodity price cycle quite closely (Figure 4.7).[15] An increase in global growth also appears to lead to higher capital inflows, although the relationship is only statistically significant for Latin American economies.

In this model specification, the VIX and U.S. interest rates do not appear to be strongly associated with capital flows. This does not necessarily mean that changes in the VIX or U.S. interest rates have no effect on capital inflows, but rather that most of their co-variation with capital inflows is already accounted for by commodity prices.[16] More generally, global commodity prices might embody changes in other global factors, which themselves have an impact on capital inflows to emerging market economies. For instance, commodity prices might react faster to changes in global economic developments and reflect those changes more rapidly than, say, global GDP measures.

[10]To mitigate endogeneity issues, all country-specific variables are included with a lag in the regressions.

[11]Fixed effects are used in the model for the cyclical variation, rather than the country-specific structural variables, to minimize any potential bias in the βs due to omitted (unobserved) variation across countries.

[12]Similar estimates for ρ are obtained using a one-stage pooled (ordinary least squares) regression—including these country-specific structural measures instead of the fixed effects.

[13]The R-squared statistic in the gross outflow regressions is less than half that of the corresponding R-squared statistic in the gross inflow regressions.

[14]This result is robust to the use of alternative global commodity price indices, or if we use the individual series of global oil, copper, or iron ore prices. It is also robust when the residual from regressing commodity prices on different global factors (including global growth and growth in China) is used instead of the global commodity price index itself.

[15]Similar observations are derived if the index of global commodity prices is replaced by the commodity terms-of-trade measure of Gruss (2014), which uses country-specific weights.

[16]Indeed, when the VIX is included individually as the only explanatory variable in the regression model, it is found to be statistically significant and to have the expected sign (Annex Table 4.2). However, the inclusion of the index of global commodity prices as an additional explanatory variable renders its estimated coefficients no longer statistically significant.

Table 4.3. Estimation Results: Core Specification Model, Fixed Effects, 2000–16

	Net Inflows			Gross Inflows			Gross Outflows		
Variables	LA5 (1)	LA7 (2)	OEM (3)	LA5 (4)	LA7 (5)	OEM (6)	LA5 (7)	LA7 (8)	OEM (9)
Global Factors									
VIX (log)	1.557	1.480*	0.644	1.230	0.987	0.795	−0.327	−0.493	0.155
	(0.972)	(0.704)	(0.886)	(0.862)	(1.077)	(1.359)	(0.309)	(0.692)	(1.027)
G7 real GDP growth (year over year)	0.308*	0.131	0.346*	0.509**	0.368*	−0.067	0.201	0.237	−0.417
	(0.139)	(0.225)	(0.182)	(0.171)	(0.166)	(0.442)	(0.188)	(0.161)	(0.357)
U.S. short-term interest rates	−0.302*	0.199	0.319	−0.083	0.214	1.129	0.219	0.015	0.815*
	(0.133)	(0.363)	(0.293)	(0.127)	(0.314)	(0.645)	(0.174)	(0.256)	(0.435)
Global commodity price (log)	2.174**	3.757**	2.735***	4.182***	4.458**	4.918***	2.008**	0.701	2.214*
	(0.755)	(1.403)	(0.545)	(0.387)	(1.354)	(1.261)	(0.660)	(1.631)	(1.225)
Country-Specific Factors									
Real GDP growth differential (lagged)	0.096	−0.033	0.527***	0.055	0.073	0.560***	−0.041	0.107	0.034
	(0.161)	(0.107)	(0.101)	(0.116)	(0.096)	(0.118)	(0.064)	(0.139)	(0.075)
Short-term interest rate differential	0.062	−0.061	0.013	−0.070	−0.080	0.026	−0.132	−0.019	0.014
(lagged)	(0.211)	(0.053)	(0.071)	(0.129)	(0.079)	(0.071)	(0.086)	(0.029)	(0.019)
Constant	−12.476	−19.507**	−15.155***	−18.141**	−19.244	−24.244**	−5.665	0.262	−9.254
	(5.942)	(7.881)	(4.322)	(4.352)	(10.425)	(9.338)	(4.316)	(9.752)	(8.409)
Observations	322	440	872	322	440	872	322	440	861
R-squared	0.252	0.264	0.209	0.480	0.385	0.141	0.269	0.097	0.060
Number of countries	5	7	15	5	7	15	5	7	15

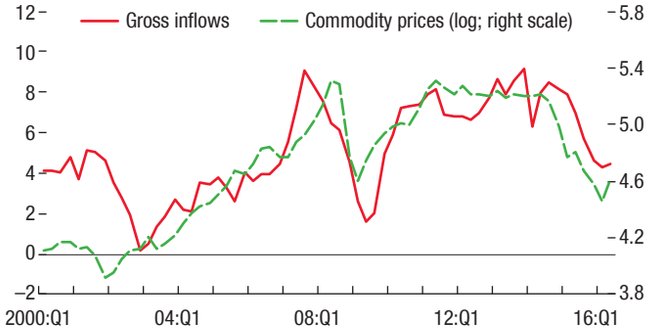
Source: IMF staff calculations.

Note: Robust standard errors in parentheses. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; LA5 = Brazil, Chile, Colombia, Mexico, Peru; LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay; OEM (other emerging markets) = China, Croatia, Egypt, Hungary, India, Indonesia, Morocco, Malaysia, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey; VIX = Chicago Board Options Exchange Volatility Index.

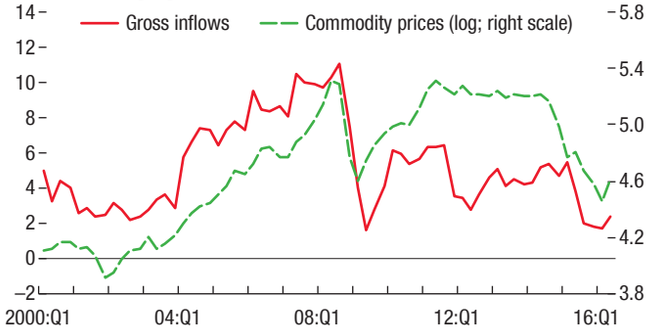
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Figure 4.7. Gross Inflows and Commodity Prices
(Percent of trend GDP; median)

1. LA7: Gross Inflows and Commodity Prices



2. Other Emerging Markets: Gross Inflows and Commodity Prices



Sources: Haver Analytics; IMF, Balance of Payments Statistics Yearbook database; IMF, Commodity Price System database; IMF, World Economic Outlook database; and IMF staff calculations.
Note: LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay; Other emerging markets = Albania, Bangladesh, Bulgaria, China, Croatia, Egypt, Ghana, Hungary, India, Indonesia, Kazakhstan, Kenya, Malaysia, Morocco, Nigeria, Philippines, Poland, Romania, Russia, Saudi Arabia, South Africa, Thailand, Tunisia, Turkey, Vietnam.

In other words, global commodity prices might be the best proxy for the widely documented "global financial cycle" or global demand factors,[17] which together influence the cyclical behavior of capital flows in emerging markets (Box 4.1).[18] Indeed, the analysis finds evidence that, despite the high cross-correlation among global variables, global commodity prices exhibit the highest correlation with the principal component of capital inflows and of asset prices in emerging markets (Table 4.4). However, this appears to be a particular feature of the last commodity supercycle that started in the early 2000s.[19] In the 1990s, for instance, the VIX was a better proxy for the "global financial cycle" related to capital flows in emerging markets.

Coming back to the latest period (2000 onward) when commodity prices were strongly related to the global financial cycle, investment decisions in Latin America appear to be influenced by commodity prices in both commodity and noncommodity producing sectors (Box 4.2). In this context, commodity prices might be a harbinger of an improved outlook in commodity-related sectors, but also a sign of improved macroeconomic and financial conditions more generally.

Regarding the cyclical component of capital inflows, the differential between domestic interest rates and global interest rates does not appear to have a strong effect on capital inflows. However, the differential of domestic growth relative to global growth appears to be strongly and positively associated with capital inflows but only for other emerging market economies, not Latin America.[20,21] Splitting the sample among commodity and noncommodity exporters, the group of commodity exporters exhibits similar results to those of Latin America

[17]Rey (2015) documents the existence of a "global financial cycle" in capital flows, asset prices, and in credit growth. Moreover, this global financial cycle is not necessarily aligned with country-specific macroeconomic conditions.

[18]Chapters 1 and 2 of the April 2017 *World Economic Outlook* document the important role of growth in China—and concomitant commodity price fluctuations—as a key driver of economic performance in emerging markets, especially in commodity exporters.

[19]Indeed, the role of commodity prices in explaining capital flows since the early 2000s likely derives from their role as a high-frequency indicator of global demand (see Box 4.1 and Ghosh and others 2014).

[20]Overall, the main results were found to be robust to using slight variations of the core specification model. In particular, similar results were obtained when using different maturities of domestic and global interest rates; replacing actual domestic and global growth with their "expected" counterparts; and including all variables contemporaneously or with lags. See Caceres and others (forthcoming b) for more details.

[21]When the domestic growth differential is included individually, its estimated coefficient is found to be significant—with the expected sign—for all emerging markets (Annex Table 4.2). However, the introduction of commodity prices in the regression renders that coefficient to be no longer statistically significant for Latin American countries.

Table 4.4. Cross-Correlations of Selected Global Factors, 2000–16

	Principal Component of Capital Inflows in EMs	Principal Component of Stock Prices in EMs (log)	Global Commodity Prices (log)	U.S. Nominal Effective Exchange Rate (log)	S&P 500 Stock Price Index (log)	VIX (log)	U.S. Long-Term Interest Rates	G7 Real GDP Growth	U.S. Short-Term Interest Rates
Principal component of capital inflows in EMs	1								
Principal component of stock prices in EMs (log)	0.86***	1							
Global commodity prices (log)	0.82***	0.93***	1						
U.S. nominal effective exchange rate (log)	−0.75***	−0.86***	−0.93***	1					
S&P 500 stock price index (log)	0.58***	0.52***	0.34***	−0.1	1				
VIX (log)	−0.38***	−0.33***	−0.24*	0.19	−0.56***	1			
U.S. long-term interest rates	−0.31**	−0.60***	−0.61***	0.49***	−0.43***	0.11	1		
G7 real GDP growth	0.30**	−0.09	−0.15	0.18	0.33***	−0.49***	0.29**	1	
U.S. short-term interest rates	0.05	−0.36***	−0.44***	0.41***	−0.1	−0.11	0.84***	0.40***	1

Source: IMF staff calculations.

Note: Robust standard errors in parentheses. EMs = emerging markets; G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; S&P = Standard and Poor's; VIX = Chicago Board Options Exchange Volatility Index.

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

regarding the importance of the domestic growth differential.[22,23]

Country-specific structural factors seem to have a significant impact on the relative attractiveness of emerging markets to international investors. In particular, countries with more efficient governments, better regulatory quality, and tighter control of corruption tend to attract more capital inflows relative to the size of their economies. Similarly, countries with higher political stability, lower political risk,[24] and more entrenched democratic institutions as well as political accountability mechanisms also tend to attract higher levels of capital inflows.

The model estimates suggest that, controlling for other factors, an increase in the average level of LA7 countries in any one of the indicators measuring government effectiveness, regulatory quality, control of corruption, or rule of law from their current levels to the average among advanced economies would lead to a sustained increase in capital inflows of about 1½–1¾ percent of GDP. Even when looking at their impact *within* Latin American economies, improving the underlying factors captured by these indicators from their current levels in countries such as Brazil, Colombia, and Peru to the levels observed in Chile would raise their capital inflow levels by about 1½–2 percent of GDP. For Argentina, that figure could be up to 3 percent of GDP. This largely explains why the actual gross capital inflows to Chile since 2000 have been, on average, 2¾ percent of GDP higher than in the other LA7 countries.

In addition, lower domestic corporate tax rates seem to be an effective mechanism for attracting higher levels of capital inflows. Countries with higher credit ratings also appear to attract more capital inflows.[25] Although not strictly a policy variable, credit ratings to some extent reflect

[22]See Caceres and others (forthcoming b) for details.

[23]This is not surprising given the large presence of commodity exporters in the LA7, whereas the group of "other emerging markets" contains by and large noncommodity exporters.

[24]The political risk measure, from the International Country Risk Guide database, is an index in which higher values denote lower political risk.

[25]Indeed, a number of institutional investors use internal rules governing the eligibility of potential investment assets based on third-party credit ratings.

policy choices and the credibility of policy frameworks.

Finally, additional conclusions can be drawn by taking a closer look at the regression results for some of the main subcomponents of capital flows—FDI and portfolio flows (Annex Table 4.3). First, global factors and, more generally, cyclical factors appear to be strongly associated with portfolio inflows. This is not really the case for FDI inflows, where the only exception is the positive association between commodity prices and FDI inflows in Latin American economies only. This is consistent with the fact that portfolio flows (and other investment flows) exhibit a larger "within" country variation relative to FDI flows (Table 4.2). Second, country-specific structural variables appear to be important factors in explaining slower-moving changes in capital inflows for all the main subcomponents (FDI, portfolio, and other investment) of capital flows. In other words, institutional factors play a key role in attracting all types of flows to emerging markets.

In summary, global factors appear to be an important driver of the *cyclical* component of capital inflows in emerging markets, whereas country-specific institutional factors are key drivers of the *structural* component of these flows.

Robustness Checks

The estimated partial correlation between a given explanatory variable and capital flows would crucially depend on which other variables are included in the estimation model. As in the empirical growth literature, however, the existing economic theory is not sufficiently explicit about what explanatory variables should be included in the capital flow regression. Thus, different empirical researchers tend to investigate different models, and their findings could be driven by these somewhat arbitrary choices.

To mitigate this potentially important model selection bias from our estimated coefficients, we design a simple procedure in the spirit of Sala-i-Martin (1997). Essentially, we consider N potential explanatory variables that are usually used in the literature, and then estimate $(2^N - 1)$ fixed-effects regressions using a given capital flow measure as a dependent variable on the $(2^N - 1)$ possible combinations of these explanatory variables.[26,27] For each variable, we summarize the estimated coefficients on a particular variable (and their significance levels) in a histogram. The variables whose coefficients are robustly more significant would tend to be concentrated to the right (left) of the "zero-coefficient" line when the variable has a true positive (negative) relation with capital flows. In contrast, variables that are not often significant across different models are likely to attract coefficients close to zero.

Figure 4.8 exhibits the resulting histogram from all the estimated coefficients across all models for the four global variables that feature in our core specification model: global commodity prices, the VIX, global GDP growth, and U.S. short-term interest rates.[28] For global commodity prices, most of the estimated coefficients are positive, confirming its strong association with capital inflows in both Latin America and other emerging market regions (Figure 4.8, panel 1). Indeed, for Latin American countries, all the estimated coefficients related to global commodity prices are found to be positive and significant across all model variants (Table 4.5).[29] That share is equal to two-thirds for other emerging market economies

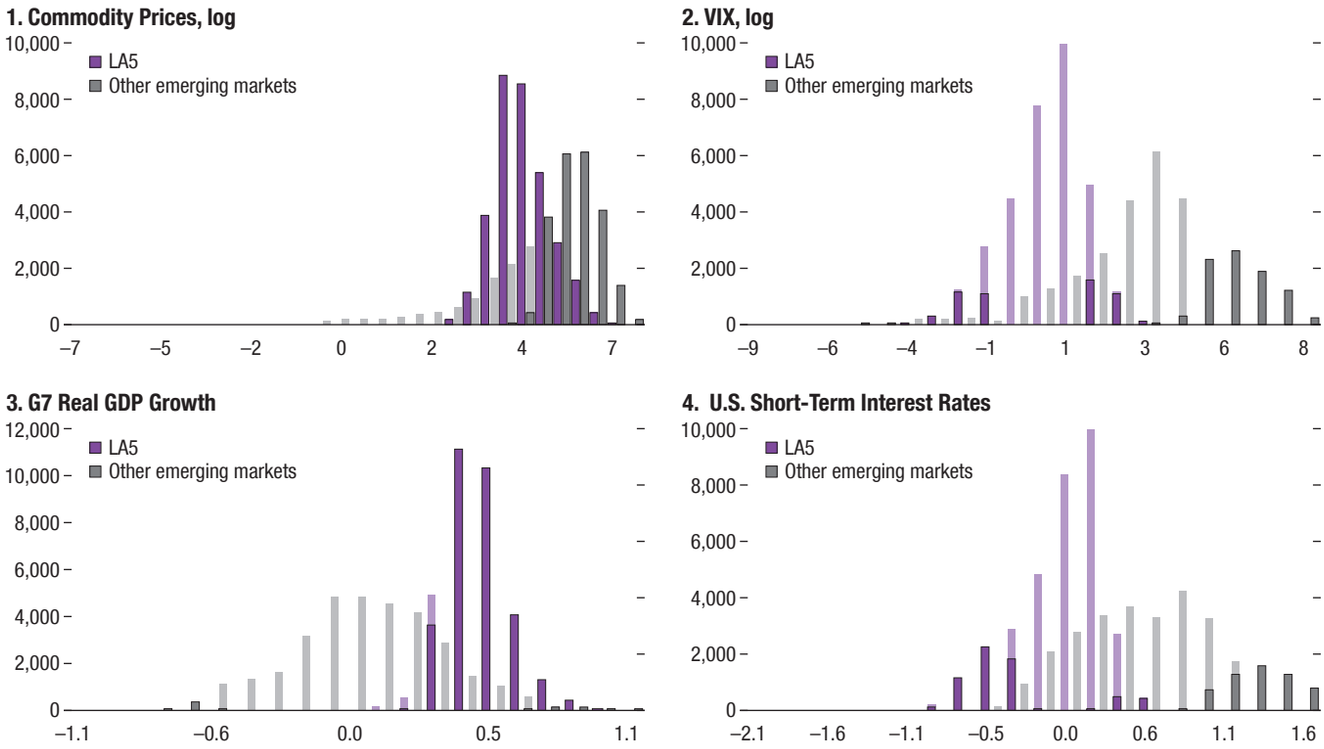
[26]In this case, we have compiled data on $N = 15$ potential variables, listed in Table 4.5, yielding more than 32,000 possible models.

[27]This particular estimation setup is adequate for testing the robustness of cyclical factors (with relatively high "within" variation), but not that of structural factors (with relatively high "between" variation) whose effect would be mostly captured by the fixed effects term.

[28]See Caceres and others (forthcoming b) for the histograms on all other variables.

[29]Arguably, the "expected sign" convention used in Table 4.5 can be challenging in the case of global and domestic interest rates and their differentials. Indeed, an increase in interest rates in the capital flow destination country (the emerging market in question or the United States) would imply potentially higher yields (that is, return on investment). However, higher interest rates or spreads in emerging markets could also be an indication of higher risks associated with these countries (negative for capital flows to emerging markets), whereas an increase in U.S. interest rates might be a sign of stronger global growth (positive for capital flows to emerging markets).

