2019

International Trade Outlook
for Latin America and the Caribbean

Adverse global conditions leave the region lagging further behind

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Explanatory notes:

- Three dots (...) indicate that data are not available or are not separately reported.
- A dash (-) indicates that the amount is nil or negligible.
- A full stop (.) is used to indicate decimals.
- The word "dollars" refers to United States dollars, unless otherwise specified.
- A slash (/) between years (e.g. 2013/2014) indicates a 12-month period falling between the two years.
- Individual figures and percentages in tables may not always add up to the corresponding total because of rounding.

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Presentation

The global trade performance in 2019 was the worst since the international financial crisis. Chapter I of this edition of *International Trade Outlook for Latin America and the Caribbean* analyses that performance, as well as the mounting trade tensions and their repercussions for the region's own trade. The heavy slowdown in global trade is the result of the build-up of trade barriers since 2018, as well as longer-standing factors, including weaker global demand, increasing import substitution in some economies, the smaller share of Chinese production going for export, the shrinking of global value chains and the emergence of new technologies that impact the very nature of trade. The trade tensions reflect economic and technological competition between China and the United States, the rupture of the pro-globalization consensus of the 1990s and 2000s, and growing criticism of the functioning of the World Trade Organization (WTO). The uncertainty caused by the current tensions is adversely impacting the economies most bound into global value chains, especially in Europe and East Asia. In this context, the value of the region's merchandise trade will likely drop by 2% on the export side and 3% in the import side in 2019, although this pattern will be highly uneven from one subregion to another. Meanwhile, the value of intraregional trade will tumble by some 10%, continuing the procyclical pattern of the region's trade seen in recent years, whereby it amplifies the drop in the region's overall exports.

Chapter II analyses how international trade could contribute more to environmental sustainability. Trade has both positive and negative impacts on the environment and the net balance of that effect is uncertain. The links between trade and the environment have become more visible since the 1990s; the increase in environment-related trade disputes testifies to this, as does the fact that environmental chapters are increasingly being written into trade agreements. The carbon footprint of the region's countries whose exports are natural-resource-intensive is similar to that of other countries with a comparable export profile. Conversely, the countries whose exports are manufacturing- and services-intensive are less intensive in emissions than countries that specialize in exporting raw materials. In the past decade, Latin America's share in global exports of environmental goods rose. Mexico and Central America account for three quarters of the region's environmental exports and the United States is the main destination market. The integration of environmental sustainability into export activity has been driven by normative progress, ecological disasters and social pressures. International standards have served as the basis of generating local instruments aimed at mitigating environmental impacts in the region. Looking to the future, the region has major potential to increase the contribution of its trade to the structural changes that are essential to attain low-carbon production and consumption patterns. This requires greater coherence between international trade regimes and efforts to tackle climate change.

The third chapter examines the situation regarding infrastructure and logistics, which are key to international trade and production. As trade tariffs have fallen, other barriers have become more significant, especially those relating to logistics and infrastructure. In this context, the constraints include shortage of infrastructure supply, modal imbalance, institutional failings and difficulties and, in many cases, highly dispersed public visions and actions on infrastructure and its services and failure to produce a comprehensive policy response. Overcoming these problems requires adopting an integrative approach to logistics, applying the principle of co-modality and forming a robust network of efficient, resilient and sustainable services. The chapter looks at the share of the region in maritime global goods trade and the three major challenges in relation to infrastructure and logistics policies: the level of investment, infrastructure resilience, and infrastructure-related regulatory and competition matters. Concessions are analysed and a diagnostic put forward of the main problems that have arisen in this regard, including the high rate of contract renegotiation. In conclusion, public policies on economic infrastructure concessions need to be re-examined, considering the crucial role played by the State in regulation, especially in overseeing competition.

Summary

A. Mounting trade tensions and shrinking regional trade
B. Enhancing trade's contribution to environmental sustainability
C. Logistics and infrastructure for trade, production and integration

Click on this icon to open the Excel file containing the data for the tables and figures presented in this chapter.

A. Mounting trade tensions and shrinking regional trade

Since late 2018 the momentum of world trade in goods has slackened sharply, and the most recent projections see expansion in 2019 of just 1.2%, the worst performance since the global financial crisis. This situation is primarily a result of the accumulation of trade barriers since early 2018, which are expected to stand at around US$ 1 trillion by the end of 2019. This is equivalent to 6% of world imports of goods in 2017, the year before the outbreak of the trade tensions between China and the United States. However, the impact of these on world trade transcends the direct effect of the tariff hikes. Indeed, the firms that participate in global value chains face a panorama of growing uncertainty about where to produce, when to do so, and from which countries to source inputs. This, in turn, has an adverse impact on their investment decisions.

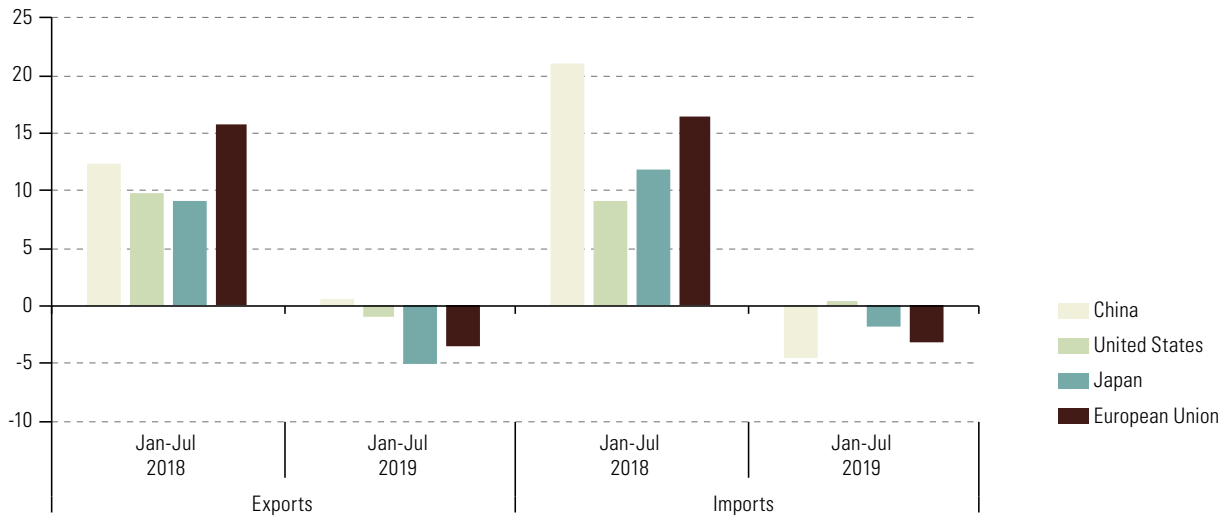
The current tensions are occurring against a backdrop of dissatisfaction among several countries —in particular, the United States— with the way the World Trade Organization (WTO) functions. The difficulties the WTO is facing are long-standing, but have been exacerbated in the context of the increasing economic and technological competition between China and the United States, undermining of the "pro-globalization consensus", and a less multilateral international environment. In this context, calls for WTO reform have proliferated, but there is considerable uncertainty as to the outcome. The fact that the WTO Appellate Body is to cease operating in December 2019 is particularly worrying, amidst a continuous increase in the number of trade disputes.

At present, nearly 70% of the value of United States imports from China are subject to tariff surcharges, 11 percentage points more than the share of Chinese imports from the United States that are in the same situation. As a result, United States purchases from China fell by 12% in the first half of 2019 relative to the year-earlier period, while Chinese imports from the United States shrank by 28%. In addition, the United States has imposed restrictions on Chinese investments in its territory in high-tech sectors, and also sales of certain technologies to firms in that country. Thus, a certain decoupling between the two economies is becoming apparent, an objective expressly pursued by the current United States administration.

The trade tensions between China and the United States affect not only these two countries' bilateral trade, but also other economies that participate in international production networks, especially in Europe and Asia (see figure 1). In China, the decline in exports from Germany has had a knock-on effect on shipments from Central and Eastern European countries. In the United States, weaker demand from China has hurt shipments from Japan, the Republic of Korea and other economies. The sectors that have been hit the hardest include automobiles and autoparts, machinery and equipment, chemicals and pharmaceuticals, other manufactures, and metals and articles of metal, which together represent 20% of the gross value of world production. In this context, the world economy —like trade— is projected to expand in 2019 at the slowest rate since the financial crisis, mainly due to weakness in the manufacturing sector.

The escalation of trade tensions has deepened the path of low growth that world trade was already showing in the post-crisis period. Between 2012 and 2018, the volume of trade —measured by exports— grew by just 2.7% per year on average, a figure very similar to the average growth of global GDP, and less than half the average rate of growth in global trade between 2000 and 2007.

Figure 1
Selected countries and European Union: variation in the value of merchandise trade, first half of 2019 relative to same period of 2018
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Trade Organization [online] www.data.wto.org.

Several trends explain the weak growth of trade since 2012. Firstly, global demand growth slowed relative to the pre-crisis decade, partly as a result of lower investment rates in advanced countries, weaker productivity growth and population ageing in several countries. Secondly, China and other large developing economies have replaced some of their imports with domestic production, while, since 2007, the export share of China's production has been halved. Thirdly, the demand for imports from countries that mainly export commodities declined as a result of falling commodity prices, particularly between 2014 and 2016. Fourthly, there has been a shake-out in global value chains, owing to the lesser importance of labour cost minimization in the geographical organization of production, slacker growth in foreign direct investment (FDI), the slower pace of reduction of logistics costs and the trend towards regionalization of world trade. Fifthly, the real appreciation of the dollar also seems to have slowed trade in recent years.

The sharp slowdown in merchandise trade in this decade has occurred alongside the emergence of several technological innovations associated with the Fourth Industrial Revolution, which are transforming the nature of trade and production. The buoyancy displayed by traditional goods trade in the 1980s, 1990s and the 2000 decade has shifted in the present decade to activities facilitated by the new digital technologies, in particular the trade in services. According to some estimates, these already account for more than half the value of world trade.

In this complex international scenario, the value of regional merchandise exports and imports is projected to fall by 2% and 3%, respectively (see table 1). In the case of exports, the modest projected increase in volume is unlikely to be sufficient to offset the fall in prices, while imports are set to contract in both volume and price terms. The regional performance displays significant heterogeneity across the different subregions. South American shipments are forecast to fall by much more (-6.7%) than the regional average, with reductions in both volumes and prices of exports. This reflects the economic stagnation that the subregion is going through —with projected growth of just 0.2% in 2019, hurting intraregional trade— compounded by the high proportion of

commodities in its export basket, for which prices have fallen in several cases. Only three South American countries (Argentina, Ecuador and Uruguay) are expected to see the value of their shipments increase in 2019, driven by an increase in the volume of commodity exports.

Table 1
Latin America and the Caribbean (subregions and Mexico): projected variations in exports and imports of goods, 2019
(Percentages)

	Exports			Imports		
	Volume	Price	Value	Volume	Price	Value
South America	-2.5	-4.2	-6.7	-5.1	-1.7	-6.8
Central America	2.7	-0.1	2.6	-0.9	-1.2	-2.1
The Caribbean	5.8	-2.1	3.7	1.2	-2.1	-0.9
Mexico	4.4	-1.6	2.8	0.9	-0.5	0.5
Latin America and the Caribbean	**0.8**	**-2.8**	**-2.0**	**-2.0**	**-1.0**	**-3.0**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from central banks, customs offices and national institutes of statistics.

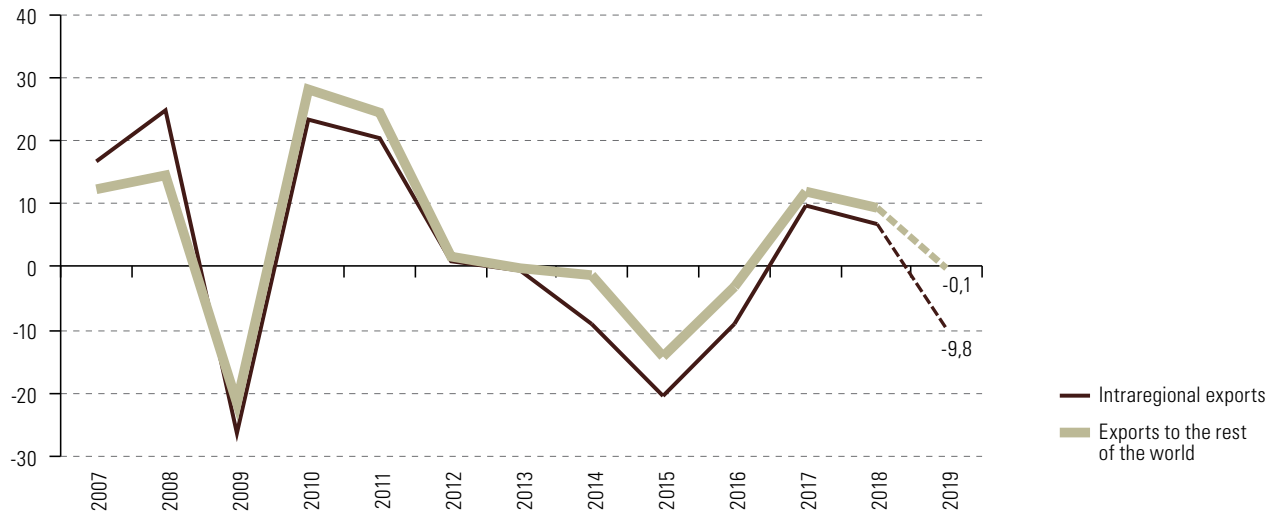
Unlike South America, in 2019, Central America, the Caribbean and Mexico can expect to see export values and volumes rise. This reflects their lesser reliance on commodities and their closer trade ties with the United States, whose demand for imports has proved more resilient that that of the region's other key export markets. A large increase in export volumes has occurred in Mexico, mainly owing to the trade diversion generated by the trade tensions between China and the United States, which has driven manufacture shipments to the former. In fact, since February 2019 Mexico has been the United States' main trading partner. In the case of Central America, the forecast expansion of export volumes should more than compensate for the fall in the prices of some of its export commodities, such as coffee, bananas and sugar. In the Caribbean, the export values of 13 of the 16 countries of the subregion are projected to grow, driven mainly by volume expansion.

The projected fall in the value of imports in South America will likely be more than double the regional average, driven by the collapse of foreign purchases by Argentina (19%) and the Bolivarian Republic of Venezuela (60%). The only South American country where the value of foreign purchases is expected to rise is Colombia. The main reason for this is weaker domestic demand, especially in countries of the Southern Common Market (MERCOSUR). The value of Central American imports is forecast to decrease by 2.1% in 2019, largely owing to a reduction in the oil bill and slacker demand in some of the countries of the subregion, and particularly in Honduras and Nicaragua.

Projections for the value of trade between Latin America and the Caribbean and its main partners outside the region envisage the steepest falls occurring in flows to and from the European Union, in the case of both exports (8%) and imports (6%). Exports to the United States and Asia are expected to record a slight expansion of 1%, while those to China are set to drop by around 1%. Imports are forecast to decline across the board.

In the first half of 2019, intraregional trade was significantly affected by the region's meagre economic growth. Trade within MERCOSUR and the Caribbean Community suffered the steepest falls (21.5% and 18.5%, respectively), driven down by weak demand in some member countries of both groups. Intraregional trade flows are projected to contract by 10% in 2019, a much steeper reduction than in shipments to the rest of the world. As a result, the intraregional export coefficient is expected to slip to 15.5%, one of the lowest of any region in the world.

Figure 2
Latin America and the Caribbean: annual variation in the value of intraregional exports and exports to the rest of the world, 2007–2019[a]
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from central banks, customs offices and national institutes of statistics.
[a] The figures for 2019 are projections.

As in previous years, the collapse of intraregional trade acts as a procyclical force, amplifying the reduction in the region's total exports. This is very worrying, as it is this trade that has the greatest content of manufactures and the largest presence of small and medium-sized enterprises (SMEs). An accumulation of factors has thus far prevented this pattern from being overcome —such as shortcomings in connectivity between the countries of the region, which prevents trade between them from serving as an escape valve when international demand retreats.

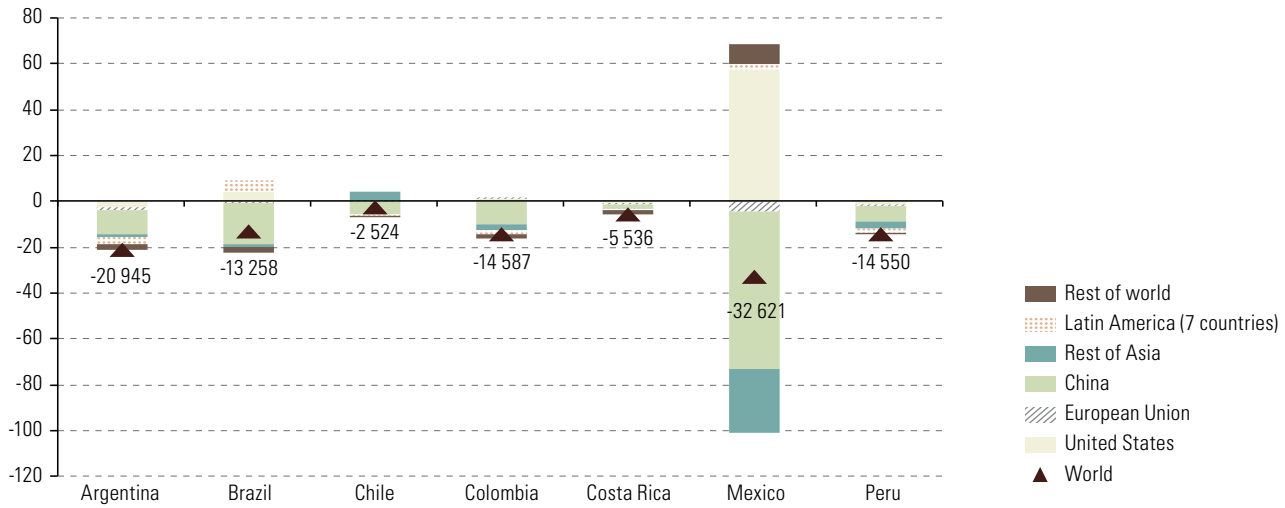
B. Enhancing trade's contribution to environmental sustainability

Simultaneous growth of trade and global emissions of greenhouse gases (GHGs) over recent decades have raised the question of how these trends interrelate. The effects of international trade on climate change are both positive (due to the international dissemination of clean technologies) and negative (due to the larger scale of production), with a net result that is unclear. The links between the two also depend on how their respective regulatory systems interact, and particularly multilateral World Trade Organization (WTO) agreements and the Paris Agreement.

An analysis of the carbon footprint of exports from seven Latin American countries for which information is available —including only emissions related to use of fossil fuels— shows that between 2005 and 2015 emissions intensity declined, and is generally similar to those of other countries with comparable export profiles. In contrast, countries with exports that are concentrated in manufactures that require intensive use of technology and services (such as France, Germany, the United Kingdom and the United States) display lower emissions intensity. However, within each country there are differences between exporting sectors, particularly the high relative intensity of emissions from the mining sector and its manufactures, compared to the agricultural sector and agro-industry.

The emissions-intensity differentials between sectors and countries are reflected in the net carbon balance resulting from each economy's trading links with its partners (equal to the difference between the emissions contained in their exports and in their imports). The seven Latin American countries considered are net importers of carbon from the rest of the world (see figure 3). In particular, there is a deficit with China, due to the considerable emissions intensity of the products imported from the country.

Figure 3
Latin America (7 countries): net balance of carbon emissions contained in exports and imports, by trading partner, 2015[a]
(Millions of tons of carbon)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organization for Economic Cooperation and Development (OECD), Trade in Embodied CO2 Database (TECO2) [online database] https://stats.oecd.org/Index.aspx?DataSetCode=IO_GHG_2019.
[a] The numbers shown on each bar of the graph represent the net balance of emissions with the rest of the world.

The links between trade and the environment have become more visible since the 1990s, as reflected by the increase in notifications of environmental measures to the WTO and in trade disputes related to environmental matters. The launch of the Doha Development Round in 2001 sought to strengthen the multilateral trading system's contribution to sustainable development, mainly by reducing trade barriers to environmental goods and services and developing disciplines on fisheries subsidies. While the negotiations on the former have been stalled since 2016, the deadline for concluding negotiations on the latter is December 2019.

Trade has a key role to play in meeting the Paris Agreement objectives by helping to disseminate the goods and services required to mitigate climate change. However, the Agreement does not specifically refer to trade, nor does it figure prominently in the content of the nationally determined contributions put forward by countries to date. Another potential source of environmental disputes in the WTO is the issue of border carbon adjustments. They are charges that some countries that apply carbon taxes within their borders (or are examining the possibility of doing so) have proposed levying on imports from countries where such taxes either do not apply, or are lower than in the importing country. This is intended to discourage "carbon leakage", in other words the migration of production to jurisdictions where the carbon incorporated in the goods is not taxed.

While no country has so far implemented this measure, pressure to do so —especially in developed countries— is likely to increase in the coming years in view of the commitments made in the Paris Agreement. This reflects the urgent need for

greater coherence between the multilateral regimes for trade and the environment. Therefore, consideration should be given to establishment of a climate waiver to exempt from WTO challenges certain measures adopted by governments to address climate change. Such an exception should be carefully designed to prevent it being used for protectionist purposes.

The inclusion of environmental sections in preferential trade agreements has been spearheaded by the United States and the European Union since the 1990s. Over the last decade, the number and variety of environmental provisions in such agreements have increased, including those to which countries of the region are party. However, environmental commitments must be incorporated with a cross-cutting approach. For example, with respect to climate change, there are various measures —not necessarily contained in a chapter on the environment— that can contribute significantly to reducing emissions, such as reducing barriers to environmental goods, limiting subsidies for fossil fuels and establishing incentives for green public procurement.

Between 2007 and 2017, Latin America increased its share of world exports of environmental products from 3.8% to 4.7%. However, the region is a net importer of such products. In 2017, Mexico and Central America accounted for three quarters of regional exports and more than half of imports of environmental goods. The United States provides the main export market for the region's environmental goods, absorbing three quarters of total shipments in 2017. The second most important market is the region itself. Machinery, equipment and inputs for renewable energies constituted the main category of environmental goods exports in the region in 2016–2017, followed by products for water treatment.

Between 2007 and 2017, Mexico and Central America increased their share of world exports of multiple categories of environmental goods. In addition, several of these categories increased their share of world trade in the same period (see figure 4.A). They are the "rising stars" of this subregion. During this same period, South America largely missed out on opportunities in the most buoyant environmental categories in world trade (see figure 4.B).

Figure 4
Mexico, Central America and South America: trends in exports of environmental goods, 2012–2017
(Percentages)

A. Mexico and Central America

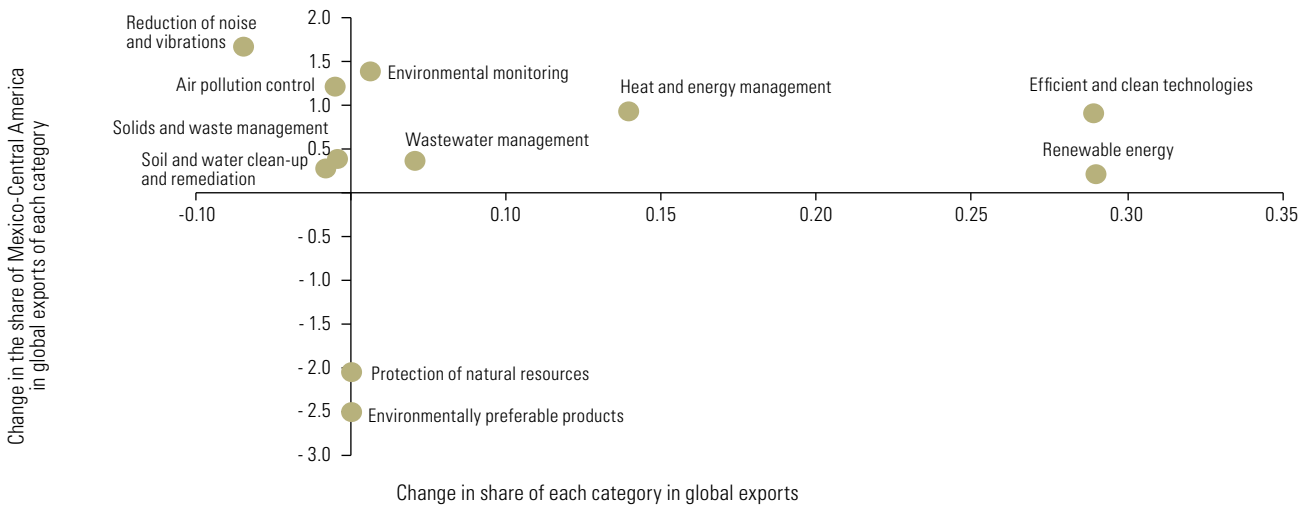
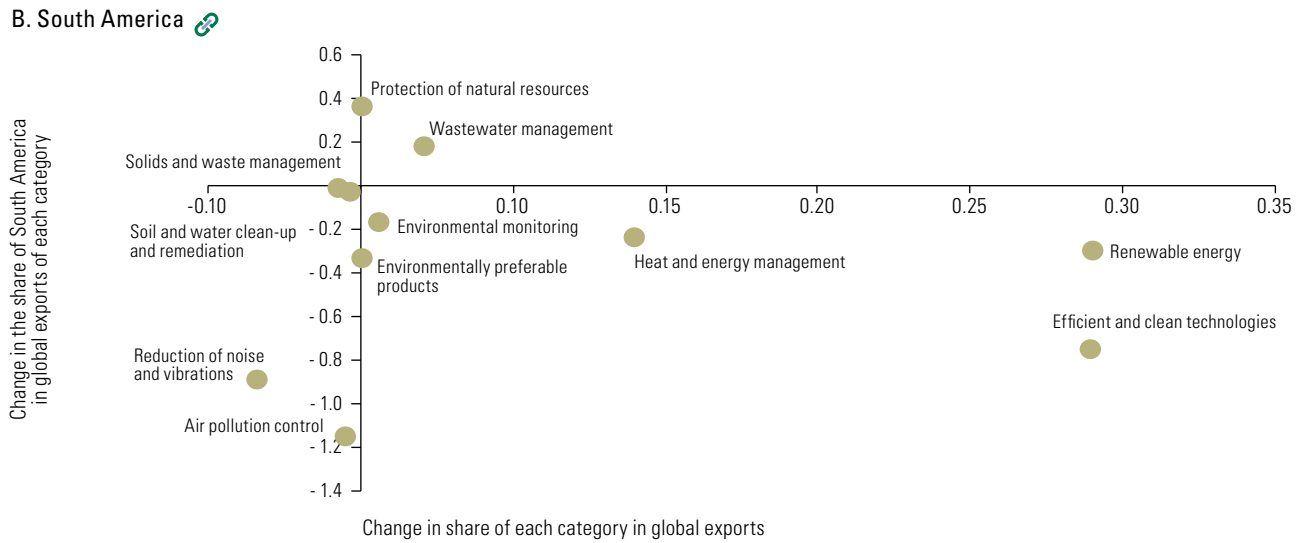


Figure 4 (concluded)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of UN Comtrade - International Trade Statistics Database.

The incorporation of environmental sustainability in business processes has been driven by regulatory progress, ecological disasters and social pressures. The environmental performance of enterprises is increasingly being evaluated by potential international investors, and it has also become a sensitive variable for consumers. Companies involved in international trade are often more exposed to these demands. Latin American exporters, particularly in the agricultural and food sectors, are gradually incorporating better environmental practices to respond to these demands and maintain their international competitiveness. As a result, aspects such as climate change, water use and pollution, and the care of biodiversity have been gradually incorporated into companies' production systems and global strategies.

The pace at which food exporting sectors are including sustainable practices based on international standards depends on the level of competition they face in foreign markets. International standards have also served as the basis for generating local instruments aimed at mitigating environmental effects in several of the region's countries, for products such as palm oil, coffee, beef, fresh fruit, soya and forest products. Trade promotion authorities have an important role to play in the task of identifying new international demands relating to environmental issues; they can use their offices abroad to monitor environmental requirements in the main markets.

The challenge for the future is to reduce absolute emission volumes despite the anticipated growth of consumption and production. This requires structural shifts towards low-carbon styles of production and consumption. Trade can contribute to this transformation through imports of goods and services with a smaller environmental footprint and also through exports of environmental goods and services, taking advantage of the growing international demand for them.

C. Logistics and infrastructure for trade, production and integration

Shortcomings in infrastructure and logistics are a fundamental part of non-tariff barriers, which are currently the main barriers to trade. As tariffs have decreased, the importance of logistics to competitiveness and production has increased. A joined-up approach to logistics policies and other public policies —in areas such as productive development, financing, mobility, social development and territorial and cross-border integration— is required to advance with progressive structural change and to achieve the Sustainable Development Goals (SDGs). This will require considerable efforts, but it is a clear opportunity to fulfil the 2030 Agenda for Sustainable Development.

In the region, logistics and infrastructure suffer from failings that hinder commercial performance (among other areas), which can be summarized as follows: (i) a significant infrastructure gap, the result of sustained low investment, exacerbated by growing demand for efficient logistics services; (ii) institutional and regulatory failures affecting competition, facilitation and trade; (iii) a lack of joined-up policy approaches, deepening territorial inequalities and failing to properly address negative externalities, especially those that are environmental and social. Various aspects are examined that are closely related to these failings, such as the conceptualization of logistics for public policies, maritime logistics, the historical performance of the investments that shaped the current infrastructure gap, the need for an approach that balances resilience, efficiency and sustainability, the impact on value chains, some shortcomings in market regulation, trade facilitation and regional physical integration.

This requires a rethink of the way logistics are conceptualized, given that the traditional approach to international logistics as separate from domestic logistics leads to confusion and to decisions that may not be pro-development. The logic of modern logistics integrates infrastructure, transport and distribution services and sectoral regulations, treating logistics as a policy matter and putting it at the service of trade and production. The supply chain can thus be viewed as an efficient and effective continuum, rather than as isolated compartments whereby domestic and international logistics are thought of and treated separately.

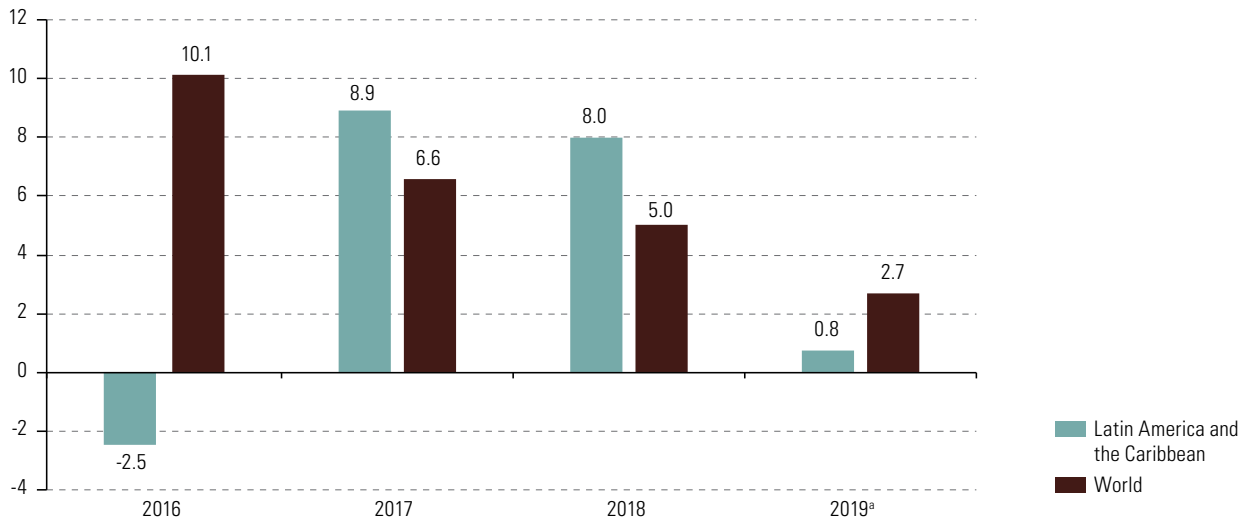
Maritime logistics is crucial to global trade, as it carries around 80% by volume and 70% by value. The same is true in the region. In South America, maritime transport is the predominant mode, while in Central America and Mexico there is a more even distribution with road and rail transport —mainly due to trade flows with the United States— although maritime transport remains the main mode. If Mexico is excluded from the analysis, then extraregional international transport is predominantly maritime, while intraregional transport takes place mostly by road. In the Caribbean, goods are moved almost entirely by maritime transport, except for some small chemical products, equipment and manufactures that are transported by air. In short, international waterborne transport (maritime-inland water-lake) accounts for almost 95% of trade in the region.

Port movements reaffirm the trade trend of recent years, as reflected in a decline in the year-on-year growth rate (see figure 5). Furthermore, in the first half of 2019, maritime trade using containers declined with respect to the first half of 2018.

The historical pattern of infrastructure investments has shaped the current infrastructure gap, with the result that the region's provision of infrastructure greatly lacking in both quantity and quality. In the period 2008–2016, the Latin American and Caribbean countries invested an average of just 1.2% of GDP in transport infrastructure, well below the levels seen in the 1980s, when the average was 3.6% of GDP (primarily public investment).

To close the infrastructure gap, 6% of GDP would have to be invested annually. This amount would be equivalent to investing a total of US$ 6.9 trillion over 15 years (from 2016 to 2030), expressed in 2010 dollars. This exercise assumes GDP growth of 3.9% from 2016 to 2030 and a continuation of the pattern of capital investment in the economy. In addition, investment equivalent to 1.5% of GDP is estimated to be required, to achieve universal coverage of electricity, fixed broadband and water and sanitation services. The gap would undoubtedly be greater with transport investment needs for universal coverage included.

Figure 5
Latin America and the Caribbean and the world: annual variation in container movements, 2016–2019[a]
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), 2019.
[a] The figures for 2019 are estimates.

Latin America and the Caribbean needs to invest more, but also better, which raises the need for investment that balances resilience, efficiency and sustainability. This is crucial to pursuing the 2030 Agenda and to improving the performance of value chains. The resilience of value chains depends, to a large extent, on the availability and proper functioning of infrastructure networks —transport, energy and telecommunications— as well as on the structure and functioning of services, and on exogenous failings associated with the climate and climate change.

In addition to the physical conditions of infrastructure provision, regulation of service markets is another of the key aspects that determine how trade logistics function. This chapter discusses some aspects related to these issues, such as the challenge posed by the consolidation and concentration of the logistics, maritime and port industries and infrastructure concessions.

Concentration in the logistics industry is a global issue: 71% of key maritime traffic is controlled by three global alliances, 76% of container port movements is handled by the 10 largest operators in the world, and 1 out of every 7 containers is handled by 25 global freight forwarding companies. The same trend has been consolidating in the region, and problems of vertical intraindustry integration are beginning to appear. Moreover, the infrastructure industry has been hit by complex situations such as allegations of collusion or corruption. This also generates difficulties in the awarding and renegotiation of concessions, 55% to 81% of which were renegotiated during the period 1990–2015.

Renegotiation is a common practice, especially for complex and long-term agreements. However, it can also encourage opportunistic behaviour, discourage honest bidders and undermine the outcome of the procedure. These factors have led to doubts in some social sectors over the functioning of infrastructure concessions, as a result of a belief that tender processes have not been transparent and that the outcomes of the programmes are uncorrelated with tariff changes and service quality, which is one of the expectations relating to concessions.

In the case of Latin America and the Caribbean, production integration is affected not only by unstable tariff agreements and the cumbersome border-crossing processes, but also by a lack of infrastructure and logistical services, increasing costs and times for trade operations. It is well known that the cost of transport within a country affects competitiveness, for reasons such as excessive use of trucks over distances for which they are not competitive, compared to other modes of transport. The impact of inland freight is almost as great as that of international freight paid for the same product to overseas destinations, and sometimes even exceeds it.

During the first half of 2019, ECLAC, together with the other four United Nations regional commissions, conducted the Global Survey on Digital and Sustainable Trade Facilitation. The purpose of the survey was to monitor progress in different countries and regions with regard to implementation of the WTO Agreement on Trade Facilitation, and incorporation of information and communications technologies (ICT) to move towards paperless trade. The results show that the region has made great progress regarding independent appeal mechanisms for customs decisions, online publication of trade laws and regulations, and consultation of stakeholders on new trade regulations. The facilitation measures that have been implemented the least relate to cross-border digital exchanges of certificates of origin, health and phytosanitary certificates, and digital requests for customs refunds.

Lastly, physical integration can also play a strategic role in logistics, by coordinating measures to facilitate regional trade and promoting production chains, thus encouraging regulatory convergence and full integration of Latin America and the Caribbean.

CHAPTER I

Mounting trade tensions and shrinking regional trade

Click on this icon to open the Excel file containing the data for the tables and figures presented in this chapter.

Introduction

The 2018 edition of this publication analysed the slowdown in world trade and the worrying rise in trade barriers, at a time when the benefits of globalization are increasingly being questioned. It noted that the more the trade tensions escalate, the greater the negative impact on global value chains and hence on the dynamism of world trade (ECLAC, 2018a). One year on, the situation has worsened significantly, and several of those negative impacts are starting to materialize. Since late 2018 the momentum of world trade has slackened sharply. Most recent projections see global trade expanding in 2019 by just 1.2% in volume terms, its worst performance since the global financial crisis. Global economic growth is expected to be similarly weak.

About two thirds of the value of trade restrictions introduced since 2018 correspond to the tariff hikes applied reciprocally between China and the United States. As of September 2019, nearly 70% of the value of United States imports from China are subject to tariff surcharges, 11 percentage points more than the share of Chinese imports from the United States that are in the same situation. As a result, the value of United States imports from China fell by 12% in the first half of 2019 relative to the year-earlier period, while Chinese imports from the United States shrank by 28%. Thus, a certain decoupling between the two economies is under way, an objective expressly pursued by the current United States administration.

One of the main causes of the current trade tensions is dissatisfaction among some countries —in particular the United States— with the way the World Trade Organization (WTO) operates. The difficulties faced by the latter are longstanding, but they have been accentuated in the context of growing economic, technological and geopolitical competition between China and the United States, the weakening of the "pro-globalization consensus" and a less multilateral international environment (ECLAC, 2018a). This creates a great deal of uncertainty about the WTO reform process.

The trade tensions between China and the United States affect not only these two countries, but also other economies that participate in international production networks, especially in Asia and Europe. The prolonged uncertainty associated with trade conflicts is undermining confidence and hence business investment decisions, and with it growth and employment, especially in the manufacturing sector.

The heightening of trade tensions has accentuated the lacklustre performance of global merchandise trade in the post-crisis period. Between 2012 and 2018, its volume —measured by exports— grew by an average of just 2.7% per year, a figure very similar to the average growth of global GDP. Thus, the relationship between trade growth and GDP growth seems to have changed structurally from the pattern that prevailed in the two decades prior to the crisis, when trade grew twice as fast as output.

Several trends in the world economy help explain the weak growth of trade since 2012. Firstly, global demand growth slowed relative to the pre-crisis decade, partly as a result of lower investment rates in advanced countries, weaker productivity growth and ageing populations in several countries. Secondly, China and other large developing economies have substituted some of their imports with domestic production, while, since 2007, the export share of China's production has been halved. Thirdly, the demand for imports from countries that mainly export commodities declined as a result of falling commodity prices, particularly between 2014 and 2016. Fourthly, there has been a shake-out in global value chains, owing to the lesser importance of cost minimization in the geographical organization of production, slacker growth in foreign direct investment (FDI) flows, the slower pace of reduction of logistics costs and the trend towards regionalization of world trade. Fifthly, the real appreciation of the dollar also seems to have slowed trade in recent years.

The sharp slowdown in merchandise trade in this decade has occurred alongside the emergence of several technological innovations associated with the Fourth Industrial Revolution, which are transforming the nature of trade and production. The buoyancy displayed by traditional goods trade in the 1980s, 1990s and the 2000 decade has shifted in the present decade to activities facilitated by the new digital technologies, in particular trade in services. Some estimates suggest that these already account for more than half the value of world trade in goods and services.

In this complex international scenario, Latin American and Caribbean merchandise trade declined in the first half of 2019. For the year as a whole, the value of regional merchandise exports and imports is projected to fall by 2% and 3%, respectively, albeit with significant disparities between its different subregions. Slacker demand, especially in Asia, the European Union and the region itself, largely explains this decline. The commodity specialization of many countries (particularly in South America) also adversely affects their export performance, given the downward trend seen this year in the prices of several of these products.

A. Trade tensions increase

1. Tensions between China and the United States are intensifying

The weak recovery of the advanced economies following the global financial crisis, coupled with the impact of austerity policies, stagnant wages and rising inequality, has undermined the "pro-globalization consensus" of the 1990s and the 2000s. In addition, there is intense competition between the United States and China for global economic and technological leadership (ECLAC, 2018a). The confluence of these two factors provides the backdrop to the abrupt increase in trade barriers that has occurred in the last two years. The amount of trade affected by the new import restrictions implemented in the world between October 2018 and May 2019 was the second highest since this indicator began to be measured in 2012. It was only surpassed by that of the immediately preceding period (from October 2017 to October 2018), during which the United States imposed various import restrictions[1] that triggered retaliatory measures from several of the partners affected (see figure I.1).

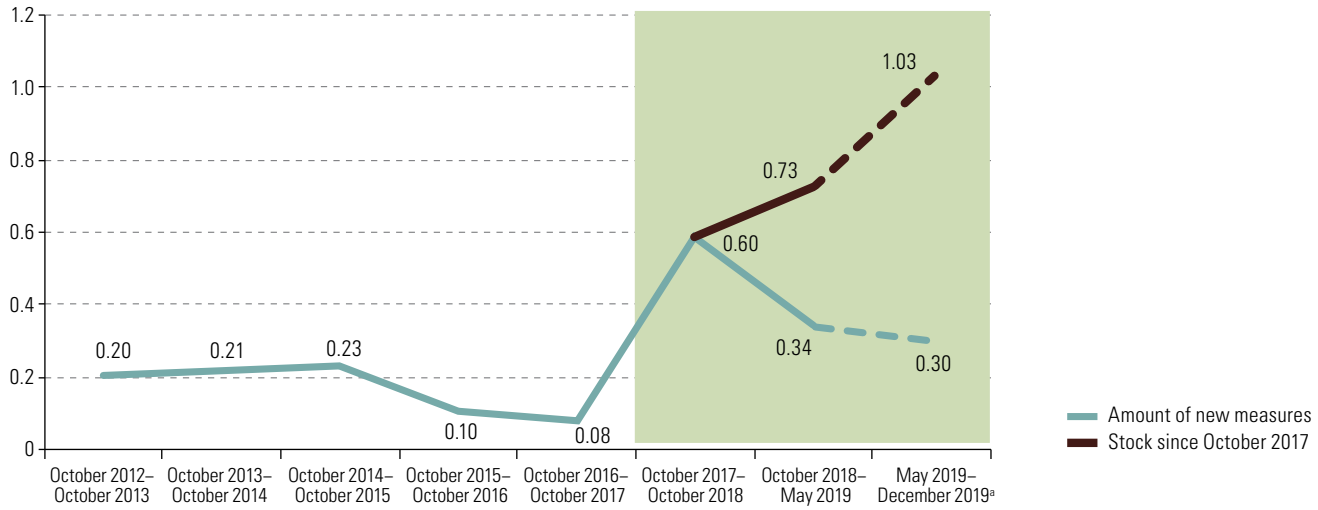
Most of the trade restrictions introduced since 2018 are in force (WTO, 2019), and about two-thirds of the value of trade affected are covered by the tariff increases applied reciprocally between China and the United States. When considering the next round of tariff hikes already announced, the amount of trade affected would be around US$ 1 trillion in December 2019. This is equivalent to 6% of world imports of goods in 2017, the year before the outbreak of the trade tensions. However, the impact of these on world trade transcends the direct effect of the tariff hikes. The impossibility of reaching an agreement between China and the United States[2] thus far, and the recurrent announcements of new restrictions by the latter —often linked to non-trade issues such as migration and national security— generate an adverse environment for global

1 Safeguards on imports of solar panels and washing machines (January 2018); surcharges on imports of steel and aluminium for national security reasons (March 2018); and surcharges on various products imported from China, due to alleged unfair intellectual property and technology transfer practices (July, August and September 2018).

2 An interim agreement was announced on 11 October, under which the United States suspended tariff increases scheduled for mid-October in exchange for which China agreed to purchase more of its agricultural products. However, the tariff hikes announced by the United States for December 2019 have not been cancelled.

value chains, even if some of the announced measures do not actually materialize.[3] Indeed, the firms that participate in these chains are confronted with a panorama of growing uncertainty about where to produce, when to do so, and from which countries to source inputs. This, in turn, has an adverse impact on their investment decisions.

Figure I.1
Coverage of import restriction measures, October 2012 to December 2019
(Trillions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Trade Organization (WTO), *Report of the TPRB from the Director-General on Trade-Related Developments (mid-October 2018 to mid-May 2019)*, (WT/TPR/OV/W/13), Geneva, 2019, and ECLAC estimates for the period 16 May to 31 December 2019.
[a] This estimation considers only measures implemented and those officially announced up to 1 September 2019.

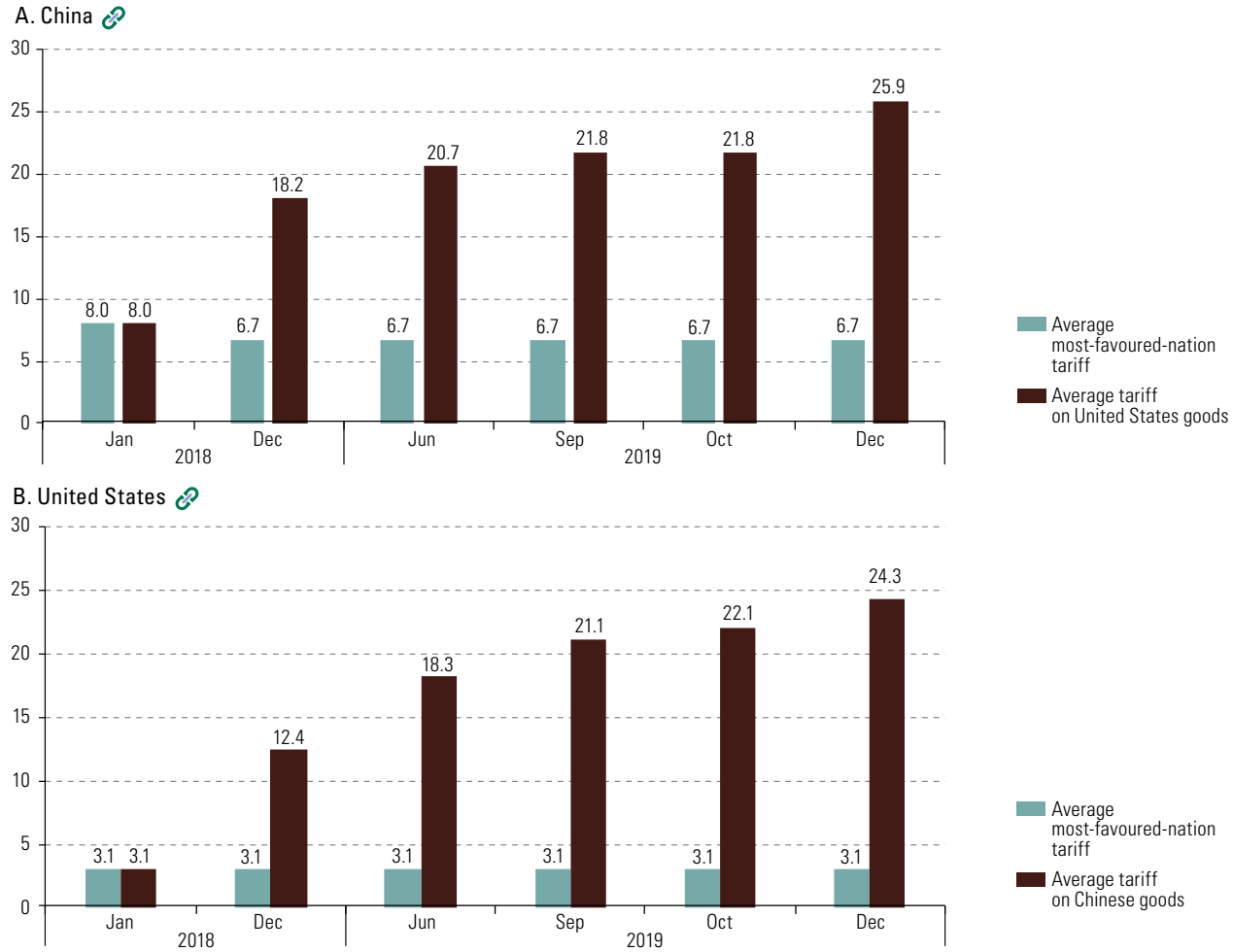
As a result of the continuous tariff hikes that China and the United States have applied to each other since 2018, a substantial gap has opened up between the reciprocal conditions of access to their respective markets and those applicable to the rest of the world.[4] In the case of China, this gap already amounts to 15 percentage points and will likely widen to 19 points in December 2019, after the entry into force of new tariff increases that have already been announced. In the United States, the gap is 18 percentage points and is expected to widen to 21 points by December 2019 (see figure I.2). Along with raising its tariffs on imports from the United States, China has also lowered its most-favoured-nation (MFN) tariffs on goods such as automobiles, machinery, cosmetics and electrical appliances, thus benefiting competitors such as Japan and the European Union.

Although the average applied tariff levels are similar between China and the United States, the share of trade affected differs significantly. Following the entry into force of the most recent reciprocal tariff hikes on 1 September 2019, nearly 70% of the value of United States imports from China are subject to tariff surcharges, 11 percentage points more than in the case of Chinese imports from the United States. This gap will increase sharply following the entry into force of a new round of tariff increases in December 2019, when almost all United States imports from China will be subject to surcharges, compared to just over two thirds of Chinese imports from the United States (see figure I.3).

3 For example, on 30 May 2019, tariff hikes were announced for all imports from Mexico. These would take effect on 10 June, unless Mexico managed to drastically reduce the flow of illegal migrants to the United States. These increases were lifted on 7 June, when an agreement on migration control was reached.

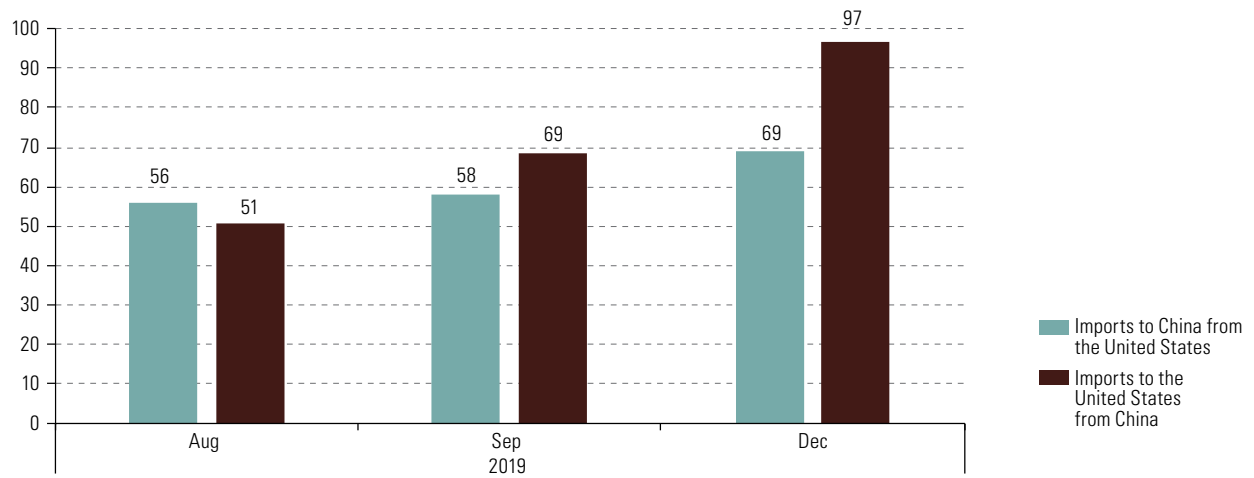
4 In addition to the tariff hikes, the United States has also imposed restrictions on Chinese investments in its territory in high-tech sectors, and also sales of certain technologies to firms in that country.

Figure I.2
China and the United States: reciprocally applied average tariffs and average most-favoured-nation tariffs, January 2018–December 2019[a]
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of C. Bown, "US-China trade war: the guns of August", Peterson Institute for International Economics (PIIE), 20 September 2019 [online] https://www.piie.com/blogs/trade-and-investment-policy-watch/us-china-trade-war-guns-august.
[a] Figures for December 2019 are projections based on announcements made up to early September.

Figure I.3
China and the United States: proportion of reciprocal goods imports subject to tariff hikes, August–December 2019[a]
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of C. Bown, "US-China trade war: the guns of August", Peterson Institute for International Economics (PIIE), 20 September 2019 [online] https://www.piie.com/blogs/trade-and-investment-policy-watch/us-china-trade-war-guns-august.
[a] The figures for December 2019 are projections based on announcements made up to early September.

China's narrower coverage of trade subject to surcharges reflects its decision thus far to exclude products from some industries that import large amounts from the United States, such as civil aircraft and pharmaceuticals. In those industries, China's productive capacities are still relatively limited, so it is highly dependent on imports.[5] In contrast, virtually all of its imports of agricultural and fishery products from the United States are subject to surcharges. This situation has opened up major opportunities for Latin American exporters —especially South American ones— that can supply competitively in these sectors (see section D).

Although the increase in trade barriers has so far been concentrated in the relationship between China and the United States, a second source of tension between the latter and the European Union could arise in the coming months. In May 2019 the Administration of President Trump postponed until November of that year the decision to apply tariffs on imported automobiles and autoparts for national security reasons. This possibility has caused great concern in European countries, especially Germany. Moreover, on 2 October 2019, WTO authorized the United States to apply retaliatory measures of up to US$ 7.5 billion per year on products imported from the European Union, as compensation for the subsidies granted by several of its member countries to the Airbus firm, which were declared illegal by WTO. The United States has already announced that it will raise tariffs on aircraft manufactured by Airbus and also on several European agribusiness products.

In the next few months, WTO is expected to authorize the European Union to retaliate against the United States for the subsidies it has granted to Airbus' main competitor, Boeing, in the context of a dispute that began in 2004. The European Union has indicated its preference for resolving the dispute by negotiating a bilateral agreement on subsidies to the civil aeronautics industry. So far, however, the United States has shown no interest in that possibility. This makes an escalation of reciprocal tariff hikes more likely, especially if the United States decides to levy surcharges on imported motor vehicles and autoparts.

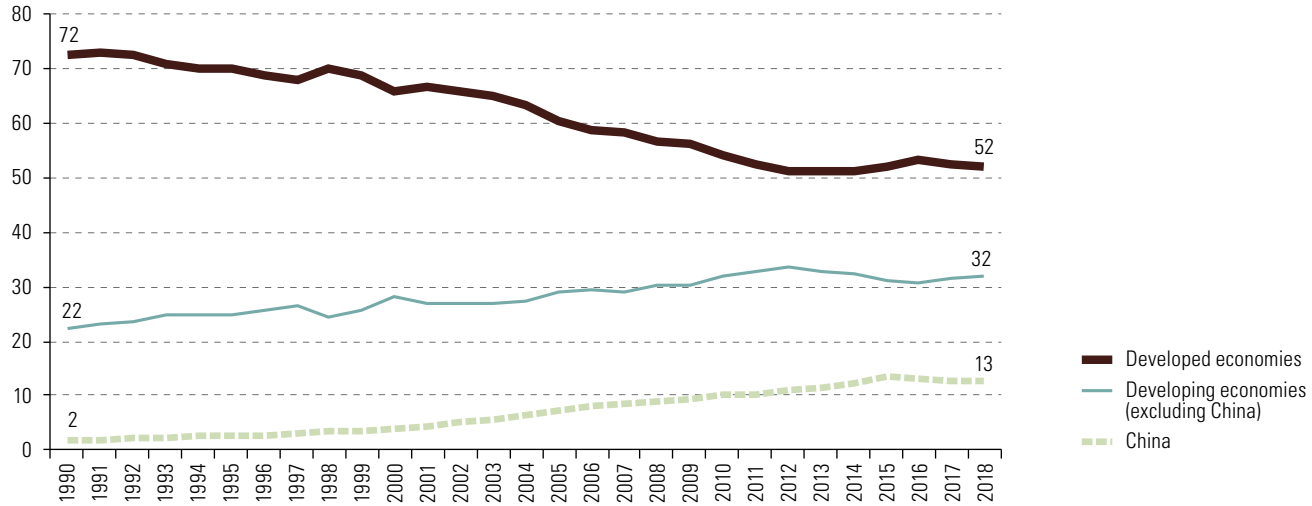
2. Background criticism of the multilateral trading system

The current trade tensions are closely related to dissatisfaction among some countries —in particular, the United States— with the way WTO fulfils its various functions. In fact, the escalation of trade restrictions since 2018 has occurred largely outside WTO rules. The difficulties facing the multilateral trading system are longstanding, but have been exacerbated in the context of the increasing economic and technological competition between China and the United States, the strengthening of criticism of globalization, and a less multilateral international environment.

An initial questioning of WTO concerns its inability to generate new rules that adapt to the profound transformations experienced by world trade in recent decades.[6] Three are particularly relevant: the proliferation of international North-South production networks (Baldwin, 2016); the consequent increase in the share of world exports accounted for by developing economies —and especially China (see figure I.4); and the intense digitization of world trade associated with the Fourth Industrial Revolution (WTO, 2018).[7] To illustrate the magnitude of these changes, suffice it to note that in 1995, when WTO came into operation, the advanced economies of North America, Western Europe and Japan accounted for approximately 70% of global merchandise exports; there was only one North-South trade agreement in force (the North American Free Trade Agreement – NAFTA); and the commercial use of the Internet was in its infancy.

5 For example, Chinese producers represent only 5% of the Chinese aircraft market (McKinsey Global Institute, 2019b).
6 One exception is the Agreement on Trade Facilitation, which was signed in 2013 and came into in force in February 2017.
7 A fourth change that has major potential consequences for WTO is the gradual creation of a multilateral institutional framework to combat climate change, an issue that is discussed in chapter II.

Figure I.4
Developed economies, developing economies and China: share of global merchandise exports, 1990–2018
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), UNCTADstat [online database] https://unctadstat.unctad.org.

China's accession to WTO in 2001 was seen at that time as a milestone that would consolidate the globalization model associated with the ongoing lowering of barriers to trade and foreign direct investment (FDI). However, it was also a contributing factor to the failure of the Doha Development Round, launched in the same year, owing to the reluctance of many countries to open their markets for fear of the competition of Chinese industrial exports. This in turn reduced the already limited policy space for advanced countries to agree to lower their agricultural tariffs and subsidies, which is the developing countries' basic demand.

Moreover, the weak recovery of the advanced economies following the global financial crisis, compounded by the impact of austerity policies and the increase in inequality, has strengthened the political parties and movements that declare themselves critical of globalization and of the economy considered to be its main beneficiary: China. While this is particularly noticeable in the United States, other advanced economies, such as the European Union and Japan, share a number of the United States' concerns. According to these countries, the WTO agreements are insufficient to address problems they consider characteristic of the Chinese economic model, such as distortions generated by industrial subsidies, privileges granted to their State-owned enterprises and practices of forced technology transfers (ECLAC, 2018a).

The ongoing plurilateral negotiations on e-commerce, launched in January 2019, illustrate the clash of positions and interests between China and the United States. The latter is seeking to reach an agreement in WTO that prohibits various practices employed by the former, such as the blocking of various Internet sites, server location requirements, restrictions on the free cross-border flow of data, and the requirement for foreign firms to disclose their source codes, algorithms or trade secrets as a condition for operating in that market. It is also proposing an agreement in which all participants assume the same obligations, regardless of their level of development, a position that is being resisted by China. Lastly, while the United States wishes to make permanent the moratorium that has existed since 1998 on the collection of tariffs on electronic transmissions, China has expressed its preference for the current practice of renewing it every two years (Herreros, 2019).

Without prejudice to the difficulties that WTO is going through as a negotiating forum, its most immediate crisis concerns its role as a forum for dispute settlement. A decade ago, its then Director-General, Pascal Lamy, declared that the dispute settlement system was widely regarded as the "jewel in the crown" of WTO.[8] However, it was already facing problems that have worsened since then.[9] Firstly, the increasing number and complexity of cases brought before it have progressively diminished its ability to resolve disputes in a timely manner. Secondly, successive United States administrations have argued that the WTO Appellate Body has frequently overstepped its mandate by making interpretations of WTO agreements that exceed the rights and obligations negotiated by its members.[10] According to this view, the problem is aggravated by the tendency of the Appellate Body to regard its decisions as setting precedents.

As a measure of pressure, since mid–2017 the United States has blocked the selection of new Appellate Body members. If a solution is not reached in the next few weeks, the body will cease to function in December 2019, as it will not have a quorum. In practice, this would mean that WTO cease to act as a dispute settlement forum. This is particularly worrying given the continuous increase in the number of disputes, in a global context of increasing protectionism: between January 2018 and September 2019, a total of 55 disputes were initiated, an increase of 62% over the 34 launched between 2016 and 2017 and double the 27 of 2014–2015. As of mid-October 2019, the United States has not made explicit its requirements for lifting the veto on the appointment of new members of the Appellate Body. This makes it very unlikely that the cessation of its functions will be avoided.

In the background to the aforementioned issues, there have also been criticisms of the governance of WTO. These have focused on three issues: the consensus rule, the self-declaration of some of its members as developing countries, and the special and differential treatment that they receive. The consensus rule means that, in general, each of the organization's 164 current members has veto power in decision-making (as illustrated by the case of the United States and the Appellate Body). This makes it very difficult and time-consuming to reach agreements among all member countries; and it is a key reason why WTO negotiations are increasingly being conducted at the plurilateral level, in other words between groups of countries interested in moving forward on a given issue. This option, while making it easier to reach agreements, risks weakening the multilateral nature of the organization.[11] More generally, WTO has found it difficult to accommodate the greater weight that large developing economies demand in its decision-making.

Self-designation means that each WTO member has the prerogative to declare itself a developing country, regardless of its level of per capita income or other socioeconomic criteria. This has allowed high-income countries such as Singapore, the Republic of Korea and the United Arab Emirates to declare themselves in this category and thus undertake weaker liberalization commitments than developed countries, under the principle of special and differential treatment for developing countries. The same is true of some of the larger and faster-growing economies, particularly China and India. In an institution like WTO, which operates fundamentally on the basis of reciprocal concessions, this situation has been criticized by developed countries, and in particular by the United States. In February 2019, the latter proposed that WTO members that satisfy at least one of four specified conditions should not have access to special and differential treatment in any current or future negotiations. Several countries in the region would find themselves in this situation (see table I.1).

8 See press release "WTO disputes reach 400 mark", November 6, 2009, [online] https://www.wto.org/english/news_e/pres09_e/pr578_e.htm.

9 For a synthesis of this see Creamer (2019).

10 Examples include certain interpretations by the Appellate Body which, in the opinion of the United States, unduly restrict its right to apply anti-dumping measures.

11 There are various ways to minimize this risk, such as extending the benefits negotiated in plurilateral agreements to non-participants through the MFN principle.

Table I.1
Latin American and Caribbean countries potentially included in the United States proposal on special and differential treatment in the World Trade Organization (WTO), 2019

	Members of the Group of Twenty	Members of the Organization for Economic Co-Operation and Development (OECD) [a]	Classification as a high-income country by the World Bank	At least a 0.5% share in world merchandise trade [b]
Antigua and Barbuda			✓	
Argentina	✓			
Bahamas			✓	
Barbados			✓	
Brazil	✓			✓
Chile		✓	✓	
Colombia		✓		
Costa Rica		✓		
Mexico	✓	✓		✓
Panama			✓	
Saint Kitts and Nevis			✓	
Trinidad and Tobago			✓	
Uruguay			✓	

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Trade Organization (WTO), "Procedures to strengthen the negotiating function of the WTO", 15 February 2019.
Note: The United States proposed that, in any current or future negotiations, WTO members that satisfy at least one of the four conditions above should not accede to special and differential treatment.
[a] Includes countries that have begun the OECD accession process.
[b] Average between exports and imports.

The United States proposes a graduation mechanism, the main objective of which is to achieve greater openness on the part of the more advanced developing economies.[12] Under this rationale, the benefits of special and differential treatment —currently rather modest, and by definition unknown as regards future agreements— would be reserved for the least developed economies. In the background of this discussion is the rigidity of current WTO rules. These distinguish only three categories of members (developed, developing and least-developed countries) and two sets of special and differential treatment provisions (for developing and least-developed members). They therefore do not respond adequately to the wide diversity of needs among their members, particularly in terms of preserving room to experiment with different policies on issues such as the treatment of foreign investment or the protection of intellectual property (Chang, cited in ECLAC, 2019).

In this context, calls for WTO reform have proliferated. This was reflected in the communiqué of the Group of 20 Summit held in Buenos Aires in late 2018. Several proposals to this effect have already been presented. These include not only possible new

[12] In July 2019, the Office of the President of the United States issued a memorandum instructing the Office of the United States Trade Representative (USTR) to use all available means to secure changes at the WTO that would prevent self-declared developing countries from availing themselves of flexibilities in WTO rules and negotiations that are not justified by appropriate economic and other indicators. See [online] https://www.whitehouse.gov/presidential-actions/memorandum-reforming-developing-country-status-world-trade-organization/.

negotiating topics, but also ideas for improving the effectiveness of its other functions, in particular dispute settlement and the monitoring of its members' compliance with their obligations. However, the reform is hampered by its own breadth, by the increase in trade tensions and by the position so far adopted by the United States on the renewal of the members of the Appellate Body and self-designation of developing-country status. For these reasons, there is great uncertainty about the progress that can be made during the next WTO Ministerial Conference, to be held in Nursultan in June 2020.

For the region, it is crucial to have an open, transparent, non-discriminatory, pro-development and multilateral trading system based on universally accepted rules. It is in the multilateral space where the asymmetries of power that characterize North-South negotiations are reduced. For the same reason, the mega-regional agreements that have emerged during this decade are no substitute for such a system; and, in fact, they risk world trade governance fragmenting into the spheres of influence of the major economic powers. Moreover, the experience of several decades shows that it is only at the multilateral level that progress can be made towards a comprehensive reform of agricultural trade, an issue of the utmost importance for the region. The World Trade Organization has also played a fundamental role in resolving disputes between the countries of the region: more than half of the disputes referred by Latin American and Caribbean countries to that body between 1995 and 2014 were intraregional (Herreros and García-Millán, 2015), a trend that continues to this day. This is even the case in disputes between countries that are members of the same integration mechanism or have existing bilateral agreements. For all these reasons, it is imperative to explore the possibility of more coordinated action by the region in terms of WTO reform.[13]

B. Trade tensions are affecting the real economy

1. As the trade slowdown intensifies, the economies of China and the United States are decoupling

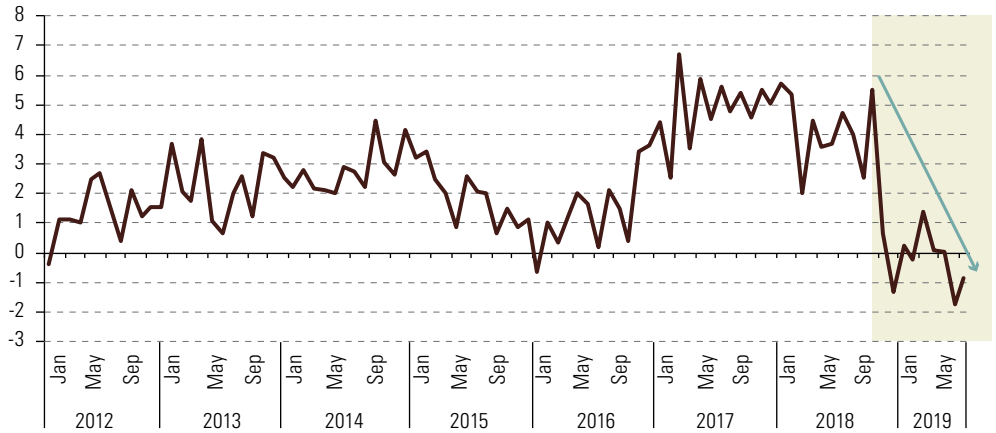
The aggravation of trade tensions has exacerbated the slowdown in world trade since late 2018 (see figure I.5). Between January and June 2019, its volume shrank by 0.1% relative to the first half of 2018.[14] This stagnation has been accompanied by a price fall of around 3% (see table I.2). In October 2019, WTO significantly downgraded its projection for growth in the volume of world trade for this year, from 2.6% to 1.2%. This would be the worst global trade performance since 2009 in the midst of the global financial crisis. For 2020, an expansion of 2.7% is projected, but with significant downside risks (WTO, 2019).

