BOX 2.3.1 Regional integration and spillovers: Latin America and the Caribbean

The Latin America and Caribbean region (LAC) is less open than other emerging and developing regions to global trade and finance. Despite a multitude of regional trade agreements, economic linkages within the region tend to be limited and largely confined to sub-regions. Estimated spillovers from growth slowdowns in Brazil are modest for its South American neighbors (Argentina, Chile, Colombia, Ecuador, Paraguay and Peru), while those from Mexico are negligible.

Introduction

Although there is considerable heterogeneity among countries, the LAC region is one of the least open regions to trade, despite a large presence in global commodity markets. Commodity discoveries, and the prospect of large domestic markets, have attracted considerable FDI and portfolio flows into the region. Among the three sub-regions, South America is most dependent on global commodity markets, while its trade and financial partners are broadly diversified. In contrast, the main economic partner of developing Central and North America, and the Caribbean is the United States. Regional trade and finance flows are limited. However, the three sub regions have forged somewhat closer sub-regional ties, especially in South America.

This box addresses the following questions:

- How open is the LAC region to global and regional trade and financial flows?
- How significant are the potential intra-regional spillovers from the region's two largest economies, Brazil and Mexico?

Brazil and Mexico are the two largest economies in the region. Brazil has slipped into recession due to a combination of global and domestic challenges. While still positive, Mexico's growth has been tepid recently, compared to the pre-crisis and immediate post-crisis years. While the low growth of the region's largest economies may weigh on the outlook of trading partners and financial counterparts elsewhere in the region, limited intra-regional ties reduce the potential drag. Growth slowdowns in Brazil are estimated to have measurable spillovers to South American neighbors (Argentina, Chile, Colombia, Ecuador, Paraguay and Peru), whereas growth decelerations in Mexico have negligible spillovers to other countries in the region.

Note: This box was prepared by Derek H. C. Chen with contributions from Raju Huidrom, Duygu Guven, Jesper Hanson and Mai Anh Bui.

How open is the LAC region to global and regional trade and financial flows?

Of the six World Bank developing country regions, LAC is the least open to trade, and the region's role in global trade is considerably less than its contribution to global activity (Figure 2.3.1.1). The region is not well integrated into international supply chains, in contrast to East Asia, for example (Estevadeordal 2012; De la Torre, Dider, Ize, Lederman and Schmukler 2015). The region's heavy reliance on primary commodity exports, the associated lack of economic diversification, and the narrow product base are additional contributing factors for being relatively closed. However, the region has absorbed a large share of global FDI, which has been attracted by rapidly growing domestic markets, and by commodity discoveries. Portfolio inflows into LAC have been quite high, but the stock of liabilities relative to GDP has declined (Figure 2.3.1.2). Post-crisis, LAC trade has grown broadly in line with the global economy, while remittance flows have lagged behind those of other developing regions. The anemic recovery and weak labor market in Spain, which hosts about 5 percent of South American migrants, has held back remittance flows to the sub-region (Figure 2.3.1.3). Similarly, in the United States, modest growth in the sectors employing a large share of immigrants (construction and agriculture) and stricter enforcement of immigration laws have discouraged migrant inflows from Central America, constraining remittance flows (Chishti and Hipsman 2015).

The United States and Europe continue to be the most important economic partners for the region, accounting for 40-80 percent of LAC's trade and financial flows (Figure 2.3.1.4). The United States remains the largest importer from the region (exceeding 7 percent of regional GDP in 2011-14). That said, for South and Central America as well as the Caribbean, the share of exports to the United States has steadily declined since 2000, as exports to other major destinations and other LAC economies have gained ground (Cesa-Bianchi et al. 2012).

The LAC region does have a large global presence in commodity markets. On average, primary commodities constitute more than 50 percent of regional goods exports

BOX 2.3.1 Regional integration and spillovers: Latin America and the Caribbean *(continued)*

and 9 percent of GDP (Figure 2.3.1.5). South America is, by far, the most commodity-intensive sub-region, with commodities making up more than 70 percent of merchandise exports, and nearly 10 percent of GDP. Although developing Central and North America is considerably less commodity dependent than South America, commodities still account for about one quarter of exports, and 7.5 percent of GDP. Reliance on commodity exports tends to be associated with a high correlation between commodity prices and GDP, implying a higher susceptibility to commodity price fluctuations and increased volatility in activity (Camacho and Perez-Quiros 2013).

There are important differences in regional and global integration across the three sub-regions within LAC. Regional economic links are generally modest, and mostly within sub-regions. Examples are trade among Central American countries (excluding Mexico), and trade and remittances within South America (World Bank 2005, ECLAC 2014, Villarreal 2012). Even within regional trade agreements, trade remains modest, partly reflecting low road and rail density (Scholvin and Malamud 2014). Argentina, Bolivia, Paraguay and Uruguay, which are Mercosur members, ship only 20 to 30 percent of their exports to Brazil—compared with 40-60 percent of within-region trade for member countries of the North American Free Trade Agreement (NAFTA) and the European Union (EU) (Chapter 4.1).[1] FDI flows from Brazil and Mexico are largely confined to their respective sub-regions as well (Figure 2.3.1.6).

South America's trade links are well-diversified, but its financial flows predominantly originate from Europe, and its remittances inflows originate about equally from the United States and Europe.