Figure 4.8. Distribution of Estimated Coefficients across Models
(Frequency)



Source: IMF staff calculations.
Note: The height of the bars denotes the total numbers of coefficients in each interval. Of these, dark solid bars denote the numbers of coefficients that are statistically significant at the 1 percent confidence level. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; LA5 = Brazil, Chile, Colombia, Mexico, Peru; Other emerging markets = Albania, Bangladesh, Bulgaria, Croatia, China, Egypt, Ghana, Hungary, India, Indonesia, Kazakhstan, Kenya, Malaysia, Morocco, Nigeria, Philippines, Poland, Romania, Russia, Saudi Arabia, South Africa, Thailand, Tunisia, Turkey, Vietnam; VIX = Chicago Board Options Exchange Volatility Index.

(also the highest among all potential explanatory variables).

However, the VIX can be found to have a negative association with capital flows in some models, but a positive relation in others, and these relationships are most often not statistically significant (Figure 4.8, panel 2; and Table 4.5). Interestingly, and in line with earlier results, most of the estimated coefficients for global output growth appear to be positive and significant for Latin American countries, but mainly not significant for other regions (Figure 4.8, panel 3). This analysis thus confirms the robustness of the fixed-effects estimation results over the period 2000–16.

Is Latin America Any Different?

Overall, a key difference across regions is that, once commodity prices have been taken into account, capital inflows to Latin America do not appear to be strongly linked to domestic growth, while they remain highly linked for other emerging market economies. More generally, global factors appear to play a predominant role in driving the *cyclical* behavior of capital flows to Latin American countries relative to other emerging market economies.[30,31]

[30]This is in line with the relatively high proportion of "within" variation in capital flows to Latin American countries relative to other emerging market economies (Table 4.2).

[31]See Chapter 1 of the April 2017 *World Economic Outlook.*

Table 4.5. Share of Statistically Significant Coefficients across Models, 2000–16

	LA5		OEM	
Variable	Expected Sign	Opposite Sign	Expected Sign	Opposite Sign
Global commodity prices	100	0	67	0
G7 real GDP growth	95	0	1	1
Real GDP growth differential	79	0	2	0
U.S. monetary shock	64	0	0	27
U.S. long-term interest rates	60	0	0	24
Short-term interest rate differential	49	0	7	0
Expected real GDP growth differential	37	0	16	0
S&P 500 stock price returns	25	2	32	0
Expected G7 real GDP growth	18	5	0	8
U.S. short-term interest rates	16	3	0	20
VIX	8	8	0	26
MSCI stock price returns	0	69	0	37
Long-term interest rate differential	0	12	34	0
EMBIG spreads	0	64	0	50
Sovereign CDS spreads	0	43	0	94

Source: IMF staff calculations.

Note: As a convention, expected sign is positive for global commodity prices, G7 real GDP growth, expected G7 real GDP growth, U.S. short-term interest rates, U.S. long-term interest rates, real GDP growth differential, expected real GDP growth differential, short-term interest rate differential, long-term interest rate differential, J.P. Morgan Emerging Market Bond Index Global (EMBIG) spreads, sovereign credit default swap (CDS) spreads, and Morgan Stanley Capital International (MSCI) stock price returns. Expected sign is negative in the case of the Chicago Board Options Exchange Volatility Index (VIX), U.S. monetary shock, and Standard and Poor's (S&P) 500 stock price returns. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; LA5 = Brazil, Chile, Colombia, Mexico, Peru; OEM = other emerging markets.

To illustrate this point, we look at what our core estimation implies for the historical contribution of the different global and country-specific factors to changes in capital inflows during two periods of interest:[32] (1) the global financial crisis and (2) the most recent period characterized by the end of the commodity super-cycle. During the first period, most of the fall in capital inflows to Latin America was driven by global factors, mainly global output growth and commodity prices, whereas for other emerging markets, the domestic growth differential accounted for more than a quarter of the explained variation in capital inflows (Figure 4.9, panel 1).

In the most recent period, the sharp decline in commodity prices was by and large the largest contributor to the reduction in capital inflows to all emerging markets. However, for the group of other emerging market economies, the domestic growth differential accounted for 19 percent of the variation in inflows, but that source explained just 9 percent of Latin America's slightly more moderate decline in capital inflows (Figure 4.9, panel 2).

[32]Structural factors do not feature in the decomposition of the changes in capital flows, given that the former are assumed to remain constant over time within the fixed effect regressions.

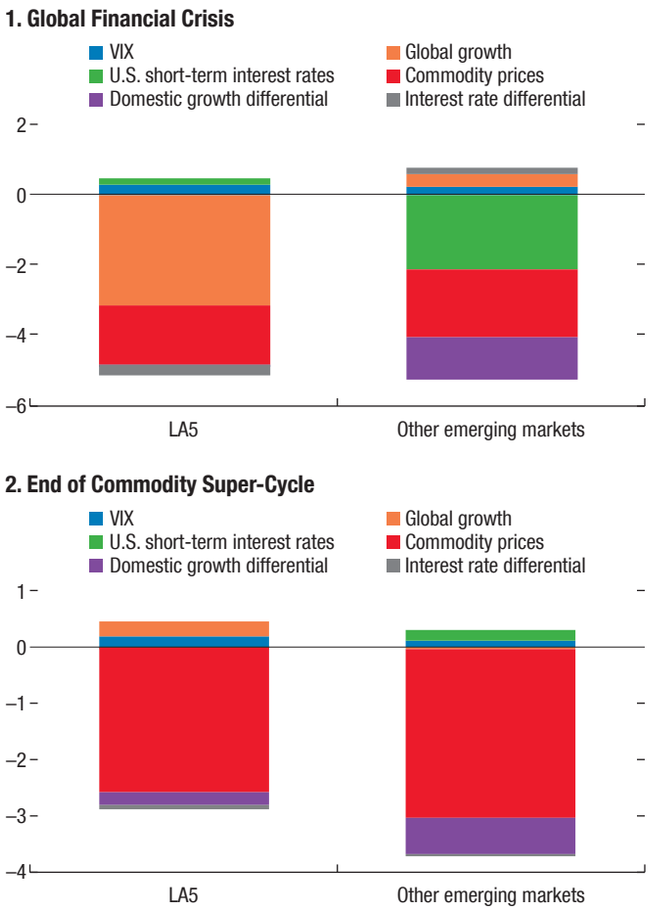
Going forward, because external demand and commodity prices are expected to remain low for the foreseeable future, downward pressure on capital inflows to Latin America and other emerging markets is likely to remain over the coming years compared with the period following the global financial crisis. Nevertheless, inflows to Latin America are expected to remain relatively more resilient than in other emerging market economies whose weaker domestic growth prospects are also weighing down on capital inflows to those regions.

Finally, country-specific *structural* factors have strong effects on capital flows both in Latin America and in other emerging market regions. Indeed, all the institutional and political factors included in the regressions are statistically significant for both sets of countries.

Role of the Investor Base and Market Characteristics

Given the important role of global factors in explaining the cyclical behavior of capital flows in emerging markets, and particularly in Latin America, this section explores whether a number of country-specific factors have an impact on the

Figure 4.9. Contribution of Global and Country-Specific Factors to Changes in Gross Inflows
(Percent of trend GDP)



Source: IMF staff calculations.
Note: "Global financial crisis" denotes the period from 2008:Q1 to 2009:Q2; "End of commodity super-cycle" denotes the period from 2013:Q1 to 2016:Q2. LA5 = Brazil, Chile, Colombia, Mexico, Peru; other emerging markets = Albania, Bulgaria, China, Croatia, Egypt, Ghana, Hungary, India, Indonesia, Kazakhstan, Malaysia, Morocco, Philippines, Poland, Romania, Russia, Saudi Arabia, South Africa, Thailand, Turkey, Vietnam; VIX = Chicago Board Options Exchange Volatility Index.

sensitivity of capital flows to external variables. In particular, it analyzes to what extent the composition of the investor base and domestic market characteristics tend to dampen (or amplify) the response of capital flows to external shocks. In this context, one would expect that having a more stable investor base would enable countries to better absorb potential shocks to capital flows.

For this purpose, an interacted panel vector autoregression (IPVAR) estimation approach is used to assess how the dynamic responses of capital flows to external shocks are affected by policy choices and characteristics of the investor base and the domestic financial system.[33] This method is used to analyze the response of capital inflows to shocks, including the VIX, global commodity prices, global GDP growth, and a monetary shock that increases U.S. interest rates.[34]

Estimating the model without any interaction terms provides a useful benchmark (Figure 4.10, panel 1). As expected, shocks to the VIX or U.S. monetary policy rates lead to declines in capital inflows to emerging markets. Conversely, positive shocks to global commodity prices and global growth provide a boost to capital inflows to these countries.[35]

These impulse responses also provide an indication of the risks, both upside and downside, to capital flows from future external developments. In particular, a sustained 20 percent increase in commodity prices[36] would be accompanied by an average increase in capital inflows of almost 2 percent of GDP to Latin America and other emerging market economies. An increase in the VIX of some 10 points, similar to that observed during the period of heightened market turbulence at the beginning of the euro area crisis, would lead to a fall in capital inflows of the same magnitude. Similarly, a deceleration in the global economy by 1 percentage point or an unanticipated monetary policy tightening in the

[33]The model setup follows Towbin and Weber (2013). See Annex 4.1, and Caceres and others (forthcoming a), for more details.

[34]We use the "identified" U.S. monetary shock series estimated by Osorio Buitron and Vesperoni (2015), which extends the methodology first proposed by Matheson and Stavrev (2014).

[35]In a dynamic vector autoregression setting, variables are allowed to interact freely with one another through their lead-lag relations and (aside from identification issues) do not necessarily need to "compete" with each other regarding their effect on capital flows. In a static regression, such as in the fixed-effect panel setting used earlier, explanatory variables compete with each other regarding their contemporaneous informational content vis-à-vis capital flows. It is thus possible that an explanatory variable might present a nonsignificant partial-correlation estimate in a static regression (that is, one that would crucially depend on the other variables included in the model) and still induce a statistically significant impulse response function in a dynamic setting.

[36]This would be in line with, say, an increase in oil prices from current levels ($50 a barrel) to $60 a barrel.

United States of about 50 basis points would lead to a fall in capital inflows in emerging markets of close to 1 percent of GDP.

Now, by introducing an interaction term that indicates whether countries have above- or below-average levels of foreign participation in their domestic debt markets, these effects are allowed to vary across the two groups. Accordingly, capital flows in countries with higher foreign participation are found to be more sensitive to external factors (Figure 4.10, panel 2). Introducing an alternative interaction term based on the size of the stock market relative to the economy leads to the conclusion that deeper domestic financial markets and more liquid markets lower the sensitivity of capital flows to external shocks (Figure 4.10, panel 3).[37] Similarly, a larger share of pension funds—which tend to allocate a large proportion of their assets to long-term stable investments—in domestic financial intermediation also decreases the sensitivity of capital inflows to global factors (Figure 4.10, panel 4).

The above findings, taken in combination, raise an interesting question: if deeper markets tend to better shield capital inflows in emerging markets from external shocks, while higher foreign participation tends to have the opposite effect, should countries then open their domestic financial markets to nonresidents to increase market depth, or should they close their internal markets to foreigners at the expense of potentially lower market size and liquidity? The answer is not clear from the corresponding impulse responses because both groups of countries exhibit similar sensitivities to external shocks. However, what is certain is that, on average, countries during periods characterized by both deeper markets *and* higher foreign participation tend to exhibit better macroeconomic and financial fundamentals, including lower inflation rates and inflation volatility, higher domestic growth and lower growth volatility, lower sovereign spreads, more favorable credit ratings, and better governance indicators (Figure 4.11).

Furthermore, capital inflows in countries with fixed exchange rate regimes tend to exhibit greater sensitivity to external shocks—particularly to U.S. monetary shocks—than capital inflows in countries with more flexible exchange rate arrangements (Figure 4.10, panel 5).[38] Finally, in countries with higher degrees of capital account openness, capital inflows appear to be more vulnerable to external conditions (Figure 4.10, panel 6).[39]

Conclusions and Policy Implications

This chapter documents that the high degree of variation in capital flows across time is common across emerging market economies, particularly in Latin America. This synchronicity reflects the important role of global factors in driving the cyclical component of capital inflows in these economies.[40] Among these factors, commodity prices are empirically found to play a predominant role in explaining capital flows. Other global factors, such as global growth or global risk aversion, are also important, but a large part of their effect seems to be captured by commodity prices. Commodity prices therefore appear to be a better proxy for the "global financial cycle" in capital flows and asset prices in emerging markets since the early 2000s.[41]

[37]These results for capital flows complement the analysis on asset prices in Chapter 2 of the April 2014 *Global Financial Stability Report*, which finds that deeper domestic markets and lower foreign participation provide buffers against shocks to global risk aversion.

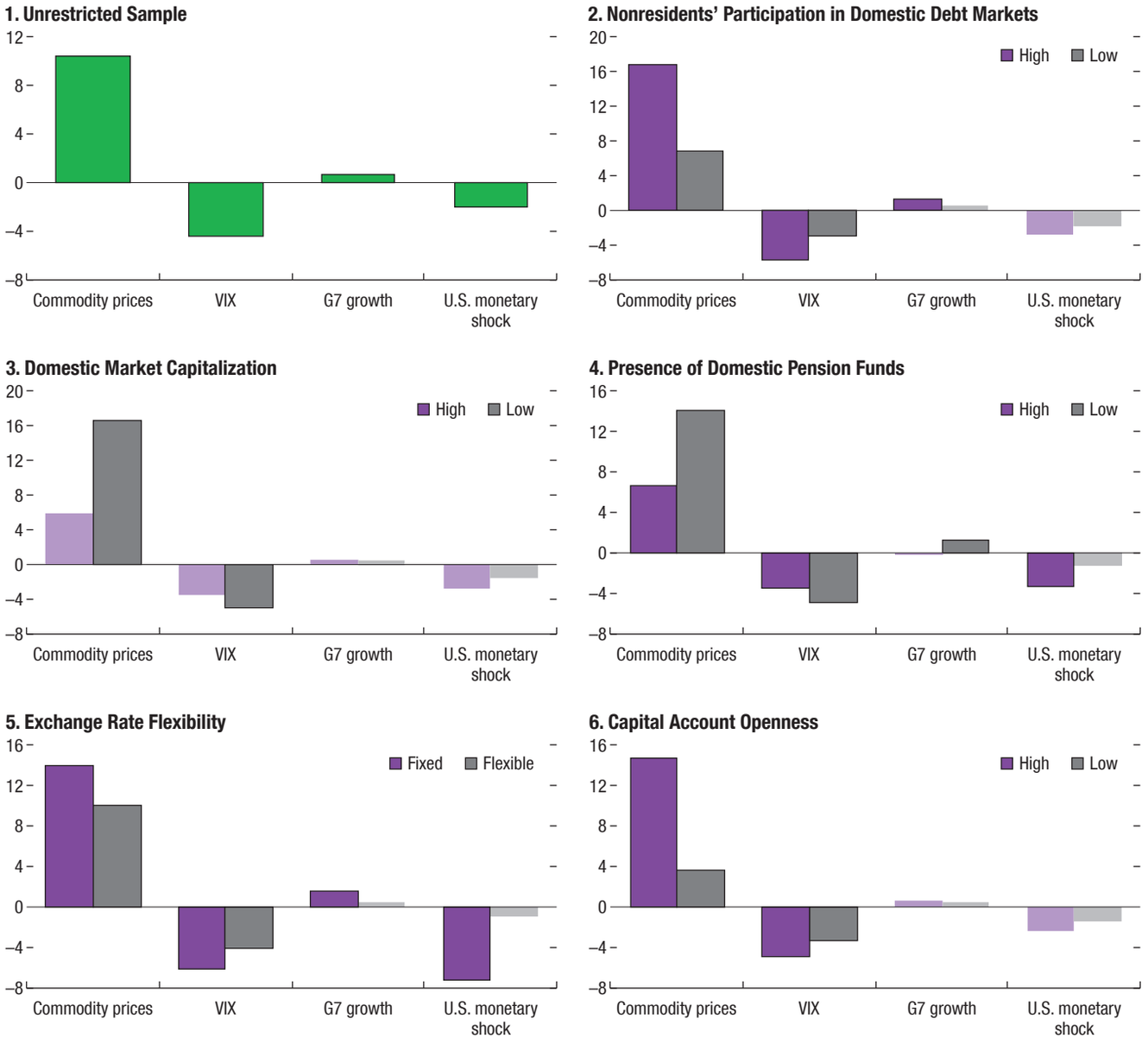
[38]This is in line with the findings in Chapter 2 of the April 2016 *World Economic Outlook*.

[39]These two results are broadly in line with the findings in Adler, Djigbenou, and Sosa (2016).

[40]This is in line with the existing results in the literature (Calvo, Leiderman, and Reinhart 1993; Reinhart and Reinhart 2008; Ghosh and others 2014; Obstfeld, Ostry, and Qureshi, forthcoming). Obstfeld. Ostry, and Qureshi (forthcoming) state that the rise and fall of capital flows over the sample period 1986–2013 (with similar results using the period 2000–13) appear to be tightly correlated with global factors.

[41]Indeed, Ghosh and others (2014) suggest that higher commodity prices correlate strongly with larger capital inflows inasmuch as they indicate a boom in demand for emerging market exports, and perhaps the recycling of income earned by commodity exporters.

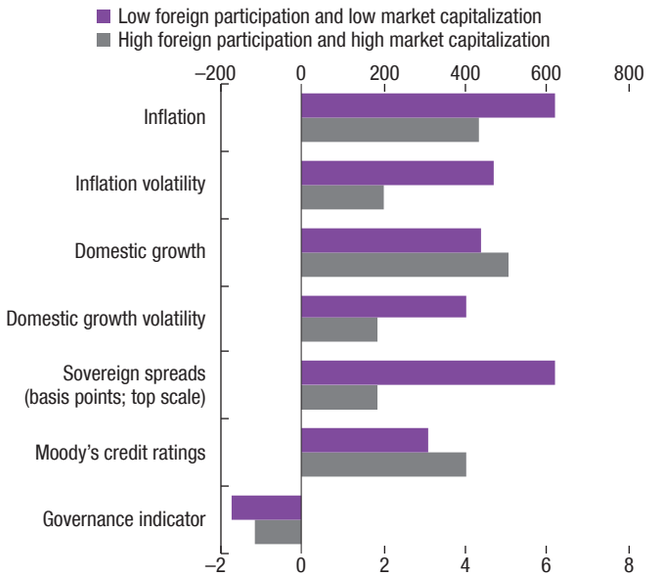
Figure 4.10. Impulse Response Functions of Gross Inflows to External Shocks
(Percent of trend GDP)



Source: IMF staff calculations.
Note: Bars represent the response of gross inflows four quarters after a positive one-unit shock to each of the four exogenous global variables. A unit shock for the VIX and global commodity prices corresponds to a unit change in the logarithm of these two variables; a unit shock for G7 growth and the "U.S. monetary shock" corresponds to a 1 percentage point change in these variables. Solid bars with black borders denote that the response is statistically significant at the 5 percent confidence level. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; VIX = Chicago Board Options Exchange Volatility Index.