The trade tensions are directly related to the slowdown in world trade. In the first half of 2019, the value of China's exports to the United States contracted by 8% relative to the year-earlier period. Reductions in shipments were recorded in all sectors, several of them by double-digit percentages (see table I.3). Chinese imports from the United States contracted much more sharply (-28%) and fell by more than 20% in most sectors. In several sectors, this contraction has been offset by increased Chinese purchases from other trading partners, such as the European Union and Latin America and the Caribbean. However, Chinese foreign trade as a whole has been shrinking since early 2018 (see figure I.6). The Chinese imports that fell most in value terms in the first half of 2019 were wood, pulp and paper (-12%), rubber and plastic (-9%) and machinery and equipment (-8%).

[13] A first step in this direction, promoted by ECLAC, was the workshop titled "La Alianza del Pacífico y el MERCOSUR frente a la Reforma del Sistema Multilateral De Comercio: Buscando Espacios para la Coordinación Regional", held at its headquarters in Santiago on 7 and 8 August 2019.

[14] Average of exports and imports.

Figure I.5
Year-on-year change in the volume of global merchandise trade, January 2012-July 2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Netherlands Bureau of Economic Policy Analysis (CPB), World Trade Monitor [online database] https://www.cpb.nl/en/worldtrademonitor.

Table I.2
World and selected regions and countries: change in trade in goods, January–June 2019 relative to the same period in 2018
(Percentages)

	Exports			Imports		
	Volume	Price	Value	Volume	Price	Value
World	0.1	-3.4	-3.4	-0.2	-2.7	-2.9
United States	-0.1	-0.8	-1.0	1.2	-0.9	0.3
European Union	0.1	-3.4	-3.3	1.0	-3.9	-2.9
Asia and the Pacific	-0.6	-2.0	-2.6	-0.9	-2.1	-3.0
China	0.8	-1.8	-0.9	-3.2	-1.6	-4.7
Japan	-2.6	-3.0	-6.6	2.0	-3.1	-1.1
Latin America and the Caribbean	-0.8	-0.7	-1.5	-0.5	-2.0	-2.9

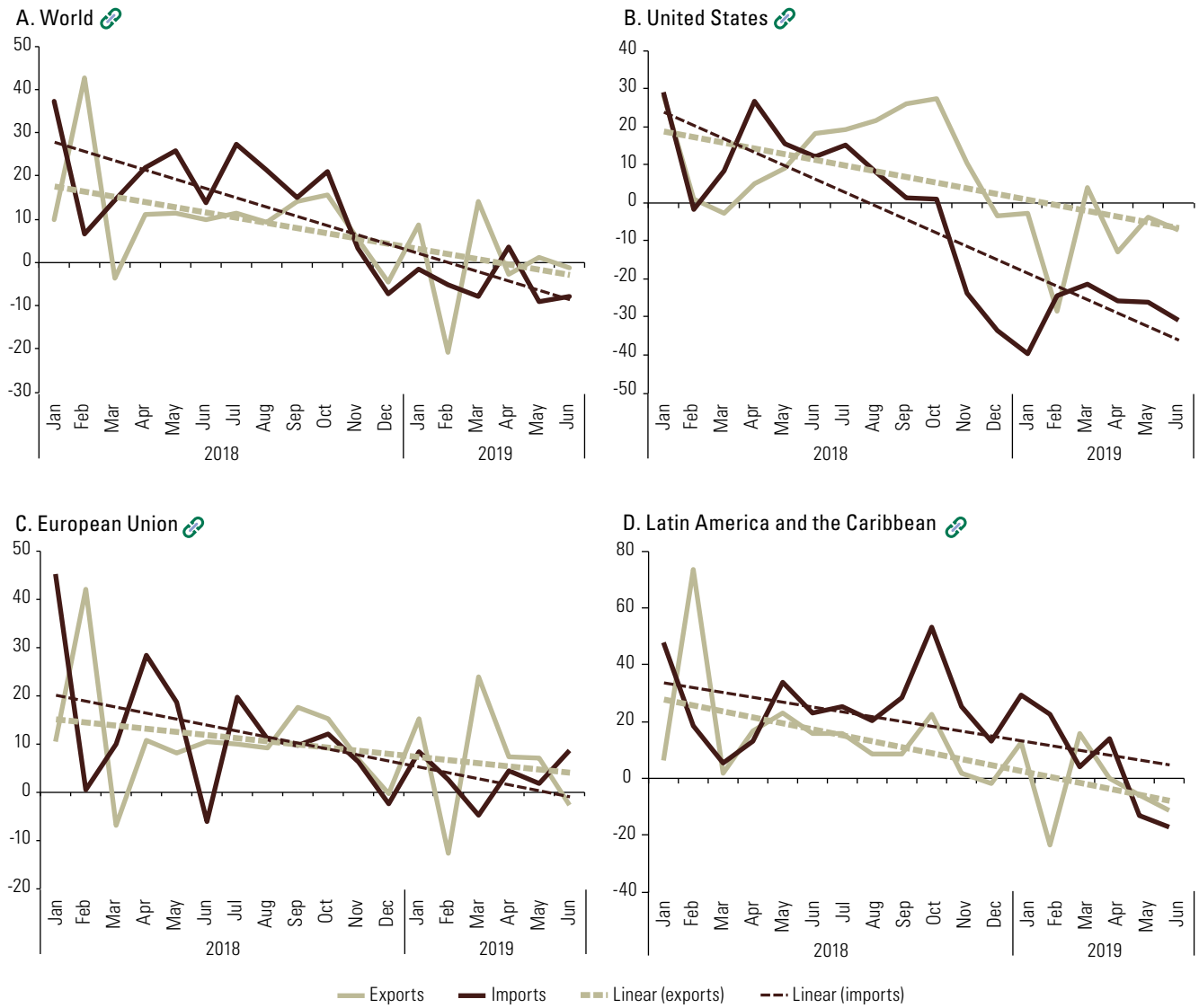
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from World Trade Organization (WTO) and Netherlands Bureau of Economic Policy Analysis (CPB), World Trade Monitor [online database] https://www.cpb.nl/en/worldtrademonitor.

Table I.3
China: change in the value of merchandise trade by sector and partner, January–June 2019 relative to the same period in 2018
(Percentages)

Sector	United States		European Union		Latin America and the Caribbean		World	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Agriculture, hunting and fishing	-10.7	-60.3	2.4	27.2	-8.5	14.4	-2.4	3.2
Oil and mining	-33.3	-72.1	3.4	69.1	-7.1	4.7	-1.4	1.8
Food, beverages and tobacco	-25.4	-14.7	5.5	-0.7	-4.5	26.1	-2.1	7.3
Wood, pulp, and paper	-10.1	-32.2	14.6	-0.7	11.8	-13.6	4.7	-11.5
Textiles, apparel and footwear	-3.6	-16.2	-2.9	3.5	-6.0	-9.6	-1.9	-2.4
Chemicals and pharmaceuticals	-14.9	-20.1	-2.8	9.7	10.4	16.4	-1.3	3.2
Rubber and plastic	-4.7	-21.1	10.3	-12.1	7.7	-1.5	7.3	-9.2
Non-metallic minerals	-20.5	-0.5	21.3	-4.0	-4.5	-3.1	2.7	2.4
Metals and related products	-12.3	-41.2	4.7	-8.7	-0.3	1.2	-1.2	-1.2
Machinery and equipment	-7.9	-1.2	7.8	-3.6	1.1	1.7	0.3	-7.8
Automotive	-18.9	-28.6	-4.2	9.1	-34.6	23.3	-11.4	-3.0
Other manufactures	-3.4	-63.1	20.0	9.1	7.3	5.7	10.4	-34.1
All products	**-8.3**	**-28.3**	**5.9**	**3.4**	**-2.7**	**4.9**	**0.0**	**-4.7**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Trade Centre (ITC), Trade Map [online database] https://www.trademap.org/.

Figure I.6
China: year-on-year change in the value of merchandise trade by partner, January 2018–June 2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Trade Centre (ITC), Trade Map [online database] https://www.trademap.org/.

In the United States, the reciprocal tariff hikes with China led to a sharp fall in the value of trade with that country in the first half of 2019, which was greater in exports (-19%) than in imports (-12%) (see table I.4). The contraction in bilateral trade was widespread: there was only a slight rise (2%) in machinery and equipment exports from the United States to China, which accounted for 30% of the value of that country's exports to China in 2018 (see figure I.7). Purchases from China fell back in all sectors except rubber and plastic, which accounted for only 4% of total Chinese shipments to the United States in 2018.

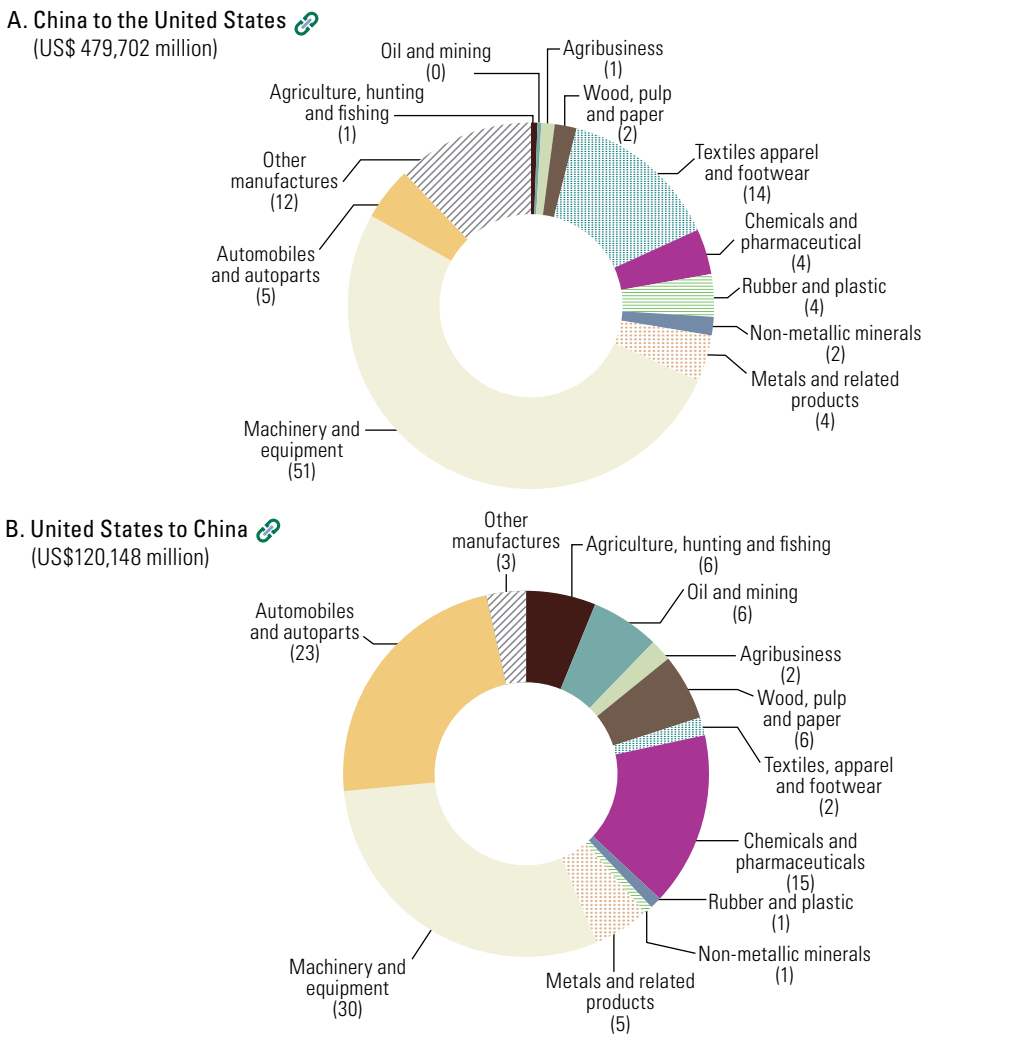
The reduction in United States imports of agricultural and fishery products from China has been offset by increased purchases from Latin America and the Caribbean. In the case of manufactures, this trade diversion has also benefited the countries of the European Union and the region (see section D). For example, in the automotive sector, while United States purchases from China contracted by 11% in the first half of 2019, its imports from Latin America and the Caribbean grew by 17%.

Table I.4
United States: change in value of merchandise trade by sector and partner, January-June 2019 relative to the same period in 2018
(Percentages)

Sector	China		European Union		Latin America and the Caribbean		World	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Agriculture, hunting, and fishing	-19.5	-21.5	-9.6	5.6	-3.0	6.9	-8.0	1.7
Oil and mining	-62.7	-45.1	24.7	7.9	6.6	-18.4	5.9	-10.2
Food, beverages and tobacco	-20.4	-25.7	-6.7	6.0	-0.4	4.9	-1.4	3.0
Wood, pulp, and paper	-28.6	-11.9	-2.4	0.4	-4.3	7.2	-8.0	-4.6
Textiles, apparel, and footwear	-19.3	-4.0	-0.3	5.4	-2.1	2.8	-2.8	3.3
Chemicals and pharmaceuticals	-11.0	-19.6	13.2	7.0	-1.9	3.0	4.3	3.7
Rubber and plastic	-14.5	1.4	5.7	8.3	-5.2	6.4	-3.1	5.0
Non-metallic minerals	-11.8	-17.9	0.9	-1.5	-4.8	8.4	-2.7	-1.0
Metals and related products	-39.9	-10.4	-0.7	-0.5	-2.6	0.2	-5.1	-6.2
Machinery and equipment	2.3	-15.8	0.6	7.5	-2.0	2.4	-1.9	-0.9
Automotive	-22.0	-11.0	0.6	5.5	4.3	16.9	-0.6	6.4
Other manufactures	-38.4	-5.5	9.4	9.0	-3.6	-7.4	-4.6	1.9
All Products	**-18.9**	**-12.4**	**5.5**	**6.6**	**-0.3**	**2.8**	**-1.0**	**0.3**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Trade Centre (ITC), Trade Map [online database] https://wwwtrademap.org/.

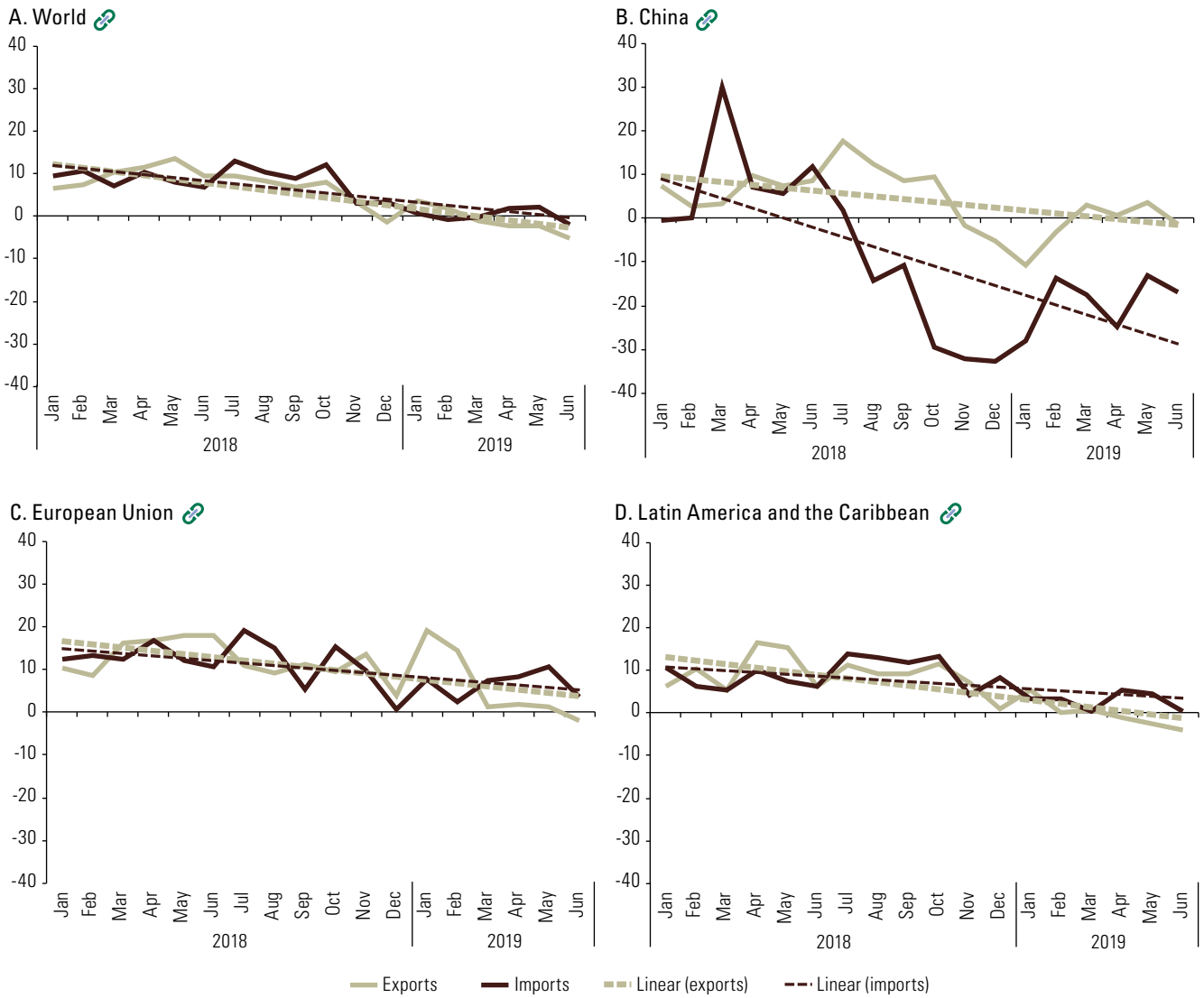
Figure I.7
China and the United States: structure of reciprocal merchandise exports, 2018
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United States International Trade Commission (USITC), USITC DataWeb [online database] https://dataweb.usitc.gov/ and International Trade Centre (ITC), Trade Map [online database] https://www.trademap.org/.

Since the start of the trade tensions, United States trade with China has fallen much more sharply than with the rest of the world, the European Union and Latin America and the Caribbean (see figure I.8). During the first half of 2019, the United States reduced its trade deficit with China by 10% relative to the year-earlier period, mainly in machinery and equipment (a category that represented 51% of the value of Chinese shipments to the United States in 2018). However, the overall trade deficit increased (see table I.5). In other words, while there has been some decoupling —not without difficulties— between the United States and Chinese economies, the various trade barriers imposed by the United States since 2018 have not achieved the stated objective of reducing its overall trade deficit. This highlights the ineffectiveness of trade policy in influencing trade balances, particularly given the expansionary macroeconomic policies applied by the United States under the current administration (ECLAC, 2018a).

Figure I.8
United States: year-on-year change in the value of merchandise trade with the rest of the world and selected partners, January 2018–June 2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United States International Trade Commission (USITC), USITC DataWeb [online database] https://dataweb.usitc.gov/.

Table I.5
United States: trade balance with the world and selected trading partners, first half of 2018 and of 2019
(Millions of dollars)

Major sectors	China		European Union		Latin America and the Caribbean		World	
	First half of 2018	First half of 2019	First half of 2018	First half of 2019	First half of 2018	First half of 2019	First half of 2018	First half of 2019
Agriculture, hunting, and fishing	4 251	3 455	2 600	2 116	-3 726	-4 902	16 152	11 941
Oil and mining	5 170	1 821	3 878	61 94	9 580	16 126	-29 949	-14 078
Food, beverages, and tobacco	-885	-594	-8 853	-9 755	-7 894	-8 695	-18 195	–20 101
Wood, pulp, and paper	-986	-1 498	-349	-435	1 791	1 344	-2 167	-2 826
Textiles, apparel, and footwear	-28 013	-27 043	-3 856	-4 155	-3 217	-3 595	-63 119	-66 064
Chemicals and pharmaceuticals	-891	107	-30 304	-30 513	23 415	22638	-11 776	-11 551
Rubber and plastic	-8 144	-8 357	-1 179	-1 324	2 391	1 904	-11 548	-13 267
Non-metallic minerals	-2 970	-2 412	-1 124	-1 073	-685	-889	-4 510	-4 574
Metals and related products	-6 950	-7 223	-4 108	-4 099	16	-341	-27 629	-25 478
Machinery and equipment	-119 542	-97 448	-24 546	-29 259	-9 874	-13 018	-167 408	-168 326
Automotive	3 686	1 903	-667	-2 336	-25 151	-31 934	-24 098	-35 320
Other manufactures	-30 615	-29 756	-8 527	-9 214	-7 352	-6381	-56 239	-
Total	**-185 889**	**-16 7044**	**-77 036**	**-83 852**	**–20 706**	**-27 744**	**-400 486**	**-412 150**
Increase/decrease		**18 845**		**-6 816**		**-7 037**		**-11 664**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United States International Trade Commission (USITC), USITC DataWeb [online database] https://dataweb.usitc.gov/.

The tensions between China and the United States are affecting the external trade not only of these two countries, but also that of other economies, especially in two of the world's three major "factories": Europe and Asia (see figure I.9). In the former, exports of iron and steel, metal products, machinery and equipment and the automotive and chemical industries fell sharply in the first half of 2019. Austria, Czechia, Germany, Hungary, Italy, Poland and Spain, among other countries, suffered simultaneous reductions in their exports and imports in that period (see table I.6). This reflects the dynamics of value chains, as, for example, the reduction in German automotive exports affects shipments from Central and Eastern European countries that supply it with autoparts and components. There has also been a sharp slowdown in trade in several "Factory Asia" economies, which are suffering from the effect of China's stagnant exports and the consequent slowdown in its imports of inputs (see table I.7).

Figure I.9
Selected countries and groupings: change in volume of foreign trade, January–June 2019 relative to the same period in 2018
(Percentages)

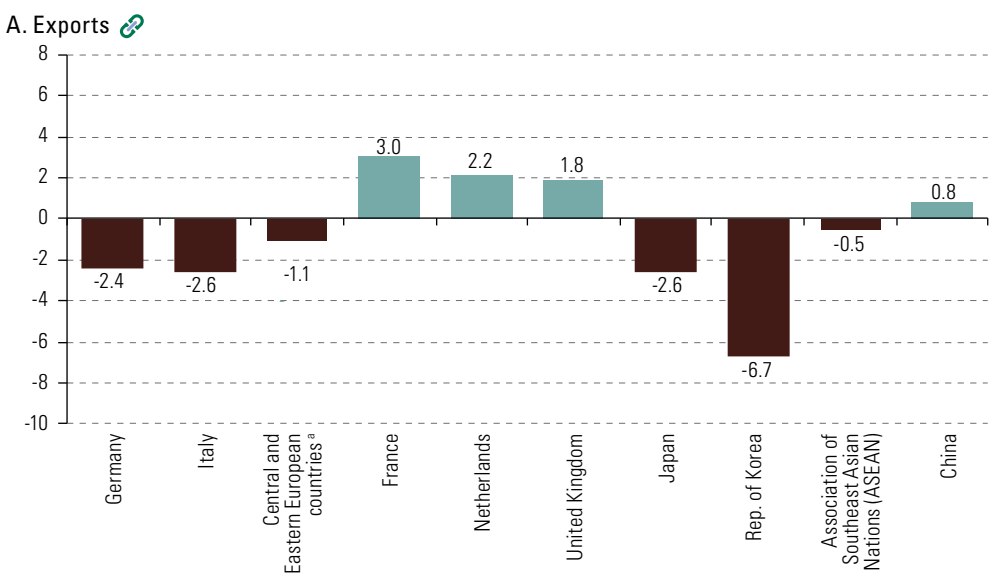
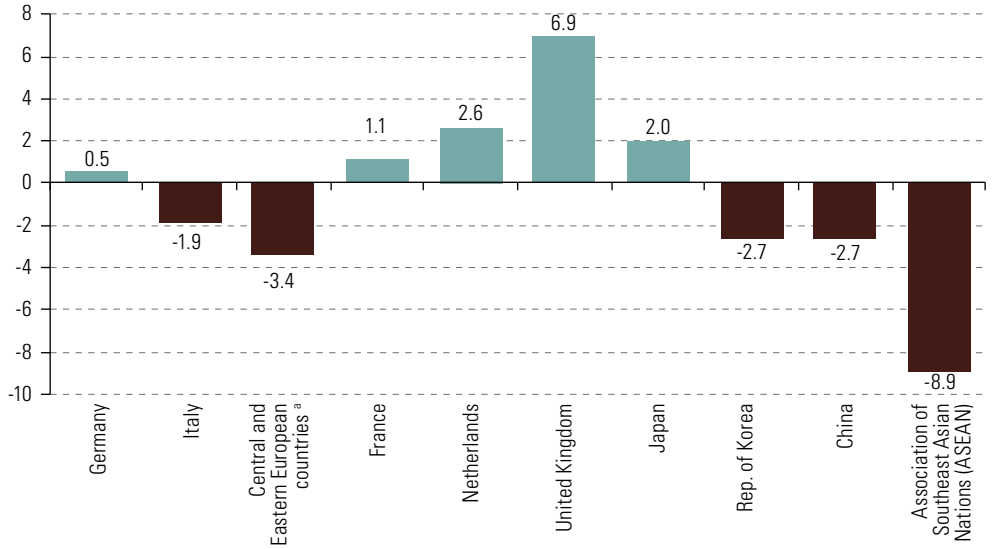


Figure I.9 (concluded)

B. Imports



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from World Trade Organization (WTO); European Union, Eurostat [online database] https://ec.europa.eu/eurostat, and Netherlands Bureau of Economic Policy Analysis (CPB).

[a] The countries of Central and Eastern Europe are Czechia, Hungary, Latvia, Lithuania, Poland and Slovenia.

Table I.6

European Union countries: change in value of merchandise trade, January–June 2018 and 2019 relative to the year-earlier period

(Percentages)

Country	Exports		Imports	
	January–June 2018	January–June 2019	January–June 2018	January–June 2019
Austria	17.9	-2.2	18.2	-2.7
Belgium	14.8	-7.5	15.2	-5.1
Bulgaria	11.6	-1.2	18.9	-6.1
Czechia	17.7	-2.1	19.9	-4.6
Denmark	11.8	-2.9	21.5	-9.7
Estonia	22.7	-2.9	18.7	-4.8
France	15.2	-1.0	15.5	-3.1
Germany	16.2	-6.3	17.3	-3.7
Greece	29.4	-5.7	17.0	-3.5
Hungary	18.0	-2.4	19.7	-1.9
Ireland	22.7	1.1	9.4	-8.0
Italy	15.3	-6.3	15.9	-6.0
Latvia	23.0	-3.1	20.8	-2.0
Lithuania	18.6	0.2	20.0	-2.2
Luxembourg	10.0	16.8	10.3	7.8
Malta	34.7	-7.6	11.1	25.9
Netherlands	16.9	-1.8	19.5	-1.7
Poland	19.2	-4.5	22.3	-4.8
Portugal	19.4	-4.7	20.6	1.7
Slovakia	19.3	-2.7	19.5	-1.4
Slovenia	24.2	1.0	24.8	4.2
Spain	15.7	-6.3	17.9	-6.2
Sweden	15.3	-2.1	18.6	-7.8
United Kingdom	15.2	-2.1	10.5	2.4

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from World Trade Organization (WTO), and European Union, Eurostat [online database] https://ec.europa.eu/eurostat.

Table I.7
Asia-Pacific economies: change in value of goods trade, January–June 2018 and 2019 relative to the year-earlier period
(Percentages)

Economy	Exports		Imports	
	January–June 2018	January–June 2019	January–June 2018	January–June 2019
Australia	11.1	6.5	12.3	-4.8
China	11.4	-1.0	20.1	0.3
Hong Kong (S.A.R. of China)	4.5	-4.6	7.9	-5.6
India	10.0	3.5	13.7	-2.8
Indonesia	10.0	-8.5	23.1	-5.7
Japan	9.8	-6.6	11.2	-1.1
Malaysia	19.1	-3.9	15.1	-6.6
New Zealand	8.1	4.7	13.5	-0.8
Philippines	-3.4	0.9	13.1	1.6
Republic of Korea	6.3	-8.5	12.2	2.0
Singapore	12.1	-3.1	13.4	1.2
Taiwan Province of China	10.8	-6.2	10.4	-0.3
Thailand	11.7	-3.8	15.2	-0.8
Viet Nam	16.6	5.6	9.6	11.9

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from World Trade Organization (WTO).

The slowdown in merchandise imports in China, the United States and the European Union between January 2018 and June 2019 has been concentrated mainly in the intermediate and capital goods categories. As these are closely linked to investment behaviour, this trend could undermine global growth beyond 2019. In contrast, purchases of consumer goods are displaying greater resilience and have probably been less affected by the trade tensions thus far (see figure I.10).

Figure I.10
China, the United States and the European Union: variation in the value of merchandise imports by major economic category, January 2018–June 2019
(Percentages)

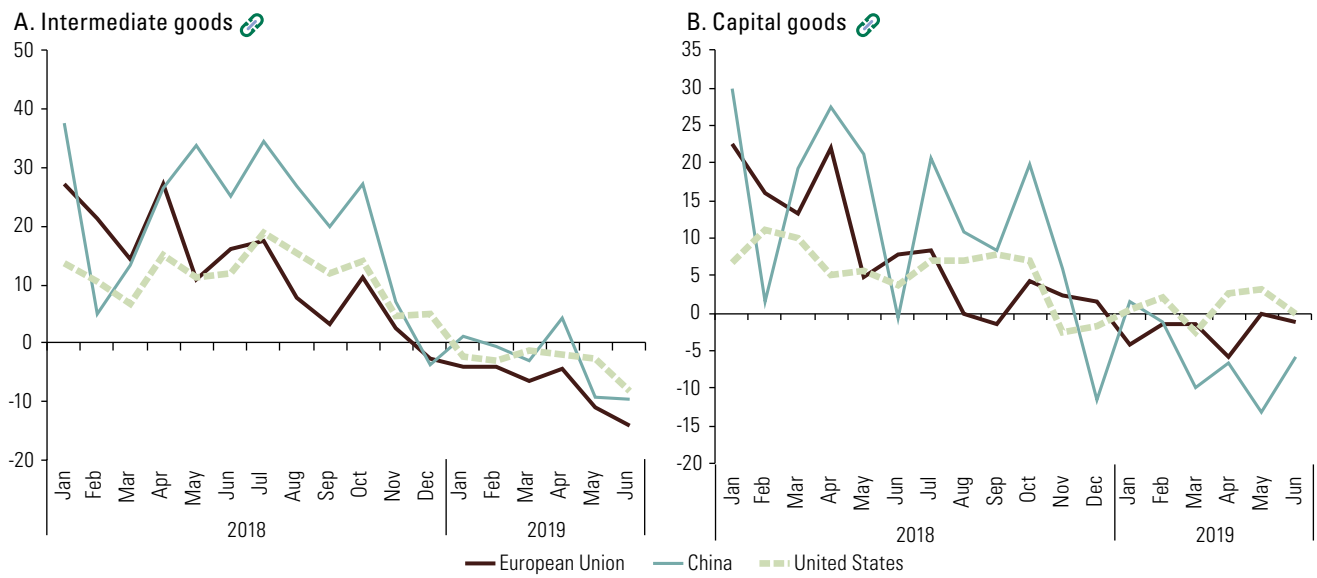
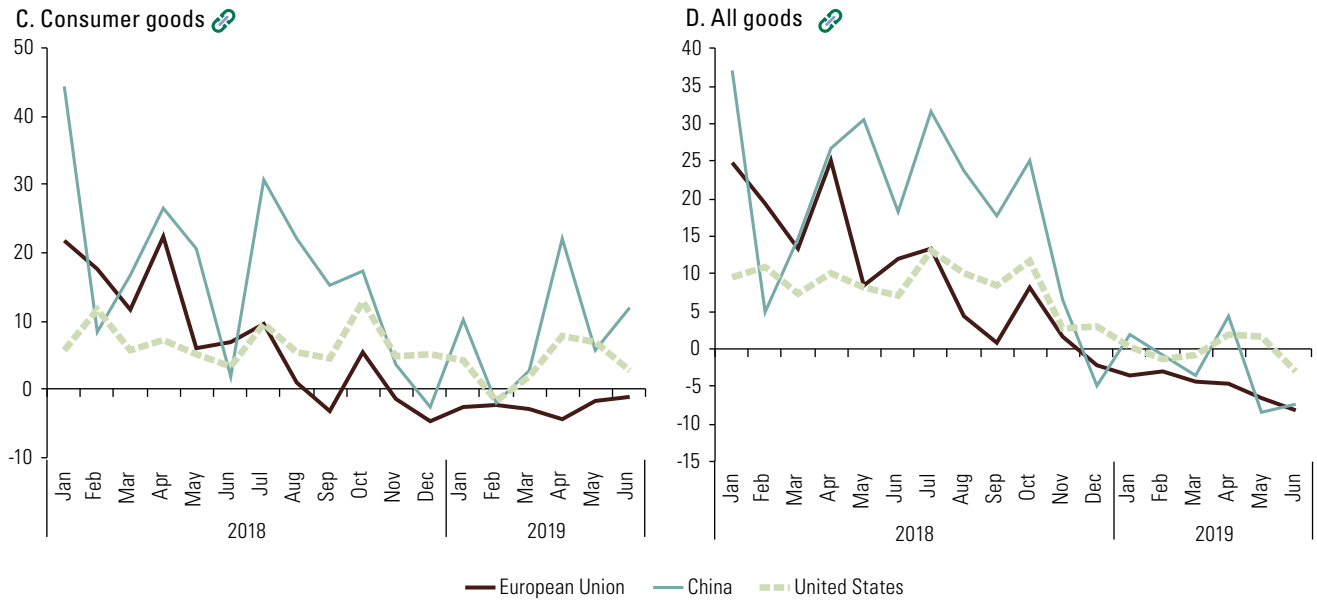


Figure I.10 (concluded)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United States International Trade Commission (USITC), USITC DataWeb [online database] https://dataweb.usitc.gov/; European Union, Eurostat [online database] https://ec.europa.eu/eurostat, and International Trade Centre (ITC), Trade Map [online database] https://www.trademap.org/.

2. The trade slowdown is having an impact on manufacturing industry

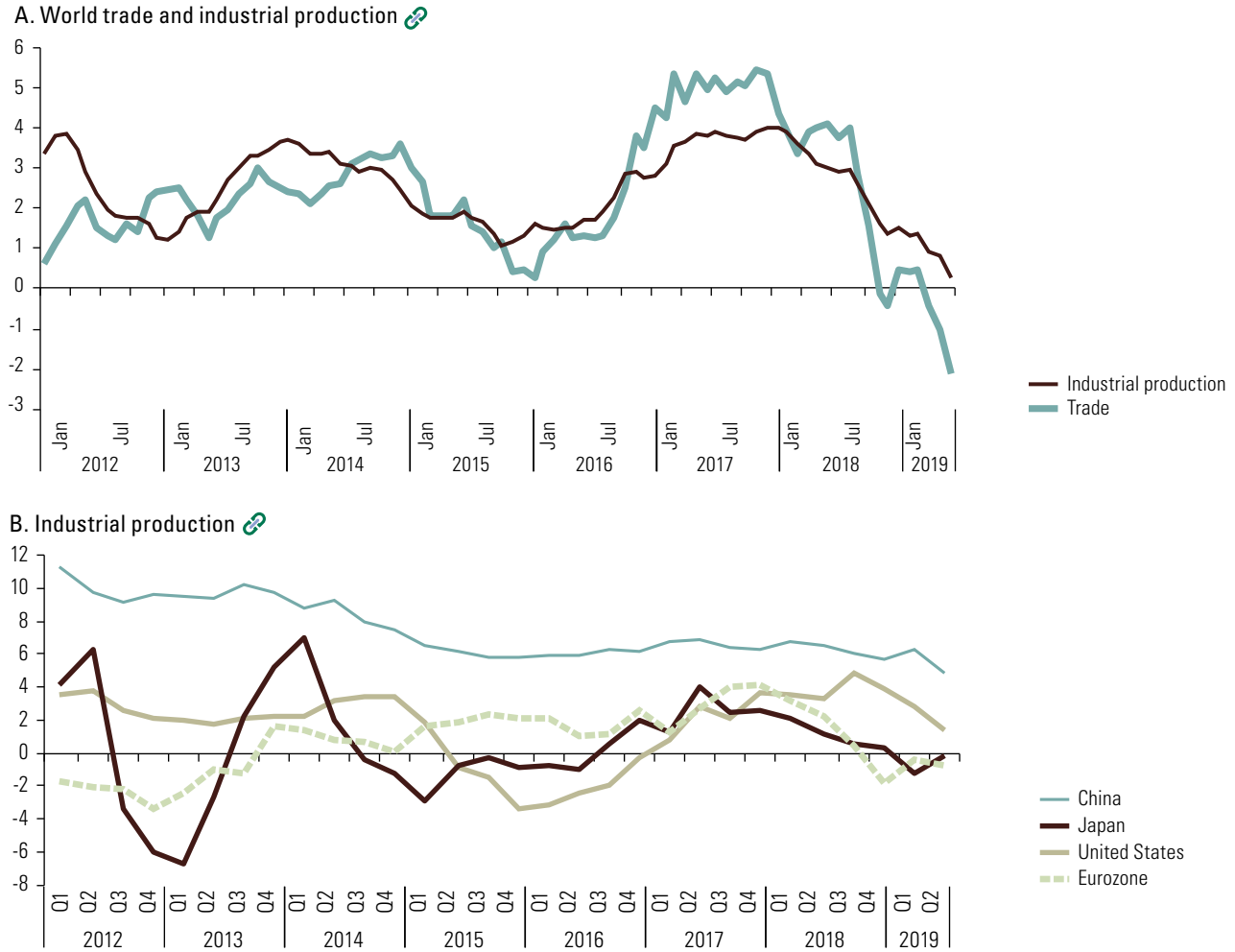
Industrial production and trade cycles tend to be closely correlated (see figure I.11A). Firstly, manufactures account for more than 70% of the gross value of global merchandise trade. Secondly, in 2015, 13% of the intermediate inputs used in world manufacturing production were imported,[15] and 24% of the value of this production was exported.[16] The links between industrial production and trade deepened from the mid–1980s as a result of the proliferation of international production networks. In this context, the trade tensions between China and the United States affect industrial production not only in these two countries, but also in other economies that are closely integrated into these networks (see figure I.11B). The slowdown in world manufacturing production in 2018 and 2019 has been particularly pronounced in the electronics and automotive industries, both of which are to a large extent embedded in international production networks (Bobasu, Manu and Quaglietti, 2019).

As noted in the previous section, European exports are affected by reduced Chinese demand for vehicles, intermediate goods and machinery, caused partly by the trade tensions. Moreover, the uncertain Brexit process has also affected European industry (see box I.1). Thus, the more export-oriented economies have suffered the greatest negative growth impact of the trade tensions. In particular, Germany's GDP has decelerated sharply (see figure I.12). Owing to weaker export growth, its current account surplus is expected to narrow from over 8% of GDP in 2016 to 7% in 2020 (OECD, 2019). Despite the slowdown, however, the Government remains reluctant to introduce fiscal stimuli. The other major economies in the euro area, except for Spain, are also experiencing weaker growth.

[15] This percentage only includes imported inputs that are used directly in the global production of manufactured goods, including inputs of national origin that are themselves produced with imported inputs.

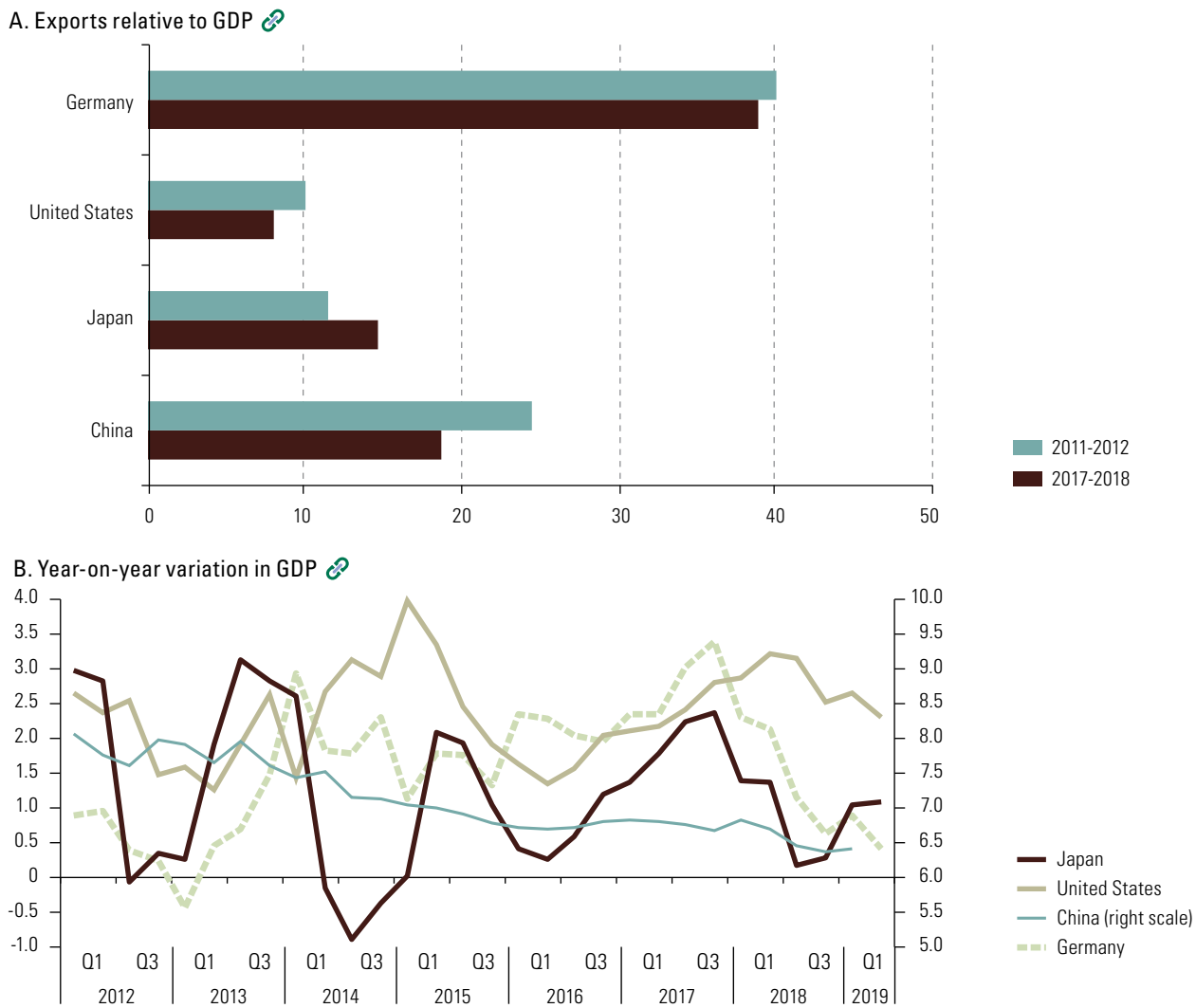
[16] Figures calculated using information from the Trade in Value Added (TiVA) database of the Organization for Economic Cooperation and Development (OECD).

Figure I.11
World, selected countries and groupings: year-on-year change in the volume of trade and industrial production, 2012–2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Netherlands Bureau of Economic Policy Analysis (CPB), World Trade Monitor [online database] https://www.cpb.nl/en/worldtrademonitor and Organization for Economic Cooperation and Development (OECD), OECD Main Economic Indicators [online database] https://www.oecd.org/sdd/oecdmaineconomicindicatorsmei.htm.

Figure I.12
Selected countries: export intensity and year-on-year variation in GDP, 2011–2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Monetary Fund (IMF), *World Economic Outlook: Growth Slowdown, Precarious Recovery*, Washington, D.C., April 2019, and data from World Trade Organization (WTO).

Box I.1
Possible impacts of Brexit on the United Kingdom, the European Union and Latin America and the Caribbean

The United Kingdom is one of the most important trading partners of the remaining 27 members of the European Union, and it generates about 13% of the bloc's trade in goods and services. Financial connections are also important: gross capital flows between the United Kingdom and the rest of the European Union totalled 52% of the latter's GDP in 2016 (Chen and others, 2019).

On 17 October, it was announced that the United Kingdom and the European Union had reached an agreement on the terms of Brexit, scheduled to take place the 31st of that month. However, it is uncertain whether the agreement will be approved by the British Parliament. If the United Kingdom were to leave the European Union without an agreement at the end of October 2019, its exports to that market would once again be subject to most-favoured-nation (MFN) treatment. Imports from the European Union that are not subject to the temporary tariff regime would also return to MFN rules, while those that are covered by that regime would do so by mid-2020. This would make 87% of United Kingdom imports from the European Union tariff-exempt for one year, before moving to a rate of around 4%. The remaining 13% would have to pay duties immediately. A "no-deal" Brexit would also increase non-tariff barriers as a result of the emergence of a customs and regulatory border between the United Kingdom and the European Union. Most of the increase in non-tariff costs for the United Kingdom would occur in the first year after Brexit, with the exception of some services, such as certain financial sector activities and transport, where the increase would be concentrated in the second year (IMF, 2019).

Following Brexit, the United Kingdom would cease to be party to the European Union's free trade agreements with third countries, which account for around 15% of the United Kingdom's total trade. Under Brexit, its trade with these countries would return to MFN rules. To avoid this, the United Kingdom has already started negotiating new bilateral agreements with these partners —including some in the region, such as Chile and the Central American countries— which would come into force once Brexit actually occurs.

The likely economic impact of Brexit (with a deal) on European Union GDP (-0.5%) is estimated to be considerably less than its effect on United Kingdom GDP (between -2.6% and -3.9%). Ireland would suffer a similar impact to the United Kingdom, followed by the Netherlands, Belgium and France (IMF, 2018). The economic impact of a no-deal Brexit would be much greater: between -5.2% and -7.8% of GDP in the United Kingdom and -1.5% of GDP in the case of the European Union (IMF, 2018).

Brexit would have little effect on Latin America and the Caribbean, since the United Kingdom absorbs only 0.65% of the region's total exports. The same applies to FDI, since British capital flows are small in most countries. Nonetheless, Brexit could affect the region indirectly, insofar as it adversely affects the European Union economy and international trade and further prolongs the uncertainty and volatility of the foreign exchange, financial and stock markets. In such a scenario, the region could see European FDI flows diminish and borrowing costs rise if the dollar strengthens (Grynspan Mayufis, 2016).

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of J. L. Vega (coord.), "Brexit: balance de situación y perspectivas", *Documentos Ocasionales*, Nº 1905, Madrid, Bank of Spain, 2019; J. Chen and others, "The long-term impact of Brexit on the European Union", International Monetary Fund (IMF), 10 August 2018 [online] https://blogs.imf.org/2018/08/10/the-long-term-impact-of-brexit-on-the-european-union/; International Monetary Fund (IMF), "Brexit: sectoral impact and policies", *IMF Country Report*, No. 18/317, 2018; IMF, *World Economic Outlook: Growth Slowdown, Precarious Recovery*, Washington, D.C., April 2019; R. Grynspan Mayufis, "Los efectos del 'Brexit' en América Latina", *El País*, 29 July 2016, and S. Payne, "Leaked Brexit preparedness document paints stark picture", *Financial Times*, 18 August 2019.

Growth in the United States economy has also decelerated in 2019, although to a lesser extent than in the eurozone, as the positive effect of the 2017 tax reform on growth has dissipated. While consumption remains buoyant thanks to historically low unemployment, investment is faltering in a context of high uncertainty in the manufacturing sector. In September, manufacturing output contracted for the second consecutive month and posted its worst performance since June 2009, a result closely related to the trade tensions (ISM, 2019). As imports are expected to retreat by more than exports, the trade balance and current account are likely to improve in 2019 and 2020 (OECD, 2019).

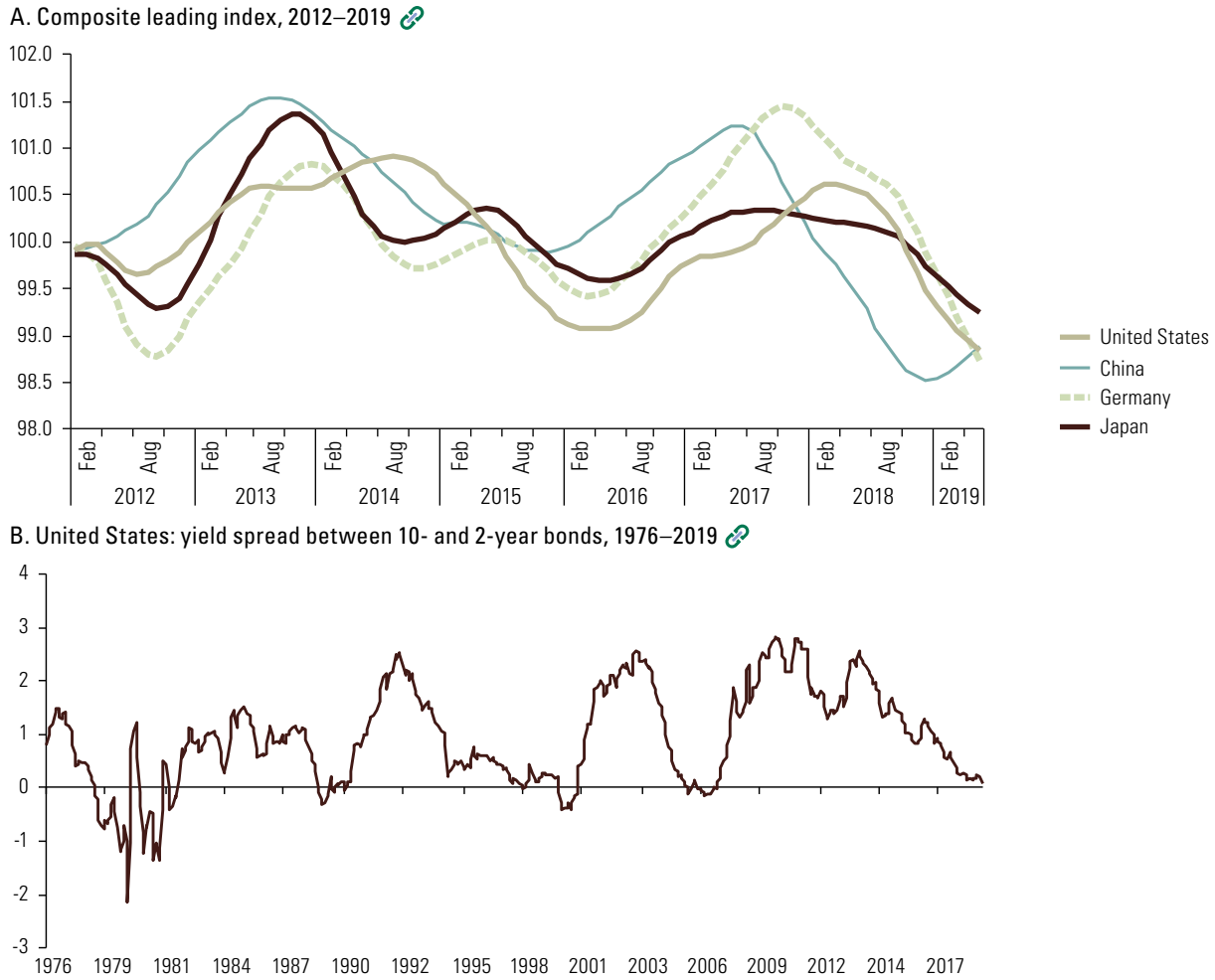
In Japan, economic growth is continuing to moderate in 2019, following an expansion of 1.7% in 2017 which slipped back to 0.8% in 2018. During the first half of 2019, the value of its exports contracted by 6.6% —one of the steepest falls recorded among the world's leading goods exporters— in the context of the slowdown in trade flows within "Factory Asia". Although in 2019 its industrial production and exports have both declined, consumption and investment continue to grow, so GDP is expected to expand slightly. The main challenges for this economy are the search for new export markets, reduction of the public debt (which reached a level of 226% of GDP, the highest of all OECD countries) and population ageing.

In China, the economy is continuing its gradual deceleration, with growth rates of 6.4%. 6.2% and 6.0% in the first, second and third quarters of 2019, respectively. Consumption continues to be the main driver of final demand, but its contribution has recently declined, while that of infrastructure investment has increased. To compensate for the slacker external demand, the Government has introduced fiscal and monetary stimulus measures. The current account is likely to post a deficit this year for the first time since the 1990s as a result of falling exports and burgeoning spending by Chinese tourists abroad. The government has managed to sharply reduce shadow bank lending, keeping total credit in the economy stable (World Bank, 2019; OECD, 2019). In September 2019, the renminbi reached its lowest level in more than a decade, partly mitigating the loss of export competitiveness in the face of rising tariffs in its main export market, the United States.

Some indicators point to a further slowdown of the world economy in 2020. The composite leading indicators for the four major economies are in negative territory in the second half of 2019.[17] In addition, the yield spread between 10- and 2-year bonds in the United States was approaching negative values in August 2019 (see figure I.13). Although the yield spread in the United States has foreshadowed several previous global recessions, it is hard to predict the exact moment when another recession could occur (Capital Economics, 2019).

[17] Composite indicators combine several indicators that foreshadow economic growth in the months ahead, such as new orders and consumer and business-confidence indices.

Figure I.13
Selected countries: leading composite index and bond yield spread
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from the Organization for Economic Cooperation and Development (OECD) and the Federal Reserve Bank.

To analyse how the impacts of the trade tensions on production in the United States, China and the rest of the world could be spreading, simulations were performed of the observed trade shock on final demand in China and the United States, using the OECD multi-country input-output matrix.[18] This makes it possible to capture the expected effects of the observed falls in demand for final goods exports from China and the United States, and how these spread to the other sectors, as production loses momentum in the wake of slackening local economic activity. The results of this exercise revealed that the shock is propagated most in five sectors: machinery and equipment, chemicals and pharmaceuticals, other manufactures, and metals and articles of metal, with knock-on effects on the other economic sectors, including services (see table I.8).

[18] The matrix was used in a static model to simulate a negative demand shock for final goods on reciprocal imports from China and the United States. In response to such a shock, the model simulated variations in the gross value of production of the two countries and of the other countries included in the model, as well as the main sectors affected.

Table I.8
China, the United States and the world: expected sectoral effects of the fall in final demand in China and the United States as a consequence of the trade tensions

Major sectors	Effects on China	Effects on the United States	Effects on the world
Agriculture, hunting, and fishing	CO	GP	CO
Oil and mining	CO	GP	GP
Food, beverages, and tobacco	CO	GP	CO
Textiles, apparel, and footwear	GP	CO	GP
Wood, pulp, and paper	GP	CO	GP
Chemicals and pharmaceuticals	GP	GP	GP
Rubber and plastic	GP	GP	GP
Non-metallic minerals	CO	GP	GP
Metals and articles of metal	GP	GP	GP
Machinery and equipment	GP	GP	GP
Automotive	GP	GP	GP
Other manufactures	GP	CO	GP
Services	CO	CO	CO

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of inter-country input-output tables from the Organization for Economic Cooperation and Development (OECD).
Note: GP = Greater propagation: sectors with negative variations in excess of the average of all sectors in the country in question, and steeper falls in the value of production; CO = Carry-over effect: sectors that reduce their production, but to a lesser extent than those in the GP category.

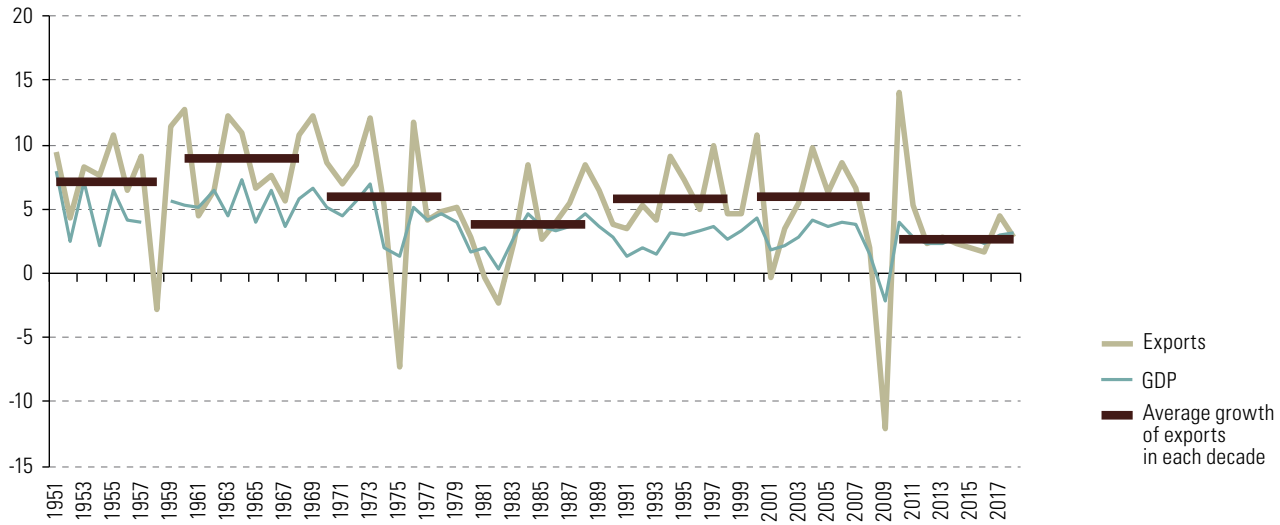
The five sectors most affected account for 20% of the gross value of world production, but their weight is less than the world average in the United States (12%) and higher in China (32%). Accordingly, the impact of the trade tensions are likely to be greater for this country, which would also have important effects on other industries (textiles, clothing and footwear, wood, pulp and paper, other manufactures) and on commercial services.

C. Weak world trade is a continuing after-effect of the financial crisis

1. Several factors contribute to this weakness

The increase in trade barriers since 2018 has accentuated the already sluggish performance of world trade during the 2010 decade. Since 2012, the volume of trade —measured by exports— has grown at an average rate of just 2.7% per year, less than half the rate of the previous decade (see figure I.14). As noted in previous versions of this report (ECLAC, 2016 and 2017), the ratio of trade growth to world output growth, which represents the apparent elasticity between the two variables, has fallen relative to its level in the previous two decades. Between 1990 and 2007, world trade grew on average twice as fast as output. Elasticity peaked in the late 1990s and has trended down ever since.

Figure I.14
World: real variation in merchandise exports and GDP, 1950–2018
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Trade Organization (WTO), *World Trade Statistical Review 2019*, Geneva, 2019.
Note: The averages of the first and second decades of this century exclude the years of crisis (2009) and recovery (2010 and 2011).

In the two decades leading up to the crisis, several factors provided a one-off boost to trade. These include reduced logistics and coordination costs resulting from the widespread dissemination of containers and information and communication technologies (ICTs), lower trade barriers, and FDI in emerging and transition economies, China's accession to WTO in 2001 and the admission of several Central and Eastern European countries into the European Union in 2004. All of the above accelerated the fragmentation of global production processes and the proliferation of global value chains. This in turn gave a major boost to trade in intermediate goods, which raised the elasticity of trade with respect to GDP to over 1.

The slowdown in world trade since 2012 is also related to several factors: less vigorous growth in the world economy, change in the geographic composition of economic activity, weaker demand in commodity exporting countries, a shortening of global value chains, structural changes in China, and changes in the availability of financing and in the real exchange rate of the dollar. For its part, the emergence of new technologies associated with digitization and the Fourth Industrial Revolution are having mixed effects on trade (see table I.9).

Firstly, the weakness of trade since 2012 is largely due to the loss of momentum in the world economy compared to the pre-crisis period (see figure I.15). This slower growth results from lower investment rates, weak productivity growth and population ageing in several countries, mostly developed ones. Following the financial crisis, growth slowed, especially in the eurozone, which did not regain its pre-crisis per capita income level until 2016, whereas Japan had done so in 2013 and the United States in 2011 (IMF, 2018). In the advanced economies, the main instruments for restoring growth were the expansion of the monetary base and an acceleration of inflation. A reduction in long-term interest rates was expected to stimulate aggregate demand. However, expansionary monetary policies failed to counter the recessionary bias in the world economy (ECLAC 2016 and 2017); and projections for longer-term global growth have also been downgraded (OECD, 2019).

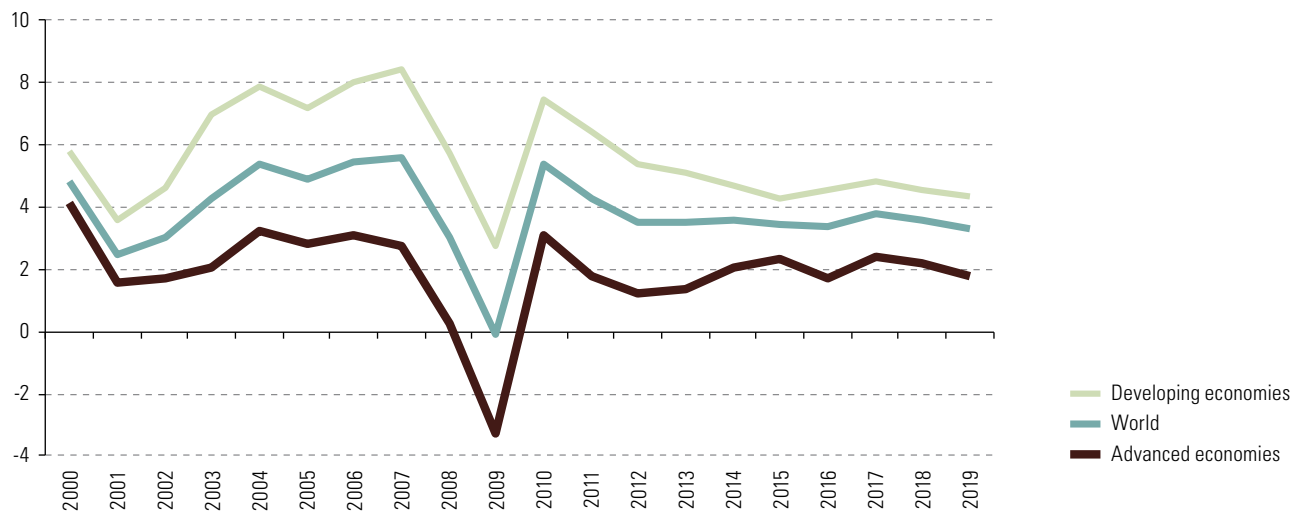
Table I.9
Factors explaining the weak growth of merchandise trade in the post-crisis period

Factor	Effect on trade elasticity[a]	Duration of the effect
Composition factors	0.4 – 0.6	
(a) Weaker global economic expansion and investment growth	Small to medium	Short term: investment could recover
(b) Change in the composition of global activity and trade	large	Long-term: global activity shifts to China and other emerging economies
(c) Weaker demand in countries that mainly export commodities	Small to medium	Short term: commodity prices could recover
Structural changes	0.3 – 0.4	
(d) Shortening of global value chains	Medium	Long-term: although this depends on technological progress and trade liberalization
(e) Structural transformations in China	Medium	Long-term: although it would reduce its intensity
(f) Financial deepening and the real exchange rate of the dollar	Small to medium	Long term: this deepening was rapid and leaves little room for further trade support. The effect of the exchange rate depends on its trend.
(g) New technologies	Uncertain	Some advances increase trade while others reduce it

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of European Central Bank (ECB), Understanding the weakness in global trade: What is the new normal?", *Occasional Paper Series*, No. 178, Frankfurt, 2016.

[a] This column shows the contribution of each factor to the change in the elasticity of trade with respect to income between the pre-crisis (2003–2007) and post-crisis (2012–2015) periods.

Figure I.15
World, advanced and developing economies: variation in real GDP, 2000–2019
(Percentages)

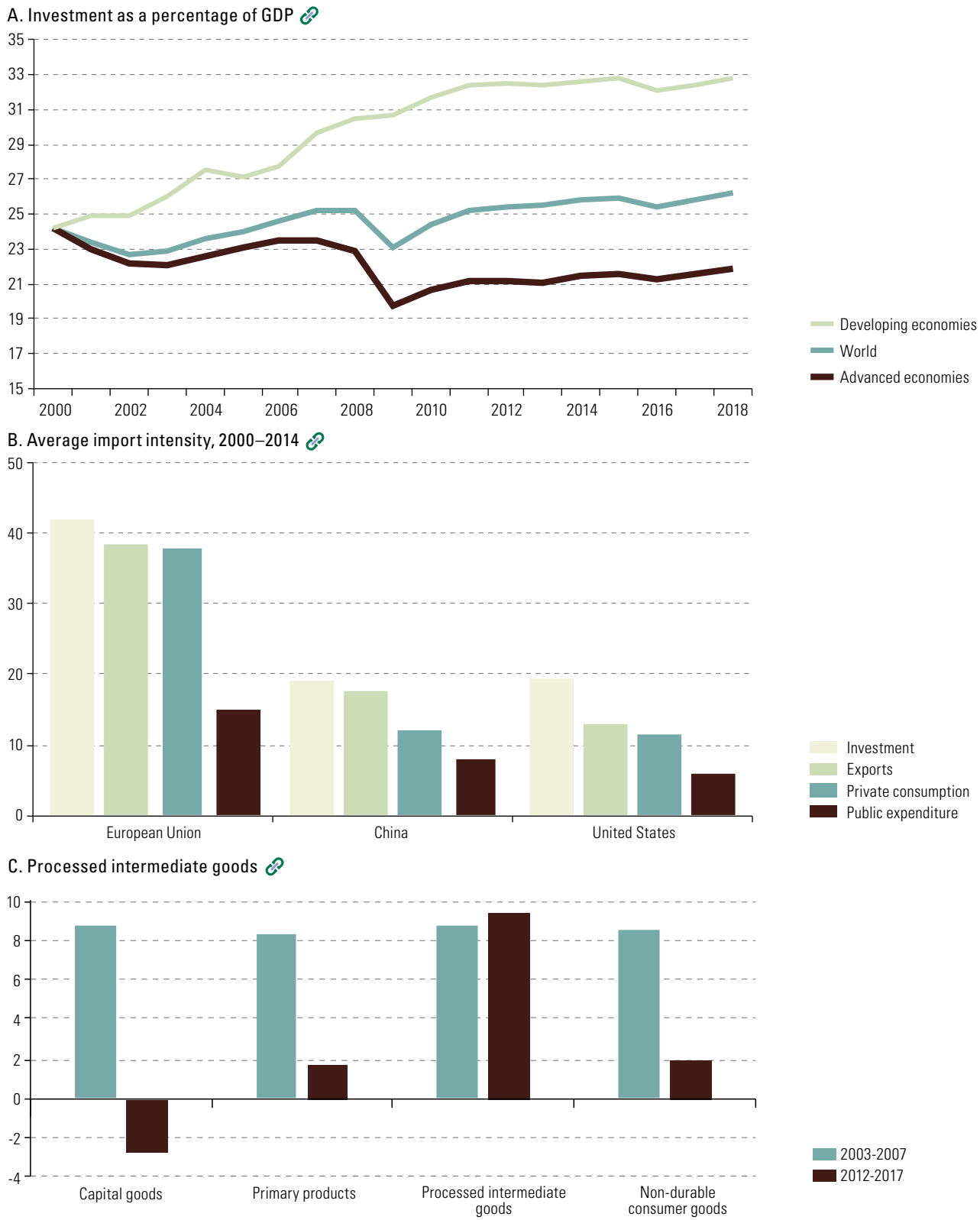


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Monetary Fund (IMF), *World Economic Outlook: Growth Slowdown, Precarious Recovery*, Washington, D.C., April 2019.

Note: Data for 2019 are projections.

The weak global macroeconomic scenario prevailing in the post-crisis period was particularly reflected in lacklustre investment growth in the advanced economies, where it has still not regained its pre-crisis level (see figure I.16A). As investment is the most import-intensive component of expenditure, its low growth contributed to the slowdown in world trade in capital goods, primary goods and non-durable consumer goods (see figures I.16 B and I.16C). The European Union, which accounts for one third of world trade, has maintained a particularly low investment rate. This reduction has been partly offset by more buoyant investment in emerging countries, especially China. Nonetheless, the import intensity of investment in this country is lower than in advanced economies; and its economy is also undergoing a process of transformation aimed at reducing the relative importance of investment and increasing the contribution of consumption.