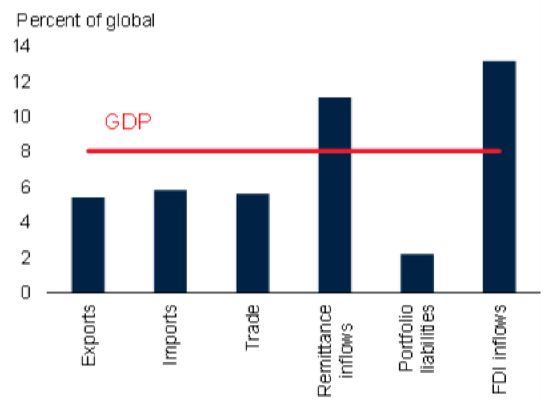
Central America's trade, remittances and, to a lesser extent, portfolio flows, rely heavily on the United States. Other financial flows predominantly originate from Europe. With its economic linkages enhanced by NAFTA, around 80 percent of Mexican exports are shipped to the United States. Mexico's trade with Central America is modest (with the exception of Nicaragua, which ships about 20 percent of its exports to Mexico, IMF 2012a).

[1]Bolivia is an associate state and in the final stages of the accession to become a full and the sixth member of Mercosur.

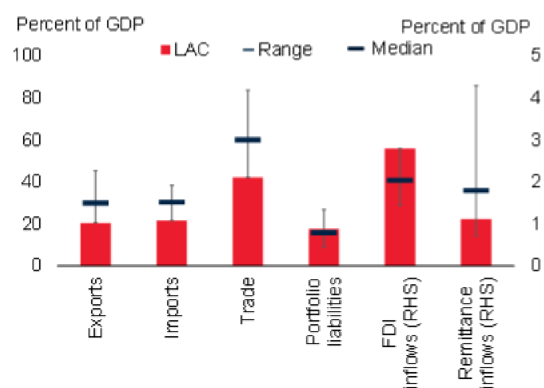
FIGURE 2.3.1.1 International linkages: Cross-region comparison

The Latin America and Caribbean (LAC) region is the least open to trade among the six World Bank developing regions. But it absorbs a large share of global FDI. Portfolio inflows are small on a global scale, but the stock of portfolio liabilities relative to GDP is similar to the average for the other developing regions.

A. LAC share of global activity, trade and finance, 2014



B. LAC trade and finance in regional comparison, 2014



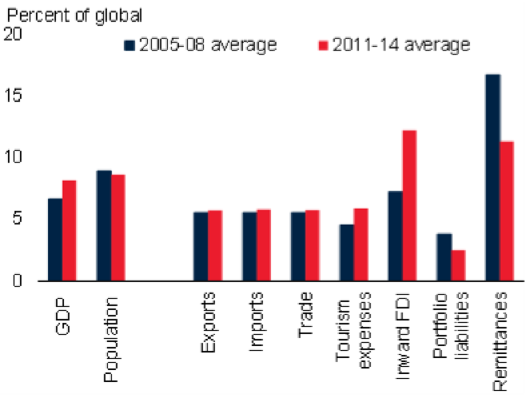
Sources: IMF October 2015 World Economic Outlook, IMF International Financial Statistics, IMF Direction of Trade Statistics, UNCTAD FDI/TNC database, World Bank Remittance and Migration Database, World Bank World Development Indicators.
B. The red bar denotes exports, imports, trade, remittance inflows, portfolio liabilities and FDI inflows in percent of GDP on average across LAC countries. The vertical line denotes the range of averages for all six developing country regions.

BOX 2.3.1 Regional integration and spillovers: Latin America and the Caribbean *(continued)*

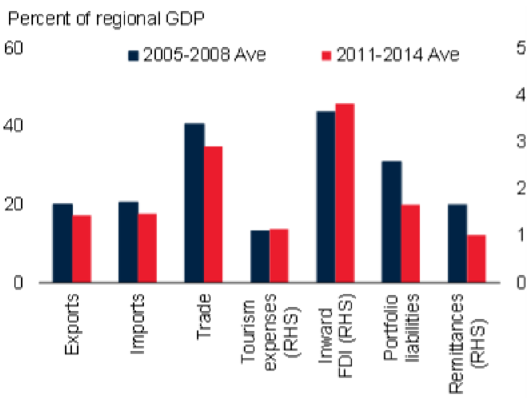
FIGURE 2.3.1.2 Evolution of openness

External ties—other than remittances—have grown broadly in line with the global economy. However, they have shrunk relative to regional GDP as a result of rapid growth led by domestic demand that was supported by policy in the wake of the crisis. Slow growth in Europe and a fragile recovery in the United States have set back remittances.

A. LAC's share of global GDP, population, trade and financial flows



B. Trade and financial flows in percent of regional GDP



Sources: IMF April 2015 World Economic Outlook, IMF International Financial Statistics, IMF Direction of Trade Statistics, UNCTAD FDI/TNC database, World Bank Remittance and Migration Database, World Bank World Development Indicators.
Note: Tourist arrivals and tourism expenditures data are average 2011-2013.

The Caribbean is deeply tied to the United States and to Japan, via foreign claims on Caribbean banks. Similar to Central America, sub-regional trade is modest (around 16 percent of total sub-regional total merchandise exports in 2014). This may partly reflect countries having similar economic structures and a prevalence of services trade.

