2022

International Trade Outlook
for Latin America and the Caribbean

The challenge of boosting manufacturing exports

UNITED NATIONS

ECLAC

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- The word "dollars" refers to United States dollars, unless otherwise specified.
- A slash (/) between years (for example 2013/14) indicates a 12-month period falling between the two years.
- Figures, partial data and percentages in tables and figures may not always add up to the corresponding total because of rounding.

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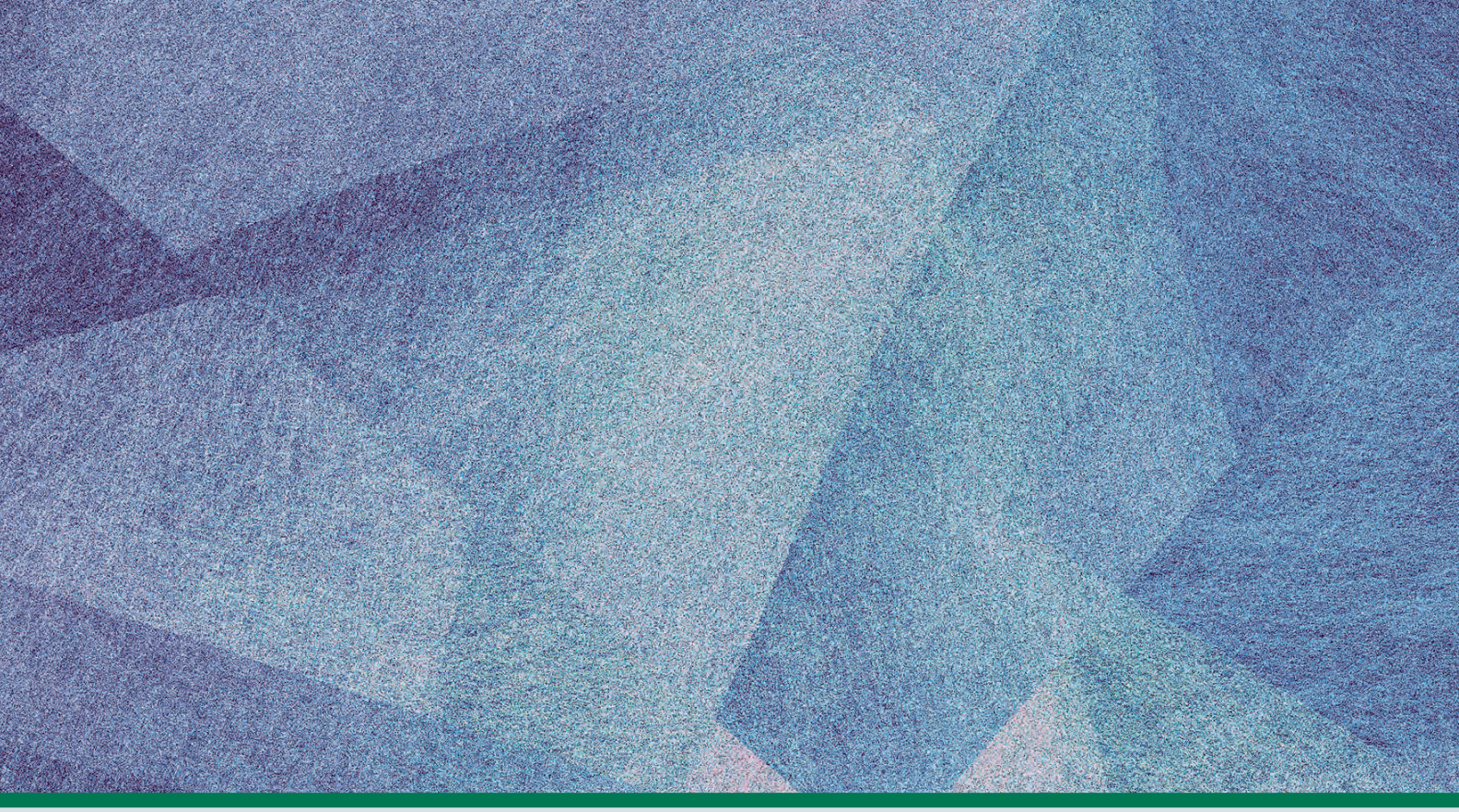
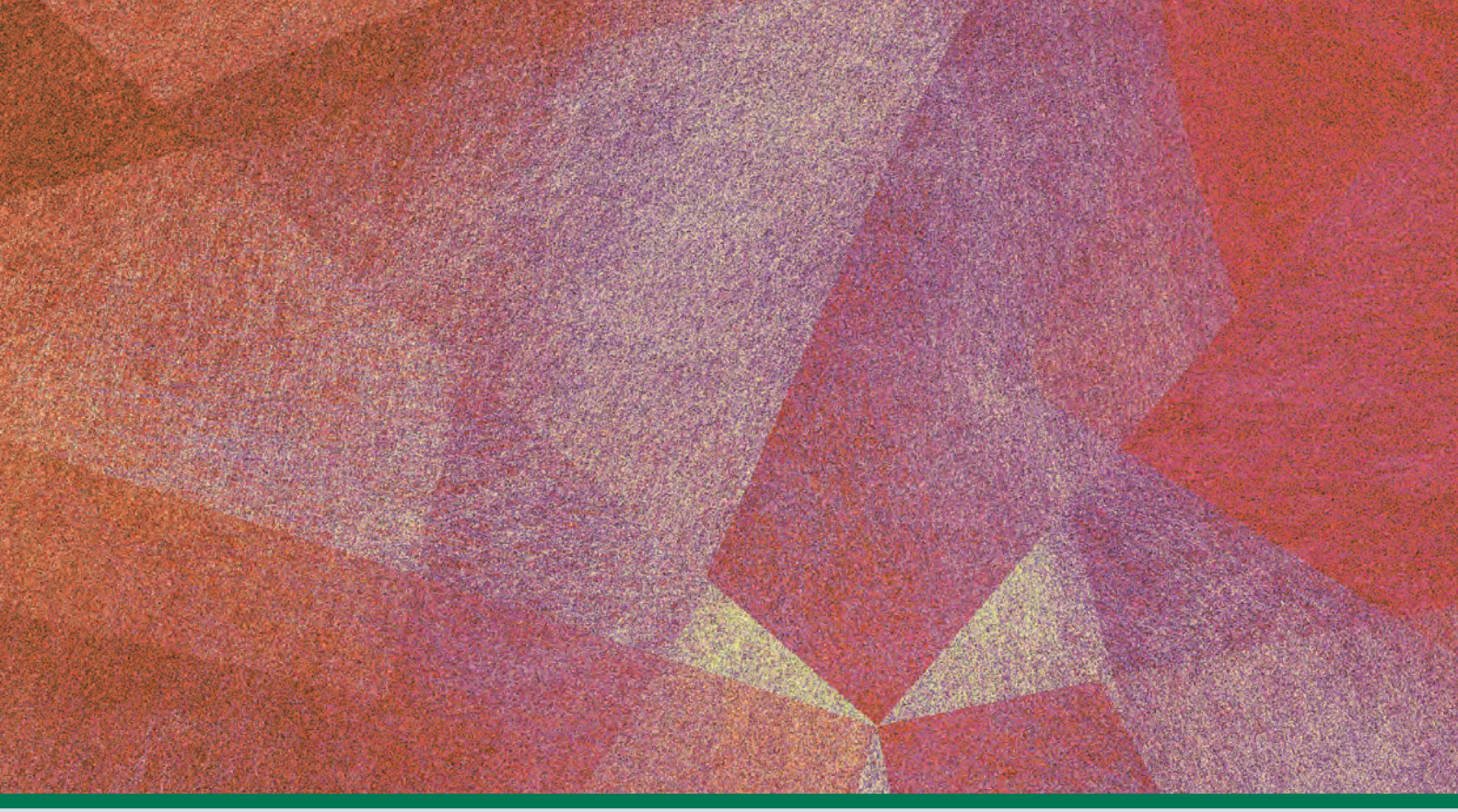