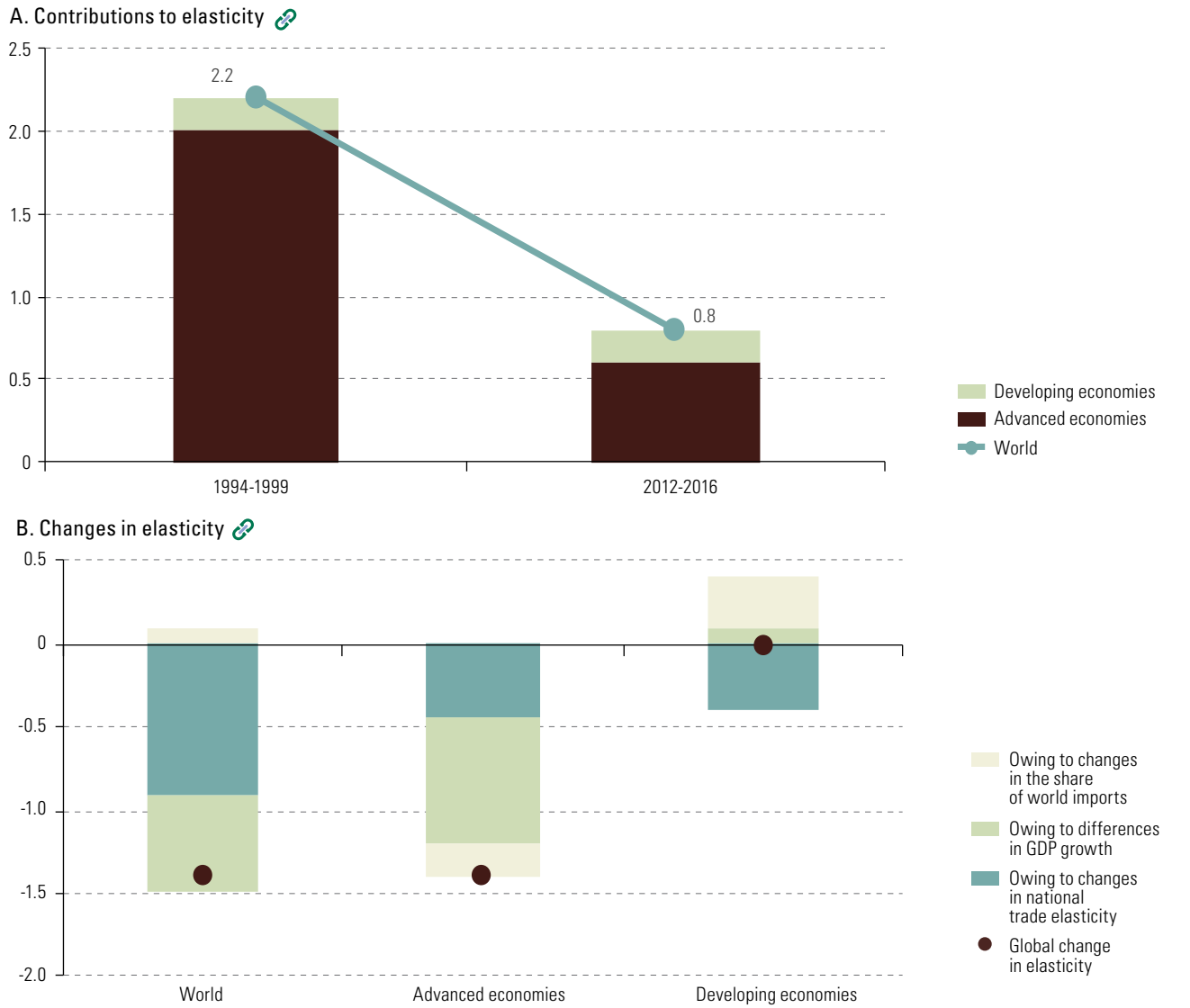
Figure I.16
World, selected countries and groupings: investment and import trends by category, 2000–2018
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Monetary Fund (IMF), *World Economic Outlook: Growth Slowdown, Precarious Recovery*, Washington, D.C., April 2019.

Secondly, geographical changes in global activity have structurally affected the relationship between trade and income. A comparison between the major boom period in world trade (1994–1999) and the post-crisis period (2012–2016) shows that the elasticity of world trade relative to income fell from 2.2 to 0.8 percentage points ((Wozniak and Galar, 2018). The contribution of the advanced economies to global elasticity fell drastically (by 1.4 percentage points), while the contribution of the developing economies was unaltered (see figure I.17A).

Figure I.17
World, advanced and developing economies: contributions to the variation in the income elasticity of trade between 1994–1999 and 2012–2016
(Percentage points)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of P. Wozniak and M. Galar, "Understanding the weakness in global trade", *Economic Brief*, No. 033, Luxembourg, European Commission, 2018.

Variations in the elasticity of world trade depend on three factors: changes in national elasticities, changes in the countries' shares of world imports, and the difference between countries' GDP growth relative to average global economic growth (ECB, 2016; Wozniak and Galar, 2018). The elasticity of world trade decreased by 1.4 percentage points

between 1994–1999 and 2012–2016. This is mostly explained by a reduction in national elasticities (-0.9 percentage points), which was due partly to weaker investment and imports in advanced countries. The fall in some large developing countries such as China was even greater, because of the reduction in their investment rate in conjunction with an import substitution process. The prolonged recession in advanced (trade-intensive) countries also reduced global elasticity by 0.6 percentage points (see figure I.17B).

Advanced and developing economies display contrasting trends in their contributions to the elasticity of world trade. The reduction in the contribution of the first group is mainly due to slower growth. The contribution of the second group remained stable between the two periods, but with opposing trends in its composition: a fall in national elasticities, on the one hand, and a greater weight in world imports together with growth above the world average, on the other. These changes are concentrated mainly in China and other emerging Asian countries (Wozniak and Galar, 2018).

The third factor affecting world trade, particularly between 2014 and 2016, was a decrease in demand in countries that depend on commodity exports, which represent more than half of the world's countries (54%) and two-thirds of developing ones.[19] This reduction mainly reflects the downswing of the price cycle for the products in question, following a period of continuous growth that began in 2004 and was only interrupted briefly by the financial crisis. Between the peak of the cycle (early 2014) and the trough (early 2016), the prices of these countries' exports fell by 41%, and incomes shrank by 35% (see figure I.18A and I.18B). The situation in several of these countries was further aggravated by political turbulence, capital outflows, deteriorating fiscal positions and currency depreciation. As a result, their demand for investment (closely linked to the primary sector) and for consumption, and hence imports, fell back (see figure I.18C) (Wozniak and Galar, 2018; UNCTAD, 2019c).

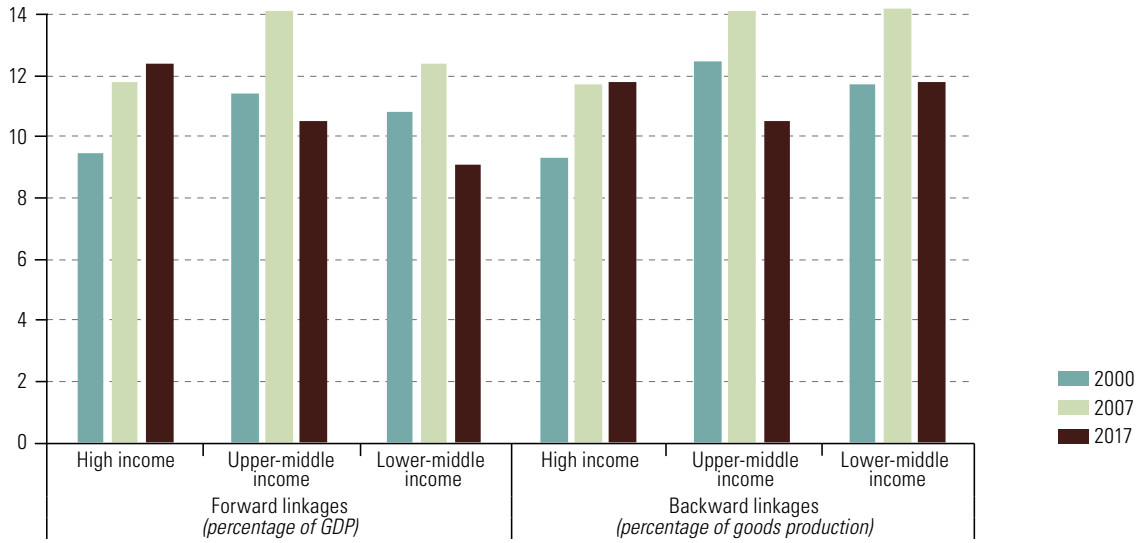
Fourthly, the expansion of global value chains has been curtailed. The degree of country participation in those chains is reflected in their forward and backward linkages. The first indicator refers to the sale of domestic goods and services to other countries for incorporation into their production and exports, while the second reflects the importation of foreign intermediate goods and services for incorporation in the country's own exports. In high-, upper-middle- and lower-middle-income economies, both types of linkage increased between 2000 and 2007 (see figure I.19). Between 2007 and 2017, however, the degree of linkage decreased in the latter two groups of countries. Two other indicators confirm the post-crisis trend reversal in global value chains. First, the exported share of global industrial output slipped from 28.1% in 2007 to 22.5% in 2017 (McKinsey Global Institute, 2019a). Second, the share of intermediate goods in global imports fell from 34% to 26% in the same period (Wozniak and Galar, 2018).

[19] Countries that are dependent on commodity exports are those in which commodities account for 60% or more of the total value of shipments. Between 1998–2002 and 2013–2017, their number increased from 92 to 102. While the number of countries specializing in the export of agricultural products dropped from 50 to 37, the number that export mainly minerals rose from 14 to 33, and those that export mainly energy increased from 28 to 32 (UNCTAD, 2019c).

Figure I.18
Commodity and other exporting countries: trend of exports and imports, 2000–2019
(Index 2010=100)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Netherlands Bureau of Economic Policy Analysis (CPB), World Trade Monitor [online database] https://www.cpb.nl/en/worldtrademonitor.

Figure I.19
High-, upper-middle- and lower-middle-income countries: downstream and upstream participation in global value chains, 2000, 2007 and 2017
(Percentages of GDP and goods production)



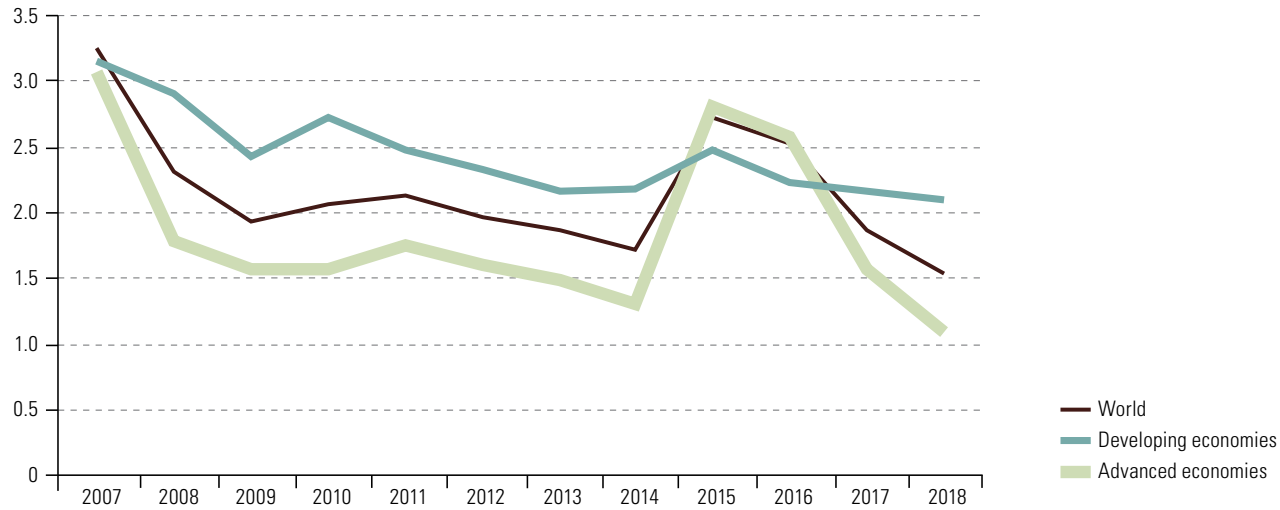
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Trade Organization (WTO) and others, *Global Value Chain Development Report 2019: technological innovation, supply chain trade, and workers in a globalized world*, Geneva, 2019.

Various factors combine to explain the apparent shortening or reversal of global value chains. For one thing, labour costs have become relatively less important for multinational firms as a determinant of where to locate production. Most trade flows today are based on factors such as some form of specialization, scarcity of resources, proximity to markets, access to talent and other factors, but less and less on wage costs.[20] More generally, cost minimization as a whole has also become less important in the geographical organization of global value chains. Natural disasters, such as the earthquake that occurred in Japan in 2011, can disrupt production chains and generate major losses. As a result, a number of multinational firms have reduced the depth of their production networks, which diminishes production linkages; and they have invested in risk management within the chains (ECB, 2016 and 2019). Chapter III discusses this in greater depth.

Moderation in the expansion of global value chains is also associated with weaker growth in FDI flows. Empirical data suggest that FDI and trade maintain a complementary relationship, as the diffusion of international production networks increases foreign production and this generates an increase in the demand for inputs in the country of origin (Carril-Caccia and Pavlova, 2018; ECB, 2016). Following robust growth in the 1990s and in the 2000s, global FDI inflows have declined in recent years (see figure I.20). Since 2008, FDI has increased by an average of just 1% per year, compared to the 8% per year recorded between 2000 and 2007 and more than 20% in the 1990s. This trend is explained by declining rates of return on FDI, maturing global value chains, burgeoning digitalization and a less auspicious political environment for foreign investment (UNCTAD, 2019a).

[20] The decreased importance of labour costs reflects a relative reduction in world trade based on comparative advantages (inter-industry trade) in recent decades, and a consequent relative increase in intra-industry trade (Francis and Morel, 2015).

Figure I.20
World, advanced and developing economies: foreign direct investment inflows, 2007–2018
(Percentages of the GDP of each group)



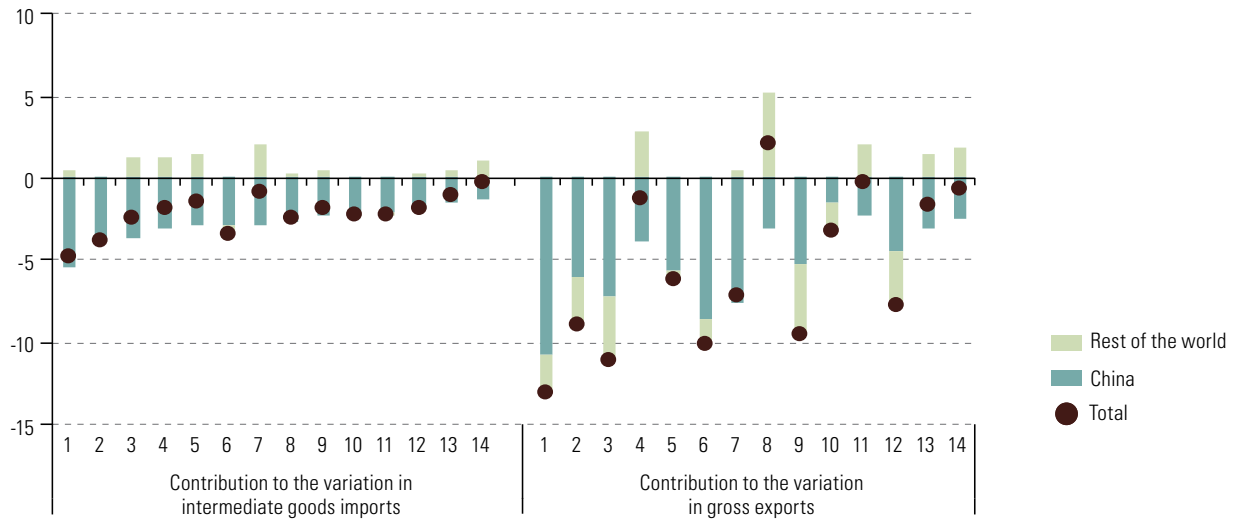
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from the United Nations Conference on Trade and Development (UNCTAD) and International Monetary Fund (IMF), World Economic Outlook Database, for global GDP.

Logistics costs are a third factor that affects the shortening of value chains, since these costs are no longer falling at the rate of previous decades. This is restraining further geographical fragmentation of global production. The costs of air and maritime transport, which move 90% of world trade, have fallen substantially since the 1980s, the latter driven by containerization. The end of a long period of falling costs could be an additional explanation for the subdued growth of world trade (ECB, 2016).

The fourth factor that is promoting the shortening of global value chains is the trend towards the regionalization of world trade. Between 2000 and 2012 the intraregional share of total trade dropped from 51% to 45%. However, this phenomenon was partially reversed between 2013 and 2017, when the proportion rose by 2.7 percentage points (McKinsey Global Institute, 2019a). The regionalization of value chains is being driven by a variety of factors. Firstly, firms are prioritizing proximity to the main consumer markets and just-in-time delivery. Secondly, new technologies such as robotization and 3D printing favour production closer to the place of consumption (see subsection I.C.2). Lastly, trade tensions themselves accentuate the process of regionalization as a risk-reduction strategy.

The profound transformations that the Chinese economy is undergoing are also holding back the expansion of global value chains and trade. Firstly, the middle class in this country is growing rapidly, making consumption a major driver of the economy, to the relative detriment of investment and exports. As a result, an increasing proportion of production is sold locally. The other side of the coin is a decrease in the share of production that is exported, from 17% in 2007 to only 9% in 2017, similar to the level in the United States (McKinsey Global Institute, 2019a). Secondly, the increasing localization of supply chains in China is reducing the intensity of trade not only in that country (Constantinescu, Mattoo and Ruta, 2018), but also worldwide, given the large size of its economy. The steepest decline has occurred in the electronics industry, where the share of imported inputs in production fell by 5 percentage points worldwide between 2007 and 2017, with China accounting for nearly all of this variation. In the same period, exports from this sector as a proportion of output fell by 13 percentage points globally, with China contributing almost 11 percentage points. Other sectors where China is responsible for a large share of the fall in global trade intensity were motor vehicles, textiles and apparel (see figure I.21).

Figure I.21
China and rest of the world: contribution to the variation in indicators of participation in global value chains by industry, 2007–2017
(Percentage points)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of McKinsey Global Institute, *Globalization in Transition: The Future of Trade and Value Chains*, Washington, D.C., 2019.
Note: The numbers 1 to 14 correspond to the following industries: 1: Electronics; 2: Electrical machinery; 3: Automotive; 4: Rubber and plastic; 5: Chemicals; 6: Textiles and clothing; 7: Transport equipment; 8: Energy; 9: Machinery and equipment; 10: Glass, cement and ceramics; 11: Manufacture of metal products; 12: Basic metallurgy; 13: Furniture and other manufactures; and 14: Food and beverages.

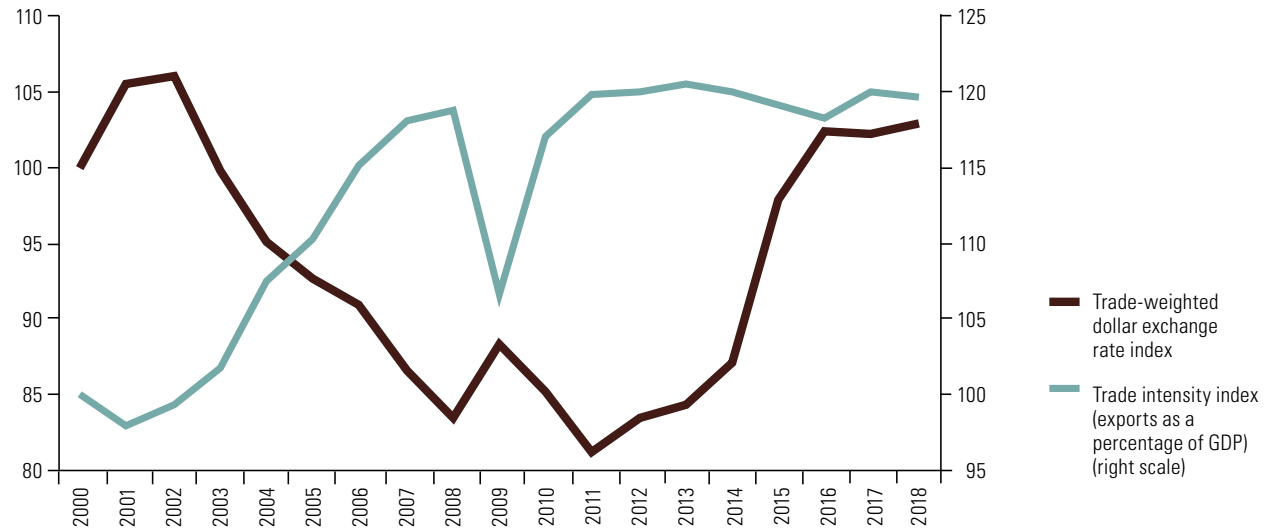
The sixth factor influencing world trade is the depth of financial markets and the real exchange rate of the dollar, especially in the case of trade that takes place within global value chains. This mode of production demands a lot of working capital; so when the financial requirements exceed the firms' internal resources, they need to obtain short-term bank credit. As global value chains grow and the time between shipments lengthens, financing needs also increase; so the fluidity of global value chains —and hence trade— depends partly on financial conditions. It is estimated that one third of world trade is financed by the banking system, and roughly 80% of that financing is denominated in dollars (Shin, 2019).

Several authors have found a significant positive relation between the availability of private credit and the trade/GDP ratio. However, this relationship loses its statistical significance when private credit reaches a level of 100% of the country's GDP. Nearly 60% of countries have already reached or surpassed this threshold, and many others are approaching it. So, if all countries still below the threshold attained a private-credit/GDP ratio of 100%, the effect on the income elasticity of trade would be small (ECB, 2016).

The supply of dollar loans by banks is partly determined by the dollar exchange rate. Dollar loans tend to grow faster when this currency is weak, whereas they flatline or decline when it strengthens (Shin, 2019). Accordingly, bank loans in dollars grew rapidly before the financial crisis but slowly thereafter. There also appears to be a relationship between trade intensity (as a percentage of GDP) and the real exchange rate of the dollar (see figure I.22).

In periods when the dollar is strong, the weight of trade in GDP declines, partly because products and credit in other currencies become more expensive. Conversely, when the dollar is weak, trade grows relative to GDP. This apparent correlation does not prove a causal relationship, since both variables also depend on other factors.

Figure I.22
World trade and the real exchange rate of the dollar, 2000–2018
(Indices 2000=100)

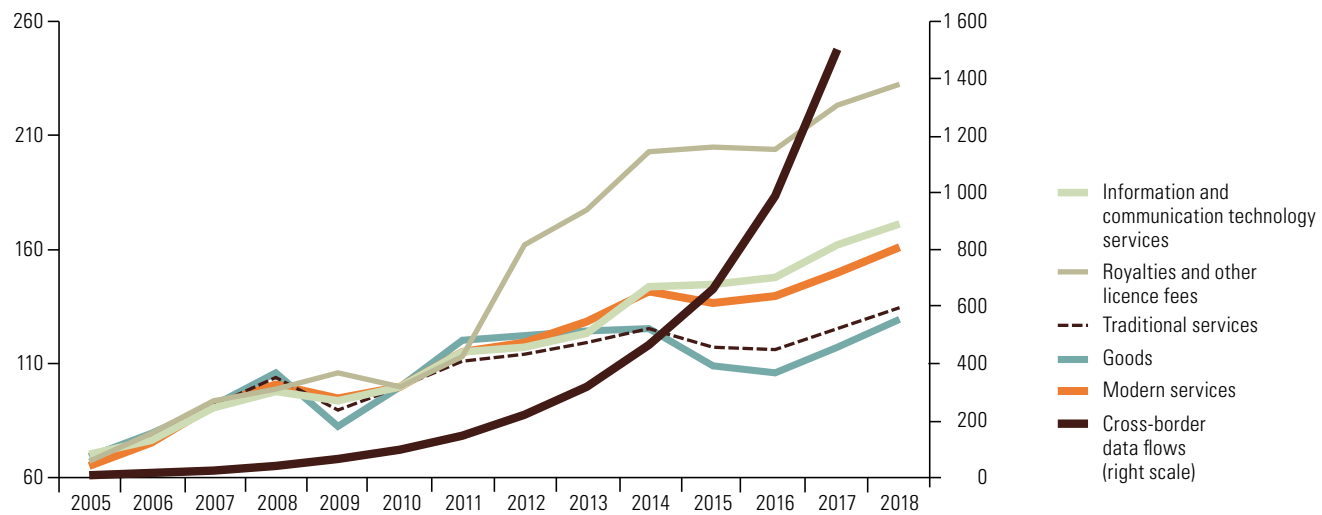


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Federal Reserve Bank of St. Louis, Federal Reserve Economic Data (FRED) [online database] https://fred.stlouisfed.org/, and data from World Trade Organization (WTO).

2. New technologies are having mixed effects on trade

The sharp slowdown in merchandise trade in the present decade has occurred alongside the emergence of several technological innovations associated with the Fourth Industrial Revolution, which are transforming the nature of trade and production (WTO, 2018; Suominen, 2019). New technologies such as additive manufacturing, artificial intelligence, digital platforms and the Internet of Things make it easier to produce, move and market products and services around the world. Therefore, the buoyancy displayed by traditional merchandise trade in the 1980s, 1990s and the 2000 decade has been transferred in the present decade to activities facilitated by the new digital technologies (Lund and Tyson, 2018; WTO and others, 2019). In fact, the growth rate of cross-border flows increases in proportion to their digital intensity (see figure I.23).

Figure I.23
World trade in goods, traditional and modern services, and cross-border data flows, 2005–2018
(Index 2010=100)



Source: Economic Commission for Latin America and the Caribbean (ECLAC) on the basis of World Trade Organization (WTO) Statistics Database [online] http://stat.wto.org/Home/WSDBHome.aspx?Language=E, and McKinsey Global Institute, Globalization in Transition: The Future of Trade and Value Chains, Washington, D.C., 2019.

Technological advances are affecting trade in various ways; and, given the intensity of the ongoing digital revolution, its effects on the size and composition of trade are very difficult to predict. Some technologies are reducing the costs of cross-border transactions. One example is provided by the digital platforms that help bring buyers and sellers into contact with each other. WTO (2018) predicts that these platforms could increase merchandise trade by 2 percentage points relative to a baseline scenario. Another example is the Internet of Things, which improves product delivery services with remote truck tracking, automatic document processing at customs, and autonomous handling of container vehicles in the ports. It is estimated that the Internet of Things could reduce shipping costs by as much as 28% and increase trade by up to 11% by 2030 (McKinsey Global Institute, 2019a).

Technologies are also changing production processes and the importance of inputs. Automation and robotics could replace about half of the tasks currently performed by workers. Thus, proximity to consumer markets, access to resources, job skills and the quality of infrastructure will be increasingly important factors in deciding where to produce, to the detriment of wage costs. Artificial intelligence (AI) and virtual agents could also automate many business service processes (Hewitt and Monge-González, 2018). That could lead to a reduction of US$ 160 billion in business process outsourcing (BPO) to other countries.

Another technology that is set to have a significant effect on industrial production and trade in the coming decades is additive manufacturing or 3D printing. This technology cannot yet replace mass production in many industries; but it is already being used to manufacture prototypes, spare parts, toys, athletic shoes and medical devices, among other products. While additive manufacturing could reduce international trade by encouraging the shortening or even relocation of global value chains, it could also increase trade by facilitating exports of customized goods. McKinsey Global Institute (2019a) estimates that the direct effects of these technologies (automation, AI and additive manufacturing) could reduce trade by up to 10% relative to a baseline. ING Bank (2017) estimates that the impact of additive manufacturing could be much greater, however, reducing the value of world trade by up to 40% by 2040.

Technology can also transform some products and services, changing their content and the volume of trade. On the one hand, the increasing dissemination of electric vehicles, which contain fewer parts than traditional ones, is expected to significantly reduce international trade in autoparts and oil. The audiovisual industry has been a pioneer in the digitalization of physical products such as records and films. In the music industry, online streaming doubled its share of global revenues to 40% between 2015 and 2017 (ECLAC, 2018a). In contrast, the share of digitizable goods (CDs, newspapers, DVDs and books, among others) in world trade fell from 2.7% in 2000 to 0.8% in 2016 (WTO, 2018).

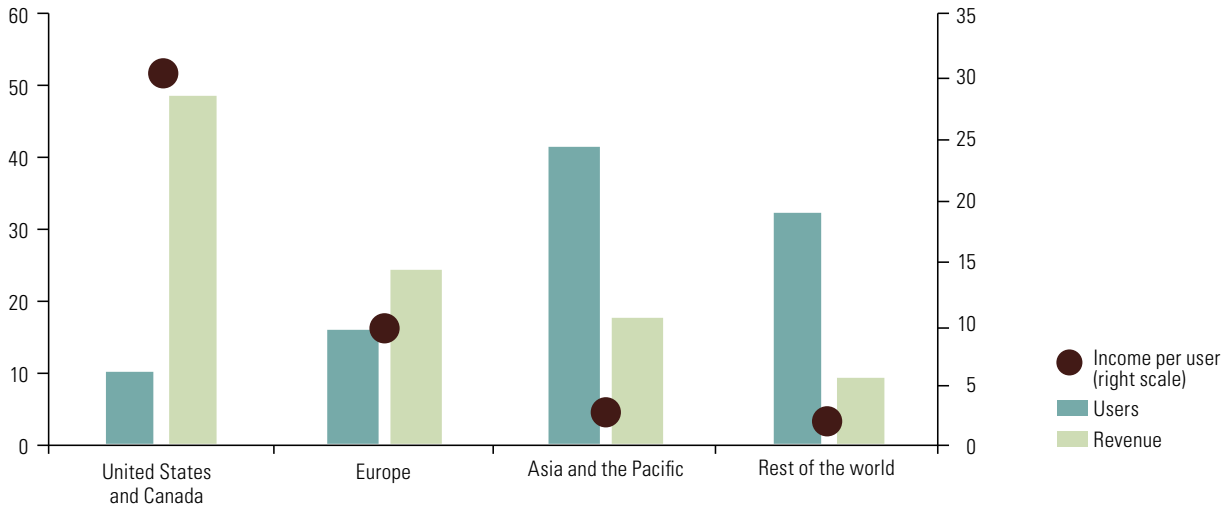
The digital economy, driven by the ability to collect and analyse big data, has given rise to new business models (ECLAC, 2018b). Digital platforms bring together specific groups of users and make it easier for them to interact and transact with other groups. The demand from one group of users is thus related to the supply from other groups, and each new user has value for existing or future ones. As the number of users increases, platforms can leverage larger amounts of personal and non-personal data. This data helps to better satisfy consumer preferences, optimize business processes, reduce costs and detect market trends and opportunities. Several platforms have benefited from the use of macrodata, owing to economies of scale (data volume) and scope (data variety) associated with information collection and analysis.

The digital revolution has generated enormous wealth in a very short lapse of time: seven of the eight largest firms in the world by market capitalization use platform-based business models (UNCTAD, 2019b). However, this is a phenomenon that is highly concentrated in a small number of countries and firms. The United States currently produces most of the digital content consumed in the world, but Chinese enterprises such as Alibaba, Baidu and Tencent are competing increasingly with their American rivals such as Amazon, Facebook and Google.

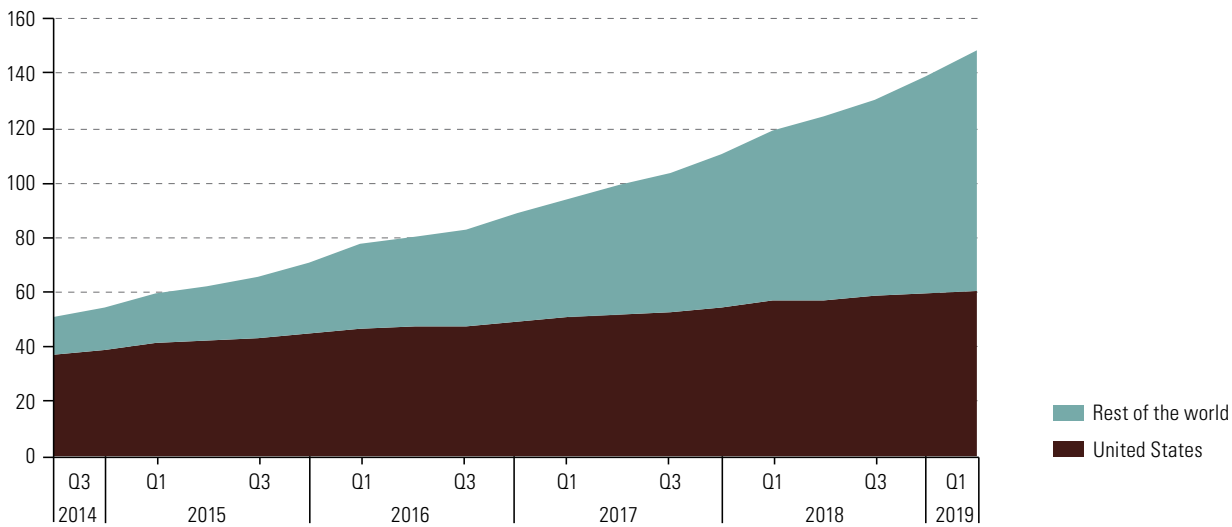
The transformations that the new technologies are producing in international trade also generate measurement challenges. A large proportion of cross-border data flows are not monetized and are therefore not currently counted as trade flows, despite representing exports of services. Examples are personal information provided on social networks or data captured by firms within the Internet of Things. Although these data are obtained without payment, they have commercial value for the firms that acquire them and use them in production, whether to generate advertising revenue, improve a supply chain, or to manage risk, among other purposes. Examples of such firms include Facebook and Netflix, whose user and revenue bases are generated largely outside their home country, the United States (see figure I.24).

Figure I.24
Facebook and Netflix: customers and revenues in the United States and the rest of the world, 2014–2019

A. Facebook: distribution of users and revenue, first quarter of 2019
(percentages and dollars)



B. Netflix: customers around the world
(millions of subscribers)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Statista.

The digital revolution is providing a major boost to services trade. Its gross share of world trade in goods and services is projected to increase from 21% in 2016 to 25% in 2030 (WTO, 2018). However, traditional gross statistics underestimate the real contribution of trade in services, for three reasons. First, they do not account for the growing service component incorporated in internationally traded goods.[21] Second, they do not consider flows of intangible services (such as specialized brands and software) that multinational firms share with their subsidiaries in other countries, when this is not offset by the payment of royalties or other charges for the use of intellectual property. Third, these statistics do not consider the value of cross-border flows of digital services —such as email, search engines or online video viewing— that do not have an associated payment (Herreros, 2019). Taking these three elements into account, it is estimated that the value of world trade in services in 2017 would have increased from US$ 5.1 trillion to US$ 13.4 trillion, equivalent to 53% of total trade in goods and services (McKinsey Global Institute, 2019a).

Despite the growing importance of e-commerce, measuring it poses major methodological challenges. Only a few countries do so, and their statistics tend not to be comparable (ECLAC 2018b). However, the available estimates clearly show that it is growing strongly. For example, UNCTAD (2019b) estimates that global e-commerce sales grew by 13% in 2017, to reach a level of US$ 29 trillion (36% of global GDP), and that the number of online shoppers totalled 1.3 billion people. Of these sales, 88% are business-to-business (B2B) transactions and 12% are business-to-consumer (B2C). Between 2015 and 2017, the share of cross-border B2C transactions in total B2C sales grew from 7% to 11%, to a level of US$ 412 billion; and the share of cross-border buyers in total online buyers rose from 15% to 21%.

D. After two years of recovery, regional trade is faltering again

1. Exports of goods and services contract in the first half of the year

The region's foreign trade contracted in the first half of 2019, more sharply in goods than in services (see figure I.25). This change in trend began in August 2018 for goods and in the third quarter of the same year for services. The causes are varied and respond to factors in both the international context and the region itself. Internal factors include lacklustre regional economic growth, which adversely affects both imports and exports,[22] and the fact that many countries (especially in South America) are specialized in raw materials and processed primary products. These two factors undermine regional export performance, biasing investment decisions[23] and exacerbating cycles of low demand growth such as the one the region is experiencing today.

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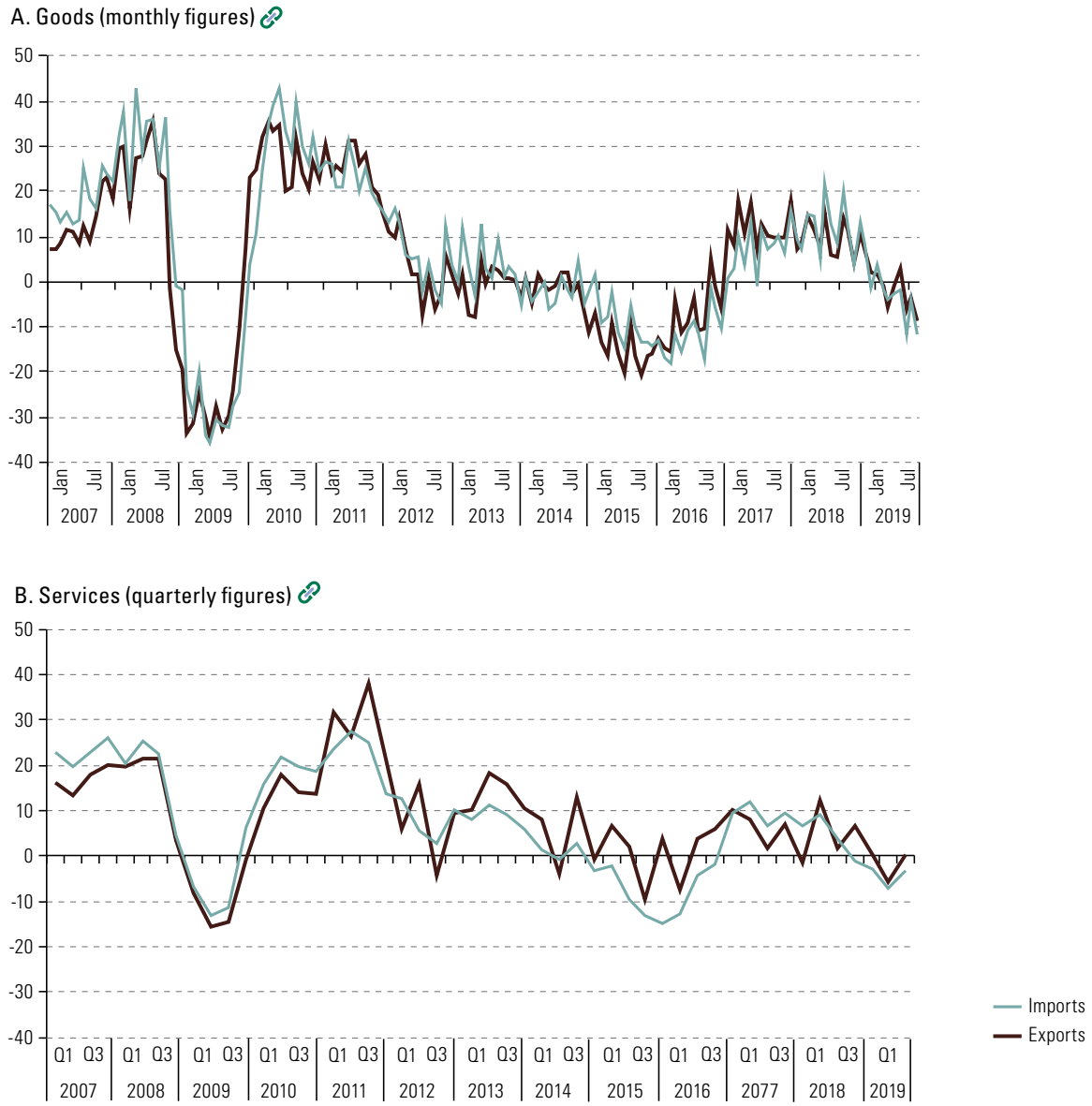
21 Services are estimated to account for about one-third of the value-added of internationally traded manufactures (McKinsey Global Institute, 2019a).

22 For 2019, ECLAC projected a GDP growth rate of just 0.5% for the entire region. Of its 33 member countries, 21 are expected to grow more slowly than in 2018 (ECLAC, 2019).

23 Given the lower growth rates, some countries are embarking on a process of fiscal adjustment. In this context, new public investment projects in infrastructure are postponed, while the private sector also delays its investment decisions.

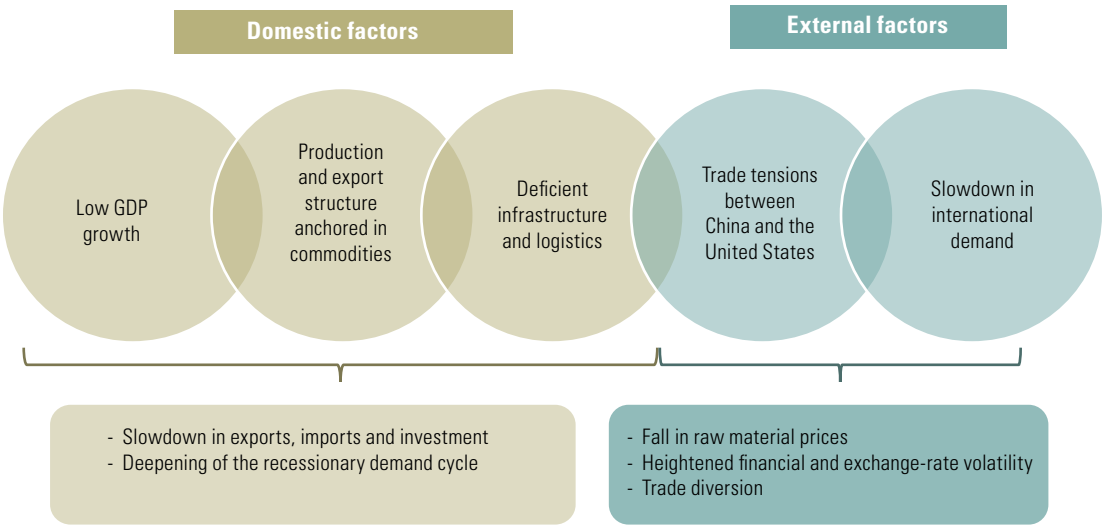
Figure I.25
Latin America and the Caribbean: annualized variation in trade in goods and services, January 2007 to June 2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.

External factors influencing regional trade include the trade tensions between China and the United States and faltering global demand, especially in Asia and the European Union. These two factors, which are closely interlinked, are fuelling heightened exchange-rate and financial volatility, falling commodity prices, and increased competition between countries to capture some of the potential trade diverted from China and the United States (see Diagram I.1).

Diagram I.1
Latin America and the Caribbean: domestic and external factors affecting foreign trade



Source: Economic Commission for Latin America and the Caribbean (ECLAC).

At the sector level, the exports that are suffering most are those of the mining and oil sectors, for which the value plummeted by 15% in the first half of 2019 following a recovery in 2017 and 2018. The fall in oil and fuel prices reversed the terms of trade boost that the region had experienced in the previous biennium. Shipments of crop and livestock products (including fishery and aquaculture products) grew slightly (+3.5%), as did shipments of manufactures (+2.6%) (see table I.10). In both cases, the increase in the value of shipments was mainly due to larger volumes exported.[24] Nonetheless, the export growth in these categories was unable to compensate for the double drop in shipments from the mining and oil sector (10% in price and 4.9% in volume), which resulted in a 1.5% drop in the value of the region's total goods exports.

On the import side, merchandise imports were down in all economic categories in the first half of 2019. The steepest falls occurred in consumer and capital goods (-6.3% and -3.6%, respectively). On average it has been import volumes that have contracted the most.[25] Regional imports of services also declined in all categories, especially in the travel and international transport sectors.

Lower expectations for global demand have fed through to commodity prices. During the first quarter of 2019, oil and copper prices recovered from the sharp falls they had experienced during the latter months of 2018; but they plummeted again as from June and recorded new lows in August.[26] In general, the prices of the main commodities exported by the region performed negatively between January and August

[24] Exports of agricultural products such as soybeans, bananas, meat, coffee and sugar, as well as textiles and apparel and other manufactures, increased in volume terms. For example, in the first half of 2019 the volume of Argentine exports grew by 12% (INDEC, 2019a), and in Uruguay agricultural export volume expanded by 11% (BCU, 2019).

[25] For example, in Argentina, capital goods imports plummeted by 18% in volume terms during the first seven months of 2019 (INDEC, 2019a), while imports of such goods from Brazil shrank by 63% (FUNCEX, 2019).

[26] Brent oil and the basket price of the Organization of Petroleum Exporting Countries (OPEC) were trading below US$ 60 a barrel in August 2019, while West Texas Intermediate was below US$ 55. Although the price staged a recovery in September in the wake of geopolitical tensions in the Middle East and the destruction of refining capacity in Saudi Arabia, the year-end target price is not projected to be above US$ 65 per barrel. This is because the crude oil stocks in the United States and the European Union are 5% higher than in 2018, and the production capacity of the OECD as a whole increased by 7.5%, while the volume of crude oil imports from the same group of countries was down by 2% as of June (IEA, 2019).

2019; and the vast majority of them are projected to be down for the year as a whole. The weighted price index of the basket of commodities exported by the region shows a projected fall of 4.5%, and a weight of 1.9% in the variation in total export prices (see table I.11). The few products likely to experience price increases include iron ore and related products (+40%). This is partly the result of the environmental tragedy that occurred at the Brumadinho mine of Vale do Rio Doce in Brazil, which pushed prices up. Another product for which prices are rising is beef (+6%).

In the case of metals, the main explanation for the fall in prices is the weaker demand associated with China's economic slowdown, coupled with the uncertainty created by the trade tensions. On the other hand, the prices of agricultural products —which had been less volatile in the first four months of the year— have since dropped, owing to several factors. These include larger-volume harvests in South America, heavier rainfall, depreciation of the Brazilian real and the Argentine peso, making those countries' agricultural products more competitive, and risk aversion among international investors. In early September, the prices of mid-2020 soybean, corn and wheat futures and other agricultural product derivatives were falling (Buenos Aires Grain Exchange, 2019; Ministry of Agriculture, Livestock and Fisheries of Argentina, 2019).

An analysis in terms of partners shows a declining trend in regional external trade, which is most pronounced in imports from the European Union and the region itself (see figure I.26). In the first half of 2019, regional imports from the United States and the European Union performed worse than exports to these trade partners, which reflects the weakness of regional demand in a very low growth scenario. This situation has affected intraregional trade particularly, the value of which contracted by around 10%. While trade with Asia is still growing, its pace has slowed sharply (see table I.12).

Table I.10
Latin America and the Caribbean: year-on-year variation in the value of goods and services trade, first half of 2016 to first half of 2019
(Percentages)

Major groupings		January–June 2016	January–June 2017	January–June 2018	January–June 2019
Exports	Goods and services	-7.3	12.6	10.8	-1.7
	Goods	-8.3	14.1	11.5	-1.5
	Crop and livestock products	1.9	3.3	1.1	3.5
	Mining and petroleum	-28.9	40.7	24.9	-14.9
	Manufactures	-3.3	9.8	9.3	2.6
	Services	-2.3	4.9	7.2	-3.0
	Transport	-3.2	10.5	6.9	-0.1
	Travel	2.1	1.0	10.3	-3.8
	Other services	-7.5	7.5	3.1	-3.4
Imports	Goods and services	-12.4	8.2	11.9	-3.3
	Property	-13.2	8.0	13.0	-2.9
	Capital goods	-12.0	-2.6	14.5	-3.6
	Intermediate inputs	-10.6	7.3	10.3	-1.8
	Consumer goods	-11.1	8.9	11.9	-6.3
	Fuels	-32.1	31.5	27.8	-2.0
	Services	-8.5	9.2	6.4	-5.2
	Transport	-13.2	6.9	11.5	-6.0
	Travel	-6.5	15.9	6.6	-10.0
	Other services	-6.3	6.2	2.7	-0.9

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.

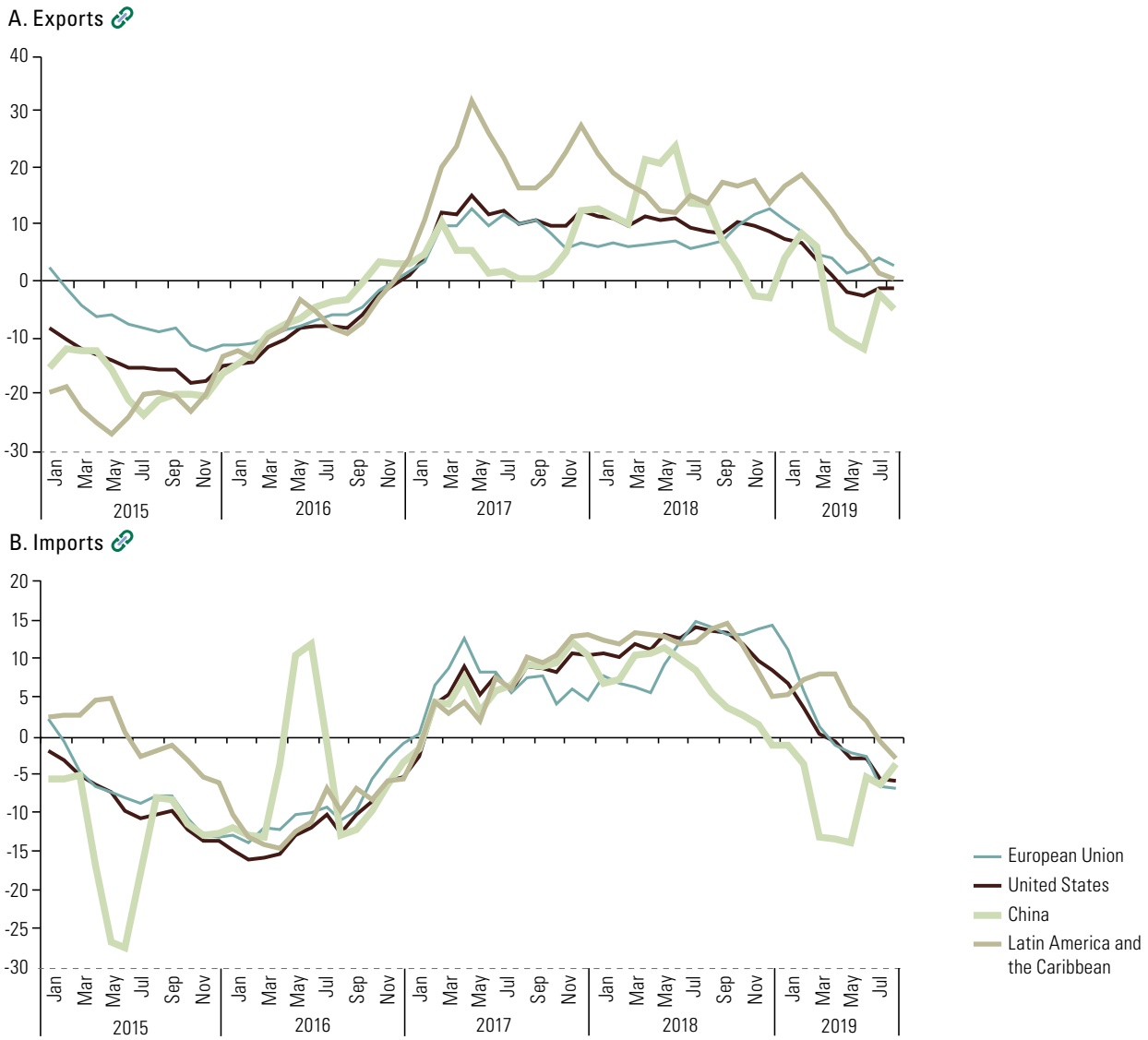
Table I.11
Latin America and the Caribbean: year-on-year variation in the prices of major export commodities, January-August 2018 and 2019 and projection for 2019
(Percentages)

Product	Share of total exports	January–August 2018	January–August 2019	Projection for 2019
Iron	1.3	-6.5	39.8	41.0
Gold	2.0	4.0	2.5	7.0
Beef and veal	2.1	-3.3	4.3	6.0
Nickel	0.1	40.0	-7.3	0.3
Banana	2.4	8.7	-1.4	-1.0
Shrimps and crustaceans	0.7	5.7	0.0	-1.3
Fishmeal	1.0	14.9	-3.1	-1.6
Rice	0.2	7.7	-5.4	-2.4
Silver	0.3	13.1	-13.7	-2.5
Petroleum products	2.0	17.1	-3.7	-2.5
Tobacco	0.2	3.2	-2.6	-3.1
Fish	1.7	-0.6	-5.5	-3.3
Cocoa	0.3	16.0	-1.2	-3.4
Tin	0.1	3.0	-4.8	-4.0
Sugar	1.2	-25.1	1.2	-4.7
Soybean oil	0.6	-2.6	-8.6	-6.1
Corn	1.0	7.7	6.0	-6.4
Wheat	0.3	7.7	-5.4	-6.4
Other minerals and metals	2.6	23.0	4.0	-6.5
Crude oil	11.2	36.4	-9.2	-9.5
Natural gas	1.0	-5.5	-1.2	-9.6
Copper	2.5	14.5	-9.3	-10.0
Soybeans	1.9	5.5	-13.8	-10.4
Zinc	0.2	13.1	-13.7	-10.5
Coffee	1.3	-11.0	-10.7	-10.7
Cotton	0.3	10.1	-13.5	-13.0
Lead	0.1	5.8	-17.6	-13.2
Aluminium	0.5	14.3	-16.6	-14.4
Coal	0.5	27.8	-16.2	-21.5
Palm oil	0.2	-19.5	-37.9	-33.3
Composite index[a]	**40.0**	**14.4**	**-4.4**	**-4.5**
Contribution to the variation in export prices		**5.8**	**-1.5**	**1.9**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from the United Nations Conference on Trade and Development (UNCTAD), the World Bank, the Economist Intelligence Unit, Bloomberg, International Monetary Fund (IMF), the Buenos Aires Grain Exchange, the Chilean Copper Commission (COCHILCO) and the Agrarian Research and Policy Office of Chile (ODEPA).

[a] Composite index of the products and groupings shown in the table.

Figure I.26
Latin America and the Caribbean: year-on-year variation in the value of merchandise trade with selected partners, January 2015–July 2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.

Table I.12
Latin America and the Caribbean: year-on-year variation in the value of merchandise trade with selected partners, first half of 2018 and 2019 relative to the year-earlier period
(Percentages)

	Exports		Imports	
	First half of 2018	First half of 2019	First half of 2018	First half of 2019
World	**9.8**	**-1.5**	**12.7**	**-2.9**
United States	6.6	2.2	10.3	-3.8
European Union	17.2	-7.7	9.7	-9.7
Asia	13.2	4.1	12.7	4.0
China	19.3	-0.6	16.4	3.3
Rest of Asia	6.1	10.3	8.1	5.0
Latin America and the Caribbean	**12.4**	**-9.4**	**11.6**	**-10.7**
Rest of the world	6.0	-10.9	31.8	1.0

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.

As of June 2019, 12 of the 19 countries for which information is available were recording reductions in export value, while export growth in the others was slowing. On the import side the situation was similar. Only Guatemala, Mexico and the Dominican Republic posted increases in their merchandise exports and imports, albeit moderate ones (see table I.13).

Table I.13
Latin America and the Caribbean (selected countries): year-on-year variation in the value of merchandise trade, first half of 2018 and 2019 relative to the year-earlier periods
(Percentages)

	Exports		Imports	
	January–June 2018	January–June 2019	January–June 2018	January–June 2019
Latin America and the Caribbean	**9.8**	**-1.5**	**12.7**	**-3.1**
Argentina	5.5	3.2	13.8	-27.9
Bolivia (Plurinational State of)	23.8	-7.9	5.8	5.0
Brazil	5.5	-1.3	17.2	0.0
Chile	21.0	-7.9	16.1	-3.4
Colombia	14.7	-1.1	7.0	3.3
Costa Rica	6.0	0.7	5.3	-2.6
Cuba	-32.2	-5.0	7.4	-6.0
Dominican Republic	9.3	2.9	13.3	2.0
Ecuador	13.3	3.7	19.1	4.3
El Salvador	5.6	-0.5	12.4	3.9
Guatemala	-3.0	2.1	9.1	0.9
Honduras	-2.1	-8.4	11.0	-2.3
Mexico	10.9	3.6	11.6	0.2
Nicaragua	-3.5	0.6	-0.9	-18.3
Panama	11.1	-6.8	8.2	0.6
Paraguay	13.3	-15.4	18.9	-8.1
Peru	18.0	-9.0	12.7	-1.5
Uruguay	1.4	-1.0	10.7	-9.8
Venezuela (Bolivarian Republic of)	-0.4	-40.3	25.5	-60.8

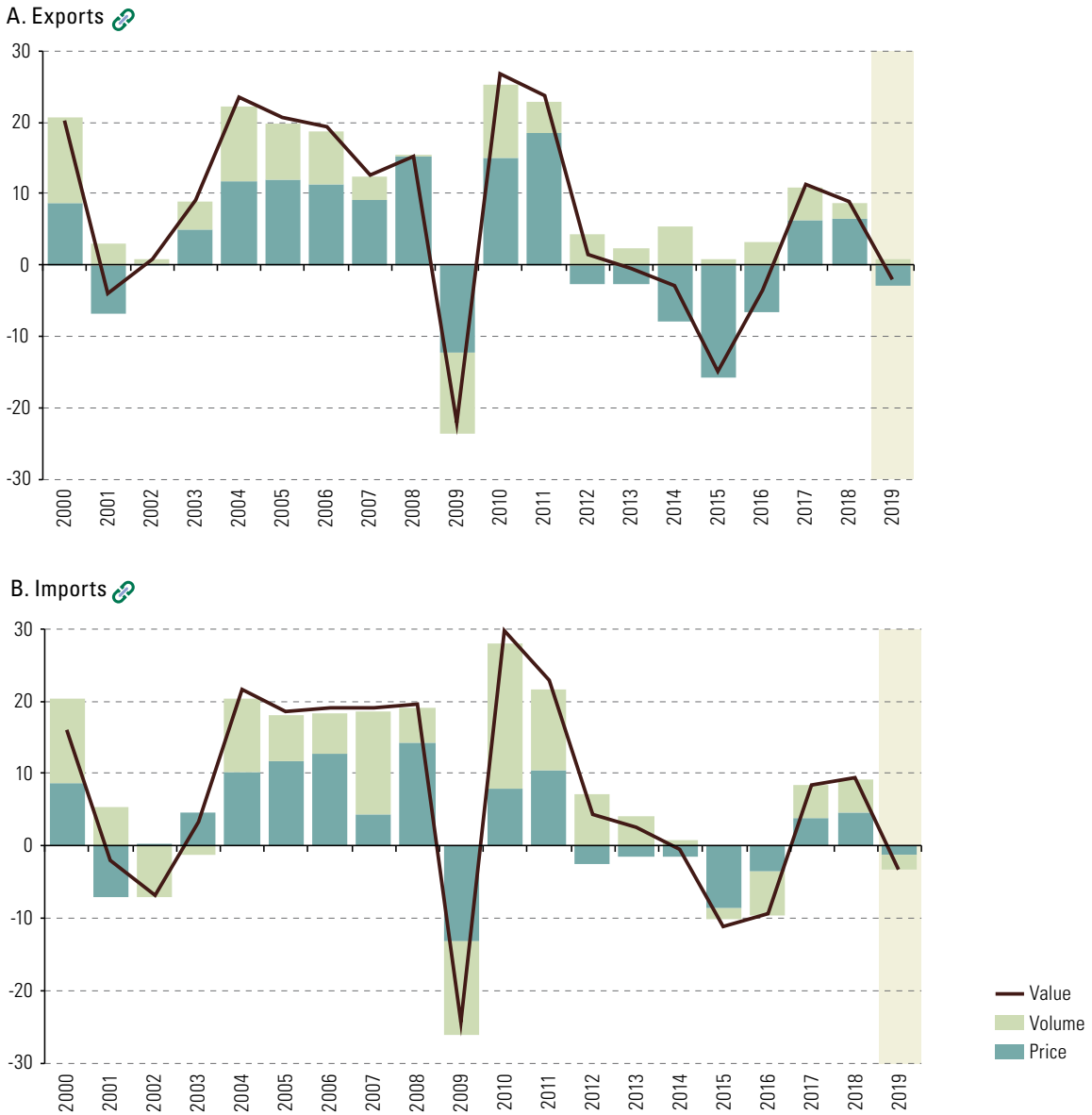
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.

2. Regional trade is expected to decline in 2019, albeit with significant disparity between subregions

Based on the information available up to August, in 2019 the region's merchandise exports and imports are projected to decrease by 2% and 3% in value, respectively (see figure I.27). In the case of exports, the modest projected increase in volume is unlikely to be sufficient to compensate for the fall in prices, while imports are set to contract in both volume and price terms. The regional performance displays significant heterogeneity across the different subregions (see figure I.28). South American shipments are forecast to fall by much more than the regional average (-6.7%), with reductions in both export volumes and prices. This reflects the economic stagnation that the subregion is going through —with projected growth of just 0.2% in 2019— compounded by the heavy weight of commodities in its export basket, for which prices have fallen in several cases.

In South America, the Bolivarian Republic of Venezuela, Paraguay and Peru are projected to suffer the steepest reductions in export value (see table I.14), while the Plurinational State of Bolivia is the only country in the subregion were export prices are not forecast to fall. This is explained by the long-term contracts signed with Argentina and Brazil for the sale of natural gas, in which the fixed price is currently 22% above the international market level (Estremadoiro, 2019).

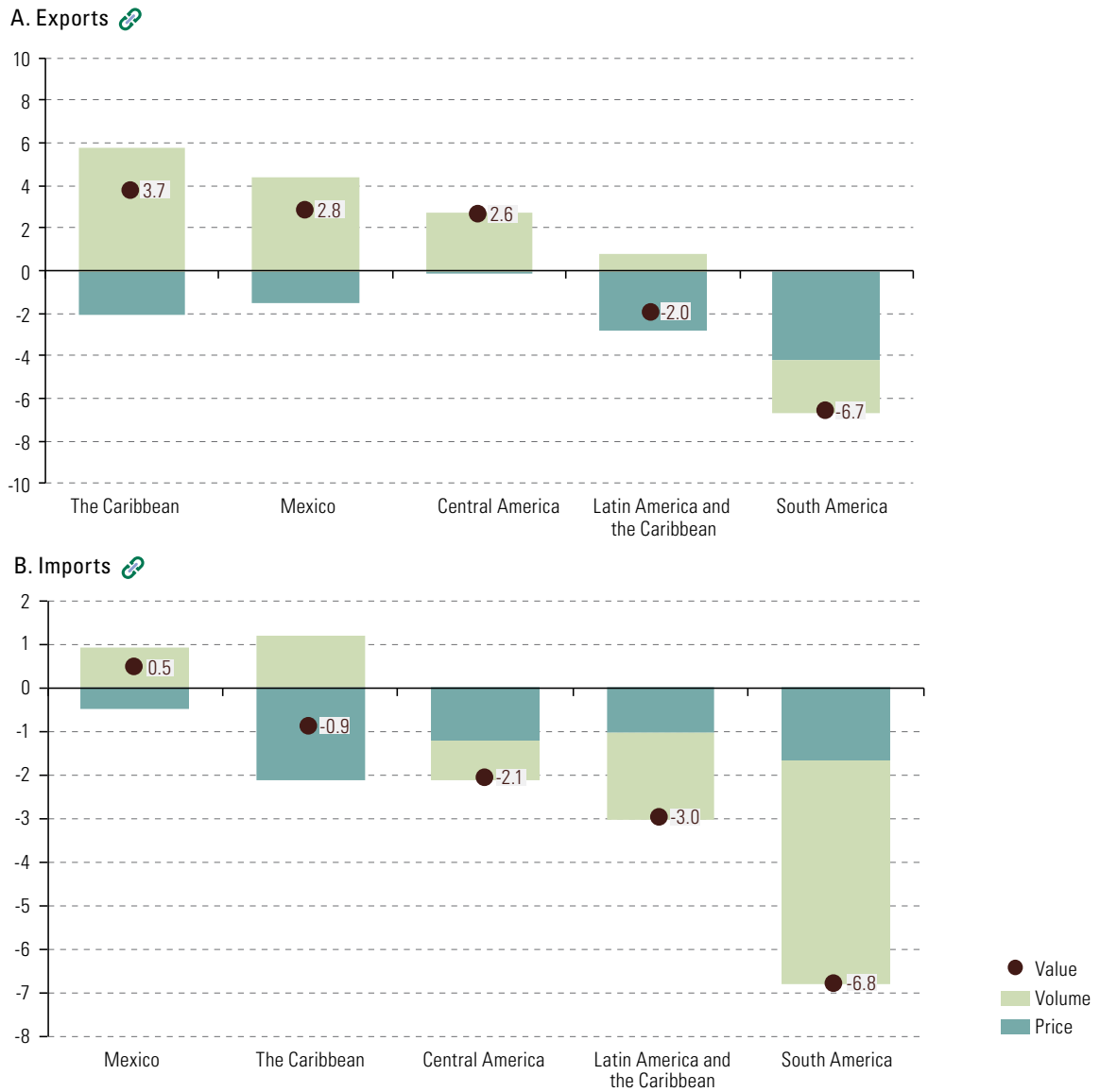
Figure I.27
Latin America and the Caribbean: annual variation in merchandise trade by price, value and volume, 2000–2019[a]
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.

[a] The figures for 2019 are projections.

Figure I.28
Latin America and the Caribbean, Mexico and subregions: projected variation in merchandise trade, by volume, price and value, 2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.

Table I.14
Latin America and the Caribbean (groupings and selected countries): projected variation in merchandise trade by price, value and volume, 2019
(Percentages)

	Exports			Imports		
	Price	Volume	Value	Price	Volume	Value
Latin America and the Caribbean	**-3.0**	**1.0**	**-2.0**	**-1.0**	**-2.0**	**-3.0**
Latin America	**-3.0**	**0.9**	**-2.1**	**-1.0**	**-2.1**	**-3.0**
South America	**-4.2**	**-2.6**	**-6.7**	**-1.7**	**-5.2**	**-6.8**
Southern Common Market (MERCOSUR)	**-4.5**	**-3.2**	**-7.7**	**-1.5**	**-8.9**	**-10.4**
Argentina	-3.4	9.3	5.9	-1.6	-17.3	-18.9
Brazil	-3.6	-2.1	-5.6	-1.7	1.2	-0.5
Paraguay	-5.6	-3.3	-8.8	-0.2	-8.4	-8.5
Uruguay	-4.9	8.8	4.0	-4.1	-6.3	-10.4
Venezuela (Bolivarian Republic of)	-13.0	-36.9	-49.9	1.3	-61.5	-60.2
Andean Community	**-4.2**	**0.3**	**-3.9**	**-1.6**	**1.2**	**-0.3**
Bolivia (Plurinational State of)	4.6	-7.3	-2.7	-0.3	-2.1	-2.4
Colombia	-8.0	3.7	-4.3	-1.3	4.0	2.7
Ecuador	-4.3	8.1	3.8	-0.6	0.6	0.0
Peru	-2.4	-4.9	-7.2	-2.6	-0.9	-3.6
Pacific Alliance[a]	**-2.2**	**2.6**	**0.4**	**-0.9**	**0.6**	**-0.3**
Chile	-2.6	-4.0	-6.6	-2.7	-2.9	-5.6
Mexico	-1.6	4.4	2.8	-0.5	0.9	0.5
Central America[b]	**-0.1**	**2.7**	**2.6**	**-1.2**	**-0.9**	**-2.1**
Costa Rica	0.4	2.9	3.3	-1.0	-2.0	-3.0
El Salvador	0.2	3.3	3.5	-1.2	4.4	3.3
Guatemala	-0.5	3.1	2.5	-1.1	1.0	-0.2
Honduras	-0.9	3.4	2.6	-0.7	-4.5	-5.1
Nicaragua	0.7	-3.7	-3.0	-2.1	-7.5	-9.6
Panama (excluding the Colón Free Zone)	-1.4	5.7	4.3	-1.8	-1.0	-2.9
Panama (Colón Free Zone)	-6.0	-3.9	-10.0	-4.0	-3.0	-7.0
The Caribbean	**-1.0**	**4.7**	**3.7**	**-2.1**	**1.2**	**-0.9**
Dominican Republic	1.6	1.8	3.4	-1.7	0.7	-1.0
Cuba	-1.6	-1.0	-3.7	-4.6	-2.4	-7.0
Caribbean Community (CARICOM)	-2.4	7.4	5.0	-1.6	2.6	1.0

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.
[a] Weighted average of trade flows from Colombia, Chile, Peru and Mexico.
[b] Excludes the Colón Free Zone.

Only three South American countries (Argentina, Ecuador and Uruguay) are expected to see the value of their goods exports increase in 2019, driven by larger volumes. In Argentina, despite a projected fall of 3.4% in export prices, export volume is expected to increase by 9.3%, especially in agricultural products, some of which registered exceptional increases during the first half of 2019 (soybeans +108%, cereals +21% and meat +27%) (INDEC, 2019b). Uruguay also reported increased export volumes for the first six months of the year in soybeans (+56%), meats (+6%), and dairy products (+8%), which more than compensated for the lower prices of soybeans (-9%), leather (-7%) and dairy (-6%) (BCU, 2019). This would contribute to 4% growth in export value. In Ecuador, exports of oil, bananas, shrimp and other fishery products had a combined volume increase of 11% between January and August 2019. This, added to slightly stronger prices for oil and bananas in the last quarter of the year, is expected to generate 3.8% growth in export value.

The projected fall in the value of imports in South America will likely be more than double the regional average, driven by the collapse of foreign purchases by Argentina, Chile, Peru and the Bolivarian Republic of Venezuela, among other countries. The main reason for this is weaker domestic demand, especially in countries of the Southern Common Market (MERCOSUR). The categories most affected are capital goods and intermediate inputs, with consumer goods demand weakening to a lesser extent. However, in Colombia and Ecuador, imports of capital goods and intermediate inputs were up as of July (DANE, 2019; Ministry of Production, Foreign Trade, Investment and Fisheries of Ecuador, 2019).