The positive relationship between commodity prices and capital inflows can pose challenges to the conduct of monetary policy in Latin American economies. An increase in commodity prices, for example, would tend to lead to higher growth and inflationary pressures, which would, all else being equal, call for tighter monetary policy (that is, higher interest rates). However, higher commodity prices would also accompany higher inflows and likely exchange rate appreciation,

Figure 4.11. Foreign Participation and Market Capitalization
(Percent; unless indicated otherwise)



Source: IMF staff calculations.
Note: "High-high" includes Bulgaria (2007:Q4–2008:Q3), Chile (2004:Q1–2009:Q1), Colombia (2014:Q3–2016:Q4), Indonesia (2007:Q4–2008:Q3 and 2010:Q4–2016:Q4), Mexico (2011:Q3–2016:Q4), Peru (2006:Q4–2016:Q4), Philippines (2006:Q4–2016:Q4), Poland (2010:Q4–2011:Q3 and 2013:Q4–2016:Q4), and Russia (2004:Q1–2006:Q4). "Low-low" includes Argentina (2004:Q1–2005:Q4 and 2008:Q4–2016:Q1), Brazil (2004:Q1–2004:Q3), China (2004:Q1–2007:Q3), Colombia (2005:Q2–2007:Q3), Mexico (2006:Q2–2007:Q3 and 2008:Q4–2010:Q4), Poland (2008:Q4–2009:Q4), Russia (2014:Q4–2016:Q4), and Turkey (most of the period 2004:Q1–2012:Q2).

which complicate the use of monetary policy tightening to forestall overheating in the economy. This highlights the need for an appropriate policy mix, which would call for the use of fiscal policy as well as exchange rate flexibility to complement monetary policy in response to a surge in capital inflows. In the current setting, policies will need to manage these forces working in the other direction. Effective macroprudential policies can also help monetary policy achieve its goal, and could be used to complement other (fiscal and structural) policies in order to contain potential adverse side effects for financial stability.

In Latin America, once commodity prices and other global factors are taken into account, domestic economic growth does not seem to significantly drive the cyclical behavior of capital flows, unlike in other emerging market regions.

Looking beyond the business cycle, however, country-specific structural factors explain a significant portion of the large cross-country heterogeneity observed in the average level of capital flows to emerging markets and the region. In particular, countries with better governance, more efficient public institutions, stronger regulatory and legal frameworks, and higher political stability and accountability, among other factors, tend to attract higher levels of capital inflows on average. In other words, capital flows are in large part driven by global cyclical "push" factors as well as country-specific structural "pull" factors.

With regard to vulnerabilities, given the importance of global factors in explaining the cyclical fluctuations in capital flows to emerging markets, the chapter also analyzes whether characteristics of the investor base and domestic financial markets can mitigate capital account risks stemming from external developments.

Overall, the results suggest that promoting deeper domestic financial markets, and stable domestic financial intermediation (such as pension funds and insurance companies), can reduce the vulnerabilities of capital flows to external shocks. In weighing their options, countries that open up their capital accounts to foreign participation to gain market depth appear to have better macroeconomic performance than relatively closed countries with shallower domestic financial markets. The pace of financial opening, however, would need be in line with financial stability considerations to avoid any rapid and excessive buildup of risk. Moreover, policy choices, such as allowing for more exchange rate flexibility, are also effective ways of reducing the sensitivity of capital flows to adverse external shocks.

Box 4.1. Commodity Prices and Underlying Global Forces

This box further explores the global forces at play behind the strong role for commodity prices in driving gross capital inflows. In particular, it considers the role of commodity prices both as a proxy for a global financial cycle and as a high-frequency indicator of aggregate global demand.

In the 2000s, commodity prices correlated more strongly with the principal component of gross capital inflows and stock prices in emerging markets than either the Chicago Board Options Exchange Volatility Index (VIX) or U.S. short-term interest rates (see Table 4.4 in the main text). This excess correlation suggests that commodity prices are a better proxy for the global financial cycle identified by Rey (2015) than global risk aversion or U.S. monetary policy. If commodity prices are serving as a proxy for such a global cycle, they could be driving gross capital inflows through portfolio inflows. This hypothesis would also explain why commodity prices seem to play a more important role than the VIX in explaining capital flows (see Annex Table 4.1).

However, this role for commodity prices is a relatively new phenomenon. In the 1990s, commodity prices were less correlated with these capital flows and stock prices than the VIX (Table 4.1.1). This may explain why global risk aversion, rather than commodity prices, is more commonly used in the literature to characterize the global financial cycle.

Table 4.1.1. Correlations between Selected Global Factors, 1990–2000

	Principal Component of Capital Flows in EMs	Principal Component of Stock Prices in EMs	Global Commodity Prices (log)	VIX (log)	U.S. Short-Term Interest Rates	U.S. Long-Term Interest Rates
Principal component of capital flows in EMs	1					
Principal component of stock prices in EMs	0.90***	1				
Global commodity prices (log)	0.67***	0.84***	1			
VIX (log)	−0.84***	−0.92***	−0.46***	1		
U.S. short-term interest rates	0.54**	0.74***	0.38**	0.29*	1	
U.S. long-term interest rates	0.64***	0.79***	0.65***	−0.51***	0.11	1

Source: IMF staff calculations.

Note: Stock prices are measured in log U.S. dollars. Capital flows are gross capital inflows as a fraction of trend GDP. The sample of EMs for capital flows includes Argentina, Brazil, Bulgaria, Chile, Hungary, Indonesia, Mexico, Peru, Philippines, Romania, Russia, South Africa, Thailand, and Turkey. The sample of EMs for stock prices includes Argentina, Brazil, Chile, China, Colombia, Egypt, Hungary, India, Indonesia, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Thailand, and Turkey. EMs = emerging markets; VIX = Chicago Board Options Exchange Volatility Index.

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

At the same time, it is possible to provide an indicative decomposition of commodity price movements into those that can be explained by demand and supply factors.[1] Using this decomposition, demand factors seem to have a clear role in explaining the significant relationship between capital inflows and commodity prices. In particular, the demand component of commodity prices is positive and statistically significantly associated with gross capital inflows (column (1) of Table 4.1.2).

In other words, increases in commodity prices attributable to increases in global aggregate demand tend to drive capital flows to emerging market economies. Interestingly, increases in commodity prices attributable

This box was prepared by Galen Sher.

[1]The Commodities Unit in the IMF Research Department provides such a decomposition internally. The demand component is based on a regression of commodity prices on an aggregate of equity market indices, purchasing managers' indices, and industrial production of many countries. The supply component is a residual.

Box 4.1 *(continued)*

Table 4.1.2. Decomposing Commodity Prices into Demand and Supply Components by Type of Gross Capital Inflow, 2000–16

	(1) Total	(2) FDI	(3) Portfolio	(4) Other
VIX (log)	−0.830	0.103	−1.295***	0.219
	(0.813)	(0.461)	(0.257)	(0.539)
G7 real GDP growth (year over year)	−0.776*	−0.600	0.122*	−0.374**
	(0.406)	(0.356)	(0.067)	(0.148)
U.S. short-term interest rates	0.341	0.278	−0.159*	0.102
	(0.383)	(0.194)	(0.088)	(0.159)
Real GDP growth differential (lagged)	0.435***	0.037	0.069	0.287***
	(0.107)	(0.067)	(0.040)	(0.084)
Short-term interest rate differential (lagged)	−0.048	−0.011	−0.009	−0.030
	(0.056)	(0.016)	(0.009)	(0.040)
Demand component of commodity price (log)	0.252***	0.088**	0.050**	0.119***
	(0.046)	(0.041)	(0.022)	(0.020)
Supply component of commodity price (log)	2.989	1.963	−0.462	1.508
	(2.343)	(1.497)	(1.039)	(0.958)
Observations	1,312	1,312	1,312	1,281
R-squared	0.135	0.048	0.168	0.169
Number of countries	22	22	22	22

Source: IMF staff calculations.

Note: These regressions are estimated by fixed effects. The dependent variable is gross capital inflows in column (1), gross FDI inflows in column (2), gross portfolio inflows in column (3), and gross other inflows in column (4). Robust standard errors appear in parentheses below each coefficient estimate. Countries include Argentina, Brazil, Chile, China, Colombia, Croatia, Egypt, Hungary, India, Indonesia, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey, and Uruguay. FDI = foreign direct investment; G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; VIX = Chicago Board Options Exchange Volatility Index.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

to negative commodity supply shocks have a larger estimated association with capital flows (than those attributable to demand), but this effect is uncertain and thus not statistically significant.

Upon disaggregating gross capital inflows into foreign direct investment, portfolio, and "other" flow components, the roles of global risk aversion and U.S. monetary policy become evident for portfolio flows specifically. The role for the demand component of commodity prices appears to be strongest for 'other' flows, which primarily reflect cross-border bank lending. It could be possible, therefore, that demand-related increases in commodity prices expand trade-related activities, and thus demand for external finance (for example, to finance investment, as seen in Box 4.2), at the same time that higher collateral values permit foreign banks to expand credit supply.

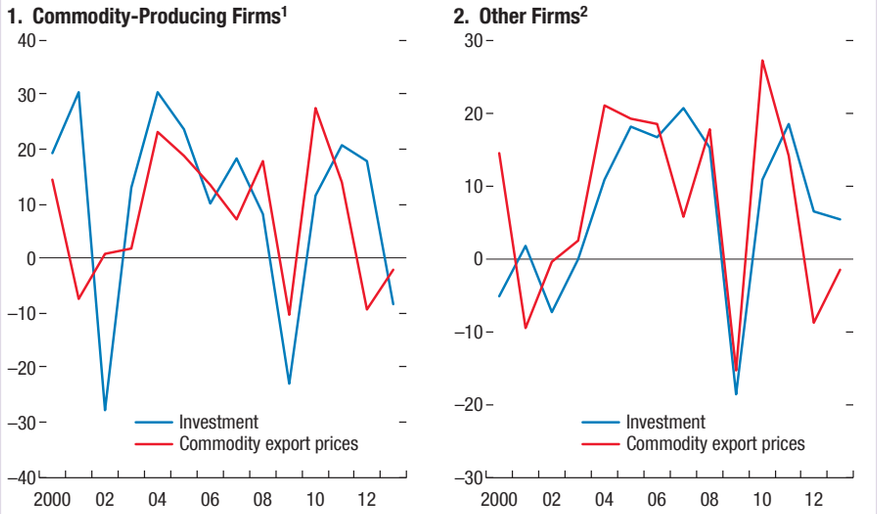
Therefore, there seems to be a cyclical pattern of capital flows to emerging market economies that is common between these economies. This cyclical pattern is highly correlated with global commodity prices, and evidence suggests two plausible, related interpretations of the importance of commodity prices. Commodity prices seem to behave in a way that reflects the global financial cycle, especially in the 2000s, and their role in explaining capital flows derives from their role as a high-frequency indicator of global aggregate demand.

Box 4.2. Commodity Prices and Investment in Commodity and Noncommodity Sectors

This box further explores possible underlying mechanisms through which commodity prices play an important role in determining capital flows to emerging market economies. In Latin America, the estimated effect of commodity prices appears so strong in the panel data analysis that it dominates other explanatory factors, including domestic growth. Turning to more disaggregated data, one can try to understand this finding better by examining whether sectors directly affected by changing commodity prices react similarly to or differently from other sectors. Specifically, it seems natural to ask whether the capital flows that accompany changes in commodity prices primarily affect capital accumulation in commodity-producing sectors. Or does capital accumulation respond similarly across other sectors to changes in commodity prices? This would help explain the role of *direct* effects (such as changes in firm profitability) versus more *indirect* or *spillover* effects (such as changes in market sentiment) that may accompany commodity price changes as they pertain to effects on capital flows.

Figure 4.2.1 provides clear evidence of comovement between firm-level investment growth and country-specific commodity export price changes for publicly listed firms in six Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico, and Peru).[1] Panel 1 of Figure 4.2.1 shows that investment growth tracks the growth rate in export-related commodity prices for the median agricultural and mining firm. Panel 2 of Figure 4.2.1 shows a similar, albeit slightly less volatile, pattern in the investment growth of all other firms. Broadly speaking, investment in the two groups of firms seems to respond similarly to changes in commodity prices.

Figure 4.2.1. Growth in Investment and Commodity Export Prices
(Percent change)



Sources: Thomson Reuters Worldscope; and IMF staff calculations.
[1]Countries include Argentina, Brazil, Chile, Colombia, Mexico, and Peru. Standard Industrial Classification codes include 01–09 (agriculture) and 10–14 (mining).
[2]Countries include Argentina, Brazil, Chile, Colombia, Mexico, and Peru. Standard Industral Classification codes include 15–99.

This box was prepared by Galen Sher.

[1]Analogous charts for non–Latin American emerging markets, and for all emerging markets, show a similar degree of comovement between investment and commodity prices.

Box 4.2 *(continued)*

Table 4.2.1. Results from Estimating the Free Parameters in the Investment Equation 4.2.1 by Fixed Effects on Firms Domiciled in the LA6 Countries

Variable	Parameter	(1)	(2)
$Q_{i,t}$	α	1.56***	1.55***
		(0.310)	(0.310)
$\frac{\pi_{i,t}}{K_{i,t-1}}$	β	0.58	0.58
		(0.675)	(0.675)
$\frac{D_{i,t}}{E_{i,t}}$	λ	−4.43***	−4.42***
		(0.706)	(0.705)
$\frac{IE_{i,t}}{D_{i,t-1}}$	ρ	3.88	3.98
		(4.724)	(4.723)
$\frac{\Delta D_{i,t}}{K_{i,t-1}}$	δ	0.16	0.15
		(0.142)	(0.141)
year t	θ	−0.17***	−0.16***
		(0.060)	(0.059)
$P^x_{i,t}$	κ	0.05***	0.04***
		(0.013)	(0.014)
$P^x_{i,t}X_i$	μ		0.04
			(0.040)
Number of observations		4,651	4,650
Number of firms		763	762

Source: IMF staff calculations.
Note: Standard errors that are robust to within-firm heteroscedasticity and serial correlation appear in parentheses below each coefficient estimate.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

To investigate the association between investment and commodity prices more systematically, we estimate the free parameters $\alpha, \beta, \lambda, \rho, \delta, \kappa, \mu$ and θ in the specification

$$100 \times \frac{I_{i,t}}{K_{i,t-1}} = \alpha Q_{i,t} + \beta \frac{\pi_{i,t}}{K_{i,t-1}} + \lambda \frac{D_{i,t}}{E_{i,t}} + \rho \frac{IE_{i,t}}{D_{i,t-1}} + \delta \frac{\Delta D_{i,t}}{K_{i,t-1}} + \kappa P^x_{i,t} + \mu P^x_{i,t} X_i + \theta t + c_i + u_{i,t} \quad (4.2.1)$$

for each firm-year observation (i,t). In this specification, I denotes investment in fixed capital; K denotes the capital stock, Q denotes the ratio of market capitalization to book value of equity (a proxy for Tobin's q), $\boldsymbol{\pi}$ denotes net profit, D denotes the book value of debt, E denotes the book value of equity, IE denotes interest expense, P^x denotes the commodity export price in the firm's domicile country, X is an indicator variable equal to one if the firm is in the agriculture or mining industries and zero otherwise, θt allows for the possibility of a linear time trend, and $c_i + u_{i,t}$ is an error term that reflects firm-specific and idiosyncratic components. The parameter κ measures the extent of comovement between investment and commodity prices, while the parameter μ measures the difference in this comovement between commodity-producing firms and other firms.

Table 4.2.1 shows estimates of the parameters in equation (4.2.1) for firms in LA6 countries. Column (1) shows a version with the restriction $\mu = 0$. The estimates here are very similar to those obtained in Chapter 4 of the April 2015 *Regional Economic Outlook: Western Hemisphere* and Magud and Sosa (2015). In particular, we see a strong role for Tobin's q in explaining investment.

Allowing for different investment responses in commodity and noncommodity sectors, column (2) of Table 4.2.1 shows the estimation results when we allow μ to be unrestricted. Similar to Figure 4.2.1, we see evidence for a positive association between commodity prices and investment ($\kappa > 0$). This positive association also holds for noncommodity-producing firms, suggesting important spillover effects between

Box 4.2 *(continued)*

sectors. In addition, column (2) shows that the coefficient μ on the interaction term between commodity export prices and the indicator variable of commodity production is not statistically significant. This indicates that higher commodity prices lead to higher investment by both commodity producers and other firms in a similar fashion.

Annex 4.1. Technical Details

Investor Base and Domestic Financial Market Measures

In an attempt to quantify the characteristics of the investor base as well as those of the domestic financial markets, we use the variables defined below:

Foreign participation in domestic debt markets is defined as the share of domestic debt instruments held by nonresidents out of total domestic debt instruments, as computed by Arslanalp and Tsuda (2014).

Domestic market capitalization is defined as the ratio of total domestic market capitalization to the country's nominal GDP. This measure was obtained from the World Bank's Global Financial Development Database (GFDD), computed following Cihak and others (2012).

The presence of domestic pension funds is defined as the ratio of total assets under management of domestic pension funds to the country's total financial sector assets. This measure was also derived using the GFDD.

An *exchange rate flexibility* index, produced by Aizenman, Chinn, and Ito (2010), was used. A high score relates to a fixed exchange rate regime, and a low score relates to a more flexible exchange rate arrangement.

A *capital account openness* indicator, also derived by Aizenman, Chinn, and Ito (2010), takes the value of one for countries deemed to be relatively open and zero for those that are relatively closed.

Interacted Panel Vector Autoregression

An interacted panel vector autoregression (IPVAR) model is used to explore how the impulse response of capital inflows to external shocks depends on the characteristics of the investor base and of domestic financial markets. Algebraically, a panel VAR estimation model can be written as

$$\begin{bmatrix} \boldsymbol{y} \\ \boldsymbol{X} \end{bmatrix}_{i,t} = A_0 + \sum_{j=1}^{L} \boldsymbol{A}_j \begin{bmatrix} \boldsymbol{y} \\ \boldsymbol{X} \end{bmatrix}_{i,t-j} + \begin{bmatrix} \boldsymbol{\epsilon}^{\boldsymbol{y}} \\ \boldsymbol{\epsilon}^{\boldsymbol{X}} \end{bmatrix}_{i,t},$$

where vectors $\boldsymbol{y}$ and $\boldsymbol{X}$ contain the country-specific and global variables, respectively, for country i at time t; the $\boldsymbol{A}_j$'s are (restricted) matrices of coefficients to be estimated;[1] and $\boldsymbol{\epsilon}^{\boldsymbol{y}}$ and $\boldsymbol{\epsilon}^{\boldsymbol{X}}$ are vectors containing the error terms.

In this model setup, $\boldsymbol{y}$ includes the capital flow measure, in percent of trend GDP, and the differential between domestic growth and global growth. $\boldsymbol{X}$ includes the measure of global commodity prices, the VIX, G7 real GDP growth, and the identified monetary shock to U.S. interest rates from Osorio Buitron and Vesperoni (2015). The variables in $\boldsymbol{X}$ are exogenous in relation to the variables in $\boldsymbol{y}$ (that is, the restriction in $\boldsymbol{A}_j$ ensures the block exogeneity of the variables in $\boldsymbol{X}$). The shock identification relies on Cholesky decomposition.[2]

In a standard panel VAR setting, the coefficients in the $\boldsymbol{A}_j$'s matrices remain constant over time and across countries. By contrast, in the IPVAR setting, the coefficients in the $\boldsymbol{A}_j$'s are functions of country-specific characteristics (for example, the investor base and domestic market measures) that can also vary over time. More precisely, for each country i characterized by a vector of investor base measures $\boldsymbol{F}_{i,t}$ at time t, the coefficients inside the $\boldsymbol{A}_j$'s are defined by $a_{i,t} = c + \boldsymbol{\gamma}' \boldsymbol{F}_{i,t}$, where c and $\boldsymbol{\gamma}$ are parameters estimated by the IPVAR framework.