Introduction

This edition of *International Trade Outlook for Latin America and the Caribbean* covers 2022 and is divided into three chapters. Chapter I examines recent developments in global and regional trade amid the conflict between the Russian Federation and Ukraine, record-high inflation rates, the global economic slowdown, geopolitical tensions and the difficulties faced by China in containing the coronavirus disease (COVID-19) pandemic. The recovery in the regional goods trade in 2021 continued in 2022, albeit with weaker momentum and driven mainly by higher prices for several of the region's main export commodities, especially oil. The recovery in the regional trade in services has been slower than that of the trade in goods, although it accelerated in 2022 owing to the gradual reactivation of tourism. The outlook for world trade in 2023 is not favourable, given the persistence of the conflict in Ukraine, the tightening of monetary policies, the energy crisis in Europe, and the resurgence of the pandemic in China. The region will not be immune to these external shocks, and therefore a marked slowdown in exports can be expected in 2023. In these difficult conditions, it is urgent to advance in the creation of a large and stable regional market that generates efficient scales of production and fosters intraregional production linkages.

Chapter II presents an overview of the region's foreign trade in manufactures in the past three decades, with particular emphasis on the export performance. The conclusion drawn is that Latin America and the Caribbean as a whole exhibits a lacklustre performance, although some countries (notably Mexico) are exceptions to this pattern. The region is only an important global player in the automotive and food, beverages and tobacco industries, and in both of these the larger economies account for most of its export capacity. The region's manufacturing trade deficit has doubled as a percentage of GDP in the last 20 years, during which the share of manufactures in total goods exports has declined in all South American countries. In addition, the weak momentum of intraregional trade since the mid-2010s has particularly affected manufacturing shipments. Meanwhile, the pandemic and the conflict in Ukraine have highlighted the region's heavy dependence on external supplies of strategic products such as medicines, medical devices and fertilizers. In this context, deepening regional integration and leveraging the opportunities associated with possible nearshoring processes are attractive options for revitalizing manufacturing exports.

Chapter III discusses the profound disruptions observed in global shipping supply chains since the onset of the pandemic, which have been exacerbated by the conflict between the Russian Federation and Ukraine. First, it summarizes the impacts of the various shocks on global and regional inflation and logistics activity. Next, it addresses the disproportion between the unprecedented rise in shipping rates and the evolution of interoceanic traffic, which seems to conflict with the traditional theory of the shipping cycle. In particular, it examines the growing corporate concentration in the shipping market as a consequence of the increase in the capacity and operating scale of container ships since the early 2000s. Lastly, it considers the need to review the international regulatory framework for interoceanic transport, including some antitrust proposals, as well as the necessity of adjusting this institutional framework to the urgent climate challenges facing the industry.

