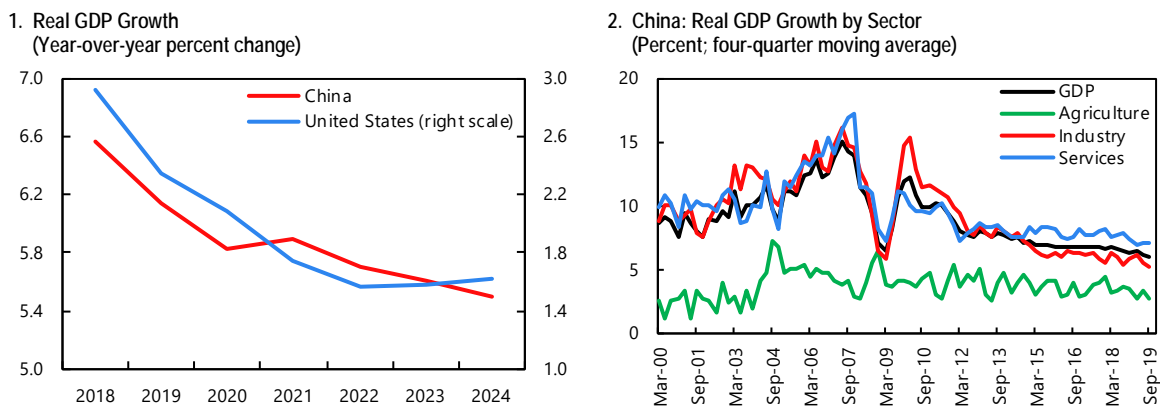# Spillovers to Latin America from Growth Slowdowns in China and the United States[1]

Economic activity in China and the United States is projected to slow down going forward due to cyclical forces, population aging, and sluggish productivity growth. Moreover, heightened trade and technology tensions could lead to a faster slowdown in the near term. These developments will likely have spillovers to other countries, including to Latin America. This annex seeks to quantify these spillovers using empirical and model-based techniques. The results show larger spillovers for countries that are more exposed to China or the United States through trade, commodity prices, and financial flows. For example, a temporary fall of 1 percentage point in China's growth would reduce growth in Chile and Peru—the two countries most exposed to China—by 0.2–0.3 percentage points. A similar US shock would lower growth in Costa Rica and Mexico by 0.5 percentage points. These spillovers could be significantly larger if the slowdowns in China and the United States also lead to tighter financial conditions in emerging market economies, including in Latin America.

Introduction

Economic activity in China and the United States is projected to slow down in the coming years owing to cyclical forces, population aging, and low productivity growth (Figure 1, panel 1). Moreover, heightened trade and technology tensions could lead to a faster than expected decline in near-term growth in both countries. China's economy is also expected to continue rebalancing away from industry and investment towards services and consumption (Figure 1, panel 2). These developments will likely have spillovers to the rest of the world, including to Latin America.

Figure 1. Economic Growth in China and the United States

1. Real GDP Growth
(Year-over-year percent change)

2. China: Real GDP Growth by Sector
(Percent; four-quarter moving average)

Sources: China, National Bureau of Statistics; IMF, World Economic Outlook database; and IMF staff calculations.

The impact from the slowdowns in China and the United States and the trade and technology tensions are already visible in the data. Merchandise exports and imports, both in value and volume, have slowed sharply in China and the United States in 2019 (Figure 2). This reflects to a large extent a reduction in their bilateral trade, but other regions in the world have also been impacted. For example, the sharp slowdown in China's imports is already affecting countries integrated in value chains with China and commodity exporters.
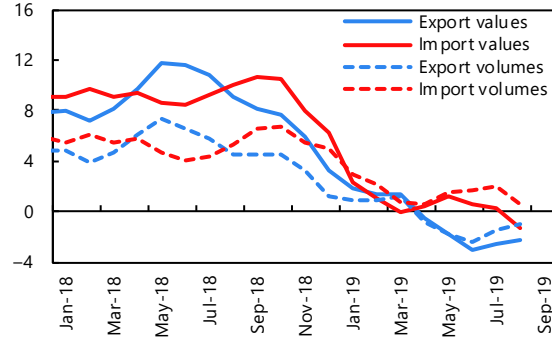
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[1]This annex was prepared by Jaime Guajardo, Keiko Honjo, and Mehdi Raissi.

Figure 2. Merchandise Trade in China and the United States
(Percent; three-month moving average)

1. China: Growth of Merchandise Exports and Imports
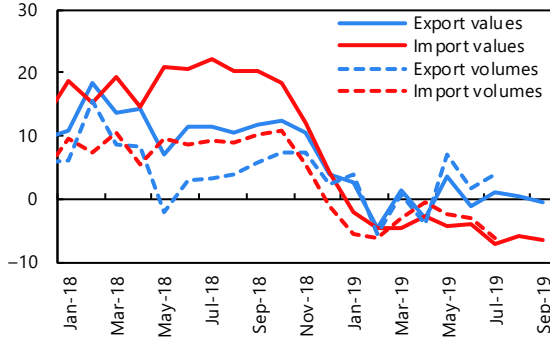
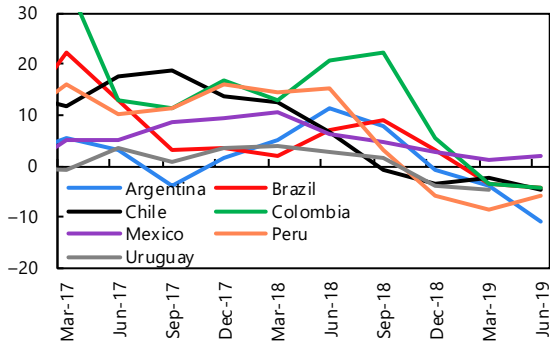2. United States: Growth of Merchandise Exports and Imports

Sources: China Customs; United States Bureau of the Census; and IMF staff calculations.

Latin America has also been affected by the global trade slowdown. After growing robustly in 2018, merchandise exports have slowed sharply in the first half of 2019. This has not only been due to a fall in export prices from a year ago in most countries (Figure 3, panel 1), but also to a slowdown in export volumes, except in Argentina (Figure 3, panel 2). In fact, export values have fallen from a year ago in most countries during the first half of 2019. Reduced exports to China and the United States have played a major role on these trends, but lower exports to Europe and other Latin American countries have also contributed (Figure 4). The latter likely reflects the ongoing growth slowdown in Europe and Latin America, which is in part due to idiosyncratic factors, but also to the indirect effects from the growth slowdowns in China and the United States and the heightened trade and technology tensions.