Unlike South America, in 2019 Central America, the Caribbean and Mexico can expect to see export values rise. This reflects their lesser reliance on commodities and their closer trade ties with the United States, a market that has remained buoyant and where new export opportunities have been generated to replace Chinese products. The largest increases in export volumes have occurred in Mexico, mainly owing to the trade diversion generated by the tensions between China and the United States. In fact, since February 2019 Mexico has been the United States' main trading partner, measured by the sum of its exports and imports. In the case of Central America, the expansion of export volumes should more than compensate for the fall in the prices of some of its basic export products, such as coffee, bananas and sugar. Moreover, the subregion has benefited from higher prices among some of its export manufactures (textiles and apparel, metal products, plastics, among others).

In Honduras, in the first half of 2019, a sharp fall in the prices of some of its leading export products —sugar (-13%), bananas (-15%), shrimp (-3.5%), and palm oil (-27.9%)— was more than compensated by increased export volumes of those products (+4.8%, +4.7%, +11% and +43.5%, respectively) (Central Bank of Honduras, 2019). In Costa Rica, the projected increase in export value (+3.3%) is expected to be underpinned by increased sales of medical devices, electronic and therapeutic equipment, and preparations for making carbonated beverages, especially to the United States. Between January and July, exports to that market grew by 6.6% (Central Bank of Costa Rica, 2019), which more than offset the reduction in the supply of bananas, pineapples, palm oil, fruits and vegetables available for export.

Nicaragua is the only Central American country for which merchandise exports are expected to contract (-3%), despite the fact that it has benefited from higher prices in products such as gold (+11%) and beef (+6%). The forecast contraction is explained by a drastic reduction in volumes exported of products such as sugar, beef, prepared foods, footwear, leather products and wood, among others (Central Bank of Nicaragua, 2019).

In the case of Panama, national merchandise exports are projected to grow by 4.3%, driven by increased export volumes in products such as bananas, watermelon, coffee, fishmeal, wood, hides and skins and clothing. This should compensate for lower prices among bananas, sugar, coffee, shrimp and fish. This growth has not been replicated in

the Colón Free Zone (ZLC), in which cumulative re-exports of goods were down by 16% as of July (Office of the Comptroller General of the Republic, 2019). A slight recovery is expected during the rest of the year, so ZLC exports are set to be 10% lower in value terms. Imports into the ZLC are also projected to fall back by 7%. In both cases, the slacker activity is explained both by lower prices and by a reduction in the volumes sold.

El Salvador is the Central American country in which foreign trade is set to post the highest growth, in both exports and imports (+3.5% and +3.3%, respectively). In the first semester of 2019, exports of non-traditional products (plastics, chemicals, basic chemicals, paper and paperboard, among others) performed strongly. In addition, the value of maquila textile and garment shipments increased by 5.1% in that period (BCR, 2019).

The value of Central American merchandise imports is forecast to decrease by 2.1% in 2019, largely owing to a reduction in the oil bill and slacker demand in some of the countries of the subregion. For example, in the first semester, Costa Rica purchased fewer vehicles and metallic materials for construction and industry (Central Bank of Costa Rica, 2019). Honduras also reported a general decline in imports of capital and consumer goods and raw materials for industry (Central Bank of Honduras, 2019). The drop in imports in Costa Rica, Honduras, Nicaragua and —to a lesser extent— Guatemala and Panama has been partly offset by their continued expansion in El Salvador, where, in the first half of the year, external purchases of consumer goods increased by 7.9%, intermediate goods were up by 2%, and capital goods grew by 5.1% (BCR, 2019).

For the Caribbean economies, an increase in export value of 3.7% is projected, resulting from a volume increase (+4.7%) and a fall in prices (-1%) (see table I.15). In 13 of the 16 Caribbean countries for which information is available, export values are projected to grow, driven mainly by volume expansion. Six countries largely explain the positive trend of this subregion's export sector: the Dominican Republic, Guyana, Haiti, Jamaica, Suriname and Trinidad and Tobago.

Table I.15
Caribbean countries: projected variation in trade in goods by price, value and volume, 2019
(Percentages)

	Exports			Imports		
	Price	Volume	Value	Price	Volume	Value
The Caribbean	**-1.0**	**4.7**	**3.7**	**-2.1**	**1.2**	**-0.9**
Caribbean Community (CARICOM)	**-2.4**	**7.4**	**5.0**	**-1.6**	**2.6**	**1.0**
Bahamas	-2.0	6.1	4.1	-2.3	-9.5	-11.7
Barbados	-0.6	3.2	2.6	-1.0	2.5	1.4
Belize	-3.5	2.0	-1.5	-0.8	0.8	0.0
Guyana	3.1	0.4	3.5	-0.3	1.3	1.0
Haiti	0.6	5.9	6.5	-0.5	9.4	8.9
Jamaica	-7.7	12.5	4.8	-2.5	5.0	2.5
Suriname	6.9	-1.9	5.0	-0.2	15.2	15.0
Trinidad and Tobago	-4.6	10.4	5.8	-3.0	1.9	-1.1
Organization of Eastern Caribbean States (OECS)	**-0.6**	**3.7**	**3.1**	**-1.1**	**5.3**	**4.2**
Antigua and Barbuda	-0.7	6.6	6.0	-1.5	3.5	2.0
Dominica	-0.5	4.0	3.5	-1.2	3.2	2.0
Grenada	-1.1	3.1	2.0	-1.1	7.2	6.2
Saint Kitts and Nevis	0.4	-3.5	-3.1	-1.2	6.2	5.0
Saint Lucia	0.5	3.6	4.1	-0.5	4.6	4.1
Saint Vincent and the Grenadines	0.0	2.7	2.7	-1.1	8.4	7.3
Cuba	**-1.6**	**-2.1**	**-3.7**	**-4.6**	**-2.4**	**-7.0**
Dominican Republic	**1.6**	**1.8**	**3.4**	**-1.7**	**0.7**	**-1.0**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries, and from the Economist Intelligence Unit (EIU).

The Dominican Republic, which accounted for 34% of total Caribbean exports in 2018, is benefiting from higher prices among some of its export products, mainly gold, tobacco, ferronickel and jewellery. The growth of the value exported in 2019 is projected at 3.4%, with increases in both price (1.6%) and volume (1.8%). The largest expansion is likely to be in agricultural and mining exports, where values are expected to be up by 10% and 5%, respectively. Among agricultural goods, exports of bananas and avocados grew strongly, as did gold and ferronickel among mining products. In the free trade zones, exports of tobacco and electrical products will compensate for reductions in the apparel and medical equipment sectors, which by June 2019 had fallen by 0.8% and 6.5%, respectively (Central Bank of the Dominican Republic, 2019).

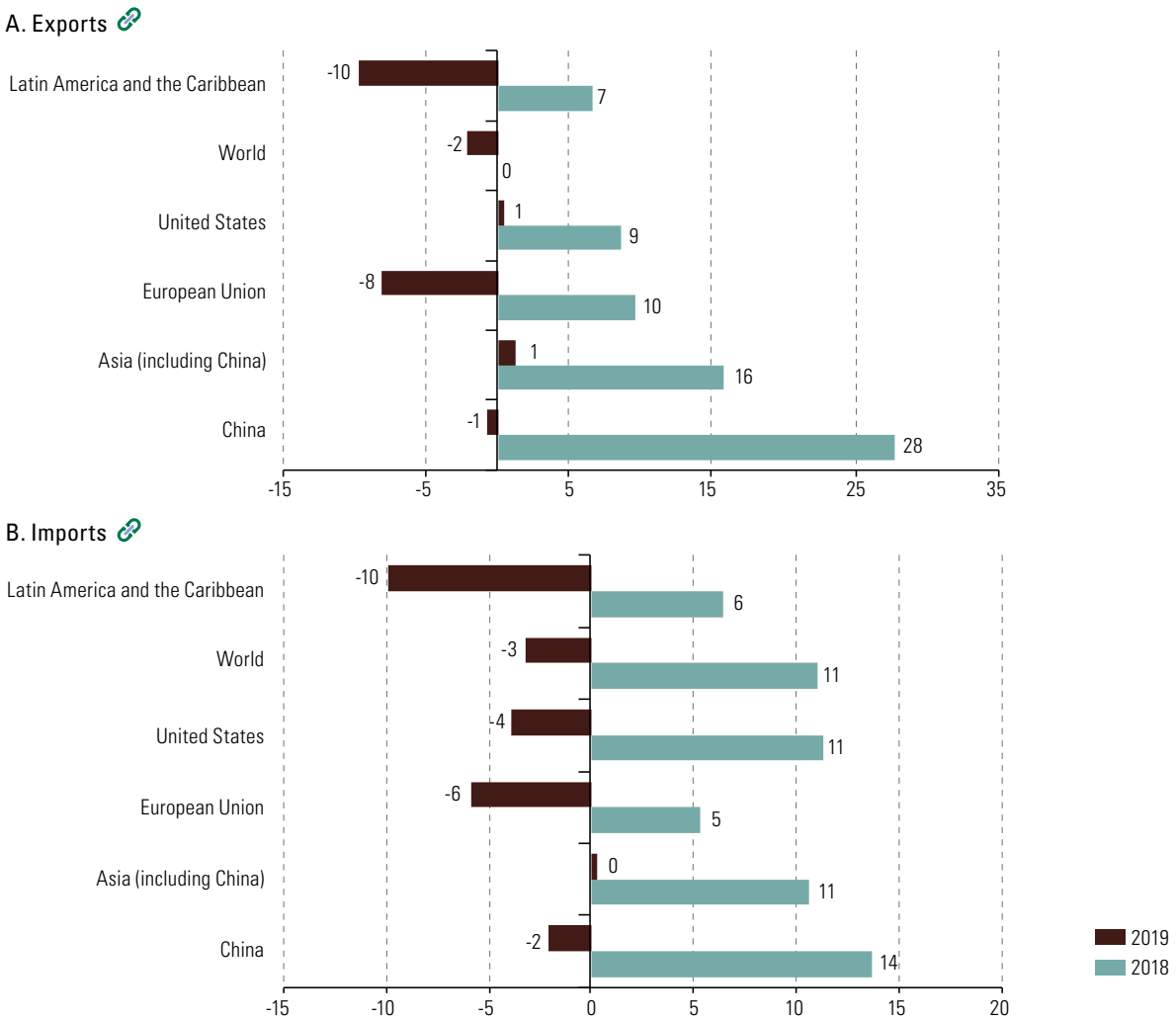
In the case of Trinidad and Tobago, despite the fall in the price of its main export products, oil and gas, exports are expected to continue to expand. This is being driven mainly by demand from the United States, which up to June had increased the volume of its purchases from that country by 2.5%. Jamaica is the country in the subregion in which export prices are expected to fall most steeply, due to lower prices for products that represent just over 60% of its export basket (aluminium -14%, refined petroleum products -3%, coffee -11%, sugar -5%). However, it its overall shipments have continued to grow thanks to demand from the United States. The value of exports to that country expanded by 13% between January and May, driven mainly by an increase in the volume exported by the mining sector, which is expected to continue in 2020 (EIU, 2019).

In Guyana and Suriname, although some sectors and products suffered sharp price reductions (aluminium, beverages, sugar, and rice), they also benefited from the rise in the price of gold, their main export product (41% and 61% of total exports, respectively). Haiti, for its part, continues to benefit from the tariff preferences granted by the United States to its textile products, which accounted for 93% of its total exports to that country in 2018 and which enter the United States duty-free. Between January and July, Haiti's exports to the United States grew by more than 20% in value terms (USITC, 2019).

In the Caribbean, only Belize, Cuba and St. Kitts and Nevis are likely to see their export value decline. Belize has been affected by lower prices for several of its export products (coffee, sugar, bananas, oil, shrimp, among others), although mitigated by increases in the volume of sales of sugar, citrus fruits and bananas. Cuba, which has also endured lower prices for some of its main export products (sugar, oil, beverages, among others), benefited from higher prices for iron ore, steel products and tobacco. The price of the latter is projected to end the year 10% higher (Economic and Commercial Office of the Embassy of Spain in Havana, 2019). Nonetheless, its overall export value is projected to fall by 3.7%, dragged down by the worst performing sectors (sugar, citrus fruits and bananas). In the case of Saint Kitts and Nevis, exports of various manufactures to the United States market (which absorbs nearly 60% of its external sales) had contracted by 80% between January and July 2019.

Projections for trade between Latin America and the Caribbean and its main partners envisage the steepest falls occurring in flows to and from the European Union and with the region itself, in the case of both exports and imports (see figure I.29). Only exports to the United States and Asia are expected to record a slight expansion of 1%, while imports from all origins will suffer a general decline.

Figure I.29
Latin America and the Caribbean: variation in value of merchandise trade by origin and destination, 2018 and 2019[a]
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.
[a] The figures for 2019 are projections.

In the first six months of 2019, United States imports from Latin America and the Caribbean were up by 2.5% in value terms (see table I.16). Just a few sectors reported falls (sugar, non-metallic minerals, metal products, and petrochemicals), while there was a significant increase in purchases of various semi-manufactured products (iron and steel, agribusiness, chemicals and textiles), as well as vehicles and other manufactures. In particular, imports by the United States from Mexico grew by 6.2%. These results partly reflect the opportunities that have been generated for the region as a result of the additional barriers imposed on Chinese products in the United States, mainly in sectors such as textiles and apparel, electronics and autoparts, among others. However, imports by the United States from the region have performed unevenly: shipments from both Chile and Peru were down, which explains the 20% contraction in its total purchases from South America (excluding Argentina and Brazil) in the first half of 2019.

Table I.16
United States: variation in value of merchandise imports from selected countries and subregions in Latin America and the Caribbean, January–June 2019 relative to the same period in 2018
(Percentages)

Products / sectors	Argentina	Brazil	Rest of South America	Mexico	Central America	The Caribbean	Latin America and the Caribbean
Oils	-18.3	7.4	8.4	13.9	-5.6	3.9	7.2
Sugar	4.9	-25.1	40.2	-6.6	-9.3	32.9	-3.3
Beverages and tobaccos	-1.9	5.3	-0.4	11.3	3.1	-3.4	6.3
Meat	0.0	68.0	14.3	13.6	4.5	0.0	13.0
Apparel	1.7	-8.8	8.4	-2.5	5.6	4.9	3.2
Leather and footwear	-29.5	10.1	-17.9	-16.0	-10.6	-2.2	-9.1
Electrical equipment	12.1	21.0	2.6	1.8	2.2	-0.1	1.9
Livestock	88.1	8.2	1.5	-1.5	17.4	55.0	4.2
Iron and steel	**3.9**	**22.1**	**-21.7**	**0.1**	**-51.5**	**0.5**	**5.0**
Wood and articles of wood	46.5	1.5	-4.0	12.3	-3.1	18.7	1.6
Machinery and equipment	64.9	29.2	-14.1	4.1	-2.1	7.6	4.9
Non-metallic minerals	21.5	-15.9	-49.8	-7.2	-5.9	-9.8	-18.7
Oilseeds	29.0	60.2	-5.3	11.6	-3.5	53.9	3.0
Other manufactures	-2.1	-16.7	25.9	-0.2	13.0	-27.0	-1.7
Other foods	-1.2	-13.2	-1.4	11.3	-4.4	6.9	6.0
Other cereals	-12.6	9.9	-1.5	15.9	7.6	13.9	2.0
Other crops	4.4	-33.5	6.7	9.9	4.9	5.8	6.6
Paper and cardboard	210.0	30.5	13.5	-4.4	6.3	11.3	13.8
Fishery products	7.4	0.0	0.0	15.0	-13.1	-7.5	0.4
Agricultural products	-24.3	-10.4	104.1	15.8	28.5	-67.6	15.4
Metal products	4.0	3.1	-28.2	0.9	-38.1	19.7	-11.4
Chemical	21.4	12.1	-17.5	6.7	14.2	-5.8	4.2
Textiles	1.0	-16.6	22.8	0.2	12.0	11.0	2.5
Vehicles	-73.7	8.4	-29.0	16.5	-33.1	-8.1	16.0
Petrochemicals	7.6	-6.0	-29.4	-5.3	-27.4	20.3	-17.0
Total imports	**7.0**	**4.1**	**-20.2**	**6.2**	**0.9**	**0.6**	**2.5**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the United States International Trade Commission (USITC).

The surcharges that China has imposed on some agricultural and agribusiness products from the United States—soybeans, meats and wines, among others— have benefited the latter's South American competitors, which saw their exports to China grow during the first half of 2019. In some cases, the growth was remarkable (Argentina 31%, Colombia 32%, Uruguay, 16%), and it is expected to continue during the second half of the year. Exports from the region to the European Union are projected to contract by 8% in 2019, with above-average reductions in Brazil, Chile, Paraguay, Peru and Uruguay (see table I.AI.2 of annex I.A1). If ratified, the agreement reached in June 2019 between MERCOSUR and the European Union could give new impetus to trade between the two blocs in the coming years (see box I.2).

Box I.2
MERCOSUR and the European Union: towards a new economic and trade partnership?

On 28 June 2019, the four founding members of MERCOSUR reached an agreement in principle on trade matters with the European Union, thus bringing to an end a negotiating process that had started nearly 20 years earlier, in 2000. If ratified, this agreement would create the world's largest free trade area, both in terms of population (780 million people, 10% of the world's population) and GDP (US$ 20 trillion in 2017, 25% of global GDP). The European Union is MERCOSUR's second largest trading partner after China. In 2018, 17% of MERCOSUR's total exports of goods went to the European Union and 19% of its imports came from there, for total trade of US$ 102 billion (with a slight balance in MERCOSUR's favour). The European Union is also the leading foreign investor in MERCOSUR, with an investment stock of 381 billion euros (US$ 413 billion) in 2017.

Both parties must legally review the text of the agreement, so as to agree on a final text for signature and subsequent ratification by the congresses of the member States of both blocs and the European Parliament. This process is expected to be complex, owing to the resistance faced by the agreement in both blocs. In the European case, this relates mainly to the agricultural interests of countries such as France, Poland and Ireland, as well as to environmental considerations, particularly related to deforestation of the Amazon. In the case of MERCOSUR, the agreement has been particularly controversial in Argentina, so its prospects for approval will depend largely on the outcome of the presidential elections to be held on 27 October 2019.

The agreement with the European Union is the first reached by MERCOSUR with a developed-country grouping, and is also its first comprehensive free trade agreement; in other words, it includes detailed provisions on trade in services, public procurement, intellectual property, e-commerce and labour and environmental issues, among other matters. The agreement stipulates that the European Union will reduce its tariffs to zero for 95% of products originating in MERCOSUR, and that MERCOSUR will do the same for 91% of products originating in the European Union. Tariffs will be lowered over a period of up to 10 years by the European Union and up to 15 years by MERCOSUR. In the case of some agricultural products that are politically highly sensitive, the European Union will not eliminate its tariffs, but will grant preferential access to MERCOSUR through quotas.

Should it enter into force, the agreement with the European Union would reinforce the continuity of the original MERCOSUR project as a customs union with a common trade policy towards third parties. This project has been seriously questioned in recent years, especially in Brazil. However, the agreement raises several areas of concern for the MERCOSUR countries, and especially for their two largest economies (Argentina and Brazil), because, among other commitments, MERCOSUR members are required to:

- eliminate the relatively high tariffs currently levied on products such as automobiles (35%), autoparts (14%–18%), machinery (14%–20%), chemicals (up to 18%), clothing and footwear (35%) and confectionery (20%);
- open up their public procurement for goods, services and public works (only at central government level) to European suppliers on an equal footing with the MERCOSUR countries themselves; and
- open up various service sectors to competition from European suppliers.

The main area of concern for MERCOSUR relates to the effects of tariff reduction on industrial sectors that today enjoy high levels of protection. An example is the Argentine automotive industry (including autoparts), which would face greater European competition domestically and in its main export market, Brazil. In short, the agreement with the European Union offers gains mainly for MERCOSUR's agro-export sectors; but it would have severe impacts on the industrial sector and could reduce the "policy space" that the governments of the bloc have enjoyed until now.

If the MERCOSUR agreement enters into force, a total of 29 Latin American and Caribbean countries would then have trade agreements in force with the European Union. The latter would consolidate its current position as the extraregional partner with the largest number of agreements in force in the region. In the medium term, this could make it possible to generate a shared production area between Latin America and the Caribbean and Europe, through the gradual accumulation of origin between the different agreements. In addition, the "common denominator" provided by the agreements with the European Union could boost regional integration itself, since the countries of Latin America and the Caribbean could reciprocally extend the same concessions to each other that they have already granted to the European Union. In particular, this could facilitate convergence between the Pacific Alliance and MERCOSUR, since all members of both groupings would have agreements in force with the European Union.

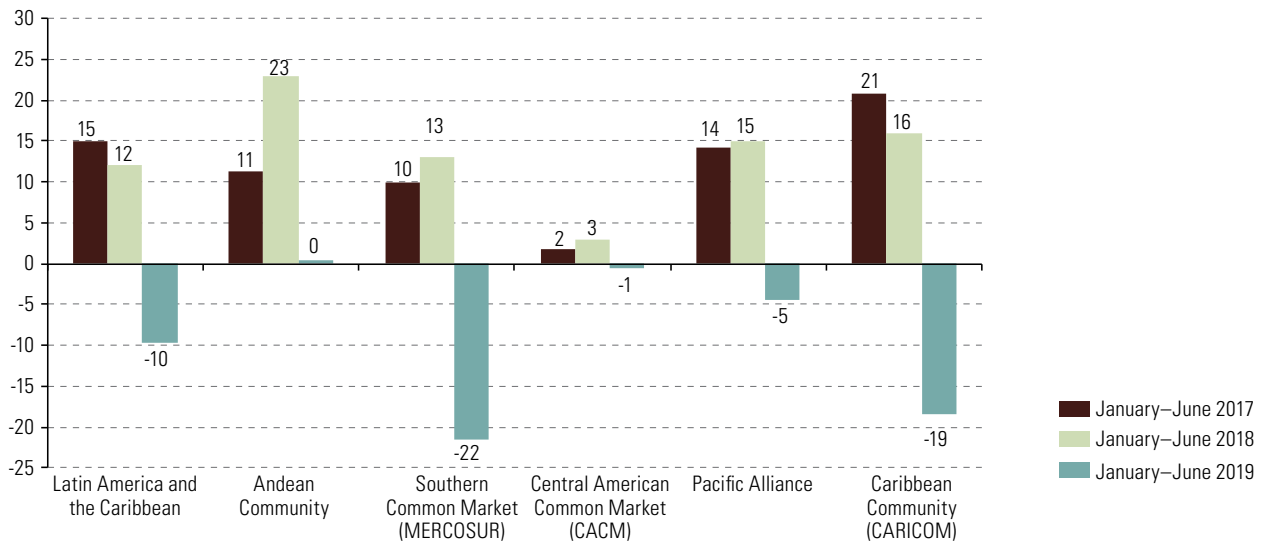
Source: Economic Commission for Latin America and the Caribbean (ECLAC), *Boletín de Comercio Exterior del MERCOSUR*, No. 2, July 2019, and European Commission, "New EU-Mercosur trade agreement: the agreement in principle", July 2019 [online] http://trade.ec.europa.eu/doclib/docs/2019/june/tradoc_157964.pdf, http://trade.ec.europa.eu/doclib/docs/2019/june/tradoc_157964.pdf.

3. Intraregional trade is contracting the most

In the first half of 2019, intraregional trade has been hit hard by the region's meagre economic growth (see figure I.30). Trade within MERCOSUR and the Caribbean Community suffered the steepest falls (-21.5% and -18.5%, respectively), with imports of their main capital goods down by more than 30%, along with chemical and pharmaceutical products, non-metallic minerals, metals and articles of metal, and other manufactures (see table I.17). This is directly related to the sluggish pace of economic activity in several of the member countries of both groups. Trade between the Pacific Alliance countries fell by less (-4.5%), mainly owing to a reduction in imports from the three South American members of the bloc. Among the most affected products are several of Mexican origin (tractors, vehicles, steel products, automobiles, televisions and medicines), as well as fuels of Colombian origin (MINCETUR, 2019).

Trade between members of the Central American Common Market (CACM) fell back slightly in the first half of the year (-0.6%). This was felt most acutely in oil and mining, as well as in machinery and equipment and the automotive sector, mainly owing to the collapse of imports of intermediate inputs from Nicaragua, Honduras and —to a lesser extent— Costa Rica. The stronger relative performance of intra-Central American trade is mainly explained by the greater productive integration among the countries of that subregion compared to other subregions, as well as the additional stimulus provided by the customs union between Guatemala and Honduras, which El Salvador is expected to join. Nonetheless, in 2019 intra-Central American trade will have been in the doldrums for three years. This situation is detrimental to industries such as food, beverages and tobacco, chemicals and pharmaceutical products and other manufactures, whose exports to the Central American subregion had in the past behaved countercyclically, and thus partly cushioned episodes of slack extraregional demand. If this trend continues, small and medium-sized exporters will lose space in intraregional trade, generating job losses that would exacerbate pressures fuelling migration to the United States.

Figure I.30
Latin America and the Caribbean: variation in goods exports within each integration mechanism, January–June 2017, 2018 and 2019, relative to the year-earlier period
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries, and data from the Andean Community and the Central American Common Market.

Table I.17
Latin America and the Caribbean: variation in intraregional merchandise exports within each integration mechanism by sector, January–June 2019 relative to the year-earlier period
(Percentages)

	Southern Common Market (MERCOSUR)	Andean Community	Pacific Alliance	Central American Common Market (CACM)	Caribbean Community (CARICOM)	Latin America and the Caribbean
All Products	**-21.5**	**0.4**	**-4.5**	**-0.6**	**-18.5**	**-9.7**
Agriculture. hunting. and fishing	-7.6	10.4	-8.5	13.0	10.2	3.4
Oil and mining	177.3	-15.9	-7.9	-15.2	-11.1	6.0
Food. beverages. and tobacco	-3.2	3.1	-1.1	-2.1	5.3	-8.9
Wood. pulp. and paper	-15.2	-8.9	-5.5	1.1	-6.1	-9.5
Textiles. apparel and footwear	-20.2	-0.3	-9.4	0.8	-16.7	-8.3
Chemicals and pharmaceuticals	-24.1	2.7	1.0	2.4	-29.1	-12.1
Non-metallic minerals	-16.1	-3.5	-5.2	-4.9	-7.1	-19.8
Metals and related products	-29.0	6.2	-8.8	-7.1	-9.1	-15.8
Machinery and equipment	-31.5	-2.4	-3.0	-11.3	-31.1	-14.3
Automotive	-41.2	3.3	-12.5	-16.9	-16.5	-15.2
Other manufactures	-13.6	148.8	-10.6	4.5	0.3	-12.2

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries, and data from the Andean Community and the Central American Common Market.

Unlike the contractions experienced in other integration mechanisms, the Andean Community saw merchandise exports among its members increase slightly (+0.4%). This was driven by the greater resilience of the Colombian and Ecuadorian markets, which cushioned the sharp contraction in the values exported by the Plurinational State of Bolivia and Peru. There were significant increases in purchases of alcohol, oil, soya cake, palm oil and cane and beet sugar by both countries from their other partners in the bloc (+9% in Colombia and +20% in Ecuador). Colombia also continued to expand its exports to Ecuador (+13% up to August) (DANE, 2019). In contrast, the Plurinational State of Bolivia and Peru reduced their imports from Colombia and Ecuador, especially of food, beverages and tobacco, chemicals, vehicles and fuels. The relatively high level of productive integration between Colombia and Ecuador, as well as between these two countries and the Plurinational State of Bolivia and Peru, has partially offset the weaker economic activity in the latter two countries.

Intraregional exports continue to be mostly manufactures, which represented 82% of their total value (see table I.18). This underscores the need to activate support mechanisms for intraregional production linkages, especially in the industries that are most tightly integrated: food, beverages and tobacco; chemicals and pharmaceuticals; metals and articles of metal; and machinery and equipment. In these sectors, exporters in the region are subject to non-tariff barriers that are higher, in ad valorem equivalent terms, than the tariffs applied to intraregional trade (see table I.19 and figure I.31).

Table I.18
Latin America and the Caribbean: sectoral distribution of intraregional merchandise exports by integration mechanism, January-June 2019
(Percentages)

	Southern Common Market (MERCOSUR)	Andean Community	Pacific Alliance	Central American Common Market (CACM)	Caribbean Community (CARICOM)	Latin America and the Caribbean
Commodities	**14.7**	**17.4**	**15.3**	**4.2**	**2.7**	**17.6**
Agriculture, hunting, and fishing	13.2	2.1	3.3	4.0	1.6	7.0
Oil and mining	1.5	15.3	11.9	0.1	1.2	10.6
Manufactures	**85.3**	**82.6**	**84.7**	**95.8**	**97.3**	**82.4**
Food, beverages, and tobacco	10.0	26.8	11.6	30.3	22.1	14.0
Wood, pulp, and paper	2.4	3.9	4.4	8.5	3.3	3.8
Textiles, apparel, and footwear	2.5	5.4	3.4	8.2	0.4	3.2
Chemicals and pharmaceuticals	15.4	22.6	23.9	29.8	54.3	21.0
Non-metallic minerals	1.1	1.7	1.5	2.5	2.4	1.6
Metals and related products	5.4	9.9	9.4	9.1	1.9	8.0
Machinery and equipment	9.2	5.4	18.8	3.8	8.7	10.8
Automotive	33.0	4.3	10.8	0.5	3.8	17.5
Other manufactures	6.3	2.6	0.8	3.2	0.4	2.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

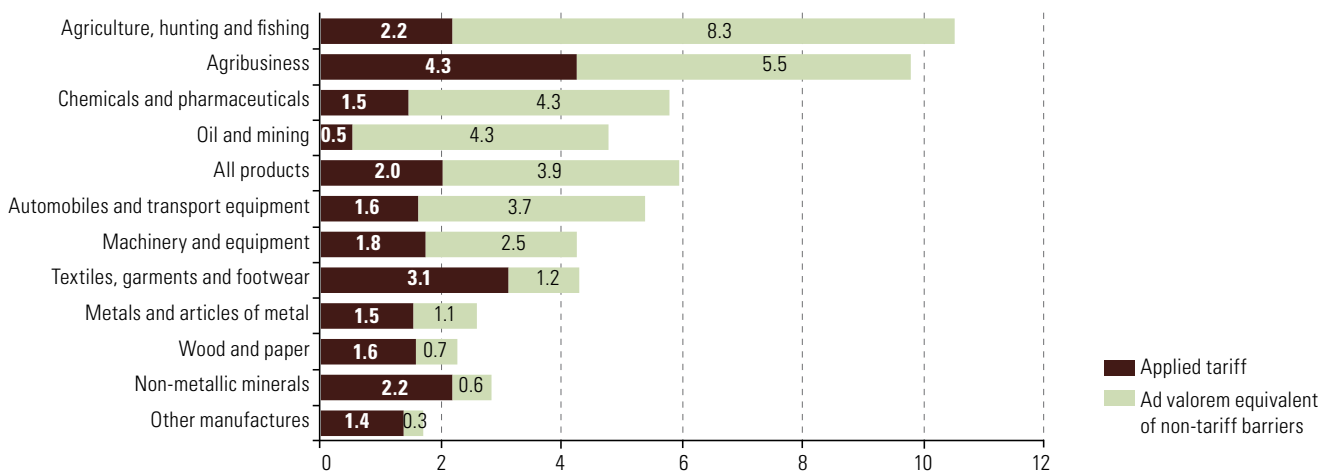
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries, and data from the Andean Community and the Central American Common Market (CACM).

Table I.19
Latin America and the Caribbean: average applied tariff and ad valorem equivalents (AVEs) of non-tariff barriers (NTBs), 2015
(Ad valorem percentages)

	Average applied tariff (1)	Ad valorem equivalents of nontariff barriers (2)	Total protection (3) = (1+2)	Share of nontariff barriers in total protection (2/3)*100
Andean Community	1.3	2.1	3.4	61.7
Southern Common Market (MERCOSUR)	1.4	5.1	6.5	78.4
Central American Common Market (CACM)	2.5	2.3	4.9	47.9
Pacific Alliance	1.6	3.8	5.4	70.6
Caribbean Community (CARICOM)	6.4	1.4	7.8	17.9
Mexico	3.9	6.3	10.3	61.6
Latin America and the Caribbean	**2.0**	**3.8**	**5.8**	**64.8**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of M. Dolabella and J. Durán-Lima, "Trading costs in Latin America and the Caribbean: customs tariffs and ad-valorem equivalents of non-tariff measures", 2019, forthcoming.

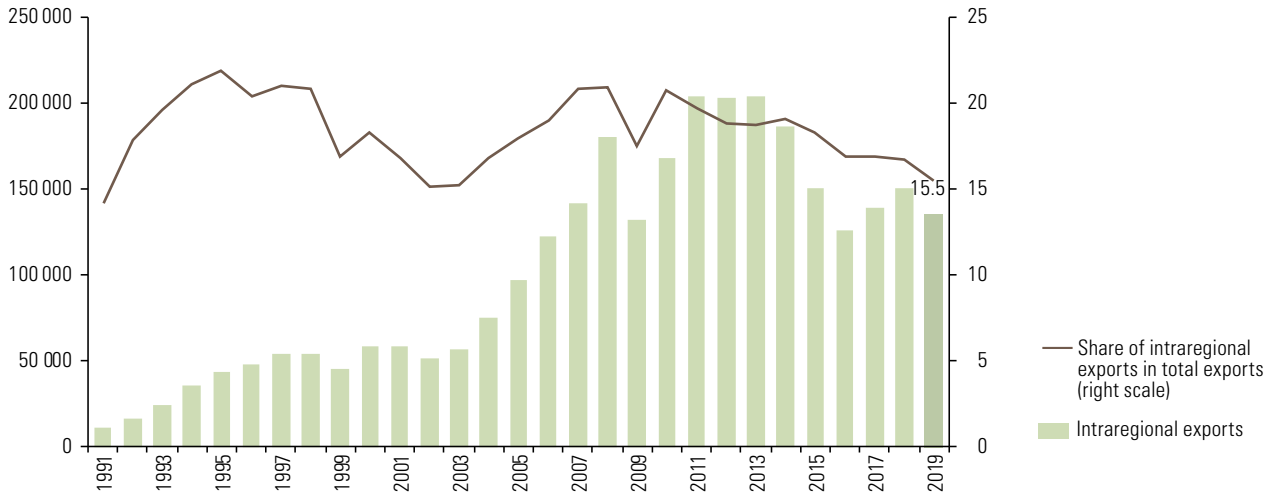
Figure I.31
Latin America and the Caribbean: average applied tariff and non-tariff protection in the intraregional market by sector, 2015
(Ad valorem percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of M. Dolabella and J. Durán-Lima, "Trading costs in Latin America and the Caribbean: customs tariffs and ad-valorem equivalents of non-tariff measures", 2019, forthcoming.

Intraregional trade flows are expected to continue trending down for the rest of the year, so their value is projected to contract by 10% in 2019, a much steeper reduction than in shipments to the rest of the world (close to 0%). As a result, the intraregional export coefficient is expected to slip to 15.5% (see figure I.32).

Figure I.32
Latin America and the Caribbean: intraregional exports of goods, 1991–2019[a]
(Millions of dollars and percentages of total goods exports)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries, and data from the Andean Community and the Central American Common Market
[a] The figures for 2019 are projections.

As in previous years, the collapse of intraregional trade acts as a procyclical force amplifying the reduction in the region's total exports. An accumulation of factors has thus far prevented this pattern from being overcome —such as shortcomings in connectivity between the countries of the region, which prevents trade between them from serving as an escape valve when international demand retreats. This subject is considered in detail in Chapter III.

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Annex I.A1

Table I.A1.1
Latin America and the Caribbean: value of exports and imports of goods, 2017–2019[a]
(Millions of dollars)

	Exports			Imports		
	2017	2018	2019	2017	2018	2019
Latin America and the Caribbean	**1008 064**	**1092 235**	**1070 527**	**976 291**	**1085 188**	**1059 032**
Latin America	**978 156**	**1060 003**	**1038 828**	**944 936**	**1051 529**	**1025 669**
South America	**515 789**	**554 859**	**520 006**	**421 928**	**478 843**	**453 494**
Common Market of the South (MERCOSUR)	**334 109**	**354 956**	**329 970**	**249 531**	**284 867**	**260 241**
Argentina	**58 636**	**61 638**	**65 247**	**64 101**	**62 505**	**50 716**
Brazil	217 243	239 034	225 648	153 215	185 447	183 678
Paraguay	13 396	13 813	12 594	11 524	12 926	11 822
Uruguay	10 804	11 488	11 948	8 668	9 123	8 115
Venezuela (Bolivarian Republic of).	34 030	28 983	14 534	12 023	14 866	5 910
Andean Community	**112 821**	**124 441**	**119 576**	**110 897**	**123 193**	**126 439**
Bolivia (Plurinational State of)	8 105	8 879	8 639	8 621	9 354	9 141
Colombia	39 676	44 373	42 465	44 247	49 583	54 539
Ecuador	19 618	22 123	22 957	19 307	22 386	22 381
Peru	45 422	49 066	45 515	38 722	41 870	40 378
Chile	**68 859**	**75 462**	**70 460**	**61 500**	**70 783**	**66 814**
Central America	**40 024**	**40 809**	**41 370**	**72 369**	**76 143**	**74 475**
Costa Rica	10 808	11 477	11 856	15 150	15 871	15 302
El Salvador	4 667	4 735	5 095	9 512	10 671	11 019
Guatemala	11 100	11 079	11 356	17 110	18 366	18 143
Honduras	8 647	8 669	8 409	11 324	12 200	11 573
Nicaragua	4 143	4 169	3 945	6 549	5 802	5 247
Panama (excluding the Colón Free Zone)	660	680	710	12 724	13 233	12 854
Panama (Colón Free Zone)	12 474	13 356	11 887	9 215	9 773	9 097
Mexico	**409 806**	**451 054**	**463 759**	**420 790**	**464 850**	**467 010**
Caribbean	**29 970**	**32 156**	**33 504**	**51 989**	**55 579**	**54 956**
Caribbean Community (CARICOM)	**17 433**	**18 875**	**19 812**	**22 140**	**23 886**	**24 266**
Bahamas	570	657	683	3 108	3 044	2 687
Barbados	803	448	460	1 520	1 499	1 521
Belize	458	451	414	846	896	897
Guyana	1 042	1 552	1 606	1 027	1 113	1 161
Haiti	992	1 117	1 190	3 616	3 888	4 233
Jamaica	1 306	1 900	1 991	2 386	2 561	2 625
Suriname	2 028	2 124	2 230	1 293	1 509	1 736
Trinidad and Tobago	9 927	10 311	10 912	6 105	6 844	6 768
Organization of Eastern Caribbean States	**309**	**315**	**325**	**2 238**	**2 532**	**2 639**
Antigua and Barbuda	37	38	40	494	604	616
Dominica	22	21	21	174	266	271
Grenada	41	43	44	370	401	426
Saint Kitts and Nevis	29	34	32	332	350	367
Saint Lucia	135	140	146	576	600	625
Saint Vincent and the Grenadines	44	40	41	291	311	334
Cuba	**2 402**	**2 373**	**2 285**	**12 115**	**11 484**	**10 680**
Dominican Republic	**10 135**	**10 908**	**11 407**	**17 734**	**20 209**	**20 010**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.

[a] The figures for 2019 are projections.

Table I.A1.2
Latin America and the Caribbean: change in value of exports to selected partners, 2018 and projection for 2019
(Percentages)

	European Union		United States		China		Rest of Asia and the Pacific		Latin America and the Caribbean	
	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
Latin America and the Caribbean	**9.6**	**-8.1**	**8.6**	**0.5**	**27.9**	**-0.7**	**3.4**	**5.0**	**6.7**	**-9.8**
Argentina	6.9	4.1	-3.3	-3.6	2.1	25.5	-7.1	34.9	11.2	-3.6
Bolivia (Plurinational State of)	4.2	0.3	-17.4	-5.5	13.0	–19.0	11.5	9.5	22.3	-7.1
Brazil	20.9	-17.8	6.8	3.5	34.7	2.6	4.6	13.9	2.8	-16.8
Chile	-1.1	-11.7	4.1	-5.5	33.4	-18.2	-1.4	3.2	0.7	-2.9
Colombia	-9.8	-0.7	-2.6	9.7	73.7	33.3	8.6	-7.6	13.3	-7.1
Costa Rica	1.6	2.8	5.2	7.8	80.4	-43.8	47.9	10.7	5.2	5.4
Cuba	-21.3	16.2	…	…	22.2	-2.2	-26.5	22.8	9.1	16.9
Ecuador	3.0	-5.3	10.2	-15.8	93.6	74.7	-0.9	–19.2	17.2	-0.9
El Salvador	-11.2	23.1	1.4	2.7	81.4	-41.7	-48.9	15.4	6.8	11.5
Guatemala	-0.9	12.9	5.7	-4.2	-29.0	326.4	-27.9	15.7	0.2	1.0
Honduras	-16.3	1.6	-1.8	2.2	88.9	-87.1	31.2	16.4	3.7	3.2
Mexico	9.5	1.3	9.6	5.1	10.7	-5.7	11.8	7.4	8.0	-11.0
Nicaragua	-5.9	19.2	5.3	19.3	…	…	6.2	-30.7	-10.5	8.3
Panama	5.3	11.0	-6.4	6.9	1.4	-31.9	–20.8	-36.9	4.7	4.9
Paraguay	-34.4	-43.6	3.7	11.8	-5.9	-65.4	-21.5	-67.2	22.8	6.2
Peru	11.6	-24.1	15.0	-41.2	14.1	4.6	13.4	-8.9	-2.5	4.2
Dominican Republic	18.2	14.5	12.2	6.6	8.1	187.6	15.6	-13.9	12.8	-6.0
Uruguay	-4.1	-11.0	-0.8	2.0	0.7	32.0	3.2	22.2	-5.6	-13.0
Venezuela (Bolivarian Republic of)	7.2	32.2	4.0	-69.4	-3.7	-47.5	-2.9	-30.5	-10.9	-44.6

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.

Table I.A1.3
Latin America and the Caribbean: change in the value of imports from selected partners, 2018 and projection for 2019
(Percentages)

	European Union		United States		China		Rest of Asia and the Pacific		Latin America and the Caribbean	
	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
Latin America and the Caribbean	**9.7**	**-5.8**	**11.3**	**-3.9**	**13.7**	**-2.1**	**6.4**	**3.4**	**6.5**	**-9.9**
Argentina	-2.3	-15.6	1.4	-8.0	-1.9	–19.7	-1.0	-9.2	-8.4	-18.9
Bolivia (Plurinational State of)	29.3	-24.2	-16.2	-1.8	1.8	7.2	23.2	-2.9	5.8	-4.4
Brazil	19.1	-0.2	16.6	9.5	27.1	0.8	9.8	-0.4	12.1	-9.0
Chile	13.0	-8.4	19.8	-3.2	13.9	-4.7	6.4	-5.8	15.0	-9.6
Colombia	14.0	-3.2	8.1	0.7	20.5	-2.7	4.7	-2.9	15.1	-1.1
Costa Rica	0.1	9.7	5.8	-7.1	8.7	-8.4	2.6	-8.6	-8.9	3.6
Cuba	5.8	15.2	…	…	-25.6	22.4	-2.7	-12.9	13.4	2.8
Ecuador	15.3	2.7	22.1	0.6	17.1	-2.3	15.4	1.5	7.7	-4.9
El Salvador	12.2	-9.3	11.5	-2.8	14.2	5.1	3.5	-4.0	9.7	13.2
Guatemala	11.3	-10.4	2.0	-2.0	9.5	5.3	1.7	-1.0	8.7	3.5
Honduras	7.3	8.2	13.6	-21.6	21.4	42.8	7.9	25.9	-0.8	-5.3
Mexico	7.5	-5.0	10.9	-0.3	12.6	-0.8	6.6	7.0	11.9	0.1
Nicaragua	–19.2	-10.6	2.9	0.6	…	…	-25.9	-10.9	-11.3	–20.6
Panama	-1.1	23.1	6.4	0.2	6.3	4.0	-29.9	-4.0	2.2	-3.2
Paraguay	37.6	-39.7	8.1	22.6	3.2	6.3	41.2	0.2	8.8	-22.4
Peru	-2.8	-2.4	14.1	-3.7	13.4	-0.9	-0.8	5.1	9.2	-9.2
Dominican Republic	24.7	3.1	13.9	-3.1	17.2	5.8	12.7	-3.3	4.9	-0.2
Uruguay	-14.6	-14.0	-23.4	5.1	-0.9	-6.7	8.7	–19.2	4.9	-8.5
Venezuela (Bolivarian Republic of)	-10.5	-32.2	48.3	-78.1	13.4	-57.7	35.8	83.3	10.3	-62.0

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from customs offices, statistical institutes and central banks of the countries.

CHAPTER II

Enhancing trade's contribution to environmental sustainability

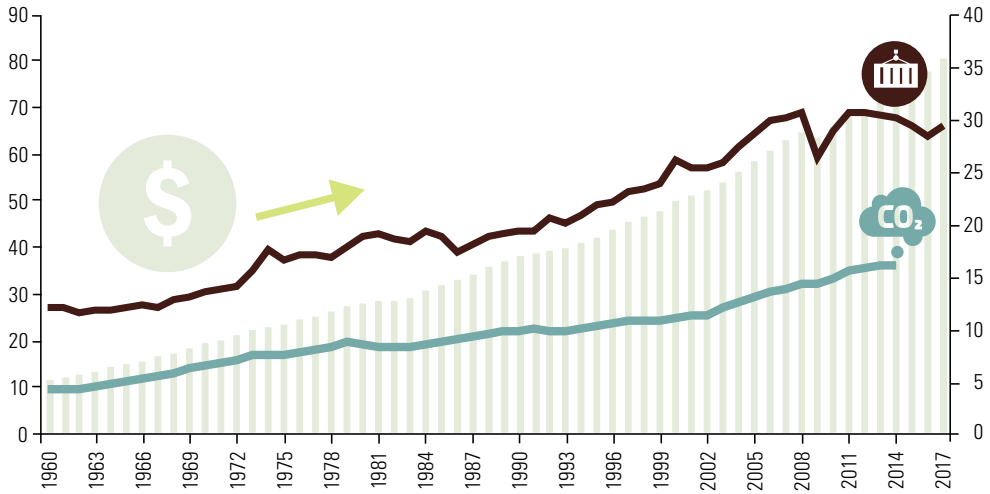
II

A. The interdependency between trade and climate change

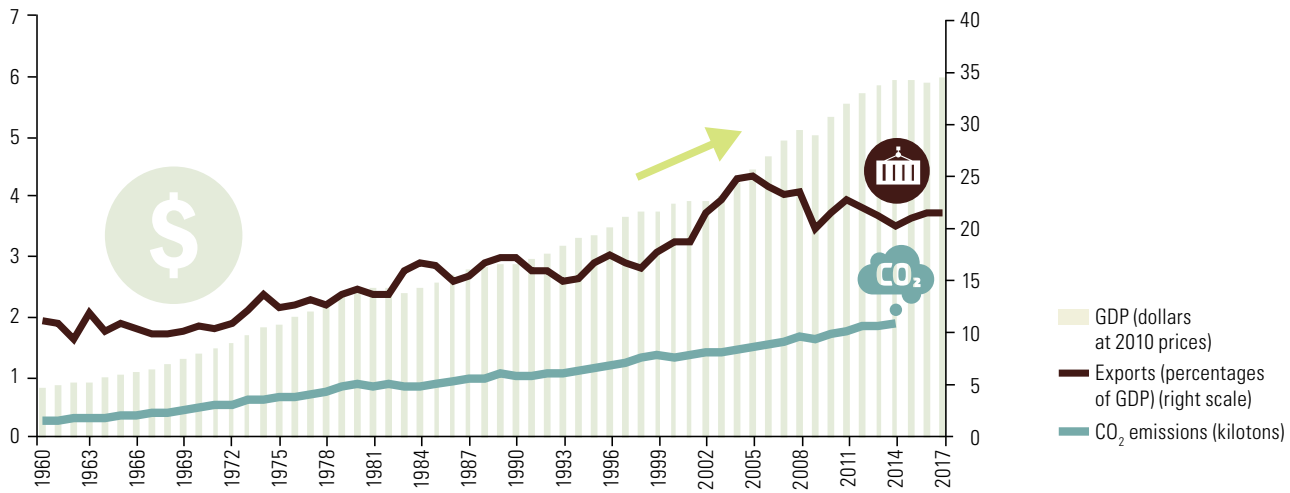
Both production and international trade have grown considerably in recent decades, as have emissions of carbon dioxide (CO_2) and other greenhouse gases (GHGs). Between 1970 and 2017, international trade in goods and services grew by 10.2 times in volume terms, while production expanded by a factor of 4.2. As a result, the share of exports in global output increased from 11.9% to 29.4% in this period (see figure II.1.A). This trend has been facilitated by a widespread lowering of tariff and non-tariff barriers, along with falling transport and communication costs, which allowed global value chains to spread. In the same period, the concentration of CO_2 in the atmosphere increased dramatically: from 310 particles per million (ppm) in the 1950s to over 400 ppm in 2018. These global trends have generally been replicated in Latin America and the Caribbean (see figure II.1.B). The simultaneous growth of trade and emissions raises the question of how these variables interrelate.

Figure II.1
World and Latin America and the Caribbean: GDP, exports of goods and services, and CO_2 emissions, 1960–2017

A. World



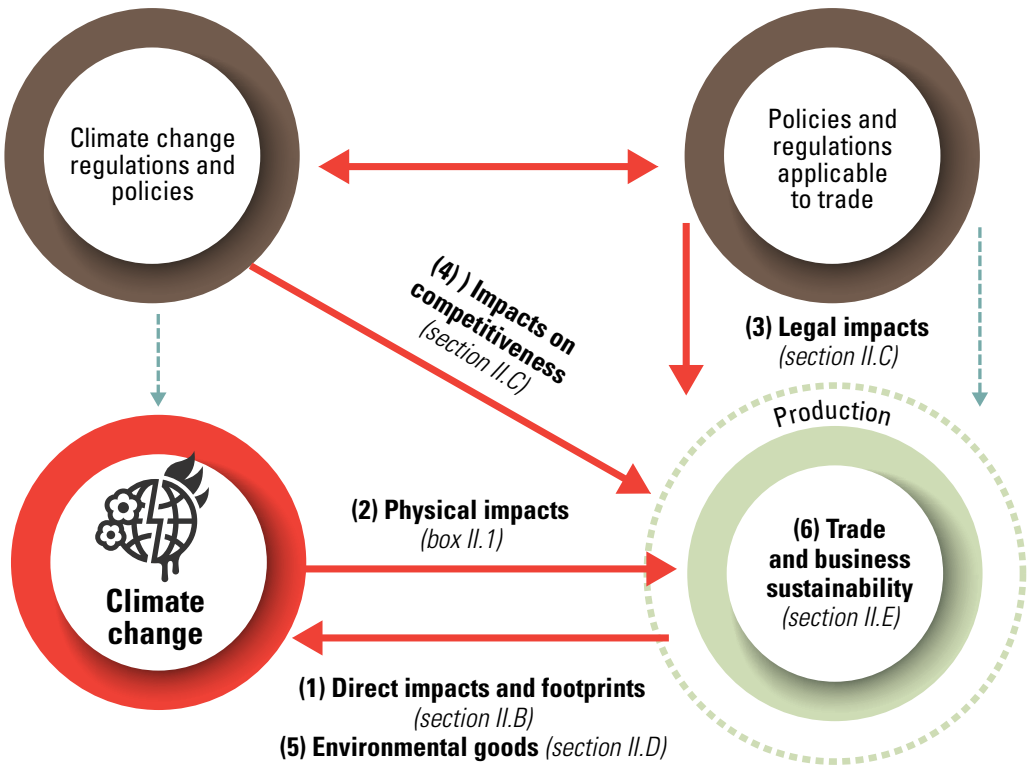
B. Latin America and the Caribbean



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Bank, *World Development Indicators*.
Note: GDP is measured in billions of dollars and emissions are measured in millions of kilotons of CO_2.

International trade has several direct impacts on climate change, both positive and negative (see diagram II.1, arrow 1). Trade liberalization has a three-pronged effect on emissions: (i) a scale effect, (ii) a composition effect, and (iii) a technical effect (Grossman and Krueger, 1993). The net result depends on the interaction between the three. Firstly, trade liberalization enables firms to expand their markets and exploit greater economies of scale and scope. The resulting increases in production, consumption and international transport generate larger GHG emissions and natural resource degradation; so this scale effect is negative. In practice, however, it may be partly offset, since, above a certain income threshold, economic growth raises both per capita income and environmental requirements (the "environmental Kuznets curve").[1]

Diagram II.1
Linkages between trade and climate change



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of A. Cosbey, *Trade and Climate Change Linkages*, Winnipeg, International Institute for Sustainable Development (IISD), 2007.
Note: The continuous lines indicate direct impacts on trade or climate change, while the dashed lines show indirect effects.

Secondly, GHG emissions may also vary as a result of changes in the composition of production and consumption structures. Trade liberalization causes relative prices to adjust and leads countries to specialize in products and services in which they have a comparative advantage. Moreover, a country's factor endowment —capital, land and labour— determines whether it specializes in more or less polluting activities. Changes in production patterns mean that GHG emissions in some countries are likely to increase, while in others they can be expected to decline. The environmental impact of trade-induced changes in consumption patterns is uncertain: in some cases

[1] The environmental Kuznets curve postulates that the early stages of a country's development are associated with increased environmental degradation, but that this is reversed once a certain level of per capita income is surpassed.

(for example, solar panels) it is positive, while in others (such as motor vehicles with combustion engines) the opposite is true (Cosbey, 2007).

Thirdly, there is a technical effect. Trade facilitates the international dissemination of modern technologies that make local production processes more efficient and reduce the use of inputs such as energy and water. Moreover, as a country integrates more tightly into the world economy and global value chains, its export sector becomes more exposed to the environmental requirements of the major importing markets. The changes needed to meet these requirements, which may either arise spontaneously from competition between firms or else be promoted through public policies, then percolate throughout the supply chain and stimulate the use of cleaner production processes and technologies.[2]

The empirical evidence on the net magnitude of these effects is inconclusive. Most of the studies reviewed by Cherniwchan, Copeland and Taylor (2017) find that the scale effect increases environmental damage, while the technical effect reduces it, and the composition effect may do either. Kim and others (2019) also point to the lack of consensus between different studies: some find that trade liberalization reduces emissions, others show the opposite, and a third group claim that there is no significant relationship between the two variables. These authors also note that the impact of trade on GHG emissions depends on the country in question, and in particular on its development level. In other words, while in developed countries trade seems to reduce the environmental impact, in developing ones it seems to increase it. This is partly explained by the carbon leakage associated with the migration of polluting production activities from the first group of countries to the second.

One way to illustrate the link between trade and the environment is through the emissions that are embedded in a country's exports and imports (that is, their "footprints"). Trade footprints correspond to the portion of the international demand for goods and services that is satisfied by the countries' export production. Wiedmann and Lenzen (2018) estimate that international trade absorbs between 10% and 30% of surface water and rainwater globally; and it is responsible for 11% of groundwater use, 13% of water pollution, 17%–30% of biodiversity loss, 20%–33% of global CO_2 emissions, 21%–37% of land use, and 29%–35% of energy use.[3] Section B presents estimates of the carbon footprint associated with the trade of a number of Latin American countries.

Climate change, in turn, exerts physical effects on international trade, mainly in two ways (see diagram II.1, arrow 2 and also box II.1). The first refers to changes in the productive capacities and comparative advantages of individual countries, particularly in natural resource-based sectors such as agriculture, food and tourism. Climate-related impacts undermine exports of these products and services, especially in regions with hot climates, while in other regions the impacts could be beneficial. Secondly, global warming directly affects international transportation, by opening up new sea routes and closing others. In addition, rising sea levels may affect ports and other coastal infrastructures (Delink and others, 2017).

2 The technical effect can also be negative, if trade speeds up the rate of product renewal (as happens with cell phones).

3 It is not trade itself that is responsible for CO_2 emissions (footprints), but the demand associated with the goods and services in question. It could be argued that the trade footprint corresponds to the difference between observed emissions and those generated in a hypothetical situation in which this international demand is met exclusively by local production in each country.

Box II.1
Latin America and the Caribbean: impact of climate change on production, trade and logistics

According to projections made by the Intergovernmental Panel on Climate Change (IPCC) (Magrin and others, 2014), if GHG emissions are drastically reduced, temperatures in the region can be expected to rise by 1°C–1.5°C between 2015 and 2100. Otherwise, temperatures could rise between 1.6°C and 4.0°C in Central America and by up to 6.7°C in the rest of Latin America and the Caribbean. These changes will have major effects on rainfall in all countries. The south and southeast of the region (south-eastern Brazil, Paraguay, Uruguay, the pampas region of Argentina and parts of the Plurinational State of Bolivia, Ecuador and Peru) will experience increasingly intense precipitation, while Central America and south western Latin America (central-southern Chile, south-western Argentina and southern Peru) are likely to be drier. Similarly, by 2100, more frequent periods of scarce rainfall and drought are expected in the tropical zone of South America, east of the Andes (Magrin and others, 2014). The region's coasts are also exposed to the effects of climate change through the gradual rise in sea level, compounded by variations in ocean swell, surface water temperature, salinity and the meteorological component of tides (ECLAC, 2012).

Climate change will have heterogeneous effects on production and exports. Agriculture, which in 2017 accounted for 5% of the region's GDP, 19% of employment and a quarter of its exports, is particularly sensitive to climate change. Variations in temperatures and precipitation, as well as extreme weather events, generally have a negative impact on yields, although some regions may benefit. Climate change above all accentuates processes of desertification and land degradation. The estimated potential losses for agriculture in Latin America and the Caribbean are likely to be greater during the second half of the century. Among other factors, a country's vulnerability will depend on its geographical conditions and the type of crops it produces or is able to produce. In Central America, for example, compared to the yields of the last decade and assuming no adaptation measures, maize, bean and rice yields could fall by as much as 35%, 43% and 50%, respectively, by the end of the century under an extreme scenario involving rapid population growth and slow economic development and technological change; or by up to 17%, 19% and 30% in an intermediate scenario. In contrast, productivity in south-eastern South America is expected to be maintained or even to increase slightly by mid-century (ECLAC, 2013).

The tourism sector will also suffer at the hands of climate change; and some 40 million people currently living in the Caribbean may face some of the most extreme situations as a result of this phenomenon. If no action is taken, the damage caused by hurricanes, destruction of infrastructure and loss of tourism and incomes could rise to about US$ 22 billion per year by 2050 and US$ 46 billion annually by 2100 (equivalent to 10% and 22% of the GDP of these countries in 2004, respectively) (ECLAC, 2010).

Climate change can also affect the international trade infrastructure. Rising sea levels and more powerful wave action, coupled with more intense tropical cyclones, can prolong vessel downtime in ports and thus increase transportation costs (Reyer and others, 2017). The areas most affected by this are likely to be the coasts of Uruguay, northern and southern Brazil, Guatemala, El Salvador and the west coast of Mexico (ECLAC, 2012). Disruptions to exports and imports can also be expected to push up prices and disrupt regional and global supply chains.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), "Turismo y agricultura serán los sectores más afectados por el cambio climático en el Caribe", *Notas de la CEPAL*, No. 69, Santiago, 2011; "Efectos del cambio climático en la costa de América Latina y el Caribe: impactos", *Project Documents* (LC/W.484), Santiago, 2012; *Impactos potenciales del cambio climático sobre los granos básicos en Centroamérica* (LC/MEX/L.1123), Mexico City, November 2013; G.O. Magrin and others, "Central and South America", *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change,* V. R. Barros and others (eds.), Cambridge, Cambridge University Press, 2014 and Ch. Reyer and others, "Climate change impacts in Latin America and the Caribbean and their implications for development", *Regional Environmental Change*, vol. 17, No. 6, 2017.

The links between trade and the environment also depend on how their respective regulatory regimes interact —as is discussed in section C (see diagram II.1, arrows 3 and 4). For example, differences in environmental requirements between source and destination countries can affect competitiveness and trade flows (see diagram II.1, arrow 4). If these differences are significant (as, for example, between developed and some developing countries), "pollution havens" can emerge, which means that polluting industries in an advanced country that has stringent controls could be shifted

to developing countries where restrictions are lighter. In this case, the composition effect reduces emissions in the first country, but increases them in the second. Thus, more stringent environmental regulations in advanced countries make their industries less competitive. The impact depends on each industry's pollution level and energy intensity, as well as its technological level and the degree of competition (which affects the ability to pass costs on to final consumers). Some recent studies confirm evidence of the pollution-haven effect (Cherniwchany, Copeland and Taylor 2017). These effects can be mitigated by including environmental clauses in trade agreements.

Negotiations to reduce barriers to trade in environmental goods and services, which were launched in 2001 and suspended in 2016, aim to enhance the contribution of trade to environmental sustainability. Environmental goods and services are essential for measuring, preventing, limiting, minimizing or correcting environmental damage to water, air and soil, and for solving problems related to waste, noise and ecosystems. Section D of this chapter reviews the dynamic of the region's participation in world trade in these products (see diagram II.1, point 5).

Regulations linking trade and the environment have harnessed social pressures to force firms to make their businesses more environmentally sustainable (see diagram II.1, point 6). When firms face these demands, either in their places of production or in consumer markets, they tend to incorporate environmental factors more quickly in their management and in their relations with other value-chain participants. In fact, environmental issues are an increasingly important factor in international competitiveness, as manifested by the increased adoption of ISO standards, international certifications, codes of conduct, sectoral good practices, labelling programmes and national regulations, among other tools. These issues are addressed in section E.

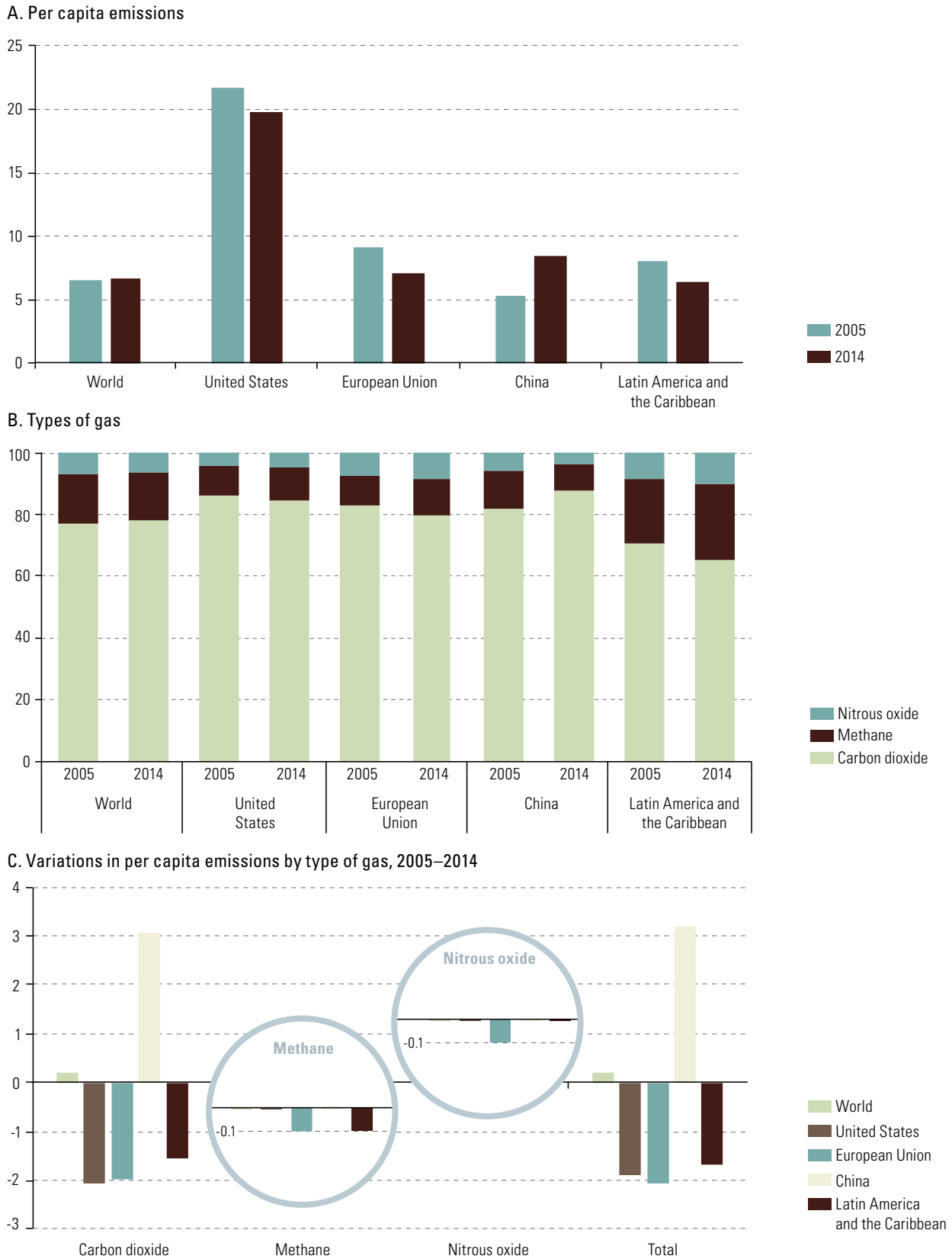
B. An overview of the environmental footprint of Latin America's international trade

1. There is more carbon embedded in the region's consumption than in its production

In 2014, Latin America and the Caribbean generated 8.1% of global GHG emissions, including those arising from land use change and forestry (LUCF). Between 2005 and 2014, while emissions grew by an annual average of 1.6% worldwide, they decreased by 1.4% per year in the region. As a result, the regional share of global emissions retreated by 2.5 percentage points during this period. Per capita emissions in the region were similar to the global average in 2014 and lower than those of the European Union and especially those of the United States (see figure II.2.A). The region of Latin America and the Caribbean differs from the rest of the world in terms of the composition of its emissions, mainly because they contain a larger proportion of methane and nitrous oxide (see figure II.2.B). The variations in total emissions are concentrated in CO_2 (see figure II.2.C).

The region also differs from the rest of the world in terms of its main emission sources. Whereas agriculture and LUCF are major sources in the region, elsewhere they account for a small share. Between 2005 and 2014, the lower rate of deforestation reduced this source's contribution to total emissions in the region, while the agriculture share grew. This partly explains the increase in the methane content of emissions, particularly from livestock (see figure II.3.A).

Figure II.2
Selected countries and regions: total per capita emissions and their composition, 2005 and 2014
(Percentages and metric tons of CO_2 equivalent)

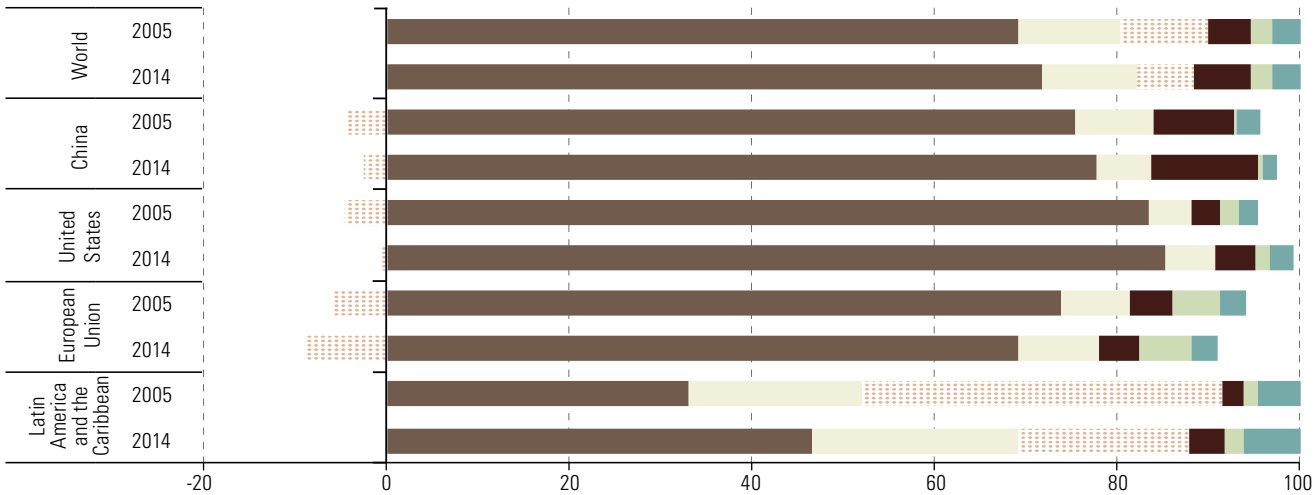


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Resources Institute, "CAIT Climate Data Explorer" [online] http://cait.wri.org.