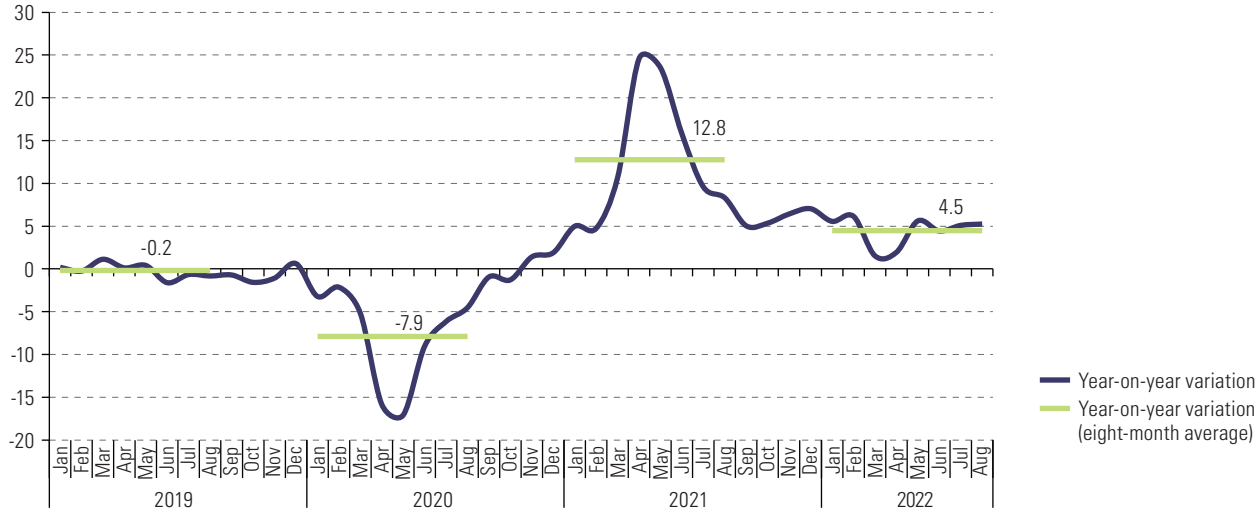


Summary

A. A string of crises weakens global and regional trade

Initial projections for the volume of world trade in goods in 2022 were of 4.7% growth. However, the onset in February of the conflict between the Russian Federation and Ukraine added to the inflationary pressures already seen since 2021, leading to a tightening of monetary policy in advanced economies and in several developing economies. These circumstances —combined with the effects of China's zero-COVID policy— have led to successive cuts to global growth forecasts. In the first eight months of 2022, the volume of world trade in goods grew by 4.5% year-on-year (see figure 1), close to initial projections. However, given the marked slowdown in the world economy, trade growth will foreseeably lose momentum towards the end of the year. Therefore, in October, the World Trade Organization (WTO) lowered its projection for 2022 to 3.5% growth and for 2023 to just 1%.

Figure 1
Year-on-year variation in the volume of world goods trade, January 2019–August 2022
(Percentages)



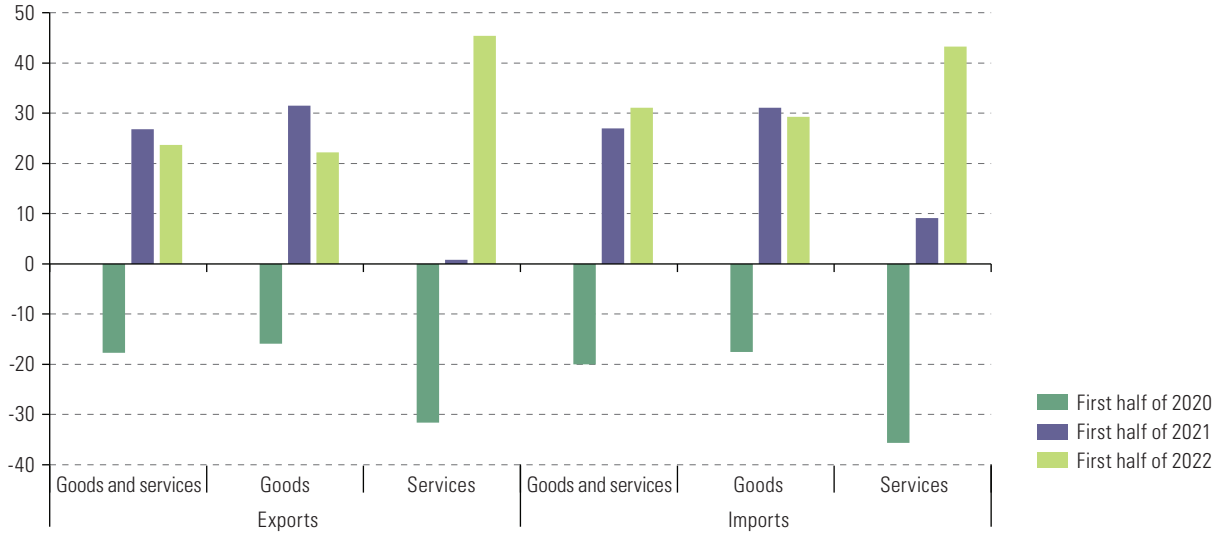
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of CPB Netherlands Bureau of Economic Policy Analysis, World Trade Monitor [online database] https://www.cpb.nl/en/world-trade-monitor-august-2022.