Figure 3. Latin America: Merchandise Export Prices and Volumes
(Year-over-year percent change)

1. Latin America: Merchandise Export Prices

2. Latin America: Merchandise Export Volumes
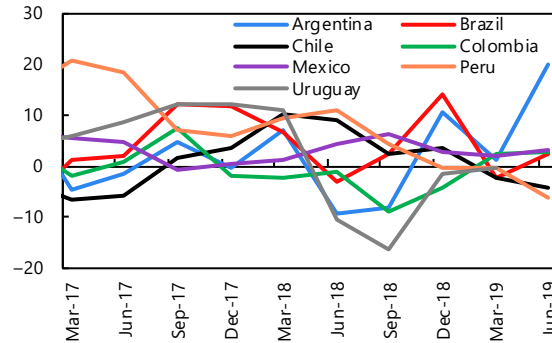
Sources: National authorities; and IMF staff calculations.

Figure 4. Latin America: Growth of Merchandise Exports by Trading Partner
(Percent; three-month moving average)

Legend: LAC · CHN · JPN-KOR · USA · EUR · Other · World

1. Argentina
2. Brazil
3. Chile
4. Colombia
5. Costa Rica
6. Mexico
7. Peru
8. Uruguay
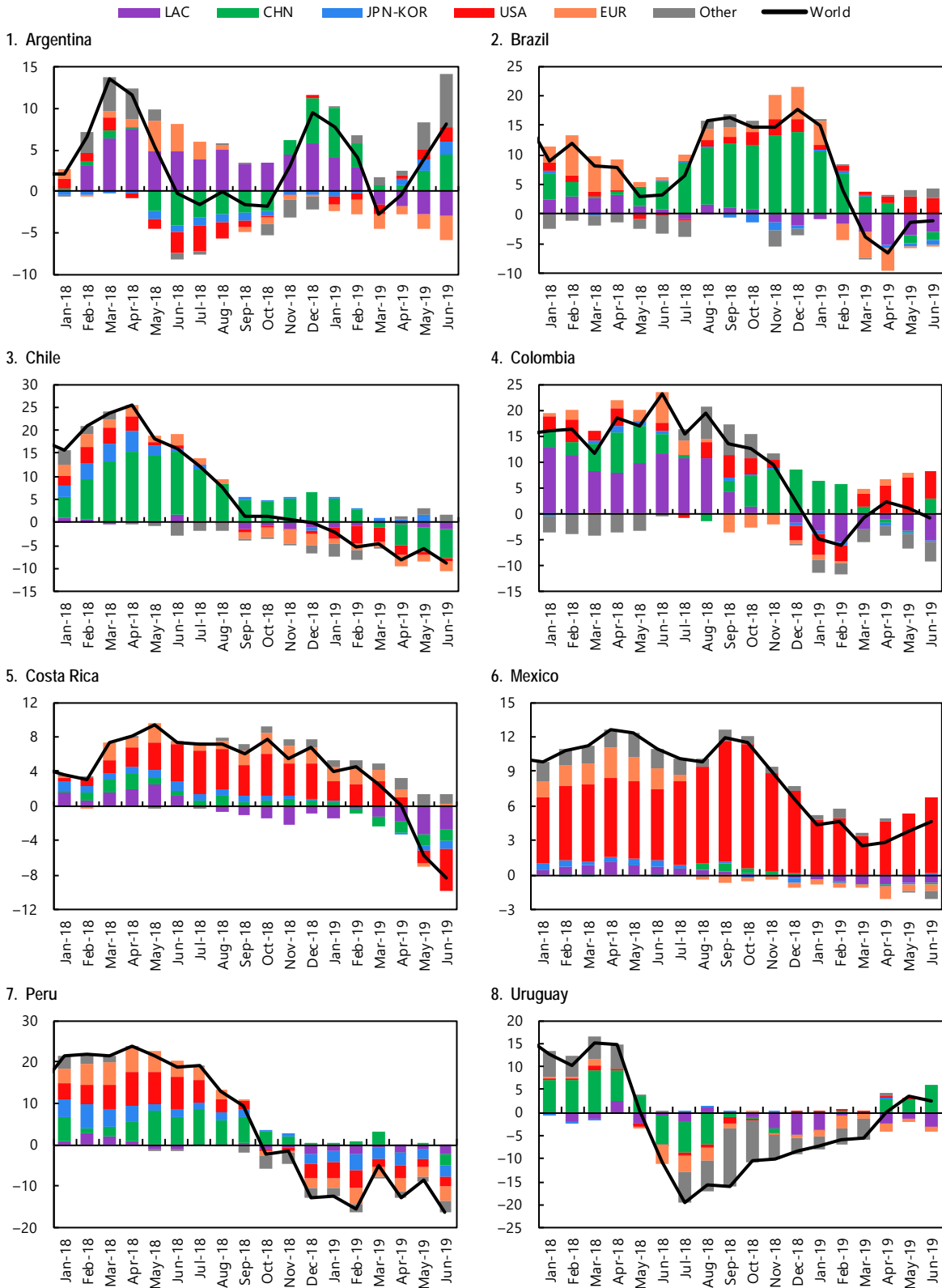
Sources: IMF, Direction of Trade Statistics database; and IMF staff calculations.

Spillovers from growth shocks in systemic economies have been studied extensively in the literature, including in IMF Spillover Reports (IMF 2011, 2012, 2014). Duval and others (2014) show that growth spillovers from China are larger for economies more dependent on China's final demand. Ahuja and Nabar (2012) find large spillovers from investment shocks in China for countries involved in regional supply chains and commodity exporters. Dizioli and others (2016) find large spillovers from growth shocks in China for economies exposed to China in trade and commodity exporters. China's economic activity is also found to affect oil prices (IMF 2011; Anderson and others 2015). Kose and others (2017) find sizable spillovers from US growth shocks in both advanced and emerging market economies.

