

SEMIANNUAL REPORT OF THE LATIN AMERICA  
AND CARIBBEAN REGION

# TRADE INTEGRATION AS A PATHWAY TO DEVELOPMENT?



OCTOBER 2019



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Latin America & the Caribbean

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Semiannual report of the Latin America  
and Caribbean region

# Trade Integration as a Pathway to Development?

A joint product of  
The Chief Economist office for Latin America and the Caribbean  
The Macroeconomics, Trade and Investment Global Practice

October 2019



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# Executive summary

**A**fter a period of rapid economic growth associated with high commodity prices, the Latin America and Caribbean region has entered once again a phase of lackluster performance. Some countries continue to do well, but the largest economies in the region have faced recession, macroeconomic turbulence or growth deceleration. It would be tempting to attribute the sluggish growth of the region to a less conducive external environment. But overall the slowdown seems more self-inflicted than imported.

The outlook for Latin America and Caribbean is not particularly encouraging. A tepid export response constrains the prospect of growing through external demand whereas limited fiscal space leaves little room to stimulate domestic demand. The outlook could deteriorate further if the international environment became less conducive. Economic growth has already decelerated in the European Union, and many forecasters anticipate a slowdown in the US and China.

A possible explanation for the slow economic growth of the Latin America and Caribbean region is its relatively low integration in international trade and global value chains. This low external openness of the region is not due to geography, but rather to policy choices, primarily in the countries on the Atlantic side, that have kept trade restrictiveness at a higher level than in most other developing regions.

For decades Latin American and Caribbean countries have embraced preferential trade agreements as a way to foster their economic integration. By now, the number of agreements per country is the highest among all developing regions. But until the signing of the North American Free Trade Agreement (NAFTA) in 1994, with Mexico as one of its members, these agreements were all intra-regional. Only in recent years have South-North agreements become more common, especially among countries in the Caribbean and the Pacific subregions. The latest examples of South-North agreements are the renegotiation of NAFTA as the United States-Mexico-Canada agreement (USMCA) and the EU-Mercosur agreement, both of them signed over the last 12 months.

While all preferential trade agreements lead to more bilateral trade among their members, only South-North agreements are associated with increases in the economic complexity of the signatory developing countries. A comparison between Mercosur and NAFTA is revealing in this respect. A more rigorous analysis involving thousands of bilateral country pairs shows that South-South agreements only boost growth rates marginally, whereas South-North agreements have significant growth impacts.

A detailed analysis of USMCA and the EU-Mercosur agreements shows that they will not entail major structural transformation. Agriculture and livestock production will expand in Mercosur countries and skill-intensive manufacturing in Mexico. But except for a few activities, changes in output and employment are not expected to be dramatic. Moreover, there will be both expansion and contraction within aggregate sectors, with the

effects roughly offsetting each other, so that the overall structure in terms of agriculture, manufacturing and services remains almost unchanged.

However, both agreements are expected to lead to a greater degree of economic complexity, which should have a positive impact on GDP in the medium term. And workers should benefit from them. Needless to say, by encouraging soy and livestock production, the EU-Mercosur agreement will boost land rent. But skilled workers will also benefit considerably in Mexico, and unskilled workers in Mercosur countries. Because the agreements do not lead to major structural restructuring, and they are bound to be implemented gradually, no major losses in sectoral employment are expected either.

At the same time these two agreements will have consequences requiring attention. The spatial concentration of economic activity implies that some municipalities, departments and districts will strongly benefit, while others will be adversely affected. Similarly, substantial growth impacts will lead to greater carbon dioxide (CO<sub>2</sub>) emissions, and the expansion of livestock production in Brazil could increase deforestation. Only if these adverse impacts are addressed through appropriate spatial and environmental policies will trade integration be a pathway to development.



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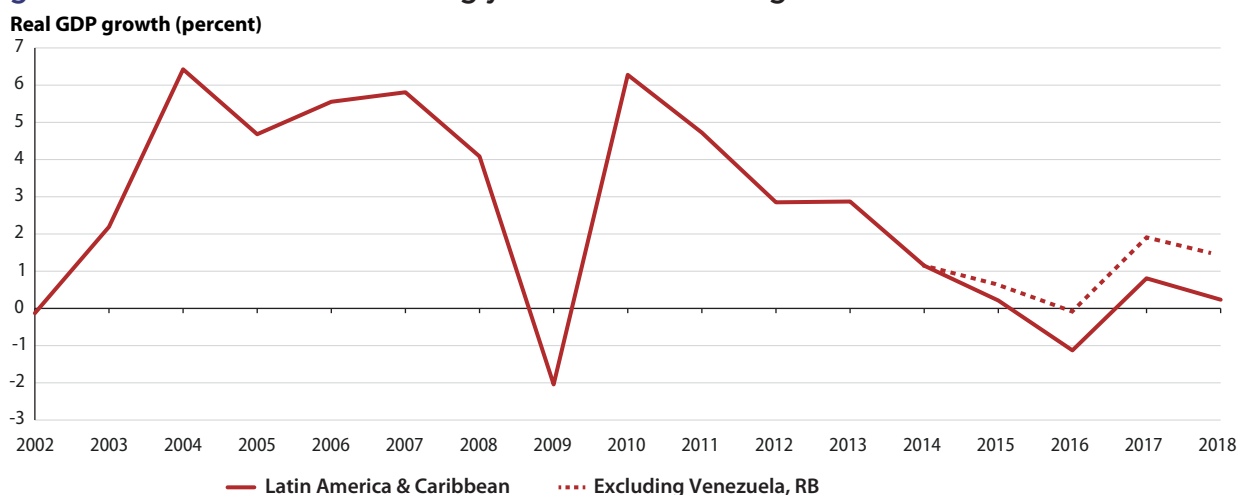
# 1. Recent economic developments

After the period of rapid economic growth associated with high commodity prices, the Latin America and Caribbean region has entered a new phase of lackluster performance. Some countries continue to do well, but the largest economies in the region have faced recession, macroeconomic turbulence or growth deceleration. It would be tempting to attribute the sluggish growth of the region to a less conducive external environment, and the risk of a global slowdown as a result of trade-related tensions is indeed real. But some countries in the region might have benefitted from trade diversion. And overall the slowdown seems more self-inflicted than imported.

### Sluggish economic growth

After six years of steady growth deceleration (including a fall in GDP growth by more than one percentage point in 2016), countries in Latin America and the Caribbean appeared to be on the brink of accelerating economic growth (figure 1). In 2017 the GDP of the region, excluding Venezuela, had increased by 1.9 percent. A pickup in oil and copper prices, large net capital inflows into the region, a very gradual pace of monetary policy normalization in advanced economies, and modest recoveries in Argentina and Brazil had contributed to this encouraging result. As of April of this year, GDP growth in 2018 was expected to reach around 1.8 percent.

**Figure 1. Back to “normal”: increasingly mediocre economic growth**



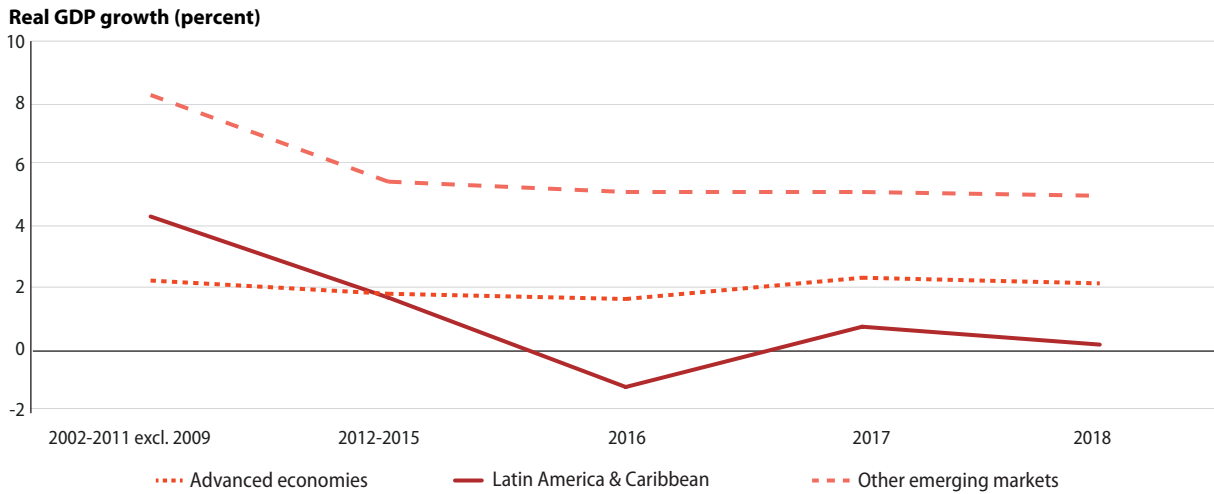
Source: World Development Indicators.

Unfortunately, the much-anticipated rebound was not to be, as last year’s growth was a sobering 0.2 percent, substantially lower than the 1.8 percent forecast of April 2018. A sharp contraction of economic activity in Argentina, a still ongoing recovery in Brazil after the major recession of 2015-2016, the considerable deceleration of economic growth in Mexico, and the collapse in economic activity in Venezuela resulted in growth in Latin America and the Caribbean all but stalling in 2018.

While other regions have experienced some growth deceleration in recent years, Latin America and the Caribbean has drifted from average performer to consistent underperformer (figure 2). The growth rate of the region used to lie somewhere in between that of advanced economies and the more vigorous results of other emerging markets, especially in Asia. Not anymore: for the last three years the GDP growth rate of the Latin America and the Caribbean region as a whole has been around 2 percentage points lower than that of the much richer advanced economies, in a clear sign of economic divergence. Other emerging markets, with similar income levels, are growing more than 4 percentage points faster every year.



**Figure 2. A sharp contrast with advanced economies and other emerging markets**

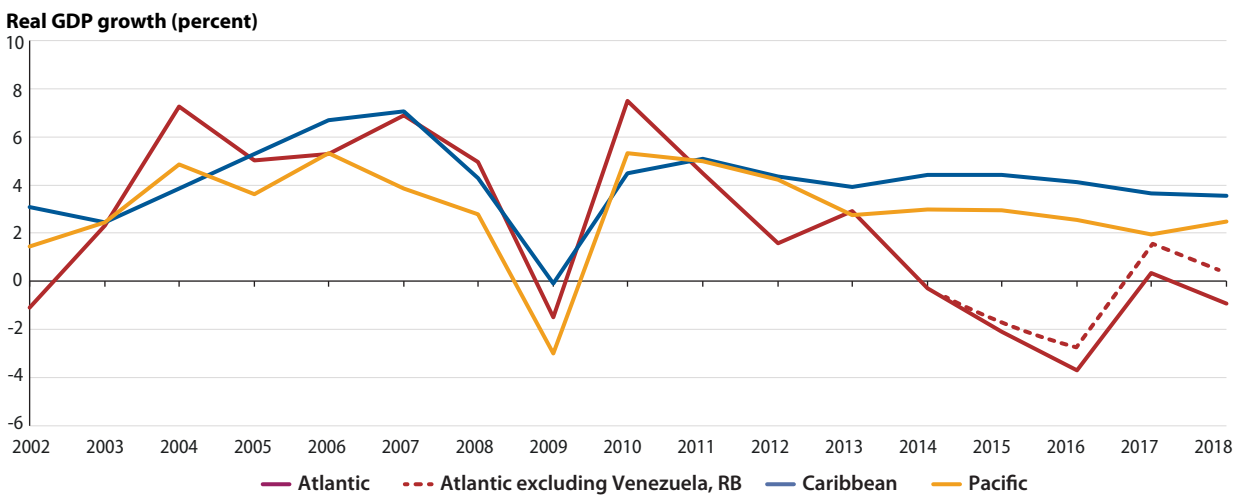


Source: World Development Indicators.

There is of course variation within the region. An important distinction in this respect is between countries in the Atlantic, Caribbean and Pacific subregions. For this report, Atlantic countries include Mercosur members and Venezuela, whose Mercosur membership has been suspended indefinitely. The rest of South America, except for Guyana and Surinam, together with Mexico, are considered Pacific countries. And the remaining countries in the region, including Central America and the Caribbean islands, are regrouped under the Caribbean heading. Using this classification, the Caribbean and Pacific subregions have held much better than the countries on the Atlantic (figure 3).

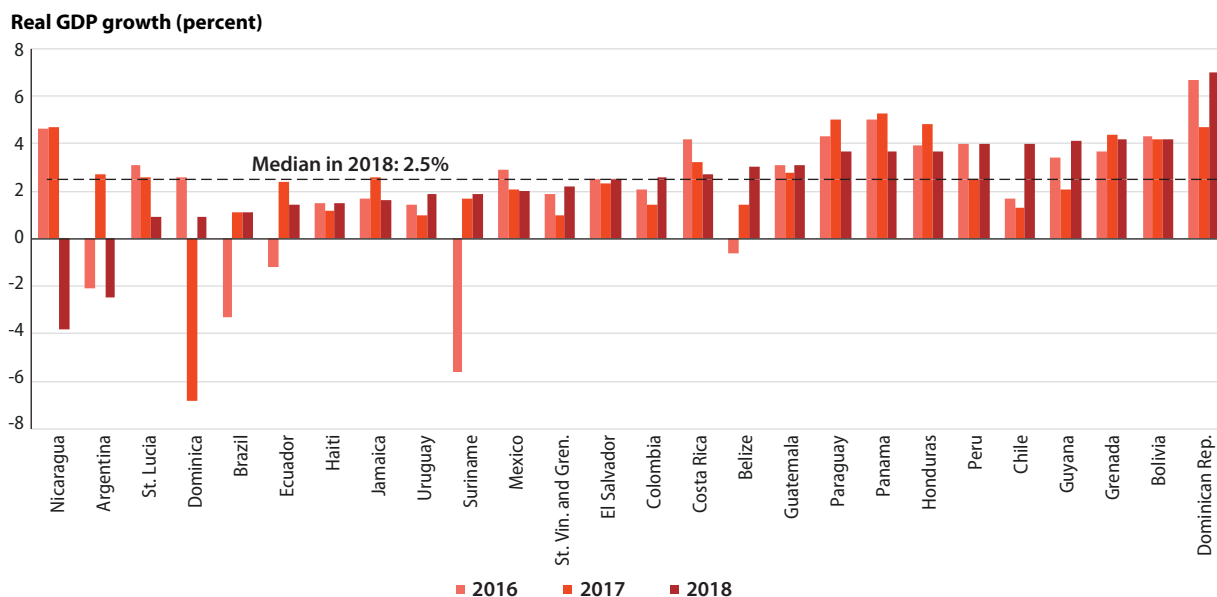
The median rate of real GDP growth across all countries in 2018 was 2.5 percent, substantially higher than the regional average. This is because the larger economies were among those growing more slowly (figure 4). The Dominican Republic and Bolivia stand out as the fastest growing economies in the region, and they also performed quite well in the previous two years. At the other extreme, there was a sharp decline of economic growth in Nicaragua and Argentina. Venezuela is not included in the comparison due to uncertainty regarding the exact magnitude of its economic meltdown.

**Figure 3. A much stronger deceleration in the Atlantic subregion than in the Caribbean or the Pacific**



Note: The Atlantic subregion comprises Mercosur countries and Venezuela, the Pacific subregion the rest of South America except Guyana and Surinam plus Mexico, and the Caribbean subregion all other countries in the region.  
Source: World Development Indicators.

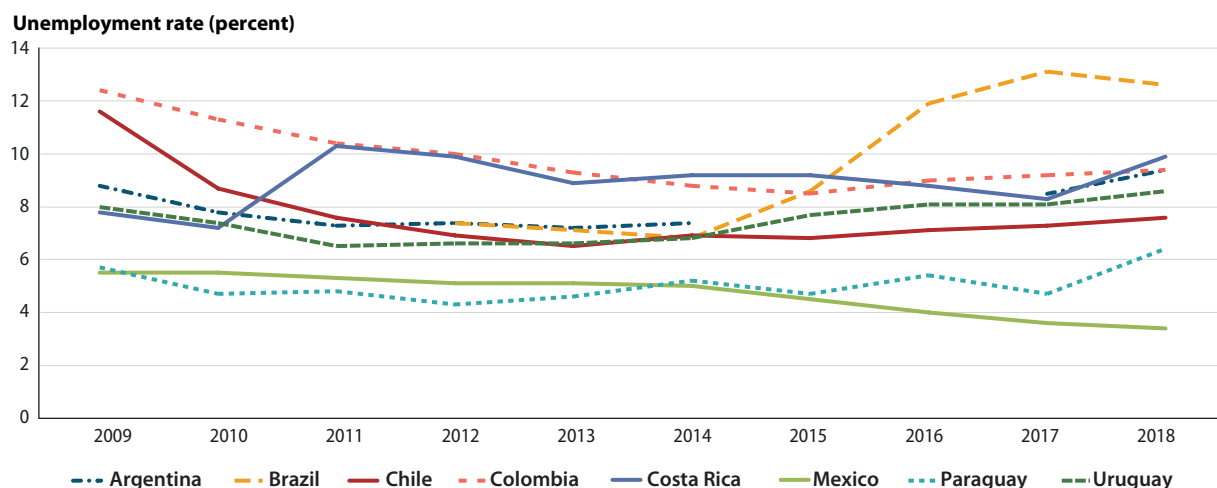
**Figure 4. The largest economies in the region are barely growing**



Source: World Development Indicators.

A deteriorating growth performance is also translating into increases in unemployment rates in several countries in the region. This indicator is somewhat less comparable across countries, even when using consistent definitions, due to different degrees of informality. When few people work from 9 to 5 for a pay check at the end of the month, it becomes more difficult to distinguish between the underemployed, the unemployed and the inactive. But comparisons within the same country over time are informative, and they suggest that employment prospects have worsened in several countries in the region, in some cases substantially (figure 5).

**Figure 5. Unemployment rates have increased in several countries**



Source: International Labour Organisation.

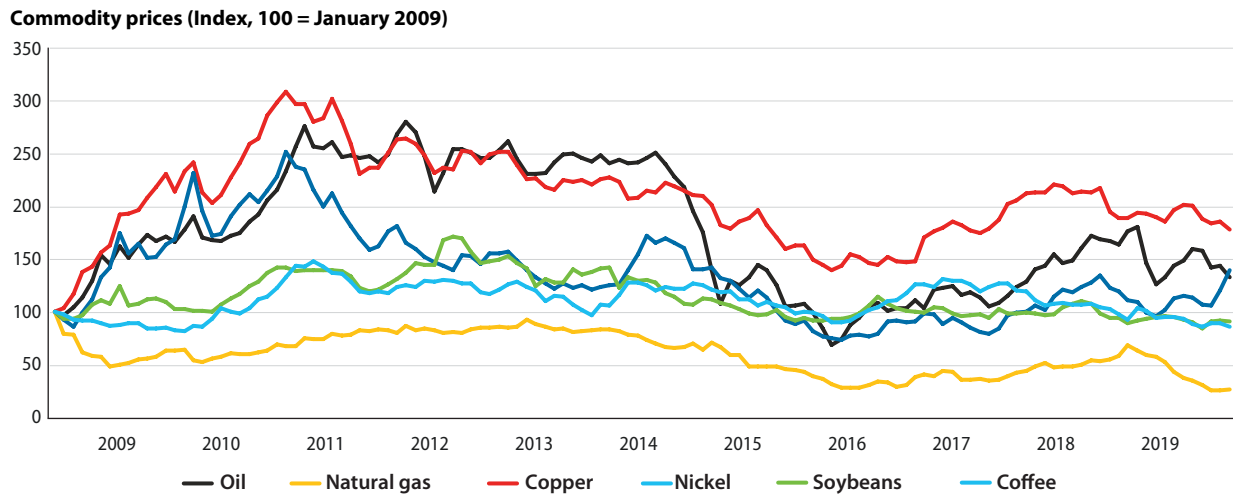
### Less-than-stellar external performance

World commodity prices are of great relevance for Latin America and the Caribbean. Oil, natural gas, and metals are among the main exports for countries in the Pacific subregion, whereas agricultural products such as soybeans and coffee matter more for those in the Atlantic subregion. The sharp drop in commodity prices of 2014-2016 delivered a blow to regional growth. But since then there was a partial recovery, and the direction of



change is by now uncertain (figure 6). If anything, commodity prices have been stable or even trending slightly upward recently, which makes it difficult to blame them for the current growth slowdown of the region.

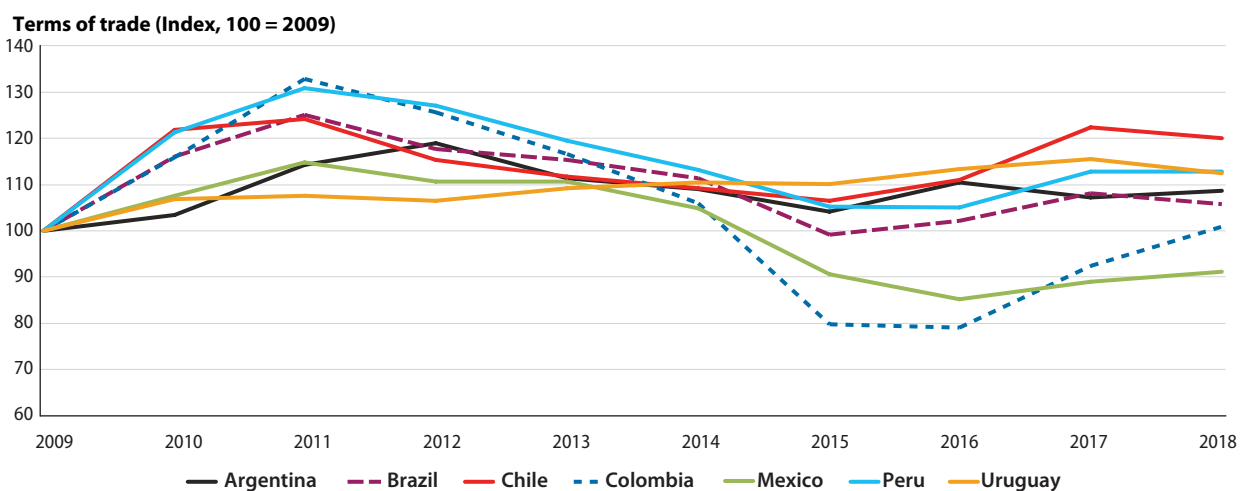
**Figure 6. After a long decline, commodity prices have stabilized**



Source: Haver Analytics.

The evolution of the terms of trade for Latin America and the Caribbean has been slightly more favorable than suggested by commodity prices alone. The terms of trade have improved for several countries in the region, and especially so for copper and soybean producers (figure 7). Colombia has also experienced an improvement, although its terms of trade have been more volatile. Mexico, the second most important economy in the region, appears to be the only large country that has seen a steady deterioration in its terms of trade.