Major trade agreements such as NAFTA and CAFTA-DR deepened ties between LAC and North America (World Bank 2014a). The 1994 NAFTA between Canada, Mexico, and the United States, was aimed at eliminating tariffs and substantially reducing nontariff barriers in a broad range of sectors by 2008. NAFTA has greatly boosted trade and FDI flows, and at the same time increased business cycle co-movement among the three North American economies (Lederman, Maloney and Servén. 2005). For example, NAFTA is estimated to have increased Mexican exports to the United States by 5-8 percent per year. Other estimates attribute to NAFTA as much as half of the post-1993 increase in exports from Mexico to the United States.[2]

The Dominican Republic-Central America FTA (CAFTA-DR) is a free trade agreement between the United States and Central American economies (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, the Dominican Republic), which came partially into effect in 2005 and fully in 2009. Total goods trade between the U.S. and the six CAFTA-DR partners increased from $35 billion in 2005 to $60 billion in 2013 (USTR 2015). The trade and growth benefits of the agreements would be considerably enhanced by domestic reforms and infrastructure investment (Lopez and Shankar 2011).

Regional integration has been promoted through various regional agreements within the sub-regions (Figure 2.3.1.4):

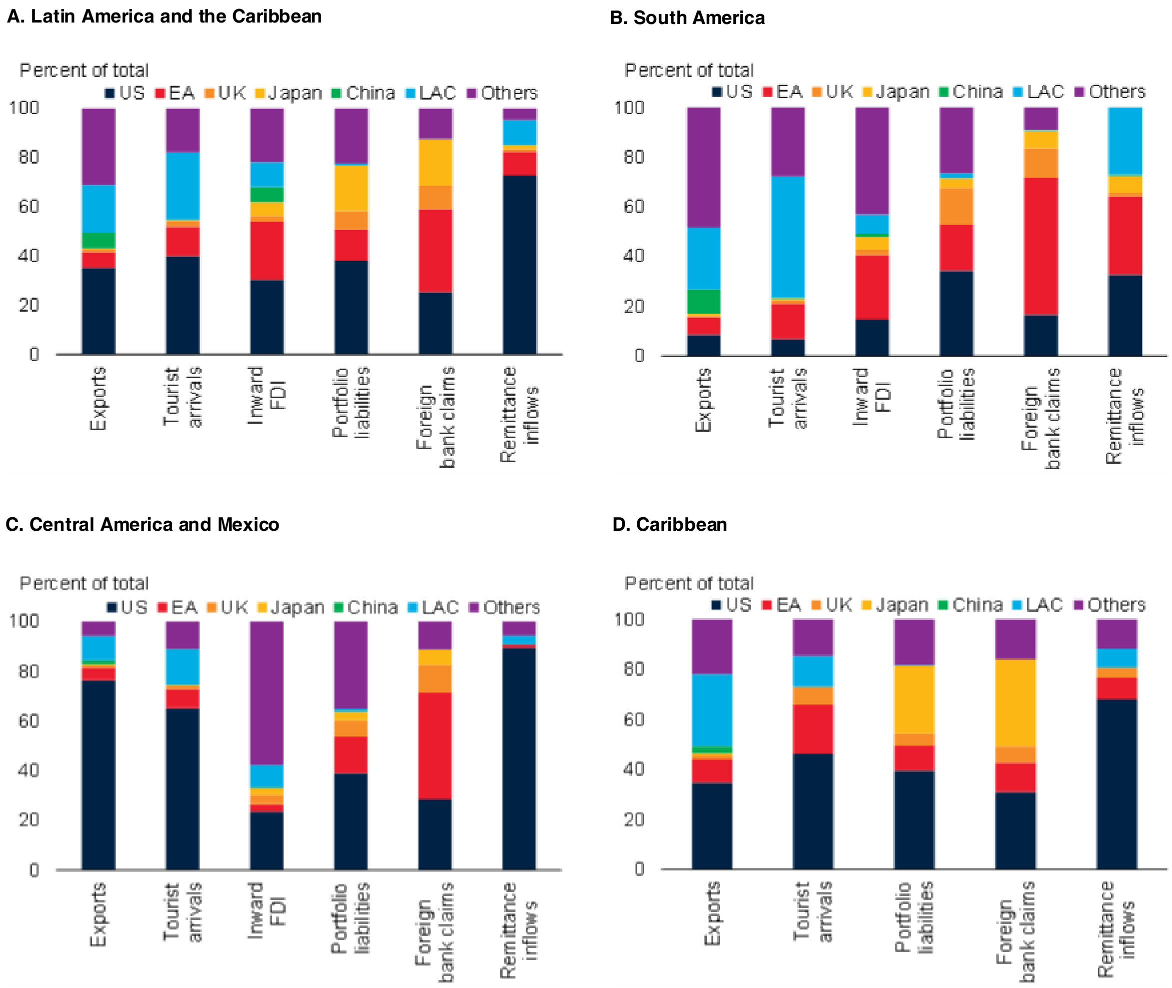
- The Mercosur (Common Market of the South) customs union came into force in 1991, and comprises five member countries—Argentina, Brazil, Paraguay, Uruguay, and the República Bolivariana de Venezuela—and Bolivia, which is in the final stages of the accession to become the sixth member. While

[2]See Romalis (2007); CBO (2003); Easterly, Fiess and Lederman (2003); Cuevas, Messmacher, and Werner (2002); Torres and Vela (2003); Kose, Meredith, and Towe (2005). Lederman, Maloney, and Serven (2005) estimate that Mexico's exports would have been 50 percent lower and its FDI 40 percent less without NAFTA and the agreement may have lifted GDP per capita by some 4 percent during 1994-2002.