This annex seeks to quantify the size of spillovers for Latin America considering three channels of transmission: trade, commodity prices, and financial flows. The region has historically had strong ties with the United States and more recently also with China. While this has benefited the region through enhanced access to external trade and financing, it has also made it more susceptible to growth spillovers from these economies. This annex first looks at the country exposures to China and the United States through each channel. It then quantifies the spillovers using a Global Vector Autoregression (GVAR) framework and the IMF's Flexible System of Global Models (FSGM). It finally concludes.
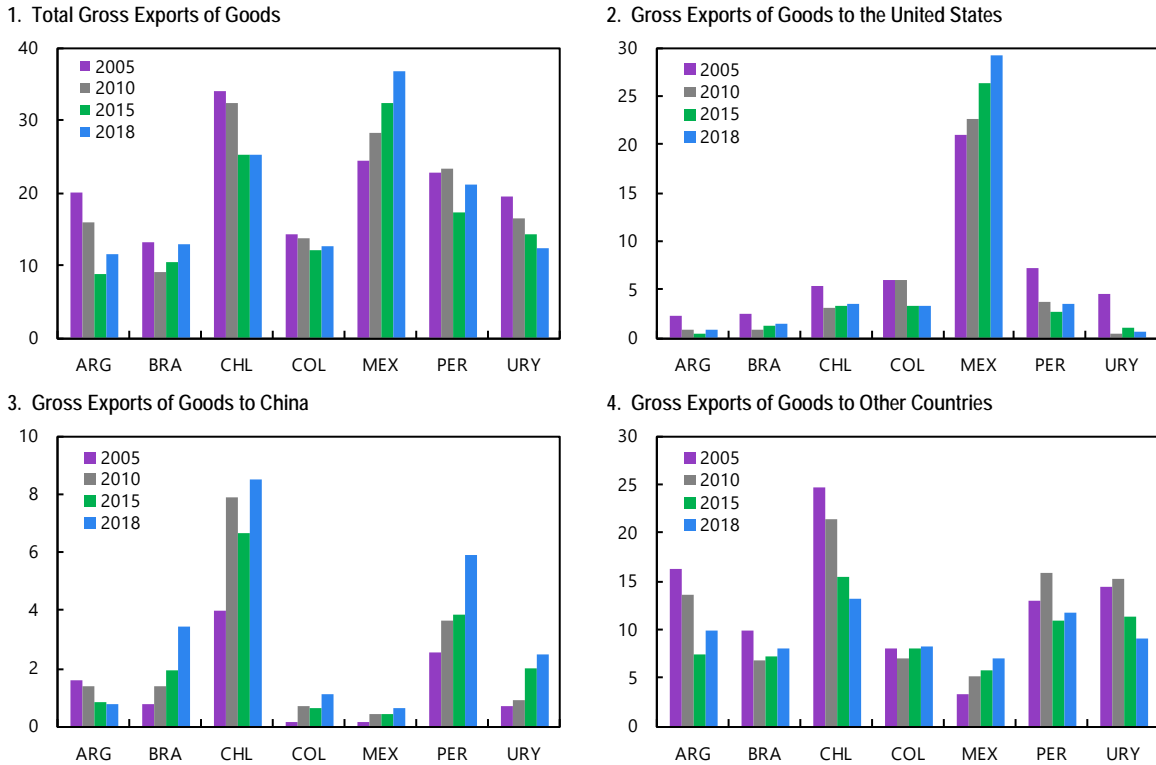
Exposures to China and the United States

Countries in Latin America are exposed to growth shocks in China and the United States through three main channels. The first one is trade as China and the United States are key trading partners for the region. The second one is commodity prices as Latin America relies heavily on commodity exports, while China and the United States are key players in global commodity markets. The last one is financial flows, which affect mainly countries with open capital accounts and high reliance on foreign financing.

Trade Channel

This annex focuses on the trade of goods to assess the size of trade exposures. The focus on goods trade is due to availability of data by trading partner, which is scarce for trade of services. Two series are considered: gross exports from the IMF's Direction of Trade (DOT) database, and exports in value added from the OECD's Trade in Value Added (TiVA) database. DOT data is available at high frequency and with little lag, but it can overstate trade exposures for countries engaged in global value chains. TiVA data can measure trade exposures better by focusing on the domestic value-added content of gross exports. It also provides valuable information on whether these exports are used for the trading partners' domestic demand or as inputs for the trading partner's exports. However, TiVA data is only available at annual frequency and with a significant lag.

Gross exports show that the trade channel is key for Chile, Mexico, and Peru, for which total goods exports accounted for more than 25 percent of GDP in 2018 (Figure 5, panel 1). The United States is by far the main export destination for Mexico, accounting for 80 percent of total exports (Figure 5, panel 2). Chile and Peru, on the other hand, have a more diversified set of trading partners. While China is their main export destination, accounting for 34 and 28 percent of total exports (Figure 5, panel 3), the United States and other countries are also important trading partners for these countries (Figure 5, panels 2 and 4). The trade channel appears to be less relevant for Argentina, Brazil, Colombia, and Uruguay, although Brazil and Uruguay have sizable exports to China, and Colombia to the United States.

Figure 5. Latin America: Gross Exports of Goods
(Percent of GDP)

1. Total Gross Exports of Goods

2. Gross Exports of Goods to the United States

3. Gross Exports of Goods to China

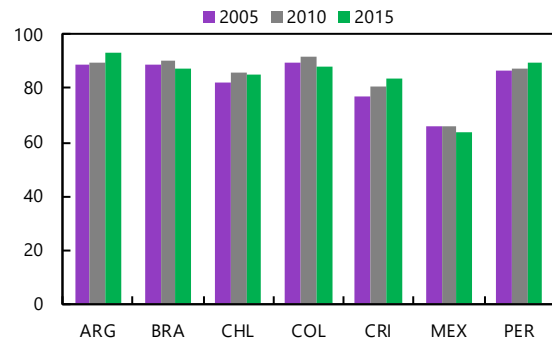4. Gross Exports of Goods to Other Countries

Sources: IMF, Direction of Trade Statistics database; and IMF staff calculations.
Note: Data labels use International Organization for Standardization (ISO) country codes.