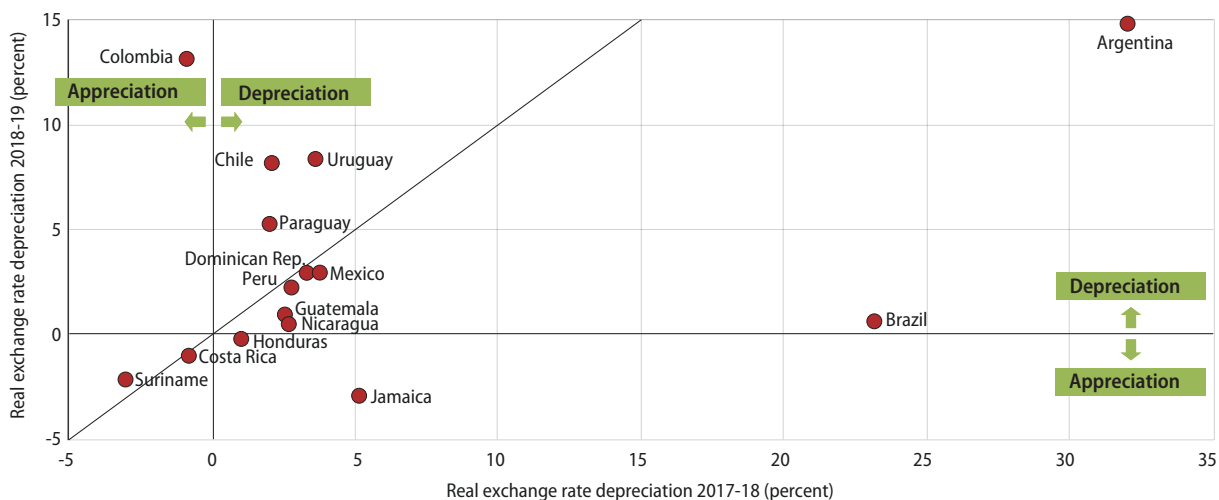
**Figure 7. The terms of trade have generally improved**



Source: Haver Analytics.

In addition, several countries in Latin America and the Caribbean region have experienced real exchange rate depreciation in recent years, and this should make their exports more competitive (figure 8). Depreciation was associated with financial turmoil in the case of Argentina, in a crisis that made the country go to the International Monetary Fund in May 2018, securing what became the biggest program in the organization’s history. For other countries in the region, the real exchange depreciation of the last two years is not indicative of lack of confidence or a fragile external position.

**Figure 8. Currency depreciations have increased competitiveness in some countries**

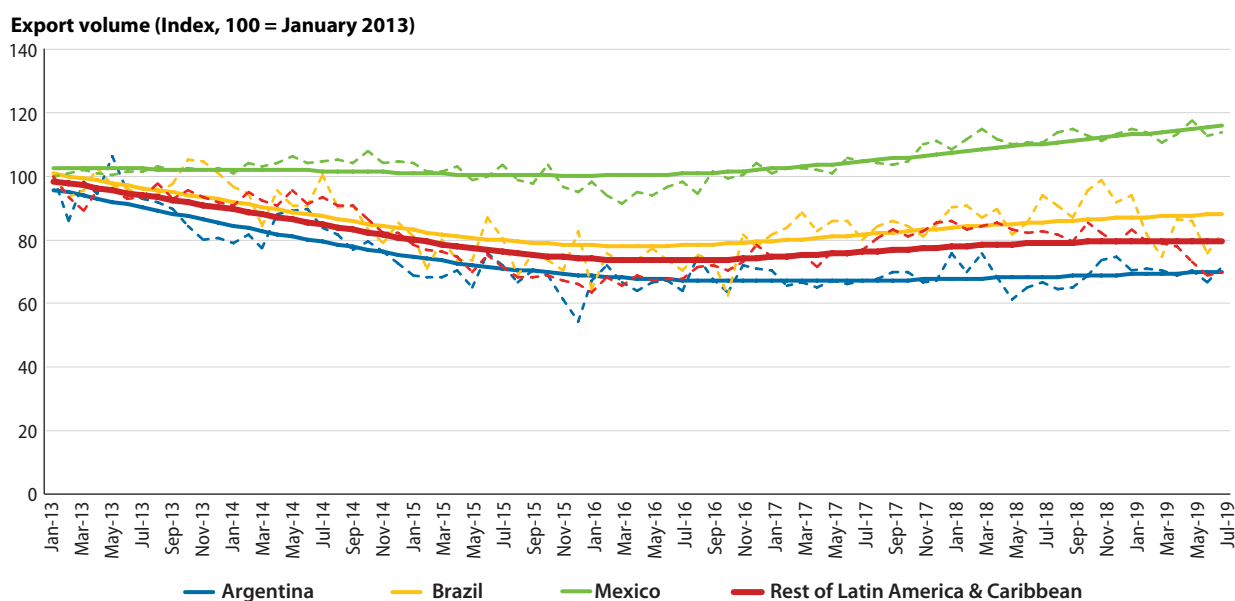


Note: The real exchange rate is the ratio between foreign prices converted into domestic currency and domestic prices. The consumer price indices of the US and of each country are used to measure changes in foreign and domestic prices respectively. Source: Haver Analytics.

And yet, despite the somewhat better terms of trade and the greater competitiveness from real exchange depreciation, exports from the region have stagnated, or even declined. Export growth has been especially disappointing in Argentina and Brazil (figure 9). On the other hand, it has been substantial in Mexico, which became the second largest exporter to the US in 2018 and grabbed the number one slot from China in 2019. Preferential access to the North American market and a strong response of its manufacturing base have made Mexico a clear beneficiary from ongoing trade tensions.

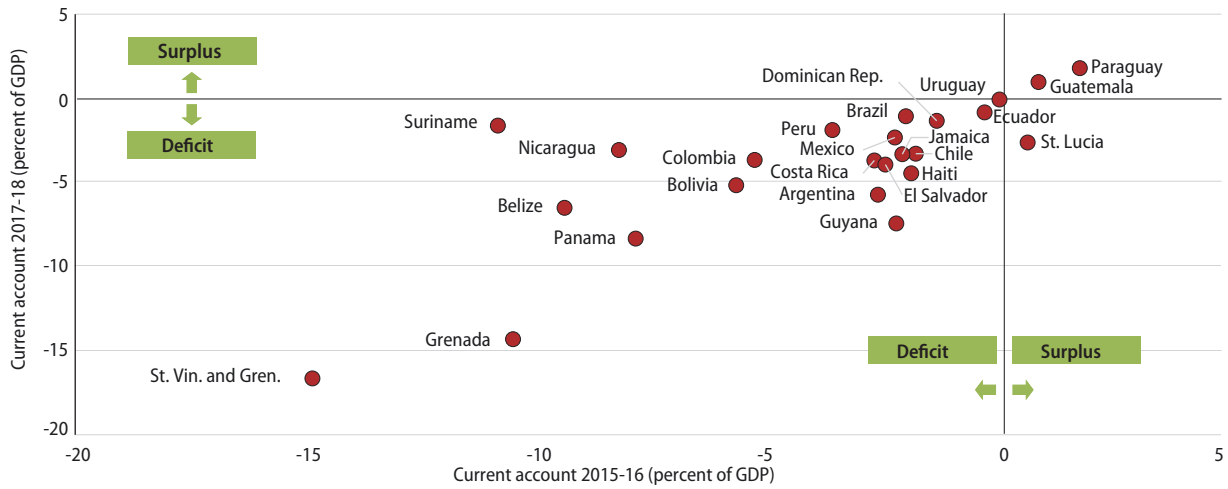
The lackluster export performance of the region has not led to weak external positions, however. Most countries in Latin America and the Caribbean run current account deficits, and their magnitude has not changed much in recent years. But these deficits have been within what is generally considered safe limits (figure 10).

**Figure 9. Exports are growing in Mexico but stagnant overall**



Source: National statistical offices and own estimates.

**Figure 10. Current account deficits are generally manageable**

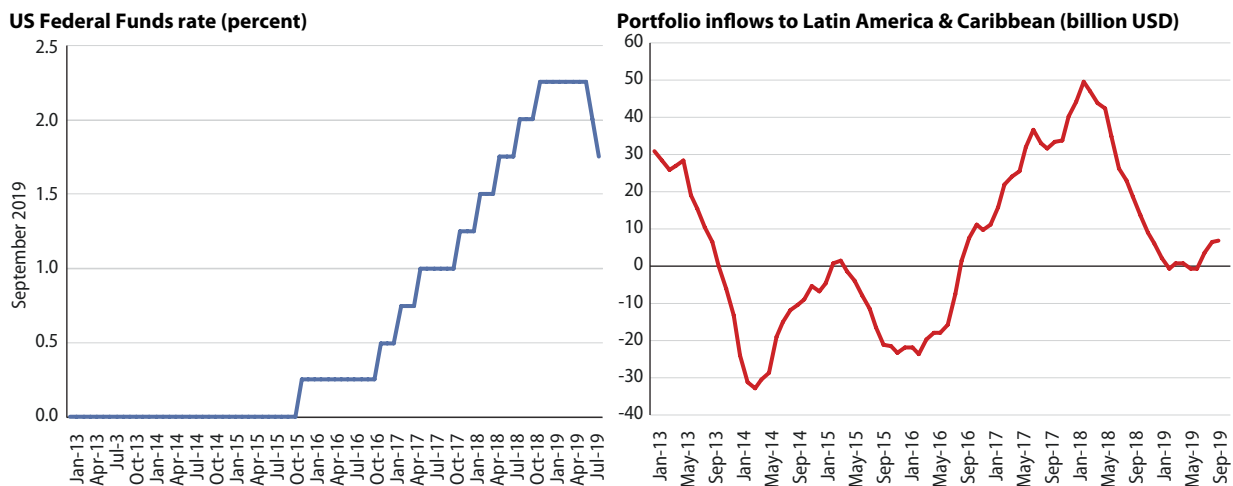


Source: International Financial Statistics and World Development Indicators.

### The financial situation is mainly affected by domestic conditions

International financial conditions have recently become more favorable to countries in Latin America and the Caribbean. Over the last few months the European Central Bank ratified its expansionary stance. In the US, the Federal Reserve made a remarkable turn, ending a gradual monetary tightening that had been underway for four years, and decreasing the policy rate twice over just a few months. This expansionary stance contributes to greater global liquidity, as seen in the stabilization of capital inflows to the region after they had reached their lowest level in three years in early 2019 (figure 11).

**Figure 11. An easing policy stance in the US and stabilizing portfolio inflows to the region**

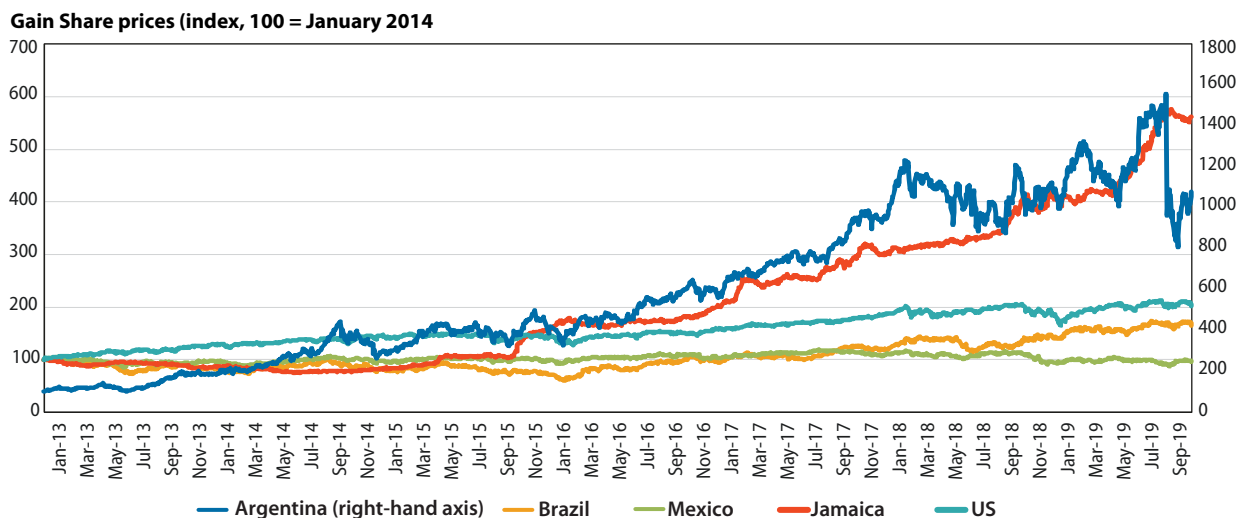


Source: EPFR Global and Federal Reserve Board

This generally benign external financial environment is the same for all countries in the region. However, domestic financial markets in Latin America and the Caribbean have experienced very different dynamics. This once again suggests that domestic conditions have mattered more. Taking the US stock market as a benchmark, Brazilian assets have gained more over the last five years, whereas Mexican assets have been on a declining trend for the last two (figure 12). But some stock markets have witnessed spectacular growth over this period, as was the case in Jamaica and Argentina, with the latter experiencing an equally dramatic fall in the financial turmoil of the last few months.



**Figure 12. A wide diversity of stock market performances**



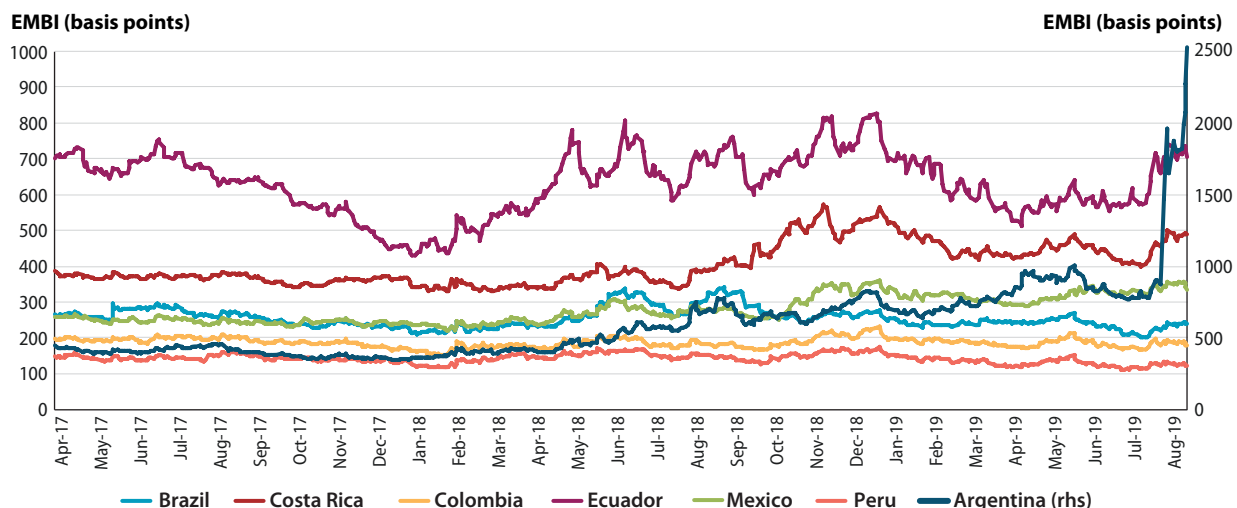
Source: Bloomberg.

Confronted with this diversity of domestic conditions, international financial markets appear to be differentiating risks quite finely, rather than lumping countries together. The JPMorgan Emerging Markets Bond Index (EMBI), a measure of bond spreads, is generally used as a gauge of the way investors perceive individual country hazards. By this metric, the risks associated with Argentina have skyrocketed, and those of Costa Rica and Ecuador remain high (figure 13). But there are so far no indications of contagion in perceptions to neighboring countries.

### The economic policy stance

The economic policy stance of a country can be characterized by the combination of its monetary and fiscal policy, each of which can be expansionary or contractionary. On the monetary policy front, several countries in Latin America and the Caribbean have adopted explicit inflation targeting regimes. In these cases, the interest rate is the key policy instrument, and it is adjusted upward or downward depending on whether the inflation rate exceeds a target inflation rate or falls short of it.

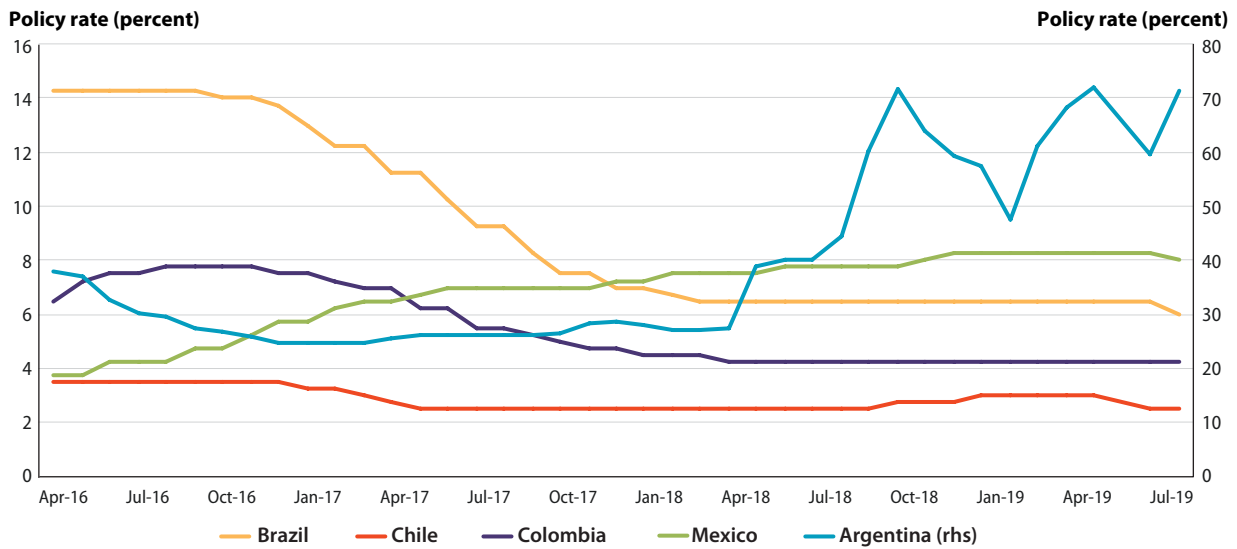
**Figure 13. Markets clearly differentiate country risk**



Source: JPMorgan.

In recent times countries in this group have maintained a relatively steady monetary stance, characterized by only minor changes in policy rates. The exception is Argentina, where there was a change in the monetary targeting regime in October 2018, from controlling the interest rate to controlling the monetary base, with “escape clauses” based on the evolution of the exchange rate. This resulted in a spike in interest rates, in an attempt to control capital outflows (figure 14).

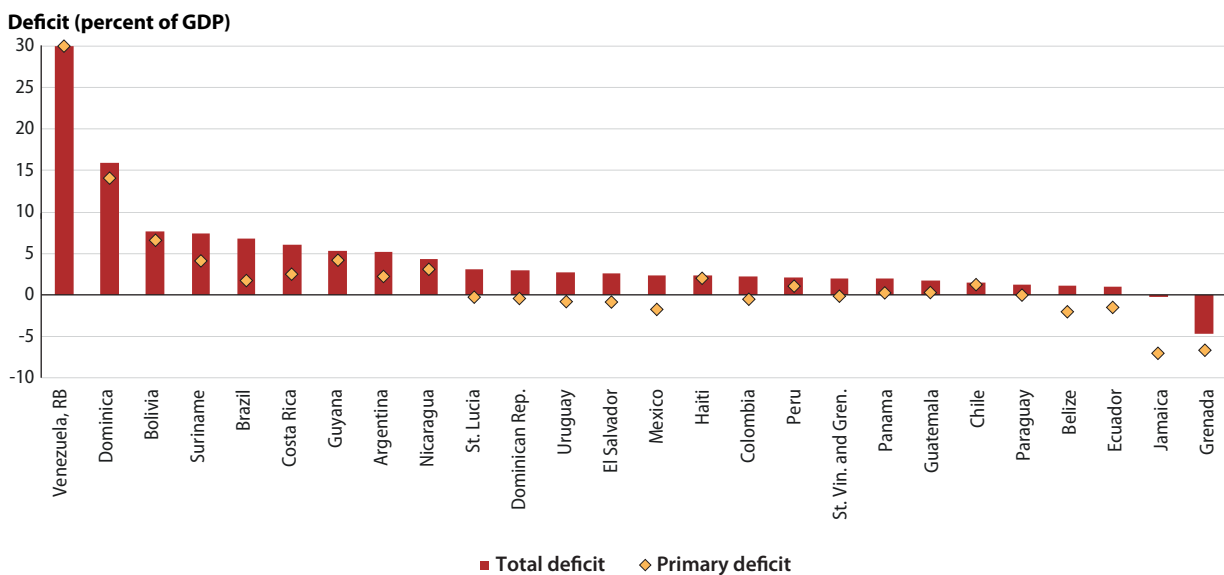
**Figure 14. A generally steady monetary policy stance, though not in Argentina**



Source: National Central Banks.

As for fiscal policy, deficits have remained large in the region, with only two out of 26 countries running a surplus. This partly reflects the legacy of a period of increased public spending when commodity prices were high, together with insufficient adjustment to the new, less benign external environment of recent years. Large deficits are also the result of servicing public debts whose volumes are often large, and whose maturities can be relatively short (figure 15).

**Figure 15. A range of fiscal stances, from large deficits to primary surpluses**

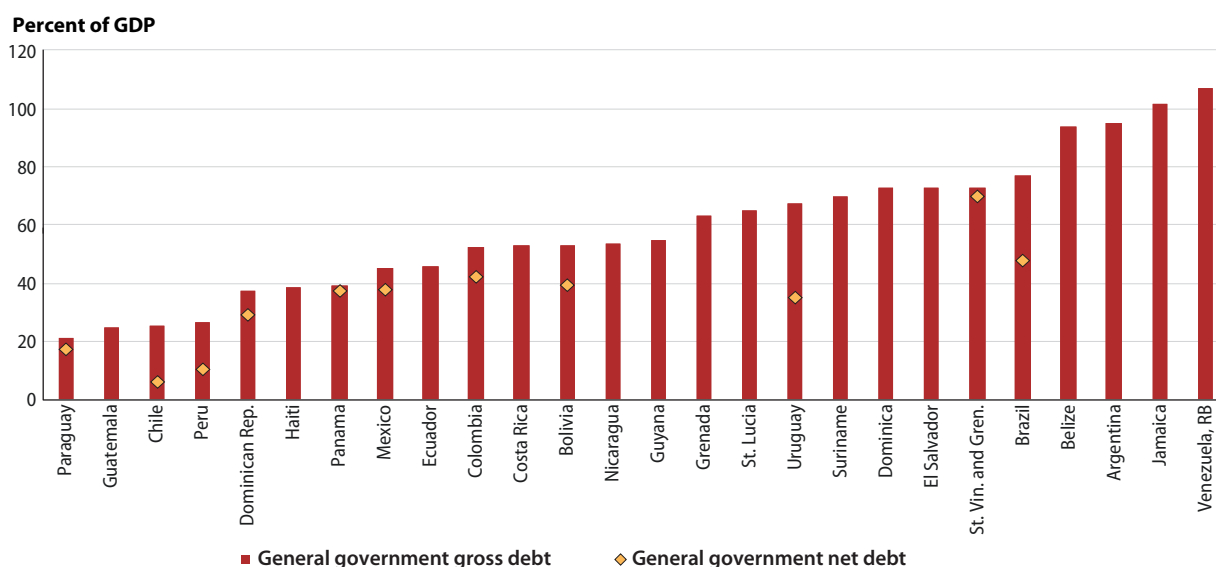


Note: The primary deficit does not include expenditures related to the servicing of public debt.  
Source: World Development Indicators.