BOX 2.3.1 Regional integration and spillovers: Latin America and the Caribbean *(continued)*

FIGURE 2.3.1.3 Sources of trade and financial flows

LAC has a diversified set of export markets. Remittances are predominantly from the United States, and financial inflows are mostly from Europe. However, there are considerable differences between sub-regions. Central America, Mexico and the Caribbean are most closely tied to the United States. South America is most closely tied to Europe and other countries within the region.



Sources: IMF April 2015 World Economic Outlook, IMF International Financial Statistics, IMF Direction of Trade Statistics, UNCTAD FDI/TNC database, World Bank Remittance and Migration Database, World Bank World Development Indicators, UNWTO, Bank for International Settlements.
Note: Exports and remittance inflows are average 2011-14. Portfolio liabilities and tourist arrivals are average 2011-13. FDI inflows are average 2010-12. Foreign banking claims are for 2014.

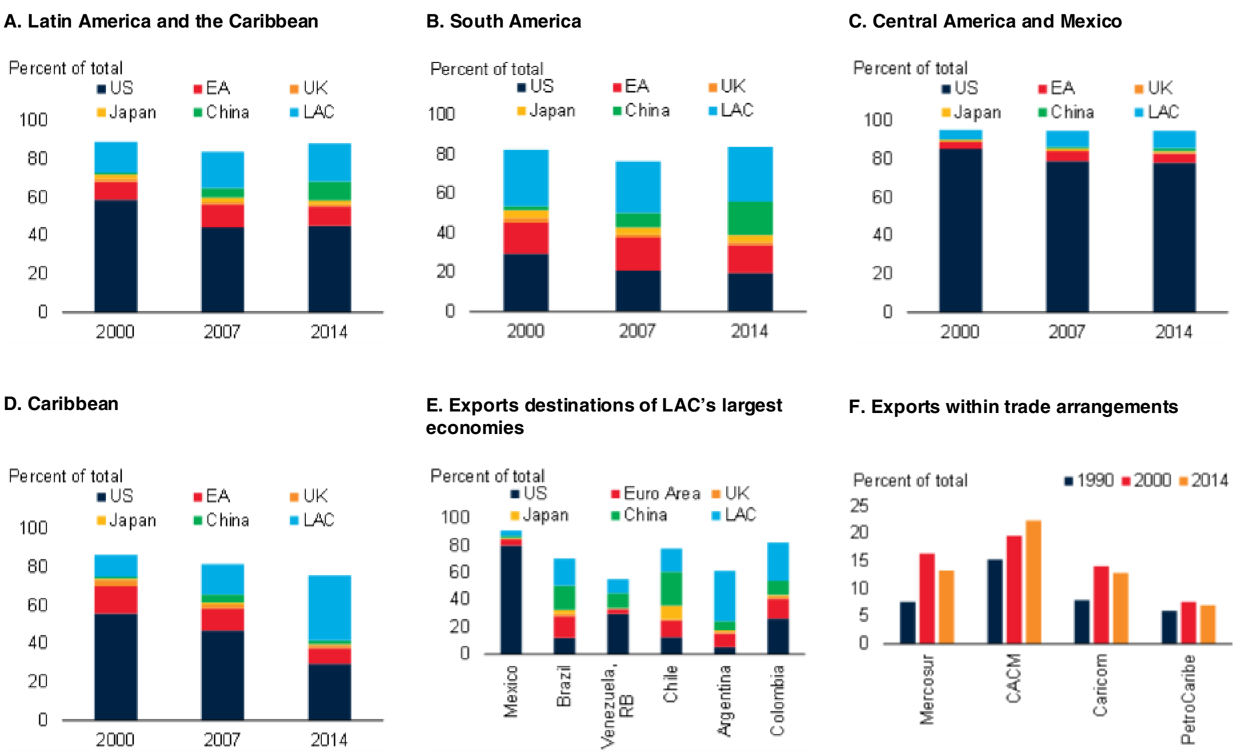
there has been some controversy about the net impact of Mercosur, the share of exports to other members has increased from 7.6 percent in 1990 to 13.3 percent in 2014 (Connolly and Gunther 1999).

- CACM (Central American Common Market) is an association of five Central American nations (Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica) that was formed in 1960 to facilitate regional economic development through free trade and economic integration. Exports among members have steadily increased from about 15 percent in 1990 to around 22 percent of total exports in 2014. Since its inception, CACM is estimated to have tripled

BOX 2.3.1 Regional integration and spillovers: Latin America and the Caribbean *(continued)*

FIGURE 2.3.1.4 LAC exports

LAC exports to the United States have grown less rapidly than those to China (especially for South America) and to other LAC countries (especially in the Caribbean).



Source: IMF Direction of Trade Statistics.
E. Data is for 2014.
F. Mercosur members: Argentina, Brazil, Paraguay, Uruguay, and República Bolivariana de Venezuela (established 1991). CACM members: Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica (established 1960). Caricom members: Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago (established in 1973). PetroCaribe members: Antigua and Barbuda, the Bahamas, Belize, Cuba, Dominica, Dominican Republic, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Saint Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, and República Bolivariana de Venezuela (established in 2005). Chart shows República Bolivariana de Venezuelan exports to PetroCaribe members as a share of total exports.

member country exports compared to a baseline without such an agreement (Baier and Bergstrand 2009).

- Caricom (The Caribbean Community) is a common market established in 1973. Members consist of Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago. Empirical estimates have found that the agreement has had a modest impact on trade among members (Moreira and Mendoza 2007). Within-agreement exports constituted 13 percent of total exports in 2014.