The slowdown in regional trade in goods that began in the second half of 2021 continued in the first half of 2022. In June 2022, regional exports and imports were still growing in value at relatively high year-on-year rates. However, this expansion was mainly driven by rises in prices of oil and other commodities. Volumes traded grew at much slower rates, in line with the slowdown in economic activity in the region and the rest of the world.

Regional exports of goods and services grew by 23.5% year-on-year in value terms in the first half of 2022, slightly less than the 26.8% rise recorded in the first half of 2021 (see figure 2). However, if exports of goods and services are examined separately, contrasting patterns can be seen. For goods, total exports increased by 22.3%, a marked slowdown compared to the first half of 2021. By contrast, exports of services recovered notably, expanding by 45.4% year-on-year. This was mainly driven by a recovery in tourism activity, although regional travel exports in the first half of 2022 were still below the level recorded in the same period of 2019. A similar pattern can be seen in

imports of goods and services: while growth in goods imports slowed slightly in the first half of 2022, services grew much faster than they did in the first half of 2021. As in the case of exports, this is mainly a result of the recovery of tourism.

Figure 2
Latin America and the Caribbean: year-on-year variation in the value of goods and services trade, first half of 2020–first half of 2022
(Percentages)



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

Almost all countries in the region recorded growth in the value of goods exports in the first half of 2022. Only Paraguay reported a drop in the value of its exports, mainly attributable to a lower volume of soybean exports owing to adverse weather conditions. The value of imports increased in all countries in the region except Haiti, which is one of the two economies —along with Paraguay— for which GDP is projected to contract in 2022. Import growth in the first half of 2022 outpaced export growth, not only in the region as a whole but also in most Latin American countries, largely because of higher prices for fuel, food and fertilizers as a result of the conflict in Ukraine.

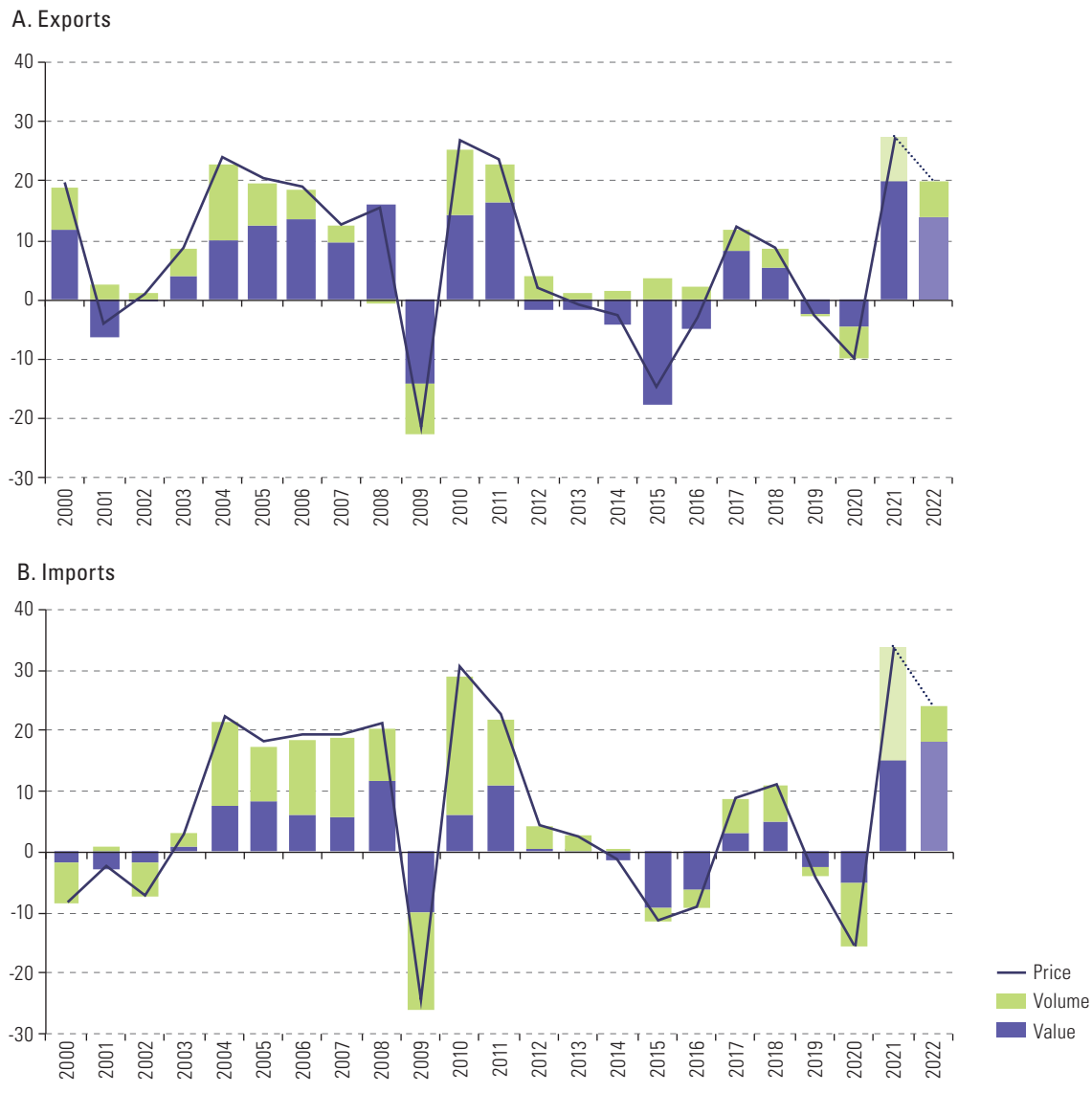
In the January–August 2022 period, the price index for the main commodities exported by the region rose by 29.8% year-on-year, mainly driven by the increase in the price index for energy products. The agricultural and livestock products price index climbed 20.9%. By contrast, the minerals and metals price index remained almost unchanged year-on-year. With the global economic slowdown, lower commodity price growth is projected for the last few months of 2022, and even declines for some minerals and metals. For the full year of 2022, the general price index for commodities exported by the region is projected to rise by 22.8%.