[1]The coefficients in the $\boldsymbol{A}_j$'s corresponding to the effect of lags of $\boldsymbol{y}$ on $\boldsymbol{X}$ are set to zero to reflect the exogeneity of the variables included in $\boldsymbol{X}$.

[2]Broadly similar results are obtained using alternative ordering of the exogenous variables.

Annex Table 4.1. Estimation Results: Core Specification Model for Gross Inflows, 2000–16

	Core Model			
	LA5	LA7	OEM	EMs
First Stage: Cyclical Variables				
Global Factors				
VIX (log)	1.230	0.987	0.795	0.692
	(0.862)	(1.077)	(1.359)	(0.946)
G7 real GDP growth (year over year)	0.509**	0.368*	−0.067	0.070
	(0.171)	(0.166)	(0.442)	(0.297)
U.S. short-term interest rates	−0.083	0.214	1.129	0.799*
	(0.127)	(0.314)	(0.645)	(0.446)
Global commodity price (log)	4.182***	4.458**	4.918***	4.434***
	(0.387)	(1.354)	(1.261)	(0.973)
Country-Specific Factors				
Real GDP growth differential (lagged)	0.055	0.073	0.560***	0.419***
	(0.116)	(0.096)	(0.118)	(0.116)
Short-term interest rate differential (lagged)	−0.070	−0.080	0.026	−0.018
	(0.129)	(0.079)	(0.071)	(0.058)
Constant	−18.141**	−19.244	−24.244**	−20.458***
	(4.352)	(10.425)	(9.338)	(7.024)
Second Stage: Structural Variables				
Country-Specific Factor				
Government effectiveness	1.253***	1.949***	3.192***	2.729***
	(0.037)	(0.111)	(0.215)	(0.145)
Regulatory quality	1.412***	2.024***	4.743***	3.493***
	(0.031)	(0.068)	(0.164)	(0.109)
Control of corruption	1.069***	1.596***	4.471***	2.593***
	(0.015)	(0.061)	(0.197)	(0.112)
Rule of law	1.005***	1.578***	4.159***	2.785***
	(0.017)	(0.068)	(0.185)	(0.113)
Law and order	0.554***	0.485***	1.728***	0.982***
	(0.018)	(0.062)	(0.111)	(0.068)
Voice and accountability	1.380***	1.763***	3.054***	2.615***
	(0.055)	(0.130)	(0.122)	(0.095)
Political stability	0.624***	0.650***	3.063***	2.209***
	(0.042)	(0.082)	(0.094)	(0.075)
Political risk	0.070***	0.094***	0.253***	0.210***
	(0.004)	(0.010)	(0.011)	(0.008)
Institutionalized democracy	0.011**	0.016*	0.137***	0.087***
	(0.005)	(0.009)	(0.016)	(0.011)
Polity synthetic index	0.483***	0.781***	0.332***	0.317***
	(0.032)	(0.056)	(0.019)	(0.016)
Corporate tax rate	−0.115***	−0.190***	−0.356***	−0.279***
	(0.004)	(0.009)	(0.013)	(0.009)
Credit rating	0.494***	0.752***	0.571***	0.628***
	(0.037)	(0.051)	(0.110)	(0.071)
Observations	322	440	872	1,312
R-squared (first stage)	0.480	0.385	0.141	0.151
R-squared interquartile range (second stage)	0.424–0.826	0.162–0.520	0.214–0.434	0.193–0.374
Number of countries	5	7	15	22

Source: IMF staff calculations.

Note: Robust standard errors in parentheses. The Polity synthetic index measures how democratic a country is. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; LA5 = Brazil, Chile, Colombia, Mexico, Peru; LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay; OEM (other emerging markets) = China, Croatia, Egypt, Hungary, India, Indonesia, Morocco, Malaysia, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey; EMs = emerging markets; VIX = Chicago Board Options Exchange Volatility Index.

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Annex Table 4.2. Estimation Results: Alternative Specifications for Capital Inflows, Fixed Effects, 2000–16

	Core Model		VIX		VIX and Commodity Prices		Domestic Growth Differential		Domestic Growth Differential and Commodity Prices	
	LA5	OEM	LA5	OEM	LA5	OEM	LA5	OEM	LA5	OEM
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Global Factors										
VIX (log)	1.230	0.795	−1.461**	−1.025	−0.212	−0.374				
	(0.862)	(1.359)	(0.518)	(1.556)	(0.650)	(1.476)				
G7 real GDP growth (year	0.509**	20.067								
over year)	(0.171)	(0.442)								
U.S. short-term interest rates	−0.083	1.129								
	(0.127)	(0.645)								
Global commodity price (log)	4.182***	4.918***			4.024***	2.566**			3.989***	2.641***
	(0.387)	(1.261)			(0.567)	(0.919)			(0.410)	(0.832)
Country-Specific Factor										
Real GDP growth differential	0.055	0.560***					0.333**	0.633***	0.032	0.634***
(lagged)	(0.116)	(0.118)					(0.100)	(0.096)	(0.070)	(0.119)
Short-term interest rate	20.070	0.026								
differential (lagged)	(0.129)	(0.071)								
Constant	−18.141**	−24.244**	9.968***	7.938	−12.733**	−6.203	4.946***	3.110***	−13.261***	−9.469**
	(4.352)	(9.338)	(1.535)	(4.594)	(4.369)	(5.220)	(0.208)	(0.272)	(1.959)	(3.818)
Observations	322	872	328	872	328	872	328	872	328	872
R-squared	0.480	0.141	0.031	0.002	0.389	0.023	0.082	0.056	0.389	0.079
Number of countries	5	15	5	15	5	15	5	15	5	15

Source: IMF staff calculations.

Note: Robust standard errors in parentheses. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; LA5 = Brazil, Chile, Colombia, Mexico, Peru; OEM (other emerging markets) = China, Croatia, Egypt, Hungary, India, Indonesia, Morocco, Malaysia, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey; VIX = Chicago Board Options Exchange Volatility Index.

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Annex Table 4.3. Estimation Results for Foreign Direct Investment and Portfolio Inflows, 2000–16

	Gross FDI Inflows			Gross Portfolio Inflows		
	LA5	LA7	OEM	LA5	LA7	OEM
First Stage: Cyclical Variables						
Global Factors						
VIX (log)	0.102	0.325	1.006	−0.338	−0.300	−0.938***
	(0.560)	(0.399)	(0.980)	(0.401)	(0.525)	(0.227)
G7 real GDP growth (year over year)	0.001	−0.017	−0.444	0.282**	0.264***	0.343***
	(0.068)	(0.064)	(0.334)	(0.064)	(0.049)	(0.109)
U.S. short-term interest rates	0.022	0.134	0.647	−0.316**	−0.030	−0.001
	(0.073)	(0.101)	(0.397)	(0.109)	(0.210)	(0.093)
Global commodity price (log)	1.493*	1.508**	2.100	1.206*	2.140**	1.252***
	(0.594)	(0.527)	(1.196)	(0.446)	(0.711)	(0.390)
Country-Specific Factors						
Real GDP growth differential (lagged)	0.006	0.034	0.035	0.051	−0.054	0.087*
	(0.102)	(0.063)	(0.084)	(0.033)	(0.055)	(0.049)
Short-term interest rate differential (lagged)	0.075	0.006	−0.005	−0.023	−0.017*	0.017
	(0.078)	(0.020)	(0.014)	(0.083)	(0.009)	(0.021)
Constant	−3.792	−4.600	−10.369	−2.933	−7.968	−2.889
	(3.094)	(2.630)	(8.444)	(2.668)	(4.673)	(1.773)
Second Stage: Structural Variables						
Country-Specific Factor						
Government effectiveness	2.214***	2.351***	2.184***	0.400***	0.812***	1.304***
	(0.087)	(0.084)	(0.136)	(0.025)	(0.073)	(0.044)
Regulatory quality	2.670***	2.140***	2.940***	0.521***	1.119***	1.278***
	(0.064)	(0.052)	(0.109)	(0.021)	(0.041)	(0.040)
Control of corruption	1.965***	1.677***	2.609***	0.287***	0.639***	1.378***
	(0.043)	(0.050)	(0.132)	(0.020)	(0.047)	(0.044)
Rule of law	1.825***	1.794***	2.734***	0.267***	0.628***	1.145***
	(0.047)	(0.048)	(0.116)	(0.020)	(0.049)	(0.045)
Law and order	1.093***	0.990***	0.858***	0.210***	0.193***	−0.062*
	(0.032)	(0.044)	(0.075)	(0.010)	(0.037)	(0.032)
Voice and accountability	2.438***	1.925***	1.285***	0.315***	0.512***	0.947***
	(0.120)	(0.118)	(0.093)	(0.036)	(0.085)	(0.026)
Political stability	1.062***	0.718***	1.820***	0.126***	0.104**	0.638***
	(0.085)	(0.078)	(0.065)	(0.022)	(0.050)	(0.029)
Political risk	0.121***	0.117***	0.160***	0.024***	0.035***	0.055***
	(0.009)	(0.009)	(0.007)	(0.002)	(0.006)	(0.003)
Institutionalized democracy	0.015	0.014	0.048***	0.001	0.001	0.062***
	(0.009)	(0.009)	(0.011)	(0.002)	(0.005)	(0.004)
Polity synthetic index	0.956***	0.806***	0.088***	0.184***	0.320***	0.113***
	(0.060)	(0.053)	(0.014)	(0.014)	(0.035)	(0.004)
Corporate tax rate	−0.219***	−0.229***	−0.187***	−0.047***	−0.097***	−0.010**
	(0.007)	(0.006)	(0.009)	(0.002)	(0.006)	(0.005)
Credit rating	0.904***	0.788***	0.643***	0.223***	0.486***	0.233***
	(0.073)	(0.048)	(0.068)	(0.015)	(0.027)	(0.028)
Observations	322	440	872	322	440	872
R-squared (first stage)	0.176	0.174	0.071	0.388	0.307	0.192
R-squared interquartile range (second stage)	0.350–0.796	0.331–0.728	0.122–0.382	0.271–0.489	0.073–0.327	0.191–0.515
Number of countries	5	7	15	5	7	15

Source: IMF staff calculations.

Note: Robust standard errors in parentheses. The Polity synthetic index measures how democratic a country is. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; LA5 = Brazil, Chile, Colombia, Mexico, Peru; LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay; OEM (other emerging markets) = China, Croatia, Egypt, Hungary, India, Indonesia, Morocco, Malaysia, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey; VIX = Chicago Board Options Exchange Volatility Index.

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

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5. Migration and Remittances in Latin America and the Caribbean: Macroeconomic Stabilizers and Engines of Growth?

Migration from and remittance flows to Latin America and the Caribbean (LAC)—usually with the United States as the host economy—have major economic and social ramifications for the migrants' home countries. This chapter examines recent trends in outward migration from and remittances to LAC, as well as their costs and benefits. Outward migration in isolation may lower growth in home countries through reduced labor supply and productivity, but the remittances sent home by migrant workers serve as a mitigating factor, both by serving as a large and relatively stable source of external financing, notably in Central America and the Caribbean, and by helping cushion the impact of economic shocks. However, the region's dependence on remittances primarily from the United States can pose risks to macroeconomic stability for cyclical reasons and, more importantly, from possible changes to immigration-related policies. Targeted reforms in home countries can help reduce outward migration and the attendant adverse consequences. In particular, structural reforms, aimed at leveraging the pool of high-skilled and highly educated workers to foster economic diversification at home would likely reduce "brain drain." Similarly, given the key financing and stabilizing roles played by remittances, policies aimed at reducing transaction costs and promoting the use of formal channels of intermediation merit support.

Migration and remittances can have profound effects on human welfare and economic development. Economic migration reflects people's desire to improve their own and their families' wellbeing. As migrants find higher paying jobs abroad, productivity likely rises at a global level. Likewise, the remittances migrants send home can also improve the standard of living, health, and education of the often poor recipient households. However, for others in the home country, the impact of outward migration can be less benign because the departure of people of prime working age, who may be relatively well educated, can weaken the country's economic base.

Outward migration has been an important phenomenon for countries in LAC, particularly those in Central America and the Caribbean. In these two subregions, emigrants account for about 10 percent or more of the population—compared with about 2 percent, on average, for the group of emerging market and developing economies as a whole—and they remit substantial funds, averaging about 8 percent of GDP, to support family members back home.

Given their importance for the region, this chapter examines recent trends in migration and remittances, as well as the costs and benefits of these flows. Does the loss in population associated with emigration hurt economic growth? Do remittances compensate for this loss and function as engines of growth? Are remittances macroeconomic stabilizers and do they help reduce poverty and inequality? This study offers qualified positive answers to each of these questions. The analysis focuses only on the consequences for countries in LAC from where the migrants originate and not on the effects on migrants' host countries.

The results presented in this chapter underscore the profound and multifaceted implications of migration and remittances for the LAC region. While emigration may reduce real per capita economic growth (as a result of the decline in labor resources and productivity), remittances can support investment and education and foster commercial linkages. The analysis in this chapter indicates that the negative impact of emigration on real per capita growth seems to outweigh growth gains from remittances, notably for the Caribbean. However, on the positive side, in both Central America and the Caribbean, remittances are important macroeconomic stabilizers. They

This chapter was prepared by a team led by Jan Kees Martijn and comprised of Kimberly Beaton, Svetlana Cerovic, Misael Galdamez, Metodij Hadzi-Vaskov, Franz Loyola, Zsoka Koczan, Bogdan Lissovolik, Yulia Ustyugova, and Joyce Wong. The analytical results presented in this chapter are described in greater detail in Beaton and others (forthcoming).

are one of the most important sources of external financing, facilitate a smoothing of private consumption, and help boost financial sector soundness and fiscal performance. Since lower-income households are more likely to receive remittances, these flows also function as a channel for reducing poverty and inequality. Mexico stands out as a special case, as it is the largest source of immigrants into the United States and an important hub for migrants from Central America. In contrast, for most South American countries, emigration and remittances are less material and do not appear to act as macroeconomic stabilizers. Even for those countries in South America that have seen substantial outward migration, remittances tend to be relatively modest, and this analysis does not reveal significant macroeconomic effects. Labor market developments and changes to immigration and remittance policies in host countries can have a significant impact. Because the majority of emigrants from Central America, Mexico, and the Caribbean live in the United States, large shifts in its economic cycle and policies could have particularly far-reaching regional repercussions.

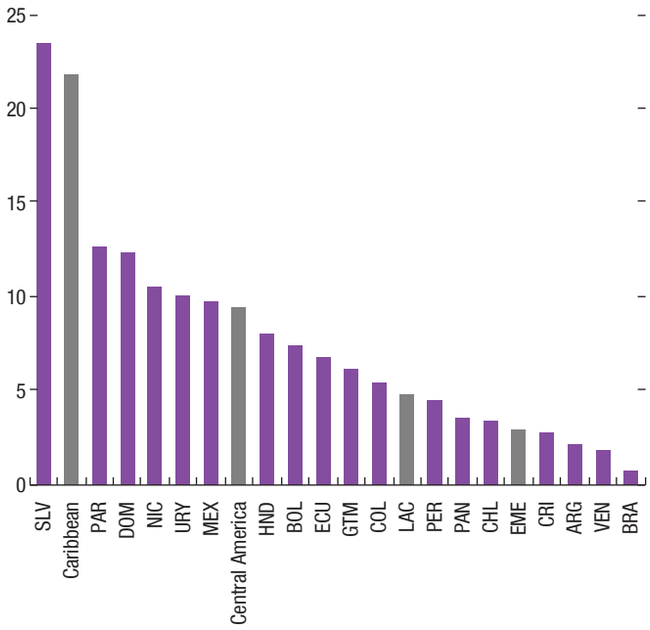
The chapter begins by reviewing the patterns of migration and remittances in LAC. The analysis leverages the U.S.-centric nature of the region's emigration patterns, and the availability of micro data for this country, to examine the characteristics of emigrants and remittance senders. This is followed by an analysis of the impact of emigration and remittances on per capita growth and macroeconomic stability. Finally, the chapter considers the risks of dependence on remittances and concludes with policy considerations.

Migration and Remittances at a Glance

The stock of LAC emigrants (as a share of the home country population) is among the highest globally (Figures 5.1 and 5.2).[1] Starting in the

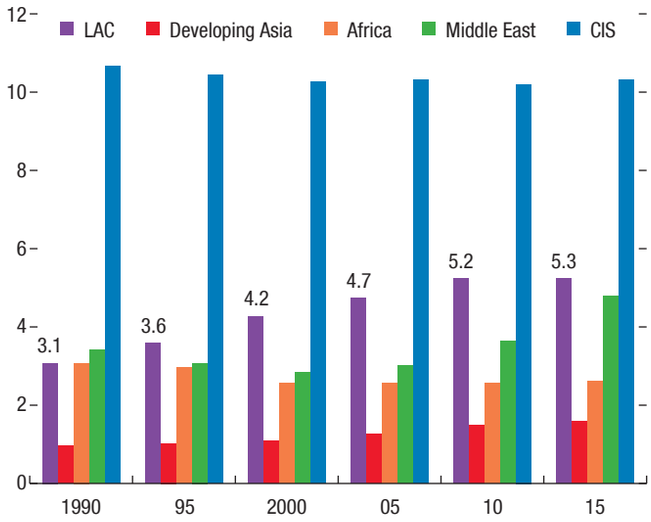
[1]Data on migration is from the United Nations Population Division migration statistics. The data are based on migrant stock data collected from national population censuses. Although the

Figure 5.1. Emigrants, Latin America and the Caribbean and Emerging Market Economies, 2015
(Percent of total population)



Sources: United Nations Population Division, International Migrant Stock database; and IMF staff calculations.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137. EME = emerging market economies.

Figure 5.2. Emigrants, by World Region
(Percent of population)

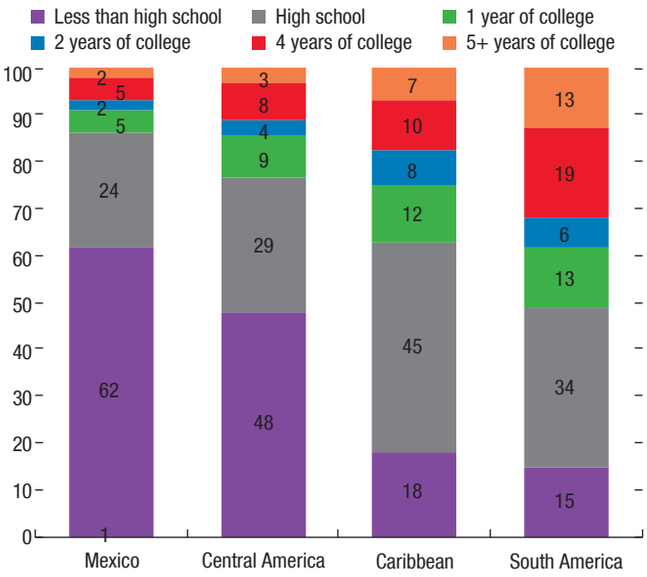


Sources: United Nations Population Division, International Migrant Stock database; and IMF staff calculations.
Note: CIS = Commonwealth of Independent States; LAC = Latin America and the Caribbean.