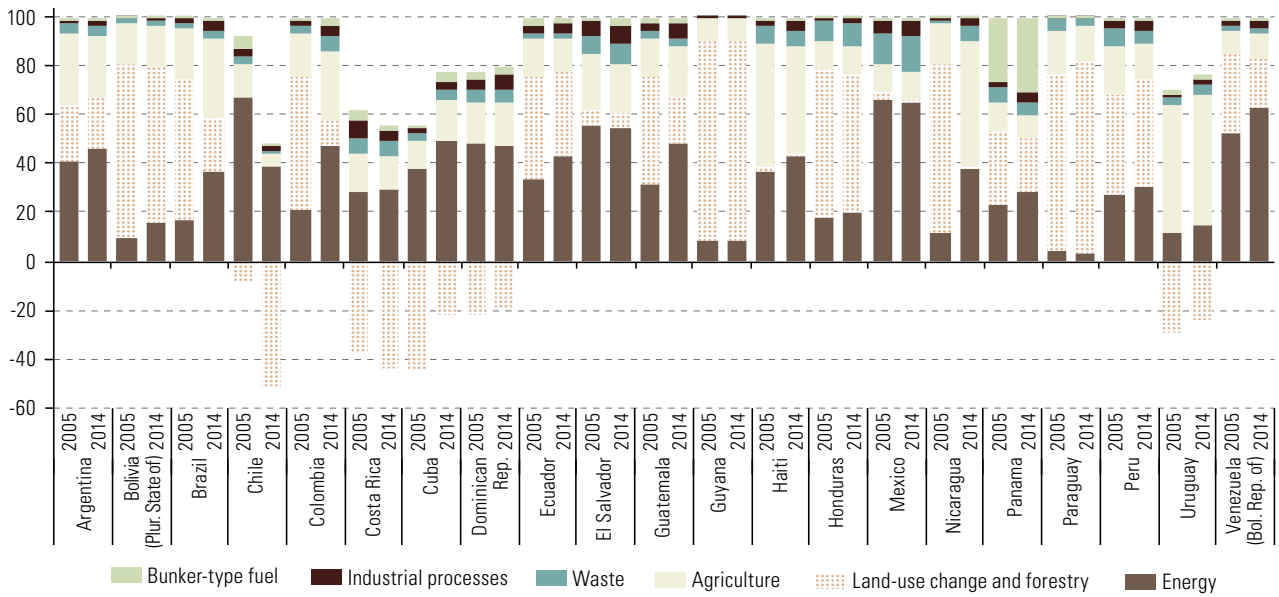
The region's individual countries vary widely in terms of their main emission sources. While in most cases LUCF is the main source, in a small group of countries (Argentina, the Bolivarian Republic of Venezuela, Cuba, the Dominican Republic, El Salvador, Guatemala and Mexico) the leading source is energy use. Agriculture is the main source only in Haiti, Nicaragua and Uruguay. This heterogeneity to some extent reflects different national patterns of export specialization. While the preponderance of agriculture and land use change reflects a country's specialization in primary activities, a large energy share may indicate oil or industrial specialization, as is the case in Mexico (see figure II.3.B).

Figure II.3
Selected countries of Latin America and the Caribbean and world regions: total emissions by source, 2005 and 2014
(Percentages)

A. Regions of the world



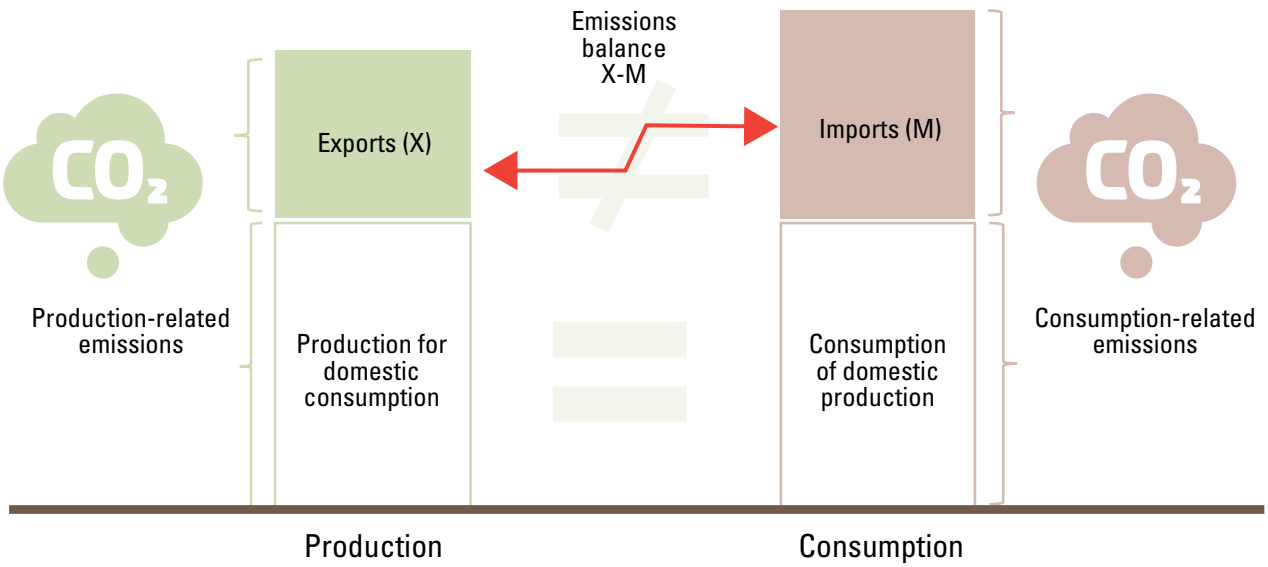
B. Countries of Latin America and the Caribbean



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Resources Institute, "CAIT Climate Data Explorer" [online] http://cait.wri.org.

Emissions generated by production that takes place in a given territory ignore the fact that a portion is exported and not consumed in the country; similarly, emissions associated with consumption also include the footprint associated with imports (see diagram II.2). Although, globally, the emissions generated by production are identical to those associated with consumption, in individual countries the two measures can differ widely. A country can reduce its production-related emissions by offshoring certain polluting industries to other countries and then importing the corresponding goods. Nonetheless, the effect of this shift on global emissions depends on the carbon intensity of the previous domestic producer compared to that of the new plant abroad. In any given country, the difference between the emissions generated by its production and those associated with its consumption is identical to the footprint associated with its trade balance.

Diagram II.2
Emissions related to production and consumption

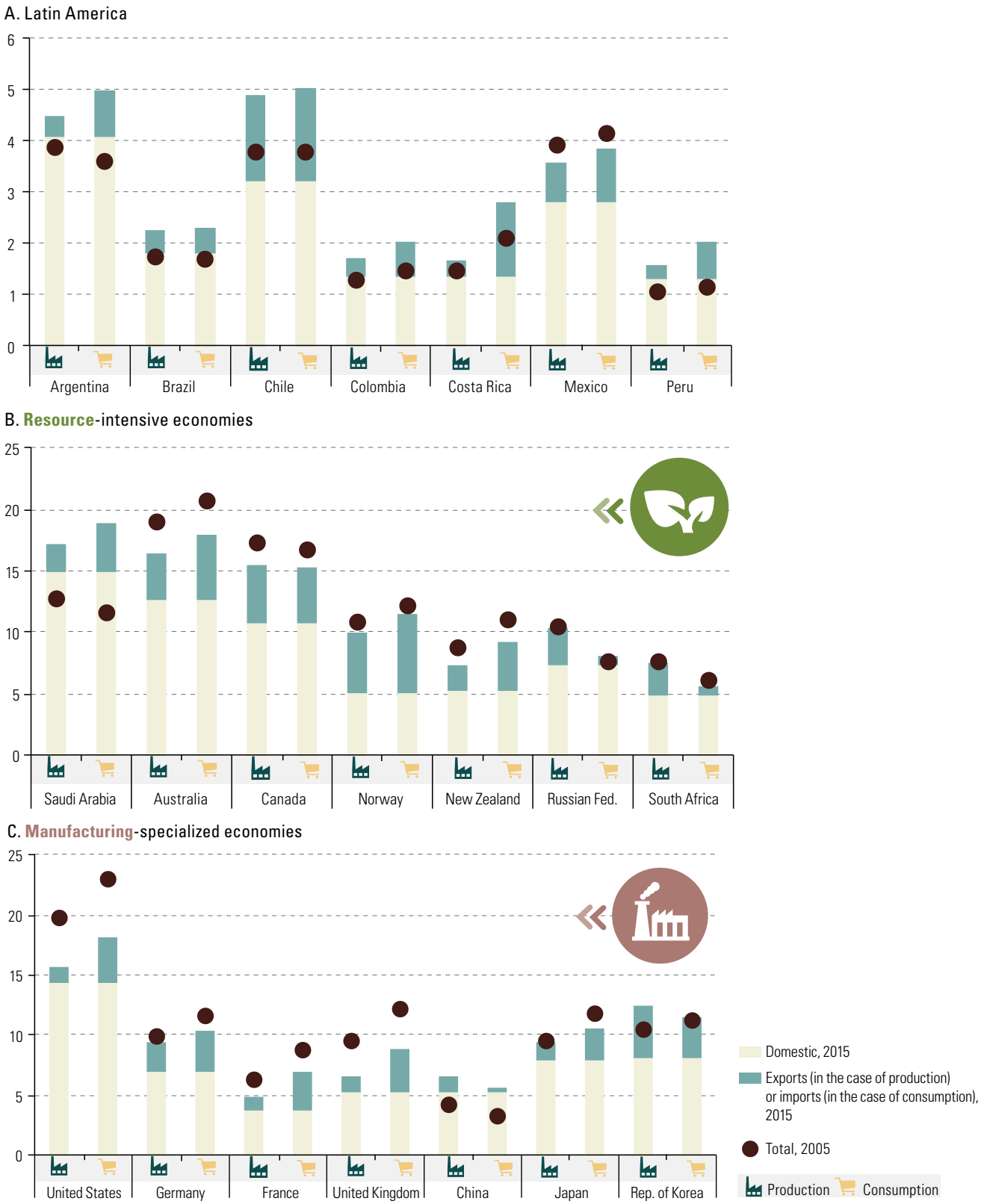


Source: Economic Commission for Latin America and the Caribbean (ECLAC).

Of seven Latin American countries (Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico and Peru), per capita CO_2 emissions associated with domestic production (including exports) and consumption (including imports) increased between 2005 and 2015 in all cases except Mexico (see figure II.4.A). These estimations come from the Organization for Economic Cooperation and Development (OECD) and refer solely to the carbon footprint generated by the burning of fossil fuels (oil, coal and natural gas). The data do not include gases generated by agriculture, LUCF or waste. When all of these sources are considered, per capita emissions fell in this period.

The region's per capita emissions remain smaller than those of other countries specializing in natural resources (see figure II.4.B) and in manufactures (except for France, owing to the importance of nuclear energy in its energy mix) (see figure II.4.C). These two groups of countries from outside the region (excluding Saudi Arabia, China and the Republic of Korea) also differ from Latin American countries by the reduction in per capita CO_2 emissions in this period. This may reflect the environmental Kuznets curve, which postulates an increase in per capita emissions at low and medium income levels, but then a reduction beyond a certain income threshold. The shift of polluting industries from advanced to developing countries may also have contributed to this trend.

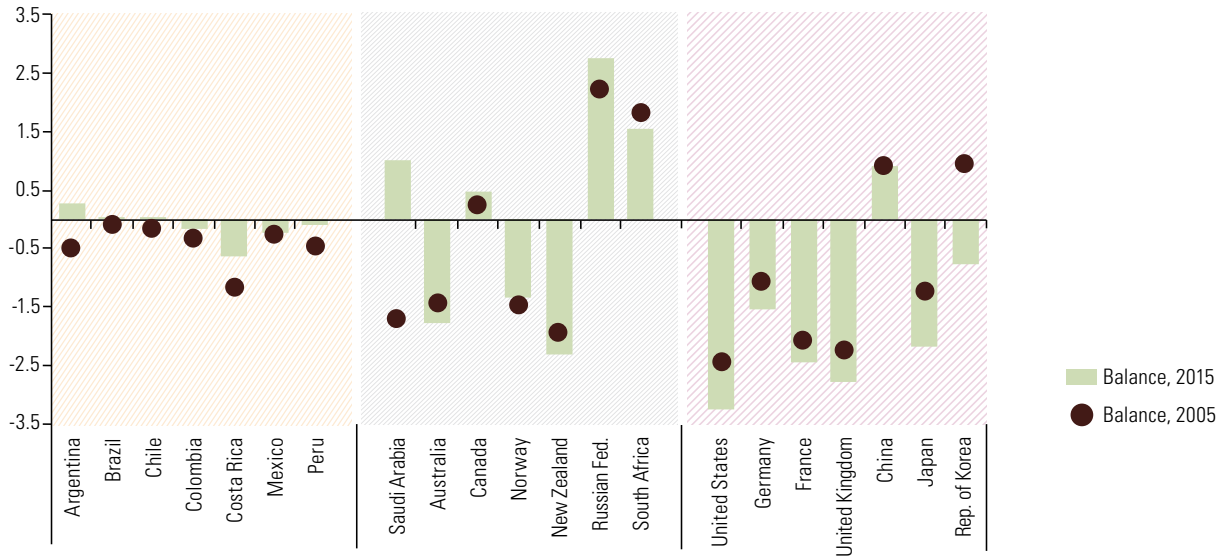
Figure II.4
Selected countries: per capita CO_2 emissions embedded in production and consumption, 2005 and 2015
(Thousands of kilograms)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organization for Economic Cooperation and Development (OECD), Trade in Embodied CO_2 Database ($TECO_2$) [online database] https://stats.oecd.org/Index.aspx?DataSetCode=IO_GHG_2019.

In all of the Latin American countries analysed, except Argentina, emissions associated with consumption (including imports) outweigh production-related emissions; so these countries are net carbon importers. Between 2005 and 2015, the increase in emissions from production outpaced those embedded in consumption, thereby reducing the corresponding deficits (see figure II.5). In the same period, trends in natural-resource-specializing countries outside the region are mixed: the emissions deficit widened in Australia and New Zealand, but it decreased (or the surplus increased) in oil-producing countries such as Saudi Arabia, Canada and the Russian Federation. The third group of countries (specialized in manufacturing) increased their net carbon imports.

Figure II.5
Selected countries and regions: per capita emissions trade balance, 2005 and 2015
(Thousands of kilograms)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organization for Economic Cooperation and Development (OECD), Trade in Embodied CO_2 Database ($TECO_2$) [online database] https://stats.oecd.org/Index.aspx?DataSetCode=IO_GHG_2019.

2. The largest Latin American economies are net carbon importers

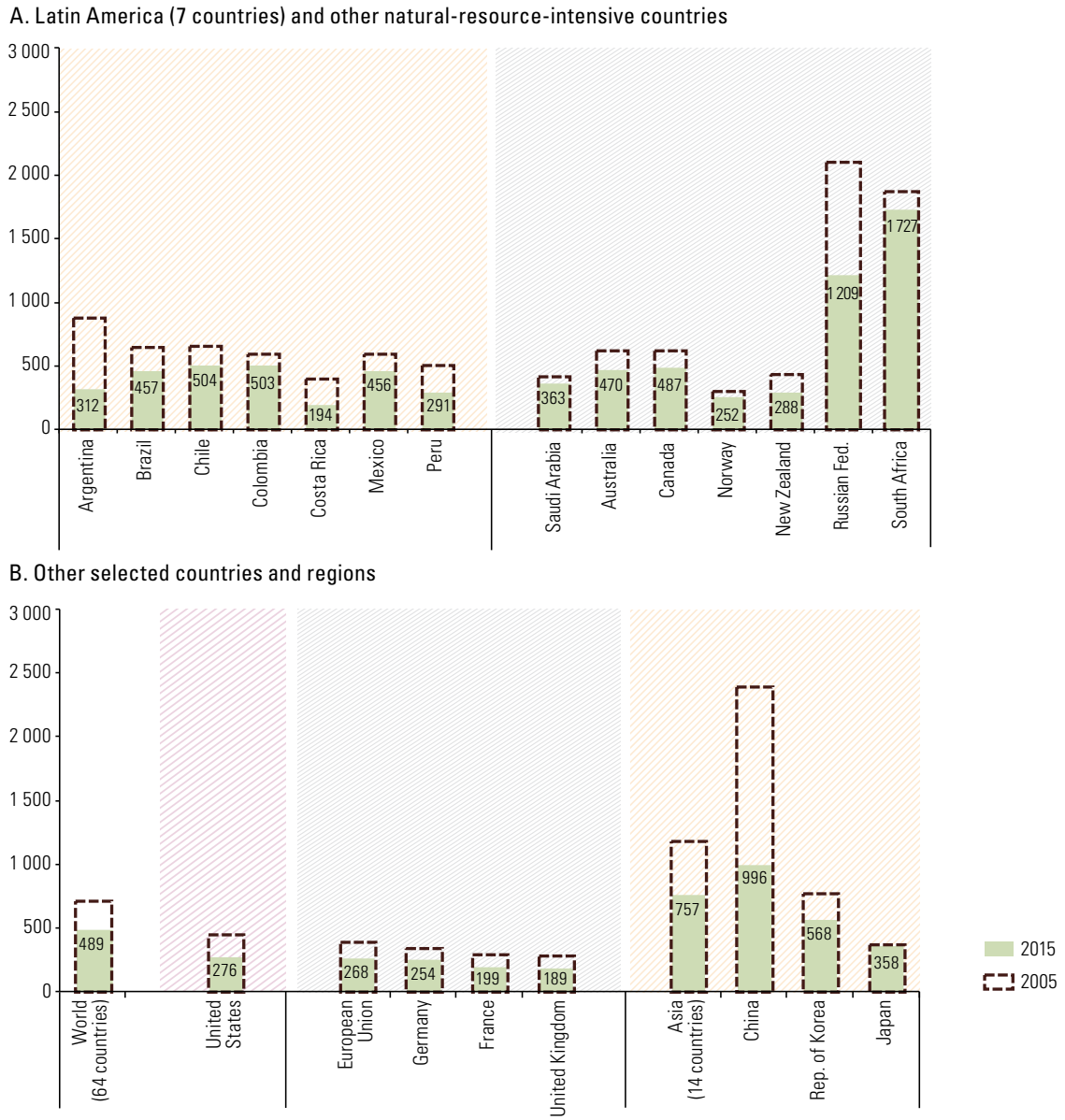
In recent decades, the geographical fragmentation of production processes, which has gone hand in hand with the development of international value chains, has caused the associated environmental impacts to become more dispersed. This has implications for measuring the environmental footprint of international trade, which must take account of the emissions generated throughout the entire production chain. Thus, the emissions associated with each country's exports are not confined to those generated within its territory, but also include those contained in the foreign inputs used to produce the exported goods and services.

The intensity of carbon emissions embedded in the trade of seven Latin American countries (Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico and Peru) is presented below. The estimates in question refer only to the carbon footprint generated by fossil fuels (oil, coal and natural gas), while excluding other types of greenhouse gas. Between 2005 and 2015, the export footprint, measured in tons of carbon per dollar exported, decreased in all cases (see figure II.6.A).[4] Argentina, Costa Rica and Peru display both the lowest levels and the greatest reductions.

[4] The OECD database embraces 64 countries, including seven in Latin America, with data spanning 2005 to 2015. Estimates were based on the OECD multi-country input-output matrices (2018 edition) and International Energy Agency (IEA) emissions data. For further details on the methodology of the database and access to it, see [online] https://www.oecd.org/sti/ind/carbondioxideemissionsembodiedininternationaltrade.htm.

A comparison with other countries that have exports concentrated in primary goods and natural-resource-based manufactures reveals a variety of situations. Among those with a large share of mining products, Saudi Arabia, Australia, Canada and Norway have emission-intensity levels in the same range as those attained by Chile, Colombia and Peru, while intensities are considerably higher in the Russian Federation and South Africa. New Zealand, which specializes in agricultural products, also displays similar levels to those of Argentina and Costa Rica (countries with a comparable export structure). France, Germany, the United Kingdom and the United States, where exports are concentrated in manufactures of higher technological content and in services, have lower emission intensities than the Latin American countries considered (except for Costa Rica) (see figure II.6.B). The Asian economies, on the other hand, generally display higher levels of emissions per dollar exported (this is particularly true of China, despite a sharp reduction between 2005 and 2015).

Figure II.6
Selected countries: carbon emissions contained in exports, 2005 and 2015[a]
(Tons of carbon per million dollars exported)

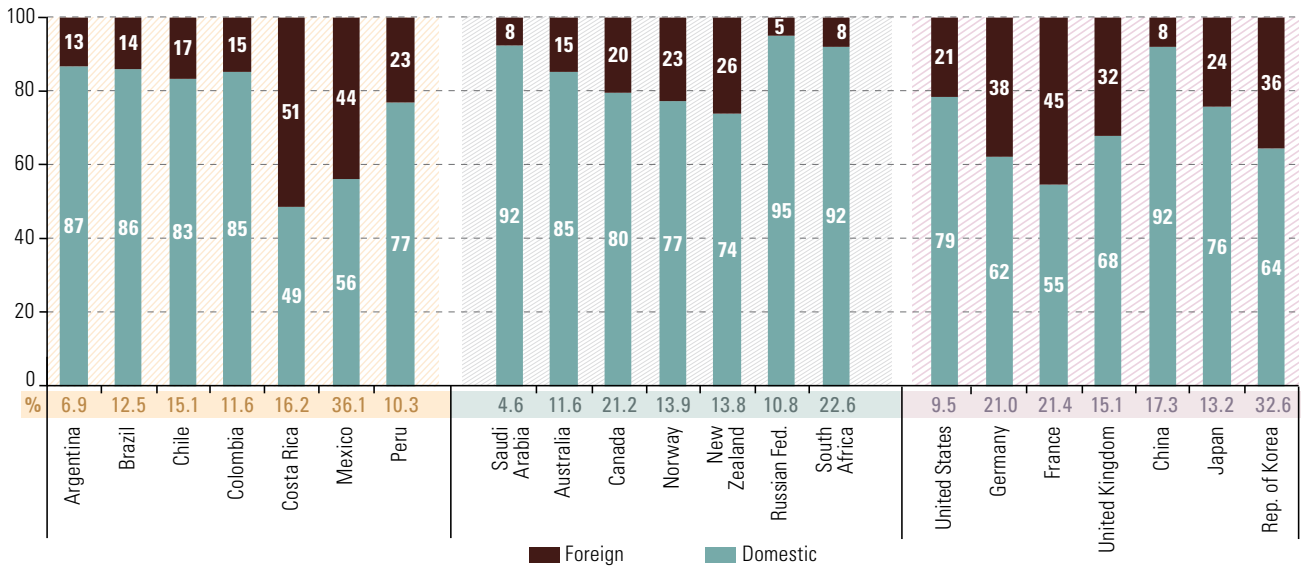


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organization for Economic Cooperation and Development (OECD), Trade in Embodied CO_2 Database ($TECO_2$) [online database] https://stats.oecd.org/Index.aspx?DataSetCode=IO_GHG_2019.

[a] The numbers shown on the bars of the graph indicate the intensity of emissions contained in each country's exports in 2015.

Costa Rica and Mexico have a significantly larger proportion of emissions generated outside their territories than the other Latin American countries analysed (51% compared to 44%, respectively, in 2015; see figure II.7). In Mexico, this reflects relatively strong backward linkages, particularly with the United States and with Asian countries (especially China, from which the inputs imported are likely to be considerably more carbon-intensive).[5] In the case of Costa Rica, its exports have significantly fewer backward linkages than those of Mexico, but the relatively high intensity of foreign emissions makes for a large share of the total. In 2015, most of the energy generated in Costa Rica came from low-carbon renewable sources; so low domestic emissions in this country increase the relative share of foreign emissions in the total.

Figure II.7
Selected countries: carbon emissions contained in exports, by geographic origin, 2015[a]
(Percentages of total)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organization for Economic Cooperation and Development (OECD), Trade in Embodied CO_2 Database ($TECO_2$) [online database] https://stats.oecd.org/Index.aspx?DataSetCode=IO_GHG_2019 and World Trade Organization (WTO), Trade in Value Added (TiVA) [online database] http://stats.oecd.org/Index.aspx?DataSetCode=TIVA_2018_C2.

[a] The percentages shown along the bottom of the horizontal axis indicate the share of foreign value-added in each country's exports (a measure of the level of backward linkages).

The rest of the Latin American countries considered, and economies outside the region that are specialized in the export of primary goods and their manufactures —sectors that generally have fewer backward linkages in international value chains— display relatively small foreign shares in the emissions contained in their exports. Among the countries specializing in higher-tech manufactures and services, France, Germany and, to a lesser extent, the United Kingdom have comparatively high percentages of emissions originating outside their territories, especially in other European Union countries. However, relatively more carbon-intensive countries, such as China, probably have a significant impact in some sectors. In Asia, the Republic of Korea —which has strong production ties with China— has a foreign emissions share similar to those of France, Germany and the United Kingdom, although with much more backward linkages. In the

[5] There is no detailed information on the carbon footprint of exports by emission-source country. However, available data indicate that the intermediate products imported by Mexico from China in 2015 were nearly three times more carbon-intensive than those originating in the United States, and almost double the average for inputs sourced from the rest of the world.

case of China, the high carbon-intensity of its production matrix probably explains the very small proportion of foreign sources in the emissions embedded in its exports, compared to countries with similar levels of backward linkages in value chains (such as France, Germany and the United Kingdom).

In general, there were no major changes in the structure of emissions by origin between 2005 and 2015 in the Latin American countries considered. The greatest variations occurred in Chile, which achieved a 30% (7 percentage point) decrease in the share of emissions from abroad, and Argentina, where the respective share grew by 16% (1.8 percentage points). Among the extraregional countries shown in figure II.7 for comparison purposes, the Republic of Korea and Norway recorded the largest variations, with reductions of 15% and 22%, respectively, or 6 percentage points in both cases.

The aggregate data analysed above conceal differences between the export sectors in each country, both in the intensity of emissions and in their structure by geographic origin. Figure II.8 displays the differences between the top five exporting sectors in each of the seven selected Latin American countries. In particular, it shows the relatively low intensity of emissions from the primary and processed agricultural products sectors (agriculture, livestock, forestry and fisheries, and food, beverages and tobacco products) compared to the mining sectors (particularly basic metals). In addition, the main mining exports of Brazil, Chile, Colombia and Mexico are more emissions-intensive than the average for the 64 countries for which information is available, while those of Peru are relatively less intensive. In general, the sectors that make the largest proportional contribution to exports from Argentina, Costa Rica and Peru have emission-intensity levels below the world average, while in the case of Brazil, Chile, Colombia and Mexico the situation is more nuanced.

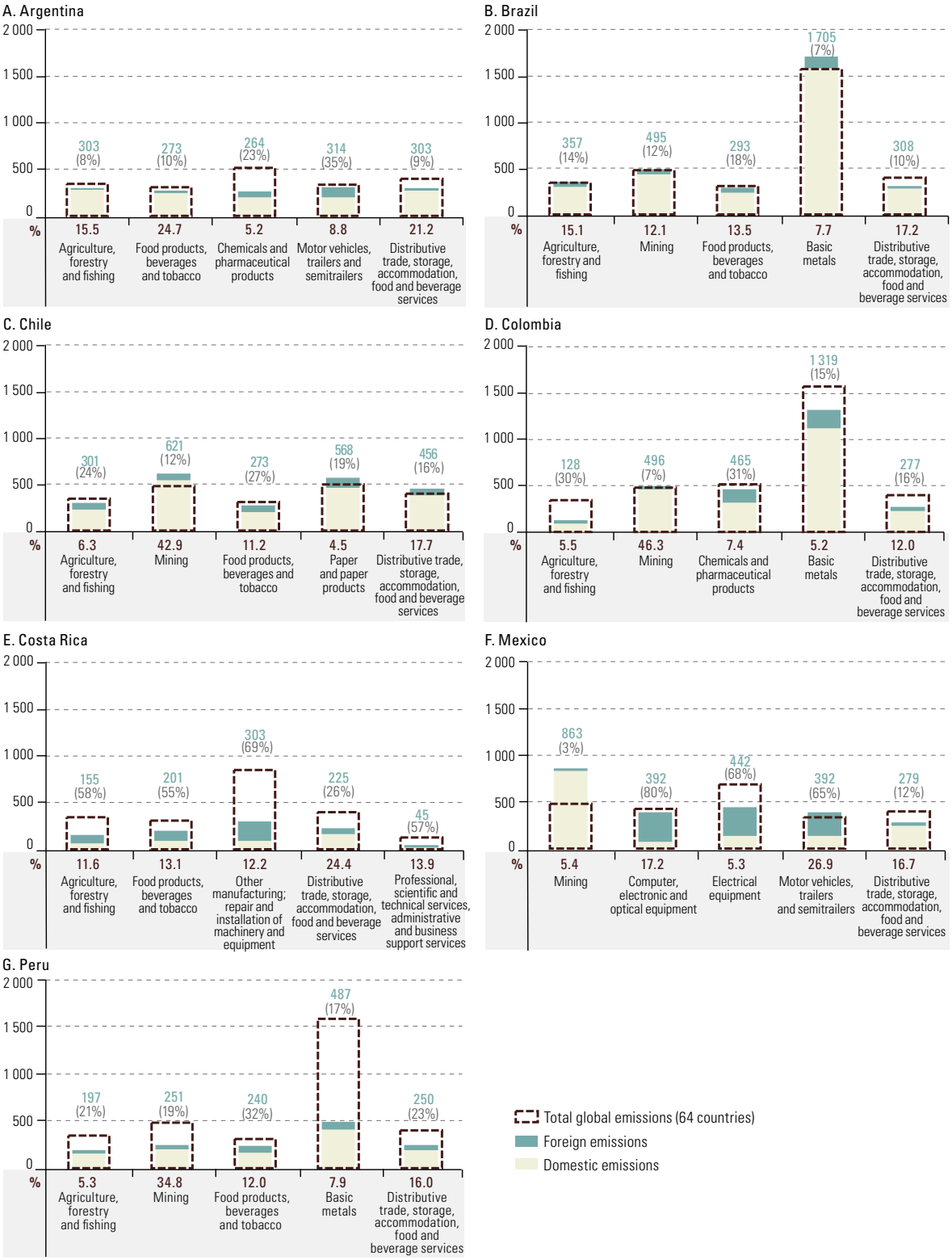
As regards the geographic origin of the emissions, the industries with the highest technological content —which are among the leading exporting sectors in Argentina (motor vehicles, trailers and semi-trailers) and in Mexico (computer, electronic and optical equipment; electrical equipment; and motor vehicles, trailers and semi-trailers)— have a significantly higher proportion of foreign emissions (particularly in comparison with the primary and service sectors).

The emissions-intensity differentials between sectors and countries are reflected in the net carbon balance resulting from each economy's trading links with its partners (equal to the difference between the emissions contained in their exports and in their imports).[6] As noted earlier, the seven Latin American countries considered had an overall negative emissions balance in 2015, making them net importers of carbon from the rest of the world (see figure II.9). In all cases, the breakdown by trading partner shows that trade with China generates an emissions deficit for the countries of the region, including those that have a trade surplus with that partner (Brazil, Chile and Peru). This is explained by the fact that products imported from China are, on average, significantly more carbon-intensive than the products that the region exports to it. Nonetheless, Argentina, Costa Rica and Peru have a carbon deficit with all of their main trading partners, owing to the relatively low emissions-intensity of their exports. Mexico, on the other hand, is a net exporter of carbon to the United States, despite the greater emissions-intensity of its exports, owing to its large trade surplus with that country.

6 The emissions contained in each country's exports include those originating from both domestic and foreign sources.

Figure II.8

Latin America (7 countries): carbon emissions contained in the exports of the five leading exporting sectors, 2015[a b c]
(Tons of carbon per million dollars exported)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organization for Economic Cooperation and Development (OECD), Trade in Embodied CO_2 Database ($TECO_2$) [online database] https://stats.oecd.org/Index.aspx?DataSetCode=IO_GHG_2019.

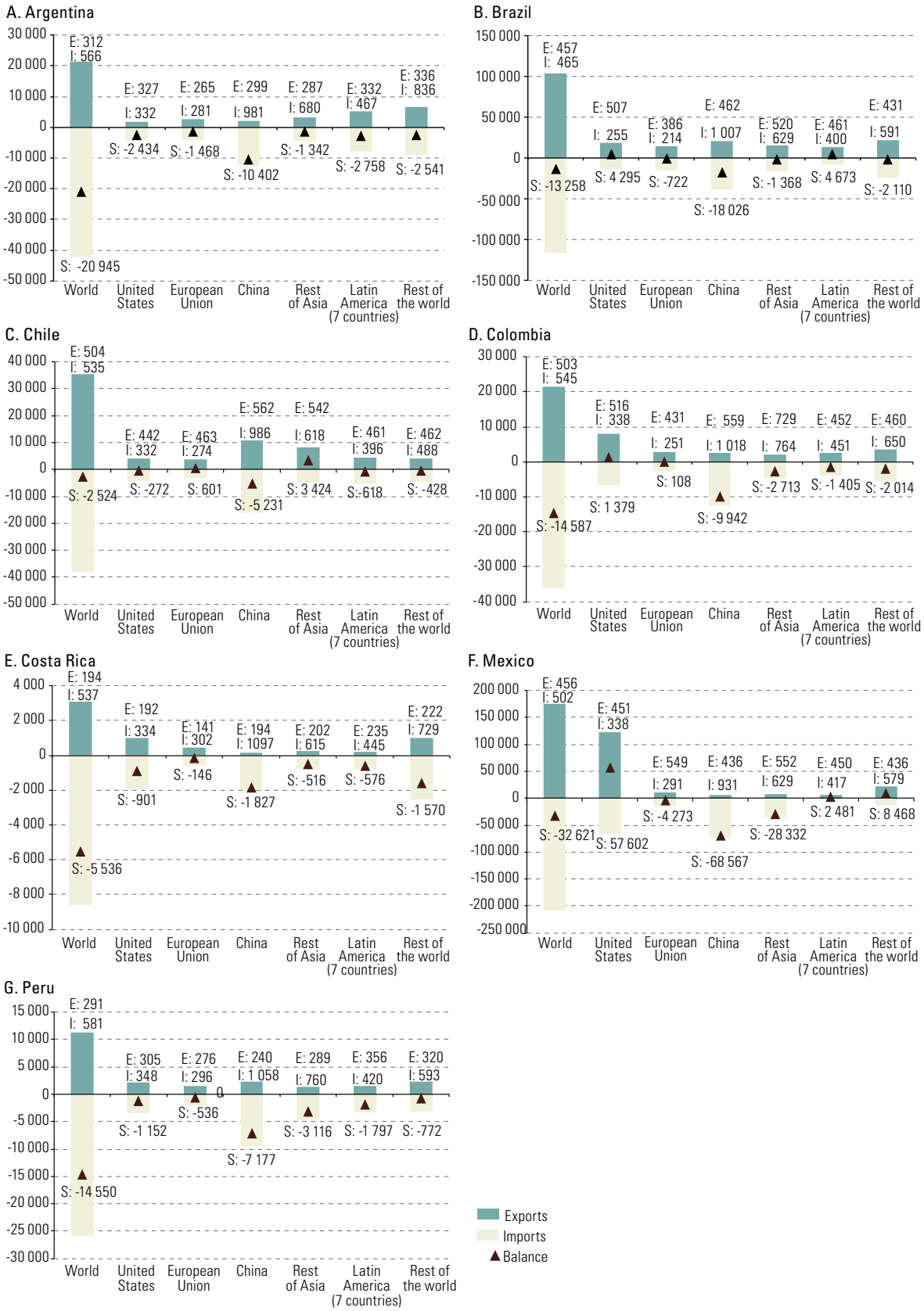
[a] The numbers shown on the bars of the graph indicate the intensity of total emissions (domestic plus foreign) contained in each sector's exports. The percentages shown in parentheses indicate the share of foreign emissions in the total.

[b] The percentages in parentheses alongside the name of each sector indicate its share of the country's total exports.

[c] The global average corresponds, for each sector, to the average intensity of total emissions contained in the exports of the 64 countries for which information is available, weighted by each country's share in the respective global exports.

Figure II.9

Latin America (7 countries): carbon emissions contained in exports and imports and net balance, by trading partner, 2015[a]
(Millions of tons of carbon)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organization for Economic Cooperation and Development (OECD), Trade in Embodied CO_2 Database ($TECO_2$) [online database] https://stats.oecd.org/Index.aspx?DataSetCode=IO_GHG_2019.

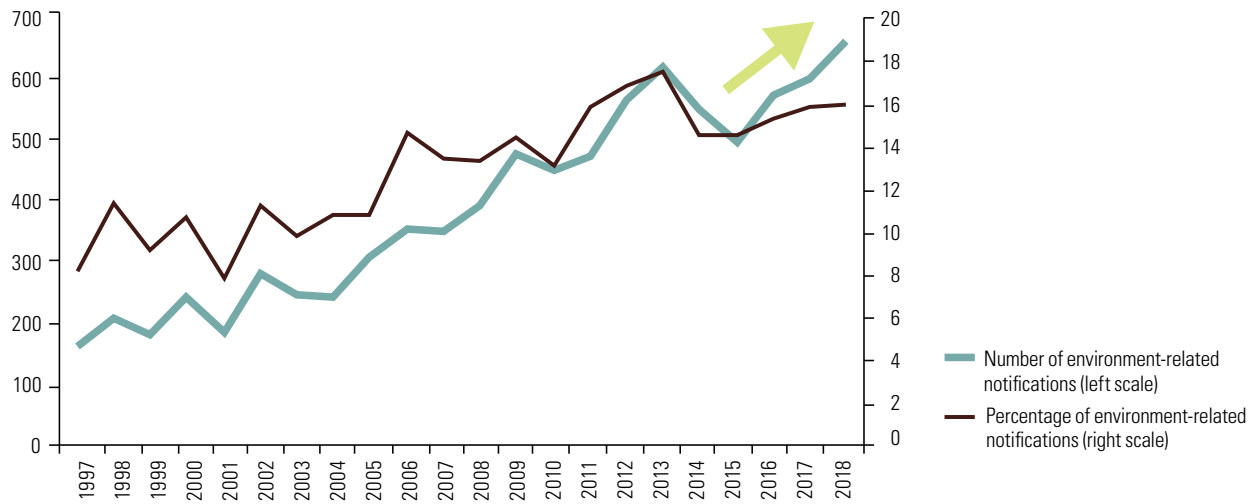
[a] The numbers shown on each bar of the graph represent the emissions-intensity of exports (E) and imports (I) (in tons of carbon per million dollars), and the net balance of emissions (S) (in thousands of tons of carbon).

C. The links between trade governance and environmental sustainability are increasing

1. Greater coherence is needed between multilateral regimes for trade and the environment

As discussed in sections A and B, there are several channels through which trade impacts the environment and vice-versa; and these have become increasingly visible, particularly since the United Nations Conference on Environment and Development, held in Rio de Janeiro in June 1992. This is evidenced by the large absolute and relative increase in the number of environment-related measures notified to the World Trade Organization (WTO) over the last two decades (see figure II.10), which raises the question as to the value of including environmental provisions in trade agreements.

Figure II.10
Environment-related notifications made by members of the World Trade Organization (WTO), 1997–2018
(Number of notifications and percentages)



Source: World Trade Organization (WTO), Environmental Database [online] https://edb.wto.org/.

The inclusion of environmental considerations in trade policy has historically been a source of major disagreements, especially between developing and developed countries. The discourse of the former has generally stressed that imposing environmental requirements on traded products could disguise protectionist aims ("green protectionism"). In developed countries, in contrast, the predominant argument has been that non-compliance with environmental standards would lead to unfair competition in trade by enabling countries with more lenient environmental regimes to reduce production costs (referred to as "environmental dumping"). This polarization of positions has made it difficult to achieve agreements thus far.

Ever since its inception in 1947, the multilateral trading system has aimed to safeguard the right of countries to adopt environmental protection measures, even if this meant imposing certain trade restrictions. Specifically, article XX (General Exceptions) of the General Agreement on Tariffs and Trade (GATT) empowers the parties to adopt measures "necessary to protect human, animal or plant life or health" and "relating to the conservation of exhaustible natural resources, if such measures are made effective in conjunction with restrictions on domestic production or consumption". Article XX also provides that such

measures shall not be applied in a manner that would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade. This formulation has been replicated not only in numerous trade and investment agreements, but also in environmental instruments, such as the 1992 Rio Declaration on Environment and Development[7] and the 1992 United Nations Framework Convention on Climate Change (UNFCCC).

The inauguration of WTO in 1995 resulted in a significant widening of the thematic scope of the multilateral trading system and, consequently, of its links with environmental issues. A number of multilateral trade agreements contain provisions that are germane to the environment (see table II.1). In recognition of this growing interdependence, the 1994 Ministerial Decision on Trade and Environment created the WTO Committee on Trade and Environment (CTE), with the following dual mandate: (a) to identify the relationship between trade measures and environmental measures, in order to promote sustainable development; and (b) to recommend whether changes need to be made to the provisions of the multilateral trading system, compatible with the system's open, equitable and non-discriminatory nature.[8]

Table II.1
Examples of linkages between World Trade Organization (WTO) agreements and instruments used for environmental purposes

Agreement	Links to the environment
GATT	Tariffs and other market access conditions applicable to environmental goods (e.g. wind turbines or solar panels for electric power generation) and those with a small environmental footprint (either in their production or in their consumption). Possibility of applying border carbon adjustments to goods with a large carbon footprint.
General Agreement on Trade in Services (GATS)	Market access conditions applicable to environmental services (project environmental assessment, water management and other services).
Agreement on Technical Barriers to Trade (TBT Agreement)	Technical regulations (on the energy efficiency of household appliances, emissions of gaseous pollutants from vehicles, etc.). Regulations on environmental labelling of products (carbon footprint, water footprint and so forth).
Agreement on Sanitary and Phytosanitary Measures (SPS Agreement)	Regulations on risks of imported products to the biosecurity of the importing country, spread of pests and diseases, etc.
Agreement on Agriculture (AA Agreement)	Subsidies for climate change mitigation and adaptation activities in the agriculture sector.
Agreement on Subsidies and Countervailing Measures (SCM Agreement)	Subsidies to "green" sectors and activities (such as non-conventional renewable energies, electromobility). Subsidies to sectors and activities with a large environmental footprint (fossil fuels, fisheries and others).
Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement)	Patents applicable to green technologies, patentability exclusions, technology transfer, treatment of genetic resources and traditional knowledge.
Agreement on Trade-Related Investment Measures (TRIMs Agreement)	Prohibition of local content requirements in non-conventional renewable energy generation programmes or "green" industries in general.
Agreement on Government Procurement (GPA Agreement)	Environmental requirements or incentives in public procurement.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

In practice, the Committee on Trade and Environment has served as a forum in which WTO members discuss the interaction between trade and environmental measures; but it has not produced results in the second part of its mandate[9]. On the contrary, two decades ago, there was a major setback in the WTO's contribution to

7 Principle 12 of the Rio Declaration states that: "Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Moreover, Article 3.5 of UNFCCC states that: "Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade." Similar language is found in the WTO agreements on trade in services, technical barriers to trade and sanitary and phytosanitary measures, among others.

8 Ministerial Decision on Trade and Environment, adopted in Marrakesh on 15 April 1994: see [online] https://www.wto.org/spanish/tratop_s/envir_s/issu5_s.htm.

9 The issues addressed include carbon footprint labelling schemes, environmental taxes and the environmental aspects of trade in fisheries, forestry and energy products (WTO and UNEP, 2018).

environmental protection, and to sustainable development in general, when article 8 of the SCM Agreement expired in December 1999. The article in question declared the following subsidies to be "non-actionable" (subject to very restrictive conditions and for a period of just five years): (a) assistance for research activities conducted by firms or by higher education or research establishments on a contract basis with firms; (b) assistance to disadvantaged regions within the territory of a Member; and (c) assistance to promote adaptation of existing facilities to new environmental requirements.[10] This provision opened up space —albeit limited— for interventions targeted on important public policy objectives (research and development, regional development and environmental protection, respectively). If the article were in force today, it would support achievement of the objectives of the Paris Agreement and the 2030 Agenda for Sustainable Development. However, WTO members failed to reach the consensus needed to renew it.

The launch of the Doha Round in 2001 sought to strengthen the multilateral trading system's contribution to sustainable development, mainly by: (a) reducing tariff and non-tariff barriers to environmental goods and services; and (b) developing disciplines on fisheries subsidies to combat overcapacity, overfishing and illegal, unreported and unregulated fishing. While the first initiative is stalled (see section D), negotiations on fisheries subsidies gained new momentum from the adoption of the Sustainable Development Goals (SDGs) in September 2015. Indeed, SDG target 14.6 sets 2020 as the deadline for eliminating subsidies that contribute to illegal, unreported and unregulated fishing, and for prohibiting certain forms of fisheries subsidies that contribute to overcapacity and overfishing, with special and differential treatment for developing and least developed countries (see box II.2). In this context, WTO members have set themselves the objective of reaching an agreement by December 2019.[11]

In addition, the WTO Dispute Settlement Body has issued rulings on a number of cases with environmental implications, providing interpretations that have helped to clarify the scope of various WTO provisions in this domain (see table II.2). At their core, these cases have reaffirmed the right of countries to adopt environmental protection measures, even if they are incompatible with their obligations under multilateral trade agreements. However, such disputes have also confirmed that this prerogative is not absolute. It requires the measures in question not to be applied in a manner that would constitute a means of arbitrary or an unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade. Given the wide diversity of the measures in question, compliance with these conditions has been assessed on a case-by-case basis, and there is no single standard applicable in all circumstances.[12]

[10] "Non-actionable" means that the subsidies in question could not be challenged under the WTO dispute settlement mechanism, nor could they be subject to countervailing duties in third countries.

[11] Several of the region's countries, such as Argentina, Colombia, Costa Rica, Ecuador, Panama, Peru and Uruguay, have participated actively in these negotiations.

[12] A summary of each of these disputes can be found in WTO (2017).

Box II.2
Fishery subsidies and their impact on global overfishing

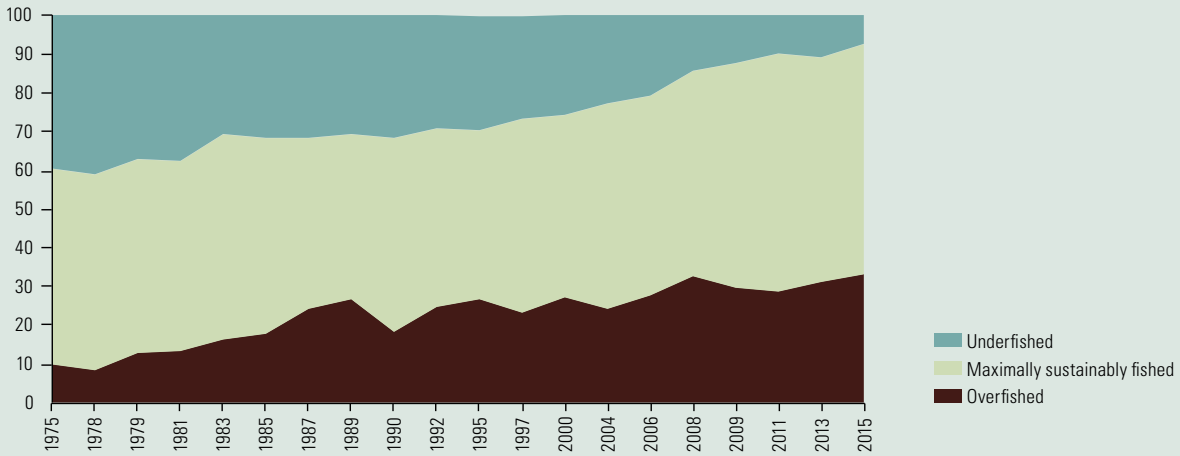
Since 1961, the world's annual growth in fish consumption has doubled population growth (FAO, 2018). This underscores the crucial role of the fisheries sector in feeding a world population that is set to reach 9.7 billion in 2050, 2 billion more than today (United Nations, 2019). However, while 87% of the sector's global output came from capture fisheries in 1990, by 2016 their share had fallen to 53%. In fact, 92% of the increase in global fisheries output during that period was through aquaculture, whose production increased sixfold. This contrasts sharply with the limited expansion in capture fisheries (see table 1). This trend reflects the growing scarcity of fish in the oceans: the proportion of marine populations exploited at biologically unsustainable levels rose from 10% in 1975 to 33% in 2015 (see figure 1).

Table 1
World production from capture fisheries and aquaculture, 1990–2016
(Millions of tons and percentage variations)

	1990	2000	2010	2016	Variation 1990–2016
Capture fisheries	84.7	93.6	87.8	90.9	7.3
Aquaculture	13.1	32.4	59.0	80.0	510.7
Total production	**97.8**	**126.0**	**146.8**	**170.9**	**74.7**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Food and Agriculture Organization of the United Nations (FAO), *The State of World Fisheries and Aquaculture 2018: Meeting the Sustainable Development Goals,* Rome, 2018.

Figure 1
Global trends in marine populations, 1975–2015
(Percentages)



Source: Food and Agriculture Organization of the United Nations (FAO), *The State of World Fisheries and Aquaculture 2018: Meeting the Sustainable Development Goals,* Rome, 2018.

A significant contributing factor to the overfishing is the issuing of certain grants and subsidies, especially for fuel used by vessels and for the expansion and renewal of fishing fleets, as well as tax exemptions for the sector. Subsidies that encourage overfishing were estimated at US$ 22.2 billion globally in 2018 (Jarrett, 2019). Sala and others (2018) estimate that, in the absence of such subsidies, 54% of existing high-seas fisheries would not be profitable at current catch rates.

It has been estimated that the top granters of subsidies that encouraged overfishing in 2018 were China (around US$ 5.5 billion), Japan and the European Union (around US$ 2.1 billion each), the Republic of Korea (US$ 1.5 billion), the United States (US$ 1.3 billion), and the Russian Federation and Thailand (around US$ 1.1 billion each). In total, Latin America and the Caribbean is reckoned to have granted about US$ 1.3 billion in such subsidies (Jarrett, 2019) in the same year.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Food and Agriculture Organization of the United Nations (FAO), *The State of World Fisheries and Aquaculture 2018: Meeting the Sustainable Development Goals*, Rome, 2018; I. Jarrett, "An economic case for fisheries subsidy reform at the WTO", presentation given at the workshop La Alianza del Pacífico y el MERCOSUR frente a la Reforma del Sistema Multilateral de Comercio: Buscando Espacios para la Coordinación Regional, Santiago, 7–8 August 2019; E. Sala and others, "The economics of fishing the high seas", *Science Advances*, vol. 4, No. 6, 2018, and United Nations, "World Population Prospects 2019: Highlights", June 2019 [online] https://population.un.org/wpp/Publications/Files/WPP2019_10KeyFindings.pdf.

Table II.2
Selected World Trade Organization (WTO) disputes related to environmental issues

Start year	Dispute	Complainants	Agreements invoked[a]
1995	United States - Standards for reformulated and conventional gasoline	Venezuela (Bolivarian Republic of), Brazil	GATT (articles III and XX)
1996	United States - Import ban in shrimp and shrimp products	India, Malaysia, Pakistan, Philippines, Thailand	GATT, articles XI and XX
1998	European Union - Measures affecting asbestos and asbestos-containing products	Canada	GATT, articles III, XX and XXIII TBT Agreement, Annex 1.1
2005	Brazil - Measures affecting imports of retreaded tyres	European Union	GATT, articles I, III, XI, XIII, XX and XXIV
2011	Canada - Measures relating to the Feed-in Tariff Programme	Japan, European Union	GATT, articles III SCM Agreement, article 1.1 TRIM Agreement, article 2.1
2012[a]	European Union and certain Member States - Certain measures affecting the renewable energy generation sector	China	GATT, articles I and III MIC Agreement, articles 2.1 and 2.2 TRIM Agreement, articles 1 and 3
2013	India - Certain measures relating to solar cells and solar modules	United States	GATT, articles III and XX TRIM Agreement, article 2.1
2016[a]	United States - Certain measures relating to the renewable energy sector	India	GATT, articles III and XVI SCM Agreement, articles 3, 5, 6 and 25 TRIM Agreement, article 2.1
2018[a]	United States - Certain measures related to renewable energy	China	GATT, article III SCM Agreement, articles 3.1 and 3.2 TRIM Agreement, articles 2.1 and 2.2

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Dispute Settlement Body (DSB) of the World Trade Organization (WTO) [online] https://www.wto.org/english/tratop_e/dispu_e/dispu_e.htm.
Note: GATT - General Agreement on Tariffs and Trade; TBT Agreement - Agreement on Technical Barriers to Trade; SCM Agreement - Agreement on Subsidies and Countervailing Measures; TRIM Agreement - Agreement on Trade-Related Investment Measures.
[a] Ongoing dispute.

During the present decade, programmes to promote renewable energy in several countries, both developed and developing, have been declared in violation of WTO agreements for including local content requirements. Not only can such requirements promote the development of local production capacities in the renewable energies sector, but they also help to forge coalitions in favour of the policies needed to tackle climate change in the countries that apply them (Gallagher, 2016). As virtually all national contributions submitted under the Paris Agreement refer to the intention of countries to develop the renewable energy sector, the number of disputes on this issue in the WTO can be expected to increase in the coming years (Brandi, 2017).

Another potential source of environmental disputes in the WTO is the issue of border carbon adjustments, which some countries that apply carbon taxes within their borders (or are thinking of doing so) have proposed levying on imports from countries where such taxes either do not apply, or are lower than in the importing country.[13] This is intended to discourage "carbon leakage", in other words the migration of production to jurisdictions where the carbon incorporated in the goods is not taxed. While no country has so far implemented this measure, pressure to do so —especially in developed countries— is likely to increase in the coming years in view of the commitments made in the Paris Agreement.[14]

[13] In 2009, draft laws were introduced in the United States and France that made it possible to impose border carbon adjustments on imports from countries that did not contribute towards combating climate change to the full extent of their capacities. These initiatives sought to induce major developing economies to assume international commitments to reduce their GHG emissions, which was not the case under the Kyoto Protocol to UNFCCC (Herreros, 2010).

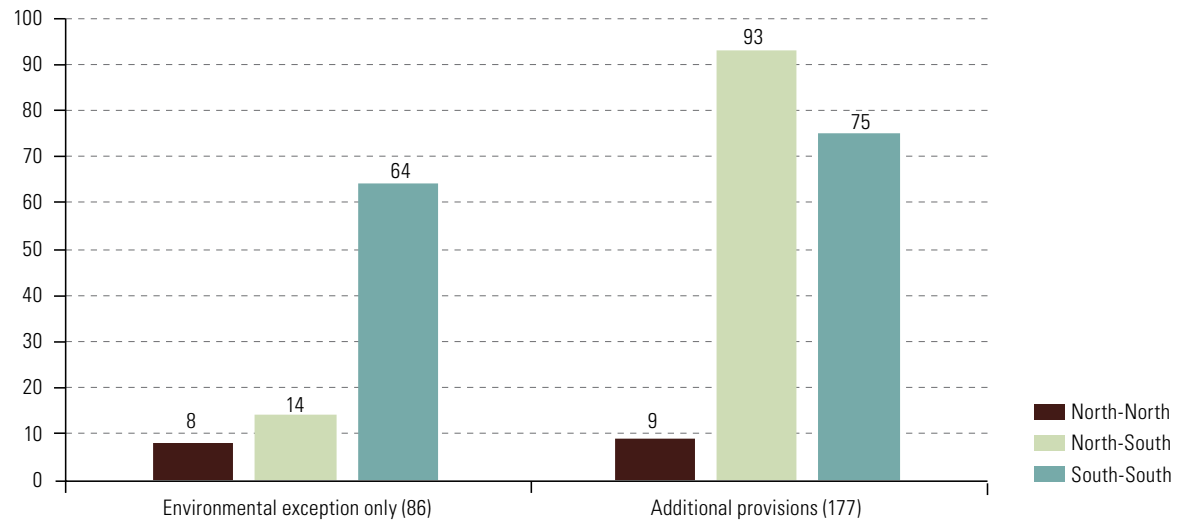
[14] In July 2019, the President-elect of the European Commission, Ursula von der Leyen, announced her intention to establish a border carbon adjustment in the European Union, as part of an ambitious plan aimed at making the bloc carbon-neutral by 2050 (Horn and Sapir, 2019).

Several specialists have analysed the legality of border carbon adjustments in the context of WTO rules (see, for example, Hillman, 2013; Pauwelyn, 2012; Panezi, 2015). In particular, questions have been raised in relation to the most-favoured-nation (MFN) principle, since such a measure would allow the importing country to tax the same product differentially according to its origin (and its associated carbon footprint). In this context, and in order to avoid what it considers to be an imminent conflict between the international trade and climate change regimes, Bacchus (2017) has proposed adopting a WTO climate waiver, which would allow border carbon adjustments to be legalized with respect to potential challenges, subject to strict conditions to avoid protectionist abuses.

2. Modern trade agreements incorporate new environmental provisions

Based on the analysis of the 270 existing preferential agreements notified to GATT and subsequently WTO between 1957 and May 2016, Monteiro (2016) finds that nearly all (263) contain at least one environmental provision, although only 17% (46) devote a specific chapter to the environment.[15] The most common type of provision, included in 262 agreements, is an environmental exception, similar to that set out in GATT article XX. However, the number and variety of environmental provisions has increased steadily since the early 1990s. In fact, only one third of the agreements analysed (86) contain only an environmental exception. Seventy-five per cent of agreements in this category have been concluded between developing countries (South-South agreements). In contrast, of the agreements that include additional provisions, 53% are between developed and developing countries (North-South agreements) and 42% involve developing countries only (South-South agreements) (see figure II.11).[16]

Figure II.11
Distribution of preferential trade agreements containing environmental provisions, by type of provision and participating country, as of May 2016
(Number of agreements)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of J.A. Monteiro, "Typology of environment-related provisions in regional trade agreements", *WTO Staff Working Paper*, Geneva, 2016.

15 In WTO terminology, preferential agreements are called "regional trade agreements". In this subsection, both terms, as well as "free trade agreement" or "free trade treaty", are used synonymously.

16 The WTO considers as developing countries those members that declare themselves to be such. These include several high-income economies, such as Hong Kong (Special Administrative Region of China), Taiwan Province of China, the Republic of Korea and Singapore. This means that agreements between these economies, as well as between them and Latin American countries, are counted as "South-South".

The process of including environmental issues in trade agreements has been highly fluid, with marked differences in terms of their position in the text of the treaty, the scope and depth of the disciplines in question, and the legal and institutional implications (see table II.3). In many cases, these issues have been mentioned in a merely declarative and aspirational manner in the agreement preambles. In others, commitments and obligations have been defined in a specific chapter, and implementing rules have been established. Environmental provisions are also found in other chapters, such as those on investment and government procurement. Nearly all agreements that include environmental provisions have cooperation commitments, but only a few have an institutional framework to enforce them (with the potential for consequences involving sanctions).

Table II.3
Examples of environmental provisions included in preferential trade agreements

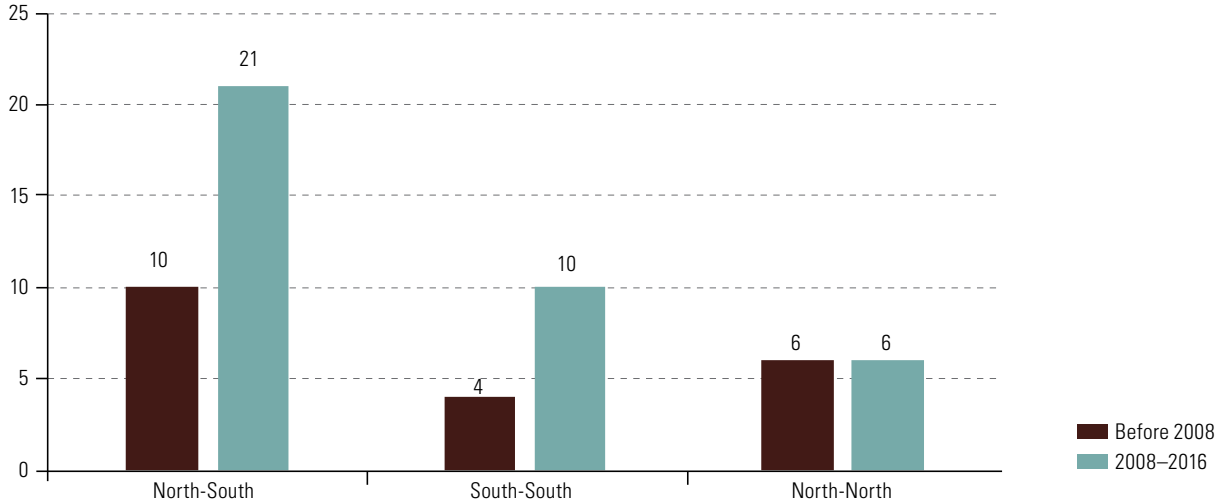
Category	Examples of types of provisions
1. Environmental laws of the parties	• Right of parties to set their levels of environmental protection • Commitment not to lower environmental protection levels in order to gain export competitiveness or attract foreign investment
2. Multilateral environmental agreements (MEAs)	• Reaffirmation of the obligations contained in MEAs to which the parties to the trade agreement are also party
3. Intellectual property rights	• Biodiversity and traditional knowledge
4. Environmental goods, services and technologies	• Lists of commitments on environmental services
5. Natural resource management and specific environmental issues	• Fisheries management and trade in fishery products • Forest management and trade in forest products • Energy and mineral resources • Climate change
6. Environmental governance	• Transparency and the right to environmental information • Right to environmental justice
7. Cooperation	• Environmental cooperation in general • Cooperation on specific environmental issues
8. Institutional arrangements	• Environmental contact points • Advisory/civil society committees • Environmental impact assessment of the trade agreement
9. Consultation procedures	• Consultations on environmental issues under the different chapters of the trade agreement
10. Dispute settlement procedures	• Settlement of environmental disputes under the different chapters of the trade agreement

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of J.A. Monteiro, "Typology of environment-related provisions in regional trade agreements", *WTO Staff Working Paper*, Geneva, 2016.

The United States and the European Union have been the main promoters of including environmental provisions in their trade agreements, especially those with developing countries. This is partly the result of requirements under their own legislation, as well as of competitiveness considerations arising in trade between countries of different development levels (and hence disparate levels of environmental protection). Accordingly, the average number of environmental provisions is higher in North-South than in South-South and North-North agreements. Nonetheless, the last decade has seen a significant increase in the number of environmental provisions in North-South and South-South agreements (see figure II.12).[17] This probably reflects increased awareness of the urgency of tackling climate change and other environmental challenges, and also the contribution that trade and trade agreements can make to that effort.

[17] The same is true of some North-North agreements signed after 2016, in particular that between the European Union and Japan (see table II.4).

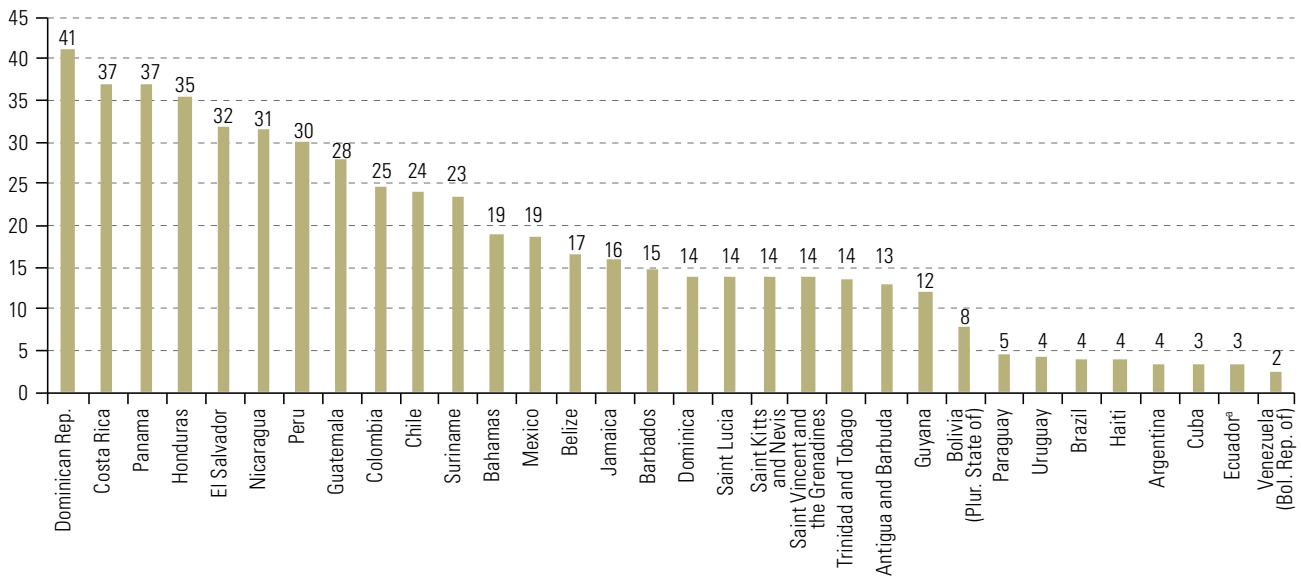
Figure II.12
Average number of environmental provisions contained in trade agreements by category of participating countries as of May 2016



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of J.A. Monteiro, "Typology of environment-related provisions in regional trade agreements", *WTO Staff Working Paper*, Geneva, 2016.

As happens worldwide, environmental provisions have been included in Latin American and Caribbean trade agreements as a direct outcome of negotiations with developed countries, in particular the United States and members of the European Union. The countries of the region with the highest average number of environmental provisions in their preferential agreements are also those that have signed the largest number of agreements with developed-country partners: the Dominican Republic, the Central American countries and the members of the Pacific Alliance (see figure II.13). In contrast, agreements between countries within the region tend to contain far fewer environmental provisions.

Figure II.13
Latin America and the Caribbean (selected countries): average number of environmental provisions included in preferential trade agreements, as of 2016



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Trend & Environment Database (TREND) [online] https://klimalog.die-gdi.de/trend/.
[a] The average number of environmental provisions in Ecuador's trade agreements rises from three to nine, if its 2017 accession to the 2012 trade agreement between Colombia and Peru and the European Union is included.

As in the rest of the world, the environmental content of trade agreements involving the region's countries has expanded progressively. The North American Free Trade Agreement (NAFTA), signed in 1992, was the first to include a side agreement for cooperation on environmental issues, together with an institutional framework to enforce the commitments. As early as the 2000 decade, the United States was including specific environmental chapters in all of its free trade agreements with Latin American partners: Chile (2003), Central America and the Dominican Republic (2004), Peru (2006), Colombia (2006) and Panama (2007). These chapters are basically confined to two objectives: compliance with each partner's national legislation and a commitment not to lower their environmental standards to promote trade or investment.[18] To ensure compliance with these obligations, there is recourse to appeal to the general dispute settlement mechanism of the respective agreement, and benefits may even be suspended in cases of non-compliance. To date, this possibility has never been activated.

In some cases, the entry into force of trade agreements between the United States and countries in the region has been made conditional on significant institutional changes being made in the latter countries and the passing of new environmental laws. For example, in Peru, the Ministry of the Environment was created as part of the process of implementing the free trade agreement with the United States; new forestry and wildlife laws were passed, and the Criminal Code was amended to define environmental crime, among other measures (García, 2010).

Many trade and investment agreements entered into by countries in the region include the investor-state dispute settlement mechanism. This gives multinational firms recourse to ad hoc international tribunals if they consider that the environmental measures adopted by their host States affect their profits (or even their profit expectations in some cases). In post-2000 free trade agreements, this risk to a state's regulatory autonomy has been diminished to some degree by including reserves for non-conforming environmental policies. Nevertheless, it would be important to develop new investment-dispute settlement models that better protect the right of States to regulate in the public interest, including conservation of the environment.[19]

Following the adoption of the 2030 Agenda for Sustainable Development and the Paris Agreement on Climate Change, there has been a significant increase in the number and variety of environmental provisions contained in several of the most recent trade agreements, some of which involve countries in the region. Aside from the traditional, mainly cross-cutting, commitments, there have been provisions, of varying depth, on climate change, air pollution, protection of the ozone layer, marine litter and threats to biodiversity, among other matters.[20] Sustainability commitments are also included in the fisheries and forestry sectors (see table II.4). Many of these commitments are not binding, however, but are framed as best endeavour clauses (The Economist Intelligence Unit, 2019).

[18] The agreement with Peru also contains an annex imposing various obligations on that country for the sustainable management of its forestry sector. These mainly relate to combating illegal logging.

[19] Alternatives currently under discussion include exclusively intergovernmental dispute settlement mechanisms (such as WTO) and the creation of permanent investment tribunals with appellate bodies (a model promoted by the European Union).

[20] One exception is the United States-Mexico-Canada Agreement (USMCA) signed in November 2018, which makes no reference to climate change owing to the position adopted on this issue by the current United States administration.

Table II.4
Environmental issues included in selected trade agreements

Theme	Comprehensive and Progressive Agreement for Trans-Pacific Partnership	United States-Mexico-Canada Agreement	European Union-Japan	European Union-Mexico[a]	European Union-MERCOSUR[b]
Right of the parties to set their levels of environmental protection and commitment not to lower them in order to promote trade or attract investment	●	●	●	●	●
Multilateral environmental agreements	●	●	●	●	●
Protection of the ozone layer	●	●			
Protection of the marine environment from pollution by ships	●	●			
Marine litter		●			
Marine fisheries	●	●	●	●	
Sustainable management of fisheries	●	●	●[c]	●[c]	
Conservation of marine species	●	●			
Fisheries subsidies	●	●			
Illegal, unreported and unregulated fishing	●	●	●	●	●
Air quality		●			
Trade and biodiversity	●	●	●	●	●
Invasive alien species	●	●			
Conservation (of flora and fauna) and trade	●	●	●	●	
Sustainable forest management and trade		●	●	●	●
Transition to a resilient, low-emission economy	●				
Trade and climate change			●	●	●
Environmental goods and services	●	●	●	●	●
Opportunities for public participation	●	●	●	●	●
Environmental cooperation	●	●	●	●	●
Corporate social responsibility	●	●		●	●
Voluntary mechanisms to improve environmental performance	●	●			
Cooperation in multilateral trade and environmental fora				●	●
Consultation mechanisms	●	●	●	●	●
Dispute settlement mechanisms	●	●	●	●	●

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the texts of the various agreements.
[a] Text of the agreement in principle announced in April 2018.
[b] Text of the agreement in principle reached in June 2019.
[c] Its provisions also apply to aquaculture.