The assessment of the fiscal policy stance of countries in the region is more nuanced, however, if the primary deficit is considered instead. The primary surplus or deficit reflects the balance of government accounts before servicing public debt. A primary surplus means that the authorities are in a position to reduce their debt exposure, whereas a primary deficit is associated with a growing debt burden. From this perspective, several countries in the region are running a tight fiscal policy. The most extreme examples are Grenada and Jamaica, two countries now undergoing impressive reform and adjustment programs. Mexico is the only large economy in the region running a primary surplus, and a sizeable one for that matter, as it reaches 1.8 percent of GDP. Several other countries show a neutral policy stance. But primary deficits remain worryingly large in Dominica, Bolivia, Guyana and Nicaragua, and are unsustainable in Venezuela.

Notwithstanding the relatively cautious fiscal stance of several countries in Latin America and the Caribbean, public debt levels remain generally high (figure 16). This makes them vulnerable to a reversal of monetary policies in advanced economies. Debt denominated in foreign currency creates an additional vulnerability in the event of a rapid depreciation. Dollar-denominated debt is particularly high in Argentina and Brazil. Sluggish economic growth also makes it more difficult to reduce the debt burden, relative to the size of the economy. On the positive side, several countries also have a considerable buffer of liquid assets, including international reserves, which brings their net debt levels down.

**Figure 16. High levels of gross public debt**



Note: Net public debt is computed as gross public debt minus liquid government assets.  
 Source: World Development Indicators and International Monetary Fund.

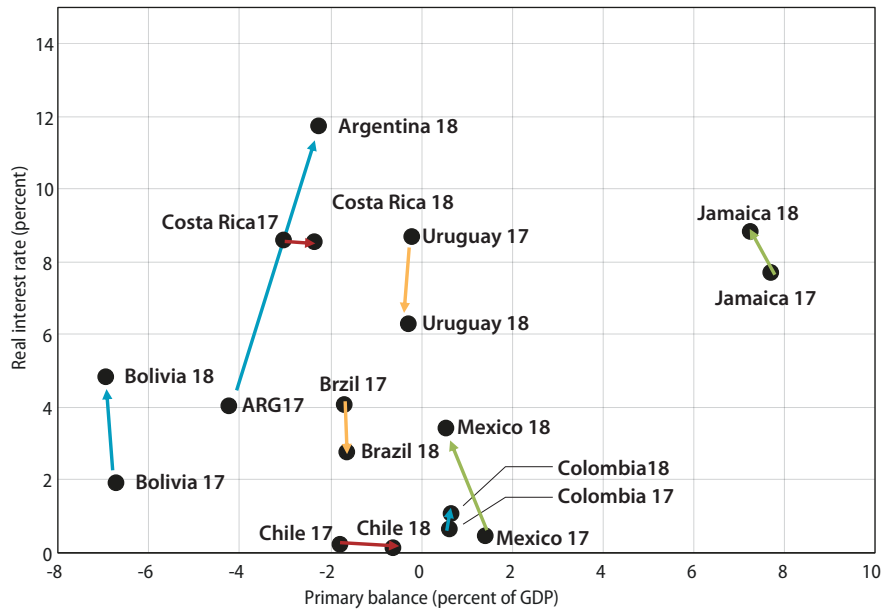
Combining monetary and fiscal policy indicators allows to characterize the overall macroeconomic policy stance of the countries in the region, and how it has evolved recently. An expansionary stance involves a low real interest rate, a large primary deficit, or both; and it is the opposite when the macroeconomic policy stance is contractionary. Admittedly, not all countries in the region use the interest rate as a policy instrument. But open market operations, reserve requirements, and other interventions by the authorities do have an influence on market interest rates. For comparison purposes, the real interest rate is measured as the difference between the most important policy rate, or the lending rate, and the inflation rate.

Overall, the largest economies in the region have been quite steady in their macroeconomic policy choices (figure 17). Only Argentina has moved, quite dramatically, in the direction of fiscal and especially monetary tightening. Elsewhere, policy shifts have been gradual. Chile, and to a lesser extent Costa Rica, have reduced



their primary deficits. Bolivia, Jamaica and Mexico have somewhat tightened their monetary policy, while Uruguay has loosened it. When considering the monetary and the fiscal dimensions together, Jamaica stands out for the magnitude of the adjustment effort under way.

**Figure 17. Relatively steady macroeconomic policy stances**



Note: The real interest rate is computed as the difference between the most relevant policy rate, or the lending rate, and the inflation rate.  
 Source: Based on Bloomberg, Haver Analytics and World Development Indicators.







## **2. The outlook for the region**



The outlook for Latin America and Caribbean is not particularly encouraging. While the terms of trade have stabilized, the years of high commodity prices are now clearly behind. Meanwhile, a tepid export response constrains the prospect of growing through external demand whereas limited fiscal space leaves little room to stimulate domestic demand.

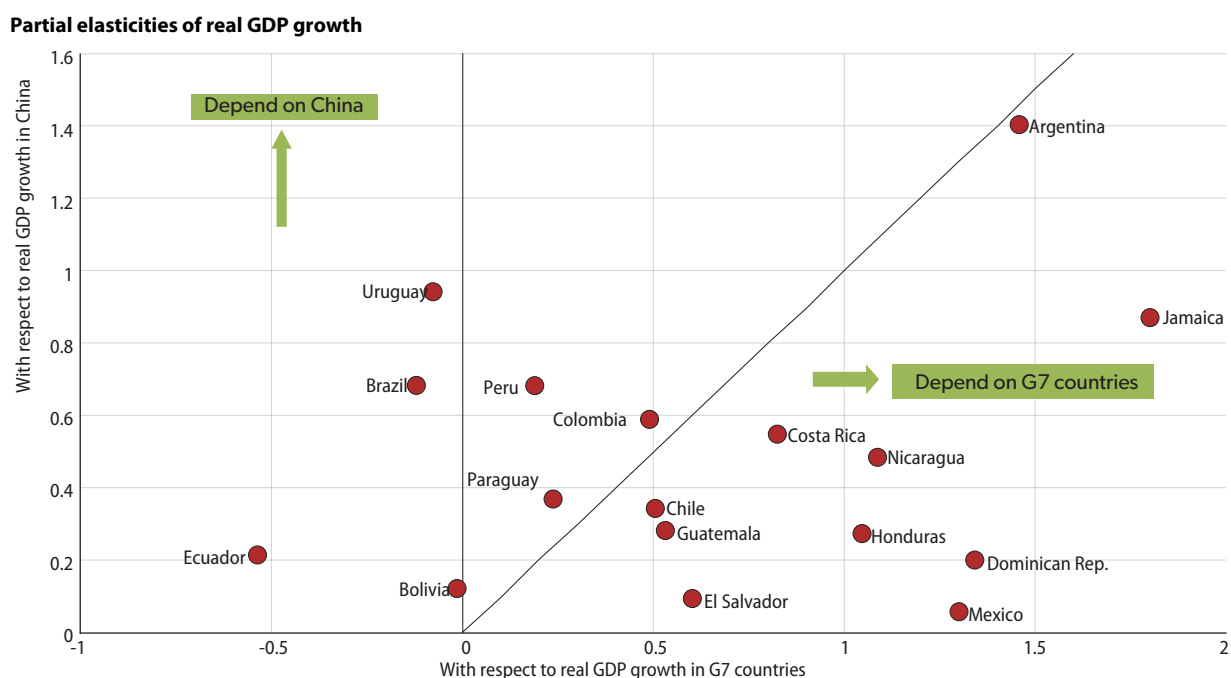
As a result, the region is expected to go through another phase of sluggish, almost absent economic growth (table 1). A spectacular exception is Guyana, as its vast oil reserves start being exploited, which will result in a growth rate approaching triple digits in 2020. Elsewhere prospects are much more morose. The Argentinian recession will become deeper before the economy starts recovering. Mexico’s deceleration will continue and the only countries in the Pacific subregion that will grow by more than 3 percent in 2019 are Bolivia and Colombia. In the Caribbean subregion, Dominica, the Dominican Republic and Panama could grow in excess of 4 percent. Forecasts are not presented for Venezuela, due to considerable uncertainties on economic developments on the ground.

The outlook could deteriorate if the international environment became less conducive. Monetary policy should remain expansionary in advanced economies for the time being. And so far, trade tensions have played to the advantage of several countries in the region. For example, Brazil’s exports grew substantially in the second half of 2018 as it increased its exports of soybeans and other products to China (Constantinescu et al. 2019). And Mexico overtook China as the first commercial partner of the US. But a further escalation of trade tensions could potentially worsen the prospects for the region. Economic growth has already decelerated in the European Union, and many forecasters anticipate a similar slowdown in the US and China.

The two most important external partners of countries in Latin America and the Caribbean are the countries in the G7 group and China. The G7 comprises Canada, France, Germany, Italy, Japan, the UK and the US. The economic activity of countries in Latin America and the Caribbean is potentially affected by fluctuations among these important partners.

One way to assess by how much it is affected is to compute the partial elasticities of economic growth in each country in Latin America and the Caribbean with respect to economic growth among the G7 group and

**Figure 18. Who depends on China and who on G7 countries?**



Source: Own estimates based on Bloomberg and Haver Analytics.

**Table 1. Real GDP growth at market prices**

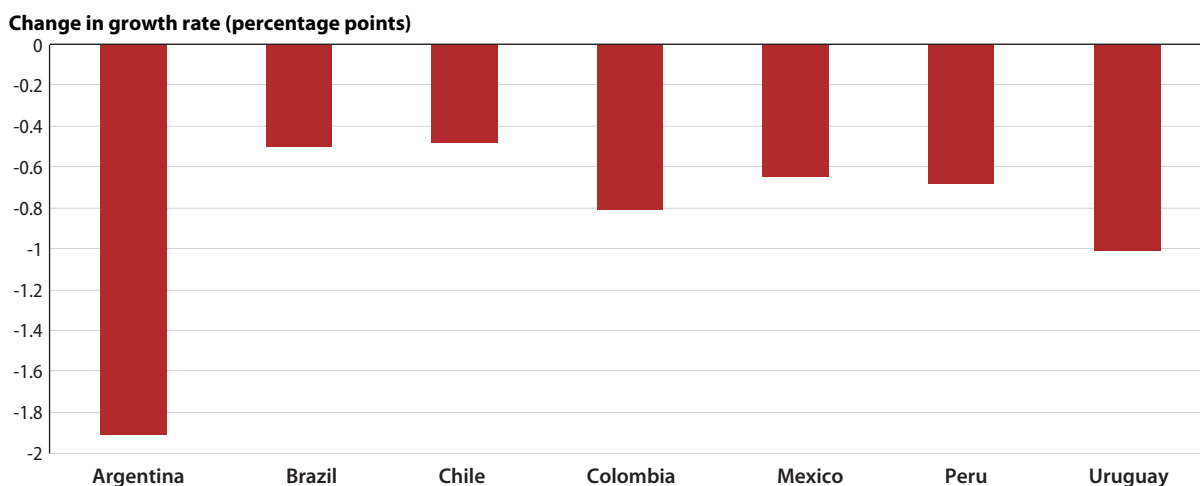
	2016	2017	2018	2019e	2020f	2021f
Argentina	-2.1	2.7	-2.5	-3.1	-1.2	1.4
Belize	-0.6	1.4	3.0	2.7	2.1	1.8
Bolivia	4.3	4.2	4.2	3.9	3.6	3.4
Brazil	-3.3	1.1	1.1	0.9	2.0	2.5
Chile	1.7	1.3	4.0	2.5	2.9	3.0
Colombia	2.1	1.4	2.6	3.3	3.6	3.9
Costa Rica	4.2	3.2	2.7	2.0	2.5	3.0
Dominica	2.6	-6.8	0.9	9.6	4.9	4.1
Dominican Republic	6.7	4.7	7.0	5.3	5.0	5.0
Ecuador	-1.2	2.4	1.4	-0.1	0.2	0.8
El Salvador	2.5	2.3	2.5	2.4	2.5	2.5
Grenada	3.7	4.4	4.2	3.5	2.9	2.9
Guatemala	3.1	2.8	3.1	3.3	2.8	3.1
Guyana	3.4	2.1	4.1	4.5	86.7	10.5
Haiti	1.5	1.2	1.5	-0.5	1.0	-0.8
Honduras	3.9	4.8	3.7	3.3	3.5	3.5
Jamaica	1.4	1.0	1.9	1.0	1.1	1.2
Mexico	2.9	2.1	2.0	0.6	1.5	2.0
Nicaragua	4.6	4.7	-3.8	-5.0	-0.5	0.6
Panama	5.0	5.3	3.7	4.5	4.6	4.6
Paraguay	4.3	5.0	3.7	0.7	3.1	3.9
Peru	4.0	2.5	4.0	2.6	3.2	3.5
St. Lucia	3.1	2.6	0.9	1.8	3.2	3.0
St. Vincent and the Grenadines	1.9	1.0	2.2	2.3	2.3	2.3
Suriname	-5.6	1.7	1.9	2.2	2.5	2.1
Uruguay	1.7	2.6	1.6	0.5	2.5	3.5
Venezuela, RB	-17.0	-15.7	-17.7	..	..	..
Latin America & Caribbean	-0.8	1.3	0.9	0.0	1.8	2.5
Latin America & Caribbean excl. Venezuela, RB	-0.1	1.9	1.5	0.8	1.8	2.5

Note: Figures are in percent. "e" stands for estimated and "f" for forecast.  
Source: World Bank.

in China. Partial elasticities indicate by how many percentage points the domestic growth rate changes in response to one additional percentage point of economic growth in each of these partners. These elasticities are estimated with GDP data from the first quarter of 1999 to the second quarter of 2019. They are partial in the sense of assuming that everything else remains unchanged. At the same time, their aggregate nature means that all mechanisms at play – direct export demand, higher commodity prices or tighter financial conditions – are captured by a single number.

The exercise shows that the relative weight of the two foreign partners varies considerably across countries in the region (figure 18). For example, Uruguay’s performance is highly sensitive to China but not to the G7, while the opposite is true for the Dominican Republic and Mexico. Similarly, Argentina is highly responsive to both external influences, but Bolivia to none. Taking the 45-degree line as a divider, South America seems to be more connected to China whereas Central America and the Caribbean are more oriented toward the G7.

**Figure 19. Potential growth deceleration in a global slowdown scenario**



Source: Own estimates based on Bloomberg and Haver Analytics.

These partial elasticities can be used to assess the downside risk to the outlook for the region. In a highly pessimistic scenario, the escalation of trade tensions could lead to a decline of the growth rate of G7 countries by 0.5 percentage points, and of China’s growth rate by a full percentage point. Based on the estimated elasticities, countries in Latin America and the Caribbean would experience a further growth deceleration, ranging from 0.5 percentage points in Brazil and Chile, to 1.3 percentage points in Argentina (figure 19). It is important to emphasize, however, that this is a hypothetical exercise and the underlying scenario may not materialize.

# 3. Far from the world

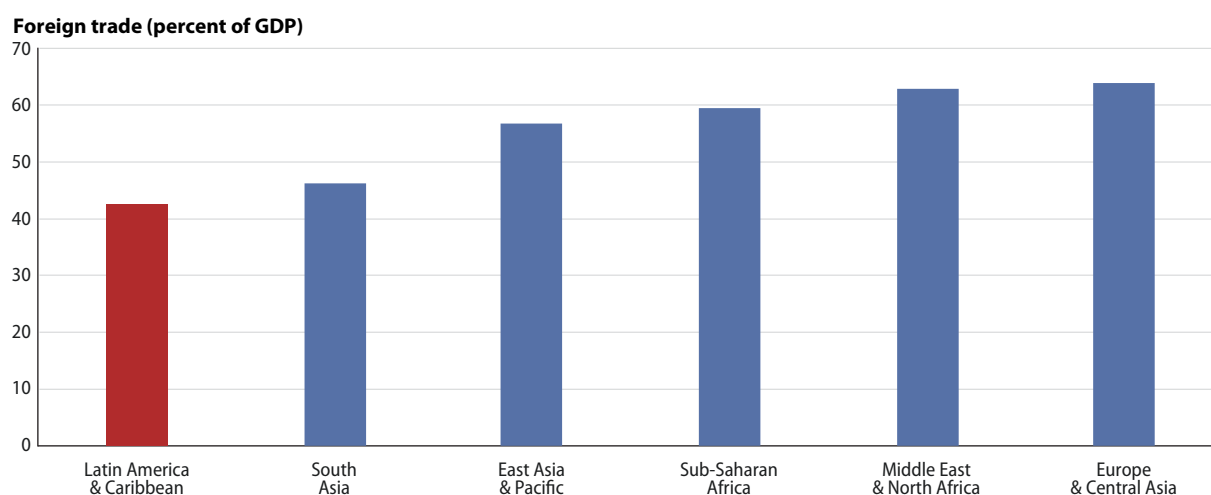


A possible explanation for the slow economic growth of the Latin America and Caribbean region is its relatively low trade integration. Exposure to world markets brings in more choices and fosters competition. Selling abroad requires reaching high quality standards and meeting tight deadlines. And in the process of trading with more advanced economies much is learned about technical innovations and management practices. All of this should in principle boost productivity growth. The relatively low external openness of the region, especially of the inward-oriented countries in the Atlantic subregion, could thus be a reason why its economic performance has historically been lackluster.

## Low exposure to international trade

A standard measure of a country's external openness is the ratio of its international trade to its overall economic activity. In practice, this ratio is often computed by adding up exports and imports of goods and services and then dividing by the country's GDP. By this measure, Latin America and the Caribbean has the lowest external openness among all developing regions (figure 20). The region's openness ratio is around 40 percent, comparable to that of South Asia and Sub-Saharan Africa, but far lower than those of regions with similar incomes levels, such as East Asia, the Middle East and North Africa, and Eastern Europe and Central Asia.

**Figure 20. Less open to trade than other developing regions**



Note: Figures are for trade in goods and services. They are computed as averages over period 2010-17.  
Source: World Development Indicators.

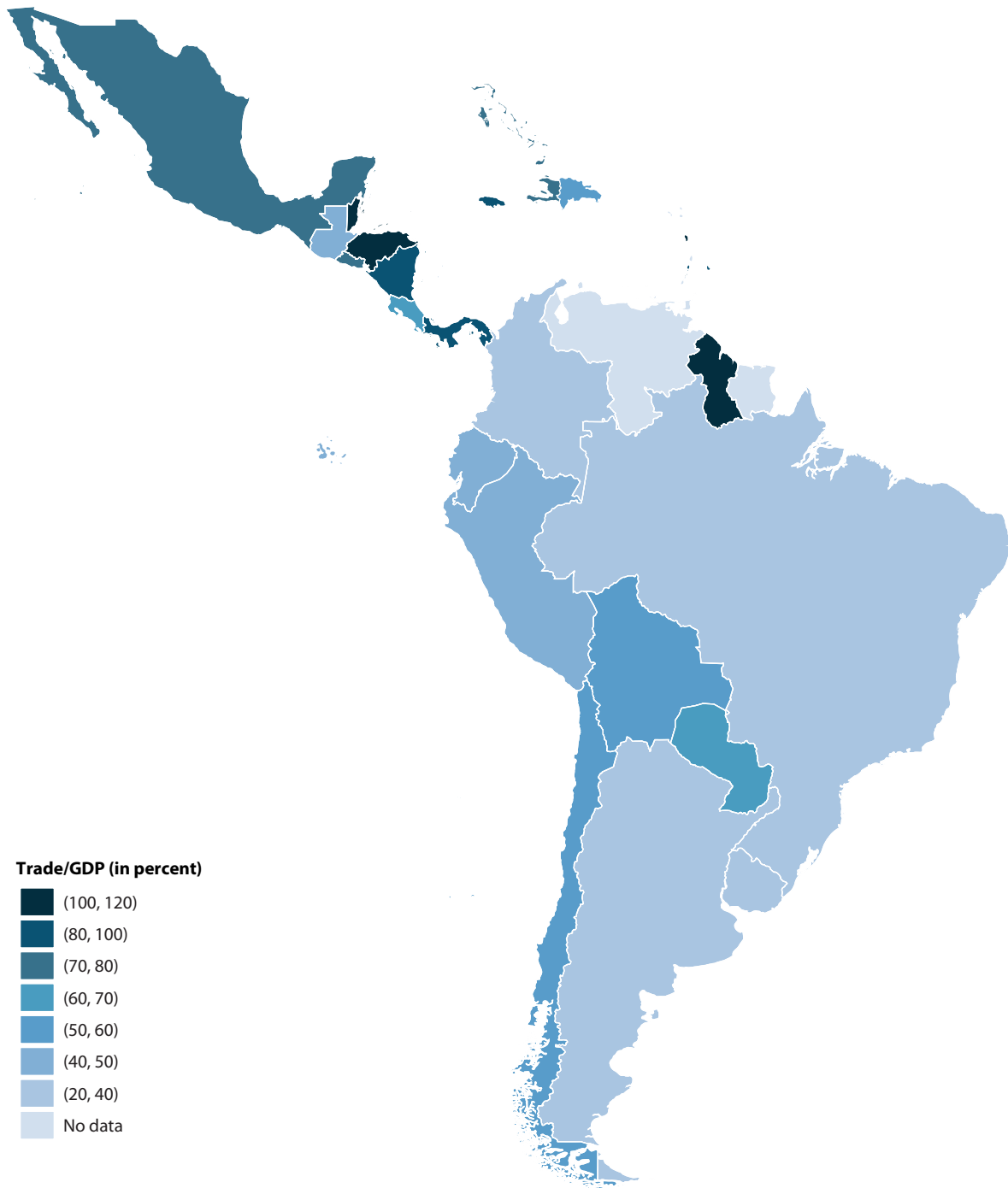
It could be tempting to attribute this inward orientation to geography. Much of the region is physically distant from the advanced economies in the North, making it challenging to reap large gains from international trade. However, distance matters a lot less today than it used to. For example, the East Asia region has integrated more into the world economy than Latin America and the Caribbean despite being as far from North America and Western Europe, if not more.

Over the last few decades, technological progress has made it possible to reduce transport costs and sharply increase global trade in goods and services. The development of jet aircraft engines and the containerization of ocean shipping have enormously reduced freight-related expenses (Hummels 2007). More recently, information and communication technology have wiped off transaction costs, allowing more buyers and sellers to participate in global markets and enabling trade in some services.

An indication that there is more than distance at play comes from the fact that the overall trade isolation of the region hides a substantial heterogeneity across individual countries and even subregions. Countries

which are more distant from the North are not necessarily less open than those up-close, while countries that are similarly distant from the North exhibit a large variation in their international openness (map 1).

**Map 1. Openness to trade is especially low among Atlantic countries**



*Note:* Figures are for trade in goods and services as percentage of GDP in 2017.  
*Source:* World Development Indicators.

Not surprisingly, small island economies in the Caribbean, and some Central American countries such as Honduras, all close to North America, have openness ratios in the range of 80 to 100 percent. But there is also a clear divide between the relatively isolated Atlantic, including Argentina and Brazil, and the more open Pacific, with countries such as Chile or Mexico having openness ratios above 50 percent.

Trade openness is not the only measure of a country's degree of trade integration. Participation in global value chains is another important indication of close vertical ties with suppliers and distributors abroad. But few firms in Latin America and the Caribbean resemble those taking part in production sharing arrangements. Only in Mexico do firms involved in both exporting and importing, represent more than a fifth of all trading firms. For all other countries in the region, the share is below 15 percent, indicating relatively limited production connections, hence limited potential to learn from partner companies (World Bank 2019).