1960s, emigration to countries offering better economic opportunities has been an important phenomenon for LAC. Emigration has also resulted from violent conflict in several countries, in particular in Central America, through the 1990s and subsequent deterioration in the security situation. Emigration has been particularly significant for the Caribbean, where about one-fifth of the population lives abroad, as well as for countries in Central America, Panama, and the Dominican Republic (CAPDR) and Mexico, where emigrants represent about 10 percent of the population in both instances. Emigration from countries in South America, by contrast, has been more limited, averaging about 2½ percent of the subregion's population. However, some South American countries such as Paraguay and Uruguay have sizeable emigrant populations living abroad that represent more than 10 percent of their populations. Among other South American countries, Bolivia, Colombia, and Ecuador also have sizable emigrant populations.

Emigration from LAC has featured both South-North migration and, especially within South America, intraregional migration. About two-thirds of all LAC migrants reside in the United States, although Canada has the highest share of LAC immigrants as part of its population. Almost all emigrants from Mexico and four out of five emigrants from CAPDR live in the United States, while the profile of Caribbean migrants is more diverse (with slightly more than half residing in the United States) given the importance of their emigration to Canada and Europe. Within South America, important destinations for migrants have been Argentina (in particular, from Bolivia, Chile, Paraguay, and Uruguay) and, especially during the 1970s, Venezuela (notably, from Colombia). Since the economic crisis of the 1980s, migration from South America to other regions has become more important—in particular to the United States and—reflecting historical and linguistic ties—to Spain.[2] In addition, in recent years, Chile and Colombia have become notable destinations.

Figure 5.3. Migrant Educational Attainment on Entry to the United States
(Percent of migrants with educational level)



Sources: 2008 American Community Survey; and IMF staff calculations.

Who are these emigrants? Micro data from the American Community Survey provide a profile of LAC immigrants in the United States (Annex 5.1).[3] While immigrants typically enter the United States in their early 20s, immigrants from Mexico and CAPDR countries tend to be younger and have lower levels of education compared with those from South America and the Caribbean (Figure 5.3). Of the latter groups, 40 percent or more have attended college (or beyond). Brain drain is a particular challenge for the Caribbean (Box 5.1). Emigrants from Mexico and CAPDR are also more likely to be undocumented, and much less likely to become U.S. citizens than those from the Caribbean and South America.[4] There is evidence of family reunification for emigrants into the United States from CAPDR and Mexico.[5]

methodology may differ to some extent across countries, in principle the data include both legal and illegal migrants.

[2]See OAS (2011) for an overview of these migration patterns.

[3]For South American, and to a lesser extent Caribbean, migrants, these data may not be fully reflective of their characteristics given the more diverse destination pattern.

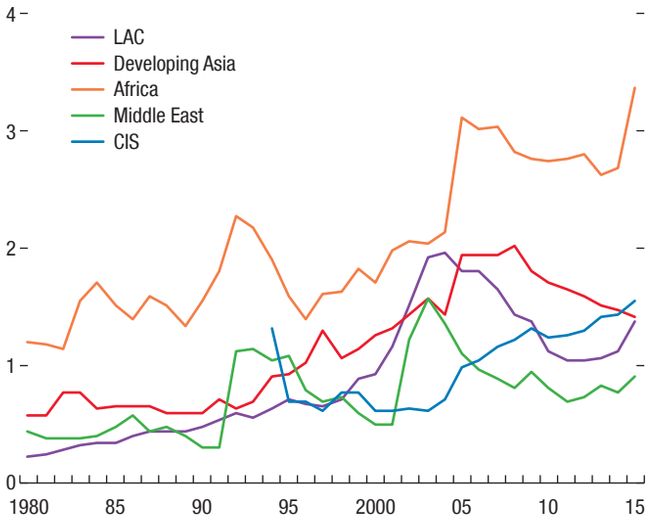
[4]For more detail, see Beaton and others (forthcoming).

[5]Evidenced by the finding that the proportion of households in which the head is married but the head's spouse is absent declines with the age of the head of the household. See Beaton and others (forthcoming).

Figure 5.4. Average Migrant Wages in the United States
(In 2014 U.S. dollars; migrants who entered after age 22)

Sources: 2008 American Community Survey; and IMF staff calculations.

Figure 5.5. Remittances, by World Region
(Percent of regional GDP)



Sources: IMF, World Economic Outlook database; World Bank Development Indicators database; and IMF staff calculations.
Note: CIS = Commonwealth of Independent States; LAC = Latin America and the Caribbean.

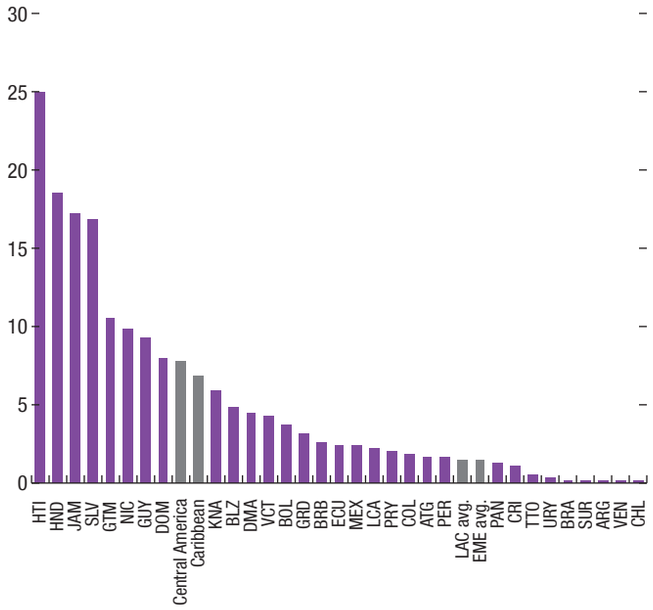
With lower levels of education on average, emigrants from Mexico and CAPDR tend to work in lower-skilled occupations. Their employment is concentrated in construction, maintenance, transportation, production, and food preparation, while emigrants from South America and the Caribbean tend to be employed in office and administration, sales, management, and health-related occupations. The higher-skilled immigrants from South America and the Caribbean also earn more: their hourly wages are almost 60 percent higher, on average, than those of immigrants from Mexico and CAPDR (Figure 5.4).

LAC emigrants have maintained strong connections with their home countries, sending home sizable remittances, reaching 1.4 percent of regional output in 2015 (Figure 5.5). As a share of GDP, remittance flows to CAPDR and Caribbean countries dwarf those received by their South American neighbors, consistent with their larger migrant stocks, and also far exceed those received by Mexico (one of the largest recipients worldwide in nominal terms) and emerging market economies on average.[6] In four countries—El Salvador, Haiti, Honduras, and Jamaica—remittances exceed 15 percent of GDP (Figure 5.6).

The remitting behavior of LAC immigrants in the United States varies with their demographic characteristics. About a third of LAC immigrants send remittances to their home countries. This share is somewhat higher for CAPDR and falls with age. The likelihood of remitting does not appear to relate to the immigrant's income. Not surprisingly, immigrants who are married but with an absent spouse are the most likely to remit. On average, LAC immigrants who remit send about US$2,500 to their families on an annual basis. Conditional on remitting, immigrants in the United States with lower levels of education and income tend to remit more as a share of their income, while immigrants from the Caribbean

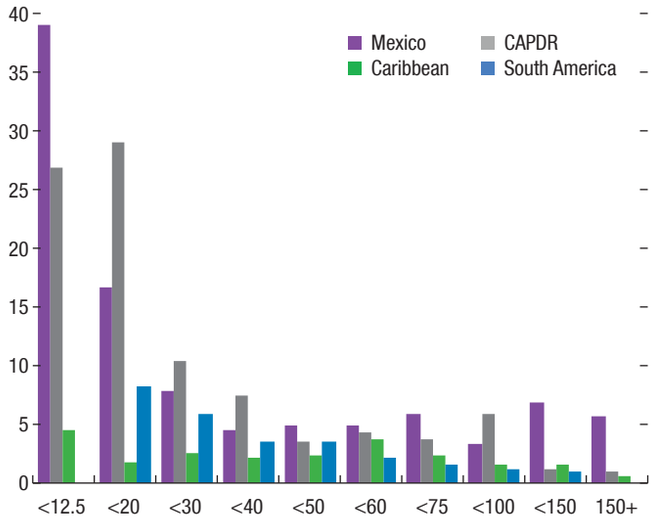
[6]Even for South American countries that have sizeable emigrant populations, remittances are very low compared to CAPDR countries with comparable emigrant populations.

Figure 5.6. Remittances, Latin America and the Caribbean and Emerging Market Economies, 2015
(Percent of GDP)



Source: IMF, World Economic Outlook database; World Bank Development Indicators database; and IMF staff calculations.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137. LAC = Latin America and the Caribbean; EME = emerging market economy.

Figure 5.7. Amounts Remitted by Migrants in the United States as a Percent of Income
(Conditional on remitting; income in 2000 U.S. dollars)



Sources: 2008 American Community Survey; and IMF staff calculations.
Note: CAPDR = Central America, Panama, and the Dominican Republic.

send home much less than those from Central America (Figure 5.7).

Remittances to the region peaked at about 2 percent of regional output before the global financial crisis. With LAC migrants residing mainly in the United States, the epicenter of the crisis, remittances fell precipitously during and in the aftermath of the crisis—more so than in other parts of the world. Emigrants from Mexico and CAPDR were particularly hard hit by the global financial crisis because the crisis had a notably profound effect on the industries in which they have traditionally been employed, sharply lowering remittances into these countries. Remittances to the region have subsequently begun to recover but still remain well below their precrisis peak.

The fees for sending remittances are substantial, reducing the amount of money received by emigrants' families (Box 5.2). Most remittances are deposited and received in cash through either money or value transfer service operators or banks. Money transfer operators, of which the largest are Western Union and MoneyGram, provide the dominant channel through which migrants send remittances, with a market share of more than 80 percent of remittances channels in LAC.[7]

Estimating the Impact of Migration and Remittances on Growth

What is the impact of emigration and the associated receipt of remittances on the population remaining in the home country? Overall, the empirical results detailed below suggest that outward migration has a negative effect on per capita growth in LAC countries, while remittances seem to pull in the other

[7]However, these data from the World Bank's global data set, the Remittance Prices Worldwide database, do not take into consideration the amount of remittances transacted on each channel, which would better reflect the relative usage.

direction. The net effect of migration and remittances on growth tends to be negative for the Caribbean, but the impact is less clear-cut for other country groupings. On the one hand, emigration is likely to have a negative effect on growth in the home country because the departure of people of working age reduces the labor force. This loss could be significant if there is brain drain given that the loss of high-skilled workers could impose negative externalities for the broader economy, including less scope for innovation. Accordingly, the negative effects of emigration would likely be most pronounced in the Caribbean and South America, which tend to have relatively large shares of high-skilled emigrants. The receipt of remittances could also aggravate the decline in labor supply as recipients substitute labor income with remittance income. On the other hand, remittances could have a positive effect on growth by providing financial resources for investment and education and through migrant networks that can foster trade and investment.[8] Such positive effects would likely be largest in Mexico and CAPDR, which receive the most remittances as a share of GDP.

It is difficult to empirically estimate the effect of emigration and remittances on per capita growth. The existing literature has mostly focused on the role of remittances, and is inconclusive.[9] This chapter, in contrast, aims to estimate the net effect of both emigration and remittances on growth. In any case, two-way causality poses a serious problem. Emigration and remittances could respond to economic conditions as well as affect them (in line with the channels described above). Simple ordinary least squares panel regressions would overlook this two-way causality. To mitigate such concerns, the impact of migration and remittances on real per capita GDP growth is also estimated using an instrumental variables approach.[10,11]

As expected, the estimation results suggest that outward migration, taken separately, has a negative effect on growth, and this impact seems most pronounced in the subregions experiencing brain drain (Annex Table 5.2.1). Remittances seem to have positive (though not always statistically significant) growth effects, which are largest in the high-remittance-receiving subregions. However, these separate effects are difficult to quantify with precision given that migration and remittances are highly correlated (in particular, remittances cannot occur without migration). Furthermore, estimates for South America conceal a large degree of heterogeneity within this subregion: while emigration and remittances have limited importance for some countries, Paraguay and Uruguay have large stocks of emigrants, and remittances are significant for Bolivia and Ecuador. However, restricting the sample to these four countries does not materially change the estimation results (not shown).

[8]For example, Edwards and Ureta (2003) find that remittances have a significant positive impact on schooling retention in El Salvador.

[9]For earlier studies on the impact of migration or remittances on growth, see, for example, Barajas and others (2008).

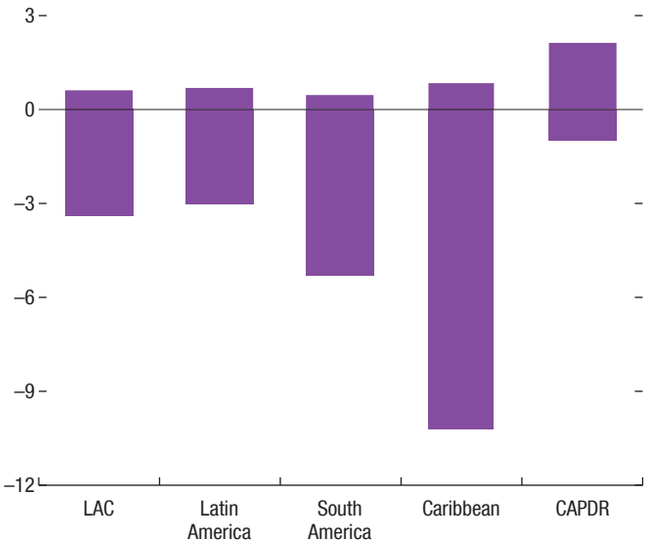
[10]A similar approach is followed in all subsequent sections, with the exception of the section on consumption risk-sharing.

[11]Regressions are estimated on the period 1980–2015 (unbalanced sample). The ordinary least squares regressions include country fixed effects to account for any time-invariant unobservable country characteristics (as well as to mitigate concerns related to nonrandom missing data in the unbalanced panel, to the extent that this is related to time-invariant or slow-moving country characteristics). Regressions control for external conditions such as real GDP growth in the United States, other factors affecting growth such as foreign direct investment as a share of GDP, export growth, change in the terms of trade, and country risk and the stock of emigrants as a share of the home population. Results are robust to controlling for investment and lagged real GDP per capita. The endogenous variables here are remittances and migration, as well as government spending and money supply (M2) as a share of GDP. These are instrumented using their regional averages (excluding the country in question), the share of rural population, and unemployment in the destination countries. Although the instruments based on regional averages may not be strictly exogenous if the country itself is large relative to the region, this is unlikely to be a concern for most countries in the sample. Instrumental variables regressions are implemented using two-stage least squares and include country fixed effects but not time fixed effects as they include controls such as growth in the United States. First-stage F statistics exceed 10 for all specifications except the Caribbean, where sample sizes are particularly small. Specifications pass the test of overidentifying restrictions. Unfortunately, information on ages and skill levels of emigrants is not available for sufficiently long periods to be included in the regressions; cross-sectional variation in these factors would be mopped up by country fixed effects.

Emigration and remittances together appear to have had a small and ambiguous effect on real per capita GDP growth in the LAC region as a whole, but the effect has varied across subregions, likely reflecting the different characteristics of migrants. Figure 5.8 shows the estimated cumulative *joint* impact on growth of the actual increases in the stock of emigrants and in remittances over 2003–13, using the estimated coefficients and actual increases in the stocks of emigrants and in remittances for each of the subregions over this period. Given the complications from two-way causality, Figure 5.8 shows ranges rather than point estimates.[12] This joint or net effect has likely been negative for the Caribbean and South America, with the former experiencing large emigrant outflows and both regions characterized by brain drain and relatively smaller remittances receipts. However, the net impact appears small and possibly positive for CAPDR countries, which receive much higher remittances.[13]

To examine the net effect of emigration and remittances over the longer term, the same specification is estimated using five-year averages to allow for lag times and dynamic effects (Annex Table 5.2.2). These results suggest that although the ordering of the subregions remains similar, the net effect is more negative in the longer term. Accordingly, remittances (and migration) appear unlikely to act as drivers of durable growth.

Figure 5.8. Cumulative Net Effect of Migration and Remittances on Growth, 2003–13
(Percentage points of GDP)



Source: IMF staff calculations.
Notes: The net effect is based on coefficient estimates from fixed effects and instrumental variable regressions on changes in migrant stocks and remittances as a percent of GDP during 2003–13. LAC = Latin America and the Caribbean; CAPDR = Central America, Panama, and the Dominican Republic.

The Stabilizing Role of Remittances

Remittances are often seen as a source of economic stabilization, and this feature could offer important benefits for migrants' home countries even if emigration and remittances may, on balance, have unclear or negative net implications for growth. The analysis in this section suggests that remittances have indeed contributed to macroeconomic stabilization within the LAC region. Statistically significant beneficial effects are found especially for the Caribbean and CAPDR (Table 5.1), where they typically increase consumption smoothing, help generate fiscal revenues, and support financial stability, while

[12]The "true" joint effect of migration and remittances on per capita GDP growth is likely somewhere between the instrumented effects (which try to remove all reverse causality effects, but only pick up variation in the instruments) shown in Figure 5.8 as the bottom of the range and the ordinary least squares effects (which confound some of the true effect with reverse causality) corresponding to the top of the range.

[13]The effect is about zero for Mexico, but this result is not strictly comparable to other results because it is estimated purely from time series variation and the data sample is particularly small (see Beaton and others forthcoming). Effects are typically less significant for subregions than for LAC as a whole as sample sizes are smaller and subregions have less variation within them. The empirical literature is inconclusive on the effects of remittances on growth: Catrinescu and others (2006), AFD (2007), and World Bank (2005) found positive effects, while Giuliano and Ruiz-Arranz (2005) looked at longer-term effects and found significant positive effects only in countries with small financial sectors where presumably credit constraints would be more pervasive. The April 2005 *World Economic Outlook* found no statistically significant effect and Barajas and others (2008) found a positive and significant effect only when the estimation excluded investment and was in the absence of country fixed effects. The empirical approach used here is closest to that in Barajas and others (2008) and Abdih and others (2009), though with the crucial distinction that they do not control for migration stocks or migration flows. The positive effect of remittances on growth in this chapter is estimated while controlling for migrant stocks and migration flows, and is thus relative to the counterfactual of "migration without remittances." The positive effect of remittances on growth also holds up when examining GNI instead of GDP.

Table 5.1. Macroeconomic Stabilizing Effect of Remittances

Effect on	Priors	Result
Fiscal revenues	+	Yes, significant for CAPDR and the Caribbean.
Nonperforming loans	–	Yes, significant for CAPDR.
Real exchange rate	+ (appreciation)	Results generally insignificant and not strong.
Inflation	+	Yes, significant for the Caribbean and CAPDR.

Source: IMF staff calculations.
Note: For country group information, see page 137. CAPDR = Central America, Panama, and the Dominican Republic.