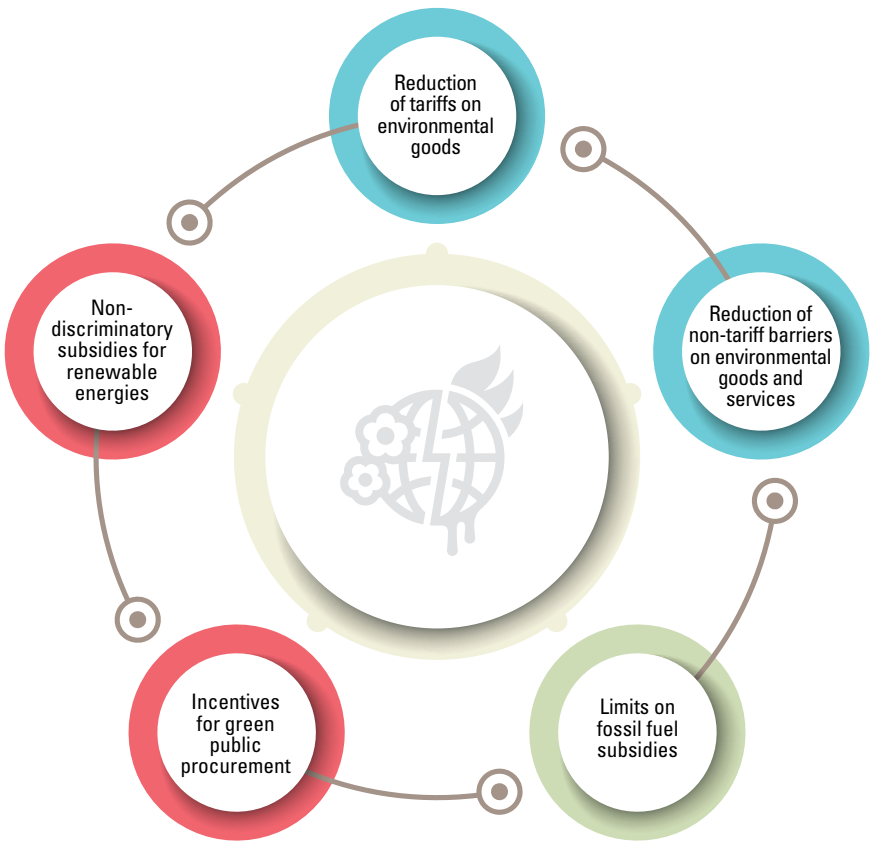
In recent years, the European Union has been at the forefront of efforts to maximize synergies between trade agreements and environmental sustainability. Since February 2018, it has been official policy that all its new trade agreements must include a commitment by the parties to ratify and implement the Paris Agreement. The European Union also makes an ex ante analysis of each trade negotiation's impact on sustainability (not only environmental, but also economic and social, and in terms of human rights); and in some cases it also conducts ex post assessments. The main purpose is to identify possible compensation measures.[21] In keeping with this approach, its most recent trade agreements (with Japan, Singapore, Mexico, the Southern Common Market (MERCOSUR) and Viet Nam) include chapters on trade and sustainable development that bring together environmental and labour commitments in a single text.[22] In cases

[21] See European Commission "Sustainability Impact Assessments" [online] http://ec.europa.eu/trade/policy/policy-making/analysis/policy-evaluation/sustainability-impact-assessments/index_en.htm.
[22] In the case of MERCOSUR and Mexico, these are agreements in principle, which have not yet been signed by the parties. .

of non-compliance, and in contrast to the United States model, a dispute resolution mechanism has been established in which both parties cooperatively implement the recommendations of an arbitration panel.

The mere inclusion of environmental commitments in specific chapters of trade agreements is not sufficient to maximize the contribution of these instruments to environmental sustainability;[23] instead they need to be incorporated throughout. On climate change, for example, there are a number of trade measures —not necessarily contained in a chapter on the environment— that can make a significant contribution to reducing GHG emissions (see diagram II.3). Some of these issues have already been addressed in the more recent agreements (e.g. the provision of incentives for green public procurement and the reduction of non-tariff barriers to environmental goods and services). Others, however, have not yet been addressed, mainly because they are very complex politically. This is particularly the case with the adoption of commitments to reduce fossil fuel subsidies. However, the inclusion of more stringent environmental requirements in North-South trade agreements is not risk-free for developing countries' exports, since these countries generally have to raise their environmental standards by more than their advanced-country partners.

Diagram II.3
Trade policy measures to tackle climate change



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of The Economist Intelligence Unit, "Climate change and trade agreements. Friends or foes?", 2019 [online] https://iccwbo.org/content/uploads/sites/3/2019/03/icc-report-trade-and-climate-change.pdf.

[23] While there are some studies on the effects of environmental provisions included in trade agreements (Baghdadi, Martínez-Zarzoso and Zitouna, 2013; Martínez-Zarzoso, 2017), there is no conclusive assessment.

3. Nationally determined contributions to the Paris Agreement still contain few trade measures

The Paris Agreement, signed in December 2015 by UNFCCC member countries, makes no specific reference to trade and investment policies. The countries themselves are delegated responsibility for ensuring that their nationally determined contributions (NDCs) contribute to the goal of limiting the rise in global temperatures to less than 2° C. Each country must generate the tools to achieve this, according to its own circumstances, capacities and priorities.

Trade has a key role to play in meeting the Paris Agreement objectives by helping to disseminate the goods, services and technologies required to mitigate climate change. However, this is not fully reflected in the content of the NDCs. Although nearly 45% of the NDCs presented prior to the twenty-first session of the Conference of the Parties to the International Conference on Climate Change (COP 21) contain references to trade, only 22% include trade measures aimed specifically at climate change mitigation, and just 6% mention lowering trade barriers for this purpose (Brandi, 2017). The absence of specific references to trade-related instruments is particularly noticeable in the NDCs of the largest net carbon emitters and exporters.

In addition to reducing barriers to trade in environmental goods and services, the main trade-related elements that have been identified in the NDCs are: regulation of trade with a focus on climate, regulation of timber trade, standards and labelling schemes, border carbon adjustments, renewable energy, reform of fossil fuel subsidies, international market mechanisms and technology transfer. All of these tools can contribute to mitigating climate change and creating new economic opportunities; but they are not immune from the risk of protectionist abuses, which, should they materialize, would likely have a greater impact on developing country exports.

In the case of the NDCs of Latin American and Caribbean countries, the trade-related elements that have been identified are also limited, although they exceed the global average reported in Brandi's study. The items considered by the largest number of countries in the region are renewable energy, market mechanisms and technology transfer (see table II.5). Most of the countries that are major exporters of natural resources did not assume commitments that could affect their external sector. In contrast, the NDCs presented by some small Caribbean economies that are particularly vulnerable to climate change give a more prominent role to instruments such as reducing trade barriers to environmental goods and regulating trade based on climate considerations.[24]

The geographic fragmentation of production processes has lengthened supply chains and thus increased the demand for transportation services. In addition, changes in consumer preferences have given rise to new patterns of international transport, with higher frequencies, smaller shipments and a demand for faster modalities such as air transport. As cargo transport —whether by air, land or sea— depends heavily on fossil fuels, it is one of the most difficult sectors to decarbonize. In fact, international air and sea transport were excluded from the Paris Agreement. Nonetheless, each sector has its own targets for containing the carbon footprint (see box II.3).

[24] For example, the NDCs of Antigua and Barbuda, the Bahamas, Cuba, Guyana, Haiti, Saint Lucia and Saint Vincent and the Grenadines include bans or restrictions on the importation of old or large-engine cars and high-consumption electric light bulbs and appliances, as well as measures to reduce barriers to trade in goods and services required for climate change mitigation.

Table II.5
Latin America and the Caribbean: presence of trade measures in the nationally determined contributions

Types of measures[a]	Argentina	Bolivia (Plurinational State of)	Brazil	Chile	Colombia	Costa Rica	Ecuador	El Salvador	Guatemala	Honduras	Mexico	Nicaragua	Panama	Paraguay	Peru	Uruguay	Venezuela (Bolivarian Republic of)	Latin America	Antigua and Barbuda	Bahamas	Barbados	Belize	Cuba	Dominica	Dominican Republic	Grenada	Guyana	Haiti	Jamaica	Saint Kitts and Nevis	Saint Lucia	Saint Vincent and the Grenadines	Suriname	Trinidad and Tobago	The Caribbean	Total Latin America and the Caribbean	World
1. Reduction of barriers to environmental goods and services																		0/17 (0%)		●			●				●				●	●			5/16 (31%)	15%	6%
2. Regulation of trade according to environmental considerations																	●	1/17 (6%)	●	●				●				●			●				5/16 (31%)	18%	11%
3. Regulation of timber trade																		0/17 (0%)									●								1/16 (6%)	3%	3%
4. Standards and labelling																●	●	2/17 (12%)	●	●						●	●				●	●			6/16 (36%)	27%	11%
5. Border carbon adjustments											●							1/17 (6%)																	0/16 (0%)	3%	0.01%
6. Renewable energies	●	●	●	●		●	●	●	●		●	●	●	●	●	●	●	15/17 (88%)	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	15/16 (94%)	91%	88%
7. Reform of fossil fuel subsidies																		0/17 (0%)																	0/16 (0%)	0%	6%
8. Market mechanisms			●	●	●	●			●		●	●	●	●	●	●		11/17 (65%)	●	●	●			●	●	●	●	●		●	●	●	●		13/16 (81%)	9%	11%
9. Technology transfer	●	●	●	●	●	●		●	●	●	●	●	●	●		●	●	15/17 (88%)	●	●	●	●	●					●	●	●	●	●	●		10/16 (63%)	76%	63%
10. Response measures																	●	1/17 (6%)																	0/16 (0%)	3%	3%
11. Mutual benefits for trade																		0/17 (0%)	●	●		●		●		●						●			6/16 (36%)	18%	6%

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of each country's nationally determined contributions.

Box II.3
Measures to reduce emissions associated with international maritime and air transport

Of total global merchandise trade, 80% by volume and 70% by value is transported by sea. International maritime transport accounted for 2.1% of GHG emissions in 2012 (IMO, 2015), and these are projected to increase by between 50% and 250% by 2050 if no action is taken (UNFCCC, 2018). The International Maritime Organization (IMO) is acting to reduce pollution caused by ships by reforming international shipping regulations. The Marine Environment Protection Committee (MEPC), which is IMO's highest technical body on marine pollution issues, set a goal of halving the emissions associated with this sector by 2050. Of the 51 regulations adopted by IMO to date, 21 are directly related to the environment. Shipping lines are subject to regulations restricting nitrogen oxide (NOx) emissions for the safety of life at sea and the protection of the marine environment.

Two regulations have a crucial role to play in fulfilling IMO environmental objectives. The first is the International Convention for the Control and Management of Ships' Ballast Water and Sediments, which requires all ships built before 8 September 2017 to be equipped with a ballast water treatment system. This is used to stabilize vessels, but it can damage the environment by introducing alien and invasive species into the host ecology. The second regulation is "Azufre 2020" and aims to reduce sulphur oxide emissions as from 2020 by setting a global limit on the sulphur content of ships' fuel.

On CO_2 emissions, IMO put forward a number of measures, such as the creation of a database to provide a benchmark for measuring fuel consumption and emissions from ships. In addition, several administrative measures have been applied to ships to measure and control their emissions. These include: the use of electric power supplied by a land-side network when the ship's engines are *cold ironing,* to reduce GHG emissions in areas surrounding cities; just-in-time arrivals to reduce emissions through improvements in voyage planning and management; and the use of alternative fuels.

In 2018, domestic and international flights accounted for 2.4% of global CO_2 emissions. Between 2013 and 2018, these emissions grew by 26% (IATA, 2018) and they are expected to continue increasing. The fuel savings of the most modern aircraft, of about 1% to 2% per year, may not compensate for the expected traffic growth of around 5% per year. This means that CO_2 emissions could increase by a factor of between 2.4 and 3.6 by 2050, depending on efficiency improvements (International Civil Aviation Organization, ICAO, 2016; Timperley, 2019).

To mitigate the growth of emissions, in 2016 ICAO members signed the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). This aims to ensure that the growth in international flights after 2020 is carbon neutral (the control of emissions from domestic aviation is already covered by national commitments under the Paris Agreement). Airlines from ICAO member countries will have to purchase emission permits from other sectors to offset any increase in emissions from international flights. Alternatively, they can use lower-carbon fuels (Timperley, 2019).

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Maritime Organization (IMO), *Third IMO GHG Study 2014*, London, april 2015; International Civil Aviator Organization (ICAO), *On Board a Sustainable Future Environmental ICAO 2016 Report* [online] https://www.icao.int/environmental-protection/Documents/ICAO%20Environmental%20Report%202016.pdf; J. Timperley, "CORSIA: The UN's plan to 'offset' growth in aviation emissions after 2020", CarbonBrief, 2019 [online] https://www.carbonbrief.org/corsia-un-plan-to-offset-growth-in-aviation-emissions-after-2020; United Nations Framework Convention on Climate Change (UNFCCC), "World Nations Agree to At Least Halve Shipping Emissions by 2050", 2018 [online] https://unfccc.int/news/world-nations-agree-to-at-least-halve-shipping-emissions-by-2050 and International Air Transport Association (IATA), "IATA Industry Statistics. December 2018", 2018 [online] https://www.iata.org/publications/economics/Reports/Industry-Econ-Performance/Airline-Industry-Economic-Performance-December-18-Datatables.pdf.

D. The region's weak performance in global trade in environmental goods

International trade can contribute to the preservation of the environment by disseminating goods and services that have a smaller environmental footprint, and by propagating the technologies needed to move towards greener production processes. In this context, the concept of environmental goods and services has attracted considerable attention. According to the definition proposed by OECD and Eurostat in 1999, these are goods and services that help to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and ecosystems. They therefore reduce environmental risk and minimize pollution and resource use (OECD/Eurostat, cited in Steenblik, 2005).

In 2001, multilateral negotiations were launched within the WTO Doha Round to reduce tariff and non-tariff barriers to trade in environmental goods and services. In practice, the negotiations focused on environmental goods; and, despite lasting for more than a decade, they did not achieve a positive outcome. The main reason for this was a failure to agree upon the list of goods that should be subject to liberalization commitments, which in turn reflects the different countries' conflicting export interests. In 2012, the member countries of Asia-Pacific Economic Cooperation (APEC) agreed to lower their applied tariffs on a set of 54 environmental goods to no more than 5%. This led to the WTO negotiations being relaunched in 2014, this time in a plurilateral format. This process lasted until December 2016, but once again it proved impossible to reach an accord.

One of the points of disagreement at WTO concerns goods that have dual or multiple use. For example, gas turbines can generate electricity either from renewable sources (such as biogas) or from traditional gas, which generates CO_2 emissions. Moreover, technological change may mean that some products which today might be considered environmentally friendly could cease to be so in the future (for example certain types of electric light bulbs). Undoubtedly, however, the main controversy relates to the distribution of the commercial gains of an eventual agreement. For example, most "classic" environmental goods are chiefly exported by developed countries and China. Accordingly, some developing countries have argued that other goods of particular interest to them, such as organic agricultural products and biodegradable natural fibres, should also be included. However, the inclusion of these "environmentally preferable products" (EPPs) did not generate the required consensus.

In the course of the negotiations, several lists of environmental goods were drawn up (see table II.6). The first was created by OECD in conjunction with Eurostat in 1999 and consists of 120 products. The second, proposed by the "Friends of Environmental Goods" Group in 2009, contains 166 products. The third was produced by WTO in 2011 with 411 items. The fourth was created in APEC in 2012 and is the smallest (54 products). Lastly, the "Combined List of Environmental Goods" (CLEG) was produced by OECD in 2014 and contains 248 entries. This is a combination of three lists: those of APEC and "Friends of Environmental Goods", along with a list proposed by the OECD for the G-20 meeting in Toronto in 2010 (Sauvage, 2014). While the five lists differ greatly in the number of products they include, most coincide in terms of categories: air pollution control, wastewater management, solid waste management, environmental monitoring, analysis and diagnosis, and renewable energy.

The following paragraphs discuss Latin American trends in global trade in environmental goods, using the APEC list and the CLEG group produced by OECD (which adds a further 194 products to the 54 in the APEC list). It also considers a list of 108 EPPs, which were proposed by various developing countries during the WTO negotiations (Zugravu-Soilita, 2018).

Table II.6
Lists of environmental goods: products by category, 1999–2014
(Number of six-digit codes of the Harmonized System)

	Organization for Economic Cooperation and Development (OECD) (1999)	Friends of Environmental Goods (2009)	World Trade Organization (WTO) (2011)	Asia-Pacific Economic Cooperation (APEC) (2012)	Combined List of Environmental Goods (CLEG) (2014)
Air pollution control	20	13	43	6	12
Wastewater management	46	40	32	5	31
Solid waste management	13	24	24	12	25
Environmental monitoring, analysis and diagnosis	19	28	45	14	37
Renewable energy	5	30	39	10	54
Natural risk management		3	3	1	
Noise and vibration reduction services	3	4	1		4
Heat and energy management	7	6	1		25
Clean-up and recovery of soils and water bodies	1	4	4		4
Cleaner and more resource-efficient products	2	4	13		47
Environmentally preferable products based on end-use or disposal characteristics		6	9	1	6
Efficient consumption of energy technologies			197		
Other	4	4		5	3
Total	**120**	**166**	**411**	**54**	**248**

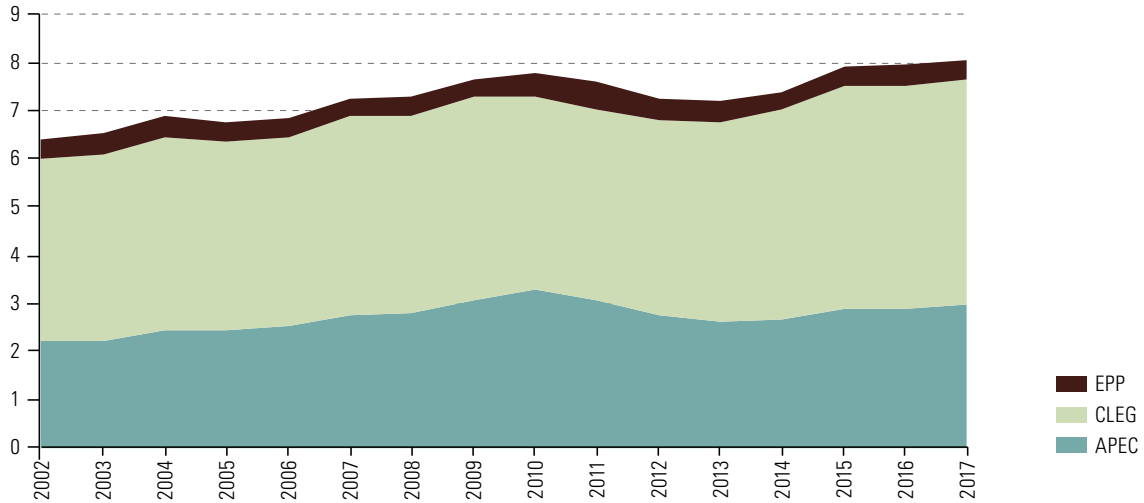
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organization for Economic Cooperation and Development (OCDE)/Eurostat, "Annex 2", *The Environmental Goods and Services Industry: Manual for Data Collection and Analysis*, Paris, OECD Publishing, 1999; World Trade Organization (WTO), *Report by the Chairman, Ambassador Manuel A. J. Teehankee, to the Trade Negotiations Committee for the purpose of the TNC stocktaking exercise* (TN/TE/19), Committee on Trade and Environment Special Session, 22 March 2010; WTO, *Report by the Chairman, Ambassador Manuel A. J. Teehankee, to the Trade Negotiations Committee* (TN/TE/20), Committee on Trade and Environment Special Session, 21 April 2011; G. Balineau and J. de Melo, "Removing barriers to trade on environmental goods: an appraisal", *Working Paper*, No. 67, Fondation pour les études et recherches sur le développement international, Clermont-Ferrand, 2013; Asia-Pacific Economic Cooperation (APEC), "Annex C - APEC List of Environmental Goods", 2012 [online] https://www.apec.org/Meeting-Papers/Leaders-Declarations/2012/2012_aelm/2012_aelm_annexC.aspx; J Sauvage, "The stringency of environmental regulations and trade in environmental goods", *OECD Trade and Environment Working Papers*, N° 2014/03, Paris, OECD, 2014.

Trade in environmental goods outpaced the rest of world trade throughout most of the period spanning 2002 to 2017 (see figure II.14). As a result, the APEC product group's share of world trade grew from 2.2% to 3.0%, and that of the CLEG group increased from 3.8% to 4.7%. The momentum displayed by these product categories coincides with the urgent need to tackle climate change and other environmental challenges. In contrast, the EPP share stalled at around 0.4% of world trade.

Between 2007 and 2017, Latin America increased its share in worldwide exports of both groups of environmental products (APEC and CLEG), albeit starting from low levels. The region's share in the case of the APEC group was less than half of its share in total goods trade in the 2016–2017 biennium (2.4% versus 6.0%, respectively). The regional share was higher in the case of the CLEG group (4.7%); and its share of global exports of EPPs remained around 3.2% during this period (see figure II.15).

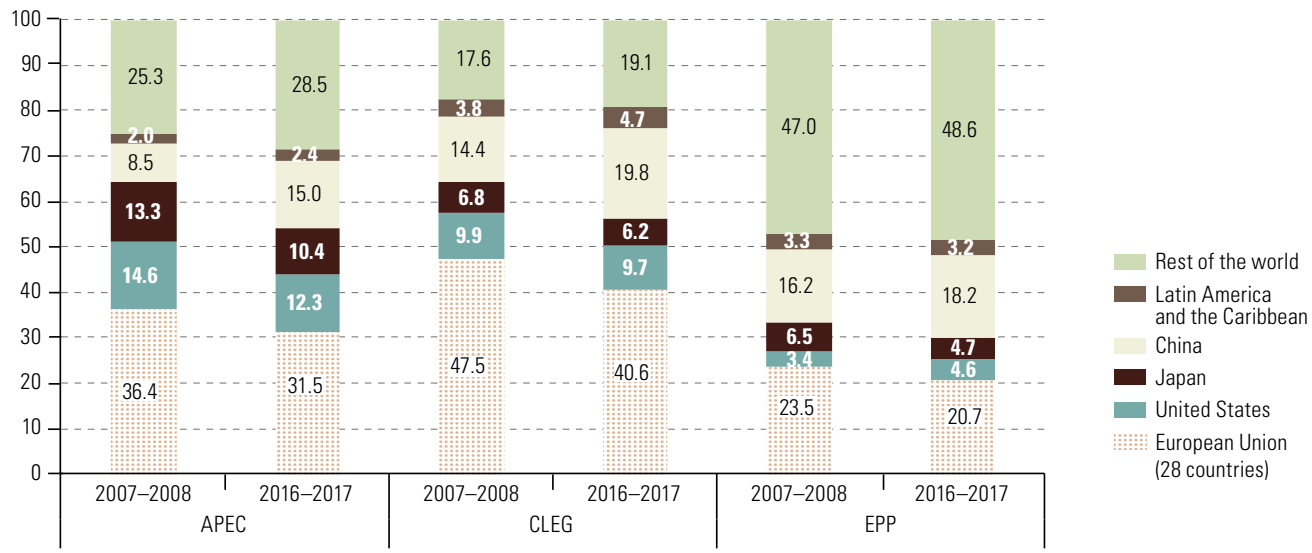
The European Union was the world's leading exporter in the three product categories (APEC, CLEG and EPP), accounting for 31.5%, 40.6% and 20.7% of global sales in 2016–2017, respectively. However, between 2007 and 2017, it saw its share of global exports decline, as also did the United States and Japan. In contrast, China emerged strongly in environmental goods trade and nearly doubled its share of APEC goods exports, particularly renewable energy products and equipment and inputs for wastewater treatment and air pollution abatement.

Figure II.14
Share of environmental goods in world trade, 2002–2017
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of UN Comtrade - International Trade Statistics Database.
Note: APEC refers to the list of 54 products of the Asia-Pacific Economic Cooperation (APEC) (2012); CLEG is the list of 248 products of the Organization for Economic Cooperation and Development (OECD) (2014) and EPP is the list of 106 environmentally preferable products proposed by several developing countries.

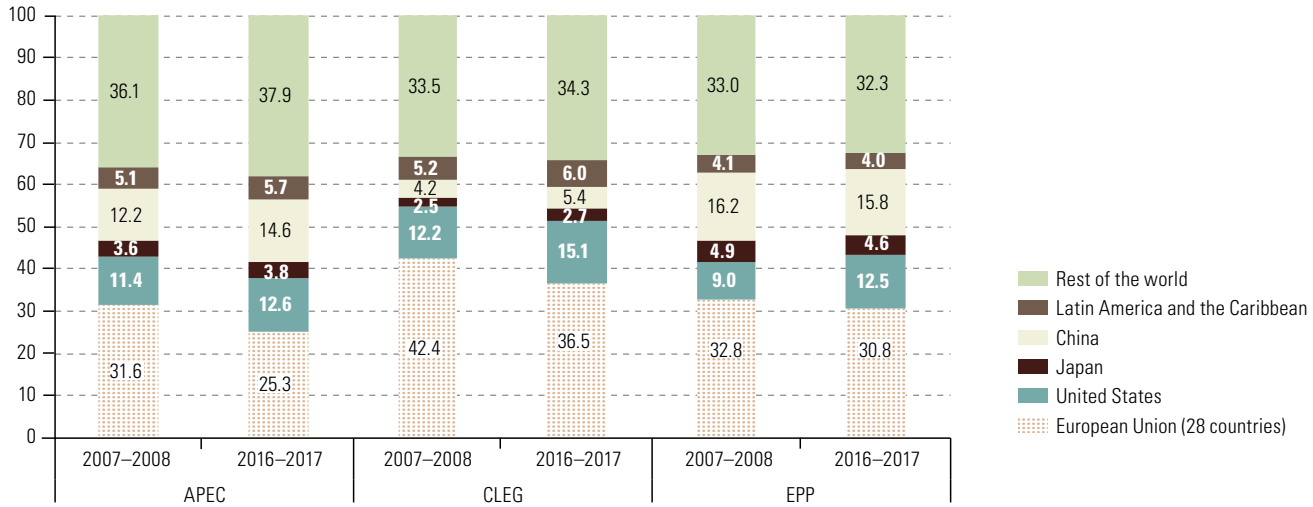
Figure II.15
Selected countries and regions: share of global exports of environmental products, 2007–2008 and 2016–2017
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of UN Comtrade - International Trade Statistics Database.
Note: CLEG: Combined List of Environmental Goods; APEC: Asia-Pacific Economic Cooperation; EPP: Environmentally preferable products.

The region's share of global imports of environmental products outweighs its share in the corresponding exports (see figure II.16). The region is thus a net importer of environmental goods, which helps improve the sustainability of its production and consumption. In contrast, the European Union accounted for a smaller share of imports of APEC and CLEG products than of the corresponding exports, making it a net exporter. In the case of EPPs, however, the European Union was a net importer, since it has no comparative advantages in these products, several of which are natural resources. The European Union saw its relative importance as an importer of these goods decline in the last decade, unlike China and the United States.

Figure II.16
Selected countries and regions: share of global imports of environmental products and environmentally preferable products, 2007–2008 and 2016–2017
(Percentages)



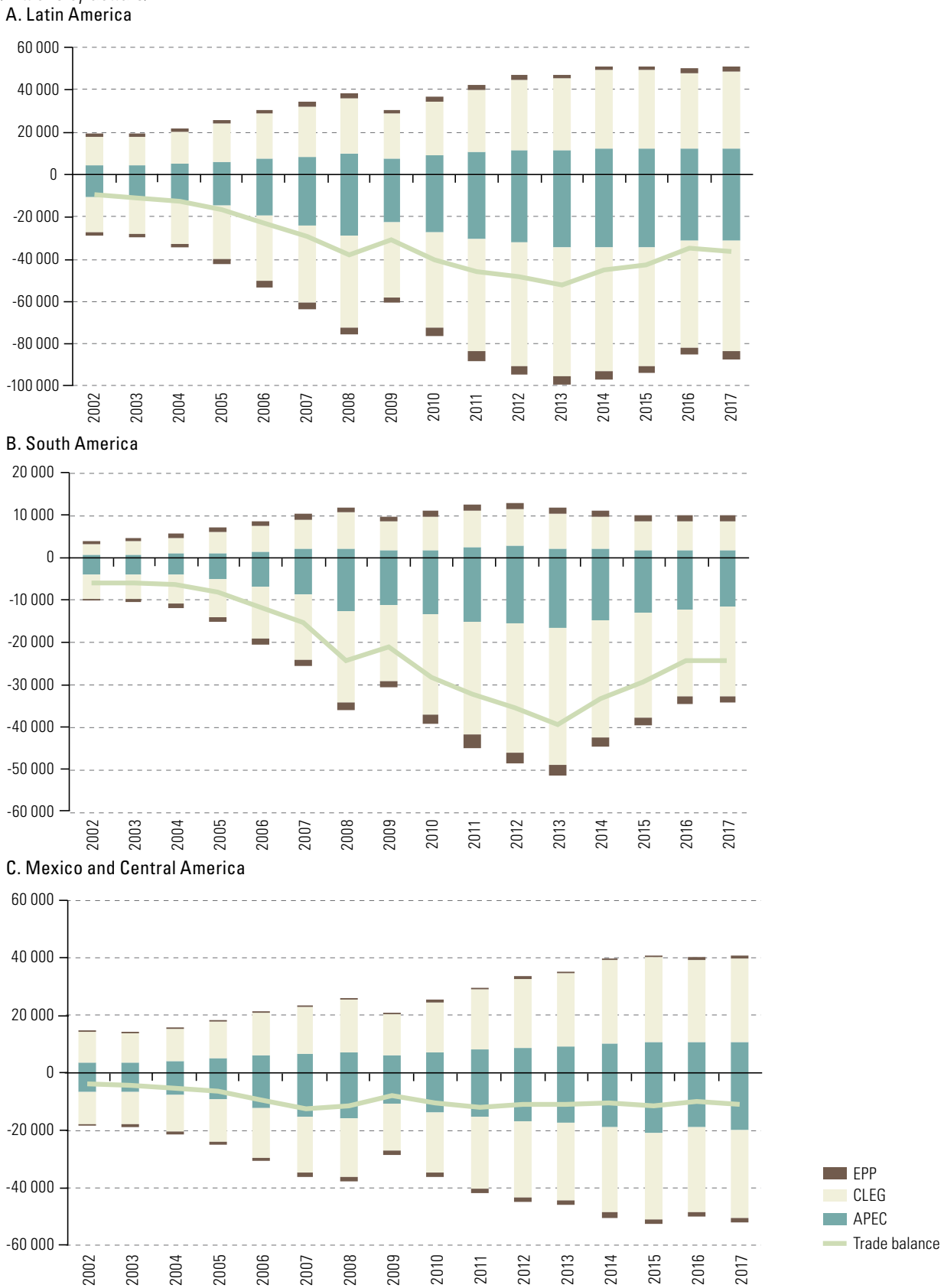
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of UN Comtrade - International Trade Statistics Database.
Note: CLEG: Combined List of Environmental Goods; APEC: Asia-Pacific Economic Cooperation; EPP: Environmentally preferable products.

Between 2002 and 2013, Latin America's imports of environmental goods outpaced the equivalent exports, so its trade deficit in these products widened. This trend conceals contrasting dynamics between South America, on the one hand, and Mexico and Central America, on the other. In the latter group of countries, exports and imports grew steadily between 2002 and 2017, except during the 2009 crisis (see figure II.17). Mexico is the region's largest exporter of environmental goods by far; and it is tightly integrated into North American production chains, so its imports of intermediate goods and its exports of final goods broadly kept pace with each other. In 2017, Mexico and Central America generated three quarters of the region's exports and more than half of its imports of environmental goods. In South America, by contrast, both flows grew rapidly until 2012, but then stagnated —especially imports— as a result of the recession that affected the subregion's largest major economies. This greatly reduced its trade deficit in these goods.

Barbados, Brazil, Mexico, Guatemala and Uruguay are the countries in the region where environmental goods and EPPs accounted for more than 3% of national merchandise exports in the 2016–2017 biennium (see figure II.18). In Brazil and Mexico, the vast majority of environmental goods exports were in the CLEG group and, to a lesser extent, the APEC group. In Guatemala and Uruguay, EPPs were also significant in exports. Between 2007 and 2017, the shares of environmental goods and EPPs increased mostly in Barbados, Mexico, Panama and Peru; but they declined in Barbados, Brazil, Guatemala and Uruguay.

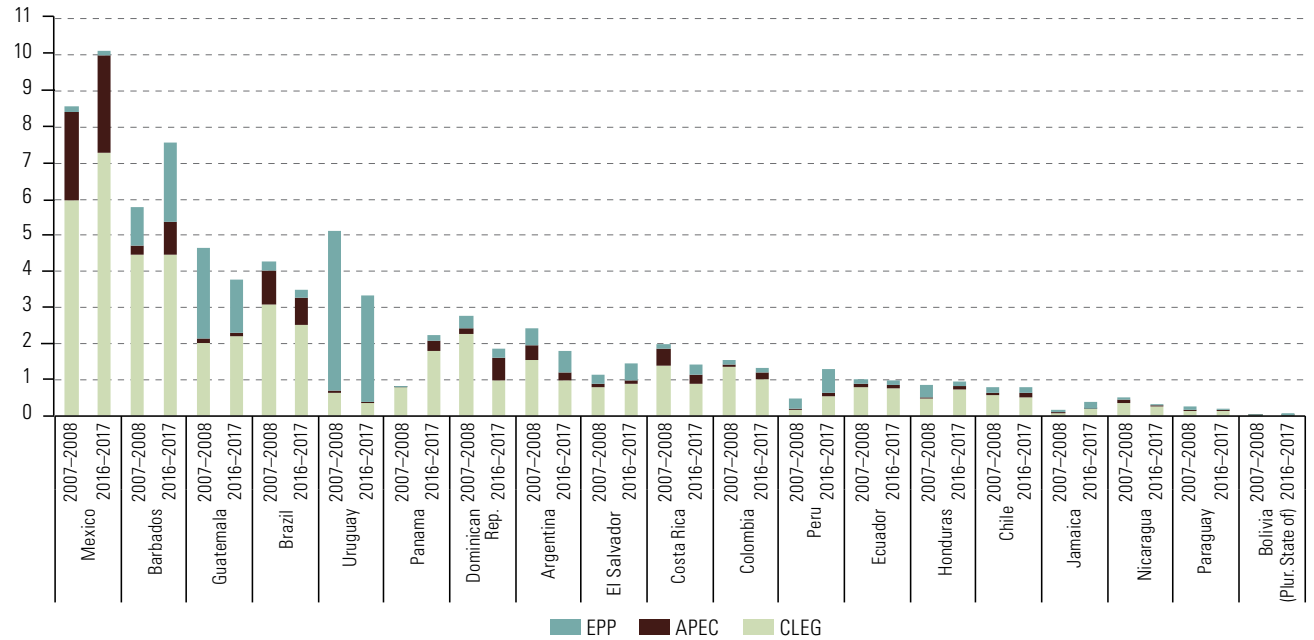
The United States provides the main export market for the region's environmental goods, absorbing three quarters of total shipments in 2017. This is mainly because the leading exporters in this category (Central America and Mexico) send nearly 90% of their environmental goods exports to their northern neighbour (see figure II.19). The second most important market is the region itself. In fact, for South America it was the leading market, absorbing 45% of its shipments in 2016–2017, with the European Union and the United States the next largest. Although China remains a minor destination for regional exports of environmental goods, it supplies a quarter of the corresponding regional imports. The United States and the European Union are also major suppliers to the region.

Figure II.17
Latin America and subregions: trade in environmental goods, 2002–2017
(Millions of dollars)



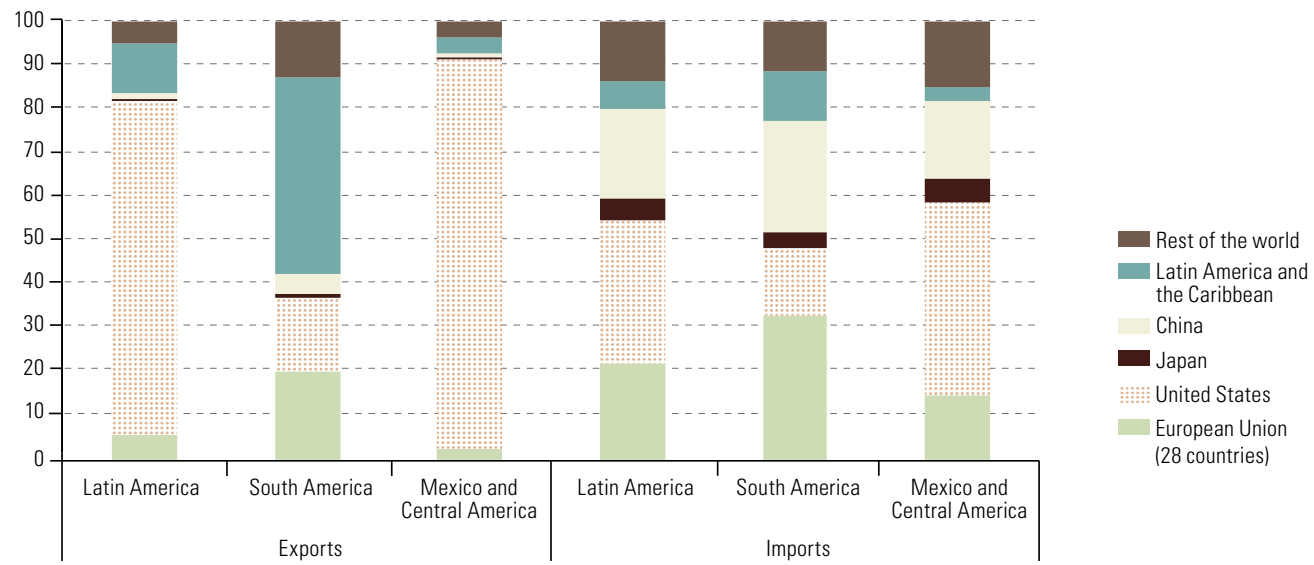
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of UN Comtrade - International Trade Statistics Database.
Note: CLEG: Combined List of Environmental Goods; APEC: Asia-Pacific Economic Cooperation; EPP: Environmentally preferable products.

Figure II.18
Selected countries: share of environmental goods in total exports of goods, 2007–2008 and 2016–2017
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of UN Comtrade - International Trade Statistics Database.
Note: CLEG: Combined List of Environmental Goods; APEC: Asia-Pacific Economic Cooperation; EPP: Environmentally preferable products.

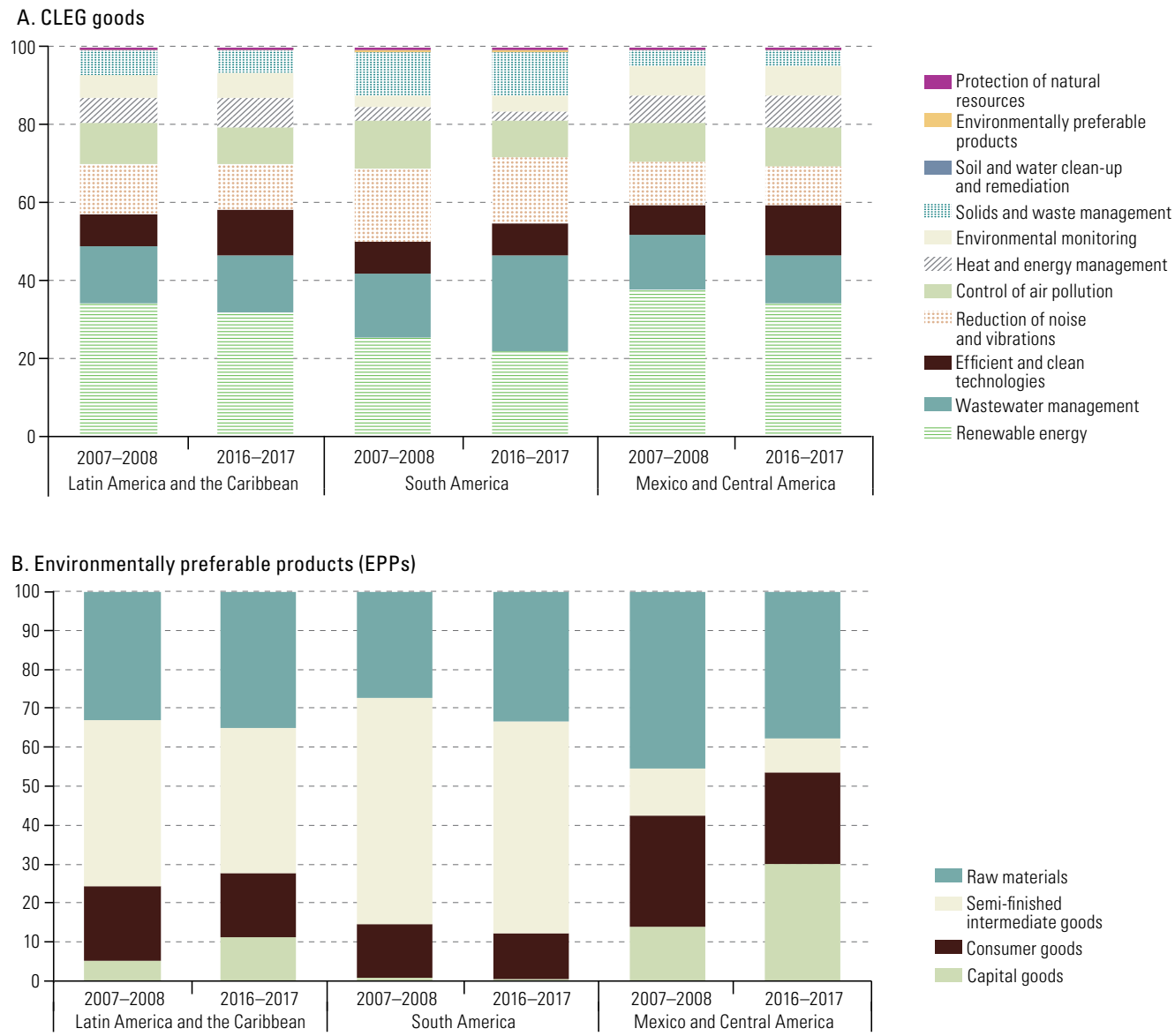
Figure II.19
Latin America and subregions: geographic distribution of exports and imports of environmental goods, 2017
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of UN Comtrade - International Trade Statistics Database.
Note: The 248 products in the CLEG group are defined as environmental goods.

Machinery, equipment and inputs for renewable energies constituted the main category of environmental goods exports in the region in 2016–2017, accounting for more than a third of total external sales (according to the CLEG list). This category is followed by products for wastewater treatment and efficient and clean technologies, each with a 12.5% share.[25] The first and third categories are important, especially for Central America and Mexico, while the second accounts for a large share of shipments from South America. In the last decade, the structure of environmental exports has been very stable, except for an increase in the share of products linked to efficient and clean technologies, and a slight reduction in other categories (see figure II.20).

Figure II.20
Latin America and subregions: main categories of environmental goods exports, 2007–2017
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of UN Comtrade - International Trade Statistics Database.

[25] The most efficient and cleanest technologies and products are capital goods —both final and intermediate— which reduce energy consumption and other environmental footprints.

In the case of EPPs, the region mainly exports intermediate goods (combed wool and yarns, food by-products for animal feed, vegetable waxes and raw materials, plant products used in perfumery or pharmacy, or for insecticide or fungicide purposes, among others). Semi-manufactured intermediate goods predominate mainly in South American shipments. In the case of Mexico and Central America, the EPP export basket is concentrated in raw materials (rubber, vegetable products used in perfumery, vegetable juices and extracts, among others) and capital goods (such as electric accumulators). During the last decade, the export structure of EPP goods remained stable in South America, while in Mexico and Central America capital goods gained in importance (see figure II.20.B).

Brazil and Mexico are the region's main exporters of environmental goods, accounting for three quarters of regional shipments in 2016–2017. In the case of Mexico, the 15 most exported products accounted for more than half of its total exports. The leading product —electrical control boards— is an input for renewable energies and represented one tenth of total shipments (see table II.7). The list contains four other products in this category. Other categories with more than one product on the list are: air pollution control, wastewater management, noise and vibration reduction, and clean and efficient technologies.

Table II.7
Mexico: 15 main environmental products exported, 2007–2017
(Millions of dollars and percentages)

Category[a]	Code	Description	2016–2017			2007–2008		
			Value	Percentage	No.	Value	Percentage	No.
2	853710	Electric control boards (< 1 000 volts)	3 905	10.0	1	2 047	8.6	1
6	840991	Internal combustion piston engines	2 952	7.6	2	1 659	7.0	2
2	903289	Regulating or controlling instruments and apparatus	1 762	4.5	3	1 276	5.4	3
4	940510	Lamps and other electrical light fittings	1 570	4.0	4	1 168	4.9	8
3	848180	Taps, valves and similar appliances	1 496	3.8	5	1 001	4.2	4
1	842139	Machinery and equipment for filtering or purifying gas	1 430	3.7	6	977	4.1	5
2	850440	Electrical static converters	1 218	3.1	7	775	3.3	10
7	871639	Trailers and semi-trailers	1 175	3.0	8	697	2.9	22
6	840999	Parts for internal combustion engines (excluding spark ignition)	1 110	2.8	9	625	2.6	6
7	860691	Railway or tramway freight wagons	988	2.5	10	576	2.4	24
3	732690	Iron or steel; articles n.e.c. in heading 7326	909	2.3	11	464	2.0	9
2	841199	Parts of gas turbines	841	2.2	12	447	1.9	7
2	901380	Optical devices, appliances and instruments	736	1.9	13	439	1.8	45
1	841430	Compressors (for refrigerating equipment)	722	1.8	14	425	1.8	12
5	847989	Machines and mechanical appliances	710	1.8	15	422	1.8	13
		Total	**21 524**	**55.1**		**12 997**	**54.7**	

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of UN Comtrade - International Trade Statistics Database.
[a] The categories are: 1. Air pollution control; 2. Renewable energy; 3. Wastewater management; 4. Heat and energy management; 5. Solid waste management; 6. Noise and vibration reduction; and 7. Efficient and clean technologies and products.

In the case of Brazil, the 15 most exported products accounted for nearly two thirds of total exports of environmental goods in the CLEG group. The main environmental product exported in the 2016–2017 biennium, was unchanged from a decade earlier: "Parts suitable for use solely or principally with the engines of heading No. 84.07 or 84.08", which are used to reduce noise and vibration (see table II.8). The list also has another product in this category. Other categories with more than one product included in this list are: air pollution control; renewable energy; wastewater management; noise and vibration reduction; and clean and efficient technologies.

Table II.8
Brazil: 15 main environmental products exported, 2007–2017
(Millions of dollars and percentages)

Category[a]	Code	Description	2016–2017			2007–2008		
			Value	Percentage	No.	Value	Percentage	No.
6	840999	Parts suitable for use solely or principally with the engines of heading No. 84.07 or 84.08	882	13.3	1	1 138	15.5	1
3	848180	Refrigerator and freezer with separate external doors	700	10.6	2	674	9.2	7
1	841430	Compressors (for refrigerating equipment)	397	6.0	3	633	8.6	2
6	840991	Internal combustion piston engines	376	5.7	4	499	6.8	4
2	850300	Electric motors and generators	296	4.5	5	268	3.7	3
7	870390	Passenger vehicles n.e.c. in heading 8703	278	4.2	6	264	3.6	128
3	732690	Iron or steel; articles n.e.c. in heading 7326	207	3.1	7	260	3.5	8
2	903289	Regulating or controlling instruments and apparatus	196	3.0	8	194	2.6	11
5	847989	Machines and mechanical appliances	185	2.8	9	157	2.1	6
2	850423	Electrical transformers; liquids dielectric (> 10 000 kVA)	142	2.1	10	148	2.0	5
3	842129	Machinery for filtering or purifying liquids, n.e.c. in item No. 8421.2	127	1.9	11	135	1.8	37
1	842139	Machinery and equipment for filtering or purifying gas	125	1.9	12	126	1.7	32
3	841370	Pumps; centrifuges	110	1.7	13	125	1.7	22
5	392010	Plastic plates, sheets, films, foils and strips	104	1.6	14	96	1.3	25
7	860310	Railway or tramway freight wagons	101	1.5	15	89	1.2	18
		Total	**4 227**	**63.9**		**4 808**	**65.6**	

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of UN Comtrade - International Trade Statistics Database.
[a] The categories are: 1. Air pollution control; 2. Renewable energy; 3. Wastewater management; 4. Heat and energy management; 5. Solid waste management; 6. Noise and vibration reduction; and 7. Efficient and clean technologies and products.

E. Trade improves environmental performance in some exporting sectors

1. Growing awareness of the environmental impact of export activity

The incorporation of environmental sustainability in business processes has been driven by regulatory progress, ecological disasters and social pressures. The environmental performance of enterprises is increasingly being evaluated by potential international investors, and it has also become a sensitive variable for consumers. Latin American exporters are gradually adopting better environmental practices to respond to these demands and stay internationally competitive.

Strengthening the relationship between the production sector and climate change started to become a relevant issue following the climate commitments assumed by the countries under the Kyoto Protocol. The most common practice in recent years has been to quantify the GHGs emitted by firms and by their processes and products. Between 2007 and 2010, various public and private projects were launched in Latin America for the purpose of calculating the carbon footprint of export products, particularly food, as consumers in developed countries expressed increasing concerns about GHG emissions and their effects on climate change. At that time, Europe and North America were particularly sensitive to products imported from distant countries (most of them

developing), owing to the emissions generated in their transportation to the destination markets, and also because of a presumption that their production processes would be more polluting, which is not necessarily the case (Frohmann and Olmos, 2013).

In 2014, ECLAC ran a pilot experiment, in conjunction with the public and private sectors of Colombia, the Dominican Republic, Ecuador, Honduras and Nicaragua, to calculate the carbon footprint of seven agricultural export products: banana, cocoa, coffee, dehydrated golden berry (uchuva), palm oil, shrimp, and stevia . Land use change was the leading source of emissions (when it existed); in other cases, the most important sources were waste management and fossil fuel use. In short, as each of the 44 footprints analysed was different, each emission reduction plan was unique. Considering all products in all countries, the source of least emissions was the international distribution of the products analysed (Frohmann and others, 2015).

2. The increasing diffusion of sustainability standards in trade

Sustainability standards are instruments that seek to improve the environmental (and social, in some cases) sustainability of enterprises and products. They incorporate good practices in production processes and introduce quantifiable impact indicators, all of which generates information that is provided to the consumer. They allow for the standardization of production in large firms and the possibility for small and medium-sized enterprises (SMEs) to gain access to differentiated markets. The standards in question include international certifications, codes of conduct, sectoral best practices and labelling programmes.

While most of these standards are referred to as voluntary, compliance with them in practice may be mandatory, as they are essential requirements for access to certain marketing channels and market niches. In some cases, the organization behind the design of a standard provides support and assistance to producers in developing countries, including the transfer of knowledge and facilities to access financing. However, the effectiveness of these standards and especially their high implementation costs for producers have been called into question. Compounding this is a lack of transparency for consumers, because it is not always clear what each of the certifications implies in practice, or which economic, environmental or social aspects it addresses.

The sector with the largest number of standards is agriculture. Burgeoning food trade has stimulated the expansion of the agricultural frontier, which in tropical areas is often associated with deforestation. This leads not only to GHG emissions, but also to local biodiversity loss. In this context, the standards incorporate indicators such as the carbon footprint, the water footprint and soil and biodiversity conservation practices, among other variables. In the case of seafood, sustainability standards focus primarily on species conservation. The major environmental impacts of beef production are associated with methane emissions and soil degradation.

Sustainability standards in Latin America have traditionally been used in export sectors, but they have spread to local markets since large supermarket chains started using them. More than half of the food retail trade is currently conducted through these chains, which demand standards from both local and foreign producers (ECLAC/FAO/IICA, 2015). This has meant incorporating issues such as climate change into business strategies, which previously focused only on quality and food safety matters. Although climate change is a central category, aspects such as water use and pollution, and the care of biodiversity in production systems, are also gaining ground (Olmos, 2017b).

Despite the large number of standards in the agriculture sector, certified hectares represent a relatively small fraction of the total agricultural area. In 2016, almost 11 % of the world's forest area was certified (the Forest Stewardship Council (FSC) has

the highest coverage). In agricultural crops, the sustainability standard covering the largest area in the world (and also the widest variety of products) was organic, covering 1.2% of the agricultural area.[26] GLOBALG.A.P. is the next most common certification, with 0.09% of the total agricultural area (CCI, 2018). As it is usual for a farm to have two or more certifications, it is impossible to summate the certified areas.

Notwithstanding the above, certifications play an important role for the exports of several countries in the region. For example, 41% of the Colombian coffee-growing area had 4C certification in 2016, along with a large number of other certifications for that product, while 38% of the Ecuadorian banana area had GLOBALG.A.P. certification. Table 9 identifies some of the main agricultural certifications used in certain countries in the region, all linked to export products (CCI, 2018).

Table II.9
Latin America and the Caribbean (selected countries): examples of certified export crops, areas and standards used in the agro-forestry sector, 2016

Country	Type of crop, main standard (by area), hectares certified with the standard and area certified relative to the total area		
Argentina	Forest/FSC	Soya/RTRS	Cane sugar/Organic
	467 933 (1.7%)	223 770 ha. (1.1%)	12 500 (3.8%)
Bolivia (Plurinational State of)	Forest/FSC	Coffee/Organic	Cocoa/Organic
	981 862 (1.8%)	9 700 (41.6%)	4 000 (38.9%)
Brazil	Forests/FSC	Soy/ProTerra	Cane sugar/Bonsucro
	6 264 561 (1.3%)	1 780 000 (5.4%)	792 900 (7.8%)
Colombia	Coffee/4C	Forests/FSC	Banana/GLOBALG.A.P.
	354 217 (40.9%)	142 886 (0.2%)	42 548 (50.3%)
Costa Rica	Forest/FSC	Palm oil/RSPO	Banana/RA
	45 163 (1.6%)	44 385 (61.3%)	29 230 (68.9%)
Dominican Republic	Cocoa/Organic	Banana/Organic	Forest/ FSC
	153 200 (88.6%)	20 350 (75.8%)	365 (0.02%)
Ecuador	Banana/GLOBALG.A.P.	Cocoa/UTZ	Forest/FSC
	69 145 (38.3%)	53 356 (11.7%)	31 718 (0.3%)
Guatemala	Forest/FSC	Palm oil /RA	Banana/RA
	500 263 (14.1%)	33 754 (n/a)	26 414 (33.8%)
Honduras	Coffee/4C	Palm oil/RSPO	Forest/FSC
	79 374 (20.7%)	20 286 (12.7%)	17 815 (0.4%)
Mexico	Forest/FSC	Coffee/Organic	Palm oil/Organic
	823 042 (1.2%)	231 000 (35.8%)	6 900 (11.8%)
Nicaragua	Coffee/FairTrade	Forests/FSC	Banana/RA
	59 431 (55%)	21 783 (1.2%)	1 708 (99.4%)
Panama	Forests/FSC	Cocoa/Organic	Banana/FairTrade
	22 077 (0.5%)	12 600 (n/a)	5 520 (87.3%)
Paraguay	Cane sugar/Organic	Forests/FSC	Soy/RTRS
	43 600 (36.3%)	27 603 (0.2%)	21 470 (0.6%)
Peru	Forests/FSC	Cocoa/UTZ	Banana/FairTrade
	482 745 (0.7%)	45 083 (35 9%)	6 797 (69%)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Trade Centre (ITC), *The State of Sustainable Markets 2018. Statistics and Emerging Trends*, 2018 and Food and Agriculture Organization of the United Nations (FAO), FAOSTAT database [online] http://www.fao.org/faostat/en/#data [date of reference: 12 July 2019].

Note: FSC: Forest Stewardship Council; RTRS: Round Table on Responsible Soy; RA: Rainforest Alliance; RSPO: Roundtable on Sustainable Palm Oil; n/a: information not available.

[26] This proportion rose to 1.4% of the total agricultural area in 2017.

In the agriculture sector, organic and fair-trade schemes are particularly important in Latin America. Farmers usually seek to obtain both certifications, since both segments are relevant to exporters in the region (CCI, 2018): the first because of the size of the market and the second because it sets a floor to the selling price, and producers can obtain a premium to finance associative projects that improve their living conditions.

The largest certified organic areas in the region in 2017 were in Argentina, Brazil and Uruguay. The region's main certified organic products (measured by volume) were coffee, cocoa and bananas, with key markets in North America (47% of the total) and Europe (41%). The global market for organic products is estimated at more than 92 billion euros (FiBL/IFOAM, 2019). In 2017, sales of Fair Trade products totalled 8.5 billion euros, with a range of more than 30,000 items from 1,599 producer organizations in 75 countries (FairTrade International, 2018).

In 2015, small-scale producers in Latin America and the Caribbean accounted for 23% of all Fair Trade certified small-scale producers worldwide, with 347,162 people covered by this scheme in 24 of the region's countries. The main products with this certification exported by the region are, in descending order of volume: coffee, flowers, cocoa, banana, wine and honey. The highest export values of these products, also in decreasing order, were obtained by Peru, the Dominican Republic, Colombia and Honduras, (ECLAC/CLAC, 2017).

In the majority of cases, the speed or intensity with which food exporting sectors incorporate sustainability practices based on international standards depends on the degree of competition they face in foreign markets. The pioneers in adopting environmental sustainability practices are usually among the products ranked highest in each country's exports. Moreover, there are other emerging products for which buyers have organized themselves around environmental requirements, or which are targeted on consumer niches with special social or environmental awareness (see box II.4).

Box II.4
Latin America: determinants of incorporating environmental sustainability in food exports

In a review of cases from Chile, Colombia, Ecuador and Uruguay, Olmos (2017) identifies common factors that contribute to the incorporation of environmental sustainability in exports:

- An active public sector that is willing to improve export sector productivity and creates specific legal frameworks and programmes to stimulate sustainable production practices. Examples of these are sustainable agriculture schemes and cleaner production programmes, which promote best practices in energy efficiency, waste management and greenhouse gas reduction. The major challenge in the public sector is coordination, since the number of institutions and agencies involved is growing.
- An open trade policy that promotes exports. Sectors that have been exposed to international competition the longest have advanced most in making environmental sustainability part of their business strategy. In other cases, trading partners, particularly European ones, have collaborated in improving the environmental performance of Latin American export products that are of interest to their food processing industry or their consumers.
- Producer and enterprise associations with capacity to organize their members (of all sizes), to serve as counterparties to the public sector in defining an agenda and play a major role in promoting the product internationally. At the same time, the associations seek to make national supply more uniform, not only in terms of product quality, but also in the use of cleaner and more sustainable processes.
- Incorporation of the entire value chain (producers, processors and traders), under the product life-cycle rationale. This methodological approach is used to design the most advanced standards. It means including more actors, at the both start and end of the value chain; so the suppliers of goods and services will more often have joint responsibility for the environmental impacts and improvements.

Source: X. Olmos, "Sostenibilidad ambiental de las exportaciones agroalimentarias: los casos de Chile, Colombia, el Ecuador y el Uruguay", *Project Documents* (LC/TS.2017/163), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2017 and "Sostenibilidad ambiental de las exportaciones agroalimentarias: un panorama de América Latina", *Project Documents* (LC/TS.2017/164), Santiago, ECLAC.

3. Public-private challenges for enhancing environmental sustainability at the local level

Despite the wide diversity and varying scope of environmental sustainability standards, it has been possible to identify a number of cross-cutting benefits of their use. Aidenvironment/WWF/ISEAL Alliance (2018) highlights collaboration between stakeholders as tangible impacts, which improve both coordination, based on dialogue, and the definition of strategies and partnerships to address sustainability challenges. This also contributes to the empowerment of sectors usually excluded from decision-making, such as small producers.

International standards have served as the basis for generating local instruments aimed at mitigating environmental effects in several of the region's countries. Adapting international instruments to the local reality is not always simple, since the production realities are usually dissimilar. A holistic view of soil, air and water, increasingly from the biodiversity perspective, is the mainstay of these standards (Olmos, 2017a).

Table II.10 highlights examples of international standards that have been adapted at the national level, either through a regulation or through a voluntary standard, as in the case of organic production and the FSC label. In other cases, countries have developed national interpretations, from which general sustainability principles are applied in the light of national laws and local production conditions. Examples of this are certifications under the round table scheme on palm oil, soybeans and beef. In the cases of GLOBALG.A.P., the Coffee Network and the Fair Trade Network, there are groups working at the national level to foster the implementation of international standards among their producers, using various instruments, mainly guidelines.

Table II.10
Latin America and the Caribbean (selected countries): national initiatives to adapt international sustainability standards to the local reality and facilitate their implementation

International sustainability initiatives/countries	Argentina	Bolivia (Plurinational State of)	Brazil	Chile	Colombia	Costa Rica	Dominican Republic	Ecuador	El Salvador	Guatemala	Honduras	Jamaica	Mexico	Nicaragua	Panama	Paraguay	Peru	Uruguay
National organic legislation implemented (1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
National interpretation of RSPO (palm oil) (2)					✓	✓		✓	✓	✓	✓	✓	✓	✓				
National interpretation of RTRS (Soya) (3)	✓	✓	✓													P		✓
National RSB tables (Beef) (4)			✓	✓	✓											✓		
National technical working groups GLOBALG.A.P. (5)	✓		✓	✓	✓	✓	✓	✓		✓			✓	✓			✓	✓
National FSC standards (Forests) (6)		✓	✓	✓	✓						✓		✓	✓			✓	
Latin American and Caribbean Coffee Footprint Network (7)					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
National fair trade coordinating bodies (8)	P	✓	✓	✓	✓	✓			✓	✓			✓	✓	✓	✓		P

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Research Institute of Organic Agriculture/International Federation of Organic Agriculture Movements (FiBL/IFOAM), *The World of Organic Agriculture: Statistics & Emerging Trend 2019*; Roundtable on Sustainable Palm Oil (RSPO), *Reporte de progreso: RSPO 10 años de presencia en América Latina* [online] https://www.rspo.org/publications/download/b6862cd949f84cc; Round Table on Responsible Soy (RTRS) [online] http://www.responsiblesoy.org/certification/national-interpretations/; Global Roundtable for Sustainable Beef [online] https://grsbeef.org/page-1861857; GLOBALG.A.P. [online] https://www.globalgap.org/es/who-we-are/ntwgs/; Forest Stewardship Council (FSC) [online] https://ic.fsc.org/en/document-center; A. Frohmann "Defining product environmental standards in international trade. The participation of Latin American stakeholders in the European Union Environmental Footprint Programme", *Project Documents* (LC/TS.2017/51), Santiago, ECLAC, 2017 and Latin American and Caribbean Network of Fair Trade Small Producers and Workers (CLAC) [online] http://clac-comerciojusto.org/clac/nuestra-voz/coordinadoras-nacionales/.

Note: ✓: yes. P: in process of implementation.

Adopting international standards as a basis makes it possible to meet foreign buyers' demands with solid backing that takes account of the specifics of production processes. The producers of the region's most successful export goods have decided to develop their own environmental sustainability schemes, drawing on years of experience with various international instruments. The next challenge is to position these domestic schemes internationally and match them to their most popular global peers. This requires mass roll-out, permanent updates and the safeguarding of the objectivity and independence of their certification. Work is being done along these lines, for example, with Chilean wines and Colombian flowers (Olmos, 2017a).

Trade promotion authorities have an important role to play in this task, since they can use their offices abroad to monitor environmental requirements —and sustainability in general— in the main export markets. This information can be used not only by exporters, but also by specialized national agencies, in order to align these requirements with local programmes and stimuli. It is increasingly common to find market studies focused on sustainable product requirements generated, for example, by ProChile, ProColombia, PROCOMER (Costa Rica) and the Commission for the Promotion of Peruvian Exports and Tourism (PROMPERU). These same agencies also carry out activities in international markets, highlighting the environmental performance of some of their export products and forging links with both production and environmental promotion organizations.

Both the public and private sectors are designing business-oriented sustainability tools that include new and more accurate metrics to objectively determine environmental impacts, based on the life cycle approach (that is, considering the impacts of each stage in a product's life cycle, from raw materials to final disposal). The best-known example of the promotion of this tool is the European Union's Environmental Footprint methodology, which will be used to inform firms and consumers of the environmental impacts of all products consumed in their market, whether domestic or imported, with a clear potential impact on exporters in the region (Frohmann, 2017). As part of the preparation of "impact categories", a group of 11 Latin American coffee-producing countries have undertaken an exercise to identify lessons learned and challenges for producers, governments and academics in the region (see box II.5).

The Product Environmental Footprint pilot programme is in a transition phase prior to 2020, when a decision is expected on how the methodology will be implemented. Different actors, both European and from other markets, see this pilot programme as a good opportunity for harmonizing the life cycle analysis methodology beyond Europe. The level of technical discussion and the large-scale participation of experts and industry representatives is considered a strength of the exercise, although there are some who believe that the objective of the process is unclear or unrealistic. There are also doubts about the robustness and viability of the methodology used. The most positive view comes from industry, which sees this process as the opportunity to use life-cycle analysis to promote a green market in the European Union. The most negative view comes from a number of environmental and consumer non-governmental organizations (NGOs) (Vicent-Sweet, Milà I Canals and Pernigotti, 2017).

In line with the experience of the Coffee Network, and considering that the largest area of certified coffee is in Latin America —which supports the widespread use of sustainable practices in its production— an initial exercise of the future American Environmental Seal is being targeted on this product. This is an initiative to obtain an environmental seal, based on ISO standards, with third-party evaluation that is valid and recognized in a large number of Latin American and Caribbean countries. In October 2018, the region's environment ministers gave their support to this project, which has already been launched in Colombia, Costa Rica and Mexico.

Box II.5
Latin America: building an environmental standard for coffee

The Latin American and Caribbean Network on the Environmental Footprint of Coffee was created in 2014, with ECLAC support, as a response to the European Product Environmental Footprint pilots programme. The Network brings together stakeholders from the region's coffee producing and exporting countries to participate and comment during the definition of the standard proposed by a group dominated by the world's largest coffee roasting firms. Given that more than half the world's coffee is consumed in the European Union, and that the region's exports are mostly directed to that market, a European standard that defines how the environmental sustainability of coffee is assessed is of exceptional importance to producers in the region. Institutions from Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Honduras, Jamaica, Mexico, Nicaragua, Panama and Peru participate in the Network.

Between 2014 and 2018, Network members developed their understanding of the methodology that considers the life cycle of a cup of a coffee-based beverage. The key task entailed collecting the local data needed to make the calculations; and the first major stumbling block was the scarcity of statistics and research in most countries. In some cases, it was possible to test the European methodology with local production data; and it was found that the use of default data from international databases predicts environmental impacts in the cultivation stage that are greater than those that actually occur, especially if sustainable practices are applied in the field.

Some of the region's countries set up public-private mechanisms to collect data and analyse preliminary results on the environmental impacts of coffee growing. In addition, the exchange of good practices among member countries of the Network (through annual workshops) has made it possible to identify new sustainability practices, ranging from waste management and the use of technologies to the establishment of national carbon-footprint and water-footprint standards. All this has strengthened the capacities of public and private actors working in the coffee sector. In some countries, this work has involved active participation by academia, which does not usually collaborate with the production sector.

The Coffee Network was the only non-European organized group actively involved in the construction of the European standard. Its first objective as a group was to raise the profile of the coffee bean production stage in a long chain of actors. As a result, an intermediate unit of analysis —one kilo of green coffee— was included in the draft standard. The next challenge at the group level is to include carbon sequestration in the climate change category, rather than just GHG emissions from cultivation. Part of the coffee crop —much or all of the area in several countries in the region— is grown under shade, which generates several positive environmental impacts (including carbon dioxide capture). Although the indicator is not part of the European methodology, it is crucial for differentiating a sustainable coffee crop. The group continues to work on the development of what is also expected to become the regional environmental footprint standard for green coffee.

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

A challenge for the future is the absence of waste treatment, which is a serious problem in the region, as in the rest of the world. Recycling rates in the region are estimated at between 1% and 20%, depending on the country and the type of waste. On average, each inhabitant of the region produces one kilo of waste per day, and half of it is organic, which is the least managed. In order to tackle this problem, programmes oriented towards the circular economy are starting to emerge, with the aim of incorporating the extended producer-responsibility model.[27] In general terms, this means that whoever produces the good is responsible for incorporating its materials into a new cycle at the end of their useful life (UNEP, 2018).