## ***Restrictive trade policies***

The region's inward orientation is in part the result of economic policy choices. Some of those choices are related to explicit tariff barriers. These are tax wedges that increase the price of imported products to domestic consumers, above what it would cost to bring them to the country. Other policy choices are related to logistics and trade facilitation. Often there are inefficiencies linked to limited competition in port and transport services, deficient infrastructure and burdensome customs procedures (Mesquita Moreira et al. 2008; Mesquita Moreira et al. 2013). And then, there are non-tariff barriers, under the form of licensing procedures or sanitary inspections. Some of them are justified for public health considerations and other defensible reasons. Many amount to disguised protectionism.

Measuring the outcome of policy choices related to international trade is challenging. Explicit tariffs are easy to quantify for individual products, but quantifying non-tariff barriers is more difficult. Converting a slow port or a burdensome customs administration into an equivalent price surcharge may require multiple assumptions and introduce considerable uncertainty in the estimates.

Aggregating tariff and non-tariff barriers across sectors of activity, or for the entire economy, raises an additional methodological complication. One straightforward measure is a simple average across products. But this amounts to attributing equal weight to products with different economic importance, just because each of them has a separate line in the standard international product classification.

Another possibility is to weight trade barriers by product based on the value of imports for the corresponding product lines. However, products facing prohibitively high trade barriers are not imported, so their weight in the average falls to zero. As a result, highly protectionist countries may display low weighted-average trade barriers, which is potentially misleading.

A third option is to compute the overall trade restrictiveness index (OTRI). The OTRI summarizes the trade policy stance of a country by calculating the uniform tariff that would keep its overall imports at the current level when the country has in fact different tariff and non-tariff barriers for different goods. The empirical methodology to perform this calculation was first developed by Kee, Nicita and Olarreaga (2009). Updated OTRI estimates were prepared for this report (box 1).

In the end, these methodological differences matter, but they do not change the conclusion. Regardless of whether trade barriers are measured through tariffs or also taking into account non-tariff measures, and also regardless of whether the selected indicator is a simple average, a weighted average or the OTRI, Latin America and the Caribbean is among the most protectionist regions (figure 21).

Overall, countries in the Caribbean and Pacific subregions display much lower trade barriers than countries in the Atlantic subregion (figure 22). Trade policy is especially restrictive among countries in the Mercosur area, mostly through high non-tariff barriers, but also through explicit tariffs. Mercosur's most-favored nation tariff (the lowest applicable level for a specific product among all countries of origin) hovers around 10 percent,

**Box 1. Estimating overall trade restrictiveness indices**

The actual volume of imports of a specific product into a country can be compared to the volume of imports that could be expected given the characteristics of the country, of its trading partners, and of the products involved. A standard way to predict import volumes is to estimate gravity models, which incorporate the economic size of the countries, their geographical distance, their cultural proximity (for example, speaking the same language) and other factors that could influence trade volumes in practice (Bergstrand 1985).

These models can be estimated at a high level of disaggregation, for imports across thousands of product lines and thousands of pairs of exporting and importing countries. In the process, an estimate of the price elasticity of imports by product can be obtained as well. A price elasticity indicates by how much the demand for an imported good decreases as its price increases, for instance as a result of tariff rates, logistic costs or non-tariff barriers.

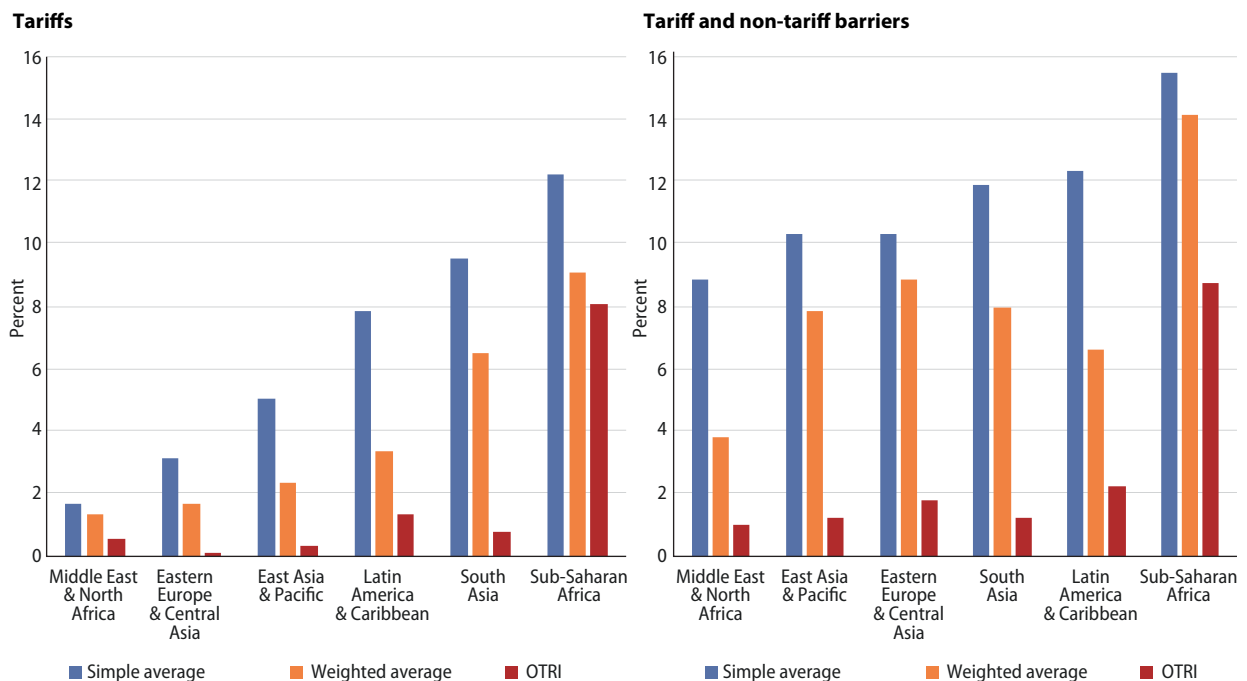
Knowing the actual import volume for a product originating in a specific country, the predicted volume and the corresponding price elasticity, it is possible to infer its OTRI. In practice, this is a more sophisticated way to calculate a weighted average of trade barriers in a given country, with the weights reflecting the composition of import volumes and the import demand elasticities of each imported product.

The estimates for this report are based on the work by Kee and Nicita (2017), which relies on the most recently available trade data, corresponding to the period 2013-17. The tariff data used for that purpose are from Comtrade, while data on non-tariff barriers are from the UNCTAD-WB NTM database. Both these data sources are freely available in the World Integrated Trade Solution website (WITS).

Source: Based on Kee (2019).

which is high by international standards. With the binding overhang, which is the add-on that can be used without violating commitments made to the World Trade Organization, applied tariffs in Mercosur countries can easily reach 30 percent. This is higher than in most other countries (Bown et al. 2017).

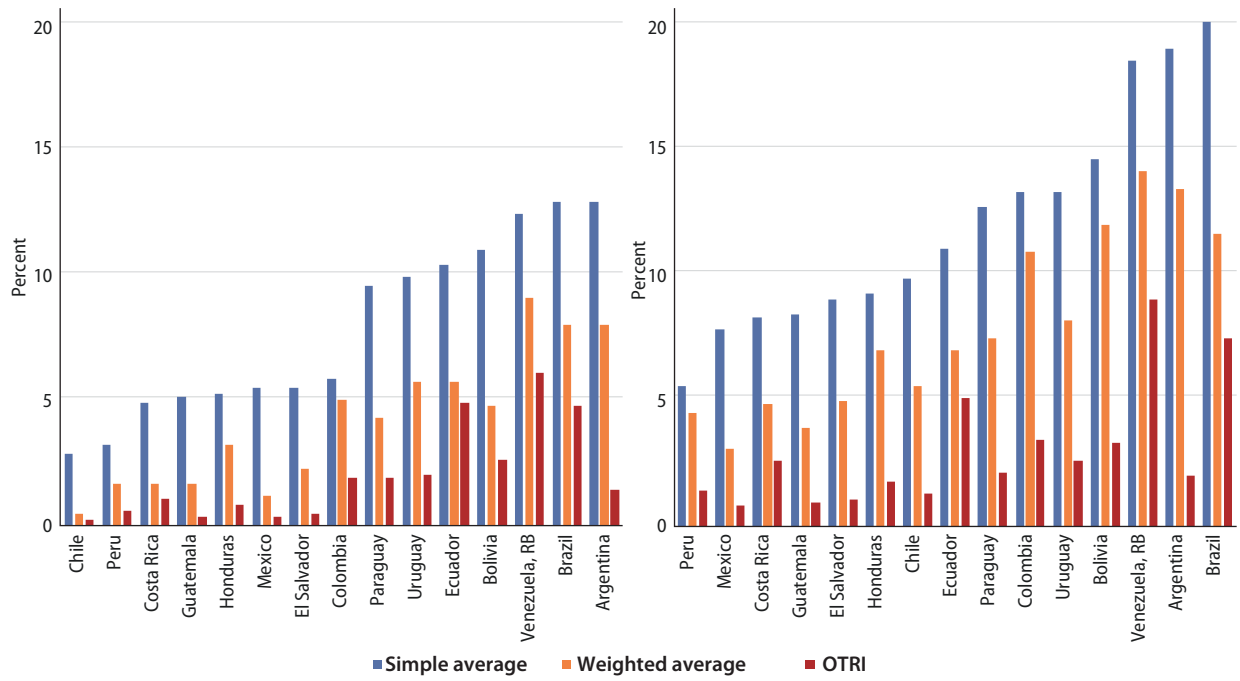
**Figure 21. A relatively restrictive trade regime**



Note: OTRI stands for overall trade restrictiveness index.  
Source: Kee (2019).



**Figure 22. Higher trade barriers among countries on the Atlantic**



Note: OTRI stands for overall trade restrictiveness index.  
 Source: Kee (2019).

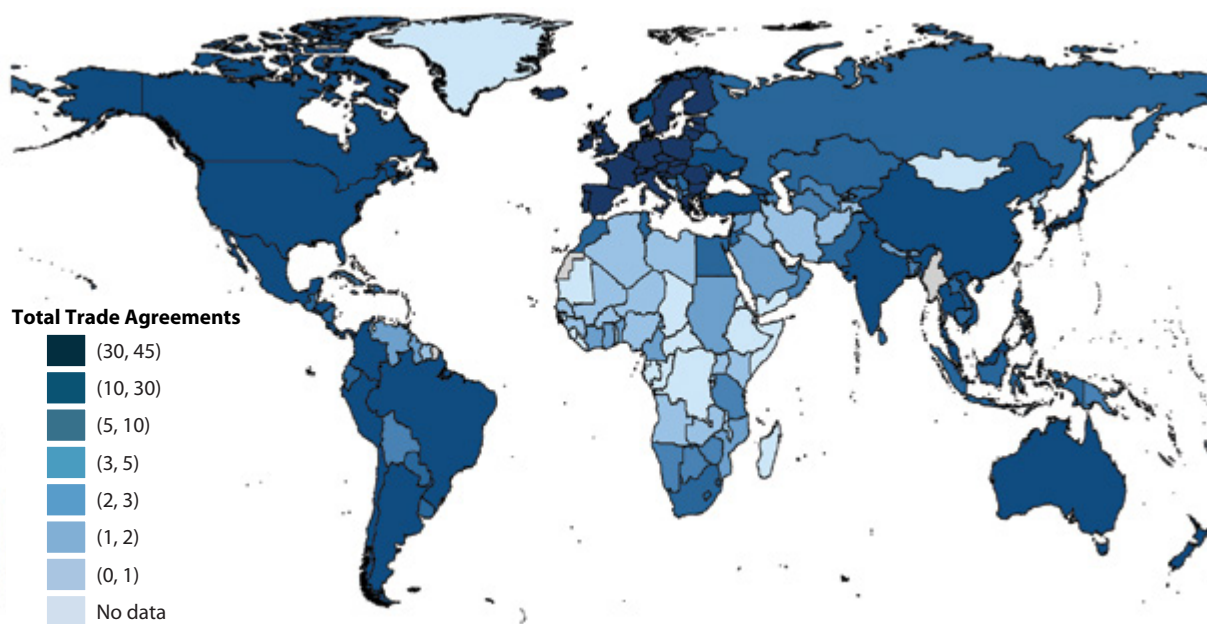
# 4. Counting on trade agreements

For half a century the countries in Latin America and the Caribbean have pursued trade integration as a way to improve development opportunities. Some of the most significant regional initiatives were the Andean Community agreement (1969), the Caribbean Community or Caricom (1973), the Latin American Integration Association (1980), Mercosur (1991), the Dominican Republic-Central America Free Trade Agreements or CAFTA-DR (2004), and the Pacific Alliance (2012).

### Many, but mainly intra-regional

The World Trade Organization counts the number of preferential trade agreements signed by each country. Based on this metric, the countries in Latin America and the Caribbean seem to be quite integrated into the world economy. North America, Western and Central Europe, are the regions where on average the number of regional agreements per country is largest. However, Latin American and Caribbean countries are not far behind (map 2). From this perspective the region is not as isolated as the trade openness indicator suggests.

Map 2. More preferential trade agreements than in other developing regions

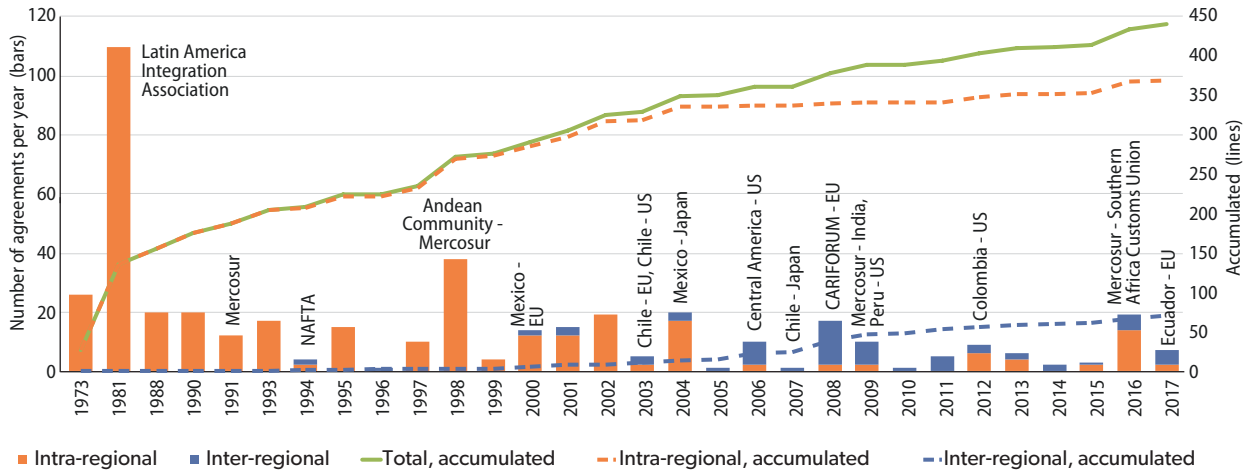


Source: World Trade Organization.

However, this count is potentially misleading, as agreements may involve varying numbers of countries on each side, and those countries may differ in relevant ways. A way to address this concern is to count the number of bilateral trade agreements signed by each country participating in an agreement. For example, when Argentina, Brazil, Paraguay and Uruguay joined Mercosur, each country signed 3 agreements so in total 12 (= 4 x 3) bilateral trade agreements were added. Conversely, when the 15 Caricom countries joined the Cariforum-EU trade agreement a total of 15 bilateral agreements were signed, each of them involving one Caribbean country and the European Union.

This way of counting confirms that countries in Latin America and the Caribbean have been prolific in signing preferential trade agreements over the last half century, but it also shows that most of them are intra-regional. Out of the 441 bilateral agreements recorded between 1973 and 2017, 370 involve other Latin American and Caribbean countries and only 71 are with countries or groups of countries in the rest of the world (figure 23).

**Figure 23. Most trade agreements are within the region**



Note: One multilateral trade agreement may lead to multiple bilateral agreements being signed.  
 Source: Based on World Trade Organization.

This intra-regional bias is potentially relevant from an economic point of view. On the positive side, integrating with the region can generate benefits because it may increase the scope of regulatory cooperation among countries, something that is taking place in the Pacific Alliance (Sauvé et al. 2018). Among the small island nations of the Caribbean, such agreements have also produced a range of regional public goods of value in resource constrained environments (Bown et al. 2017). Intra-regional agreements may also encourage trade in goods that are difficult to export farther away, due to their high transport costs or to differences in regulatory regimes (Antweiler and Trefler 2002). Among them are electricity, natural gas, live animals and dairy products.

And yet, in spite of its large number of intra-regional agreements, the Latin America and the Caribbean region under-performs in this type of trade. In the sectors just listed, regional exports only account for 40 percent of total exports, compared to 75 percent in the European Union and almost 80 percent in East Asia and the Pacific (Bown et al. 2017).

On the negative side, average pairs of countries in Latin America and the Caribbean are more similar in terms of their comparative advantage than average pairs of countries in other middle-income regions or among advanced economies. The similarity is greatest among the countries in Central America. Within South America it is more marked among the countries in Mercosur and in the Pacific Alliance (Bown et al. 2017). With similar economic structures, the amount of new trade created could be relatively small.

Not surprisingly, trade related to global value chains increased by only 0.1 percent among countries in Latin America and the Caribbean between 1995 and 2015. In the rest of the world it expanded by 19 percent over the same period, mostly driven by countries in East Asia (World Bank 2019).

Moreover, better access to similar partners may result in trade diversion (Corden 1997). This is what happens when the agreement encourages imports from a partner country in the agreement, as opposed to imports from substantially different countries, with lower production costs in the sectors where they have a comparative advantage. All this suggests that the large number of agreements signed may not translate into equally large efficiency gains.

Only in the last quarter of a century has the region started to look outward. An important turning point was the 1994 North American Free-Trade Agreement (NAFTA), involving Canada, Mexico and the US, followed by an agreement between Mexico and the European Union in 2000. More inter-regional agreements have been signed since then. These inter-regional trade agreements involve mainly countries in the Caribbean and Pacific subregions.



## **Who you trade with matters**

While all preferential trade agreements create export opportunities, some offer much better possibilities because they provide access to bigger and richer markets, and they enable knowledge exchange with more advanced economies once implemented. Thus, the potential for productivity transfers embedded in the exchange of goods and services may vary substantially across trade deals.

The nature of the economies engaged in a bilateral trade agreement is important in this respect. Smaller countries typically gain from preferential market access to larger economies, while the latter tend to benefit less (Lederman and Lesniak 2018).

Similarly, an agreement between a developing country and an advanced economy (or a South-North agreement for short) typically opens large new markets to exporters from developing countries and enables them to reach wealthier and more sophisticated consumers who love variety and quality. On the other hand, agreements reached between two developing nations (or South-South agreements) tend to give access to relatively small, low- to middle-income new markets which have limited potential for productivity gains through improved efficiency or economies of scale.

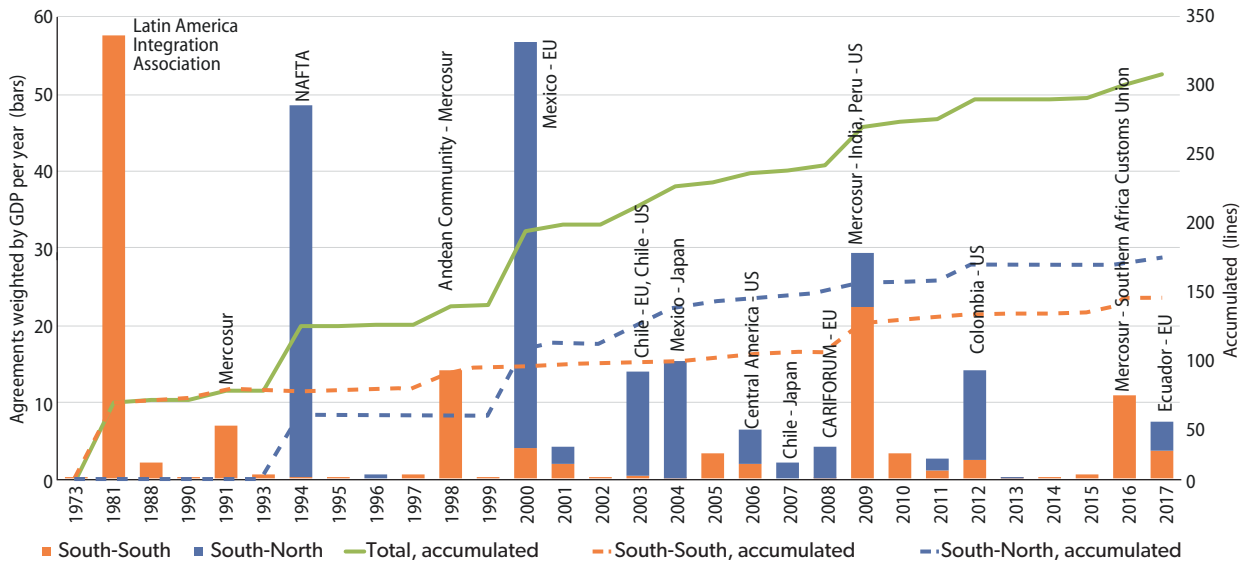
The number of preferential trade agreements signed is thus a gauge of trade integration efforts, but it may yield a misleading picture of the potential economic benefits. To account for market size, each trade agreement can be weighted by the product of the GDP of the two signing parties, measured as a share of global GDP. For example, a trade deal between a country accounting for 1 percent of the world's GDP and a grouping of countries contributing 20 percent of the global total would now count for 0.2 percent of an agreement ( $= 0.20 \times 0.01$ ). Conversely, a trade deal between two countries accounting each for 1 percent of global GDP would be treated as 0.01 percent of an agreement ( $= 0.01 \times 0.01$ ).

This way of weighting trade agreements obviously increases the importance of those that involve an advanced economy (figure 24). By this metric, South-North agreements account for 55 percent of the trade deals signed by countries in the Latin America and Caribbean region, a much larger figure than the share of actual South-North deals signed. The importance of South-North agreements can be illustrated by comparing the Latin American Integration Association and NAFTA. After weighting by the corresponding shares of global GDP, the 110 bilateral trade agreements signed by countries participating in the former become equivalent to the two agreements signed by Mexico under the latter.

Beyond enhancing market size, another potential benefit of trade agreements is to facilitate transfers of technology and know-how. Complex economies produce sophisticated and innovative products and services that are sold at a premium in global markets. Trading with them involves substantial learning, fostering productivity at home and improving the ability of domestic firms to sell abroad (Morales et al. 2014; Chaney 2011). A country can import knowledge not only from these more complex economies, but also indirectly from their own trading partners (Grossman and Helpman 1991; Coe and Helpman 1995).

To account for these learning effects, each trade agreement can be weighted not only by the signing parties' global share of GDP, but also by their degree of economic sophistication as measured by their Economic Complexity Index (ECI). The ECI computes the diversity of a country's exports and their ubiquity, as reflected in the number of countries in the world that produce them (Hausmann et al. 2013). The ECI is normalized so that it varies between a minimum of 0 and a maximum of 1.