- PetroCaribe is an energy initiative launched in 2005 to supply Venezuelan crude oil to countries in the Caribbean region on discounted terms. Current members of PetroCaribe include Antigua and Barbuda, the Bahamas, Belize, Cuba, Dominica, Dominican Republic, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Saint Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines,

BOX 2.3.1 Regional integration and spillovers: Latin America and the Caribbean *(continued)*

Suriname, and República Bolivariana de Venezuela.[3] The share of Venezuelan exports to PetroCaribe members has remained broadly unchanged since the inception of the initiative.

How large are the potential regional spillovers from Brazil and Mexico?

Brazil and Mexico are the largest economies in LAC. Together, these two countries account for 60 percent of regional GDP and trade, 50 percent of population, 75 percent of portfolio and 50 percent of FDI flows and 30-40 percent of tourism expenditures and remittance flows (Figure 2.3.1.7).

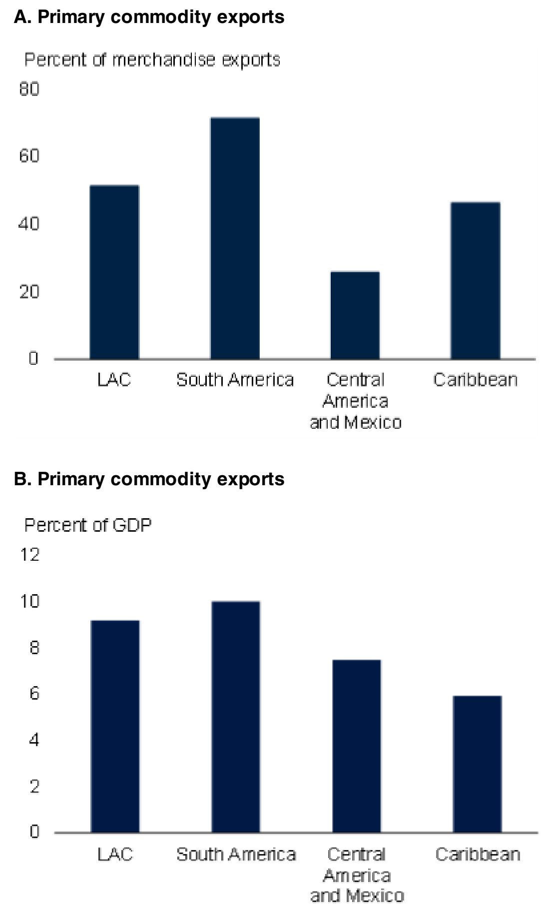
Business cycle co-movements can be indicative of intraregional spillovers. Correlations of quarterly growth suggest that business cycles of a number of LAC economies are positively correlated with those of Brazil and Mexico (Figure 2.3.1.8). South American economies tend to exhibit higher business cycle correlations with Brazil, and Central American economies have higher business cycle correlations with Mexico. These correlations appear to be driven mainly by relative trade shares, but they could also be indicative of economies responding together to a common external shock.

To examine the magnitude of spillovers from Brazil and Mexico to their Latin American neighbors, while accounting for common external factors, a series of country-specific Bayesian structural vector autoregressions (VARs) models are estimated. The VARs include G-7 growth, EMBI as a proxy for external financing conditions, growth in China (a major non-G7 trading partner for the region), growth in Brazil and Mexico as source countries of shocks, trade-weighted commodity prices, growth in each spillover destination country, and real effective exchange rates (see Annex 3.2 for details). The analysis includes 13 spillover destination countries in LAC.[4] The data coverage is for 1998 Q1 - 2015 Q2, except for Colombia and Honduras where the data runs from 2000 Q2 – 2015 Q2, and Jamaica, where it 2002 Q2 – 2015 Q2. A dummy variable is included for the global financial crisis.

The results suggest that spillovers from Brazil to neighboring countries are moderate, while those from Mexico are negligible.

FIGURE 2.3.1.5 LAC commodity exports

The LAC region's exports are heavily concentrated in primary commodities.



Source: UN Comtrade Database 2015.
A. and B. GDP-weighted averages for 2013-14.