The region's goods exports to its main extraregional trading partners followed different trends in the first seven months of 2022. There was a marked slowdown in shipments to China, which grew just 3% year-on-year in July. This contrasts with the performance of exports to the European Union and the United States, which in the same month continued to grow at double-digit year-on-year rates. In July 2022, the region's purchases from its three main extraregional trading partners continued to grow at year-on-year rates of over 15%. However, import growth is expected to slacken in the second half of the year, in line with the slowdown in the regional economy.

In the first half of 2022, intraregional exports grew in value by 25% year-on-year. This marks a continuation of the recovery in intraregional trade since its last downturn, between September 2018 and November 2020. Double-digit growth in intraregional exports was recorded in almost all sectors, including chemicals and petrochemicals, oil and mining, wood, pulp and paper, non-electrical machinery and equipment, and automobiles.

For 2022, the Economic Commission for Latin America and the Caribbean (ECLAC) projects 20% growth in the value of regional exports of goods, driven by a 14% rise in prices and a 6% increase in volume.[1] The value of imports is forecast to climb by 24% and, as in the case of exports, most of this projected rise also reflects price increases (see figure 3).

Figure 3
Latin America and the Caribbean: annual change in goods trade, 2000–2022[a]
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from the central banks, customs services and statistical institutes of the region.
[a] Figures for 2022 are projections.

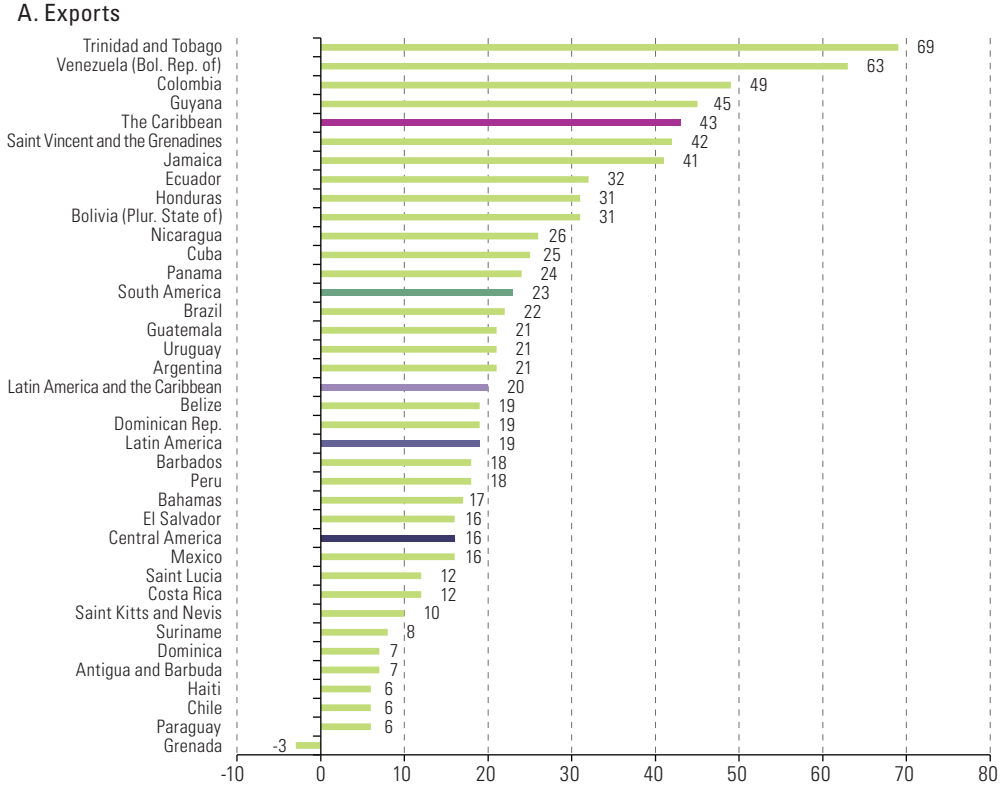
[1] These projections are based on trade figures for the countries of the region from January– August 2022.

The largest increases in export value are projected for Trinidad and Tobago, the Bolivarian Republic of Venezuela, Colombia and Guyana (see figure 4A). All these countries are net hydrocarbon exporters that have benefited from higher hydrocarbon prices in 2022. Other net hydrocarbon exporters, such as Ecuador and the Plurinational State of Bolivia, will also see their exports grow at a faster rate than the regional average. By contrast, most of the countries exporting manufactured goods, minerals and metals and agricultural products are expected to record increases close to the average and in some cases significantly lower. In the case of imports, in Central America, a subregion that is a net importer of fuel, external purchases are expected to rise in value terms by 7 percentage points more than the average for Latin America (see figure 4B).