**Figure 24. South-North trade agreements involve greater market size...**

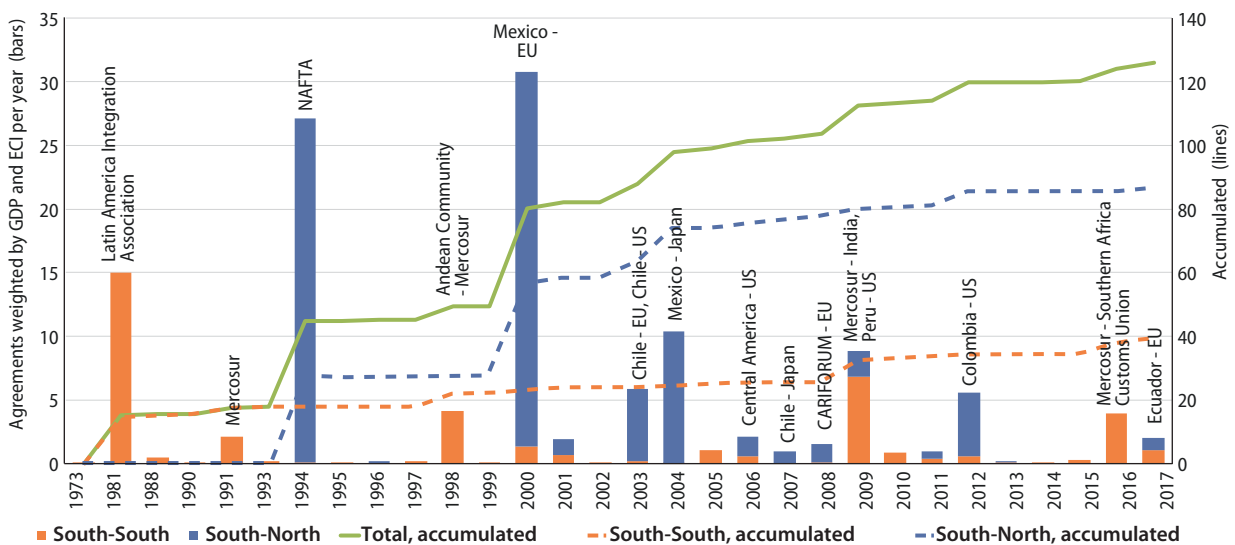


Note: Each agreement is multiplied by the product of the share of global GDP of the two signing parties.  
 Source: Based on World Trade Organization and World Development Indicators.

To illustrate how the economic sophistication of the signing parties affects the counting of trade agreements, consider a developing country whose normalized ECI index is 0.2. If this country signs a deal with an advanced economy whose normalized ECI index is 1, the trade agreement gets a 0.2 weight ( $= 0.2 \times 1$ ). On the other hand, a deal with a country with the same 0.2 ECI gets a 0.04 weight ( $= 0.2 \times 0.2$ ). These weights are applied on top of those stemming from market size, discussed above.

Accounting for economic sophistication, in addition to market size, further increases the weight of South-North trade agreements. Counting this way, more than two thirds of the market access and potential knowledge transfer from trade agreements signed by countries in the region originated from just a few South-North deals (figure 25). It takes now the equivalent of two Latin American Integration Association deals to reach the same economic potential as NAFTA.

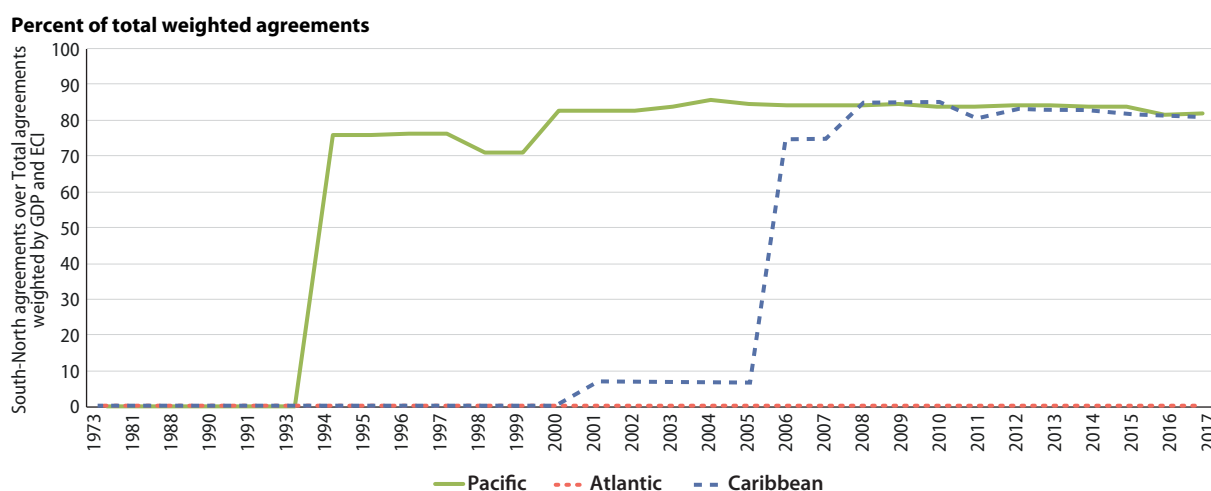
**Figure 25. ... and increased exposure to economic complexity**



Note: Each agreement is multiplied by the product of the share of global GDP and the ECI of the two signing parties.  
 Source: Own estimates based on World Trade Organization, World Development Indicators and Atlas of Economic Complexity.

Not all countries in Latin America and the Caribbean have embraced South-North Agreements to the same extent, however. A comparison between the Atlantic, Caribbean and Pacific subregions during the period 1973-2017 is revealing in this respect. While Atlantic countries have limited their deals to the region and other developing nations, Pacific countries have looked beyond the region and especially to advanced economies. As expected, given their geographical proximity to the US and historic ties to European economies, Caribbean economies have also chosen to look beyond the region for their trade deals. In this sense, Pacific and Caribbean countries can be expected to gain more from their current preferential trade agreements than Atlantic countries (figure 26).

**Figure 26. Countries in the Caribbean and Pacific subregions have looked farther**



Note: Each agreement is multiplied by the product of the share of global GDP and the ECI of the two signing parties.  
 Source: Own estimates based on World Trade Organization, World Development Indicators and Atlas of Economic Complexity.

The depth of preferential trade agreements has increased as well. Many new agreements reach beyond tariff reductions, to cover through legally enforceable provisions new policy areas such as customs procedures, cross-border investments, competition policies, public procurement, state-owned enterprises and intellectual property rights.

Up to 52 policy areas have been identified under existing preferential trade agreements (Horn et al. 2014). Ten of them fall under the current mandate of the World Trade Organization. They include tariffs, antidumping duties, subsidies and sanitary and phytosanitary standards, among others. The rest are not governed by any multilateral architecture, and their enforcement mechanisms are specific to each preferential trade agreement.

Deep agreements, covering a larger number of policy areas, have been shown to lead to more trade creation and less trade diversion than shallow agreements (Mattoo et al. 2017). They are also associated with more trade related to global value chains (Laget et al. 2018; Orefice and Rocha 2014). And they influence the way firms internationalize, leading to more foreign direct investment in suppliers and distributors (Osnago et al. 2017; Osnago et al. 2019).

Traditionally, preferential trade agreements in Latin America and the Caribbean tended to be shallow, including relatively few provisions beyond tariffs. Mercosur is a good example of this, with very few provisions beyond tariffs. But the evolution toward more open and deeper trade agreements is increasingly observed among countries in Latin America and the Caribbean. An example are two landmark agreements approved over the last 12 months by countries in both the Pacific and the Atlantic subregions.

**Box 2. Two milestone South-North agreements in 2018-19: USMCA**

Changes relative to NAFTA:

**Motor vehicles**

- Increase in regional value content thresholds for exports from 62.5 to 75 percent.
- Stronger content requirements for core car parts, such as engines and transmissions.
- 70 percent North American steel and aluminum requirement.
- 40 to 45 percent of car production by workers who earn at least \$16 per hour.

**Textiles and apparel**

- Increase in regional value content thresholds for some textile inputs.
- Stronger customs enforcement of trade in textiles and apparel.

**Financial services**

- National treatment and market access for cross-border financial services.
- National treatment and market access for data transfer and processing.

Source: Office of the United States Trade Representative and Government of Canada.

**Trade facilitation**

- Increased efficiency of customs through digital processing and single-location inspections.
- Higher value thresholds for the duty-free goods shipped by express delivery.
- Enhanced rules for trade in agriculture, fisheries and forestry products.

**Labor standards**

- Commitment to legislation recognizing the right to collective bargaining.

**Environmental protection**

- Prohibition on some of the most harmful fisheries subsidies.
- New protection for marine species.

On November 30, 2018, an agreement between the US, Mexico and Canada (USMCA) was signed by all three parties, after several rounds of negotiation. The USMCA aims to modernize NAFTA. On June 28, 2019, representatives of the European Union and Mercosur signed a comprehensive association agreement that had been under negotiation for two decades. Both agreements need to be ratified by the parliaments of all parties before they can be implemented. But their completion represents a breakthrough, and their legally binding commitments are ambitious (boxes 2 and 3).

**Box 3. Two milestone South-North agreements in 2018-19: EU-Mercosur****Agriculture**

- Remove tariffs on 95 percent of Mercosur's agricultural imports from the EU.
- Liberalize 82 percent of EU's agricultural imports from Mercosur countries.
- Products such as beef, poultry, pork, sugar, and cheese subject to EU import quotas.
- Eliminate taxes imposed by Mercosur on exports of soybeans to the EU.
- Strong provisions against export subsidies.

**Manufacturing**

- Remove Mercosur tariffs on EU cars, machinery, chemicals and pharmaceuticals.
- Eliminate duties on 100 percent of EU manufacturing imports from Mercosur.

**Services**

- Remove obstacles to trade in maritime transport, telecommunications and e-commerce.
- Protect the right to regulate and provide public services.

Source: European Commission (2019).

**Trade Facilitation**

- Prohibit import and export monopolies and price requirements.
- Enhanced rules governing transparency in customs procedures.

**State-owned enterprises**

- Require largest SOEs to act in accordance with commercial considerations.
- Public procurement and competition" is a subtitle just like "State-owned enterprises" and "Other.
- Make it easier for both the EU and Mercosur companies to bid for public contracts.
- Maintain comprehensive competition laws and capable competition authorities.

**Other**

- Protect intellectual property rights, including copyright, trademarks and patents.
- Agree not to lower labor and environmental standards.







# 5. Trade integration and economic performance

Research suggests that the economic gains from preferential trade agreements in Latin America and the Caribbean have been modest at best. But findings are somewhat more encouraging in the case of South-North agreements. For Colombia, which signed a bilateral trade agreement with the US in 2011, the boost to its exports has been estimated at between 2 and 6.2 percent (USITC, 2006). Similarly, the CAFTA-DR agreement has generated substantial gains for cotton apparel producers in the region (Pan et al. 2008). The agreements signed by Chile with the European Union and the US also raise the prospect of large economic benefits (Chumacero et al. 2004). The question is whether a cautious optimism is also warranted for countries embarking in “new-style” agreements such as USMCA and EU-Mercosur.

### ***Faster growth... and greater volatility?***

The presumption that greater trade openness is associated with faster economic growth is partly supported by studies of trade liberalization episodes of the 1970s and 1980s. This evidence is debated, and some caveats apply. For example, it has been shown that regional trade agreements among small, relatively closed economies did not lead to growth accelerations (Vamvakidis 1998). Similarly, faster growth did not follow immediately after liberalization episodes (Greenaway, Morgan and Wright 1998).

More recent evidence is more upbeat. By one estimate, a 1 percent increase in trade is associated with a 0.5 percent increase in income (Feyrer forthcoming). Another recent study suggests that a 1 percent increase in trade related to global value chains is associated with an increase in income by more than 1 percent, or twice as much as the impact of greater overall trade (World Bank forthcoming).

A new analysis was conducted for this report, building on data from 60 economies over the last six decades (box 4). The results confirm that a positive relationship exists between trade openness and economic growth (figure 27, top panel). For this group of countries and over this period, an increase in trade openness by 10 percent of GDP was associated with an additional 0.06 percent of annual GDP growth. This relationship is statistically significant.

At the same time, it is recognized that trade openness carries the risk of heightened macroeconomic instability (Kose et al. 2006). This presumption is confirmed by data from the same set of 60 countries over six decades (figure 27, bottom panel). In this sample, a 10 percent increase in trade openness is indeed associated with a 0.07 percent increase in economic volatility, as measured by the standard deviation of the GDP growth rate from its long-term mean. And again, the estimated relationship is statistically significant.

The increase in volatility probably stems from the fact that relatively open economies are more exposed to global shocks including commodity price shocks, changes in global liquidity, demand shocks, and large short-term capital movements, among others. Volatility is undesirable in itself, but in addition it has a negative impact on poverty and inequality (Gavin and Hausmann 1998).

In the case of Latin America and the Caribbean empirical evidence indicates that regional trade integration has done little to mitigate growth volatility. A study of four sectors that covered 40 countries (including Argentina, Brazil, Chile, Colombia, Mexico, and Peru) found that both the supply of exports and the demand for imports are more volatile than in other developing regions (Bennett et al. 2016). The increase in volatility was greatest for countries with high initial levels of regional integration. And it was exacerbated by terms of trade that were highly correlated across countries, especially within South America and, to a lesser extent, in Central America, Mexico and the Caribbean.

**Box 4. Estimation of the medium-term macroeconomic effects of preferential trade agreements**

The analysis conducted for this report follows a two-step procedure. In the first one, a database of more than 7,000 bilateral agreements is built, based on all the preferential trade agreements signed worldwide since the early 1960s. Thus, for every pair of countries in any particular year it is possible to tell whether they are linked by a preferential trade agreement. In addition, all these agreements are classified as South-South or South-North depending on whether they involve at least one advanced economy among the trading partners. In this context advanced economies include Australia, Canada, Japan, the US and the countries in Western Europe.

The analysis is based on the following specification:

$$z_{ijt} = \alpha_i + \sigma_t + \omega_{ij} + \beta_a * s_{ijt} + \beta_n * n_{ijt} + \theta(L) * z_{ijt} + \varepsilon_{ijt}$$

where  $z$  is the variable of interest,  $i$  and  $j$  are a pair of countries, and  $t$  is the year. The variable of interest is a function of its lagged values, represented by the lag operator  $\theta(L)$ . It is also a function of the characteristics of the pair of countries and the year, captured through country, year and pair fixed effects ( $\alpha$ ,  $\sigma$  and  $\omega$  respectively). Importantly, the variable of interest depends on whether the pair of countries is linked by South-South or South-North trade agreements, represented by the dummy variables  $s$  and  $n$ . The coefficients  $\beta_s$  and  $\beta_n$  capture the effects of the two types of agreements, respectively.

This equation is estimated using two data panels. In one of them the variable of interest is the volume of bilateral trade between countries  $i$  and  $j$ , in percent of the GDP of country  $i$ . In the other, it is a measure of the degree of economic complexity of country  $i$ . For convenience these two variables are designated as  $zx$  and  $zc$ , respectively.

The second step involves the estimation of a growth equation of the form:

$$\Delta y_{it} = \alpha_i + \sigma_t + \beta_x * zx_{it-1} + \beta_c * zc_{it-1} + \beta_{xc} * zx_{it-1} * zc_{it-1} + \theta(L) * y_{it} + \vartheta(L) \Delta y_{it} + \varepsilon_{it}$$

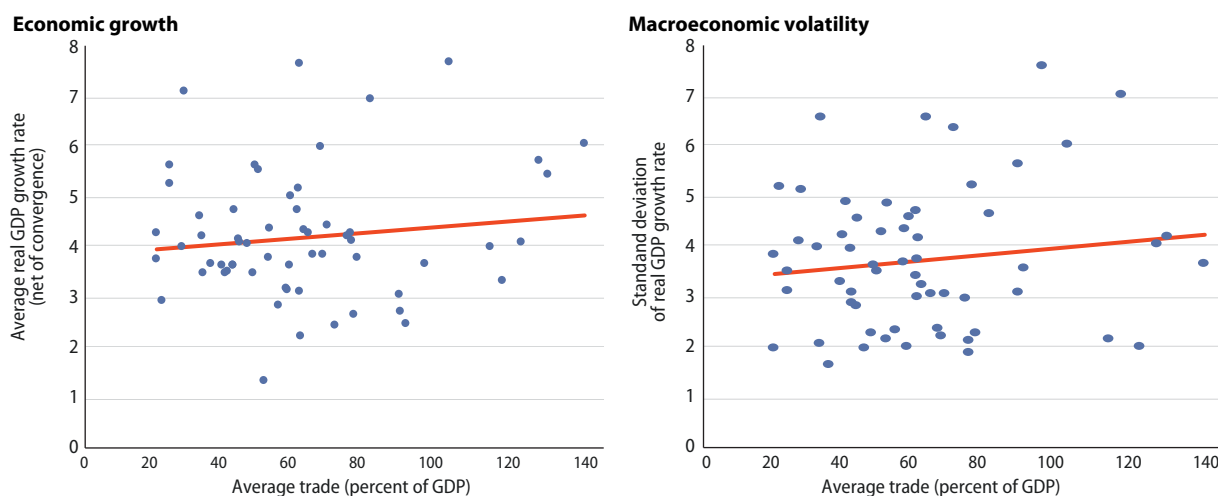
where  $\Delta$  is a country's growth rate of GDP in a specific decade, and  $zx$  and  $zc$  are its volume of trade relative to GDP and its degree of economic complexity in the previous decade, as per the analysis in the first step. The growth rate is also supposed to be a function of country- and decade-specific effects ( $\alpha$ ,  $\sigma$  and  $\omega$  respectively). Lagged values of GDP and its growth rate allow to account for so-called convergence effects.

This growth equation is estimated using a global panel database that covers 60 countries and six decades. The resulting coefficients  $\beta_x$ ,  $\beta_c$  and  $\beta_{xc}$ , together with the estimates of the first-step analysis, allow to simulate the dynamic effect of South-South and South-North agreements on economic growth.

At the same time, more sophisticated countries, with a more diversified trade structure and stronger economic policy frameworks should be able to cope better with volatility. This is confirmed by data from the same set of 60 countries over six decades as before. The sample can be split based on the ECI of the economies, and the relationship between openness and macroeconomic volatility be re-estimated for the two sub-samples. It then appears that in less complex economies greater openness is associated with substantially larger volatility, whereas the opposite is true in more complex economies (figure 28). For a 10 percent increase in trade openness, the estimated changes in the standard deviation of economic growth are 0.04 and -0.005 respectively, and both are statistically significant.

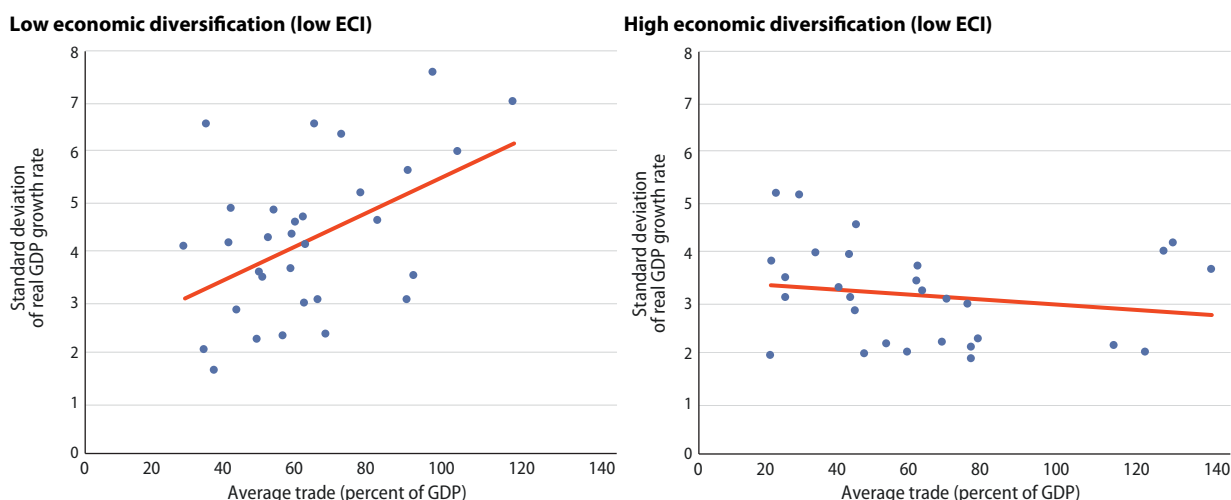
In sum, the decision to pursue trade integration may face countries with a tough trade-off, where the promise of higher economic growth comes at a cost of higher economic instability. But not all countries suffer from this dilemma to the same degree. In the analysis above, the cutoff point between more and less sophisticated economies is a normalized ECI of 0.5. In terms of Latin America and the Caribbean, this is roughly the ECI level of countries such as Guatemala.

**Figure 27. Trade integration may seem a risky choice**



Note: Averages are over the last 60 years.  
 Source: Own estimates based on World Development Indicators.

**Figure 28. Volatility falls with trade in more economically complex countries**



Note: Averages are over the last 60 years.  
 Source: Own estimates based on World Development Indicators.

## A tale of two major trade agreements

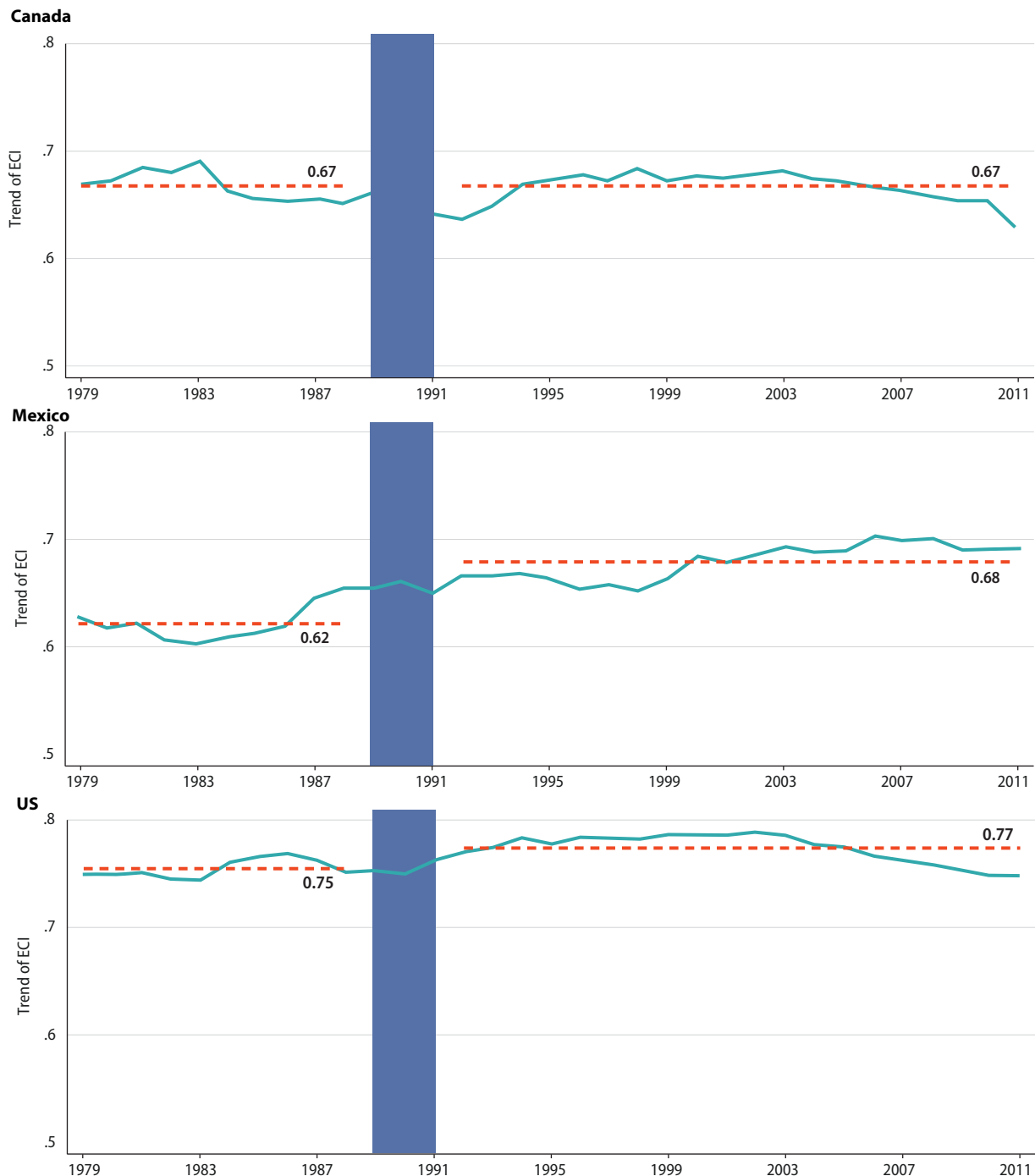
The discussion above suggests that trade integration may lead to better economic outcomes if it results in an increase in both trade openness and economic complexity. Greater trade openness can be expected to accelerate economic growth. And for sufficiently high levels of economic complexity, it may also reduce macroeconomic volatility. One way to assess whether this is so in Latin America and the Caribbean is to review the experience with major trade agreements.