Trade in value added gives a similar picture. Figure 6 shows that the domestic value-added embedded in the gross exports is high at near 90 percent for most Latin American countries, but for Mexico. As few imported inputs are used in the production of exports, this indicates low backward integration into global value chains. Thus, trade exposures based on gross exports should be in general good measures of the strength of the trade channel in the region.
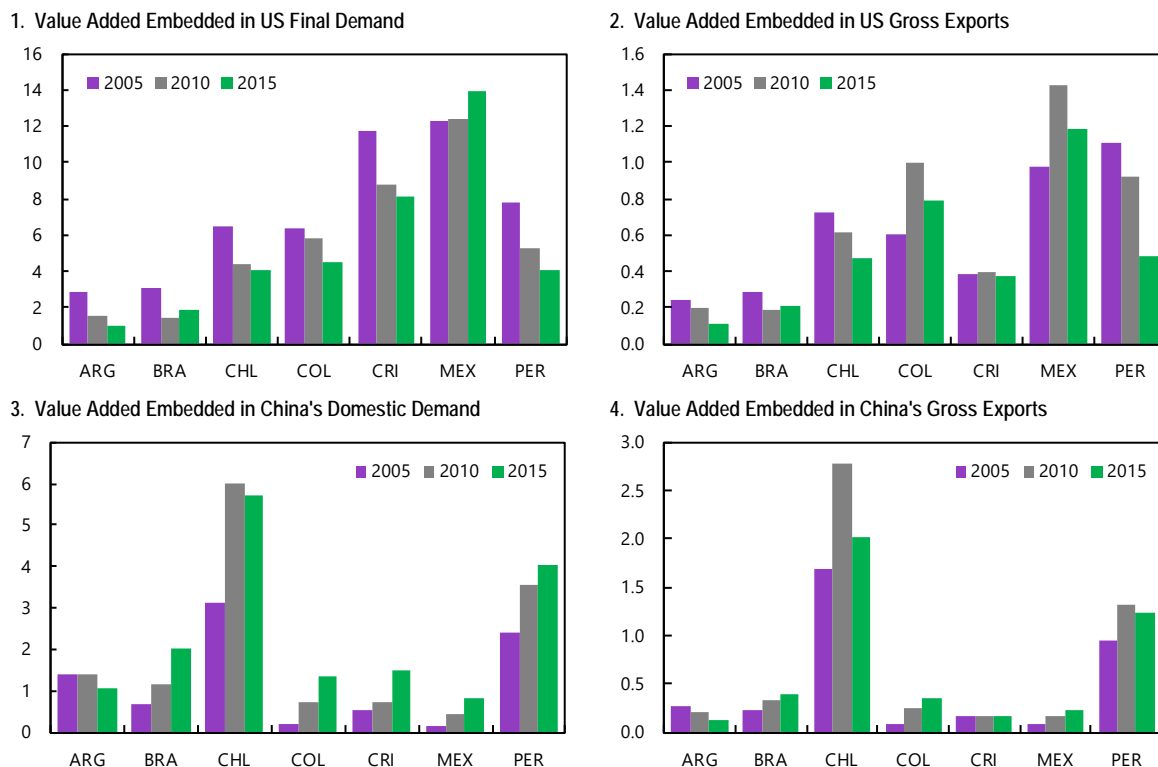
Trade in value added also provides valuable information on the source of exposures. Two types of exposures can be studied, that to the trading partner's domestic demand and that to the trading partner's exports. The former measures exposures to the trading partner's growth, while the latter measures exposures to the strength of the trading partner's export markets and trade shocks such as the US-China trade tensions. Figure 7 shows that Mexico is the most exposed to the United States under both metrics, with Colombia and Costa Rica also having sizable US exposures. Chile and Peru are more exposed to China's domestic demand and exports, but their US exposures are also sizable. Brazil has non-negligible exposures to China, while Argentina is not significantly exposed to either country.

Figure 6. Domestic Value Added Embedded in Gross Exports
(Percent of GDP)

Sources: OECD, Trade in Value Added database; and IMF staff calculations.
Note: Data labels use International Organization for Standardization (ISO) country codes.

Figure 7. Latin America: Value Added Embedded in Final Demand and Exports
(Percent of GDP)

1. Value Added Embedded in US Final Demand

2. Value Added Embedded in US Gross Exports

3. Value Added Embedded in China's Domestic Demand

4. Value Added Embedded in China's Gross Exports

Sources: OECD, Trade in Value Added database; and IMF staff calculations.
Note: Data labels use International Organization for Standardization (ISO) country codes.

In summary, trade exposures indicate that Mexico and Costa Rica are highly exposed to US growth shocks and less so to growth shocks in China. Chile and Peru are exposed to both, but somewhat more to growth shocks in China than in the United States. Argentina, Brazil, and Colombia are less exposed, although Brazil has a non-negligible exposure to China and Colombia to the United States. Argentina has low exposures to either country.

Commodity Price Channel

Commodity prices are another key channel of transmission of growth shocks in China and the United States, which account for one-third of the global demand for oil and over half of that for metals. Lower growth in China and the United States could reduce global commodity prices and hurt net commodity exporters, including most Latin American countries (Table 1). The region's main commodity exports include coffee (Brazil, Colombia, Central America), copper (Chile, Peru), iron ore (Brazil), oil and gas (Bolivia, Colombia, Ecuador, Mexico, Trinidad and Tobago, Venezuela), and soybeans (Argentina, Brazil, Uruguay). The ratio of net and overall commodity exports to GDP suggests that the countries most exposed to a broad-based commodity price shock are Venezuela, Bolivia, Trinidad and Tobago, Ecuador, and Chile. Exposures to specific commodity price shocks are different and depend on the composition of commodity exports and commodity imports.

Table 1. Latin America: Commodity Exports

	Commodity Exports (percent of GDP)	Net Commodity Exports (percent of GDP)	Top 3 Commodity Exports (values in parentheses refer to the share in total goods exports)
Argentina	5.7%	3.7%	Soybean meal (16.5%), Soybeans (6.2%), Corn (6.2%)
Bolivia	26.4%	21.8%	Natural gas (45.8%), Zinc (7.8%), Soybean meal (5.4%)
Brazil	5.2%	3.0%	Iron ore (11.3%), Soybeans (10.2%), Sugar (4.4%)
Chile	18.5%	11.7%	Copper (51.0%), Salmon (6.1%), Timber (3.8%)
Colombia	10.2%	7.0%	Oil (35.7%), Coal (12.2%), Coffee (5.4%)
Ecuador	19.4%	14.3%	Oil (34.9%), Bananas (11.6%), Shrimp (9.9%)
Mexico	4.0%	−0.1%	Oil (3.4%), Lead (0.4%), Copper (0.3%)
Peru	10.5%	6.1%	Copper (24.7%), Zinc (4.5%), Fishmeal (3.4%)
Trinidad and Tobago	32.4%	17.6%	Natural gas (21.2%), Oil (9.8%), Iron ore (4.6%)
Uruguay	9.4%	5.0%	Beef (17.7%), Soybeans (17.6%), Rice (5.3%)
Venezuela	37.7%	35.2%	Oil, Iron ore, Hides

Sources: IMF, Commodity Terms of Trade database (see Gruss and Kebhaj, 2018); IMF, Direction of Trade Statistics database; UN Comtrade; and IMF staff calculations.
Note: Values refer to the three-year average of 2013–15.

Financial Flows Channel

The strength of the financial flows channel is assessed by looking at de jure and de facto indicators of capital account openness, as well as cross-country positions of foreign direct investment from the IMF's Coordinated Direct Investment Survey (CDIS) and portfolio investment from the IMF's Coordinated Portfolio Investment Survey (CPIS).

De facto and de jure measures of capital account openness show that the region is relatively open to foreign capital and thus somewhat vulnerable to global financial shocks. The sum of foreign assets, excluding reserves, and foreign liabilities as percent of GDP is comparable to that of other emerging market economies, ranging from 110 percent of GDP in Argentina and Brazil to over 200 percent of GDP in Chile and Uruguay (Figure 8, panel 1). Similarly, the Chinn-Ito Financial Openness Index, which ranges from zero (fully closed capital account) to one (fully open capital account), has a relatively high value between 0.42 and 1 for most Latin American countries, except for Argentina and Brazil (Figure 8, panel 2).