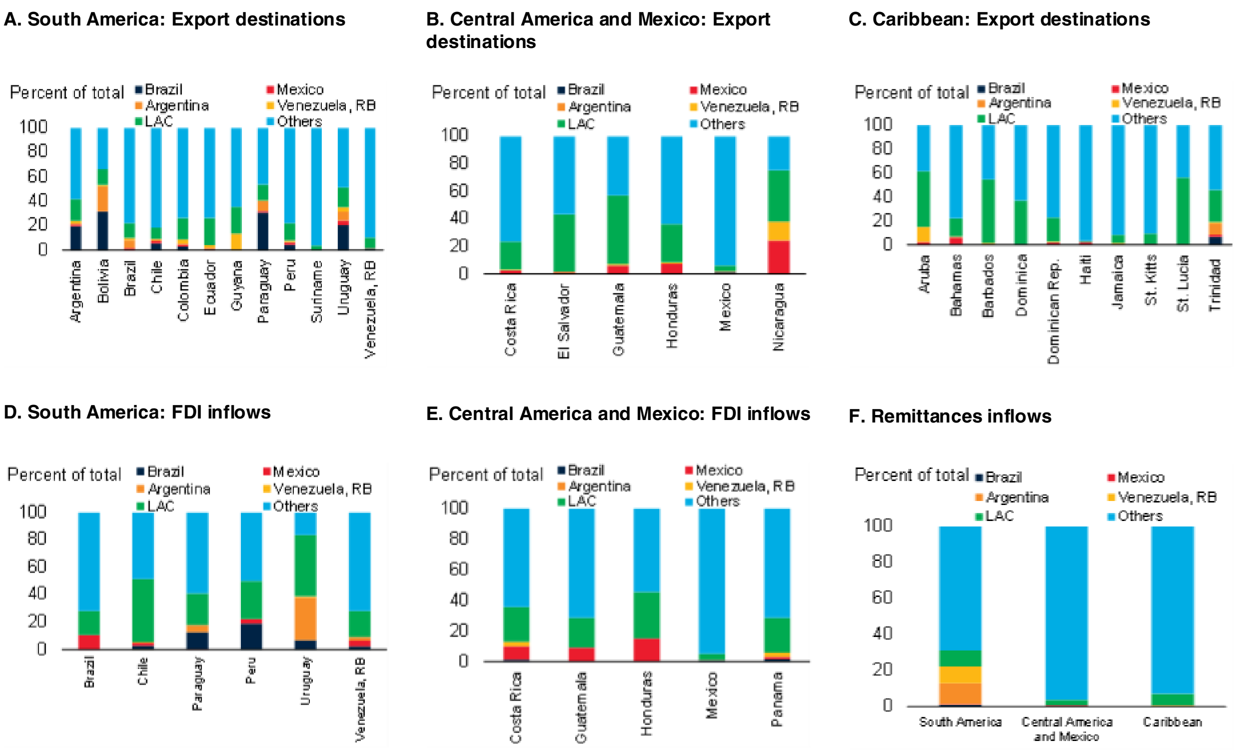
[3]Under the PetroCaribe program, the member countries that purchase oil from República Bolivariana de Venezuela pay for a certain percentage of the oil (depending on world oil prices) within 90 days, and the remainder is paid over a period of 25 years with an interest rate of one percent annually. Part of the cost may be offset by the provision of goods or services. Recently, to secure external funds, the government of República Bolivariana de Venezuela has renegotiated repayment, at deep discounts, of commercial credits to the Dominican Republic, Jamaica and Uruguay.

[4]Southern Cone countries include Argentina, Chile, Paraguay and Uruguay. Andean Community countries include Bolivia, Colombia, Ecuador and Peru. Central America and Caribbean economies include Belize, Guatemala, El Salvador, Honduras and Jamaica.

BOX 2.3.1 Regional integration and spillovers: Latin America and the Caribbean *(continued)*

FIGURE 2.3.1.6 Within-region trade and FDI

Brazil accounts for a significant share of trade and FDIs to other South American countries, while Mexico only has significant FDI links. Remittances come predominantly from outside the region.



Source: IMF Direction of Trade Statistics, UNCTAD FDI/TNC database, World Bank Bilateral Remittance Matrix 2014.
Notes: A-C. Data for 2014.
D-E. Data for average of 2010-12.
F. Data is for 2014.

- *Spillovers from Brazil.* In the estimation results, growth declines in Brazil tend to have measurable or statistically significant spillovers to its South American neighbors. A one percentage point decline in Brazil's growth tends to reduce growth in Argentina, after 2 years, by 0.7 percentage point, in Paraguay by 0.6 percentage point, in Ecuador and Peru by 0.3 percentage point, and in Chile and Colombia by 0.2 percentage point (Figure 2.3.1.9).[5,6]

- Spillovers from Mexico. In contrast, spillovers from Mexico to Central America are negligible or not statistically significant (Figure 2.3.8). This result is in line with findings in other studies (Adler and Sosa 2014; Kose, Rebucci and Schipke 2005; Swiston 2010).

While there are measurable regional spillovers, particularly in South America, they are modest compared to those from the region's main external trade and financial partners. Over the two years following the growth decline, a one percentage point decrease in G7 growth lowers

[5]Brazil is Argentina's largest trading partner. In some sectors, such as automobiles, Brazil accounts for about 80 percent total exports. Spillovers from Brazil to Argentina play a big role in these sectors, and contracting economic activity in Brazil has adversely affected the auto industry in Argentina, spurring waves of production stoppages in major auto plants in 2015.

[6]The estimates from Adler and Sosa (2014) differ somewhat, partly because their sample time period includes the Tequila crisis of 1994. Their results show that spillovers from Brazil are significant for Argentina, Bolivia, Paraguay, Peru, Uruguay, and the República Bolivariana de Venezuela, but less so for Ecuador.

BOX 2.3.1 Regional integration and spillovers: Latin America and the Caribbean *(continued)*

growth by more than 1 percentage point in Brazil, Chile, Mexico, Honduras and Ecuador. This is broadly in line with Österholm and Zettelmeyer (2008) who find a roughly one-for-one response to a change in growth in the United States. Similarly, Izquierdo, Romero, and Talvi (2008) also find a pass through of 0.6 percentage point to LAC GDP growth in response in 1 percentage point increase in G7 industrial production.

As a result of deep trade and financial links, spillovers from the United States to the region are particularly strong. Peaks and troughs of industrial production in some of the largest LAC countries—especially Mexico—tend to coincide with those in the United States (Cuevas, Messmacher and Werner 2003; Mejía-Reyes 2004). U.S. growth and U.S. industrial production are significantly correlated with growth in Mexico and Central America (IMF 2007; Fiess 2007; Roache 2008).