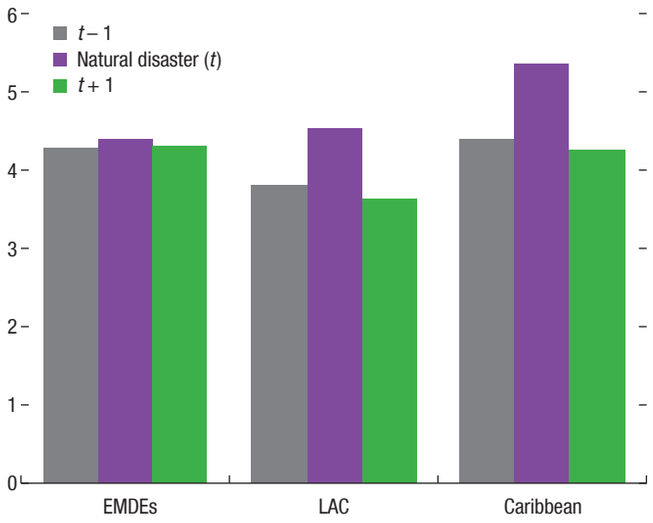
there appears to be little evidence of possible adverse "Dutch disease" effects given that their impact on the real exchange rate and inflation tends to be minor. In addition, evidence from Mexico confirms that remittances can also help lower poverty as well as inequality—and all the more so in the wake of negative shocks (Box 5.3).

This stabilizing role is especially strong when remittances are countercyclical, and rise in response to adverse domestic shocks. Remittances are an important and relatively reliable source of external financing for many emerging market and developing economies.[14] They are larger than any other external inflow for CAPDR and the Caribbean. For South America, private capital inflows (excluding foreign direct investment) have typically been larger than remittances, but remittances flows have been a more stable source of external financing for all subregions in LAC.

Consumption Smoothing

Receiving remittances can help smooth consumption in the home country as emigrants send home additional funds to cushion economic shocks. This stabilizing property of remittances is illustrated in Figure 5.9, which shows that remittances (as a share of GDP) jump when a natural disaster hits the remittance-recipient country.[15] This effect appears to be stronger for LAC than for emerging market and developing economies in general, and seems to be especially important for the Caribbean—the country group that is particularly susceptible to large natural disasters—and, to a lesser extent, for CAPDR (not shown).[16]

Figure 5.9. Remittances and Natural Disasters
(Remittances as a percent of GDP)



Sources: Emergency Events Database; and IMF staff calculations.
Note: EMDEs = emerging market and developing economies; LAC = Latin America and the Caribbean.

More generally, the analysis finds that remittances lower income volatility in the home country. This effect is shown in Annex Figure 5.2.1, which demonstrates that for most countries in the LAC region, overall income, including remittances, is less volatile than domestic income (measured using international prices). Beyond the above-mentioned countercyclicality of remittances, this stabilizing effect also reflects the finding that remittances to LAC are typically set in U.S. dollars.

[14]For instance, Barajas and others (2008) and Balli and Rana (2015) argue that remittances are resilient and less volatile compared with other sources of external financing.

[15]For example, remittances in Grenada increased from 2 percent of GDP in 2003 to 4 percent of GDP in 2004, the year Hurricane Ivan hit the island, and then normalized to the 2003 level in the following years.

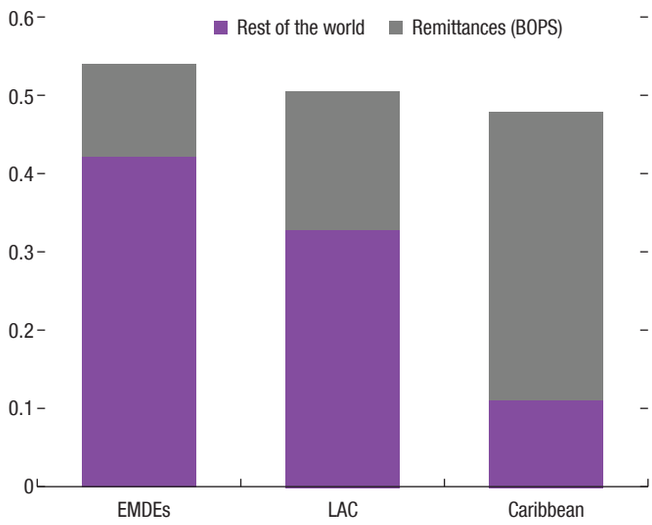
[16]See Beaton and others (forthcoming) for a formal analysis of the drivers of remittances to LAC, which confirms the importance of natural disasters.

Hence, while, for example, a sharp depreciation would reduce the value of domestic income in international prices, remittance income would cushion this effect even if it is not increased in U.S. dollars.

Remittances can foster consumption smoothing not only through their direct countercyclicality, but also by supporting financial inclusion and access to credit. Remittances allow recipients to save in good times and tap into these resources when domestic income contracts. They also facilitate access to credit by strengthening borrowers' capacity to repay. In addition, households receiving remittances can vary the share of their receipts used for consumption. An analysis of the overall effect of remittances on the stabilization of private consumption shows that higher remittances (as a share of GDP) are associated with more consumption smoothing across countries in the face of idiosyncratic shocks to output. Specifically, remittances help delink country-specific consumption growth from country-specific output growth.[17] Annex Figure 5.2.2 shows that consumption-growth correlations are lower for countries with higher levels of remittances. Again, these effects seem relatively pronounced for LAC and, in particular, for the Caribbean.[18] Besides the high remittances-to-GDP ratios, the strong effects found for the Caribbean countries likely reflect their susceptibility to natural disasters as well as the countercyclical response of remittances to such events.

Finally, Figure 5.10 and Annex Table 5.2.3 summarize the results of a more formal analysis of the latter effect.[19] Whereas emerging market and developing economies typically seem to smooth consumption in the face of output shocks through financial and other linkages, remittances appear to be a relatively important channel for LAC.[20] In particular, most of the cushioning of consumption risk that takes place in the Caribbean seems to be associated with remittances. Further analysis sheds light on the consumption-smoothing impact of remittances taking into account the fiscal stance and finds that this impact occurs mainly during periods of fiscal consolidation and fiscal shocks, suggesting that remittances and fiscal policy may act as substitutes (Beaton, Cevik, and Yousefi forthcoming).

Figure 5.10. Portion of Total Risks Shared



Source: IMF staff calculations.
Note: Estimates of the portion of total risks shared are based on region-specific coefficients obtained from panel regressions of idiosyncratic consumption growth on idiosyncratic output growth and its interactions with indicators for remittances, the capital account openness index (Chinn and Ito 2006), and de facto financial integration measures (Lane and Milesi-Ferretti 2007). BOPS = IMF Balance of Payments Statistics; EMDEs = emerging market and developing economies; LAC = Latin America and the Caribbean.

Bolstering Financial Sector Stability

The positive impact of remittances for financial sector development can go beyond the associated increase in deposits and access to credit (Fajnzylber and Lopez 2008). Remittances may also alter credit quality and affect financial stability. In theory, the impact of remittances on

[17]See Hadzi-Vaskov (2006), Balli and Rana (2015), World Bank (2015), and De and others (2016) for the role of remittances in improving such cross-country consumption risk sharing.

[18]The samples are quite limited and the relationships are not statistically significant.

[19]See Annex 5.2 for details about the specification.

[20]Among emerging market and developing economies there are subgroups of countries, such as those from the Commonwealth of Independent States, where remittances are also an important channel for risk sharing.

Table 5.2. Effects of Remittances-to-GDP Ratio on Selected Macroeconomic Variables

Key coefficients in instrumental variable regressions			
	LAC	Caribbean	CAPDR
Real exchange rate	0.027	0.003	0.061***
	(0.03)	(0.016)	(0.02)
Revenue-to-GDP ratio	0.44	1.16**	0.39**
	(0.31)	(0.56)	(0.16)
Inflation[1]	21	2.52**	3.37*
	(20.34)	(1.27)	(1.97)
Nonperforming loan ratio	−0.48	n.a.	−0.45**
	(0.46)	n.a.	(0.22)

Source: IMF staff calculations.
Note: Standard errors in parentheses. Standard deviation is in parentheses below the coefficients. CAPDR = Central America, Panama, and the Dominican Republic; LAC = Latin America and the Caribbean; n.a. = not applicable.
[1]Specification with lagged change in the remittances-to-GDP ratio.
*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

credit quality is ambiguous. On the one hand, remittances could fuel excessive private credit growth, which can diminish credit quality. On the other hand, by strengthening borrowers' capacity to repay, remittances can improve credit quality. The results shown in Table 5.2, which control for reverse causality, indicate that the latter effect seems to dominate in LAC as higher remittances are associated with lower nonperforming loans (NPLs), though the effect is only significant for CAPDR.[21]

Based on these results, an increase in the remittances-to-GDP ratio for CAPDR by 1 percentage point would cause a drop in the NPL ratio by almost 0.5 percentage point. It follows that the increase in the remittances-to-GDP ratio since 2000 has contributed to the fall in the area's NPL ratio by 1 percentage point. Sufficient observations were not available for the Caribbean. In South America other determinants (terms-of-trade shocks and cyclical factors) seem to be more important NPL drivers than remittances (which are small in most countries and restricting the sample to a country subgroup with relatively larger flows still did not reveal significant effects).

Boosting Fiscal Revenues

Apart from the smoothing of private consumption, remittances can foster economic stabilization through the fiscal accounts. Remittances can help raise fiscal revenues even though they are typically not taxed directly, given that spending out of remittances is part of the base for indirect taxation.[22] The associated increase in fiscal space, in turn, enhances the scope for stabilization through countercyclical fiscal policies. Although empirical studies have found evidence for remittances' revenue-raising role in the Middle East and North Africa region and Central Asia, this aspect of remittances has not been explored for countries in LAC.[23] Controlling for different determinants of fiscal revenue and possible endogeneity, remittances are found to help mobilize fiscal revenues, and this effect is particularly strong and significant for CAPDR and the Caribbean (Table 5.2).[24]

These estimates imply that, for example, the actual increase in the remittance-to-GDP ratio since 2000 in CAPDR, which reflected continued substantial emigration from the region to the United States, accounted for an increase in fiscal revenues of 1 percent of GDP. Incidentally, the increase in the region's revenue-to-GDP ratio since 2000 is fully concentrated in the group

[21]See Ebeke, Loko, and Viseth (2014) for similar results for a group of global emerging market economies.

[22]The few countries that tried to tax remittances directly later repealed these taxes. Examples include Vietnam, Tajikistan, and the Philippines.

[23]For instance, see Ebeke (2010) and Abdih and others (2009).

[24]See Beaton and others (forthcoming) for the empirical specifications. As with the above regressions on the determinants of growth, numerical estimates of the coefficients differ somewhat between the ordinary least squares and instrumental variables regressions. While estimates of the effect of remittances are positive and statistically significant in all specifications, they fall within a relatively narrow range for CAPDR, but are more widely dispersed for the Caribbean.

of five countries that are receiving significant remittances (for example, excluding Costa Rica and Panama).[25] Further regressions (not shown) indicate that in the Caribbean higher remittances have been associated with improved fiscal balances, while in CAPDR they are associated with higher expenditures and no significant effect on fiscal balances. This finding suggests that in CAPDR, revenues generated by remittances have helped create scope for additional spending.

Limited Impact on Competitiveness and Inflation

Although remittances support stability through the above channels, these benefits may be counteracted by risks to competitiveness and inflation. Remittance inflows are expected to boost household spending, which in turn may put pressure on nontradable prices and interest rates, leading to real exchange rate appreciation. The existing empirical literature typically finds that remittances tend to appreciate the real exchange rate, though some studies do not detect such an effect or find it to be very small (Amuedo-Dorantes and Pozo 2004; Fajnzylber and Lopez 2008; Hassan and Holmes 2013; Izquierdo and Montiel 2006; Barajas and others 2010). Similarly, remittances inflows may exert generalized pressures on domestic prices, and empirical studies have typically detected such effects (Mishra, Narayan, and Narayan 2011; Ball and others 2010; Caceres and Saca 2006; Balderas and Nath 2008).

The estimates in this chapter generally do not reveal a significant impact of remittances on the real effective exchange rate in LAC. This outcome reflects large leakages of remittance inflows through imports given the small size and relatively high openness of many countries. A significant (but small) effect is found only for CAPDR, the subregion with the highest level of remittances in LAC (Table 5.2). Regarding inflation effects, the lagged change in the remittances-to-GDP ratio is found to be associated with somewhat higher inflation in the Caribbean and CAPDR (Table 5.2). This result may also reflect the prevalence of fixed or stabilized exchange rate regimes in many countries in these subregions. The contemporaneous effect of the remittances-to-GDP ratio on inflation appears to be significant only for the Caribbean.

The Perils of Dependence on Remittances

Extensive reliance on remittances can be risky, especially when most migrants reside in a single country. If a negative economic shock hits a host country and propels unemployment among migrant workers, a drop in remittances will amplify the negative spillovers to the home countries. Thus, with the United States hosting most LAC emigrants, large shifts in the U.S. economic cycle and policies could have far-reaching repercussions for the region.

Such repercussions occurred during the global financial crisis of 2007–09, when a rise in Hispanic unemployment in the United States of 5½ percentage points was followed by a decline in remittances, with detrimental effects on incomes, external positions, and fiscal revenues in Latin America. In CAPDR, for example, remittances as a share of GDP declined by more than 1 percentage point and the ratio of fiscal revenue to GDP fell by more than 1 percentage point in 2008–10 compared with 2007. Econometric estimates attribute about half of this revenue decline to the contraction in remittance flows (Figure 5.11).[26] Furthermore, Spain—the second-largest destination for LAC migrants—was also hit especially hard by the crisis, mainly affecting earnings and remittances for South American migrants.

Shocks of a noneconomic nature, including major shifts in immigration and remittance policies, can also have important economic consequences for

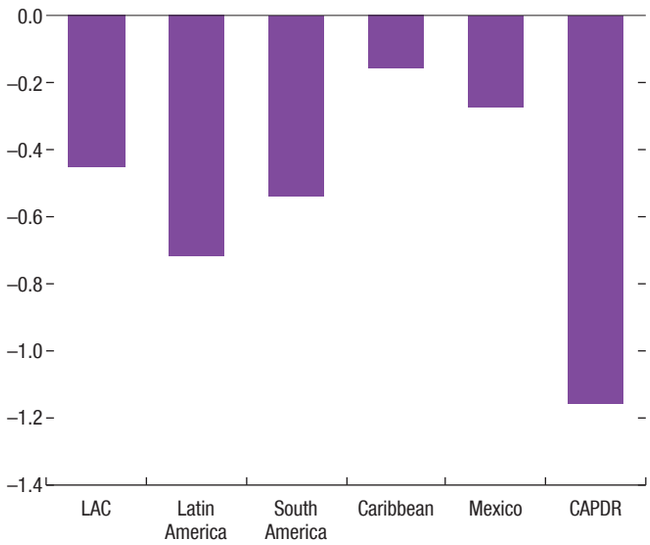
[25]Obviously, the cumulative increase in revenues reflected diverse, often country-specific, factors, including revenue measures implemented by the authorities at various times. Still, the evidence of a link between remittances and fiscal revenues in most CAPDR countries is extensive and includes high-frequency correlations in country-level time-series regressions (not shown).

[26]For details, see Beaton and others (forthcoming).

the recipient countries. For example, deportations of aliens from the United States significantly increased during the past decade, totaling 3.7 million between 2006 and 2015. They peaked at 434,000 in 2013, but have declined since then as prosecutorial guidelines were refocused on those deemed to pose a threat to national security, border security, and public safety. There are about 2 million aliens that risk being deported because of their criminal record. A majority of these people have been lawfully present in the United States (as either green-card holders or noncitizens on temporary visas), but could be deported based on their criminal record. The unauthorized immigrant population in the United States is estimated to have been stable since 2009 at about 11 million. Close to 80 percent of unauthorized immigrants in the United States are from Latin America, mostly from Mexico. About half of the stock of immigrants originating from Mexico and two-thirds of immigrants originating from CAPDR were estimated to be unauthorized in 2015. Preempting potential shifts in U.S. immigration policy, and in the treatment of remittance outflows, remittances to some Latin America countries, such as El Salvador and Mexico, have recently increased (Figure 5.12).

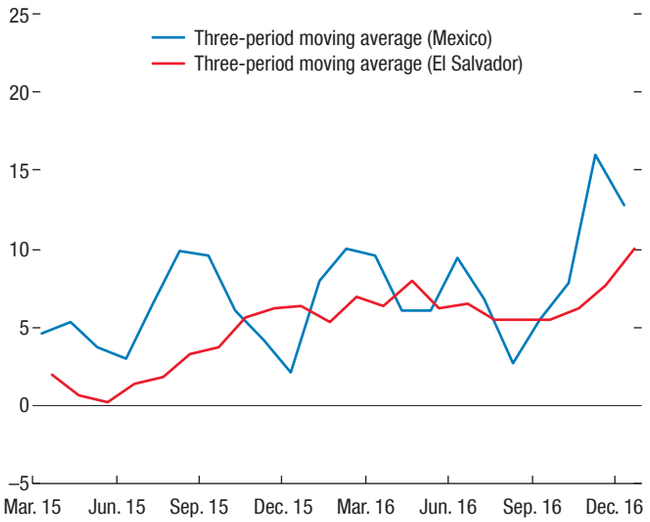
Quantifying the impact on home countries of a surge in return migration is subject to much uncertainty. Box 2.1 in Chapter 2 underscores that its magnitude would depend on various factors including the degree to which returning workers join the labor force. The empirical estimates presented above suggest the impact on per capita growth from an intensification of the recent trends in deportations could range from positive to negative across LAC subregions and be particularly tilted to the negative side for CAPDR. However, this approach implicitly assumes that the effects of past migration apply in a symmetric manner to abrupt return migration and, hence, that a significant share of the returning immigrants would be employed in their home countries. The actual effects could be more negative still, given the disruptive nature of a sudden increase in return migration, with possible

Figure 5.11. Change in Remittance Flows, 2008–2010 Relative to 2007
(Percentage points of GDP)



Sources: IMF, World Economic Outlook database; and World Bank.
Note: LAC = Latin America and the Caribbean; CAPDR = Central America, Panama, and the Dominican Republic.

Figure 5.12. Remittances to Mexico and El Salvador
(Year-over-year percent change)



Sources: Banco Central de Reserva de El Salvador; Bank of Mexico; and IMF staff calculations.

adverse effects on fiscal accounts, poverty, financial sector stability, and crime rates.

Taxing wire transfers to some LAC countries has also been mentioned as a possible U.S. policy measure. Taxing wire transfers could somewhat reduce remittances and force them to nonwire systems, such as banks or credit unions, or informal channels. Using Bitcoin and sending gift cards are also viable ways to remit funds outside of the wire system.

Policy Priorities

In light of the range of beneficial and adverse effects of emigration and remittances, country policies should aim to tilt the balance in a favorable direction.