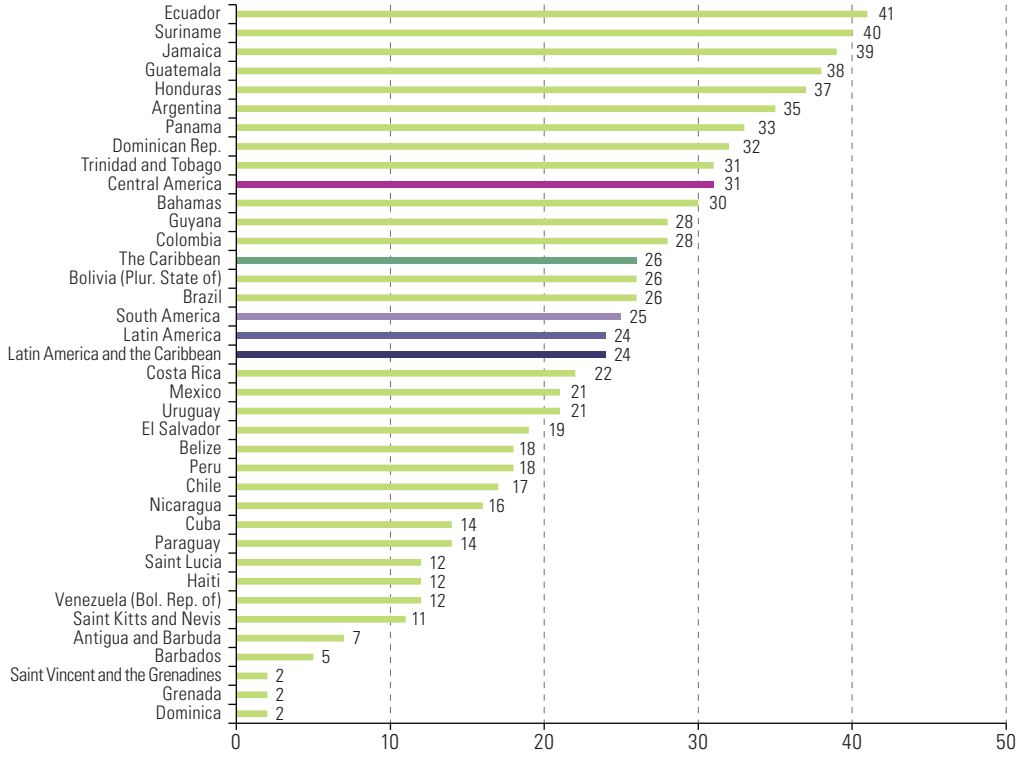
By destination, shipments to the European Union and the region itself are expected to grow fastest in 2022, while exports to the United States are forecast to grow at a similar pace to total exports. Shipments to China are forecast to grow by just 8%, reflecting the sharp economic slowdown in the country in 2022. Purchases from the United States are expected to grow above the regional average, while growth in imports from China, the rest of Asia and the European Union is forecast to be slower.

The conflict in Ukraine and the global economic slowdown are expected to weigh on the region's terms of trade, which are projected to deteriorate in 2022, owing to import prices rising more than prices for exported goods. The projected adverse effect on the region's terms of trade is just over US$ 60 billion. Of the 33 countries in the region, 25 are set to suffer a terms-of-trade shock in 2022; the exceptions are primarily countries that are net exporters of hydrocarbons.

Figure 4
Latin America and the Caribbean (33 countries): projected variation in value of trade in goods, 2022
(Percentages)



B. Imports



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

The projected deterioration in the region's terms of trade would pass through directly to the trade balance. For the region as a whole, a trade deficit of US$ 58 billion is projected for 2022, which is US$ 45 billion more than in 2021. Mexico, Central America and the energy- and mineral-importing countries of the Caribbean are expected to record trade deficits, while the member countries of the Southern Common Market (MERCOSUR), the Andean Community and Chile are forecast to post surpluses.

In short, regional exports of goods will record double-digit growth for the second consecutive year in 2022. However, as in 2021, export growth will be driven mainly by exogenous factors, rather than by the ability to increase export volumes or to diversify regional exports into new fast-growing knowledge-intensive sectors. Also for the second consecutive year, regional imports of goods will grow more than exports, which is unwelcome in a context of rising external financing costs. With regard to trade in services, the region is far more dependent on tourism than the world average, so the slow recovery in the tourism sector means more downbeat outlooks for several economies, especially in the Caribbean.