In addition, these estimates also show sizable linkages with China. A one percentage point growth deceleration in China reduces growth in Argentina by about 1.9 percentage points, in Brazil, Peru, Paraguay and Uruguay by 0.5 percentage point, and in Ecuador, Chile, Bolivia, Honduras, Guatemala, Colombia, El Salvador, and Mexico by 0.2 percentage point.[7] While larger than the estimated regional spillovers from Brazil and Mexico, the estimated spillovers from G7 economies to the LAC region are smallest among six World Bank regions of developing economies (see Box 3.4 and Figure 3.4.3), largely because the LAC region is more closed to the global economy than other regions. Overall, these findings are broadly in agreement with Boschi and Girardi (2011) and Caporale and Girardi (2012), who find that global factors are somewhat more important sources of output growth variability in LAC than regional factors.[8]

Conclusion

Despite a number of regional agreements, regional trade remains limited, partly reflecting the lack of an extensive

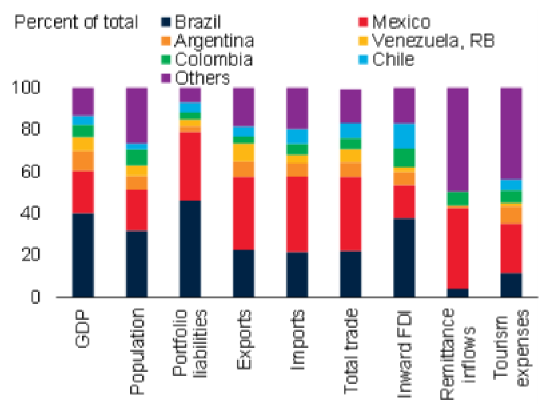
[7]Similar findings were reported in World Bank (2015n) and Cesa-Bianchi et al. (2012).

[8]A number of previous authors who have found that country-specific factors explain the majority of cyclical variation and output variability in LAC growth (Kose, Otrok and Whiteman 2003; IMF 2007; Loayza, Lopez and Ubide 2001; Boschi and Girardi 2011). On the other hand, other studies have also documented that external factors nevertheless do account for a significant share of growth variance of LAC economies (Izquierdo, Romero and Talvi 2008; Österholm and Zettelmeyer 2008; Aiolfi, Catão and Timmermann 2011).

FIGURE 2.3.1.7 The role of the largest economies in LAC

Brazil and Mexico are, by far, the largest economies in the region. In 2011-2014, these two countries accounted for 60 percent of regional GDP and trade, 50 percent of its population, 75 percent of portfolio and 50 percent of FDI flows, and 30-40 of tourism expenditures and remittance flows.

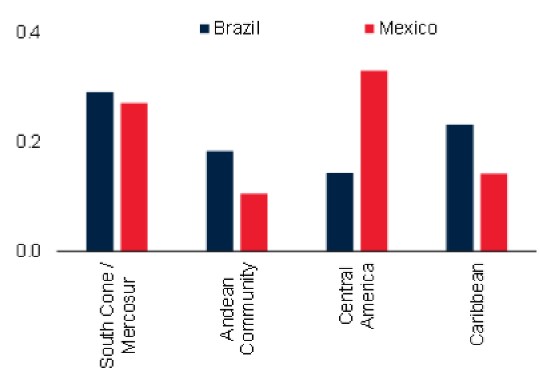
A. Share of regional total, 2011-14.



Source: IMF April 2015 World Economic Outlook, IMF International Financial Statistics, IMF Direction of Trade Statistics, UNCTAD FDI/TNC database, World Bank Remittance and Migration Database, World Bank World Development Indicators.
Note: GDP, Exports, FDI inflows and Remittance inflows are average for 2011-14. Portfolio liabilities are average 2011-13.

FIGURE 2.3.1.8 Correlations with Brazil and Mexico

Business cycles of a number of LAC economies are positively correlated with cycles in Brazil and Mexico. Correlations tend to be larger for countries in close proximity.



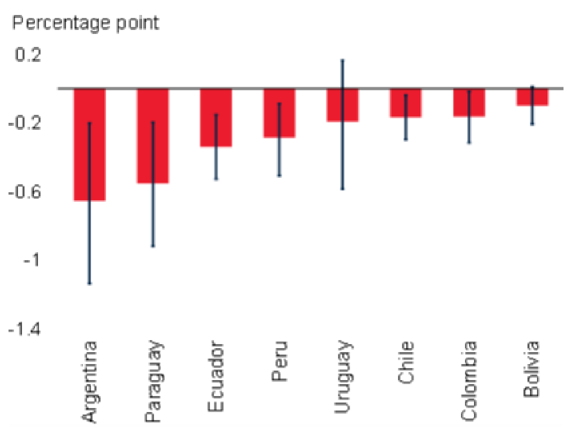
Source: Haver Analytics and World Bank staff estimates.
Note: Cross-country average of contemporaneous correlations in each country's quarterly growth with that of Brazil or Mexico.

BOX 2.3.1 Regional integration and spillovers: Latin America and the Caribbean *(continued)*

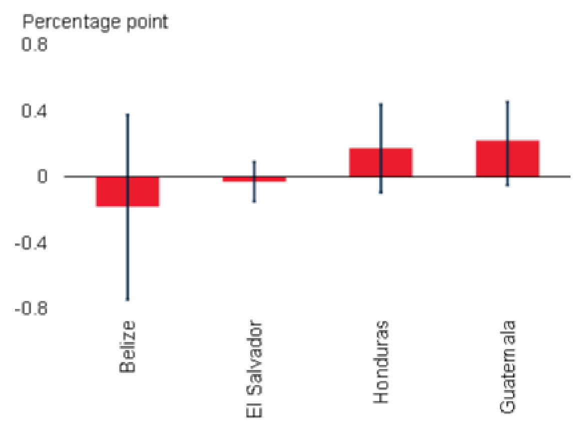
FIGURE 2.3.1.9 Spillovers from Brazil, Mexico, G7 and China

Growth shocks in Brazil have measurable spillovers to its South American neighbors - Argentina, Chile, Colombia, Ecuador, Paraguay and Peru. Estimated spillovers from growth shocks in Mexico are not statistically significant. Within-region spillovers are considerably smaller than spillovers from growth shocks in G7 countries or China.