Remittances merit policy support given their key financing and stabilizing roles. Policy measures should focus on reducing the cost of remittances and facilitating formal intermediation. Given the recent challenges to correspondent banking relationships, strengthening anti–money laundering/combating the financing of terrorism frameworks, and exploring regional solutions for cooperation can help improve LAC countries' regulatory environment and keep formal financial channels open. Development and enhancement of payments systems (including through new solutions like mobile money) and ensuring that remittance-service providers have access to them would help foster competition and drive prices down. At the same time, policy support should help control risks arising from the large dependence on remittances, including via measures to enhance the financial sector's resilience to volatility and potential sudden stops of remittances. Educating consumers about the costs of remittances can also help users make informed decisions and allow them to choose their best option. Improving transparency about the cost of remittances, as the World Bank has done with its Remittance Price Worldwide database, can help in this regard.

In the short term, steps to curb brain drain could ameliorate negative effects from emigration. Because the type of emigration linked to brain drain typically generates relatively little remittances, the net effect for these countries can be especially negative (despite being beneficial for the individual). These findings support the case for long-term measures to retain potential emigrants, either through structural reforms that foster job opportunities for the highly educated (for example, the development of a medical tourism industry) or through shorter-term measures to limit the subsidization of brain drain with public funds (for example, through bonding schemes whereby people who have benefited from public funding for education must remain in the home country for a number of years).

More generally, improvements in the business environment and strong institutions can help raise productivity and thereby limit incentives for outward migration. Productivity can also benefit from steps to promote return migration by skilled workers, for example through the recognition of foreign qualifications and experience in professional regulations and public sector hiring, or the provision of portable social security benefits. Effective policies to improve the security situation in many Central American and some Caribbean countries may also relieve key bottlenecks to productive use of remittances, including their greater use for investment. Countries could also seek to leverage economic ties with diasporas, which could bolster foreign direct investment and tourism receipts. Furthermore, policies can aim at boosting labor supply, in particular by raising female labor market participation, to offset the impact of emigration. The adverse impact of a real currency appreciation as a result of a spike in remittance inflows could be cushioned by steps to reduce labor and product market rigidities and to support the provision of credit to firms.

Significant changes in immigration and remittance policies in the United States can have an important impact, especially on smaller countries in Central America. Fiscal revenues could fall,

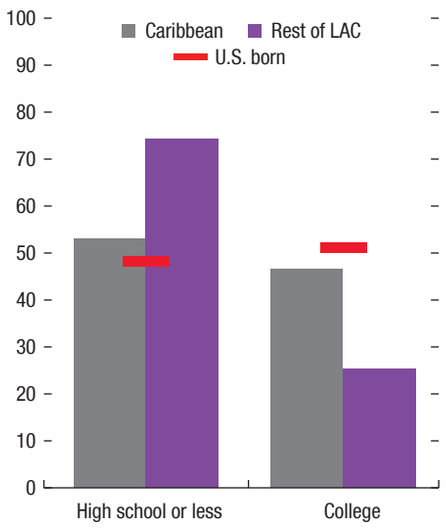
poverty and inequality could increase, and financial stability could be affected. Countries with flexible exchange rates will find it important to allow exchange rate adjustments to act as a shock absorber, at least in the short term. In the long term, fiscal discipline in conjunction with prioritizing social assistance expenditures will be important to limit adverse effects on poverty and inequality.

Box 5.1. "Brain Drain" in Jamaica

Nearly half of the Caribbean emigrants residing in the United States have at least a college education, a ratio comparable to the U.S. Native-born population (Figure 5.1.1). In contrast, only one-quarter of other Latin American and Caribbean emigrants in the United States have at least a college education.[1] However, to truly examine brain drain from the home country, educational levels of immigrants in the host country are not sufficient—attainment levels in the home country are necessary for comparisons. Very few countries in the Caribbean publish household data that include detailed educational attainment; Jamaica, however, does.

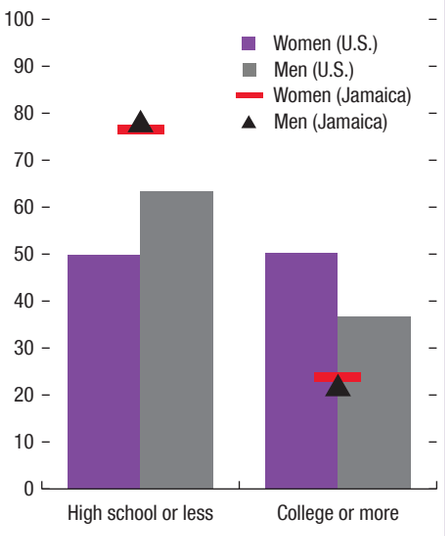
In Jamaica, there is evidence of significant brain drain, especially among women. Among Jamaican-born women living in the United States, 50 percent have at least a college education (Figure 5.1.2); this is double the attainment rate in the home country, where only one-quarter of women have a college education.[2] A simple calculation implies that nearly one-third of all women with at least a college education in Jamaica have emigrated, compared with about 13 percent of those with high school or less. These patterns reflect the significant numbers of Jamaican nurses and health care practitioners—65 percent of Jamaican immigrants are in these sectors versus 7 percent in the United States–born population. For men, the statistics are not as striking, but there is nevertheless evidence of brain drain—while 21 percent of men in Jamaica are college educated, 37 percent of Jamaican men in the United States have at least a college education.

Figure 5.1.1. Educational Attainment
(Percent of total population residing in the United States)



Sources: 2008 American Community Survey; and IMF staff calculations.
Note: LAC = Latin America and the Caribbean.

Figure 5.1.2. Educational Attainment of Jamaicans: Living in the United States versus Living in Jamaica
(United States data for 2012; Jamaica data for 2011)



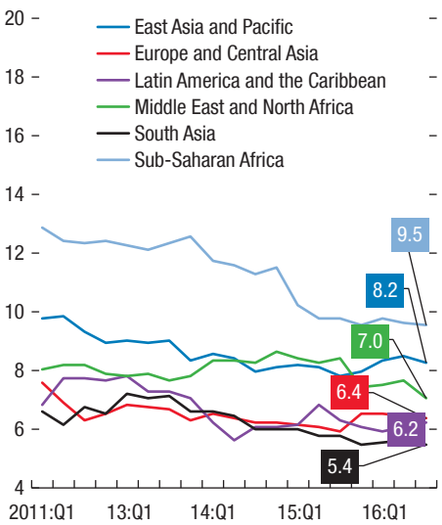
Sources: Filmer 2010; 2008 American Community Survey; and IMF staff calculations.
Note: LAC = Latin America and the Caribbean.

This box was prepared by Joyce Wong.
[1]This difference is statistically significant at 99 percent.
[2]This difference is statistically significant at 95 percent.

Box 5.2. Sending Remittances Is Costly

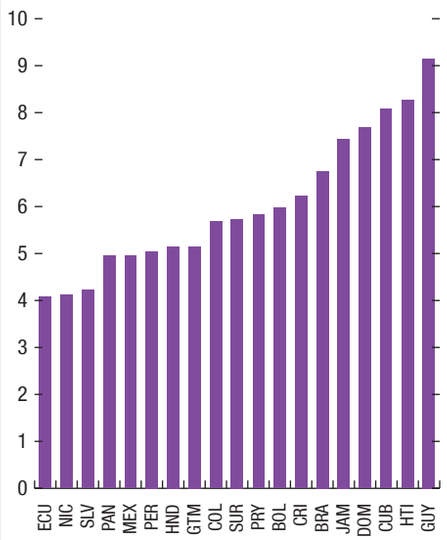
The cost of sending remittances to Latin America and the Caribbean (LAC) is lower than to other regions with the exception of South Asia, but, at 6.2 percent for a US$200 transaction, it remains substantial (Figure 5.2.1).[1] These costs have declined significantly over the past decades—for example, by about 40 percent for flows to El Salvador, Colombia, and Guatemala, and by 15 percent to Jamaica over 2001–15 (Orozco, Porras, and Yansura 2016). Within LAC, the region's largest recipients of remittances benefit from lower transaction costs as do the dollarized economies, with dollarization eliminating the cost of currency conversion (Figure 5.2.2). Costs remain relatively elevated for Caribbean countries compared with those in Latin America. Remittances from the United States are the most cost effective, likely reflecting competition among remittance-service providers in the region's most important remittances corridors.

Figure 5.2.1. Cost of Sending US$200 in Remittances: Regional Averages
(Percent of remittance amount)



Source: World Bank Remittances Prices Worldwide database.

Figure 5.2.2. Cost of Sending US$200 in Remittances: Latin America and the Caribbean, 2016:Q3
(Percent of remittance amount, by destination)



Source: World Bank Remittances Prices Worldwide database.
Note: For International Organization for Standardization (ISO) country codes used in data labels, see page 137.

The cost of remitting has come under upward pressure from the global withdrawal of correspondent banking relationships (CBRs; see also Box 2.3). The withdrawal of CBRs has disproportionately affected money transfer operators (MTOs)—the primary channel through which LAC migrants send remittances—given the increased challenges they face in meeting the stringent know-your-customer and anti–money laundering/

This box was prepared by Kimberly Beaton.
[1]Based on World Bank Remittance Prices Worldwide data.

Box 5.2 *(continued)*

combating the financing of terrorism standards.[2] According to a survey by the World Bank (2015), global banks have closed the correspondent bank accounts of MTOs, particularly smaller MTOs, on a widespread basis, curtailing their ability to transmit remittances. Coming under similar pressure, local banks in some countries and regions have also faced challenges in maintaining their CBRs, with 60 percent of members of the Asociación de Supervisores Bancarios de las Américas reporting that remittances to LAC have been affected.

The high transaction costs of remittances reduce the money received by migrants' families. Based on the US$68 billion in officially recorded remittances to LAC in 2015, lowering the cost of remittances could significantly increase the funds received by migrants' families back home. The United Nations has made lowering these transaction costs a priority—reducing them to less than 3 percent and eliminating remittances corridors with transaction costs higher than 5 percent by 2030 is a UN Sustainable Development Goal. Existing efforts to lower remittances transaction costs have focused on enhancing competition in the market for remittances-service providers, which continues to be dominated by MTOs, and promoting the use of new payment technologies for sending remittances. Enhanced use of online and mobile remittances channels offers particular promise to further lower the cost of remittances; mobile remittances-service providers are the most cost effective at 3.5 percent for a US$200 transaction.

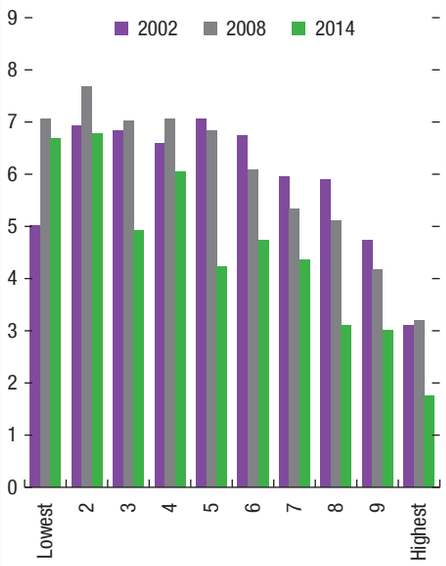
[2]The withdrawal of global banks from CBRs has been linked to their cost-benefit analysis in response to more rigorous prudential requirements and anti–money laundering/combating the financing of terrorism and tax transparency standards (Erbenová and others 2016).

Box 5.3. How Do Migration and Remittances Affect Inequality? A Case Study of Mexico

Although the effect of migration and remittances on poverty reduction has been well documented, the literature is inconclusive with regard to the effects on inequality.[1]

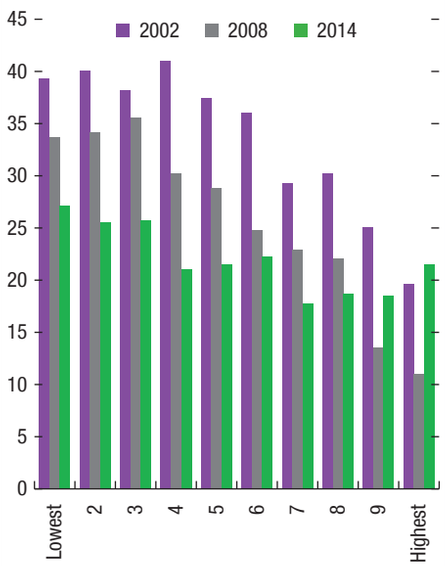
Micro-level evidence for Mexico suggests that migration and remittances can reduce both poverty and inequality. About 5 percent of Mexican households received remittances in 2014, on average about US$290 per month (US$140 median).[2] Poorer households were much more likely to receive remittances: remittances-receiving households were poorer than non-remittances-receiving households even when including remittances in household income (Figure 5.3.1), and for these poorer households remittances constituted a larger share of income (Figure 5.3.2). This pattern became even more pronounced during the global financial crisis, with the likelihood of receiving remittances increasing for poorer households and falling for

Figure 5.3.1. Share of Households Receiving Remittances, by Income Decile
(Percent)



Sources: Instituto Nacional de Estadística y Geografía (INEGI); and IMF staff calculations.

Figure 5.3.2. Remittances as a Share of Household Income, by Income Decile
(Percent)



Sources: Instituto Nacional de Estadística y Geografía (INEGI); and IMF staff calculations.

This box was prepared by Zsoka Koczan and Franz Loyola.

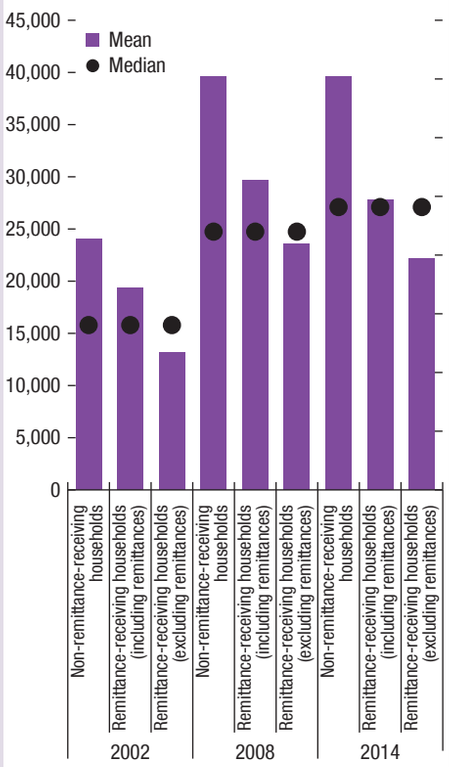
[1]See Acharyaa and Leon-Gonzalez (2013); Acosta and others (2008); Adams (2006); Adams, Cuecuecha, and Page (2008); Barham and Boucher (1998); Beyene (2014); Bouoiyour and Miftah (2014); Brown and Jiménez (2007); Gubert, Lassourd, and Mesplé-Somps (2010); Loritz (2008); Margolis and others (2013); Möllers and Meyer (2014); Mughal and Anwar (2012); Stark and Lucas (1988); and Taylor and others (2005).

[2]Although this data set cannot be used to examine whether households with children are more likely to receive remittances, there is a large literature on the effect of children on remittance behavior. Lowell and de la Garza (2000), for instance, find that households with minor children present are approximately 25 percent less likely to remit than households without minor children present, while those immigrants who reported having minor children who were not residents in the household were more than twice as likely to remit as those who did not.

Box 5.3 *(continued)*

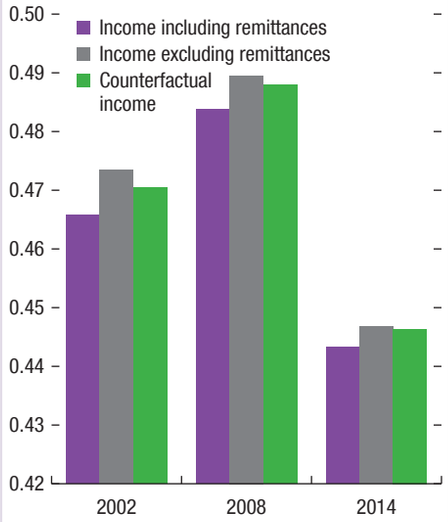
richer households (Figure 5.3.3), likely reflecting an increase in the insurance role of remittances and a fall in investment motives. This pro-poor pattern of remittances appears to translate into lower inequality at the macro level as well. Comparing actual Gini coefficients with those based on constructed counterfactual incomes for remittances-receiving households suggests that inequality would be higher in the absence of remittances, even when taking the behavioral response into account (Figure 5.3.4).[3]

Figure 5.3.3. Average Household Income
(Nominal Mexican pesos in given year)



Sources: Instituto Nacional de Estadística y Geografía (INEGI); and IMF staff calculations.

Figure 5.3.4. Gini Coeffecients



Sources: Instituto Nacional de Estadistíca y Geografía (INEGI); and IMF staff calculations.
Note: Counterfactual income uses actual income for non-remittance-receiving households and an estimated counterfactual income for remittance-receiving households based on propensity score matching.

[3]For details see Koczan and Loyola (forthcoming).

Annex 5.1. Characteristics of Latin American and Caribbean Migrants

Annex Table 5.1.1. Characteristics of Migrants Who Entered the United States after Age 22, 2014[1]

(Percent, except where noted otherwise)

	Mexico	Central America	Caribbean	South America
Proportion female	52	55	59	58
Proportion married	69	55	54	66
Proportion in one-adult household	17	22	24	19
Female labor force participation	46	58	63	61
Male labor force participation	79	81	68	81
Married female labor force participation	44	58	67	61
Married male labor force participation	81	82	71	82
Female hourly wage (U.S. Dollars)	9.06	10.43	17.56	14.27
Male hourly wage (U.S. Dollars)	12.34	13.33	19.34	21.05
Age (mean)	49	50	56	51
Years in United States (mean)	17	17	22	17
Entry age (mean)[2]	20	21.7	24.5	24.5
Proportion U.S. citizens[2]	28.5	41.5	64.4	51.6
Family size[2]	4.1	3.5	3	3.2

Source: Integrated Public Use Microdata Series, American Community Survey.

[1]Age 22 was chosen to best reflect the group of people who emigrated to the United States after completing their education (22 is the usual age for four-year college completion).

[2]Includes entire sample.

Annex 5.2. Empirical Results

Growth

See Annex Tables 5.2.1 and 5.2.2.

Consumption Smoothing

The relationship between idiosyncratic (country-specific) private consumption and idiosyncratic (country-specific) output growth is estimated as follows:[1]

$$\Delta\tilde{c}_{it} = \beta_0 + \beta_1 R_{it} + \gamma_1 \Delta\tilde{y}_{it} + \gamma_2 R_{it}\Delta\tilde{y}_{it} + \gamma_3 KA_{it}\Delta\tilde{y}_{it} + \gamma_4 FI_{it}\Delta\tilde{y}_{it} + \varepsilon_{it}$$

$$\text{where } \Delta\tilde{c}_{it} = \Delta c_{it} - \Delta\overline{c}_t,\ \Delta\tilde{y}_{it} = \Delta y_{it} - \Delta\overline{y}_t$$

where Δc_{it} is real private consumption growth for country i at time t, Δy_{it} is for real GDP growth for country i at time t, $\Delta\overline{c}_t$ and $\Delta\overline{y}_t$ are the world variables, and $\Delta\tilde{c}_{it}$ and $\Delta\tilde{y}_{it}$ are the idiosyncratic ones, R_{it} is the ratio of remittances to GDP, KA_{it} is the index of *de jure* capital account openness from Chinn and Ito (2006) and FI_{it} stands for *de facto* indicators of financial integration from Lane and Milesi-Ferretti (2007). In this specification, the degree of consumption smoothing in the face of idiosyncratic output shocks (referred to as "consumption risk sharing" in the related literature) is captured by $1 - \gamma_1 - \gamma_2 - \gamma_3 - \gamma_4$, where γ_2 measures the extent to which remittances facilitate consumption risk-sharing by delinking country-specific consumption from output. The estimation used ordinary least squares panel regressions with country-specific and time fixed effects.