In some of the region's countries, the agriculture sector is adopting the "bioeconomy", which involves the promotion of consumption and the production and export of goods and services derived from the direct use and sustainable transformation of biological resources, including biomass waste generated in their production, transformation and consumption. Bioeconomics is based on knowledge of biological systems, principles

[27] The circular economy is an approach centred on incorporating waste from production processes into new processes. The aim is thus to move from a linear economy to a circular one, keeping the materials extracted from nature in the system for as long as possible.

and processes, and on the application of relevant technologies for the knowledge and transformation of biological resources (Rodríguez, 2018).

At the forefront of strategies to improve the environment are those that move from avoiding or reducing impacts to activities to restore the environment. These are private initiatives that seek to return nature to its optimal state, regardless of who was responsible for its degradation. "Carbon positive" and "forest positive" projects are examples of this. In projects of the first type, a firm captures more carbon than it releases in its productive activities, while the second involves collaborating with the growth of forests and the recovery of ecosystem services, beyond the impacts generated in its supply chain.

F. Pathways to strengthen trade's contribution to environmental sustainability

The multiple links between trade and climate change are largely dependent on emissions associated with countries' production and consumption patterns. In the case of Latin America and the Caribbean, emission volumes from production and consumption are lower than those of other natural-resource- or manufacturing-intensive economies. However, land use change and agriculture make significant contributions to the region's total emissions, reflecting its commodity export specialization. Although the region's total per capita emissions decreased between 2005 and 2014, CO_2 emissions actually increased. The challenge for the future is to reduce absolute emission volumes despite the anticipated growth of consumption and production. This requires structural shifts towards low-carbon styles of production and consumption. Trade can contribute to this transformation through imports of goods and services with a smaller environmental footprint with the global best price-quality ratio, and also through exports of environmental goods and services, taking advantage of the growing international demand for them.

Between 2005 and 2015, the carbon footprint of exports from seven Latin American countries for which information is available shrank. This footprint is similar to those of other countries with a comparable export profile. In contrast, countries with exports that are concentrated in manufactures (such as France, Germany, the United Kingdom and the United States) display lower emissions intensity. Although the seven Latin American countries are net carbon importers from around the world, their emissions deficit with China is significant because the products imported from that country are, on average, significantly more carbon-intensive than those that the region exports to it. These footprints only consider the carbon emissions associated with the fossil fuels used in the production of the goods and services traded by each country; so they ignore the water or land-use footprints (both of which are highly relevant in the agricultural and mining sectors in which many Latin American countries specialize). Including this information, which is not currently available, would allow for a more complete assessment of the environmental impact of the region's international trade.

The most recent trade agreements reflect a growing recognition of the multiple linkages that exist between environmental problems, trade and foreign direct investment. Despite the progress made, tension remains between the underlying logic of most trade agreements and the kind of actions and instruments required to tackle climate change and other environmental pressures with the necessary intensity and speed. In particular, much stronger action is needed to discourage the production and trading of fossil fuels, the consumption of which is the main contributor to global GHG emissions. Moreover, a possible WTO agreement on limiting fisheries subsidies would be a tangible contribution to the conservation of the oceans and their resources.

It is symptomatic that almost no existing trade agreement (multilateral, regional or bilateral) explicitly mentions the Paris Agreement;[28] nor does the Agreement itself make any reference to trade, despite its indispensable role in climate change mitigation. There is therefore an urgent need for greater coherence between two international regimes that deal with closely related issues but have thus far functioned independently. Otherwise, in the coming years there is a risk of disputes arising in WTO over measures adopted by countries to meet their commitments under the Paris Agreement (or to compensate their producers for the cost of doing so).

In general, there are few trade measures in the national contributions submitted by countries under the Paris Agreement. However, new and increasingly ambitious contributions have to be made every five years; so more trade-related measures can be expected from the "second generation" of national contributions due in 2020, thereby increasing the risk of conflicts with WTO rules. In this context, serious consideration should be given to the proposal to establish a climate waiver to exempt from WTO challenges certain measures adopted by governments to address climate change. While the original formulation of this proposal (Bacchus, 2017) refers specifically to border carbon adjustments, a possible climate waiver could be extended to other measures such as renewable energy support programmes. Similarly, WTO members should consider reintroducing rules that exempt from legal challenge programmes that support adaptation to new environmental requirements, such as those that existed until 1999. Such clauses should be designed carefully to avoid abuse for protectionist purposes.

The trade negotiations on environmental goods and services that have been suspended since 2016 should be resumed. These are essential for measuring, preventing, limiting, minimizing or correcting environmental damage to water, air and soil, as well as for solving problems related to waste, noise and ecosystems. With such an agreement, the environment could be better preserved, especially if products that involve environmentally friendly production processes (such as those that use of biodegradable materials) are also included. In order to increase the number of countries participating in the negotiations, particularly countries from developing regions, it would be desirable also to include products in which these regions have certain comparative advantages.

Although Latin America generates a small share of global environmental goods exports, it is a major importer of these goods, which promote greater sustainability in the region's production and consumption patterns. Regional exports of these products are highly concentrated in Brazil and Mexico, the countries with the largest manufacturing sector, to which most of these goods belong. Barbados, Brazil, Guatemala, Mexico and Uruguay are the only countries in the region where environmental goods represented more than 3% of exports. In order to promote exports of these goods, more coordinated and active public-private strategies are needed, taking advantage of the growing international demand for these products. These are not only industrial goods, but also processed primary products that have been produced in an environmentally friendly manner.

Producers and firms in the region linked to international, particularly export, businesses, often incorporate environmental aspects at the behest of their foreign clients, as part of entry strategies or positioning in specific market niches. International trade thus acts as a stimulus to improve environmental performance in different sectors of production, with agriculture being the most prominent. International certifications of agricultural products are the most popular standards in the region. Although not always involving large areas or export volumes, in many cases certified crops encompass a large number of farmers.

[28] One exception is the agreement between the European Union and Japan, which was concluded in December 2017 and has been in force since February 2019, in which both parties reaffirm their commitment to ratify and implement the Paris Agreement. This commitment is also included in the agreements concluded since 2018 by the European Union with Singapore, Mexico and MERCOSUR (not yet in force).

In the region, efforts have been made to harmonize the international and local perspective in identifying environmental impacts and ways to mitigate them. In cases such as organic agriculture, palm oil, beef, fresh fruits and vegetables, coffee and forests, there are initiatives in some of the region's countries that standardize regulations or procedures and facilitate their implementation. In this way, international requirements are assimilated into the legislation and local conditions of certain agricultural productions. The new international schemes that aim to reduce environmental impacts even seek to restore natural cycles. Work with the scientific community will increase. Associated with this, work metrics have become more sophisticated; and today it is crucial to adopt a product life-cycle approach that identifies and mitigates the impacts not only of production but also of marketing, consumption and final disposal.

The best way to face these challenges is through public-private collaboration, where representatives of the production sectors join forces with officials from the public sector and academia. Trade promotion agencies play an important role in identifying the requirements of different markets, and also in the international promotion of more sustainable products. Coordination between countries in the region is also seen as a way to add value to the lessons learned in international markets and extend them to local production.

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CHAPTER III

Logistics and infrastructure for trade, production and integration

A. Infrastructure and logistics are crucial for trade and production

Tariff barriers have traditionally been viewed as the main obstacles to international trade. However, as tariffs have decreased, other barriers have become more significant, especially those related to logistics and mobility. The infrastructure services existing in the region today are not those needed to advance with the progressive structural change proposed by ECLAC, deepen regional integration and boost the region's export competitiveness. Infrastructure services suffer from a number of failings,[1] including the following:

- Physical limitations or shortages of infrastructure provision, which have led to heavy pressure and a growing gap amid rising demand for these services.
- Overconcentration of investment in road transport, despite the advantages of other modal options, such as rail and river transport.
- Institutional and regulatory failings and difficulties and governance that needs reform both in policy management and in market organization. This situation affects competition and the facilitation of both international trade and the flow of people, freight and services within a single country.
- Widely ranging public views and actions on infrastructure and its services, lack of joined-up policy approaches and of sustainability criteria, especially in transport, which increase transport services' negative external externalities for the environment and the population.

Achieving sustainable development in line with the 2030 Agenda for Sustainable Development demands a joined-up approach to logistics and mobility policies from conception and design through to implementation, follow-up, oversight and evaluation, in close coordination with other public policies, such as production development, financing, social development and territorial and cross-border integration, among others. This makes it essential to have mechanisms to: (i) incorporate and implement comprehensive and sustainable approaches; (ii) enable policy coordination with the goals of national development and other public policies; and (iii) ensure good planning and strategic management of policy in order to achieve tangible social benefits.

This requires a rethink of the way logistics are conceptualized, given that the traditional approach to international logistics as separate from domestic logistics leads to decisions that may not be pro-development. In line with this, the logic of modern logistics integrates infrastructure, transport and distribution services and sectoral regulations, treating logistics as a policy matter and putting it at the service of trade and production. The supply chain can thus be viewed as an efficient and effective continuum, rather than as isolated compartments whereby domestic and international logistics are thought of and treated separately.

Given that integration processes require common objectives in pursuit of greater territorial cohesion, networked infrastructure development is inherent to them. So regional integration of logistics and mobility services means shifting away from traditional policies that treat each infrastructure separately, towards an integrated approach that enhances chains and networks and the connections between the different modes of transport (this should also apply to other infrastructures, e.g. energy, telecommunications and water), applying the principle of co-modality,[2] and forming a large network of efficient, resilient and sustainable services.

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1 These are examined in greater depth in Jaimurzina, Pérez-Salas and Sánchez (2015) and Sánchez and Cipoletta (2012).

2 A co-modal approach to transport is understood as "making optimal use of each mode of transport or combining different modes [to achieve] efficiencies … in the distribution of transport and related services for every trip. As part of this paradigm, market regulation and technical aspects of transport should be optimized to drive the modal shift towards sustainability" (Sánchez and Cipoletta, 2012, p. 5).

This chapter analyses how logistics and mobility services, together with greater investment in economic infrastructure, can facilitate passenger and freight mobility and logistics within the region, also favouring production transformation, promoting territorially balanced development and making the region's economies more competitive. Section B examines the region's share in global maritime trade in goods. The following sections discuss three major challenges for policy infrastructure: the level of investment, infrastructure resilience and regulatory and competition aspects of infrastructure concessions.

Section C analyses recent trends in transport infrastructure investment in the region and compares these with the investment needs calculated by ECLAC. Given the importance of road transport in the region, road maintenance spending is compared with that of countries of the Organization for Economic Cooperation and Development (OECD). Section D looks at the region's infrastructure requirements, proposing a balance between efficiency, resilience and sustainability. For a number of reasons, the discussion on resilience is fundamental for preparing and implementing infrastructure policies in Latin America and the Caribbean. Factors such as modal split, the infrastructure gap and the lack of regional integration are directly related to the lack of response and recovery capacity vis-à-vis threats and hazards. Since logistical services are delivered over transport networks and depend on other infrastructure services, the infrastructure resilience issue is particularly relevant to trade and value chains. The lack of infrastructure services able to withstand natural or anthropogenic disruptions and stresses results in high infrastructure recovery costs, overburdening of assets and loss of competitiveness for firms, economic sectors and regions.

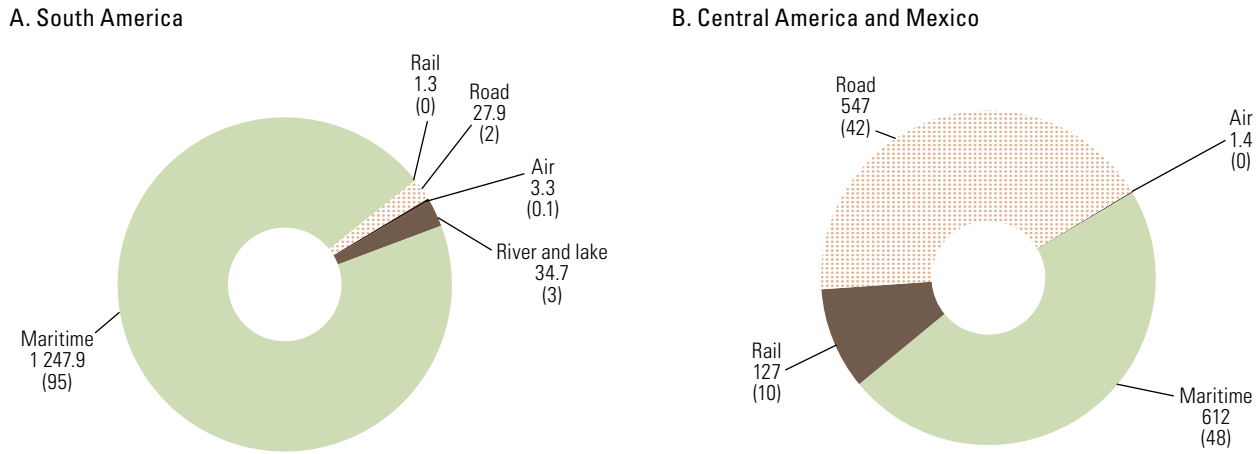
Public-private partnerships (PPPs) for the delivery of infrastructure services account for half of the investment made in infrastructure in the region since 1994. Section E offers an analysis of infrastructure concessions and a diagnostic of the main problems that have arisen with these, such as the high rate of contract renegotiations. It concludes by emphasizing the need to rethink public policies on economic infrastructure concessions and the key role to be played in that process by State regulation, especially in the sphere of competition.

Lastly, section F is devoted to physical integration, analysing the progress made in Latin America and the Caribbean both on the provision of logistical infrastructure and on the reduction of trade costs and times. It also offers a series of reflections for fostering production transformation with equality through stronger regional integration, as well as other binational process of cross-border transport facilitation to enhance the region's trade competitiveness.

B. Maritime logistics in Latin American and Caribbean foreign trade

Maritime transport carries around 80% of global trade by volume and 70% by value (UNCTAD, 2018). It is also the predominant modality in the Latin American and Caribbean region, followed by road transport. However, the distribution of the region's foreign trade by transport mode is very different in the economies of South America, on the one hand, and Central America and Mexico, on the other (see figure III.1).

Figure III.1
South America, Central America and Mexico: foreign trade volume by transport mode, 2017
(Millions of tons and percentages)



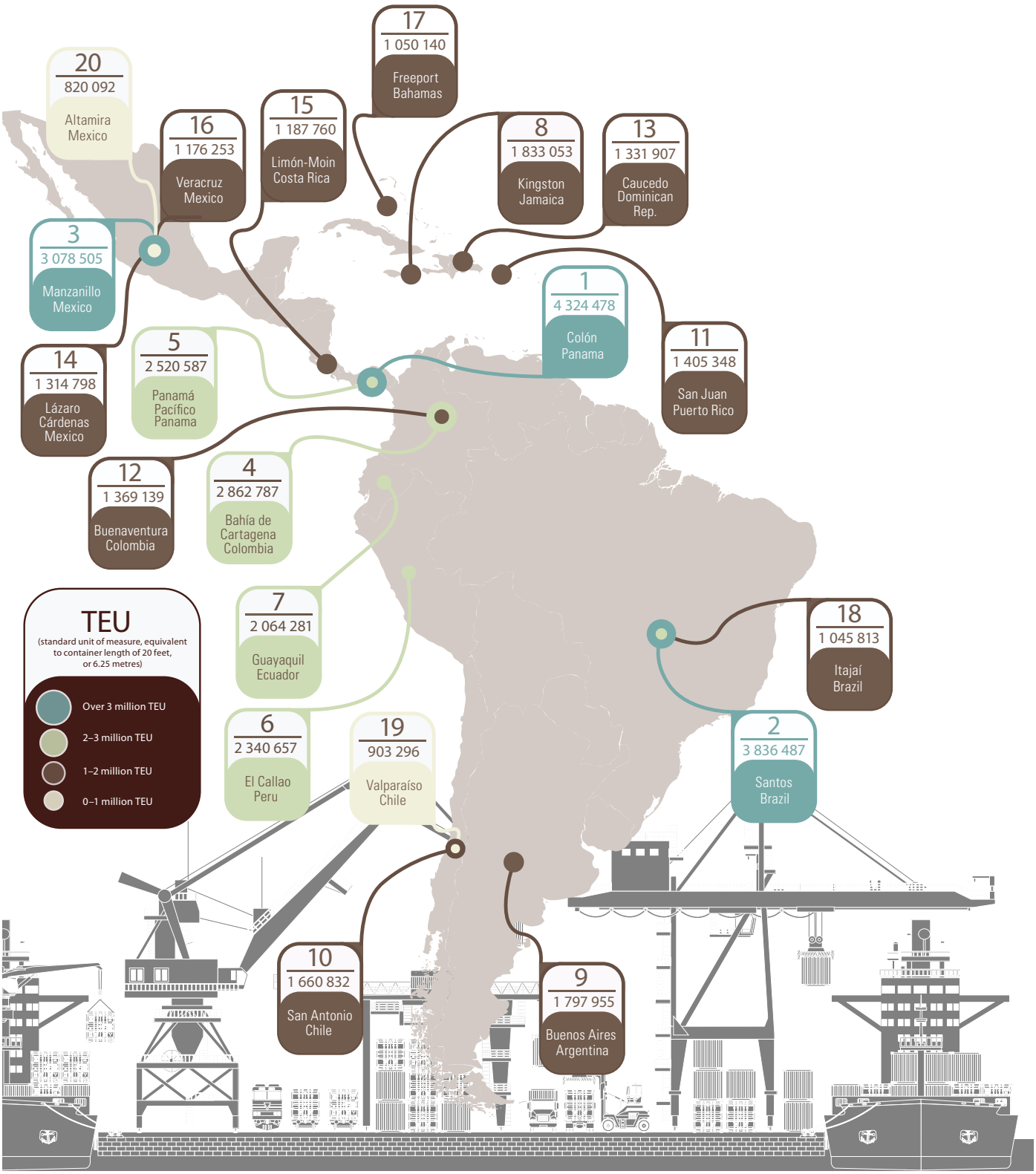
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from the countries.
Note: South America does not include Bolivarian Republic of Venezuela, Guyana or Suriname; Central America does not include Panama, owing to the large proportion of transshipment in its port movements.

Central America and Mexico have a larger share of road and rail transport in their international trade, mainly owing the trade flows of Mexico with the United States by these modes. If Mexico is excluded from the analysis, then extraregional international transport is predominantly maritime, while intraregional transport takes place mostly by road. The movement of merchandise in the Caribbean takes place almost entirely by maritime means, except for some chemical products, equipment and manufactures that are small in volume and are transported by air.

In 2018, in a sample of 118 ports and port areas in 31 Latin American and Caribbean countries, container goods movements accounted for 53.2 million twenty-foot equivalent units (TEU), or 7.1% of global throughput[3] (compared with 6.6% in 2017). In 2018, containerized freight movements were up by 7.7% on the previous year. However, port movements were very heterogeneous, both individually and by country (see map III.1). Of the total analysed, movements increased in 66 ports and port areas compared with 2017. By region, the east coast of South America saw an increase of 12% in port activity and port areas in 2018, in TEU (see figure III.2, compared with growth of 7% on the west coast. The Caribbean showed an increase of 12% in container movements, while Central America (which does not include Mexico) saw a smaller increase of 7% on the west coast, while levels were much the same as in 2018 on the east coast. Movements on the Gulf coast of Mexico increased by 8%, and the Pacific coast of Mexico by 11%. In Panama, ports and port areas of the Caribbean coast showed growth (Colón by 11% and Almirante by 34%), while those of the Pacific coast showed a fall of 16%.

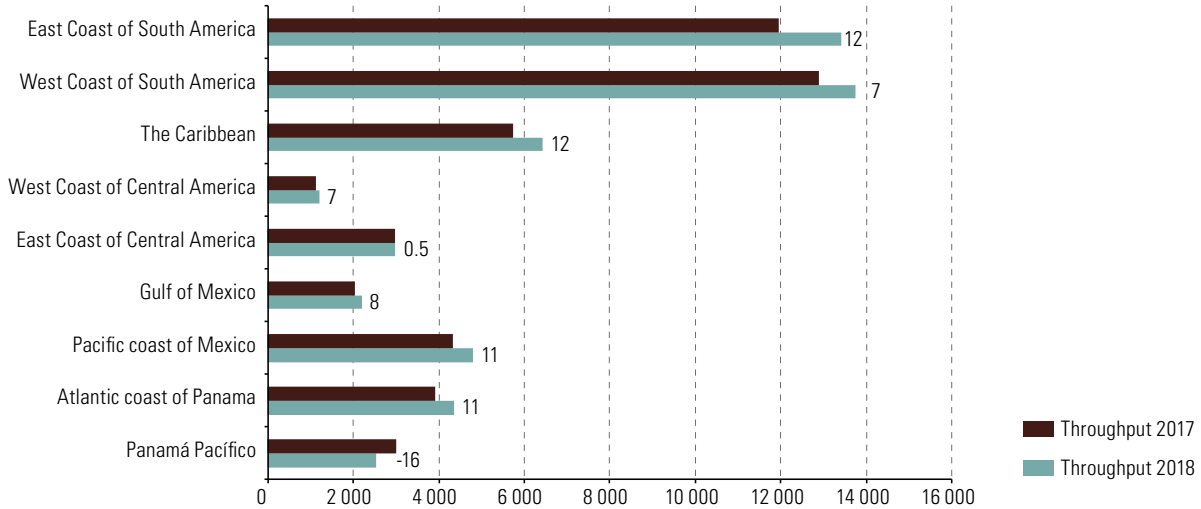
3 In this document, throughput refers to the total movement of containers in a terminal or port.

Map III.1
Latin America and the Caribbean: 20 largest ports and port areas by container throughput, 2018
(Twenty-foot equivalent units)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from the countries.
Note: The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.

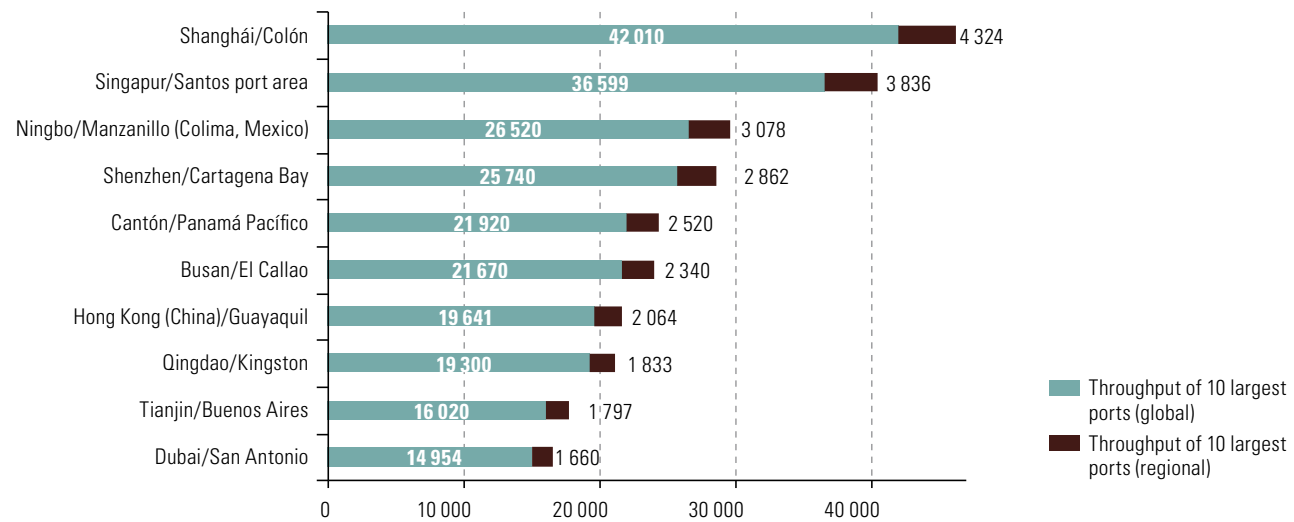
Figure III.2
Latin America and the Caribbean: container throughput by region and annual variation, 2017 and 2018,
(Thousands of twenty-foot equivalent units and percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from the countries.

Ports in the 10 countries that account for the region's largest shares of freight volume represented 84% of total throughput in 2018. The world's largest port in terms of container movements (Shanghai) handled a freight volume almost l0 times that of the region's largest port, Colón (see figure III.3). The 10 largest ports worldwide represented 32.2% of global throughput in 2018, while those in Latin America and the Caribbean represented 3.5%.

Figure III.3
World and Latin America and the Caribbean: 10 largest ports by merchandise throughput, 2018
(Thousands of twenty-foot equivalent units)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from the countries.

Note: "Regional level" refers to 118 ports and port areas in the 31 Latin American and Caribbean countries included in the sample. Colón also includes the Manzanillo International Terminal (MIT), the Colon Container Terminal (Evergreen Group) and Panama Ports Company; Guayaquil also includes the Guayaquil port authority (APG) terminals and private terminals; Buenos Aires also includes Puerto Nuevo and Dock Sud.

Table III.1 shows throughput growth between 2007 and 2018 and the annual growth rate between those years of the 15 largest ports, showing a very uneven rate of growth from one country to another.

Table III.1
Latin America and the Caribbean (15 largest ports): port activity in 2007 and 2018
(Millions of twenty-foot equivalent units and percentages)

Position in 2007	Port or port area	2007	2018	Total variation 2007–2018	Annual variation 2007-2018
1	Santos by area (Brazil)	2 532	3 836	51.5	3.5
2	Colón (Panama)	2 222	4 324	94.6	5.7
3	Kingston (Jamaica)	2 016	1 833	-9.1	-0.8
4	Panamá Pacífico (Panama)	1 833	2 520	37.5	2.7
5	Buenos Aires (Argentina)	1 709	1 797	5.1	0.4
6	San Juan (Puerto Rico)	1 689	1 405	-16.8	-1.5
7	Freeport (Bahamas)	1 634	1 050	-35.7	-3.6
8	Manzanillo (Colima, Mexico)	1 409	3 078	118.5	6.7
9	El Callao (Peru)	1 022	2 340	129.0	7.1
10	Cartagena Bay (Colombia)	975	2 862	193.5	9.4
11	Valparaíso (Chile)	843	903	7.1	0.6
12	Limón-Moín (Costa Rica)	842	1 187	41.0	2.9
13	Guayaquil (Ecuador)	809	2 064	155.1	8.1
14	Veracruz (Mexico)	729	1 176	61.3	4.1
15	Buenaventura (Colombia)	723	1 369	89.3	5.5

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from the countries.

Global container trade represents an important contribution to regional trade. The region also occupies a central position on major global trade routes, with some of the region's ports strategically placed and playing an important role in container transshipment.[4] In fact, transshipment represents almost a third of all port activity in the sample of 31 countries and 118 ports and port areas included in the analysis. Transshipment represents 22% of all port movements in the Caribbean, and acquired some importance on the east coast of South America in 2018, which has historically played a very marginal role in this regard.

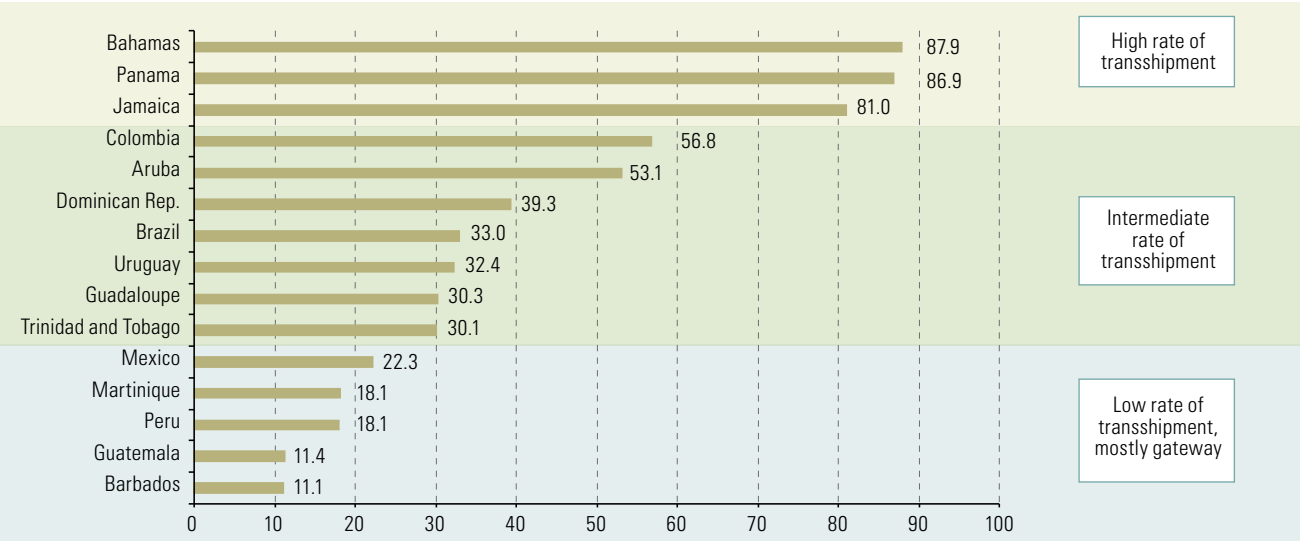
In three countries of the region, transshipment represents over 80% of the country's total throughput (see figure III.3). In the upper 10 countries in the figure, it accounts for over 30%, which could be viewed as risky given the volatile nature of transshipment. According to Rodrigue (2015), when over 75% of a port's activity consists of transshipment, it may be considered solely a transshipment terminal. A low level of transshipment is considered to be below 25%. All the countries below Trinidad and Tobago in figure III.4 may be considered gateway ports.[5]

Despite the throughput growth seen in the past few years, the rate of growth in container movements has slowed. Figure III.5 shows the modest growth in global container trade in the past few years.

4 Transshipment consists of moving merchandise from one means of transport to another without payment of customs duties. It may involve a change of mode (e.g. barge to ship) or not (e.g. ship to ship).

5 Gateway ports are those that cater mainly to domestic freight. They have an economically powerful hinterland that generates large volumes of cargo.

Figure III.4
Latin America and the Caribbean: main 15 countries in transshipment, 2018
(Percentages of all national port movements)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from the countries.

Figure III.5
Variation in volume of global container trade, 2005–2019 [a]
(Percentages)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of on the basis of Clarksons, *Shipping Intelligence Weekly*, multiple editions.
[a] Figures for 2019 are projections.

According to Sánchez and Barleta (2018), the literature (for example, Peters, 2001, Rodrigue and Notteboom, 2008, Wilmsmeier, 2014) has traditionally attributed the progress of containerization to three factors: (i) organic growth (directly related to economic and trade growth), (ii) induced growth (caused by network economies and the prevalence of container traffic transshipment), and (iii) technological change (in the case of maritime transport, containers absorbed much of the bulk cargo movement, which considerably reduced the cost of cargo management). However, with the slowdown in containerization, changes are occurring at the global level that depart from traditional paradigms and need to be examined. These changes reflect a combination of structural and contemporary factors, including the persistent slowing of global trade after the financial crisis of 2008–2009, the escalation of protectionist measures since 2018, the impact of new technologies associated with the fourth industrial revolution, which are leading to increasing replacement of physical trade by online trade (see chapter I), the

gradual reduction in the quantity of transshipments and other port movements, and the reduction in freight sizes. This is both because of the reduction in product size (for example, mobile telephones and other electronic devices) and because of transport in parts for assembly at sites closer to consumers, thus saving space and weight.

C. The infrastructure gap hinders competitiveness and productivity

The infrastructure endowment in Latin America and the Caribbean has major deficiencies in terms of both quantity and quality. For example, on average only 23% of the road network in the region is paved (Sánchez and others, 2017) and the funds assigned to road maintenance are limited. Growth of international air and maritime traffic volumes has placed heavy pressure on infrastructure, but the lack of space for building or extending ports and airports is also a significant obstacle. Many rail systems have been virtually abandoned and are obsolete and disjointed. In this context, Sánchez and others (2017) estimated the annual investment requirements in transport infrastructure (especially in road and rail, including metro systems) at 2.2% of GDP on average in the region between 2016 and 2030.[6] These needs are even greater taking into account the minimum requirements for progressing towards universal coverage for those who do not have roads within 2 km of their home.

The infrastructure for each mode of transport (roads, railways, navigable waterways and air transport) should be built and maintained to certain minimum quality and safety standards, and promoting three attributes: efficiency, resilience and sustainability. Transport policy must also treat the transport system as a network (integrated and co-modal), which has to do not only with economic integration between the countries, (which cannot be achieved without physical integration), but also with the positive externalities of the network economies embedded in transport assets and services. Indeed, the benefits of an infrastructure network increase with the number of its consumers or users, or with the density of its physical assets, which in turn has spillover benefits for regional development and social cohesion in the countries involved.

Investing in transport infrastructure and services has a number of benefits from the point of view of efficiency. First is the shorter access, waiting and travel times achieved by network changes, increased speed and frequency and reduced congestion or infrastructure shortages. Second, service quality improves. Third, lower operating costs and, fourth, the benefits for traffic that is diverted and generated by the investment (De Rus, Campos and Nombela, 2003).

In the period 2008–2016, the Latin American and Caribbean countries invested an average of 1.2% of GDP in transport infrastructure (see figure III.6),[7] distributed as follows: 76.1% in roads, 14.3% in river and maritime transport, 4.3% in railways and 2.5% in air transport. Investment trended upward from 2008 to 2013, partly because of economic stimulus expenditure in response to the global financial crisis and slowing GDP growth. The trend thereafter has been irregular and downward.

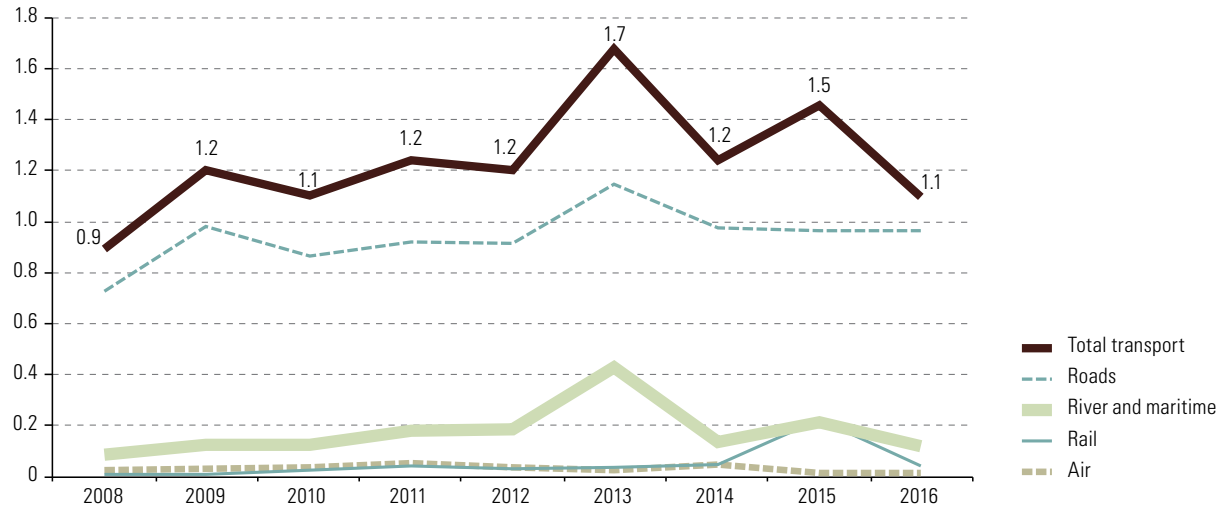
Five countries showed infrastructure investment significantly above the regional average between 2008 and 2016: Colombia, Honduras, Panama and Peru and the Plurinational State of Bolivia (see table III.2).[8] By transport modality, regional investment in infrastructure is heavily biased towards roads, exceeding 75% in almost all cases and reaching as much as 98% in some. In the same period, investment in roads was less than 75% of all transport investment in only four countries: Argentina (55%), Brazil (48%), Panama (41%) and Peru (71%).

6 The estimate includes infrastructure investment and spending.

7 Includes Argentina, Brazil, Costa Rica, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Plurinational State of Bolivia and Trinidad and Tobago.

8 On the basis of the average for 2008–2015.

Figure III.6
Latin America and the Caribbean: investment in transport infrastructure, 2008–2016
(Percentages of GDP)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Economic Infrastructure Investment Data (INFRALATAM) [online] http://infralatam.info/.
Note: Includes the following countries: Argentina, Bolivia (Plurinational State of), Brazil, Costa Rica, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, and Trinidad and Tobago. Includes both public and private investment.

Table III.2
Latin America and the Caribbean: investment in infrastructure, average for 2008–2016
(Percentages of GDP)

	Total[a]	Air	Road	Rail	River and maritime
Argentina[b]	0.7	...	0.4	0.2	...
Belize[c]	1.0	...	0.9	...	...
Bolivia (Plurinational State of)	3.9	0.1	3.7	0.1	...
Brazil	0.6	0.1	0.3	0.2	0.1
Chile[d]	1.7	0.1	1.3	0.3	0.1
Colombia[c]	2.6	0.1	2.4	...	0.1
Costa Rica	1.2	0.1	1.0	...	0.2
El Salvador[c]	0.9	...	0.9	...	...
Guatemala	1.1	...	1.1	...	0.1
Guyana	0.7	...	0.7	...	...
Honduras	2.1	0.1	1.6	...	0.4
Mexico	0.6	...	0.5	0.1	...
Nicaragua	2.0	...	2.0	...	...
Panama	3.5	0.1	1.4	...	2.1
Paraguay	1.2	...	1.2	...	...
Peru	2.7	0.1	1.9	0.6	0.1
Trinidad and Tobago	0.6	...	0.6	...	...
Latin America and the Caribbean	1.2	0.1	0.9	0.1	0.2

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Economic Infrastructure Investment Data (INFRALATAM) [online] http://infralatam.info/.
[a] Data are simple averages and include the public and private sector.
[b] In Argentina, the data on modal investment (air, road, rail, and rive and maritime) refer to 2016.
[c] The averages for Belize, Colombia and El Salvador refer to 2008–2015.
[d] The average for Chile refers to 2008–2014.

The make-up of a country's production structure strongly influences the relative importance of the various modes of transport. When national production leans towards solid bulk products, for example (for example, coal, cereals, minerals, cement, timber, fertilizers, and dry foodstuffs such as flours and sugar) or bulk liquids (oil, liquified natural gas, oils, and so forth), rail, maritime and pipeline transport tend to be more important. However, in Latin America —which produces mainly bulk solids and liquids— the modal split is biased towards road transport.

Problems of congestion, accident rates and other negative externalities associated with road traffic have recently triggered a discussion on infrastructure planning and shifting the modal split towards more sustainable, lower-emissions modes. Rail and water transport offer particular advantages in this respect for certain types of traffic. Attempts have been made over the past few years to raise the proportion of other transport modes: Argentina, Chile and Peru have increased investment in railways, and Costa Rica and Honduras in ports. The regional transport mix remains highly concentrated, however.

Road transport offers various advantages, such as its speed over short and medium distances (barring congestion), great flexibility to adapt to different routes, freights and timetables, door-to-door collection and delivery, and faster and more effective modal interchange. However, it also has major negative externalities and, although modern engines emit fewer pollutant gases, cars, trucks and buses that run on fossil fuels are one of the main sources of emissions associated with global warming. Pérez and Monzón de Cáceres (2008) note that road transport is five times as energy-intensive as rail, but 19 times less energy-intensive than air transport for passengers and 4 times less in the case of freight.

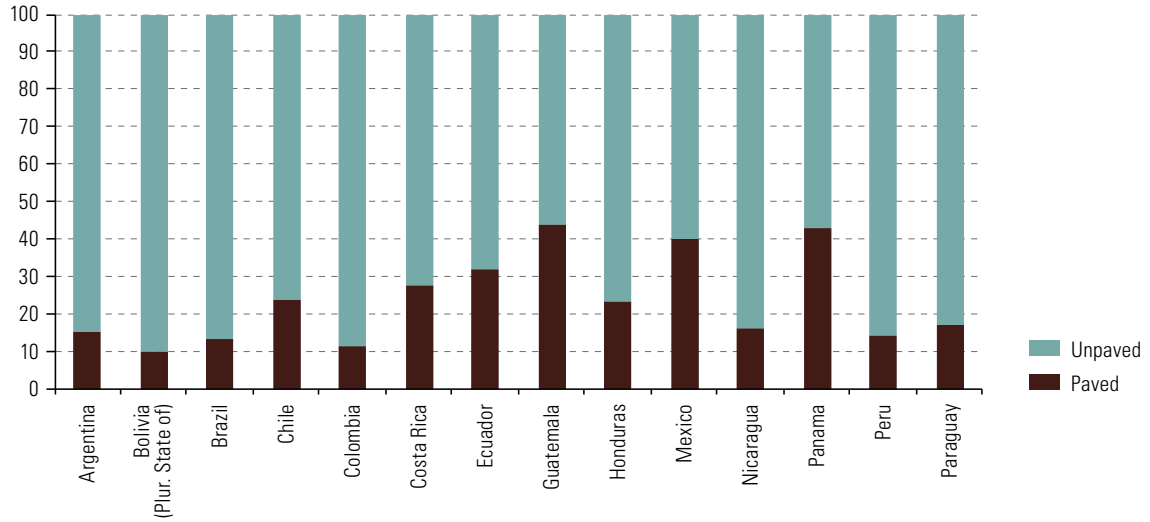
The advantage of rail transport (by comparison with road transport) include the following: larger freight capacity (be it in the form of bulk solids, liquids or containers), a lower accident rate, fuel savings, direct access to the main ports and shorter processing times in the ports to which they are connected, relatively less pollutant emissions, smaller use of surface area, and contribution to decongesting roads and cities. For these reasons, rail transport could offer a lower-cost, higher-capacity transport solution between countries for both passengers and freight.

For its part, air transport plays a vital role in transporting perishable or high-value goods over long distances and connecting remote individuals and communities who are not readily accessible by other modes of transport. This is especially relevant for Latin America, as one of the most geographically extensive and complex areas in the world. The increase in per capita income in the region, together with the reduction in air freight costs, has led to increasing growth in air traffic. Between 2006 and 2016, commercial air traffic in Latin America and the Caribbean has as much as tripled in some countries (Wiltshire and Jaimurzina, 2017). However, airport capacity limitations are an obstacle to future growth, in addition to air transport's greater emissions impact compared with other modes of transport.

In order for road networks to contribute to production system efficiency, the countries must look after their infrastructure assets, with timely maintenance and repair. Ideally, this should be pursued by means of plans for upgrading and maintaining the entire road network, in line with the appropriate standards for each type of road.

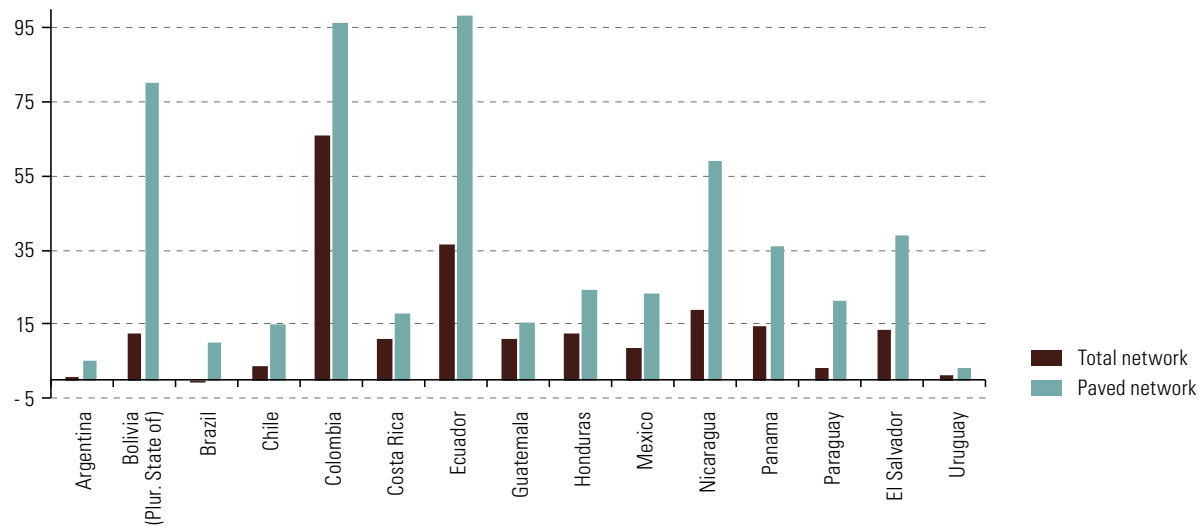
Only 23% of the road network is paved in Latin America, with much variation between countries (see figure III.7). Nevertheless, both total coverage and the quality of the road network improved in all the countries of the region between 2007 and 2015. In addition, the paved portion of the network increased faster in most of the countries in this period (see figure III.8).

Figure III.7
Latin America: composition of the road network, 2015
(Percentages of the total network)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of national sources, 2015, or latest available data.

Figure III.8
Latin America: growth of the total and paved road network, 2007–2015
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of national sources, 2015, or latest available data.

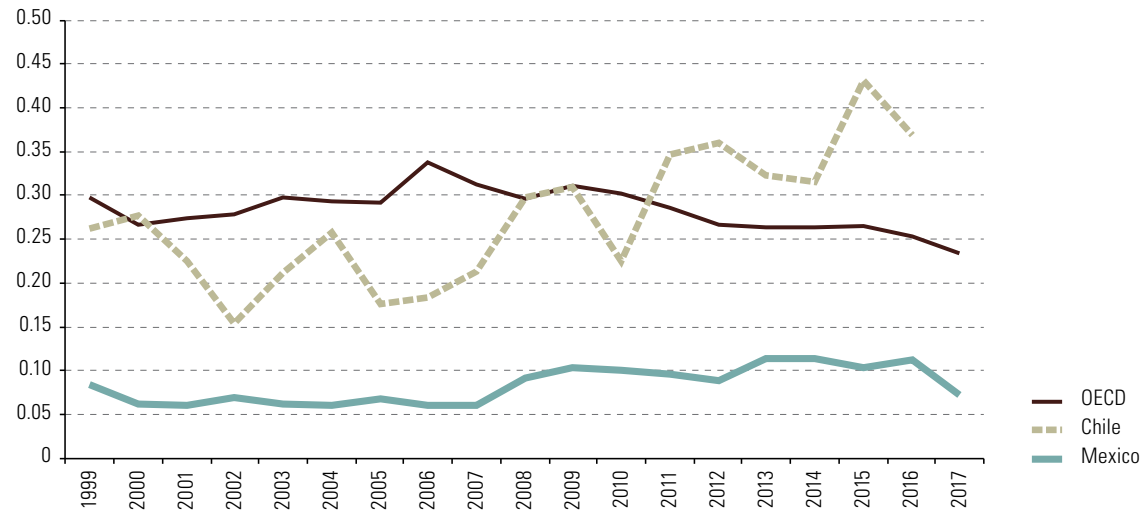
The capacity of transport infrastructure (number of lanes, or width of roads in the case of highways, or the number of runways in the case of airports, and so on), its state of repair (depending on regular maintenance) and its quality (type of paving, for example) determine the efficiency of transport services, influence the cost of mobility and user times, and thus have an impact on the productivity and competitiveness of the economy overall.

Users in many countries express concern over the lack of transport assets and the poor state of existing infrastructure, which can lead to excessive fuel, maintenance and vehicle repair costs, longer transport times and a higher number of accidents, among other things. In Latin America, complaints refer to the impact on competitiveness

of the state of roads, congestion and long wait times at ports and border crossings, among others, in the case of the small and medium mining producers in Colombia.[9]

The cost of maintaining infrastructure assets during their useful life are smaller than the initial construction costs, but are not negligible, given that they are ongoing throughout the —usually quite long— life of the asset (up to 50 years in the case of roads). Average annual expenditure on road maintenance for the 30 countries of OECD was 0.3% of GDP between 1999 and 2017 (see figure III.9). In this group of countries, the trend since 2006 has been a downward one, except for 2009 (probably because of economic stimulus spending in response to the financial crisis and falling GDP).[10] In the last year (2017) it was 0.23% of GDP, the lowest figure in the period.

Figure III.9
Non-Latin American countries of the Organization for Economic Cooperation and Development (OECD), Mexico and Chile: spending on road infrastructure maintenance, 1999–2017
(Percentages of GDP)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organization for Economic Cooperation and Development (OECD) database [online] https://data.oecd.org/.

By comparison, the average for Chile is also 0.3% of GDP between 1999 and 2016. Since 2002 there has been an uptrend, albeit a highly variable one. In the case of Mexico, the data average only 0.08% of GDP from 1999 to 2017. The trend is virtually stable from 2000 to 2007, followed by a rise (with fluctuations) until 2016, then a heavy fall in 2017. Mexico is representative of the situation of many of the region's countries.

With respect to fluctuations in maintenance spending, Chile has shown more volatile spending patterns than Mexico or other OECD countries. Lower spending on road maintenance has impacts not only on aggregate demand and employment, but also on productivity, given that poor roads increase transport costs and times for both freight and passengers. Because roads in poor repair can erode the capital stock of the economy, they also widen the infrastructure gap and influence the long-term trajectory of the economy.

9 See Duque, Medina and Saade (2017) [online] https://www.cepal.org/es/publicaciones/42425-infraestructura-logistica-mejor-gobernanza-la-cadena-carbon- colombia.
10 See ITF/OECD (2015).

D. Infrastructure must be resilient, efficient and sustainable

Infrastructure networks are a central element in the integration of a country's economic and territorial systems. As well as providing the basis on which the factors of production operate, they enable transactions within a given geographic and economic space, and between that space and the exterior. These networks provide part of the backbone of countries' and markets' economic structures, as well as the specific mechanisms by which national economies coordinate with the global economy (Rozas and Sánchez, 2004; Sánchez and others, 2017).

Because they play a crucial role in fostering development and quality of life, it is essential to ensure that infrastructure services are reliable and efficient. In particular, properly functioning infrastructure systems are essential for giving firms the predictability they need to carry out their investment plans and maximize their production capacity without excessive expenditures on contingency technologies. Unreliable infrastructure services can have adverse impacts on the operation of value chains, reducing overall productivity and compromising the economy's competitiveness (Rentschler and others, 2019).

Attention has always been paid to the physical integrity of infrastructure works, because they are constantly under pressure through continual use. However, discussions on infrastructure service continuity have become increasingly important after the emergence of more complex mixes of risks, and the increase in the frequency and magnitude of extreme events with major impacts on transport and energy systems, housing and social infrastructure services. Infrastructure is often in the front line of natural and anthropogenic hazards (Ijjasz-Vasquez, 2017). In this regard, infrastructure resilience must be viewed as part of a broader sustainable development agenda.[11]

1. Resilience as a fundamental characteristic of infrastructure

The reinsurance firm Swiss Re Group (2017) estimated total economic losses from natural and manmade disasters at US$ 306 billion in 2017 (a rise of 63% on the US$ 188 billion estimated in 2016). It is projected that poor cyberresilience will cost the world US$ 6 trillion annually by 2021 in productivity and growth losses (Morgan, 2019). According to Hallegatte, Rentschler and Rozenberg (2019), the direct damage to power generation and transport infrastructure caused by natural disasters costs about US$ 18 billion a year in low- and middle-income countries. Including the indirect effects of disasters, the annual cost of infrastructure disruptions to households and firms in low- and middle-income countries is between US$ 391 billion and US$ 647 billion.

Given the importance of transport, energy and telecommunications networks for social, economic and environmental development, more than a trend, infrastructure resilience has become an optimal course of action (Linkov and others, 2014). In this context, resilience is understood as "the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management" (United Nations, 2016).

[11] In particular, Sustainable Development Goal 9 refers to building resilient infrastructure, promoting inclusive and sustainable industrialization and fostering innovation. It thus acknowledges that investment in infrastructure is essential to achieve sustainable development and empower communities.

As noted by Gallego-Lopez and Essex (2016), the link between resilience and infrastructure in the context of development may be understood from two perspectives. The first is the resilience of the infrastructure itself; in other words, the ability of infrastructure systems to withstand disturbance while maintaining critical functions. The second refers to how infrastructure affects the resilience of other systems (infrastructural or not) and the subsistence possibilities of individuals, households and communities. As stated by Fisher and Gamper (2017), the rising costs of natural disasters and the increasing frequency of cyberattacks and terrorist attacks since the early twenty-first century began to shift the focus to critical infrastructure resilience, that is, resilience of the systems considered essential for society to function and whose collapse would have adverse impacts on social well-being, security or the economy.

2. Infrastructure resilience in Latin America and the Caribbean

On the basis of surveys conducted by the World Bank,[12] Rentschler and others (2019) and Hallegatte, Rentschler and Rozenberg (2019) estimated the costs of vulnerable infrastructure for firms, considering factors such as the impacts of interruptions to the power supply. In the case of electricity, for example, non-robust transmission and distribution networks without backup provisions generate cost overruns (owing to factors such as loss of network power, the opportunity costs of consumers, and the cost of running generators), which leads to inefficiencies and aggregate loss of competitiveness. Figure III.10 gives the list of low- and middle-income countries whose firms experience the greatest loss of utilization rates[13] because of disruptions to infrastructure services.

The economies that suffer the greatest losses from disruptions to economic infrastructure services include several in Latin America: Dominican Republic (0.86%), in the case of disruptions to electric power infrastructure; Nicaragua (0.79%) and El Salvador (0.31%), in the case of disruptions to water infrastructure; and Costa Rica (0.95%), Paraguay (0.86%) and Guatemala (0.86%), in the case of transport infrastructure. The estimates include not only the direct impacts of disruptions to firms' activities —most often complete paralysis— but also indirect impacts from disruptions to the value chains of which they are part.

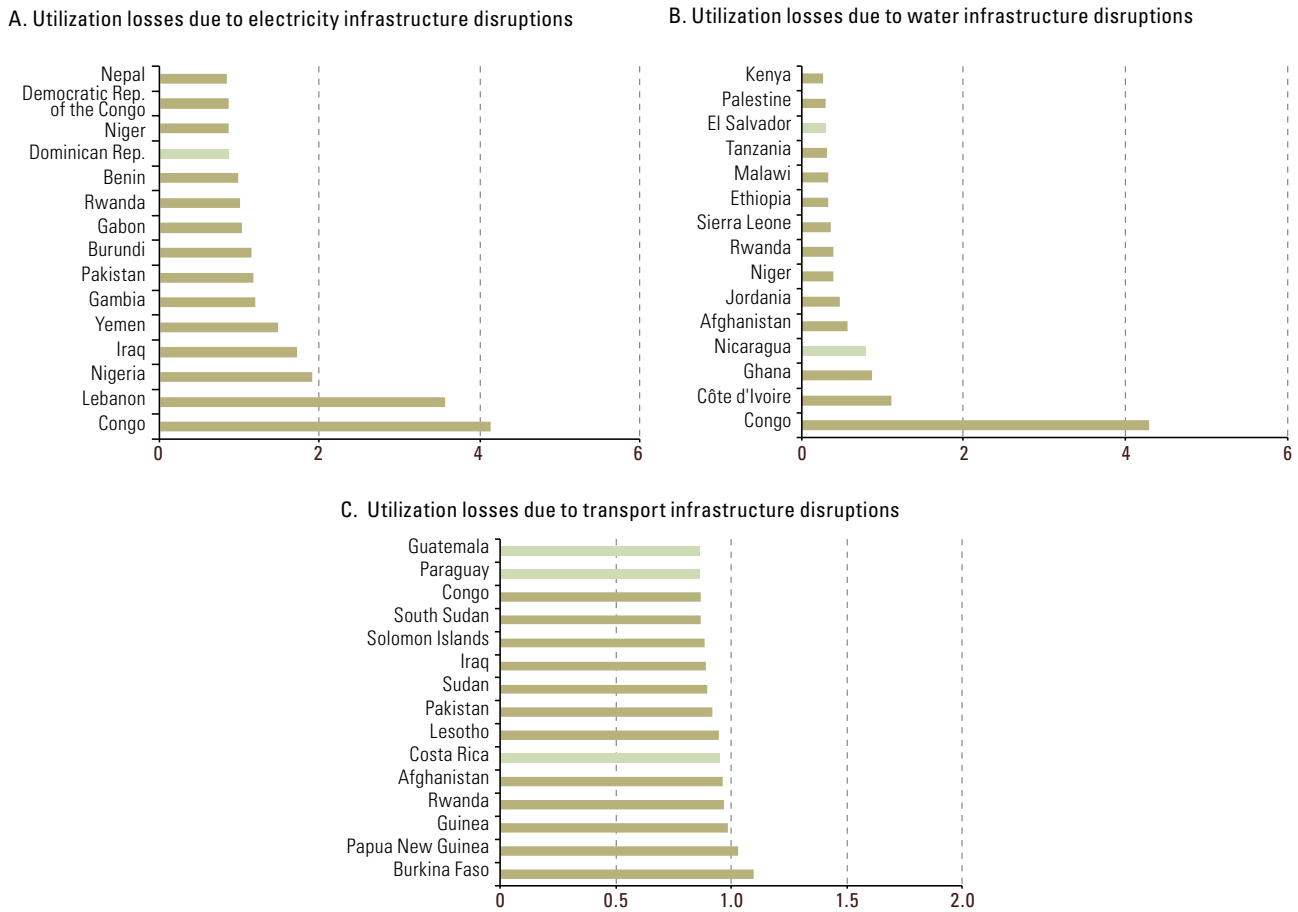
Despite the shortage of data with which to perform a more thorough assessment of infrastructure resilience in Latin America and the Caribbean, the findings of Rentschler and others (2019) and Hallegatte, Rentschler and Rozenberg (2019) are consistent with data from other sources. With respect to the impact of natural disasters in the region, a study carried out by the Latin American and Caribbean Economic System (SELA) (2017) puts economic damage from this type of events at over US$ 212 billion between 1960 and 2016; this is equivalent to an average of 0.25% of annual GDP in the region.[14]

[12] The sample consists of 143,000 firms in 137 low- or middle-income countries.

[13] The capacity utilization rate is frequently used to measure firms' productivity or the aggregate productivity of the economy. It measures a firm's effectiveness in converting inputs into products (Rentschler and others, 2019).

[14] Between 1980 and 2014.

Figure III.10
Economic losses attributed to infrastructure service disruptions, by country, 2018
(Percentages of the utilization rate)



Source: J. Rentschler and others, "Underutilized potential: the Business Costs of Unreliable Infrastructure in Developing Countries", *Policy Research Working Paper*, No. 8899, World Bank Group, June 2019; S. Hallegatte, J. Rentschler and J. Rozenberg, "Lifelines: the Resilient Infrastructure Opportunity", *Sustainable Infrastructure series,* Washington, D.C., World Bank Group, 2019.

It is widely documented that Latin America and the Caribbean, generally speaking, lags behind the advanced economies and the emerging Asian economies in terms of infrastructure quantity and quality —both factors associated with the persistence of barriers to achieving greater resilience (CAF, 2016; Cerra and others, 2016; Sánchez and others, 2017, BNamericas, 2018). This affects not only the infrastructure itself (for example, the ability of transport assets and services to withstand and respond to disturbances), but also the response capacities of economies, communities and individuals. Good channels for supplying and distributing basic services and products are essential for minimizing the impacts of a disaster and the recovery time after it occurs. Non-resilient critical infrastructure can also multiply hazards and increase the severity of a disruptive event through cascade effects across different sectors (Fisher and Gamper, 2017).

Lack of infrastructure increases pressure on existing assets, which are often overburdened and more exposed to risk of interruption. Overreliance on specific assets and insufficient redundancy in infrastructure systems, as is often the case, also magnify the impacts of disruptions. More rapid wear and tear pushes up maintenance costs and

erodes the financial resources available to invest in new infrastructure, thereby trapping the region in a vicious cycle. Even so, too few resources are devoted to maintaining transport infrastructure in Latin America and the Caribbean. According to Donnges, Edmonds and Johannessen (2007), the annual cost of keeping up a highway during its lifetime represents a small portion of the initial investment (usually 2%–3% for main highways and 5%–6% for rural areas without paved roads). But without adequate upkeep, the benefits that the infrastructure offers society diminish over time. Heggie and Vickers (1998) found that the additional annual cost of inadequate road maintenance in Latin America was 1.2 billion euros in the 1990s.

According to Bull and Schliessler (1993), countries that keep their roads in poor repair are exposed to serious economic consequences. This leads to cost overruns for vehicle operation and avoidable rebuilding work, equivalent to figures of between 1% and 3% of GDP annually. Taking into account other factors that are not necessarily included in these cost overruns —such as production losses or the impossibility of getting products to market— and additional accidents, this figure could be significantly higher. In other words, the losses could be of a similar magnitude to the growth rates of the economy, creating additional obstacles to development.

Ultimately, the present response capacity of infrastructure to adverse events is linked to past policy decisions. An emblematic example is the unequal modal split of transport in Latin America and the Caribbean, strongly biased towards roads and responsible for significant negative externalities, such as heavy congestion and a high level of greenhouse gas (GHG) emissions. As well as the direct implications for transport system resilience, modal concentration increases future stresses on the infrastructure. Over 70% of national freight is transported by road in Latin America (Wilmsmeier and Spengler, 2015) and, although maritime transport continues to prevail in trade between the countries of the region, the share of road transport in intraregional trade has risen considerably in the past few years (Barbero and Guerrero, 2017).

In Latin America and the Caribbean, all these factors contribute to the limited response capacity of infrastructure services to a variety of national, technological or socioeconomic shocks and disruptions. In particular, the region is highly exposed and vulnerable to natural risks and extreme climate events. In the recent past, for example, the region has suffered large earthquakes, in Ecuador in 2016 and Mexico in 2017. Major floods have occurred in Colombia (in 2010 in 2011), Chile (in 2015 and 2019), and Argentina, Brazil and Uruguay (in 2016) (ECLAC, 2015; Fisher and Gamper, 2017). The Caribbean and part of Central America have been hit by devastating hurricanes, such as Patricia (2015), Irma, Maria and Nate (2017), Michael (2018) and Dorian (2019).

Extreme climate events are projected to increase in magnitude and frequency as a result of increased climate variability, with serious consequences for critical infrastructure in the region (Fisher and Gamper, 2017; BNamericas, 2018). The impacts of altered climate patterns on economic production and trade will lead to losses estimated at between 1.5% and 5% of GDP by 2050 (ECLAC, 2015). Lack of water in the Panama Canal, possibly related to the problems mentioned, has already had a direct impact in 2019 (see box III.1). The specific impacts on logistics include higher probability of adverse conditions for port entry navigation, as well as the average yearly number of port closure hours. The worst affected ports will be those of the south-west and north-west coasts of Mexico, and the ports most exposed to the open sea in Brazil.

Box III.1
Drought in the Panama Canal

In 2019, changes in the hydrometeorological regime, intensified by the El Niño phenomenon, have produced the worst drought in the 115-year history of the Panama Canal. Water levels in the Gatun Lake, one of the reservoirs used for navigation in the canal and for urban water supply, fell as much as eight feet (2.5 m), which forced successive reductions in permitted cargo weight (Zamorano and Franco, 2019). The restrictions imposed on navigation on the Canal during the drought cost US$ 15 million in lost fees. Moreover, the heaviest ships had to unload their containers, which continued by land routes, which also resulted in excess costs (Fountain, 2019).

Although this was an extreme event, the Panama Canal is showing signs that the parameters on which much of the major infrastructures in Latin America were projected are no longer representative of the reality in which they operate. Because of the Canal's crucial role as a trade artery between the Atlantic and the Pacific, similar droughts in the future could have major impacts on trade in the region and, mainly, on the Panamanian economy, which is highly dependent on Canal traffic.

Source: J. Zamorano and A. Franco, "Una sequía sin precedentes golpea el Canal de Panamá en medio de temores por el cambio climático", *INFOBAE*, 30 April, 2019 [online] https://www.infobae.com/america/fotos/2019/04/30/una-sequia-sin-precedentes-impacta-al-canal-de-panama-en-medio-de-temores-por-el-cambio-climatico/; H. Fountain, "What Panama's Worst Drought Means for Its Canal's Future", *The New York Times*, 17 May, 2019 [online] https://www.nytimes.com/2019/05/17/climate/drought-water-shortage-panama-canal.html.

3. Global value chain resilience

Discussions on value chain resilience are closely linked to critical infrastructure resilience, because the logistical services on which value chains are based are delivered over transport networks and depend on other economic infrastructures, such as power supply and telecommunications. This topic has acquired great importance in the past few years, owing to the proliferation of value chains on a global scale. Many authors have pointed out that greater value chain length and complexity has increased their vulnerability, as the process has taken place at the same time as the business environment has become less predictable than in previous decades. In a world often described as volatile, uncertain, complex and ambiguous, the future of global-scale physical and economic systems is subject to unprecedented levels of risk (Christopher, 2018; ITF/OECD, 2018).

The findings of the annual report of the Business Continuity Institute (Riglietti and Aguada, 2018) exemplify the growing attention being paid to factors that influence the ability of supply chains to respond to shocks. The 2018 survey found that the main causes of disruptions faced by organizations were, in order: information and communications technology (ICT) outages; adverse weather; cyberattacks and data breaches; loss of talent or skills; and transport network disruption (see table III.3). The main consequences of the destructions reported were financial, logistical and reputational.

Latin America and the Caribbean is the region is which a single cause of disruption has been reported by most interviewees (unplanned ICT outages, 79%). Those cuts were also the most common cause of value chain disruption in Europe, North America and Sub-Saharan Africa. The results also show that, while adverse weather is an important cause of disruption in most regions, cybersecurity-related events have also grown in significance, especially in advanced economies.

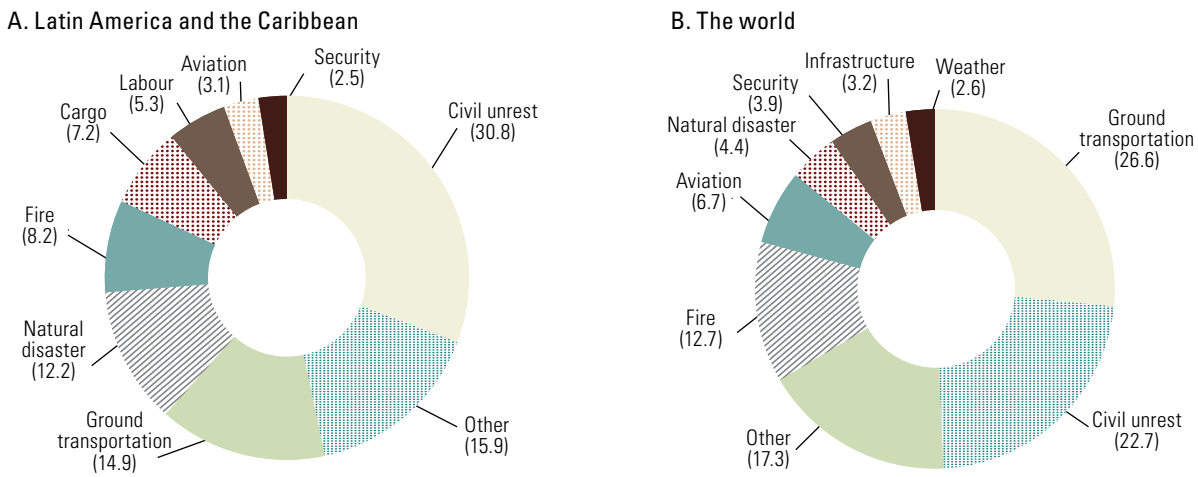
Table III.3
Main causes of value chain disruptions by region, 2017
(Percentages)

Region	Causes of value chain disruption				
	1	2	3	4	5
Latin America and the Caribbean	Unplanned information and communications technologies (ICT) outage (79)	Adverse weather (68)	Outsourcer failure (64)	Transport network disruption (56)	Loss of talent/skills (56)
Europe	Unplanned ICT outage (69)	Adverse weather (61)	Transport network disruption (51)	Cyberattacks and data breaches (47)	New laws or regulations (41)
North America	Unplanned ICT outage (68)	Adverse weather (59)	Loss of talent/skills (53)	Cyberattacks and data breaches (43)	Product quality incident (42)
Australasia	Adverse weather (68)	Transport network disruption (62)	Unplanned ICT outage (50)	Health and safety incidents (50)	Industrial disputes (50)
Middle East and North Africa	Health and safety incidents (43)	Unplanned ICT outage (41)	Loss of talent/skills (29)	Exchange-rate volatility (27)	Energy scarcity (25)
Sub-Saharan Africa	Unplanned ICT outage 68)	Energy scarcity (60)	Loss of talent/skills (59)	Exchange-rate volatility (52)	Transport network disruption (48)
Asia	Adverse weather (54)	Unplanned ICT outage (53)	Loss of talent/skills (46)	Transport network disruption (43)	Fire (38)

Source: G. Riglietti and L. Aguada, *BCI Supply Chain Resilience Report 2018*, Berkshire, England, Business Continuity Institute/Zurich, August 2018.

A number of conclusions may also be drawn from the study by DHL Resilience360 (2019) which compiles data on hazards and incidents[15] that caused value chain disruption in 2018. Civil disturbance was the greatest cause of incidents reported in the region (31%), which is attributable, among other things, to a major strike by truck drivers in Brazil and protests over fuel prices in other countries. The proportion of disruptions caused by civil disturbance and natural disasters was significantly higher than at the global level (see figure III.11).