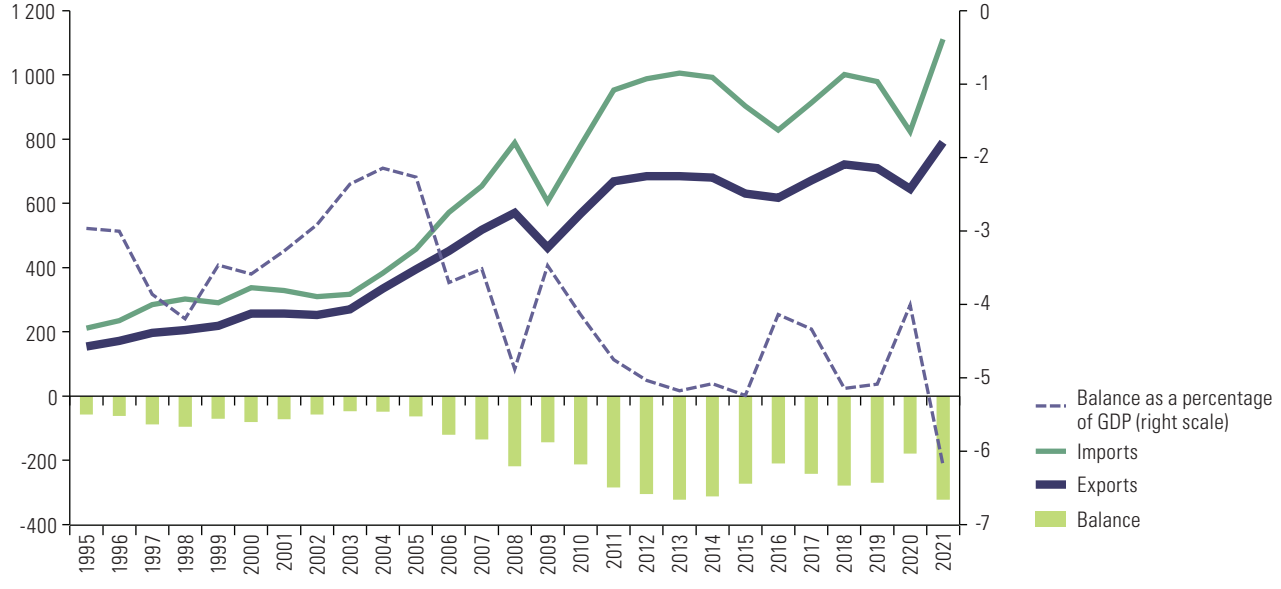
As in 2021, growth in intraregional trade will outpace that in the region's total exports in 2022. However, this recovery is insufficient to offset the downtrend begun in the mid-2010s that accelerated as a result of the coronavirus disease (COVID-19) pandemic. The weakening of intraregional trade in recent years hampers progress towards an inclusive and transformative recovery. For the vast majority of countries in the region, intraregional trade is the most intensive in manufactures and involves the widest array of products. It also involves the largest number of companies, especially micro-, small and medium-sized enterprises (MSMEs). For all these reasons, it is the type of trade most conducive to productive and export diversification.

In a global context in which the major economic powers are pushing ahead with their own processes of regionalization in trade and production, it is crucial to relaunch the regional economic integration project. It is vital to move towards an integrated regional market through progressive convergence of the different subregional groupings, not only to achieve efficient production scales and promote production and export diversification, but also to obtain greater autonomy in strategic sectors. The last of these aims has become particularly important in the context of the disruptions to global supply chains caused by the pandemic and growing geopolitical tensions.

B. An overview of the manufacturing export performance of Latin America and the Caribbean, 1990–2021

Between 1995 and 2021, the value of regional manufactured exports (including those based on natural resources) increased fivefold, from US$ 155 billion to US$ 790 billion. During this time, the region's share of global manufactured exports hit its lowest point in 1995 at 3.8% and peaked in 2001 at 5.1%, ending the period at 5% in 2021. Regional shipments grew more than world shipments between 1996 and 2001, driven mainly by the rise in Mexican exports during the early years of the North American Free Trade Agreement (NAFTA); however, this pace of growth has not been sustained. The region maintains a persistent trade deficit in manufactures, averaging 3% of regional GDP between 1995 and 2005, and widening since the mid-2000s to 6% of GDP in 2021 (see figure 5).

Figure 5
Latin America and the Caribbean: exports, imports and trade balance in manufactures, 1995–2021
(Billions of dollars and percentages of GDP)