The two agreements considered here are NAFTA and Mercosur, which can be seen as representative of South-North and a South-South trade integration respectively. The analysis is very simple, as it only involves comparing the trade openness and ECI of member countries in the years preceding and following the agreements. This before-and-after comparison shows that the volume of trade unambiguously increased after the agreements, both in Mexico and in Mercosur countries. But the consequences were very different regarding economic complexity.



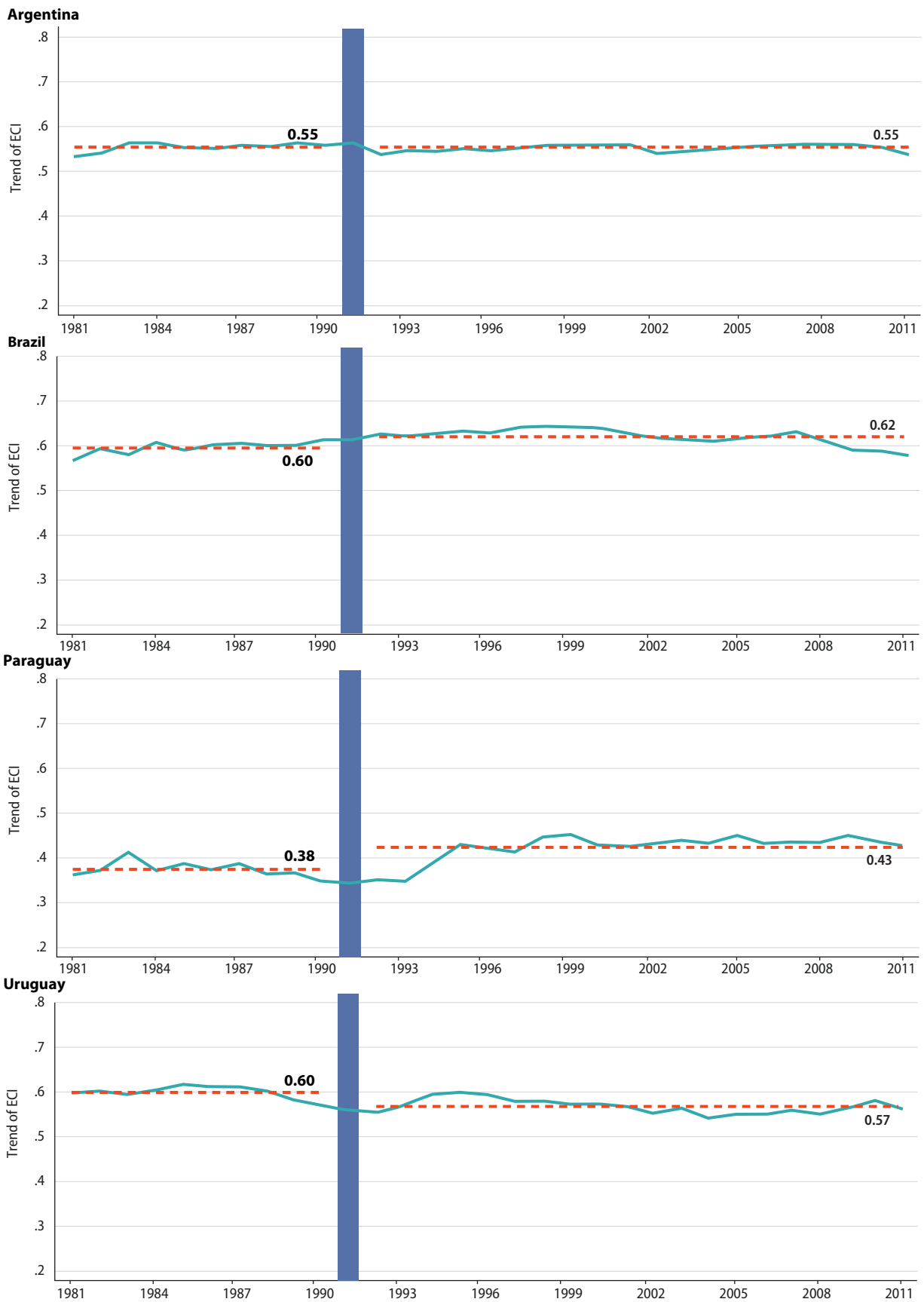
In the case of NAFTA, Canada and the US (the North countries) started with higher average ECI scores and those scores did not significantly change after the agreement. On the other hand, Mexico (the South country) started with a lower ECI score but saw it increase significantly during the years following the agreement. This suggests that Mexico not only gained market access to two rich economies but also benefited in terms of boosting the sophistication of its economy (figure 29). In contrast, in the case of Mercosur countries there was almost no changes in ECI scores before and after the agreement. Only Paraguay, starting from a much lower level of complexity than its partners, seems to have enjoyed a small gain in ECI. If anything, Uruguay experienced a small decline (figure 30).

**Figure 29. NAFTA increased Mexico’s economic complexity**



Note: Dotted lines indicate the average ECI before and after the agreement.  
 Source: Based on Atlas of Economic Complexity.

**Figure 30. Mercosur did not increase the economic complexity of its members**

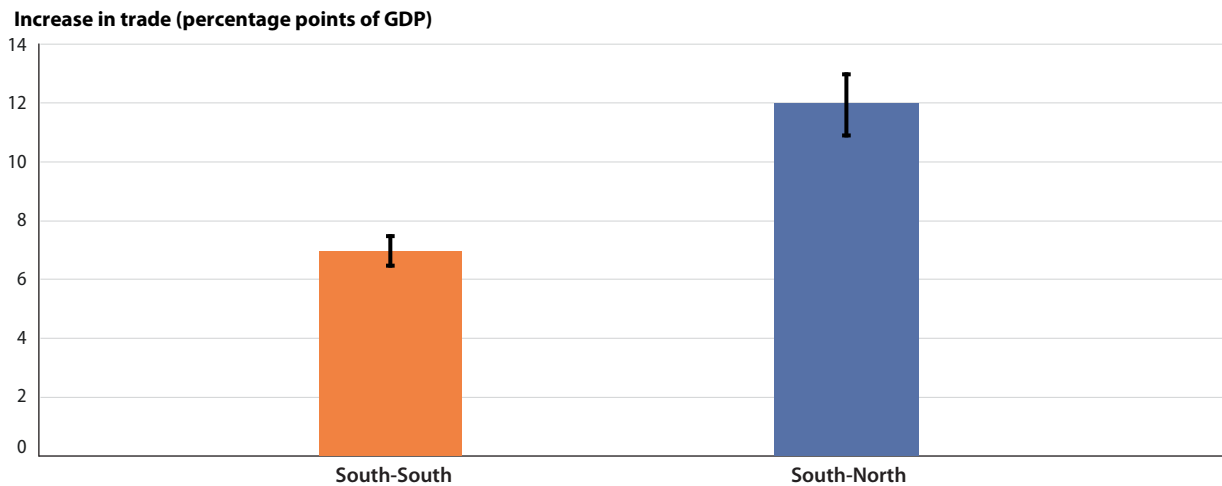


Note: Dotted lines indicate the average ECI before and after the agreement.  
 Source: Based on Atlas of Economic Complexity.

## Medium-term effects

The analyses above are suggestive, but arguably not conclusive, as case studies are not the same as statistics. However, the econometric analysis based on the panel with 60 countries over six decades confirms that preferential trade agreements lead to greater trade, and that the type of agreement matters. A South-North agreement tends to expand the trade volume of a typical developing country by around 12 percent of GDP, whereas the increase resulting from a South-South agreement is a more modest 7 percent of GDP (figure 31).

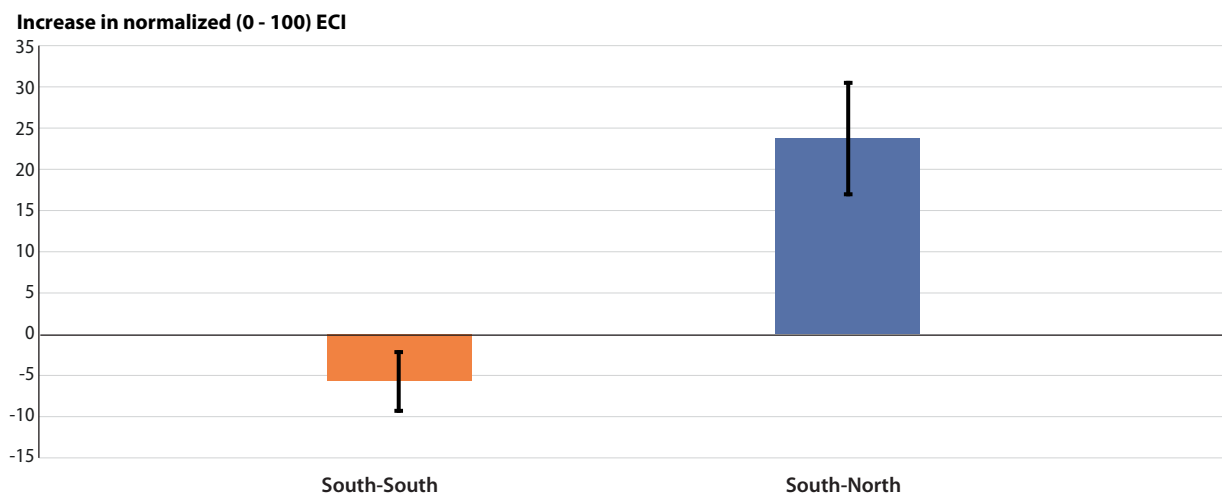
**Figure 31. Trade agreements lead to a substantial increase in trade volumes**



Note: The vertical lines indicate 95 percent confidence intervals.  
Source: Own estimates based on World Development Indicators and World Trade Organization.

As for economic complexity, the results show that a South-North agreement increases the ECI of a typical developing country by 25 points, on a normalized scale from 0 to 100. On the flip side, signing a South-South agreement with other developing countries tends to reduce the ECI score of a typical developing country by as much as 5 points (figure 32).

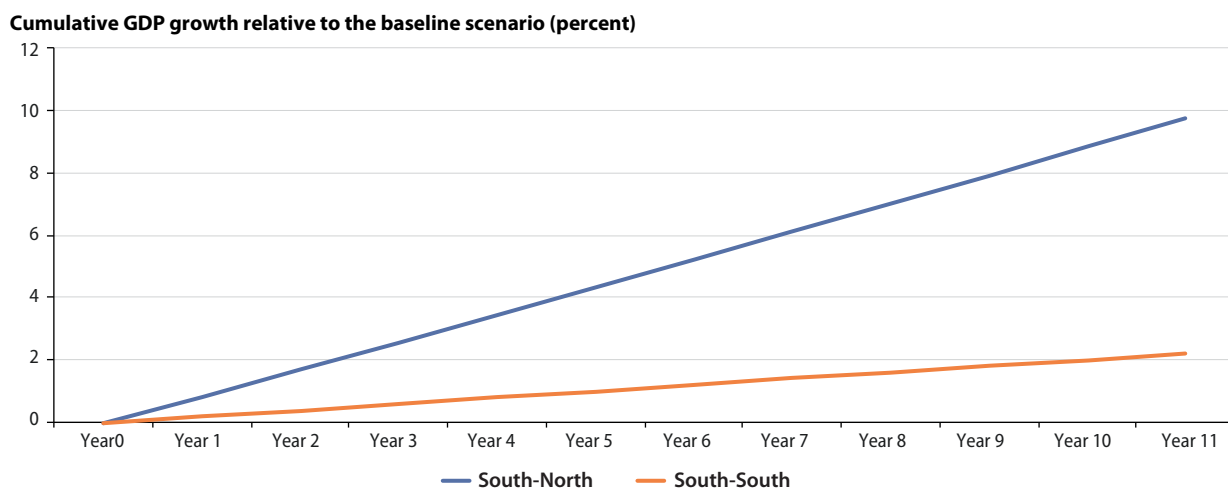
**Figure 32. South-North agreements increase economic complexity in the South**



Note: The vertical lines indicate 95 percent confidence intervals.  
Source: Own estimates based on World Development Indicators, World Trade Organization and Atlas of Economic Complexity.

The estimates also show a positive impact of trade openness on economic growth. But the effects of South-South and South-North trade agreements turn out to be very different. In the medium term, a South-South agreement raises the annual GDP growth rate of a developing country by about 0.2 percentage points, whereas a South-North agreement leads to an increase of the GDP growth rate by about 0.85 percentage points. Considering the ensuing dynamics, a typical developing country would be around 2 percent richer a dozen years after entering into a South-South agreement, but 10 percent richer if a South-North agreement had been signed instead (figure 33).

**Figure 33. South-North trade agreements lead to faster economic growth**



*Note:* Lines indicate deviation from baseline growth trajectory for an “average” South country after a trade agreement.  
*Source:* Own estimates based on World Economic Outlook, World Trade Organization and Atlas of Economic Complexity

# 6. Two milestone trade agreements



South-North agreements offer the opportunity to boost not only trade but also economic complexity. If so, USMCA and EU-Mercosur, the two milestone South-North agreements signed over the last 12 months, could reinvigorate countries whose economic growth has once again stalled. But there could be social, spatial and environmental impacts as well, and they need to be assessed.

## **Economic impacts**

Trading with countries that have substantially different comparative advantages may entail more economic restructuring than trading with similar countries. Formerly protected sectors are more likely to shrink, freeing up capital and labor for the sectors with greater export potential. New-style trade agreements also bring in changes affecting the entire economy, such as higher labor standards, or reduced transaction costs to export and import goods and services.

The economic restructuring a trade agreement may trigger is often assessed using a computable general equilibrium (CGE) model. This is a stylized representation of the economy, containing the most important sectors of activity. CGE models assume that all markets clear in the medium term. Equalizing demand and supply for the products that are not traded internationally determines their domestic prices. For internationally traded goods, the gap between domestic demand and domestic supply drives the volume of imports, or exports. And equalizing the value of total exports and total imports determines the exchange rate, hence the domestic price of imported goods.

The logic is similar for factors of production (including capital, land and labor) which each sector demands in order to meet its production objectives. The aggregate demand for each of the factors of production cannot exceed the availability of those factors in the economy. Equalizing the demand and supply of factors of production determines their price, in turn affecting the production cost of the various sectors, and indirectly their supply of final goods.

Solving a CGE model involves an iterative process in which the prices of goods and services, the prices of factors of production, the imported or exported volumes by each sector and the exchange rate are all recursively adjusted until all equilibrium conditions are satisfied. This is what supposedly a real economy does after experiencing a shock. The shock of interest here is the change in tariffs, non-tariff barriers and other policy changes that the trade agreement triggers.

In practice the parameters of a CGE model are first calibrated so that output, trade and employment by sector match the situation of a country's economy before the agreement. Then these parameters are adjusted in a way that mimics the commitments under the trade agreement. The model is solved again, and the new equilibrium is compared to the original equilibrium.

Fortunately, CGE models whose calibration mimics the economic structure of both Mexico and the Mercosur countries are readily available. These models can be used to simulate the consequences of USMCA and the EU-Mercosur agreement respectively (boxes 5 and 6).

In the case of USMCA, it is generally assumed that Mexico will not be able to meet the regional content requirements for textiles and apparel. But whether it will do so in the case of vehicles and car parts is more uncertain, and this uncertainty has led to the consideration of two scenarios.

The predicted extent of sectoral restructuring is also sensitive to the way the economy is modelled. However, within each of the two scenarios qualitative results are very similar with the global and the country-specific

### Box 5. Simulating structural transformation from USMCA

The sectoral effects of USMCA are assessed using two complementary approaches. One of them relies on a global CGE model that is calibrated using GTAP Database Version 9.1. The model includes five countries and regions (US, Mexico, Canada, China and the rest of the world) and 21 sectors. It is documented by Bchir et al. (2002) and Decreux and Valin (2007) and used to simulate the effects of USMCA, as done by Burfisher et al. (2019).

The second approach involves passing on the estimated effects of USMCA from the global model into a dynamic CGE model for Mexico, documented in Lofgren et al. (2013). This country-specific model contains 22 sectors. The methodology to combine the two CGE models is discussed in Horridge and Zhai (2006). This second approach is used to assess the effects of USMCA, following Estrades (2019).

The single-country CGE model is calibrated using a newly constructed Social Accounting Matrix for Mexico. This matrix builds on Mexico's Input-Output Table for 2013, updated to 2016 using the Supply and Use Tables and Institutional Accounts (INEGI 2017a and 2017b). Tariff data from MacMap is used to update applied tariffs. Estimates by Kee and Nicita (2016) and by Fontagné et al. (2016) allow updating non-tariff measures for goods and services respectively.

The effect of USMCA is assessed against a baseline scenario which depicts the expected trajectory of its three member countries and the rest of the world up to 2030. The scenario includes the growth in population, productivity, and factors of production, expected to occur during this period. The baseline also includes the policies adopted as part of NAFTA, as well as recent tariff increases imposed by the US on imports of steel and aluminum from several countries, including Mexico and Canada.

The main changes introduced by USMCA are as follows:

- The regional value content requirement for trade in vehicles and car parts implies that some exporters need to forego the regional preference and become subject to most-favored nation tariffs. If the regional content requirement is not met, it is assumed that tariffs on intra-USMCA trade in vehicles and car parts increase to 50 percent of the most-favored nation levels in each country. In addition, a 10 percent increase is assumed for the non-tariff cost of importing vehicles from Mexico to the US.
- Similarly, the regional value content requirement for trade in textiles and garments is simulated through an increase in tariffs on intra-USMCA trade to 50 percent of their most favored nation levels in each country. In parallel, a 5 percent increase is assumed for the cost of non-tariff barriers for textiles and garments imported from Mexico to the US.
- Commitments on financial sector liberalization are simulated through a 20 percent reduction in the cost of non-tariff barriers when importing financial services from the US to Mexico. Separately, the liberalization is assumed to be accompanied by a 2.5 percent increase in the productivity of its financial sector.
- Finally, transaction costs are expected to decline as a result of the new rules governing customs administration and trade facilitation. These changes are expected to cut the cost of non-tariff barriers by a third.

Source: Based on Estrades (2019).

### Box 6. Simulating structural transformation from the EU-Mercosur agreement

The effects of the EU-Mercosur agreement are simulated by Martínez Licetti et al. (2018) using a global recursive-dynamic general equilibrium model, documented in van der Mensbrugghe (2011). The model is calibrated using the GTAP Database Version 9.2, modified to better reflect the Mercosur countries, and updated to 2015. To this effect the database is aggregated into 30 sectors and 26 regions or countries. These include the EU27 plus the UK, each of the Mercosur countries, the members of the Pacific Alliance, Canada, China, the countries of the European Free Trade Area, Japan, Korea, and the US.

The model assumes that unskilled labor moves freely only within agriculture and within manufacturing and services, but not immediately across them. The migration of unskilled labor from agriculture to manufacturing and services is a function of relative wages. Similarly, existing capital cannot be immediately reallocated across sectors, but new investments can. These investments, together with the depreciation of existing capital, steer the economy toward a new medium-term equilibrium, attained no later than 2030.

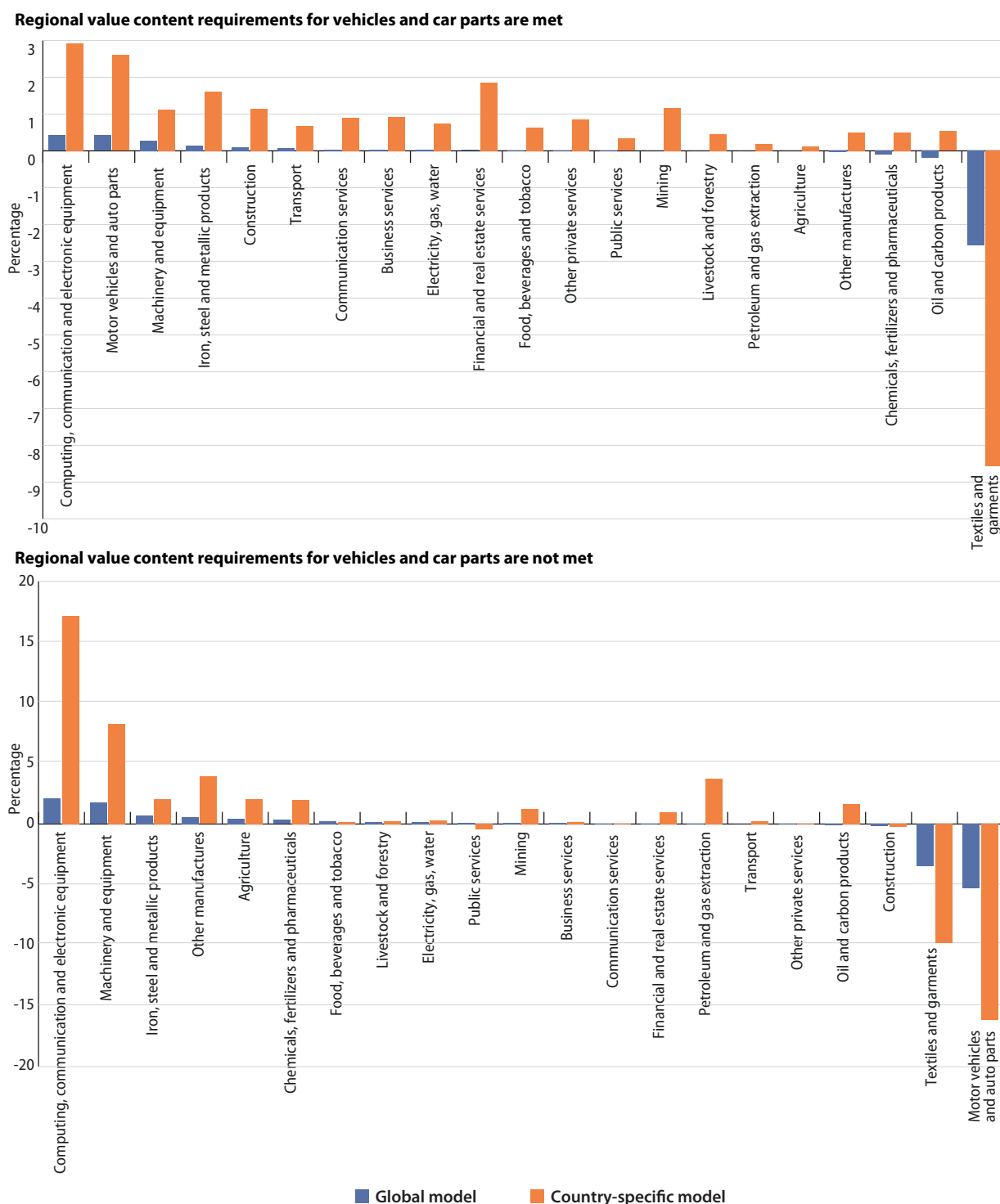
The consequences of the EU-Mercosur agreement are simulated as follows:

- Over a ten-year period average tariffs for imports from the EU are set to decline gradually from 11 to 3 percent in Argentina, from 10.7 to 3.2 percent in Brazil, from 7.2 to 3.4 percent in Paraguay, and from 6.6 to 2.7 percent in Uruguay. Average tariffs on Mercosur exports to the EU fall from 2.7 percent to zero in the case of Argentina, from 2.5 to 0.9 percent in Brazil's case, from 0.4 percent to zero for Paraguay, and from 1.5 percent to zero for Uruguay.
- The streamlining of non-tariff measures translates into a 15 percent reduction in their cost for all goods and services. Export taxes are also eliminated.
- On the other hand, the effects of reforms affecting public procurement, intellectual property rights, and labor and environmental standards are not reflected in the simulation.