Figure III.11
Latin America and the Caribbean and the world: main types of value chain disruptions, 2018
(Percentages)



Source: DHL Resilience360, "Resilience360 Annual Risk Report 2018", March [online] http://dhl.lookbookhq.com/ao_thought-leadership_resilience/whitepaper_resilience360-annual-risk-report, 2019.

[15] The data come from the risk management platform DHL Resilience360, see [online] https://www.resilience360.dhl.com/ and include events that have the ability to cause value chain disruptions, including from natural, social, economic and technological causes.

The disruptive potential of the hazards to global value chains shows how important it is to treat resilience as one of the pillars of chain management, and not only as an element in the design and operation of the assets whose services support the logistics. Sustainability in a broader sense, associated with the mitigation of economic, social and environmental risks, represents a new paradigm in value chain management: infrastructure sustainability from the perspective of assets, networks and users (including logistical chains themselves), i.e. their ability to foster progress towards the SDGs, at all levels, along their entire length and throughout their life cycle.

E. Deficient regulation can hinder competitiveness and productivity

Investment in economic infrastructure is low in the region, at around 2% of GDP, leaving an investment gap of around 6% of GDP. This gap is one of the major limitations on development, as identified in various studies by ECLAC and a recent publication by the Inter-American Development Bank (IDB) (2018) on the obstacles to economic growth in 19 countries of the region, which identified infrastructure as one of the five main barriers in 84% of cases.

The sum of public and private investment has enabled the modest modernization of logistics and mobility services that has taken place in the region in the past 20 years. In the period 1990–2015, private investment in economic infrastructure represented almost half the total on average (with a low of 33% and a high of 64%), while in the specific case of transport, private investment represented on average 40%, ranging from 20% to 60%. Public-private partnerships (PPPs)[16] in the form of concessions represented a large part of private investment in economic infrastructure. In other words, the challenge of raising infrastructure investment requires looking at the situation of PPPs, as they represent a large part of total investment.

As ECLAC has stressed on numerous occasions, Latin America and the Caribbean not only needs to invest more, but needs to do it better. The experience gained since concessions began to be awarded enables reflection on some of the issues associated with them, including renegotiations, the management of non-compliance, governance and so forth. Governance is a crucial aspect for making infrastructure, especially infrastructure built or upgraded through concessions, fulfil the aims of enhancing societal well-being and increasing productivity. Infrastructure governance may be defined as "all the processes involved both in taking infrastructure decisions and in implementing those decisions, in which the mechanisms, procedures and rules established formally and informally by institutions all play a role" (Jaimurzina and Sánchez, 2017, p. 3). This refers both to the conduct of suppliers in their respective markets for infrastructure services and to the vertical and horizontal structure of those markets.

Better infrastructure governance will require changes in policies and regulations for better integration of policies, fostering enhanced coordination between government, the private sector and civil society. The private sector has a key role to play in investment, operation and generation of value added services, and in opening up these production chains to favour shared use of infrastructure and promote stronger value chains.

[16] Following ADB and others (2016), a public-private partnership is "a long term contract between a public party and a private party for the development (or significant upgrade or renovation) and management of a public asset (including potentially the management of a related public service), in which the private party bears significant risk and management responsibility throughout the life of the contract, provides a significant portion of the finance at its own risk, and remuneration is significantly linked to performance and/or the demand or use of the asset or service so as to align the interests of both parties."

Greater citizen participation in decision-making concerning the location and features of infrastructure will make projects more sustainable and yield more benefits to society (Wiltshire and Jaimurzina, 2017).

In the case of logistics and mobility, a large share of public and private investment flows take the form of PPPs in roads (mainly), but also in ports, airports, railways and pipelines. Within those flows, PPPs have been the principal vehicle for investment in the main transport infrastructures, and concessions have been the main tool used. In fact, 98% of transport projects involving public and private funds were tendered via concession, while transport overall represented around a third of infrastructure investment projects (Guasch, 2004).

In practice, concessions may enable well-being and productivity gains to be made or not. Concessions for economic infrastructure services, managed by contracts signed by the awarding public administration and the —usually private— concession-holder are typically long. Concessions thus have the inherent problem that the contract is incomplete by nature. Contracts are incomplete when the parties cannot set forth in contractual terms, in detail and in advance, all future eventualities. In these circumstances, the question is who has the right to decide on the part not envisaged (or missing). The party who does will be in a stronger position to achieve a better agreement in the future, as occurs, for example, in a renegotiation (Sánchez and Chauvet, 2018).

One of the typical failures of incomplete contracts that can occur in infrastructure services is opportunistic behaviour. When the contract is incomplete —i.e. when it has grey areas or is missing details or precision, among other failings— the agent (or principal) may have stronger bargaining power than the other party, leading to contract renegotiation to the benefit of the agent and to the detriment of societal well-being. Although it could be difficult or even impossible to write a contract comprehensive enough to avoid holdup,[17] this does not mean that the parties cannot anticipate it: ex post renegotiation occurs when the ex ante investment has already been sunk and holdup is therefore a possibility; in anticipation of this, the parties invest inefficiently.

Incomplete contracts can also be harmful for competition. Competitive pressures on the infrastructure services industry have often led to increasing concentration, which is evident not only in horizontal integration between firms, but also in vertical integration. The effect on competition may take the form of collusive practices, the deterioration of transparency in the management of public-private business, capture of agents, or a great variety of holdup behaviours. For these reasons, the design and allocation of concessions, the structure of contracts, and the protection of competition and regulation are very important in channelling investments in infrastructure services to maximize their contribution to development. For that reason, it is crucial that countries have effective competition rules to ensure the best possible operation of a market that is by nature imperfect.

In the early 1990s, ECLAC argued that the reforms taking shape in the framework of the new system of concessions in Latin America needed to be structured to give the State power to determine the type of private participation, decentralization and other characteristics of the process. Specifically, ECLAC insisted on the need for "an antimonopoly regime and a public sector agency which balances competing interests to ensure that no one group can utilize market mechanisms to obtain a monopoly position" (ECLAC, 1992). There follows an examination of the regional experience of over two decades with infrastructure concessions and the lessons learned from the process.

[17] Holdup occurs when some of the returns on specific investments could be expropriated ex post by the other party or when the parties engage in speculative behaviour in this regard.

1. Infrastructure concessions and public-private partnerships in the region

Public-private partnerships (PPPs) began in the developing economies, especially in the Latin American countries, in the 1990s. They thus have a history of over 25 years, with over 7,000 projects implemented under the PPP modality throughout the world.[18]

There is evidence that PPPs have performed better than public works on indicators such as cost overruns and delays. In a sample of 500 projects in the region, cost overruns exceeded 85% on average in public works with delays in around 92% of cases, compared with 21% of cost overruns and delays in 26% of cases in PPP projects (Guasch and others, 2016). The quality of the physical stock also showed notable differences. Infrastructure built under the PPP modality was of better quality, because a concession-holder was responsible for upgrading and maintenance, while in the case of public works, the budget allocated by government for this purpose tended to be too low and highly variable from one year to another (Cruz and Marques, 2013).

Particularly in the 1990s, the number of contracts signed in developing countries shows that PPPs were the modality of choice for developing infrastructure and public services with private equity. However, PPPs have weaknesses that need to be addressed, one of the main ones being the high rate of contact renegotiation.

Private sector involvement can occur in different ways, such as privatizations and concessions (in transport, water and sanitation and certain electric power sectors) and, to a lesser extent, management contracts. Concessions include new or greenfield projects, which are very common in the energy and water supply sectors, and in water and wastewater treatment plants. Brownfield contacts have predominated the cases of transport, fluctuating in line with economic cycles.

The 2,078 concessions signed between 1980 and 2017 in 20 Latin American and Caribbean countries testify to the importance of PPPs in the development of regional infrastructure. Of all the contracts signed, 26% were in the transport sector. In that period, Brazil accounted for 617 projects (30% of the total), followed by Mexico, with 389 projects (19% of the total), Chile, Peru, Colombia and Argentina (11%, 10%, 7% and 6%, respectively).

Distribution of PPP contracts by sector differs between the periods 1980–2000 and 2001–2017. In the first of these,[19] the transport and telecommunications sectors represented 29% each of PPP contracts, followed by energy (27%) and water (15%). Conversely, in the second period, 51% of contracts were signed in the energy sector, 22% in transport, 15% in telecommunications and 12% in water and sanitation. Between the two periods, PPP concessions gained ground in certain countries (such as Brazil, where they rose from 20% to over 37% of the total, and Uruguay, where they rose from 0.3% to 4.8%), but fell considerably in other countries, such as Argentina, and showed no major changed in others. Generally speaking, this reflects very dissimilar situations, which occur regardless of political shifts in the various countries.

In absolute terms, a total of 1,000 infrastructure projects carried out via PPPs between 2006 and 2015, mostly in energy and transport, represented investments of US$ 361 billion, with most of this amount going to Brazil, Mexico and Colombia (Michelitsch and others, 2017).

[18] Important studies on this subject carried out over the past 15 years include Guasch (2004), Guasch and others (2016) Guasch, Laffont and Straubb (2003 and 2006), Bitrán, Nieto-Parra and Robledo (2013) and Cruz and Marques (2013).

[19] Percentages based on the total number of contracts, not including telecommunications.

Table III.4
Latin America and the Caribbean (selected countries): infrastructure concessions by country and sector, 1980–2017
(Numbers and percentages)

Country	1980–2000						2001–2017						1980–2017	
	Telecoms	Energy	Transport	Water and sanitation	Total	Percentage of the total	Telecoms[a]	Energy	Transport	Water and sanitation	Total	Percentage of the total	Total	Percentage of the total
Argentina	17	31	40	14	102	10.8		21	8	1	30	2.6	132	6.4
Belize								1	0	0	1	0.1	1	0.0
Bolivia (Plurinational State of)	0	17	5	2	24	2.5	4	3	0	0	7	0.6	31	1.5
Brazil	87	7	50	50	194	20.6	21	283	50	69	423	37.2	617	29.7
Colombia	0	0	44	7	51	5.4	8	8	53	21	90	7.9	141	6.8
Chile	12	81	27	3	123	13.1		58	36	12	106	9.3	229	11.0
Costa Rica	0	31	1	0	32	3.4	8	5	4	0	17	1.5	49	2.4
Dominican Republic	1	10	3	0	14	1.5		9	5	0	14	1.2	28	1.3
Ecuador	0	2	0	0	2	0.2	12	8	5	0	25	2.2	27	1.3
El Salvador							9	5	0	0	14	1.2	14	0.7
Guatemala	1	0	2	0	3	0.3							3	0.1
Haiti							7	2	1	0	10	0.9	10	0.5
Honduras	1	8	0	1	10	1.1	15	18	5	2	40	3.5	50	2.4
Jamaica	2	0	0	0	2	0.2	17	5	4	0	26	2.3	28	1.3
Mexico	63	51	91	58	263	27.9	45	22	39	20	126	11.1	389	18.7
Nicaragua							9	9	0	0	18	1.6	18	0.9
Panama	0	0	5	0	5	0.5	11	14	2	0	27	2.4	32	1.5
Peru	85	17	5	0	107	11.4	2	64	33	8	107	9.4	214	10.3
Trinidad and Tobago	1	1	0	1	3	0.3							3	0.1
Uruguay	0	0	2	1	3	0.3		47	8		55	4.8	58	2.8
Total	**273**	**256**	**276**	**137**	**942**	**100.0**	**168**	**582**	**253**	**133**	**1 136**	**100.0**	**2 078**	**100.0**

Source: Economic Commission for Latin America and the Caribbean (ECLAC) on the basis of information from the World Bank; and J. Guasch, "Granting and Renegotiating Infrastructure Concessions: doing it Right", *WBI Development Studies*, No. 28816, World Bank, Washington, D.C., 2004.

Note: Includes only active or completed brownfield and greenfield investments.

[a] In 2016, the World Bank made a change to its Private Participation in Infrastructure (PPI) database, whereby telecommunications includes only the portion of that sector that involves fibre optic cables and in which the government is actively involved.

2. Failures in infrastructure concession contracts and the impacts on competitiveness

Services that are delivered over physical assets (infrastructure) have particular characteristics, for example, their long life, large sunk costs, relatively indivisible assets, their status as essential facilities, entry barriers (owing to economies of scale and scope) and major externalities, both positive and negative. Several of these characteristics —vertical integration and risk of exclusion, quality issues, suboptimal investments and renegotiations— have to do with contract incompleteness, which can have socially harmful impacts. Policymakers need to bear these in mind when a transaction involves the delivery of infrastructure services in the framework of a long-term contract.

In some businesses, Williamson (1975, 1996a and 1996b) and Klein, Crawford and Alchian (1978) saw vertical integration as a solution to contract incompleteness (to mitigate opportunistic behaviour over "surplus appropriability", reduce the costs of avoiding such appropriation and improve investment incentives). However, the great risk of integration is market foreclosure. Joskow (2006) explains that vertical integration and long-term vertical contracts can be used as a strategy to reduce competition in the short term, by increasing costs for competitors, or in the long term, by raising entry costs to exclude potential market entrants. Joskow distinguishes between a naïve vision of foreclosure sometimes associated with vertical integration, and the problems that arise as a result of strategic vertical integration to lessen competition by raising market prices upstream or downstream, or both. In the first case, when a firm is vertically integrated and supplies some of its own inputs, other potential suppliers are, so to speak, already excluded from supplying those inputs. The second case, however, is the classic situation of potentially anti-competitive vertical exclusion when a firm has a monopoly over the supply of an essential input to which actual or potential competitors need access under comparable terms and conditions in order to compete downstream.

In the delivery of infrastructure services, a potentially problematic situation arises when a concessionaire integrates vertically with one or more users of the service delivered via the asset under concession. This would be the case of an airport operator that joined with an air company, or a port terminal operator integrating with a shipping company. Here there could be a risk of downstream exclusion, since shipping companies not integrated with the port operator, or airlines not integrated with the airport operator, could be at a disadvantage in terms of access to inputs (essential facilities and services).

Another key aspect of concessions is the relationship between cost structure and the quality of the service delivered. Assuming contract incompleteness, residual rights of control are important, since they determine bargaining power and incentives. The concern of the government, as the principal, is effective production and quality of service. However, if service quality is difficult to specify in a contract, the agent will have an incentive to operate at the lowest possible cost, likely lowering quality even if the letter of the contract is not breached. In this context, there will be incentives for suboptimal investment with latent risk of holdup. This could occur in the form of vertical integration (with the risk of exclusion) or a contract renegotiation that is not necessarily advantageous for societal well-being.

Studies on reforms to the provision of infrastructure via concessions and PPPs generally show significant performance improvements, but also problems. Among the improvements, it has been argued that PPP concessions are an effective way of creating infrastructure, on the basis of evidence of better cost and punctuality performance than public works (Guasch and others, 2016). Performance has also been found to be better in terms of quality, upgrading and maintenance (Cruz and Marques, 2013). At the same time, evaluation of the efficiency gains of concession-holders found annual

profits disproportionate to the change in fees, even considering that the generation of returns is an objective and expectation of the concession process. This is one of the reasons why the concessions have attracted criticism, beyond the advantages they offer the economy. It is also commonly believed that concessions have not been transparent and that their fruits have been misspent, inasmuch as the efficiency gains obtained by operators do not accrue to users.

Transparency of the tender process is not the only key to the success of concessions. Post-tender management of contracts is also crucial. On the first point, there is growing concern over the possibility of corruption. On the second point, the evidence feeding the rumours has to do with renegotiations. Post-tender issues —such as unforeseen changes in cost structure or demand conditions— may not be specified in contracts, given their incompleteness. Unincluded aspects may lead to abuse and opportunism, increasing the likelihood of conflict. In PPP contracts, then, the clarity of processes and institutional frameworks are fundamental. Contracts must be duly stipulated, with proper resource allocation and a suitable oversight, inspection and regulation set-up, as well as predictable and transparent dispute settlement mechanisms.

Opaque economic interests can influence the shaping of legislation and its implementation, market competition and, ultimately, economic growth and competitiveness. The economic literature mentioned testifies to the heavily negative effects of corruption on economic performance and development in general (Raganelli and Mauro, 2016). According to a survey by OECD, public procurement is the sector worst affected by corruption and collusion. In fact, the allocation of public funds through contracts and procurement provides ample opportunity for corruption, which can increase the cost of a project by up to 50%, while reducing the quality of works or services. For that reason, public procurement has been the object of diverse anti-corruption initiatives at the national, international and multilateral levels.

The United Nations Convention against Corruption was the first truly global compact against corruption. On 1 July 2012, 160 States became party to the Convention. Although the Convention was innovative, its oversight was not. The Convention established a Conference of the States Parties to monitor its implementation and required States parties to establish national bodies to prevent and fight corruption.

In the region, the Odebrecht case testifies to a relationship between the level of corruption and the scale of contract renegotiations. According to Campos and others (2019), in a plea agreement with the United States Department of Justice, Odebrecht paid some US$ 788 million between 2001 and 2016 in bribes in 10 Latin American and 2 African countries. The authors report, among other things, that in the eight countries where Odebrecht paid bribes and won 63 tenders, the renegotiation rate was 71.3%, 10 times higher than in the 27 tenders which were won without bribery, where the renegotiation rate was 6.5%. The authors also note that the anticipation of renegotiation generates low tenders and excessive costs that are indicative of corruption. Bribery stimulates excessive costs, because it increases the cost of renegotiation, which tends to push down the original bid. Campos and others argue that the confluence of several factors led to Odebrecht's market share to rise by 60% and its production to double. The study also estimates that corruption produces a significant well-being loss of 14.4% in the cases analysed.

Contract renegotiation is a common practice, especially for complex and lengthy contracts. However, it can encourage opportunism, discourage honest bidders and weaken the outcome of the process. Making changes to a contract after it is signed reduces the competitive effect and muddies the transparency of the process. Although sometimes an adjustment may be necessary, it is often motivated by opportunism and increases mistrust in a country, generating "displacement" from the market, as the best

skills and capital are driven away. Information asymmetry and the lack of necessary skills or difficulty in activating them erode the bargaining power of the government, which make the review and renegotiation process all the more critical. From this perspective, making renegotiation procedures more transparent would help to limit the distortion of the initial bidding and ensure that the rules governing the renegotiation are respected (Raganelli and Mauro, 2016).

3. Concession contract renegotiation and competitiveness loss

Information asymmetry and the specificity of certain work involved in concessions mean that neither the bidder nor the participating firms may be fully aware of the project's real total costs. This pushes up costs and precludes contract completeness, thereby leading to higher costs in terms of time, money and technical know-how. Price competition for an incomplete contract increases the risk of renegotiation and non-compliance. For that reason, renegotiations end up being a natural part of entering into a concession and should not necessarily be limited except to prevent abuses. The take on renegotiations thus depends on whether they address the inherently incomplete nature of a complex contract in which the incentives and auction were properly designed, or are the result of poor choice of contract type and procedure. In practice, contracts awarded through open competitive bidding are often renegotiated, so that renegotiations undo the advantages of competitive bidding (Guasch, Laffont and Straub, 2006).

Renegotiations have become an increasingly important topic because PPPs are being used more often both locally and nationally, and the empirical evidence supports the thesis that most concessions will be renegotiated. If renegotiation is probable, especially in the early years, the bidder's main aim will be simply to secure the concession and open renegotiations. The renegotiation thus occurs in a non-competitive environment where the government is unlikely to cancel the contract owing to the high transaction costs involved (Guasch, 2004). The probability of renegotiation thus becomes one of the key drivers of each party's strategic behaviour.

Renegotiation implies significant change to a concession contract that was not envisioned or driven by stated contingencies in tariffs, investment plans and levels, exclusivity rights, guarantees, lump-sum payments or annual fees, coverage targets, service standards, and concession periods. Standard scheduled tariff adjustments and periodic tariff reviews are not considered renegotiations, since these are defined in the contract (Guasch, 2004).

Renegotiations may be requested for multiple reasons, for example: (a) significant changes in the economic circumstances of the government or the operator (including financial crises, currency movements, elections in which the new administration may change the regulations and affect the operator's rights, and so forth); (b) political bias when local, regional or central governments are too optimistic about a project's forecasts and present net value;[20] (c) force majeure events (earthquakes, for example); and (d) reputation mechanisms. In a country or sector where a concession-holder hopes to win other contracts in the future, the firm may be more willing to enter renegotiations (or avoid them, as the case may be) to keep its "good reputation" and even be willing to accept current losses in the expectation of future gains. In general, these causes have to do with failings in the auction process, poor decisions during the concession award process, aggressive bidding and faulty contract designs.

[20] The optimism bias in demand projections is a major problem in most concessions, particularly in transport and water systems (Cruz and Marques, 2013).

Negative public sentiment in relation to concessions in Latin America, as mentioned earlier, may be attributed to the high rate of renegotiation and its outcomes. Renegotiations imply that the terms agreed are not being honoured and the outcomes of renegotiation are generally believed to adversely affect users.

The renegotiation rate is high in concessions, occurring in 30% of them up to 2000 (see table III.5) and 68% during the period 2004–2010. Excluding concessions in the telecommunications sector, the renegotiation rate rises to 41.5% up to 2000. Renegotiations were common in transport concessions, at a rate of 55% up to 2000, and in water and sanitation services (74%). Between 1990 and 2010 the transport sector showed an average concession renegotiation rate of 78%, usually quite soon after contracts were awarded —less than two years on average between 1980 and 2014, for example (Guasch and others, 2016). Generally speaking, the outcomes of renegotiations improved conditions for the operator and/or investor and reduced efficiency and quality for users, as well as producing an adverse fiscal impact, including higher direct and contingent liabilities.

Table III.5
Latin America and the Caribbean: infrastructure concessions renegotiated by sector, 1980–2000

	Telecoms	Energy	Transport	Water and sanitation	Total	Total excluding telecoms	Percentage of total excluding telecoms
Total	3/273	25/256	151/276	102/137	281/942	278/669	41.5
Incidence *(percentages)*	1.1	9.7	54.7	74.4	29.8		

Source: J. Guasch, "Granting and Renegotiating Infrastructure Concessions: doing it Right", *WBI Development Studies*, No. 28816, World Bank, Washington, D.C., 2004.

The renegotiation rate remains very high in the region, in the range of 50% to 80% (see table III.6). As an example for just one country, the renegotiation rate in Peru between 1998 and 2012 was 69% for all sectors and 84% for transport, and the average number of renegotiations per contact was 2.3.

Table III.6
Latin America and the Caribbean: renegotiation rate of PPP contracts by sector and period, 1990–2015
(Percentages)

	1990–2004	2004–2010	2010–2015
All sectors	42	68	58
Electricity	10	41	30
Transport	55	81	60
Water and sanitation	75	76	66
Other social sectors		42	40

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Guasch, "The renegotiation of public private partnerships contracts (PPP): an overview of its recent evolution in Latin America", *Revista Chilena de Economía y Sociedad*, vol. 10, No. 1, June 2016.

With respect to the initiator of renegotiations, they may be sought by the government, the operator or concession-holder or both, or the situation may be unclear. The most common government motivations for initiating renegotiations are changes in priorities, changes in government, or inability to fulfil contractual obligations, although politically opportunistic reasons also exist (for example, governments may want to anticipate or expand investments, or to lower tariffs to increase their popularity prior to elections). Renegotiations initiated by the private sector are most often driven by the desire to maximize the net present value of the contract (by increasing revenues or reducing costs or risks), but also occur in response to (domestic or external) shocks that significantly unbalance the financial equilibrium of the concession-holder. According to Guasch (2014), most renegotiations in Latin America and the Caribbean since 1980 have been

initiated by operators (61%), followed by the government (26%). In that period, the water and sanitation sector saw the largest proportion of renegotiations initiated by operators, with 66% (compared with 24% by the government and 10% jointly), while in the transport sector, 57% of actions were initiated by the operators, 27% by the government and 16% jointly.

Renegotiations eliminate the competitive effect of the auction, since the most likely winner is not the most efficient operator but the one best skilled at renegotiating. In addition, asymmetric information to the detriment of the government weakens its ability to renegotiate. The time and financial resources involved in renegotiation; the political cost (given that conflicts tend to be amplified in the media); the financial and fiscal costs, given that the results of the negotiation increase government liabilities; and the social cost, given that users are adversely affected by conflicts (reduced access, price differences and quality losses). On average, these costs are quantified as between 3% and 15% of the initial investment. The impact and uncertainty of the outcomes of the conflict resolution may increase the capital cost of the project by 2–4 percentage points (Guasch 2014). Bitrán, Nieto and Robledo (2013) state that in 98% of road concessions awarded between 1993 and 2010 in Chile, Colombia and Peru, the total costs of renegotiations included US$ 7 billion in direct fiscal costs, increases of 20% in the length of concessions, higher tolls, greater risks for the State and construction delays.

Although some renegotiations can be efficient, many are opportunistic and should be discouraged or refused. However, governments have found it difficult to commit credibly to rejecting opportunistic or inappropriate requests, and in general choose to accommodate renegotiations in order to avoid risking service continuity and incurring transaction costs.

F. Physical integration, regional trade facilitation and logistical services

Over the past few decades, multilateral, subregional and bilateral agreements have steadily lowered tariff barriers to trade. At the same time, technological and logistical advances have made the physical movement of goods around the world increasingly faster, safer and cheaper, and have also created the conditions for offshoring and fragmentation of production through global and regional value chains. In this context, logistical costs and dispatch times have become crucial elements of trade competitiveness.

In the case of Latin America and the Caribbean, productive integration is affected not only by the instability of tariff agreement and, sometimes, by complex border-crossing procedures, but also by the lack of logistical services and infrastructure, which pushes up costs and trade operation times. In order to foster progressive structural change, the value added and knowledge content of export products needs to be enhanced, breaking away from reliance on unprocessed raw materials and assembly or maquila manufacturing. Joining global value chains with intermediate products in which competitive advantages have been developed or product sophistication has been enhanced could help the region to move in this direction (ECLAC, 2014). This will require better logistics and facilitation of processes that contribute to improving the competitive position of exporters, fostering internationalization of small and medium-sized enterprises (SMEs), moving up positions within value chains, broadening the labour market, embedding better technologies and reducing the prices of final products consumed by the population.

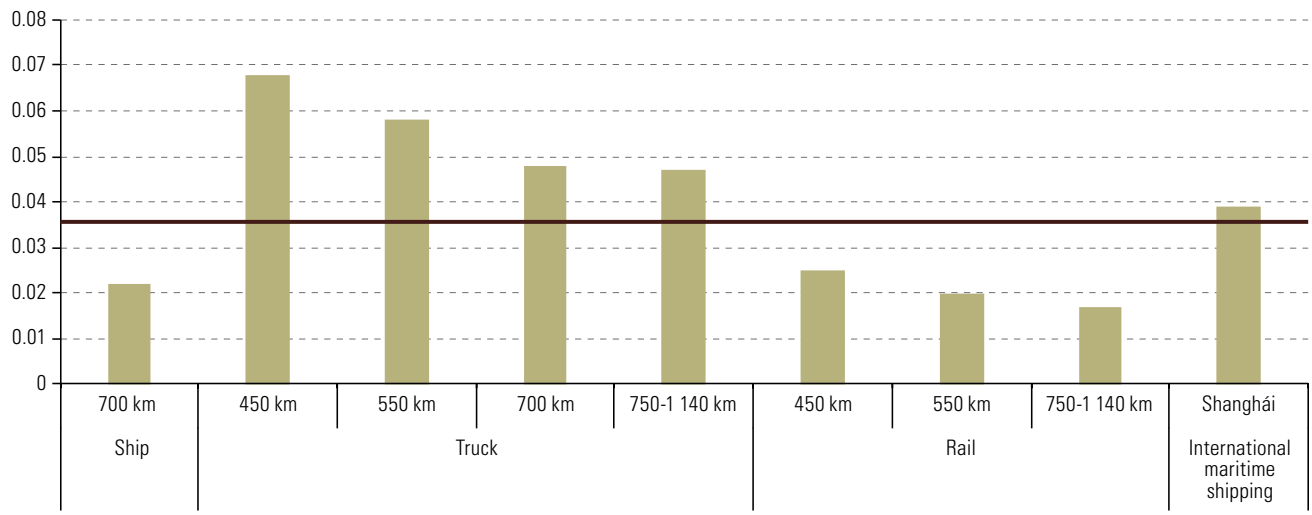
Several political and economic integration initiatives in the region are currently undergoing major redefinitions of objectives and operation. But the physical integration of infrastructure has not stopped, but is quietly continuing, improving connectivity and facilitating trade processes until political momentum towards convergence and full integration can be resumed. Physical integration also plays a strategic role in logistics, with the coordination of measures to facilitate regional trade and improve productive linkages.

1. Domestic costs have as important an impact as international transport

Measures to reduce international trade costs have traditionally taken a sequential and spatial approach: processes that occurred at the border (trade facilitation), on the one hand, and those occurring in the interior (transport regulation and facilitation), on the other. From a logistical point of view, this distinction makes no sense, since in a value chain where the supply of inputs and parts is spatially fragmented, inputs and intermediate products may cross the border several times before their final sale in the destination market.

In the case of Latin America, given the prevailing transport mix and the large distances that goods and primary products travel to reach their point of export or final consumption, the cost of internal transport, typically by truck, is almost as much as the international shipping paid to get the same product to its overseas destination. For example, figure III.12 illustrates the impact of domestic transport on grain logistics in Argentina.

Figure III.12
Argentina: costs per ton and km transported from ports in Gran Rosario, 2019
(Dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from Rosario Board of Trade (Bolsa de Comercio de Rosario, BCR).

The figure shows that moving freight by truck within the Argentine territory can cost as much as three times more —in terms of per ton and km transported— than other modal options such as by rail or river barge. Truck freight from the furthest production

areas, such as the north and north-east of Argentina,[21] to the ports of Rosario (as far as 1,400 km) has an average unit cost of US$ 65 per ton per km transported. Meanwhile, maritime shipping of that same ton from Rosario to Shanghai costs US$ 39 per km. The higher domestic cost is explained partly by the inefficiency of trucks, which are not competitive in terms of fuels consumption vis-à-vis other modes of transport. Another important factor is that in Argentina, as in the rest of the region, 54% of trucks make their return journey empty, so that the haulage fees charged finance both the outward and return journeys of a convoy. To illustrate the scale of this problem, in Argentina the vehicle transport sector travels approximately 12.8 billion km annually, of which 7.2 billion km (56%) are travelled empty, with the resulting economic, social and environmental costs.

In the case of Central America, high logistical costs affect not only national economies, but also the competitiveness of the subregion as a whole, because of the higher interdependence of its economies. As well as the large proportion of ground transportation, there are major shortcomings in relation to border crossings and dispatch times, stemming from infrastructure deficiencies (physical and technological) and problems with process facilitation (see table III.7).

Table III.7
Central America: drivers of high logistical costs

High freight costs	It costs US$ 0.17 to transport a ton of products one kilometre on the Central American highway network, much more than the cost in other countries (US$ 0.02 in the United States, US$ 0.05 in Argentina o US$ 0.056 in Brazil).
Deficiencies of transport and communications infrastructure at border crossings	A freight vehicle moves on average at 17 km/hour on the Central American logistical corridor, falling to 0.89 km/hour at land border crossings. Delays at regional border crossings can last up to 48 hours, with truck engines being switched on and off an average of 31 times.
Limited border management	Presenting and completing border procedures can take up to 21 hours.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Secretariat for Central American Economic Integration (SIECA).

Aware of this situation, the Heads of State and Government of the countries in the Central American Integration System (SICA), with the support of ECLAC and other multilateral development agencies, launched the Central American Regional Framework Policy on Mobility and Logistics, with the aim of coordinating national policies around strategic regional objectives. The policy represents a commitment to address infrastructure and regional connectivity needs in a coordinated manner, on the basis of a comprehensive and shared vision of logistical integration, taking into account passenger and freight mobility within and beyond the region. In effect, production linkages demand not only national efforts, but also the coordination of action at the subregional level to enable the whole chain to flow with the volume, quality and security required. This means that, as well as the necessary investment in national infrastructure analysed in the preceding sections, regional investments are needed to provide the connectivity and accessibility required for subregional production linkages, as well as subregional rules to enable the functioning of the broader market and trade support infrastructures such as coldrooms on borders. Accordingly, the Central American countries are striving to reduce transaction costs and facilitate a rapid, reliable and safe flow of information, investments, payments and related services, regardless of whether these processes occur in the country of origin, at border control agencies at destination or in a transit country, as will be discussed in the following section.

[21] The north of Argentina includes the provinces of Jujuy, Salta, Tucumán, Catamarca, La Rioja and Santiago del Estero, while the north-east includes the provinces of Formosa, Chaco, Corrientes and Misiones.

2. Trade facilitation as a tool for competitiveness

As well as failings in physical infrastructure, bureaucratic inefficiencies also increase trade costs, both within the region and with partners further afield. Excessive documentation and red tape requirements for trade affects SMEs disproportionately. For that reason, trade facilitation fosters the internationalization of SMEs, which in the great majority do not export.[22] This, in turn, can stimulate the diversification of exports, helping to reduce the heavy reliance on commodities typical of the export baskets of many countries in the region (especially South America). Rapid movement of goods across borders is also critical for the operation of international production networks. Progress in trade facilitation can thus also help to increase the presence of the region's countries in international value chains, which, with few exceptions, is still very limited.

In the first half of 2019, ECLAC, together with the other four reginal commissions of the United Nations,[23] carried out the Global Survey on Digital and Sustainable Trade Facilitation. This followed global surveys —entitled Global Survey on Trade Facilitation and Paperless Trade Implementation— conducted in 2015 and 2017. The 2019 Global Survey sought to monitor the progress made by different countries and regions in implementing the Trade Facilitation Agreement (TFA) of the World Trade Organization (WTO), which came into force in February 2017. It also incorporated new topics, in particular those linked to the absorption of ICTs to progress towards paperless trade (see box III.2). This section offers a summary of the results.[24]

Box III.2
Global Survey on Digital and Sustainable Trade Facilitation 2019: methodological aspects

The survey includes 50 multiple choice questions, classified in three groups. The first —general trade facilitation measures— consists almost entirely of provisions contained in the World Trade Organization (WTO) Trade Facilitation Agreement, such as the establishment of a national trade facilitation committee, publication of laws and regulations applicable to trade, use of risk management, advance rulings on tariff classification, establishment of authorized operator programmes and single trade window mechanisms, among others.

The second group, digital trade facilitation measures, assesses aspects that, in the great majority, exceed the commitments contained in the Trade Facilitation Agreement, such as electronic payment of customs duties, electronic request and issue of the various documents required for trade (for example, special authorizations and sanitary and phytosanitary certificates and certificates of origin), and cross-border electronic transmission of such documents. The third group, sustainable trade facilitation measures, includes three subgroups of measures aimed at SMEs, the agricultural trade and the share of women in foreign trade. Unlike the other two groups, this one was included only from the second edition of the Global Survey (2017).

Each question in the global survey is related to a specific measure and has five possible responses: (i) Fully implemented (3 points); (ii) Partially implemented (2 points); (iii) Pilot state (1 point); (iv) Not implemented (0 point); and (v) Not known (0 point). The results presented in this section were obtained on the basis of responses to 31 questions form the first two groups, to give a consistent metric across countries and regions over time. The implementation rates of each country were calculated out of a maximum of 93 points (full implementation of the 31 measures).

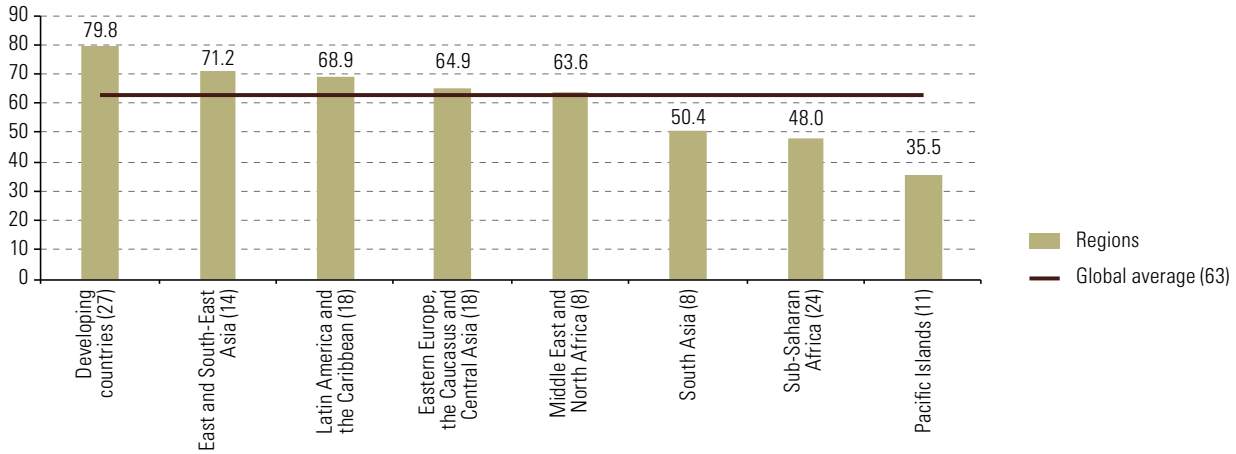
Eighteen countries of the region participated in the Global Survey 2019, and together they represented 93% of exports and imports of goods in 2018. The responses were prepared by government agencies in each country, mainly by customs services and ministries of trade and industry, and subsequently verified by the Economic Commission for Latin America and the Caribbean (ECLAC), together with the governments concerned.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of "Digital and Sustainable Trade Facilitation Implementation: Global Report 2019", 2019 [online] https://www.unescap.org/resources/digital-and-sustainable-trade-facilitation-global-report-2019.

22 In the great majority of the region's countries, less than 1% of all firms are exporters. This is a much lower figure than in Europe and East Asia (Park, Urmeneta and Mulder, 2019).
23 The other regional commissions of the United Nations are those for Africa, Asia-Pacific, Europe and West Asia.
24 The full results will be presented in a report to be published by ECLAC in late 2019.

The average implementation rate for the 18 countries of the region participating in the Global Survey 2019 was 69% (see figure III.13), 6 percentage points above the average for the 128 countries participating from all regions, and the second highest rate for the developing regions, after East and South-East Asia.

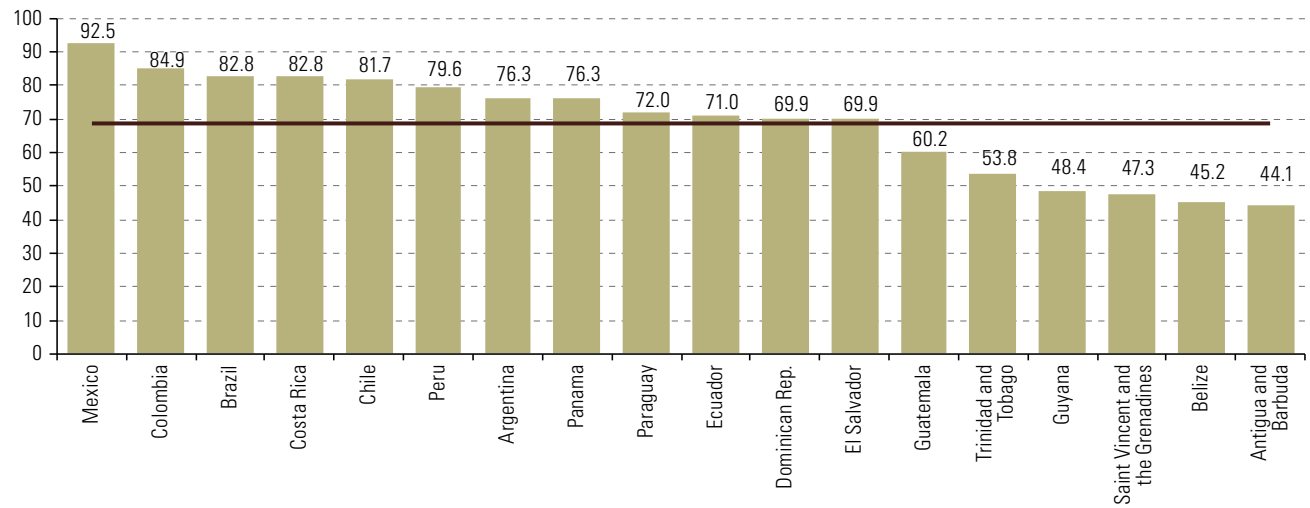
Figure III.13
Selected regions (128 countries): average implementation rates captured in the Global Survey on Digital and Sustainable Trade Facilitation, 2019
(Percentages of the maximum possible score)



Source: United Nations, "Digital and Sustainable Trade Facilitation Implementation: global report 2019", 2019 [online] https://www.unescap.org/resources/digital-and-sustainable-trade-facilitation-global-report-2019.
Note: The figures in brackets show the number of countries participating in the survey in each region.

The relatively high regional average masks considerable heterogeneity in the results by subregion and by country (see figure III.14). Of the 12 countries that exceeded the regional average, Mexico scored the highest implementation rate, followed by several South American countries. Costa Rica, Panama and the Dominican Republic. Conversely, the six countries that scored below the regional average were from the Caribbean and Central American subregions. Four of these reported implementation rates of under 50%.

Figure III.14
Latin America and the Caribbean (18 countries): implementation rates captured in the Global Survey on Digital and Sustainable Trade Facilitation, 2019
(Percentages of the maximum possible score)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of "Digital and Sustainable Trade Facilitation Implementation: global report 2019", 2019 [online] https://www.unescap.org/resources/digital-and-sustainable-trade-facilitation-global-report-2019.
Note: The horizontal line shows the average for 18 countries (69%).

Of the 18 countries of the region that participated in the Global Survey 2019, 15 also participated in the 2017 version (the exceptions were Belize, Guatemala and Guyana). The average implementation rate for this group rose considerably between the two surveys, from 65% in 2017 to 72% in 2019. Although the 15 countries improved their performance, there was no great change in their ranking: in 2017, Mexico also scored the highest rate of implementation (86%), followed by Colombia, Brazil and Chile, while the three lowest scores were obtained by Caribbean countries: Trinidad and Tobago (43%), Saint Vincent and the Grenadines (41%) and Antigua and Barbuda (33%).

The group of 18 countries of the region participating in the Global Survey 2019 show average implementation rates of 80% or more in 18 of the 31 measures analysed (see table III.8). This includes matters of transparency such as the establishment of independent mechanisms to appeal customs rulings, the publication of existing import-export regulations on the Internet, and stakeholder consultation on new draft regulations. The region also performs well in general regarding the simplification of trade formalities, such as pre-arrival processing of goods, the acceptance of paper or electronic copies of supporting documents, the separation of release from final determination of customs duties, and special trade facilitation measures for authorized operators.

At the opposite extreme, some of the measures with the lowest implementation rates have to do with paperless trade, such as cross-border exchange of sanitary and phytosanitary certificates and certificates of origin and electronic application for customs refunds. This comes as no surprise, since these measures require sophisticated ICT infrastructure and, in the case of cross-measures, close cooperation between the relevant agencies in the countries exchanging information. Another measure with a low level of implementation is the publication of average shipment release times by customs services. This could partly reflect resistance on the part of these agencies to increasing transparency and accountability.

The considerable progress made by the countries of the region in implementing trade facilitation measures at the national level would have a greater impact on trade flows and production integration if those advances were coordinated at the regional, or at least the subregional, level. The Central American countries have traditionally spearheaded action in this regard, but in the past few years other parts of the region have made significant progress. Since 2018 the members of the Pacific Alliance have exchanged certificates of origin and phytosanitary certificates digitally. In July 2019 an initiative was launched to conclude a mutual recognition agreement between the authorized economic operator schemes of nine Latin American countries.[25] The action plan agreed upon in July 2018 by the Presidents of the member States of the Pacific Alliance and the Southern Common Market (MERCOSUR) also aims at greater cooperation on trade facilitation. As the two largest economic integration blocs in Latin America and the Caribbean, any agreement between their members would do much to facilitate trade throughout the region.

[25] The nine countries are Argentina, Brazil, Chile, Colombia, Dominican Republic, Guatemala, Paraguay, Peru and Uruguay.

Table III.8
Latin America and the Caribbean (18 countries): most and least implemented measures captured in the Global Survey on Digital and Sustainable Trade Facilitation 2019 [a]
(Average implementation rates in percentages)

Most implemented measures	Implementation rate
Independent mechanism to appeal customs rulings	94.4
Separation of release from final determination of customs duties, taxes, fees and charges	94.4
Special procedures for urgent shipments	90.7
National trade facilitation committee	88.9
Post-clearance audit of goods	88.9
Automated customs system	88.9
Publication of existing import-export regulations on the Internet	87.0
Pre-arrival processing of goods	87.0
Stakeholder consultation on new draft regulations	83.3
Internet connection available at border-crossings	83.3
Electronic submission of air cargo manifests	83.3
Advance ruling on tariff classification and origin of imported goods	81.5
Use of risk management by customs and other border control agencies	81.5
Acceptance of copies of supporting documents for import, export or transit	81.5
E-payment of customs duties and fees	81.5
Cooperation between border control agencies	81.5
Special trade facilitation measures for authorized operators	79.6
Electronic submission of customs declarations	79.6
Least implemented measures	**Implementation rate**
Establishment and publication of average release times	46.3
Certificate of origin exchanged electronically	42.6
Customs declaration exchanged electronically	40.7
Electronic application for customs refunds	35.2
Sanitary and phytosanitary certificates exchanged electronically	18.5
Delegation by government agencies of controls to customs authorities	11.1
Exporters paid by letters of credit received electronically	9.3

Source: Economic Commission for Latin America and the Caribbean (ECLAC). on the basis of "Digital and Sustainable Trade Facilitation Implementation: global report 2019". 2019 [online] https://www.unescap.org/resources/digital-and-sustainable-trade-facilitation-global-report-2019.

3. The physical and technological support for production linkages

For value chains to be efficient and competitive, they need a good-quality, adequate supply of both infrastructure and logistical services at all the links of the chain. In the case of regional chains, this means rethinking the available logistical infrastructure, since the existing infrastructure was designed to export large volumes at the lowest possible cost and as quickly as possible, without any particular configuration for interconnection between the countries in the region. An example is the rail network in South America, which was built by national governments to ship out production and provide connectivity to the interior of each country, without consideration of its usefulness for neighbouring countries. This lack of coordination led to each country developing its rail system without any standardization of track gauges, signalling conventions, couplers, brakes or other systems (see table III.9).

Table III.9
South America: gauges used in railway tracks
(Millimetres)

Significance in terms of operative kilometres	Denomination	Width	Countries where used
High	Metric gauge	1 000	Argentina, Bolivia (Plurinational State of), Brazil, Chile
High	Iberian gauge	1 676	Argentina, Chile
High	International gauge	1 435	Argentina, Colombia, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela (Bolivarian Republic of)
Medium	Irish gauge	1 600	Brazil
Medium	Yard gauge	914	Colombia, Peru
Medium	Cape gauge	1 067	Ecuador
Low	Narrow gauge	750	Argentina

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Initiative for the Integration of Regional Infrastructure in South America (IIRSA).

Differences in track gauges, as well as the major obstacle of the Andes mountain range, prevented the development of extensive integrated railway systems as occurred in other parts of the world. In the few binational connections existing, operational differences required transshipment of goods and changes in equipment, increasing transport time and costs. These factors led to railways being seen as an inefficient means of transport for regional trade and to the preference for truck haulage because of the flexibility it offered. Track gauges were not standardized even within countries (in Argentina, for example, there were four different track gauges). Although gauge differences continue to represent an obstacle to integration today, the rail networks operating internationally are reduced mainly to the first three in table III.9, added to the fact that there are technical options for overcoming these differences. The new rail integration projects include track unification and standardization of the other operating systems to deliver integrated operation.

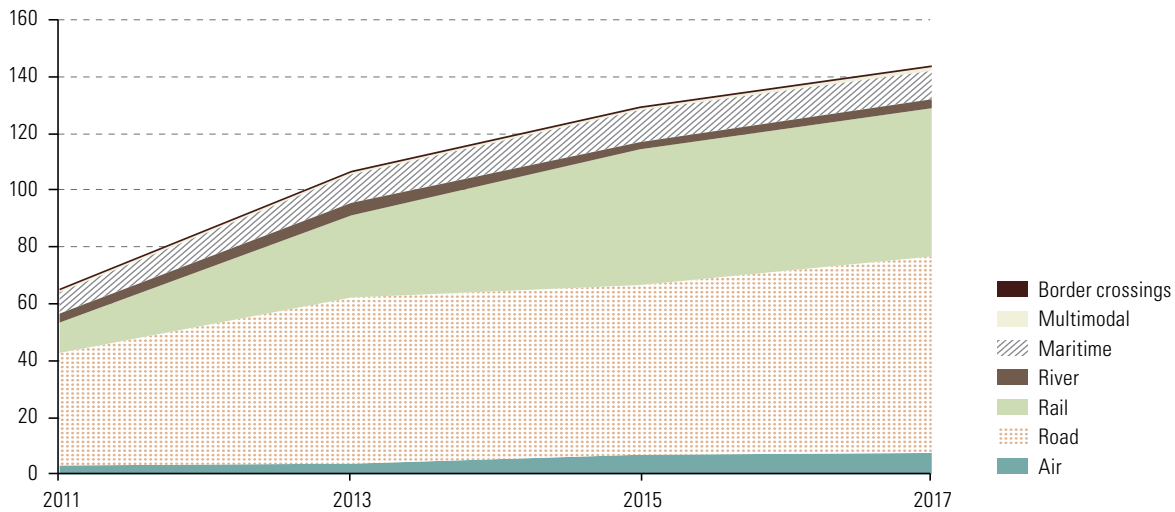
As exemplified by the case of the railways, regional integration of economic infrastructure is a strategic issue for fostering growth and achieving higher levels of development in the region. This is because it drives higher social returns on the investment (whether public or private) by aligning public and private interests better with the principle of intergenerational equity; it boosts industry competitiveness (by reducing logistical costs); it improves territorial connectivity and enables better management of negative externalities for the population and the territory. Strengthening the links between major infrastructure projects, international trade and local production could thus give impetus to the transformation of production patterns, by opening the way to additional alternatives or technologies through the economies of scale, scope or agglomeration produced by shared use of infrastructure.

Once the regional connection is generated, be it transport, energy or telecommunications infrastructure, the communities and the productive sector involved will change their consumption and mobility patterns as a function of the new infrastructure available. This is exemplified by border communities where, once the connection (bridge, tunnel or road) is created, the flow of people between them increases and generates additional commercial services between countries, boosting interregional trade and deepening regional integration.

Another major barrier to intraregional trade is the limited connectivity between countries in the region. As well as the challenges posted by geography and the great distances within the interior of the countries themselves, connectivity is limited by low investment in infrastructure, not only in the major transport corridors, but also in secondary and tertiary roads. The connectivity strategy based on highway building prevails both nationally and regionally, with little investment in other types of transport infrastructure. For example, in the period 2008–2017, 73% of investments in the economic pillar of the

Mesoamerica Project, estimated at US$ 3.04 billion, went to highways (SGPM, 2019). Something similar occurs in the project agenda of the Initiative for the Integration of Regional Infrastructure in South America (IIRSA). Of the 562 projects existing in 2017, practically 90% were transport works amounting to an estimated US$ 144 billion in investment, of which most was going to highway building and upgrading, continuing the historical pattern of investments (see figure III.15). The result of this unsustainable pattern of investment is a set of significant negative externalities, such as heavy congestion and high volumes of GHG emissions, which also affect trade competitiveness and have direct implications for the resilience of the transport system.

Figure III.15
Union of South American Nations (UNASUR)/ Initiative for the Integration of Regional Infrastructure in South America (IIRSA): investments projected by transport mode, 2011–2017
(Billions of dollars)

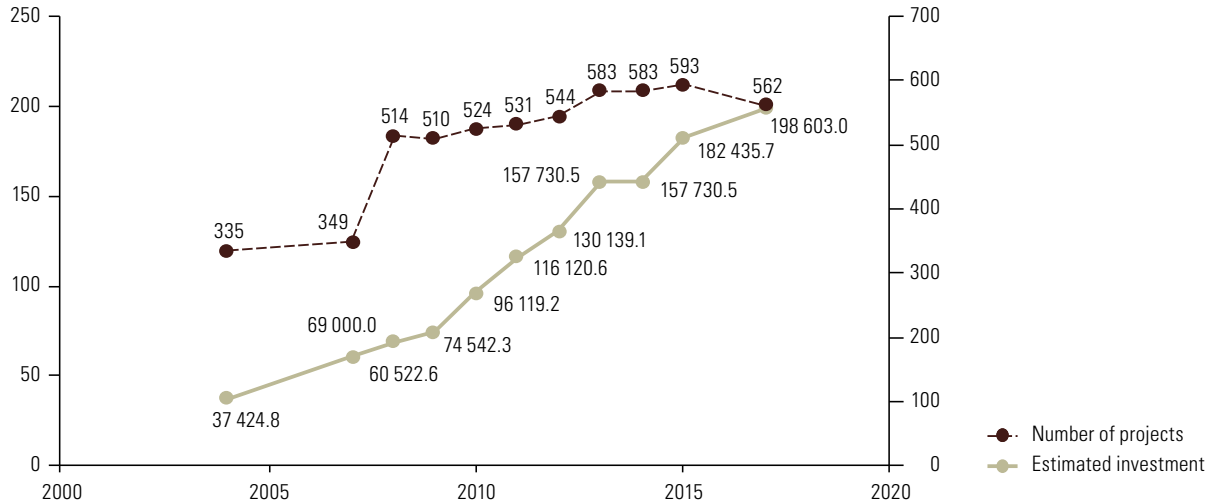


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Initiative for the Integration of Regional Infrastructure in South America (IIRSA).

4. Prioritization of regional investments

As analysed in the preceding sections, creating infrastructure for regional connectivity is crucial for regional integration and for logistical development. However, given the region's highly uneven endowment of infrastructure and patchy quality of transport services and logistics, it is fundamental to generate an institutional space for prioritizing investments and seeking financing for integration works. This type of instrument has helped to bring about concrete advances in connectivity, both in Central America and in the Southern Cone. One of the best examples of implementation, in terms of the time it took and the results achieved, was the integration infrastructure project portfolio in the transport, energy and communications sectors generated in the framework of IIRSA. This initiative arose as a forum for technical discussions between the 12 South American countries to consider infrastructure to support the integration process and the development of the IIRSA member countries. In 2004, a portfolio of 335 priority projects, both national and regional, was consolidated under the initiative, representing an estimated investment of US$ 37.425 billion. Over the years and as the interest of the countries grew, the number of projects and investment amounts increased, and in 2017 these totalled 562 projects and US$ 198.603 billion in investment (see figure III.16).

Figure III.16
Initiative for the Integration of Regional Infrastructure in South America (IIRSA): development of the project portfolio and estimated investment, 2004–2017
(Billions of dollars and number of projects)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Initiative for the Integration of Regional Infrastructure in South America (IIRSA).

The last year in which IIRSA operated under the auspices of the Union of South American Nations (UNASUR) and the South American Infrastructure and Planning Council (COSIPLAN) was 2017.[26] By that year, 90% of projects were under construction and were expected to be concluded by the end of 2020, representing effective execution of US$ 52.464 billion. A smaller number of projects, including some works under way, are expected to conclude between 2022 and 2026.

The breakdown of the portfolio in 2017, the latest year for which information is available, shows that 83% of projects were national works, 16% were binational and only 1% were regional. This suggests that part of the strategy of the participating countries has been to use the plan to leverage financing for transport, energy and telecommunications works to improve their domestic infrastructure endowment and connectivity within the national territory first, and increase interconnection with neighbouring countries second. Although this has been a constant criticism of the IIRSA portfolio, the member States have justified the situation by the need to complement international works with national works to improve the supply chain overall. Especially in the roads sector, which includes 258 projects at an estimated investment of US$ 69.354 billion, 70% of works are completed or under construction. Of these, half are upgrades, expansions or maintenance of existing roads, 20% are new roads and the rest are construction of bridges, tunnels and other engineering works.

Despite the difficulties, a third of the transport projects are being executed and, including also those already completed in the sector, they represent 58% of all works under IIRSA. In 2017, the transport portfolio consisted of 502 projects, of which 67 were at the profiling stage, 144 at pre-execution (with pre-feasibility and feasibility studies, permits and financing identified); 166 were under execution (with work on the ground begun) and 125 were completed (works finished, certified by the relevant authorities and brought into operation). Of this last group, 24 were concluded in 2017.

[26] IIRSA continues to exist as a dialogue mechanism and its work is ongoing pending the definition of a new institutional structure.

Of the works concluded in 2017, over half (13) are roads which came into service, totalling US$ 1.244 billion in investment (see figure III.17), followed by ports, with US$ 370 million (one project, involving upgrades to San Antonio port in Chile), railways (two projects, with a total investment of US$ 142 million for upgrading branch lines in Argentina) and airport works (US$ 51.5 million for upgrades at Tacna airport in Peru). Lastly, the investment classified as multimodal refers to the development of a dry dock close to the port of Montevideo in Uruguay for US$ 25 million (COSIPLAN, 2017).

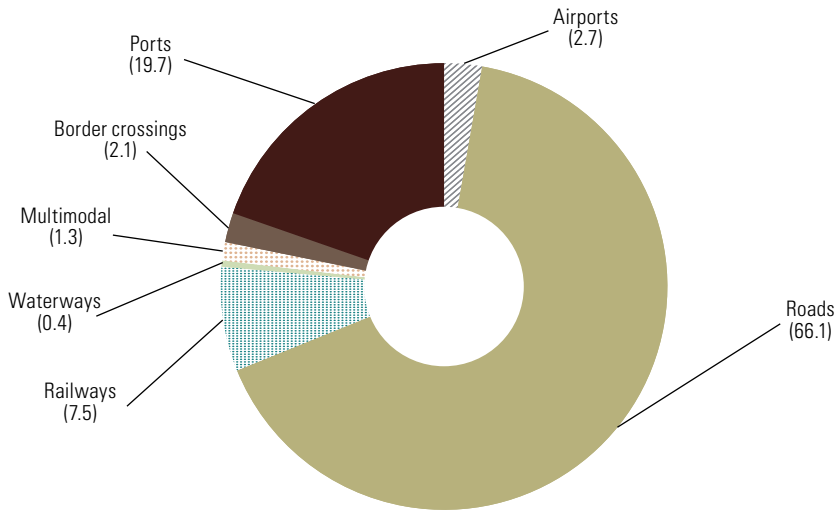


Figure III.17
Initiative for the Integration of Regional Infrastructure in South America (IIRSA): transport projects concluded in 2017
(Percentages of investments materialized)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Initiative for the Integration of Regional Infrastructure in South America (IIRSA).

5. Subregional rules and logistical competitiveness

Another key factor for improving trade competitiveness is regional coordination of rules, which requires that government agencies, regional bodies and the private sector work together. One way of facilitating this process is on the basis of arrangements, bilateral agreements, rules or standards developed by international organizations, which can provide neutral rules based on international best practices.[27] However, it is important for integration initiatives to develop subregional standards in keeping with their reality and conducive to convergence.

The regional perspective serves to conduct an overall and systemic analysis of the processes and requirements of the stakeholders involved in interregional trade, regardless of whether inefficiencies are the result of failings in infrastructure, documentation, technologies or logistics. This supports concerted action both to regulate services and to generate the physical investments to foster strong logistical competitiveness in the region.

Although trade facilitation has been a topic in all the regional integration initiatives, many of the related actions have focused on aspects of foreign trade and particularly on the simplification of customs procedures for subregional transport facilitation (Martinez Rivas, 2010). However, the Andean Community, the Caribbean Community (CARICOM) and the Southern Common Market (MERCOSUR) have also adopted subregional standards to facilitate international goods transport and investment in economic infrastructure. These elements have gradually found their way into the strategies of other integration initiatives.

[27] See Trade Facilitation Implementation Guide [online] http://tfig.unece.org/details.html.

The Andean Community has developed an extensive stock of standards, based on the establishment of binding institutional mechanisms for harmonizing policies between member countries. In particular, an agreement was reached to act in coordination to resolve infrastructure problems that negatively impacted the economic integration process. Between 1969 and 2018, 836 sectoral decisions were adopted to give operational form to the mechanisms established in the Community's founding agreement. These included significant advances in physical integration and facilitation of trade logistics, integration of border areas, international freight and passenger transport by road, maritime, multimodal and air transport, as well as electric power and telecommunications interconnections, including the commercial use of the orbit spectrum of the member countries.

MERCOSUR has also seen significant progress in the development of subregional standards. In the period 2014–2017 alone, 17 decisions were adopted in relation to logistical integration. Six of these referred to the operation of international transport services, four to transport infrastructure integration projects, three to passenger transport service facilitation, two to customs operation coordination, and two to improving the integration of cross-border communities. The MERCOSUR Structural Convergence Fund (FOCEM), which was created to reduce development asymmetries between member countries, covers up to 85% of the eligible cost of projects presented by the countries in the following areas: promoting structural convergence; developing competitiveness; promoting social cohesion; and supporting the operation of the institutional structure and strengthening the integration process.

Given that the activities in supply chains include not only the physical exchange of goods, but also exchanges of information, document processing, payments and data for coordination all along the chain, rules and their regional coordination require continual modification and updating to remain effective in the new international logistical context. Accordingly, the creation of expert committees and sector authorities can provide a sphere for technical action and a forum to discuss these topics regardless of the political context.

G. Conclusions

International trade competitiveness today depends crucially on having the logistical capacities to support rapid, safe and efficient distribution of merchandise. Investments in transport infrastructure are essential to provide efficiency gains in goods distribution and human mobility. Those investments, as well as boosting transport capacity and efficiency, tend to be more effective when they increase supply chain integration. Both production and international trade need chains, logistical networks and transport connections with different modal options, such as road, rail, maritime, river and air transport, for which more and better investment is needed in logistical infrastructure.

Among the many benefits of investing in infrastructure are gains in productivity and export competitiveness, lower import costs, greater physical integration between countries and, in general, better integration into global trade and global value chains. The diagnostics on the stock of infrastructure in the region show that it is necessary to raise levels of investment and maintenance, take stock of the capacity of assets and the quality of investment to ensure that it is capable of delivering the right infrastructure services. The infrastructure challenge is broad and ongoing: not only to deliver solutions to issues of coverage, capacity and balance between the different infrastructures (considering their functionality, complementarity and substitution), but also to maintain networks regularly in order to provide services of adequate quality and at a reasonable price.

The infrastructure networks needed to provide the logistical services on which value chains depend are made up of assets with a long useful life, so that infrastructure investments rapidly become sunk costs. To a great extent, those networks are important parameters for the development process. Transport infrastructure networks, in particular, are determinants of the spatial dimension of development, shaping patterns of freight and passenger movement, as well as the resulting externalities (positive and negative). Depending on how it is built, infrastructure can foster certain development paths, supporting the establishment of more resilient or less resilient systems. It is therefore essential that investments made today in Latin American and Caribbean countries build resilience considerations into the design of systems, in order to avoid infrastructure lock-in.

In order to respond to the increased demand created by population growth, rapid urbanization and technological progress, it is estimated that over US$ 6 billion will be needed annually in global infrastructure investment, double the current investment levels. Of that figure, roughly two thirds will be needed in developing countries (Global Commission on the Economy and Climate, 2016). Future investments thus have the potential to generate a double dividend, if they are made following best practices and contribute to fostering resilience in the services provided to users.

The public sector has a crucial role in infrastructure investment, not only in terms of its responsibility in planning and management of infrastructure in line with national development goals, but also through its own investment capacity. Public procurement in the infrastructure sphere is an important industrial and technological policy tool, with multiplier effects on other sectors of the economy. However, budget constraints, among other things, have led to insufficient public investment, so that investment by the private sector and through PPPs has acquired a strategic role in closing the infrastructure gap.

Studies on PPP performance agree that they perform better than public works in terms of costs, punctuality of completion and quality, upgrading and maintenance. However, they also suffer from some major issues. This chapter has analysed aspects of these, concerning the lack of transparency of some process and the high rates of renegotiation of concession contracts.

Some 2,100 economic infrastructure concession contracts existing in the region —of which transport represents 25%— testify to the importance of PPPs since the 1990s. However, between 55% and 81% of those contracts were renegotiated during the period 1990–2015. Although the nature of such contracts —their length and incompleteness, for example— explain the high renegotiation rate to a great extent, some authors have linked renegotiations to lack of transparency and negative impacts on the economy. For example, in three case study economies alone, the fiscal cost of contract renegotiations was US$ 7 billion, with a 20% average increase in concession times, higher toll fees, greater risks assumed by the State and delays in construction. This is in addition to the contingent liabilities of concession contracts as a major potential threat.

The problems identified regarding the operation of PPPs in the region should be taken into account in the design and implementation of future contracts, to minimize the risks associated with incompleteness. Careful attention must also be afforded to protecting competition and the proper operation of the corresponding bodies as a key factor for infrastructure policies, as ECLAC pointed out as early as the 1990s. Due consideration of these aspects is also fundamental for achieving better societal acceptance of PPPs.

International trade has expanded significantly in the past few decades and developing economies have integrated into global supply chains. Progress in technology and in logistics itself have enabled the stages of production cycles to be geographically

separated. As a result, supply chains need a constant, secure flow of components, provided in as effective and reliable a manner as possible. For this reason, it is important to address facilitation and the provision of infrastructure for integration in step with these processes, moving from a purely commercial and customs-based approach towards a much more holistic perspective aimed at simplifying operational procedures and reducing or eliminating the total costs that affect exchanges and movements of goods, people, capital and payments in international trade.

In this context, the resilience of supply chains and their supporting infrastructure is an increasingly important topic. Supply chain disruption owing to stock shortages, technological failure or loss of physical or technological connectivity not only causes losses from that particular failure, but also creates disturbance along the rest of the chain. The more interdependent the participating firms, the greater the chain's risk, so a balance must be struck between efficiency, resilience and sustainability in the management of multimodal value chains. Governments play a key role in promoting technological innovation, intermodality and collaboration among value chain stakeholders in order to minimize the conflicts between those dimensions (ITF/OECD, 2018).

Regional integration plays an important role not only in reducing tariff barriers, but also in facilitating services relating to trade, taxation and rules of origin; freedom of movement; transparency, oversight and simplification; electronic commerce; services associated with payments and insurance; and technical rules and quality standards to ensure competitiveness, safe and sustainable logistics and mobility. Similarly, progress in facilitating services to form an integrated and competitive regional market requires multidisciplinary technical work to identify best practices and to boost service quality and security, without increasing the time or costs involved. For this, it is essential to build trust and create a shared stock of technical expertise among the participants.

Given that regional integration is not a linear process, but a long-term undertaking, the progress made in subregional rules and priority regional investments plans should not be jettisoned. On the contrary, it is precisely at times when regional integration is beset by political vicissitudes that physical integration needs to be brought to the fore, as it forms the basis for value chains and the integration process itself.

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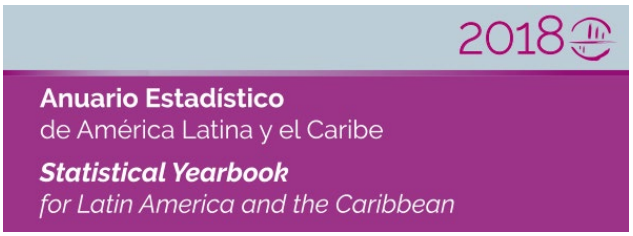

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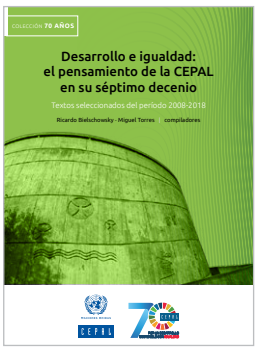

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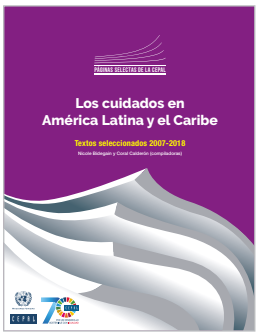

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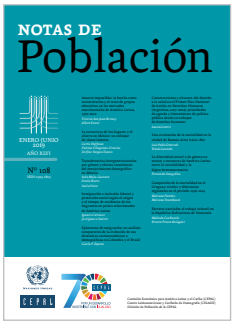

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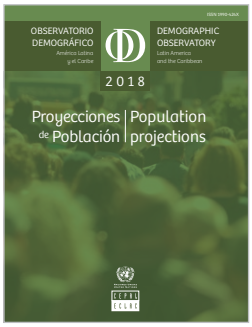

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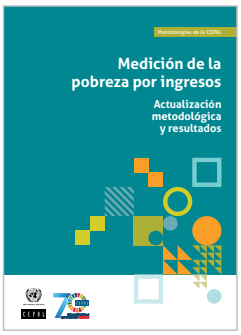

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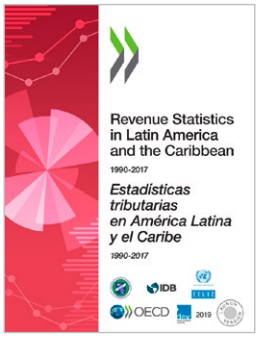

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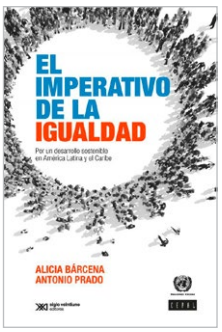

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