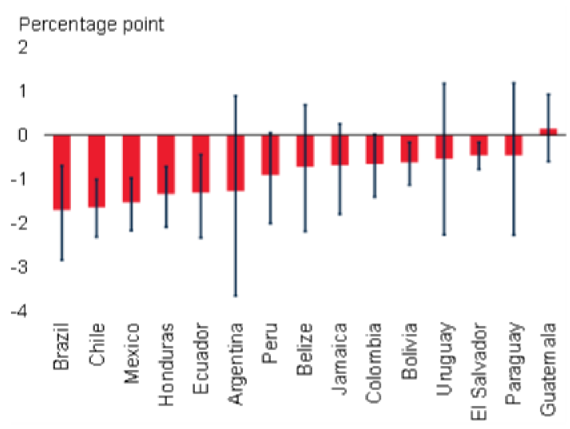
A. Impact on growth of a 1 percentage point decline in Brazil's growth



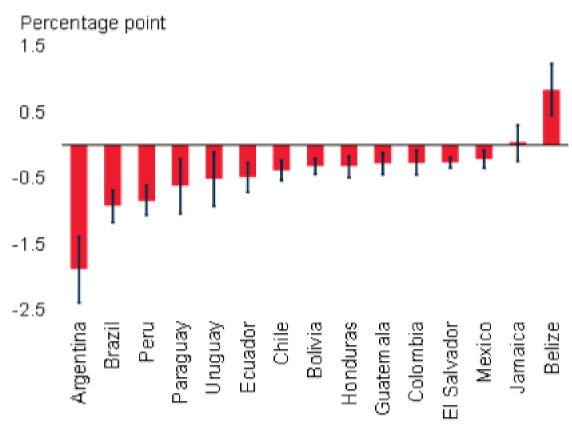
B. Impact on growth of a 1 percentage point decline in Mexico's growth



C. Impact on growth of a 1 percentage point decline in G7 growth



D. Impact on growth of a 1 percentage point decline in China's growth



Source: World Bank staff estimates.
Note: Spillover estimates derived from impulse responses after two years from a Bayesian structural vector autoregression estimated using quarterly seasonally adjusted GDP data. The maximum data coverage is 1998Q1-2015Q2; while coverage for some countries is shorter (from 2000Q2 for Colombia and Honduras and from 2002Q2 for Jamaica). The model is estimated for each spillover destination country and the variables include, in this Cholesky ordering: G-7 growth, EMBI, China growth, Brazil and Mexico growth, the country's trade-weighted commodity price growth, the country's real GDP growth, and the country's real effective exchange rate appreciation. Quarterly GDP data was downloaded from Haver Analytics on November18, 2015. Bars represent medians, and error bars 33-66 percent confidence bands.

international value chain network and heavy reliance on commodity exports to external markets. The lack of economic diversification and narrow product base could be another contributing factor to the generally closed nature of the region (IMF 2015h). Poor quality of regional transport networks and associated infrastructure further hinder within-region trade (World Bank 2012a; Figure 2.3.1.10). Intraregional trade linkages and FDI

BOX 2.3.1 Regional integration and spillovers: Latin America and the Caribbean *(continued)*

flows within Latin America are largely confined within sub-regions (De la Torre, Lederman and Pienknagura 2015). These linkages are stronger in South America than in Central America.

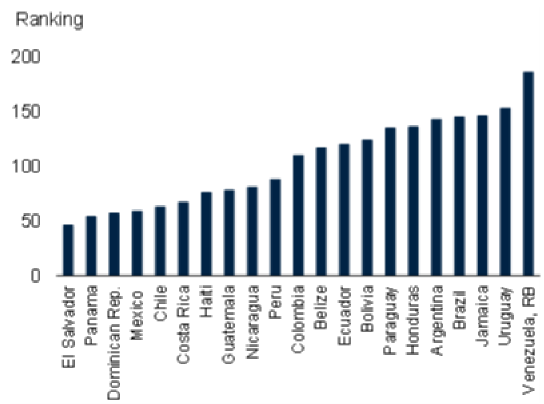
Reflecting these modest within-region ties, spillovers from growth decelerations in Brazil to some of its South American neighbors are estimated to be modest, while spillovers from Mexico are negligible. Spillovers from the region's main trading partners, however, tend to be considerably larger than within-region spillovers, albeit less than in other emerging and developing country regions.

Regional trade could strengthen in the medium term. With commodity prices expected to stabilize around current low levels, export baskets could shift towards a more diversified export product mix among regional commodity exporters, facilitating regional trade. Moreover, the sharp depreciations of regional currencies against the U.S. dollar may favor imports from intra-regional partners at the expense of those from the United States.

FIGURE 2.3.1.10 Ease of trading across borders

LAC economies are ranked low in terms of ease of trading across borders.

A. Rankings in Ease of Trading Across Borders, 2015



Source: World Bank 2015f.