Source: Based on Martínez Licetti et al. (2018).

CGE models. The correlation coefficient between the changes in sectoral output predicted using the two approaches exceeds 0.9, both when content requirements for vehicles and car parts are met and when they are not. The expected quantitative impacts are larger in the country-specific model than in the global model. But for most sectors of activity the expected changes in output are small, regardless of the CGE model used for the prediction (figure 34).

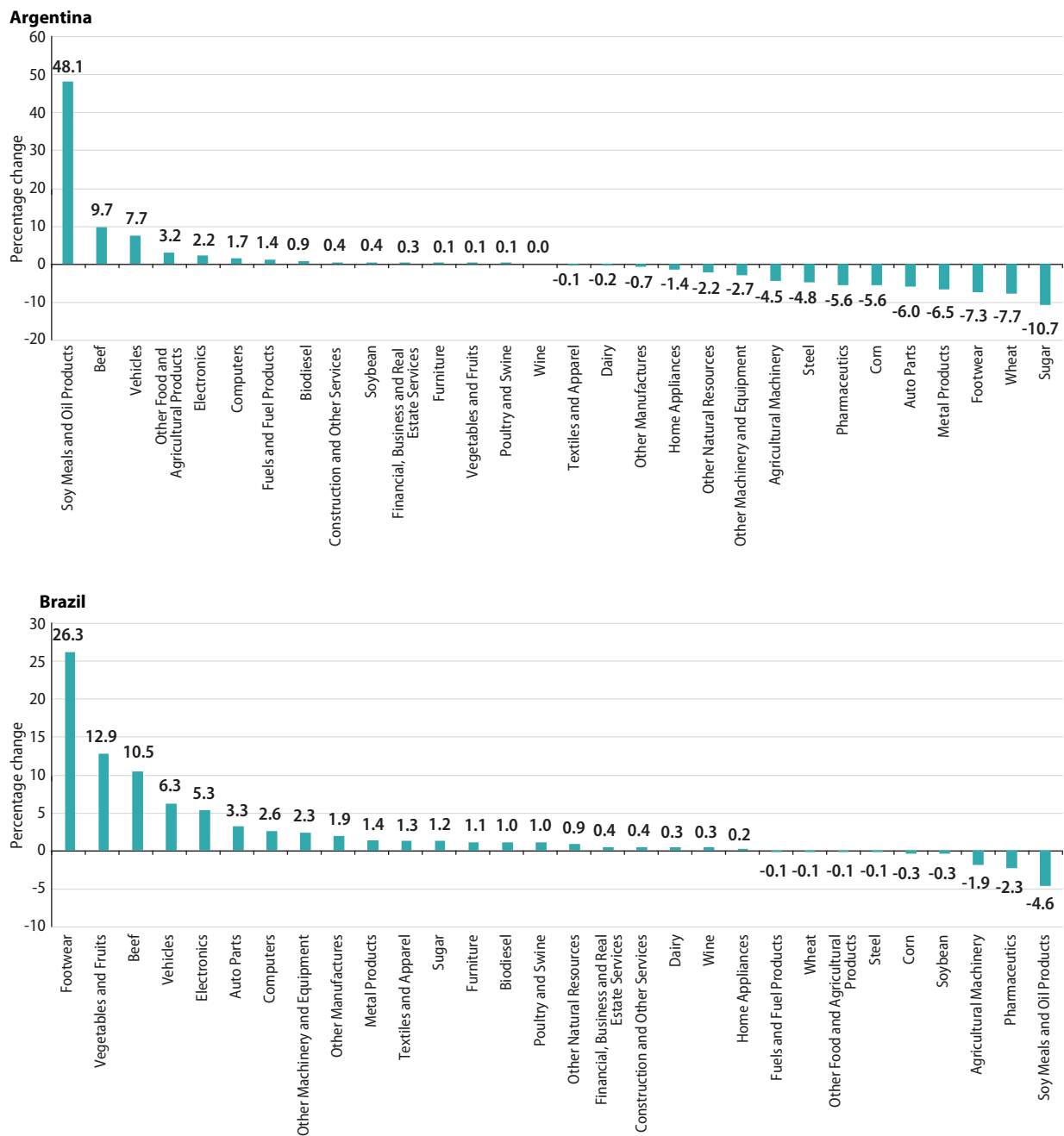
**Figure 34. Relatively modest structural transformation: USMCA**



Note: Bars indicate the medium-term change in sectoral GDP relative to the baseline in 2030. Source: Own estimates based on Estrades (2019).

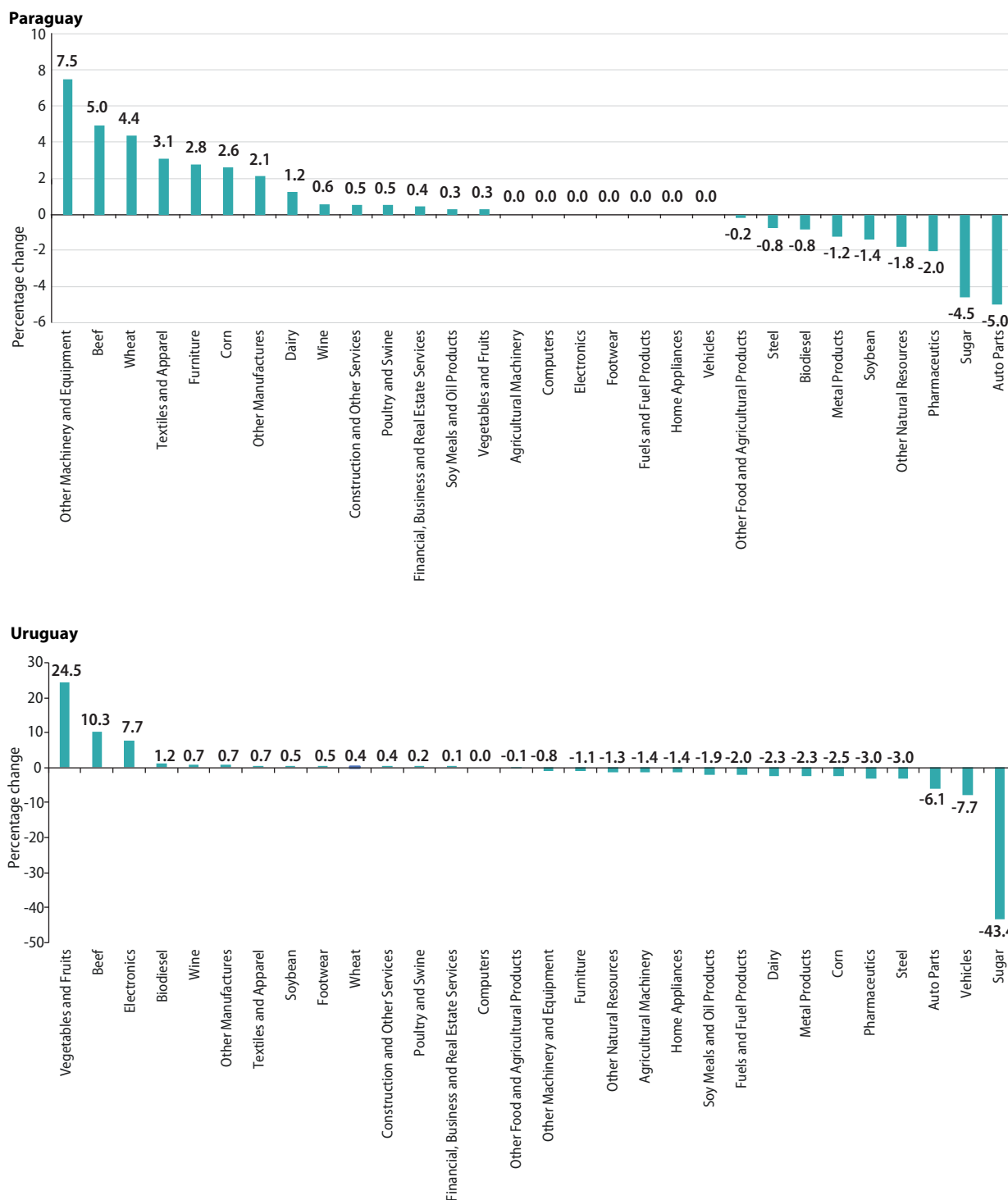
The structural transformation triggered by the EU-Mercosur agreement is expected to be modest as well. All four Mercosur countries see an expansion of specific agricultural subsectors. In the case of Argentina, the largest expansion is in soy meals and oil products, followed by livestock production. In Brazil, vegetables and fruit, as well as beef production, are among the main winners. But other agricultural subsectors, such as sugar, decline in all countries except Brazil. A similar combination of expansions and contractions can be found within the manufacturing sector (figure 35). As a result of these relatively granular within-sector reallocations, the overall share of the agricultural and the manufacturing sector remain roughly unchanged in all Mercosur countries. The EU-Mercosur agreement can thus be expected to boost production in specific agricultural activities, but not to lead to overall deindustrialization.

**Figure 35. Relatively modest structural transformation: EU-Mercosur agreement**



Note: Bars indicate the medium-term change in sectoral GDP relative to the baseline in 2030. Source: Martinez Licetti et al. (2018).

**Figure 35. Relatively modest structural transformation: EU-Mercosur agreement (continued)**



Note: Bars indicate the medium-term change in sectoral GDP relative to the baseline in 2030. Source: Martínez Licetti et al. (2018).

The expected changes in sectoral output are further dampened because they are expected to take place over a period of more than one decade. Distributing the simulated changes evenly over time, very few sectors should be expected to expand or contract by more than 2 percent per year.

The CGE simulations reported here are built around a baseline whose investment rates are based on the countries' recent history. The simulations thus capture reallocation effects around a given growth trajectory



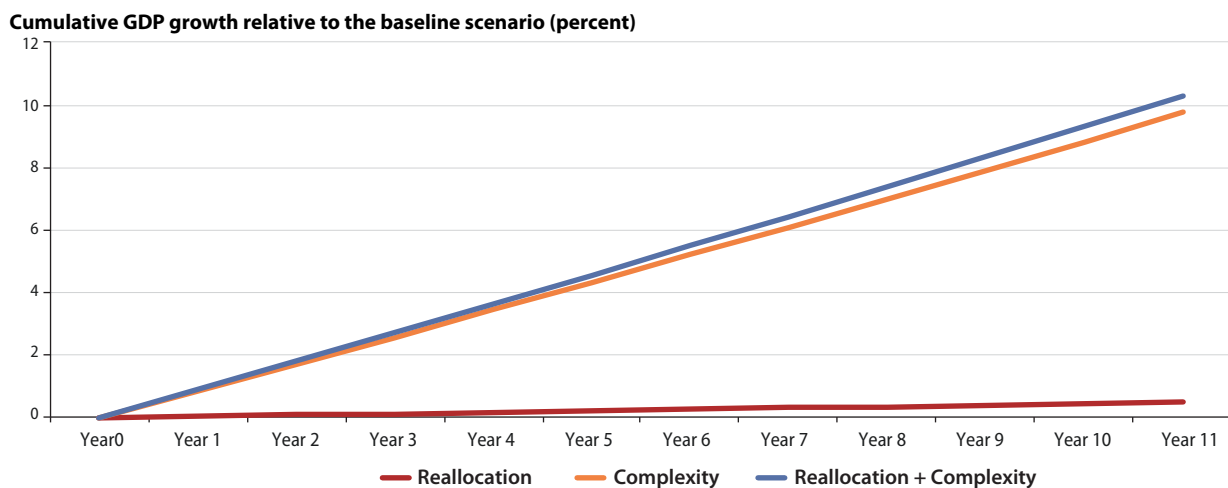
(the baseline), not the possible change in that trajectory due to the agreements. But given that both USMCA and EU-Mercosur are South-North agreements, changes in the overall trajectory of the economy in the medium term can be expected.

The model estimated at the end of the previous section, involving 60 countries over six decades, can be used to simulate the overall growth effect of USMCA and the EU-Mercosur agreement. This overall growth effect is partly driven by the structural transformation triggered by the agreements, which redirects resources toward more productive sectors. But it also results from greater efficiency within sectors, as suggested by the increase in economic complexity observed among developing countries after they embark in South-North agreements.

A relevant question is how to disentangle in practice the contribution that reallocation and complexity will make overall growth as a consequence of USMCA, or the EU-Mercosur agreement. And a crude but defensible way to answer this question is to subtract from the additional growth estimated with the model of the previous section the reallocation gains over the trajectory predicted by the CGE models considered in this section.

This crude calculation suggests that most of the overall growth effect will be driven by greater complexity. The medium-term gains from sectoral reallocation estimated with the CGE models are indeed very modest, ranging from 0.1 percent of GDP in Mexico and Uruguay to 0.8 percent in Argentina. It follows that the overall productivity gains are around two orders of magnitude bigger than the gains from sectoral reallocation (figure 36).

**Figure 36. Growth is driven by greater economic complexity more than by structural transformation**



*Note:* The blue line indicates the deviation from baseline growth trajectory for an “average” South country signing a South-North trade agreement. The red line is the average reallocation effect across Mexico and Mercosur countries. The difference between the blue and the red lines is the complexity effect. The reallocation effect is supposed to take place at a constant rate over time.  
*Source:* For overall growth, own estimates based on World Economic Outlook, World Trade Organization and Atlas of Economic Complexity. For reallocation effects, Estrades (2019) and Martínez Licetti et al. (2018).

## Social impacts

The sectoral reallocation of employment resulting from the USMCA and EU-Mercosur agreement follows very closely the sectoral reallocation of output. This is because labor productivity does not change dramatically during the simulation period. Some sectors become more labor-intensive than before the agreements and others more capital-intensive, but the resulting changes in labor productivity are not large enough to justify a detailed description of the expected changes in employment by sector.

On the other hand, the two agreements do affect the returns to factors of production. The two CGE simulations distinguish between skilled and unskilled labor. In addition, the CGE model used to simulate the effects of the EU-Mercosur agreement treats urban and rural unskilled labor separately. And it unpacks capital and land, which are consolidated as a single factor of production in the CGE model used to simulate the effects of USMCA.

In most cases the efficiency gains from the agreements are sufficiently large to ensure that the returns to all factors of production increase. The exception is Mexico, whose comparative advantage is in labor. A structural reallocation that makes better use of this comparative advantage entails more demand for labor and less demand for capital and land, whose returns marginally decline. Building on the same logic, the comparative advantage of Argentina and Uruguay is in land, and therefore this is the factor of production whose returns increase the most (figure 37).

While workers gain in all five countries, they do not benefit to the same extent. The returns to skilled labor increase substantially in Brazil and Paraguay, and to a lesser extent in Mexico. The returns to urban unskilled labor also increase considerably in Brazil and Paraguay. In Argentina and Uruguay, unskilled rural workers benefit much more. This is consistent with the fact that in these countries the EU-Mercosur agreement boosts agricultural production.

## ***Spatial impacts***

The structural transformation that USMCA and the EU-Mercosur agreement is in principle modest, and so should be the associated employment changes. However, the spatial distribution of economic activity tends to be uneven. There is typically a regional specialization of production, which implies that the employment structure by sectors may be very different across different parts of the territory. Employment changes that are modest for a sector as a whole may translate into substantial impacts, positive or negative, in specific municipalities, departments or districts.

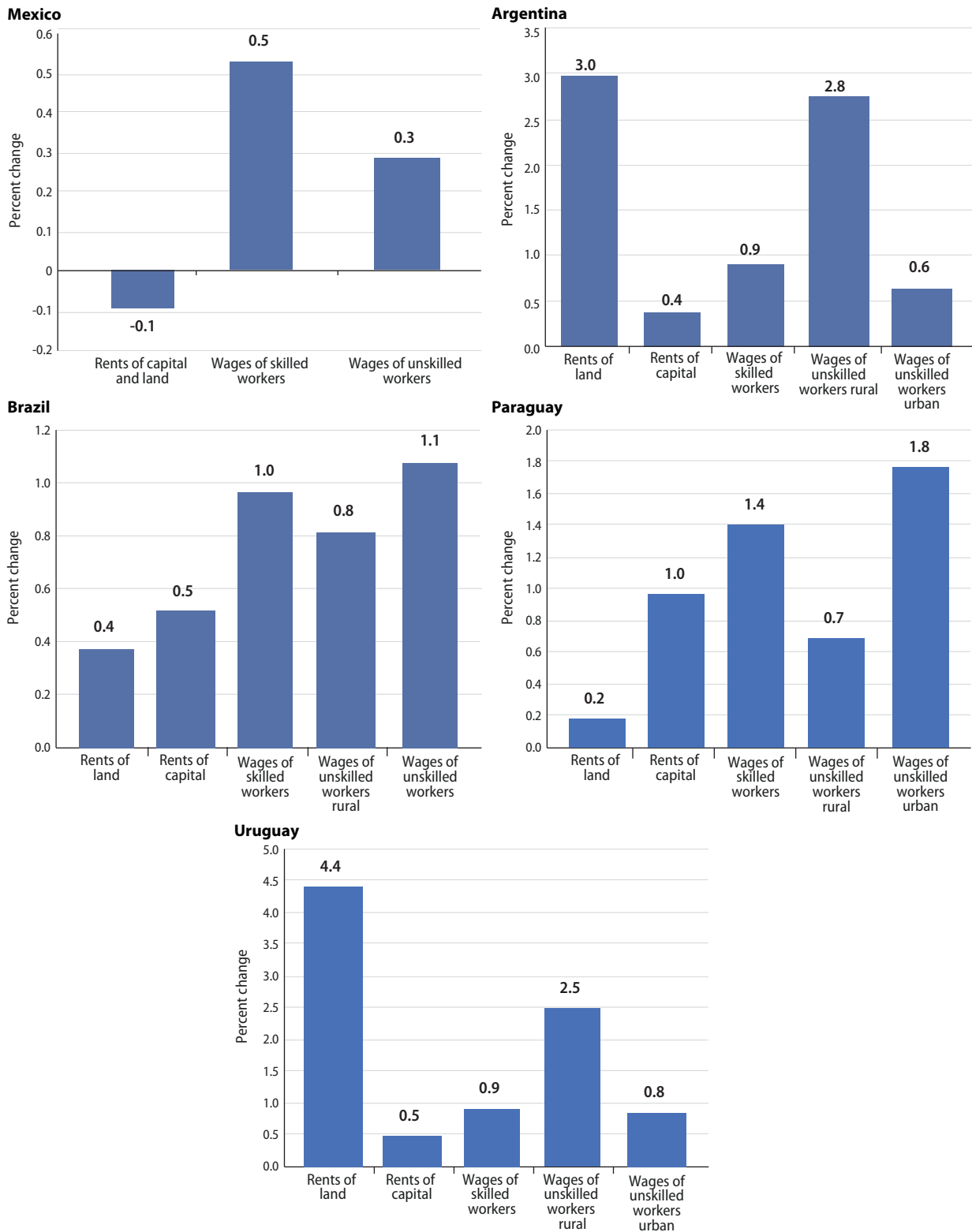
Research on the impacts of China's accession to the World Trade Organization in 2001, and of its subsequent attainment of Permanent Normal Trade Relations status on the US, has revealed large spatial impacts (Autor et al. 2016). While the US economy as a whole benefitted from increased trade with China, employment fell in entire areas of the American Midwest. This line of research has also revealed important social impacts of the "China shock", including political polarization, substance abuse and family breakdown (Autor et al. 2016; Autor et al. 2017).

Similar findings have been reported in connection with trade liberalization in Latin American and the Caribbean. In Brazil, the regions facing larger tariff cuts experienced more prolonged declines in formal sector employment and earnings relative to other regions. There was also an impact on regional earnings that lasted for two decades after liberalization occurred (Dix-Carneiro and Kovak 2017).

In Mexico, NAFTA might have led to divergence in income levels across subregions (Chiquiar 2005). While import-substitution policies had resulted in a concentration of manufacturing activities in Mexico City, increased access to the North American market encouraged many manufacturing firms to relocate closer to the border with the US, to benefit from lower transportation costs and stronger forward and backward linkages (Krugman and Livas Elizondo 1996; Hanson 1997 and 1998).

In light of these precedents, it is worth assessing whether the changes in employment that USMCA and the EU-Mercosur agreement will generate (positive and negative) are geographically concentrated. This can be done by combining the changes in sectoral employment predicted by the corresponding CGE models with the current sectoral structure of employment at the lowest level of disaggregation for which data are available.

**Figure 37. Changes in returns to land, capital and labor**



Source: Martínez Licetti et al. (2018) and own estimates based on Estrades (2019) assuming that Mexico does not meet the regional value content requirements.

This level corresponds to municipalities in Mexico and Brazil, departments in Argentina and Uruguay, and districts in Paraguay. There are 2,331 of these spatial units in Mexico, 312 in Argentina, 2,040 in Brazil, 61 in Paraguay and 19 in Uruguay.

The predicted change in employment in one of these spatial units is the average change in sectoral employment at the country level, weighted by the share of employment from each sector in that particular unit. Computing the initial employment structure for each of the 4,763 spatial units considered is not straightforward, however.