Cross-country direct and portfolio investment positions show that Latin America is more exposed to the United States than to China. US direct investment in Latin America is much higher than China's, particularly in Costa Rica and Mexico, while direct investment from Latin America in the United States is also larger than that in China, especially for Chile and Mexico (Figure 8, panel 3). Similarly, US portfolio investment in Latin America is higher than China's, especially in Chile and Mexico, while portfolio investment from Latin America in the United States is also larger than that in China, especially for Chile, Colombia, and Peru (Figure 8, panel 4). However, these bilateral exposures could be underestimated if cross-country investment flows are channeled through third countries such as financial centers or tax havens, which would not be reflected in the direct bilateral investment positions.
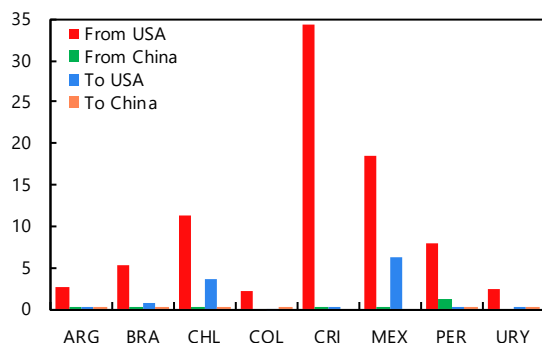
Figure 8. Latin America: Financial Exposures

1. De Factor Capital Account Openness, 2018
(Foreign assets excluding reserves and foreign liabilities; percent of GDP)
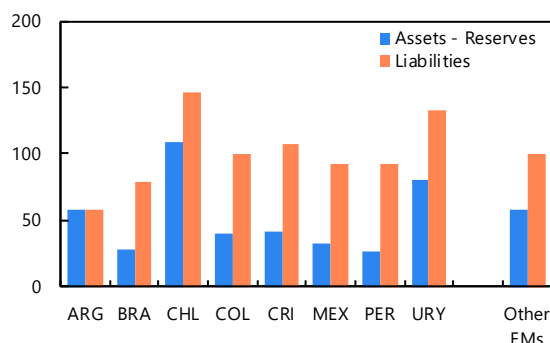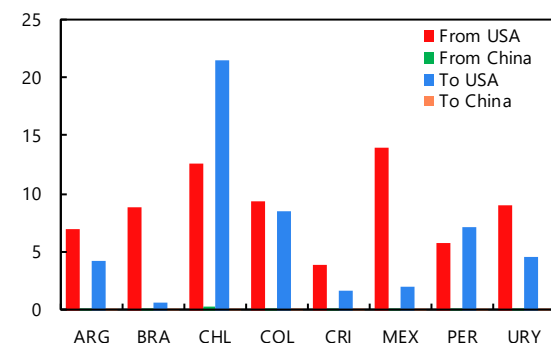
2. De Jure Capital Account Openness, 2016
(Chinn and Ito financial openness index; normalized to range between 0 and 1)
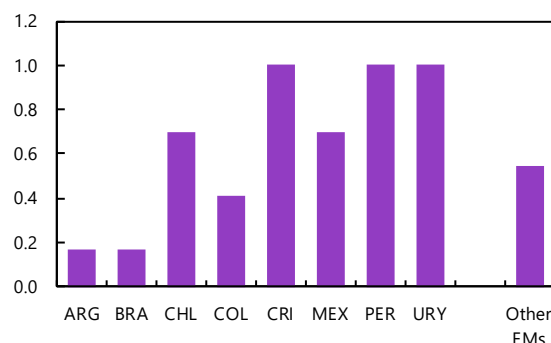
3. Direct Investment from/to China and the United States, 2017
(Percent of GDP)

4. Portfolio Investment from/to China and the United States, 2017
(Percent of GDP)

Sources: Chinn, Menzie D. and Hiro Ito (2006); IMF, Coordinated Direct Investment Survey database; IMF, Coordinated Portfolio Investment Survey database; IMF, International Financial Statistics database; and IMF staff calculations.
Note: Data labels use International Organization for Standardization (ISO) country codes. EM = emerging markets.

Another key financial spillover channel is the impact that shocks in China and the United States could have on global financial conditions, which would affect domestic financial conditions in Latin America. In the past, negative shocks in the United States have been associated with spikes in global financial market volatility as measured by the CBOE Volatility Index (VIX). More recently, negative shocks in large emerging market economies have also led to spikes in the VIX as in mid-2015, when China's stock market fell sharply, and the renminbi was realigned. At the same time, spikes in the VIX have been associated with lower capital flows to Latin America (Figure 9, see IMF 2019). Thus, growth slowdowns in China or the United States could lead to spikes in the VIX, which would lower capital flows and amplify the spillovers to Latin America.

Figure 9. Capital Flows and Global Financial Market Volatility (VIX)

1. Latin America: Net Capital Flows
(Percent of GDP)

2. Latin America: EPFR Portfolio Flows and the VIX
(Billions of US dollars)
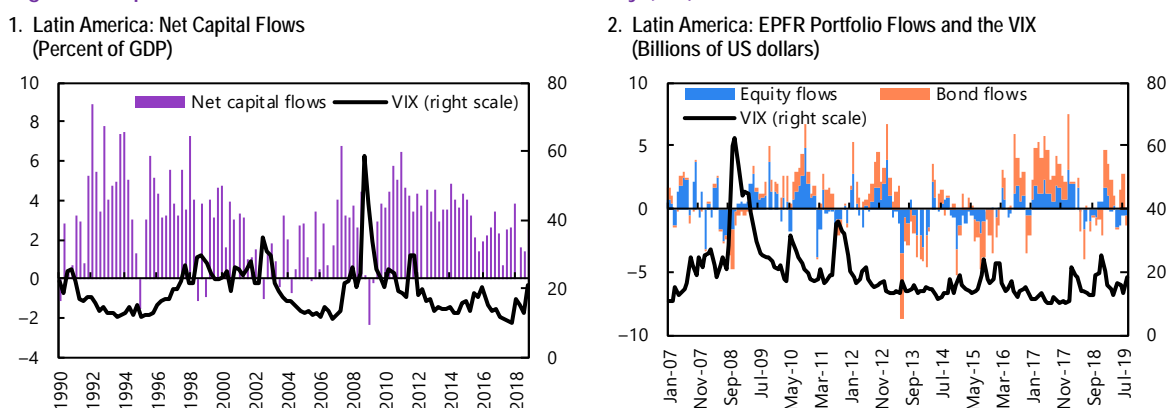
Sources: Haver Analytics; IMF, Balance of Payments Statistics database; and IMF staff calculations.
Note: EPFR = Emerging Portfolio Fund Research; VIX = Chicago Board Options Exchange Volatility Index.