[1]This specification follows Sorensen and others (2007) and similar specifications that include remittances in Hadzi-Vaskov (2006); World Bank (2015); and De and others (2016).

Annex Table 5.2.1. Effects on Short-Term Growth

	Latin America and the Caribbean		South America		Caribbean		Central America, Panama, and the Dominican Republic	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Change in emigrants/population	2.478**	−13.97***	2.848	−33.63**	2.295	−27.14	12.85***	−6.108
	(0.937)	(4.734)	(2.472)	(13.68)	(1.767)	(31.75)	(2.982)	(25.36)
Remittances/GDP	−0.0174	0.990***	−0.657	1.220	−0.062	2.277	0.129	0.0297
	(0.0863)	(0.305)	(0.515)	(1.461)	(0.0793)	(2.018)	(0.0722)	(0.241)
Expenditure/GDP	−0.0223	0.179	0.00965	0.405	−0.031	−0.566	−0.298	−1.291*
	(0.0979)	(0.352)	(0.159)	(0.390)	(0.0962)	(0.516)	(0.333)	(0.716)
M2/GDP	0.126	−9.243	5.006	−77.66**	−8.991**	−14.29	−1.695	13.11
	(2.988)	(10.17)	(4.296)	(34.53)	(3.973)	(13.52)	(9.707)	(32.58)
PPP GDP per capita	0.167	0.199	0.308**	0.740*	−0.0891	0.678	0.364***	0.187
	(0.164)	(0.280)	(0.116)	(0.448)	(0.168)	(0.722)	(0.0770)	(0.243)
Real GDP growth in AEs/U.S.	0.537***	0.577***	0.561**	0.507	0.626**	0.561	0.739***	0.769***
	(0.104)	(0.163)	(0.215)	(0.309)	(0.275)	(0.459)	(0.137)	(0.177)
FDI/GDP	−0.0499	0.297**	0.254	0.538*	−0.298**	−0.154	−0.275*	−0.427
	(0.145)	(0.151)	(0.202)	(0.292)	(0.108)	(0.194)	(0.129)	(0.381)
Export growth	−6.3E-05	−6.3E-05	−9.3E-05	0.000654	0.0435	−0.0417	0.00373	−0.0345
	(0.000191)	(0.000556)	(0.000209)	(0.000741)	(0.0266)	(0.0925)	(0.0346)	(0.0240)
Change in terms of trade	0.0485***	0.0400	0.0392***	−0.0202	0.0239	0.00691	0.0119	−0.0468
	(0.0128)	(0.0256)	(0.0101)	(0.0456)	(0.0217)	(0.0894)	(0.0256)	(0.0653)
Country risk	0.133**	0.181***	0.173*	0.188*			0.0691	0.0465
	(0.0468)	(0.0582)	(0.0749)	(0.104)			(0.0773)	(0.0990)
Emigrants/population	0.290	−0.404	0.382	4.727***	0.0699	−0.172	0.179	0.755
	(0.209)	(0.322)	(0.253)	(1.432)	(0.0468)	(0.302)	(0.386)	(0.849)
Number of observations	361	361	170	170	152	152	105	105
Adjusted *R*-squared	0.157	.	0.186	.	0.262	.	0.343	.

Source: IMF staff calculations.

Note: AEs = advanced economies; FDI = foreign direct investment; IV = instrumental variables; M2 = money supply; OLS = ordinary least squares; PPP = purchasing power parity.

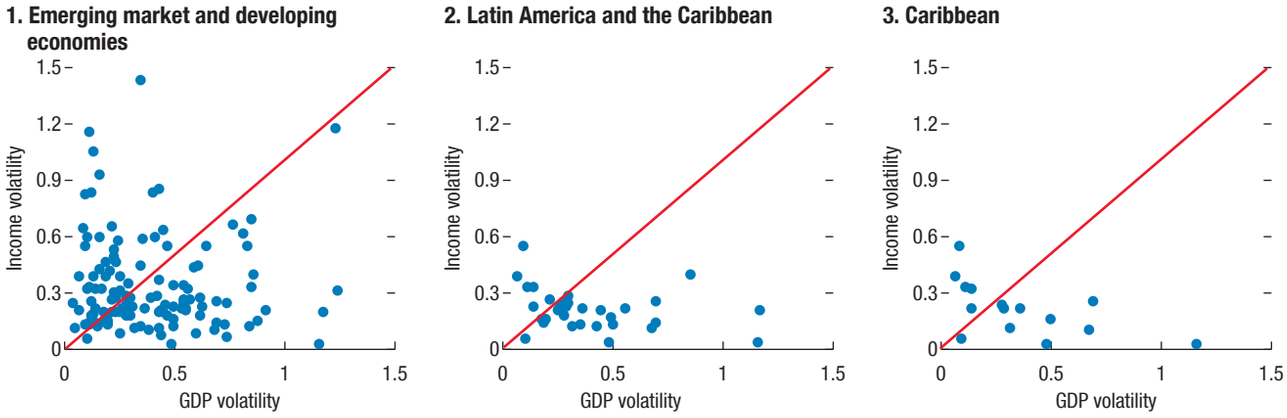
Annex Table 5.2.2. Effects on Long-Term Growth

	Latin America and the Caribbean		South America		Caribbean		Central America, Panama, and the Dominican Republic	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Change in emigrants/population	−1.019	−10.06**	−19.91***	−22.46**	2.483	2.446*	3.214	−3.948
	(1.644)	(4.756)	(5.106)	(9.446)	(1.647)	(1.249)	(10.64)	(10.51)
Remittances/GDP	−0.339**	−0.427*	0.297	0.292	0.277	0.356***	−0.349**	−0.255*
	(0.130)	(0.219)	(0.461)	(1.005)	(0.163)	(0.128)	(0.0935)	(0.144)
Expenditure/GDP	0.0253	0.446	−0.134	−0.0535	0.0251	0.122	0.477**	0.979***
	(0.0596)	(0.312)	(0.0781)	(0.113)	(0.138)	(0.0914)	(0.128)	(0.354)
M2/GDP	0.702	10.24	−9.443**	−20.21**	−11.33***	−12.96***	2.788	−13.11
	(3.935)	(8.029)	(3.285)	(8.034)	(2.577)	(2.916)	(4.933)	(11.92)
PPP GDP per capita	−0.122	−0.611*	0.221**	0.267**	0.0107	0.0123	−0.260**	−0.225
	(0.148)	(0.317)	(0.0920)	(0.134)	(0.111)	(0.103)	(0.0753)	(0.162)
Real GDP growth in AEs/U.S.	−0.662**	−1.047**	−0.882*	−0.959**	−0.0577	−0.078	−0.0942	−0.0559
	(0.305)	(0.443)	(0.448)	(0.408)	(0.499)	(0.421)	(0.193)	(0.247)
FDI/GDP	−0.373	−0.0609	−0.00465	0.0966	−0.239*	−0.214**	−0.830**	−1.034***
	(0.266)	(0.249)	(0.289)	(0.306)	(0.130)	(0.0885)	(0.251)	(0.266)
Export growth	0.00185***	0.00245	−0.00032	−0.00059	0.168***	0.210***	−0.0477	−0.039
	(0.000410)	(0.00167)	(0.000891)	(0.00106)	(0.0451)	(0.0465)	(0.0287)	(0.0277)
Change in terms of trade	0.00917	−0.267	−0.185	−0.245	−0.242*	−0.242**	0.248***	0.351***
	(0.0742)	(0.194)	(0.119)	(0.194)	(0.133)	(0.0968)	(0.0555)	(0.129)
Country risk	0.150***	0.296***	0.121*	0.123			0.0206	−0.067
	(0.0452)	(0.100)	(0.0606)	(0.0765)			(0.116)	(0.106)
Emigrants/population	0.364**	0.0971	1.820***	2.318***	−0.0531	−0.0665	0.264	−0.192
	(0.145)	(0.270)	(0.385)	(0.428)	(0.0482)	(0.0485)	(0.299)	(0.359)
Number of observations	83	83	39	39	37	37	23	23
Adjusted *R*-squared	0.370	.	0.712	.	0.379	.	0.490	.

Source: IMF staff calculations.

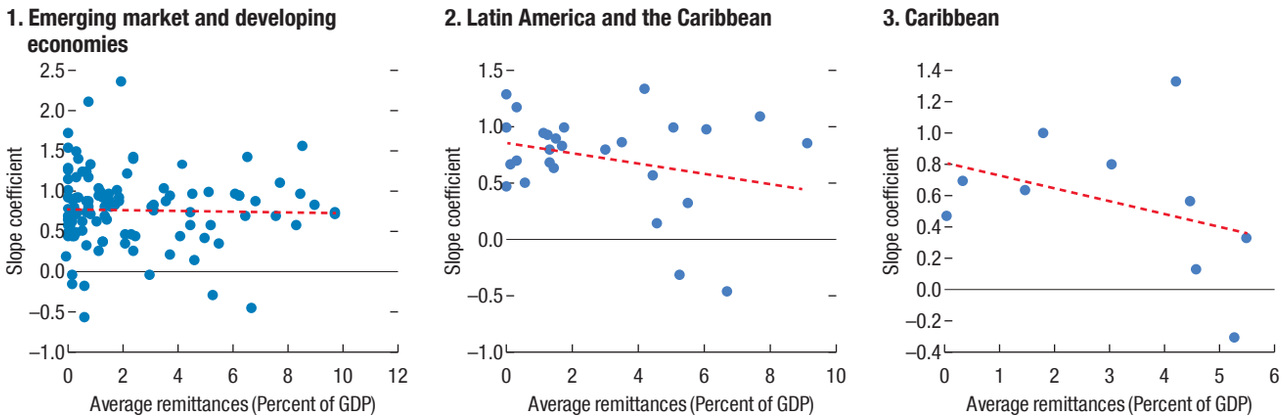
Note: AEs = advanced economies; FDI = foreign direct investment; IV = instrumental variables; M2 = money supply; OLS = ordinary least squares; PPP = purchasing power parity.

Annex Figure 5.2.1. Remittances and Income Volatility



Source: IMF staff calculations.
Note: Standard deviations of income (domestic income plus remittances) are plotted on the vertical axis and GDP standard deviations are plotted on the horizontal axis. Dots below the 45-degree line indicate that remittances lower income volatility.

Annex Figure 5.2.2. Remittances and Deviation from Perfect Risk Sharing



Source: IMF staff calculations.
Note: Slope coefficients obtained from time series country-specific regressions of idiosyncratic consumption growth on idiosyncratic output growth are plotted on the vertical axis, and average levels of remittances as a share of GDP are plotted on the horizontal axis. A negative relationship suggests that higher average remittances are associated with lower deviations from perfect risk sharing.

Annex Table 5.2.3. Remittances and Risk-Sharing

	EMDEs	LAC	Caribbean
R_{it}	0.000513	−0.000278	−0.00151
	(0.515)	(0.806)	(0.536)
$\Delta\tilde{y}_{it}$	0.895***	0.999***	1.290***
	(0)	(1.35e-09)	(0.000926)
$KA_{it}\Delta\tilde{y}_{it}$	−0.0493	−0.0302	0.0516
	(0.253)	(0.648)	(0.733)
$R_{it}\Delta\tilde{y}_{it}$	−0.0298**	−0.0428*	−0.0718*
	(0.0216)	(0.0565)	(0.0964)
$FI_{it}\Delta\tilde{y}_{it}$ (volume)	0.0989	−0.0215	−0.132
	(0.122)	(0.781)	(0.763)
$FI_{it}\Delta\tilde{y}_{it}$ (equity)	−0.371**	−0.149	−0.217
	(0.0171)	(0.476)	(0.809)
Constant	−0.0132***	−0.00750	0.00222
	(0.000443)	(0.195)	(0.880)
Observations	2,012	679	284
R-squared	0.113	0.094	0.053
Number of countries	117	29	12

Source: IMF staff calculations.
Note: EMDEs = emerging market and developing economies; LAC = Latin America and the Caribbean.

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Country Groups and Country and Region Abbreviations

Country Groups

CAPDR	Caribbean Commodity Exporters	Caribbean Tourism-Dependent	Central America	Eastern Caribbean Currency Union (ECCU)	LA7	LA6	South America
Costa Rica	Belize	Antigua and Barbuda	Belize	Anguilla	Argentina	Brazil	Argentina
Dominican Republic	Guyana	The Bahamas	Costa Rica	Antigua and Barbuda	Brazil	Chile	Bolivia
El Salvador	Suriname	Barbados	El Salvador	Dominica	Chile	Colombia	Brazil
Guatemala	Trinidad and Tobago	Dominica	Guatemala	Grenada	Colombia	Mexico	Chile
Honduras		Grenada	Honduras	Montserrat	Mexico	Peru	Colombia
Nicaragua		Jamaica	Nicaragua	St. Kitts and Nevis	Peru	Uruguay	Ecuador
Panama		St. Kitts and Nevis	Panama	St. Lucia	Uruguay		Guyana
		St. Lucia		St. Vincent and the Grenadines			Paraguay
		St. Vincent and the Grenadines					Peru
							Suriname
							Uruguay
							Venezuela

Region Abbreviations

Europe and Central Asia	ECA	Middle East and North Africa	MENA
Emerging and Developing Asia	EDA	South Asia	SAR
Emerging and Developing Europe	EDE	Emerging Market and Middle-Income Economies	EME
Emerging Market and Developing Economies	EMDE	Sub-Saharan Africa	SSA

List of Country Abbreviations

Antigua and Barbuda	ATG	Guyana	GUY
Argentina	ARG	Haiti	HTI
The Bahamas	BHS	Honduras	HND
Barbados	BRB	Jamaica	JAM
Belize	BLZ	Mexico	MEX
Bolivia	BOL	Nicaragua	NIC
Brazil	BRA	Panama	PAN
Canada	CAN	Paraguay	PRY
Chile	CHL	Peru	PER
Colombia	COL	St. Kitts and Nevis	KNA
Costa Rica	CRI	St. Lucia	LCA
Dominica	DMA	St. Vincent and the Grenadines	VCT
Dominican Republic	DOM	Suriname	SUR
Ecuador	ECU	Trinidad and Tobago	TTO
El Salvador	SLV	United States	USA
Grenada	GRD	Uruguay	URY
Guatemala	GTM	Venezuela	VEN

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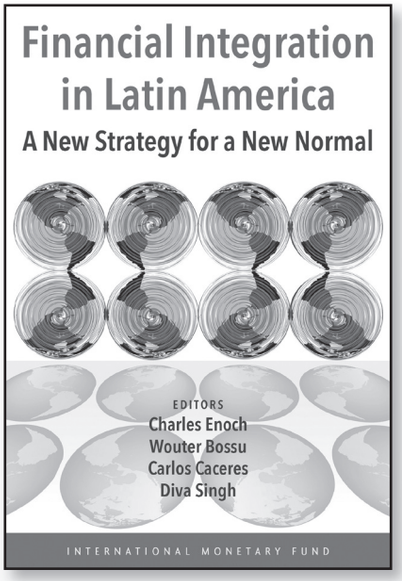

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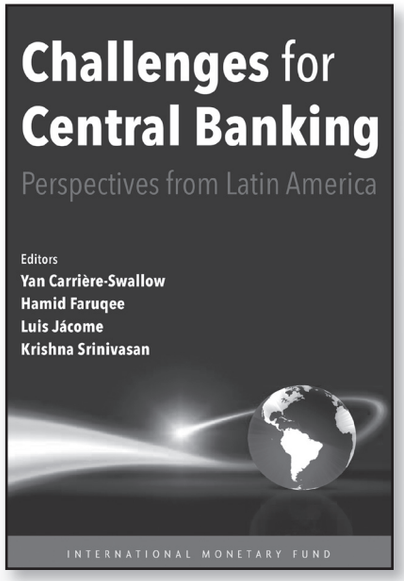

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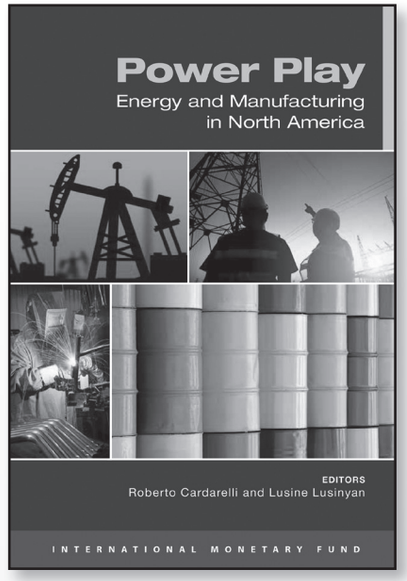

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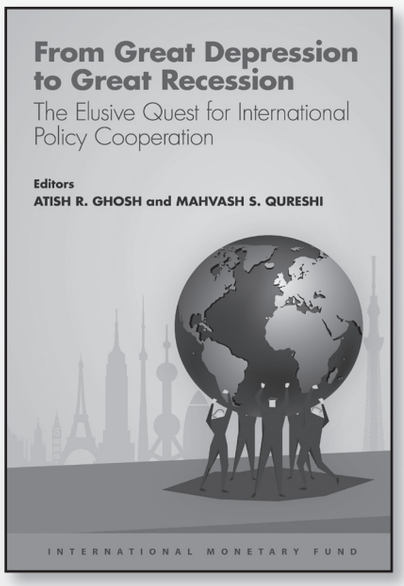

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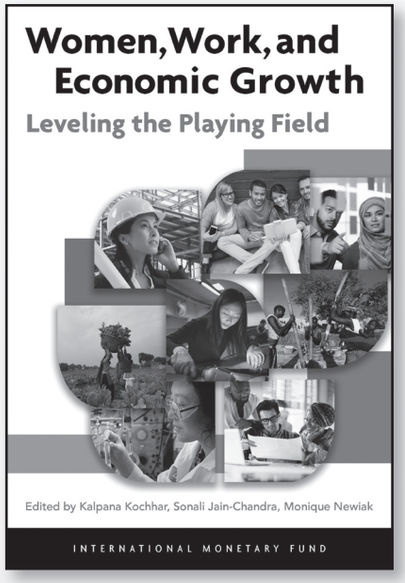

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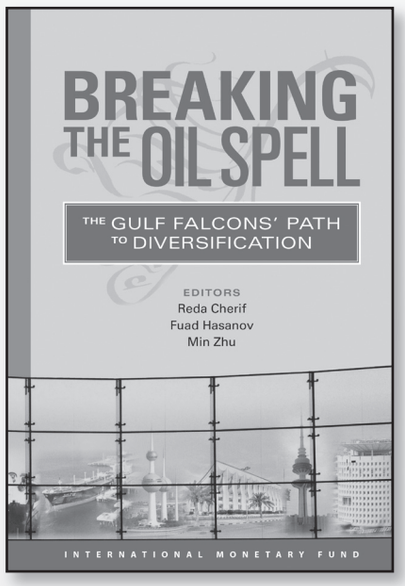

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