The available data on the initial structure of employment at the local level lacks granularity, implying that the dozens of sectors considered by CGE models need to be aggregated into thicker, less differentiated sectors that match the available data. The methodology to conduct this aggregation is defensible but not as accurate as would be desirable (box 7). Moreover, the aggregation process generally dampens the estimated employment effects by lumping together disaggregated sectors that expand with others that contract. Consequently, the results of this exercise could underestimate the local employment impacts, positive or negative, of USMCA and the EU-Mercosur agreement.

### **Box 7. Predicting changes in employment at sub-national levels**

Detailed employment data by sector of activity at the local level can be obtained from the most recent population census with spatially disaggregated data in each country. These censuses are for the years 2015 in Mexico, 2001 in Argentina, 2010 in Brazil and 2002 in Paraguay. In the case of Uruguay, data are from the 2006 household survey. It follows that the initial period for the exercise is not the same across countries.

Moreover, the sectoral classification of employment in these population censuses and household surveys is more cursory than in the corresponding CGE models. To reconcile them it is necessary to harmonize the definition of the sectors first. This can only be done by aggregating the changes in employment in the CGE models to the sectoral definition in censuses and household surveys.

The aggregation is conducted using value weights from the global LINKAGE model. These weights correspond to wage bills of each sector in the baseline as of 2030. Employment weights would in principle be preferable to value weights, but unfortunately the database for the LINKAGE model does not record this information.

With these caveats in mind, a relatively clear distribution of spatial units enjoying employment gains and experiencing employment losses emerges for each of the five countries considered (map 3). These changes are expected to take place over more than one decade, implying that they are not necessarily an urgent matter for concern. But the predicted transformation in the geography of jobs can be used to inform territorial policies that could cushion locally adverse effects of the two milestone agreements.

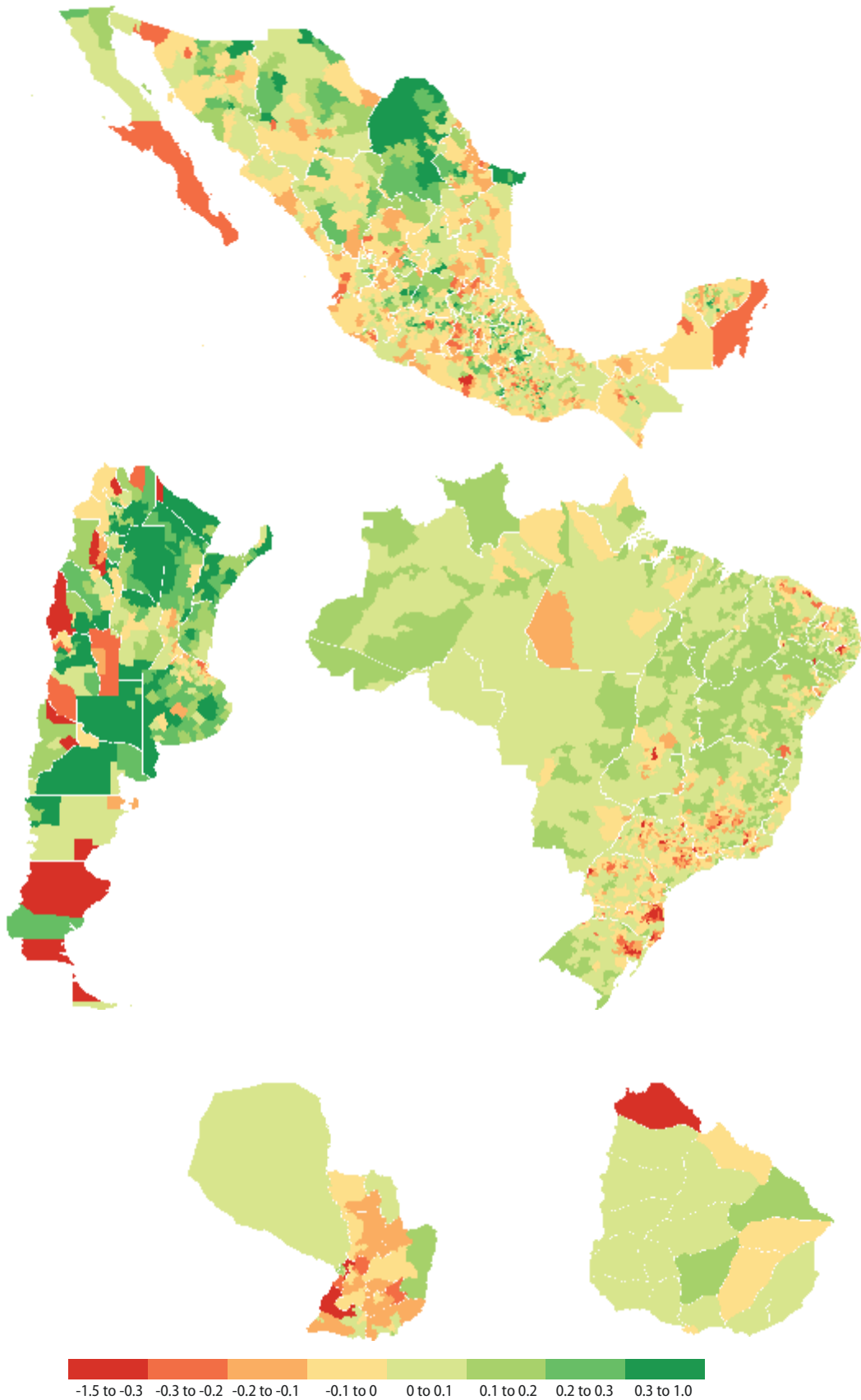
## **Environmental impacts**

While trade integration may boost economic growth, it may also have damaging environmental impacts. Growth is by itself associated with increased carbon dioxide (CO<sub>2</sub>) emissions, and these exacerbate climate change. But structural transformation also needs to be taken into account as different sectors of activity have different environmental footprints.

A first step towards assessing the impact of USMCA and the EU-Mercosur agreement on climate change is to quantify by how much CO<sub>2</sub> emissions increase when the output of a specific sector expands. This is done by estimating a panel regression for Mercosur countries and Mexico. The variable of interest is the annual level of CO<sub>2</sub> emissions per sector, whereas the explanatory variables are the output levels of the various sector. The period covered goes from 1965 to 2014, but varies per country depending on data availability. The estimates yield the corresponding elasticities for each sector, or the percentage change in CO<sub>2</sub> emissions associated with a 1 percent increase in the output of the sector.

The estimated elasticities of CO<sub>2</sub> emissions are then applied to the predicted changes in sectoral output resulting from the two agreements in each of the five countries. The results show that countries in the Mercosur

Map 3. An uneven spatial distribution of the gains

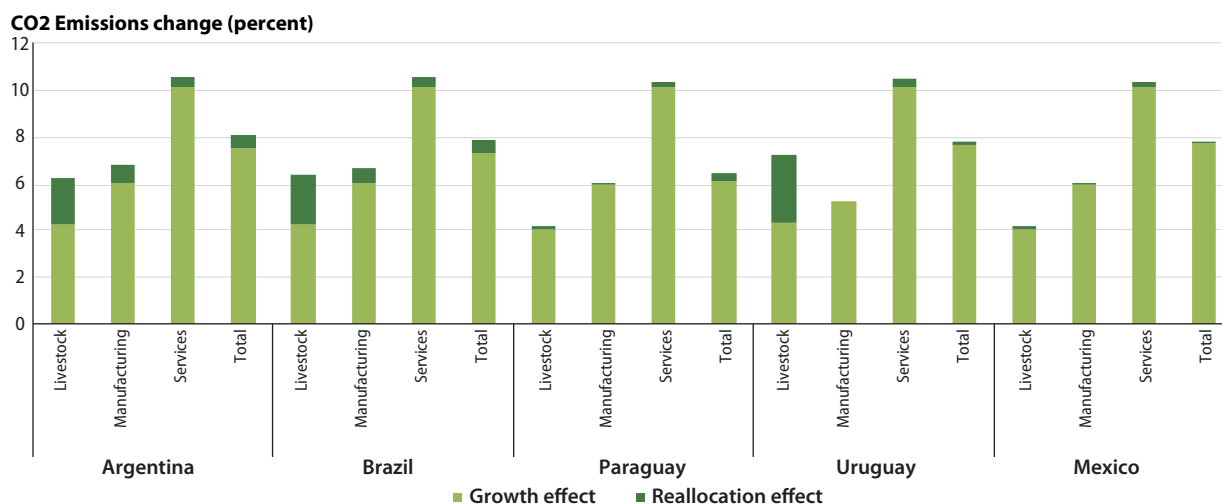


Note: Color indicates the magnitude and direction of the change in local employment relative to the baseline in 2030, in percent.  
 Source: Own estimates based on IPUMS, Martínez Licetti et al. (2018) and own simulations based on Estrades (2019), assuming that Mexico does not meet the regional content requirements for vehicles and auto parts.



and Mexico would see their total emissions increase by around 4 to 10 percent by the year 2030, relative to the baseline (figure 38). Despite the large amounts of methane gas generated by cattle, the elasticity for livestock is the lowest across sectors. However, the growth in livestock production due to the trade agreements is substantial, and as a result in several of the countries this sector reaches levels of CO<sub>2</sub> emissions comparable to those of the manufacturing sector.

**Figure 38. Larger CO<sub>2</sub> emissions mainly as a result of faster economic growth**



Source: Own estimates based on World Development Indicators, Estrades (2019) and Martínez Licetti et al. (2018). In the case of Mexico, the assumption is the tighter regional value content requirements are not met.

Aside from the increase in CO<sub>2</sub> emissions, another potential environmental impact of the EU-Mercosur agreement concerns deforestation as the grassland surface expands to support increased livestock production. This concern has been voiced in relation to the Amazon, where deforestation would not only reduce natural carbon sequestration by trees, but also affect valuable biodiverse habitats.

Brazil has approximately 215 million cattle heads at present (IBGE 2018). The largest herds are concentrated in the state of Mato Grosso, followed by Mato Grosso do Sul, Goiás, and Minas Gerais. Together, these states account for over 44 percent of Brazilian cattle.

The EU-Mercosur agreement is expected to lead to an increase of around 22.3 percent in livestock production by 2030. This is the joint outcome of a 9.8 percent increase resulting from structural transformation and a 12.5 percent effect from overall economic growth. The 22.3 percent increase in livestock production translates into approximately 48 million additional cattle heads. And thus, a key question is where the associated expansion in cattle herds will take place. As this is a spatial question, the answer needs to rely on a spatially granular method.

The procedure followed here allocates the additional herd based on the mix of land types observed across the country. In doing so, it takes into account the upper bound to the number of cattle heads a plot of land can accommodate, given the productivity of the Brazilian livestock sector (box 8). This is admittedly a crude first approximation, and more refined studies are needed before the results can be considered reliable. Yet, those results are suggestive.

Based on this procedure, most of the expansion in the cattle raising area will be in the Cerrado region, with only a moderate impact on the Amazon (map 4). However, about 3 percent of the forest area of Brazil could be converted into grassland to support the increased livestock production.

### Box 8. Predicting the spatial distribution of the additional cattle heads

The two key inputs for this prediction are the distribution of land use across all regions in the country, and the distribution of cattle heads. The relationship between the two distributions allows to identify the types of land that are more closely linked with cattle raising, and the margins over which the increase in livestock production could be taking place in the coming years.

Official spatial data on land use are assembled by the Brazilian Institute of Geography and Statistics (IBGE) through the processing of satellite imageries. Inputs from the Operational Land Imager (OLI) instrument of US satellite Landsat 8—a collaboration between NASA and the United States Geological Survey—are combined with Inputs from complementary sources such as Brazil’s Amazon deforestation monitoring program (PRODES) and time series of the Normalized Difference Vegetation Index (NDVI) to classify the Brazilian surface in land plots of 1 km<sup>2</sup>. Data on the spatial distribution of herds are reported in land plots of 100 km<sup>2</sup> by the Food and Agriculture Organization’s (FAO) Gridded Livestock of the World (GLW) project, recently updated by Gilbert et al. (2018).

The empirical analysis linking these two distributions follows a two-step strategy. First, an upper bound is needed on the number of cattle heads a geographic area can accommodate, depending on the share of its surface dominated by pastures. This upper bound is estimated using the following equation:

$$p_i = \beta_1 c_i + \beta_2 c_i^2 + \varepsilon_i$$

where  $p$  represents the share of pasture in each 100 km<sup>2</sup> of terrain  $i$ ,  $c$  is the number of cattle heads in that plot of terrain, and its square accounts for possible saturation. The estimated parameters  $\beta_1$  and  $\beta_2$  allow to solve the quadratic equation to find the number of cattle heads that a geographic area dominated by pasture can accommodate in Brazil.

The cattle saturation equation is estimated using a quantile regression. Based on the specialized literature, the coefficients associated with the 80<sup>th</sup> percentile are retained. The resulting saturation number, in the best pasture land, is close to 10,000 heads of cattle per 100 km<sup>2</sup>, or roughly one cattle head per hectare. This is well within the range reported for Brazil.

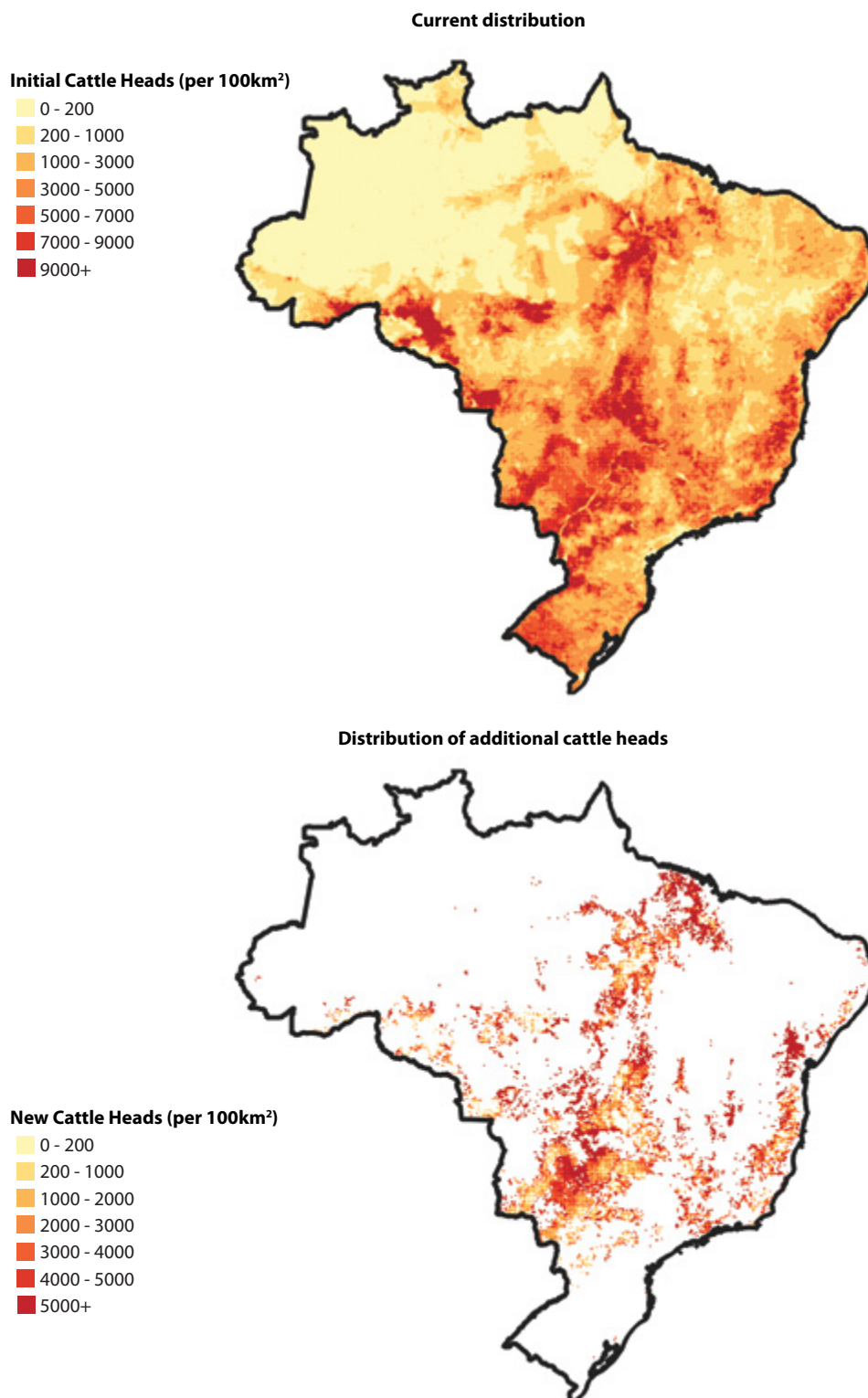
The second step is to understand how the current spatial distribution of cattle is related to land use. This is done by estimating the following regression:

$$c_i = \sum_{j=1}^{12} \beta_j l_i^j + \varepsilon_i$$

where  $c$  is again the number of cattle heads per 100 km<sup>2</sup> of terrain  $i$  and  $l^j$  is the share of terrain type “ $j$ ” in the corresponding land plot. In all, 12 types of terrain are considered: artificial (such as urban centers or roads), agricultural, pastures, forest area occupations, silviculture, forest vegetation, wetland, countryside vegetation, countryside occupations, continental water, coastal water, and discovered area.

The estimated parameters  $\beta_j$  are used to predict the number of cattle heads in each 100 km<sup>2</sup> of terrain, given its mix of land types. It then appears that in many plots actual cattle heads are below both the predicted and the saturation values. The additional 48 million heads that Brazil would need to accommodate by 2030 are spatially distributed based on this estimated gap, starting with the 100 km<sup>2</sup> plots where the gap is bigger and then going down sequentially until the livestock increase generated by EU-Mercosur agreement is exhausted.

### Map 4. The spatial distribution of cattle heads in Brazil



Source: Own estimates based on Gilbert et al. (2018) and IBGE (2018).

# 7. Conclusion

**T**he Latin America and the Caribbean region has returned to the sluggish growth path that characterized the years preceding the commodity boom. This disappointing performance is partly driven by the three largest economies, with Argentina mired in yet another economic crisis, Brazil just emerging from a recession, and Mexico facing an economic slowdown. There are other internal disparities, with countries in the Caribbean and in the Pacific subregions doing better than those in the Atlantic. But in the aggregate the region is growing by now more slowly not only than other emerging markets, but also than the much richer advanced economies. This divergence of fortunes should be a cause for concern.

Multiple reasons can be advanced to explain the region's anemic growth. This report explores the role that a history of inward-looking strategies might have played. Measured by the ratio of trade in goods and services to GDP, Latin America and the Caribbean is indeed the least open of all developing regions. This is not just an accident due to geography and physical distance to key markets. Trade barriers are higher than anywhere else, except for Sub-Saharan Africa. Again, there are important internal disparities, with countries in the Pacific subregion being less protectionist than those in the Atlantic. And this, in turn, may be related with the especially disappointing performance of the latter group.

This inward-orientation of Latin America and the Caribbean may come as a surprise, given the large number of preferential trade agreements signed by the countries in the region. Only advanced economies have on average signed more of such agreements. But on closer inspection, it turns out that a majority of those agreements are intra-regional, involving partner countries with small markets and low degrees of economic complexity. Also, around the world preferential trade agreements are becoming deeper, touching on issues such as competition policy, state-owned enterprise reform, or competition in public procurement. But the agreements signed by countries in the region tend to be shallow.

Some benefits can be expected from South-South agreements of this sort, including some dose of regulatory convergence, the provision of public goods that could otherwise be unaffordable to small countries, and additional trade in goods whose market is regional by nature. But the evidence reviewed suggests that advances in regional integration, while increasing trade among members, have been unable to significantly boost the economies degree of complexity, and their rates of growth.

There are important exceptions to this pattern, however. In 1994 Mexico joined NAFTA, becoming the first country in the region to embrace South-North integration. Since then, many countries in the Caribbean and Pacific subregions have followed suit. Not surprisingly, these countries are more open than their neighbors on the Atlantic, and they grow faster.

Two important South-North agreements, USMCA and EU-Mercosur, have been signed over the last 12 months. Both agreements are deep in nature, as they involve legally binding commitments on domestic competition, state sector reform, and environmental and social standards. While not ratified yet, they could bring an opportunity to reenergize the economies of their Latin American signatories, all of which are by now among the slowest-growing countries in the region. Much of this report is devoted to analyzing what can be expected if these agreements are implemented.

The overall assessment is positive. None of the Latin American signatories should experience a major structural transformation, with the relative sizes of the agricultural and the manufacturing sector remaining roughly unchanged. But there will be important reallocations within these sectors, toward more competitive activities and away from more protected ones. Overall, the degree of economic complexity of the Latin American signatories should increase and this, more than structural transformation, should lead to an acceleration of economic growth.



Social impacts will be relatively muted too. Land rent will increase in Mercosur countries, which is not surprising given that activities such as soy and livestock production and are among the main beneficiaries of the corresponding agreement. But the return to labor should increase across the board, with skilled workers gaining more in Mexico and the unskilled gaining more in Mercosur countries. Given the relatively modest structural transformation that the agreements will trigger, and their relatively long periods of implementation, on an annual basis there should not be major employment losses across sectors.

However, there are also potential downsides. Aggregate and sectoral employment impacts may be small, but they could still be relevant in specific subregions. In Mexico, USMCA could further amplify the divergence between a prosperous north and a laggard south. In Mercosur countries, subregions where protected activities are concentrated could be adversely affected. This is the case with sugar-producing areas, with cities specializing in some manufacturing subsectors, or with areas benefitting from place-based subsidies that may be inconsistent with the terms of the agreements.

The other aspect deserving attention is the environmental impact of the agreements. Economic growth is associated with more emissions of carbon dioxide. But in addition, one of the subsectors gaining the most from the EU-Mercosur agreement is livestock production, which is an important source of methane emissions. Livestock expansion also raises concern about possible deforestation in Brazil. The analysis in this report suggests that most of the expansion will be in the Cerrado region, rather than in the Amazon. But in the absence of other measures there could be a non-negligible forest loss.

In sum, trade integration could be a pathway to faster economic development in Latin America and the Caribbean, but only provided that certain conditions are met. Three of them deserve to be emphasized:

- **Looking beyond the region.** At a time of heightened trade tensions, the multilateral avenue to trade integration does not look promising. But preferential trade agreements can be a viable substitute, especially as they increasingly cover a range of policy areas that were not part of the traditional multilateral architecture. Agreements with more advanced economies offer a chance to increase the degree of economic complexity of developing countries. Integrating regionally is certainly less demanding than aiming for the world, but it is also less transformational.
- **Seizing the opportunities.** South-North agreements open the door for domestic firms to export to bigger and more sophisticated markets, to integrate themselves into global value chains, and to learn and increase their productivity along the way. But infrastructure, regulatory and administrative bottlenecks need to be removed for this to happen. Deep agreements may support some of these changes, but they are not a substitute for domestic reforms aimed at lowering transactions costs, increasing market contestability, and boosting public sector efficiency.
- **Addressing the downsides.** It would be unwise to downplay the tradeoffs associated with greater trade integration. As with most major reforms, there will likely be winners and losers. Specific subregions and the environment fall in this latter group. In the absence of appropriate complementary measures, spatial divergence could be amplified, and specific areas could suffer. Meanwhile, carbon dioxide emissions would increase and the forest-covered surface decrease. These downsides call for place-based policies to redress the imbalances and for environmental policies to offset the damage.

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