In summary, Latin America is susceptible to changes in global financial conditions, which could be shocks by themselves or amplifiers of spillovers from growth shocks in China and the United States. This susceptibility is partly due to the region's generally open capital accounts and high sensitivity of capital flows to global financial market volatility. Regarding bilateral financial exposures, cross-country direct and portfolio investment positions indicate that Latin America is in general more exposed to the United States than to China.

Quantifying The Size of Spillovers

Having discussed potential transmission channels, this section aims to quantify the spillovers to Latin America from growth shocks in China and the United States. Two complementary approaches are used, an empirical one using a GVAR framework and a model-based one using the FSGM. Each approach has its pros and cons. A key advantage of the GVAR is that it is data-driven and accounts for third-market effects, but it may not be easily used to identify the underlying source of growth shocks (supply, demand, or growth rebalancing) or to study multiple simultaneous shocks. The FSGM, with its multi-region general equilibrium structure of the global economy, is well suited to study multiple shocks, including those that would slow and rebalance China's economy at the same time. However, the structure of the model may be too rigid, and the parameters' calibration may require some judgement.

Empirical Approach

The GVAR model is a dynamic multi-country framework, introduced by Pesaran and others (2004) and Dees and others (2007). It has 33 country-specific modules, including five Latin American countries: Argentina, Brazil, Chile, Mexico, and Peru. In these modules, core macroeconomic variables of each country are related to corresponding foreign variables (constructed exclusively to match the international trade pattern of the country under consideration). The model has both real and financial variables: real GDP, inflation, the real exchange rate, short and long-term interest rates, the government debt-to-GDP ratio, the primary fiscal balance, and the price of oil. It also has an index of financial market stress (FSI) to capture the impact of surges in global financial market volatility.[2]

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[2]The FSI facilitates the identification of large shifts in asset prices (stock and bond market returns); an abrupt increase in risk/uncertainty (stock and foreign exchange volatility); liquidity tightening (difference between three-month Treasury bill and three-month London interbank offered rate based on US dollars); and the health of the banking system (the beta of banking sector stocks and the yield curve).

An advantage of the GVAR over other empirical approaches is that it considers feedback effects and indirect exposures to shocks through third-country trade, financial markets, and commodity prices. It accounts for real and financial interlinkages among different regions and common factors such as stress in global financial markets and oil prices. This is vital as shocks affect several regions simultaneously and may be amplified or dampened depending on the countries' trade and financial structures.

The GVAR model of Cashin and others (2017) is modified based on data from Mohaddes and Raissi (2018) and estimated over the period 1981Q2–2018Q2 for the analysis in this annex. The results show that a one-off fall in China's real GDP growth by 1 percentage point lowers growth by 0.4 percentage points in Peru, 0.3 percentage points in Brazil and Chile, and 0.2 percentage points in Mexico after one year (Figure 10, panel 1). The effects are statistically significant and in line with the countries' exposures to China through trade and commodity prices. The impact on Argentina is not statistically significant, which is also consistent with its low exposures to China. The impact on advanced economies is larger for those more open to trade (Canada, Germany, Japan) than in the United States. These findings highlight the emergence of China as a key driver of global growth in recent decades.

Figure 10. Spillovers from Growth Shocks in China and the United States
(Percent; one-year impact)
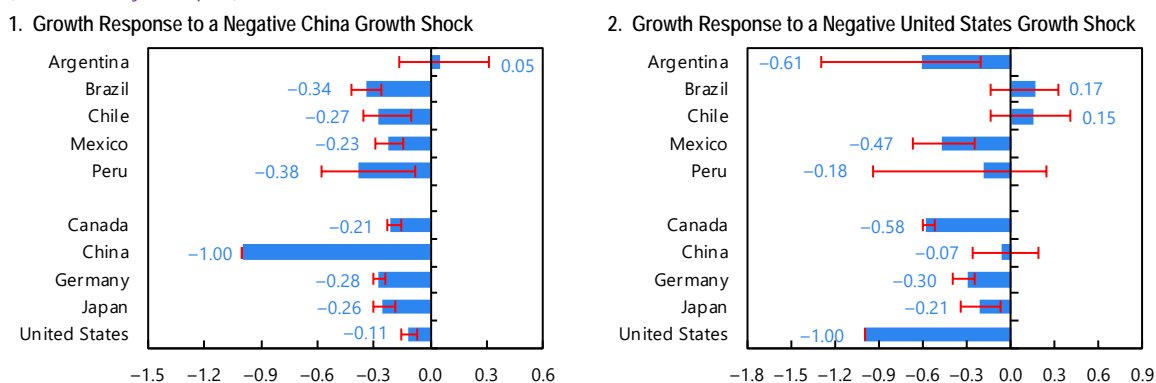
1. Growth Response to a Negative China Growth Shock

Country	Value
Argentina	0.05
Brazil	−0.34
Chile	−0.27
Mexico	−0.23
Peru	−0.38
Canada	−0.21
China	−1.00
Germany	−0.28
Japan	−0.26
United States	−0.11

2. Growth Response to a Negative United States Growth Shock

Country	Value
Argentina	−0.61
Brazil	0.17
Chile	0.15
Mexico	−0.47
Peru	−0.18
Canada	−0.58
China	−0.07
Germany	−0.30
Japan	−0.21
United States	−1.00

Sources: Cashin and other (2016, 2017); IMF Fiscal Monitor, April 2019; and IMF staff calculations.
Note: Shows the percent change in GDP of each country associated with a one-time 1 percent decline in China's (panel 1)/United States' (panel 2) real GDP growth, together with the 16th and 84th percentile error bands.

The GVAR also shows that the influence of the United States on other countries is larger than suggested by direct trade ties, due to third-market effects and high financial integration that foster the international transmission of business cycles. Moreover, the dominance of US debt and equity markets also plays an important role in shaping the spillovers to other countries. Regarding the impact on Latin America, a 1 percentage point fall in US growth does not have statistically significant effects on growth in Brazil, Chile and Peru (Figure 10, panel 2). For Brazil, this is consistent with its low exposures. But for Chile and Peru, the results are more puzzling and may reflect their dependence on copper exports and the small role the United States plays on global metal markets. A possible explanation for the large and statistically significant effect on Argentina, despite its low exposures, is that negative US growth shocks in the past may have led to tighter global financial conditions that affected Argentina disproportionally. Spillovers from a US growth shock are large for other advanced economies, but insignificant for China.

Spillovers from growth shocks in China or the United States could be larger if they also lead to bouts of global financial volatility. Stress in global financial markets could emanate from higher risk premiums in response to a worsening global outlook. To illustrate this point, Figure 11 shows the impact of an increase of one standard deviation in the FSI of advanced economies.[3] This shock leads to large and

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[3]A one standard deviation increase in the FSI for advanced economies corresponds to around two-thirds of the rise during the European sovereign debt crisis and about one-tenth of the rise during the global financial crisis.

statistically significant declines in growth in Latin America, especially in Argentina, Brazil, and Chile. Growth in advanced economies also falls, especially in Germany and Japan.

In summary, the GVAR shows that growth shocks in China have larger spillovers to Brazil, Chile and Peru than US growth shocks. A 1 percentage point fall in China's growth lowers growth in these countries by 0.3 to 0.4 percentage points, while a similar US shock does not have statistically significant effects. At the same time, US growth shocks have larger effects on Mexico than growth shocks in China. A 1 percentage point fall in US growth lowers growth in Mexico by 0.5 percentage points, while a similar shock in China lowers it by 0.2 percentage points. The GVAR also shows that these spillovers could be much larger if the growth shocks in China and the United States also lead to bouts of global financial market volatility.

Figure 11. Growth Response to a Rise in the FSI
(Percent; one-year impact)
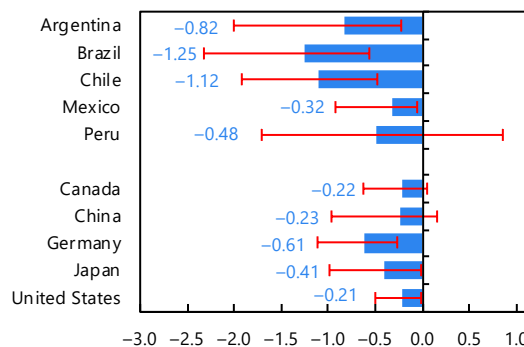
Sources: Cashin and other (2016, 2017); IMF Fiscal Monitor, April 2019; and IMF staff calculations.
Note: Shows the percent change in GDP associated with a one standard deviation increase in the financial market stress index (FSI) of the advanced economies, together with the 16th and 84th percentile error bands.

Model-Based Approach

The FSGM is a semi-structural, multi-region, general-equilibrium model. The version used in this annex has 24 region-specific modules that fully cover the global economy. Each module has identical structures, but different steady-state ratios and parameter values to capture each region's characteristics. While the FSGM has micro-foundations in some blocks, it has less structure in others for tractability. Private consumption and investment are micro-founded, while trade, labor supply, and inflation have reduced form representations. Monetary policy follows a standard reaction function, while fiscal policy is anchored by a debt rule that ensures long-run debt sustainability.[4]

The size of spillovers depends on the source of the shock. Changes in private demand, supply factors, and tighter fiscal and monetary policies can all lead to growth slowdowns in China and the United States, but spillovers to the rest of the world would be different in each case. The impact also depends on the response of monetary policy, which is assumed to ease in all countries except in the euro area and Japan, where policy rates are already very low. Two scenarios are studied. The first one considers a private demand shock that lowers growth by 1 percentage point in China or the United States in one year. The shock is transmitted abroad mainly through trade and commodity prices, with financial linkages limited to the uncovered interest rate parity (UIP) condition. The second scenario considers the same growth shock plus a rise of 100 basis points in sovereign risk premium in emerging market economies, including Latin America, to indirectly account for amplifying effects through the financial channel.[5] The rise in sovereign risk premium affects all sectors of the economy, including firms, households, and the government.

Spillovers in the first scenario are in line with those from the GVAR, but smaller. In line with the country exposures, spillovers to Chile, Peru, and Uruguay from a growth shock in China are slightly larger than those from a US growth shock (Figure 12, panels 1 and 2). A 1 percentage point fall in China's growth lowers growth by 0.2 percentage points in Chile and Peru, and 0.1 percentage points in Uruguay. At the same time, spillovers to Colombia, Costa Rica, and Mexico from a US growth shock are larger than those
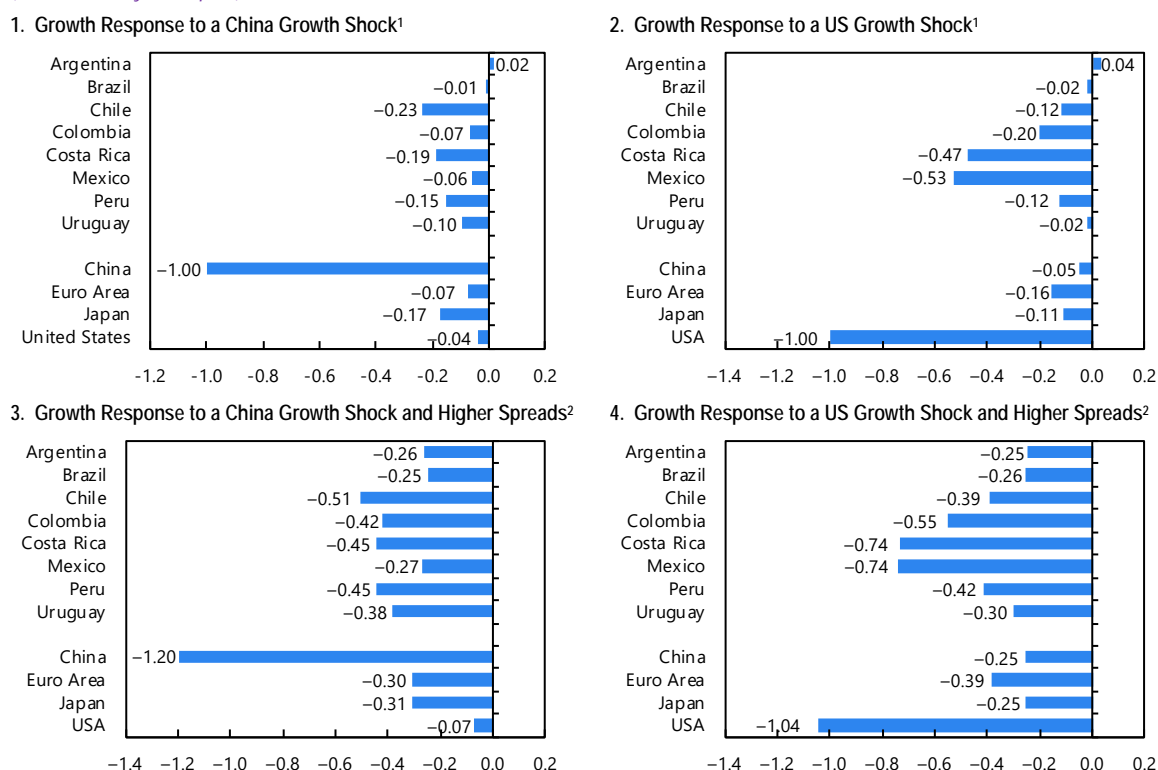
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[4]See Andrle and others (2015) for more details.
[5]This increase in sovereign spreads is about one standard deviation of the annual change in spreads in Latin America since 2007, and about one third of the increase during the global financial crisis.

from a shock in China. A 1 percentage point fall in US growth lowers growth by 0.5 percentage points in Mexico and Costa Rica, and by 0.2 percentage points in Colombia. Spillovers to Argentina and Brazil are small. The smaller spillovers in the model than in the GVAR may reflect the monetary policy easing and automatic stabilizers, as well as the absence of financial linkages beyond the UIP condition.

Spillovers in the second scenario are much larger as the financial channel amplifies the impact of growth shocks in China or the United States. A 1 percentage point fall in China's growth, plus a rise of 100 basis points in sovereign spreads in emerging market economies, lowers growth in Chile, Peru, and Uruguay by more than 0.4 percentage points (Figure 10, panel 3). At the same time, a 1 percentage point fall in US growth, plus the same rise in spreads, lowers growth by more than 0.6 percentage points in Colombia, Costa Rica and Mexico. The impact on Argentina and Brazil is smaller but sizable, driven fully by the rise in sovereign spreads. Spillovers in this scenario are larger than those in the GVAR, indicating that the rise in spreads assumed here might be on the high side compared to the historical average.

Figure 12. Spillovers from Growth Shocks in China and the United States
(Percent; one-year impact)

1. Growth Response to a China Growth Shock[1]

Argentina	0.02
Brazil	−0.01
Chile	−0.23
Colombia	−0.07
Costa Rica	−0.19
Mexico	−0.06
Peru	−0.15
Uruguay	−0.10
China	−1.00
Euro Area	−0.07
Japan	−0.17
United States	0.04

2. Growth Response to a US Growth Shock[1]

Argentina	0.04
Brazil	−0.02
Chile	−0.12
Colombia	−0.20
Costa Rica	−0.47
Mexico	−0.53
Peru	−0.12
Uruguay	−0.02
China	−0.05
Euro Area	−0.16
Japan	−0.11
USA	−1.00

3. Growth Response to a China Growth Shock and Higher Spreads[2]

Argentina	−0.26
Brazil	−0.25
Chile	−0.51
Colombia	−0.42
Costa Rica	−0.45
Mexico	−0.27
Peru	−0.45
Uruguay	−0.38
China	−1.20
Euro Area	−0.30
Japan	−0.31
USA	−0.07

4. Growth Response to a US Growth Shock and Higher Spreads[2]

Argentina	−0.25
Brazil	−0.26
Chile	−0.39
Colombia	−0.55
Costa Rica	−0.74
Mexico	−0.74
Peru	−0.42
Uruguay	−0.30
China	−0.25
Euro Area	−0.39
Japan	−0.25
USA	−1.04

Source: IMF staff calculations.
[1]Shows the one-year growth response in each country associated with a 1 percentage point decline in China's (panel 1)/United States' (panel 2) growth driven by a shock to aggregate demand.
[2]Shows the one-year growth response in each country associated with a 1 percentage point decline in China's (panel 3)/United States' (panel 4) growth plus an increase in sovereign spreads by 100 basis points.

In summary, model simulations show sizable spillovers to Chile, Peru, and Uruguay from growth shocks in China and the United States, with a slightly larger spillovers from China. For Colombia, Costa Rica, and Mexico, the simulations show sizable spillovers from US growth shocks and smaller ones from growth shocks in China. Spillovers to Argentina and Brazil are small in either case. However, spillovers could be much larger if the growth shocks in China and the United States also lead to a rise in sovereign spreads in emerging market economies, especially when this increase is persistent.

Conclusions

Growth in China and the United States is projected to slow down in the coming years because of cyclical forces, population aging and low productivity growth. Moreover, increased trade and technology tensions could lead to a faster than expected fall in near-term growth in both economies. China's growth is also expected to continue rebalancing away from investment towards consumption. These developments will have spillovers to the rest of the world, including to Latin America.

Empirical and model-based analyses show large spillovers from growth shocks in China and the United States to countries with high trade, commodity price, and financial exposures. Chile, Peru, and Uruguay have large exposures to both China and the United States, with slightly larger ones to China. Colombia, Costa Rica, and Mexico have large exposures to the United States, and significantly smaller exposures to China. Argentina and Brazil have low exposures to either country.

Consistent with these exposures, spillovers to Chile, Peru, and Uruguay from a growth shock in China are slightly larger than from a US growth shock. A 1 percentage point fall in China's growth lowers growth in these countries by 0.1–0.3 percentage points, while a similar US shock reduces it by 0–0.2 percentage points. Spillovers to Colombia, Costa Rica, and Mexico from a US growth shock are significantly larger than those from a growth shock in China. A 1 percentage point fall in US growth reduces growth by 0.5 percentage points in Costa Rica and Mexico, and 0.2 percentage points in Colombia, while a similar shock in China lowers growth in these countries by 0.1 to 0.2 percentage points. Spillovers to Argentina and Brazil are negligible from either shock in line with their low overall exposures.

The analysis also shows much larger spillovers to Latin America if the growth shocks in China and the United States are amplified by a rise in sovereign spreads in emerging market economies. For example, a 1 percentage point fall in China's growth, combined with a rise in sovereign spreads of 100 basis points, reduces growth in Chile, Peru, and Uruguay by 0.4–0.5 percentage points, while a 1 percentage point fall in US growth accompanied by the same rise in sovereign spreads, lowers growth in Colombia, Costa Rica and Mexico by 0.5–0.7 percentage points. Spillovers to Argentina and Brazil would also be large, with growth falling by 0.3 percentage points, fully driven by the increase in sovereign spreads.

Spillovers could be even larger if both China and the United States experience negative growth shocks at the same time. This could be driven, for example, by an escalation of their trade and technology tensions (see Box 4 in the October 2019 *World Economic Outlook*). As an illustration, a joint shock that lowers growth temporarily in both countries by 1 percentage point, combined with a rise of 100 basis points in sovereign spreads in emerging market economies, would lower growth in the largest economies in Latin America by between 0.5 and 1 percentage points.

The large potential spillovers to Latin America highlight the need to maintain adequate policy buffers. Accordingly, countries in Latin America should continue consolidating their fiscal positions to reduce public debt and create fiscal space. To mitigate the adverse effects on growth, the adjustment should protect public investment and well-targeted social expenditure. Central banks should strive to keep inflation close to target and maintain well anchored inflation expectations so that monetary policy can react to shocks without hurting credibility. Flexible exchange rates should continue working as shock absorbers. Countries in the region should also enhance the resilience of their economies by diversifying their exports and trading partners, and should embrace the opportunities arising from China's economic rebalancing, such as its increased demand for consumption goods and services.

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