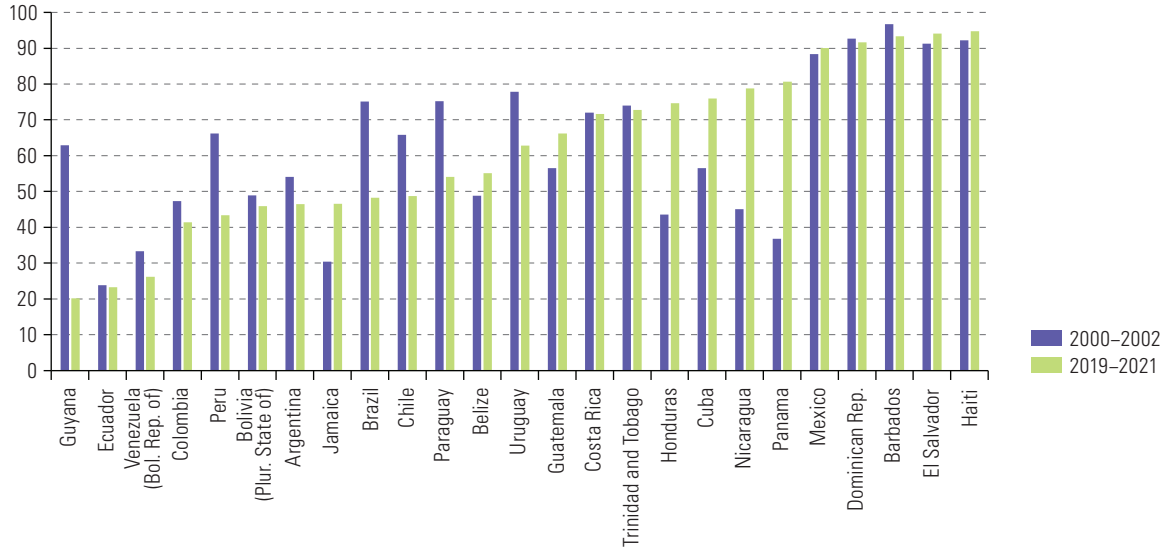


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

In the 2000–2021 period, the share of manufactures in the region's total exports of goods fluctuated between 62% and 75% in terms of value. This percentage hit a low in 2011–2012, towards the end of the commodity supercycle, but then recovered, reaching 66% of total goods exports in 2021. If Mexico (the main regional exporter of such goods) is excluded, the proportion of manufactures in the region's total exports of goods is considerably lower, at just 49% in 2021.

On average, Mexico accounted for 57% of the region's total manufactured exports between 2019 and 2021, followed by Brazil, Chile and Argentina. Overall, the proportion of manufactures in total goods exports is higher in Central America, the Caribbean and Mexico than in South America. In fact, over the last two decades, most of the countries in the former group have seen the percentage of manufactures in their total goods exports increase. The opposite has occurred in all South American countries, which have become even more specialized in exports of commodities (see figure 6). The United States is the main destination market for the region's manufactured exports, with a 57% share in the 2019–2021 period, followed by the region itself, with 15%. If Mexico is excluded, the region is the main market for manufactured exports, with a 30% share.

Figure 6
Latin America and the Caribbean (25 countries): share of manufactures in total goods exports, averages for 2000–2002 and 2019–2021[a]
(Percentages)

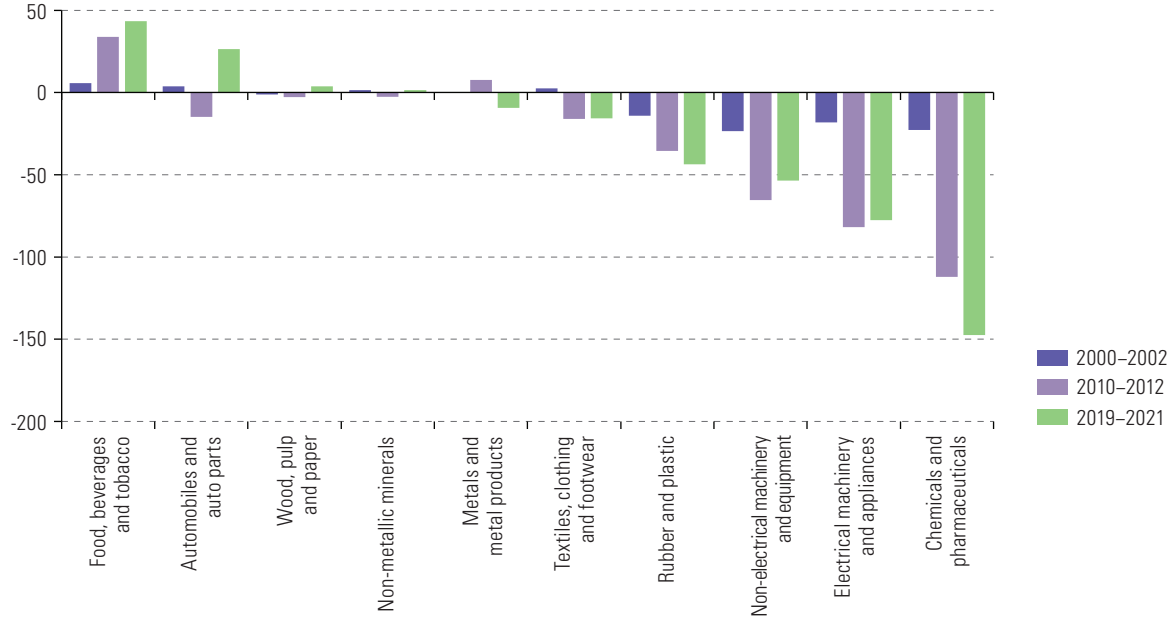


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.
[a] Panama's exports include re-exports.

In the 2000–2002 period, the region's main manufacturing export sector was machinery and electrical appliances, which accounted for almost a quarter of total exports, followed by the automotive and chemical and pharmaceutical sectors. By contrast, in the 2019–2021 period, the automotive sector ranked first with 20% of regional exports of manufactures, followed by machinery and electrical appliances. The food, beverages and tobacco sector moved into third place. If Mexico is excluded, the sectoral distribution of exports changes considerably. The main export sector becomes food, beverages and tobacco, followed by metals and metal products, both linked to the processing of South America's abundant natural resources. In addition, the automotive and electronics sectors would no longer be among the main export sectors.

The region only has significant trade surpluses in two manufacturing sectors: food, beverages and tobacco and the automotive industry. At the other end of the scale, the region's chemical and pharmaceutical, machinery and electrical appliances, and non-electrical machinery and equipment sectors have notable trade deficits that have widened over the last two decades (see figure 7). In this context, the COVID-19 pandemic and the conflict in Ukraine have highlighted the region's heavy dependence on imports of strategic manufactured products such as medicines, medical devices and fertilizers.

Figure 7
Latin America and the Caribbean: trade balances by major industrial sector, averages for 2000–2002, 2010–2012 and 2019–2021
(Billions of dollars)

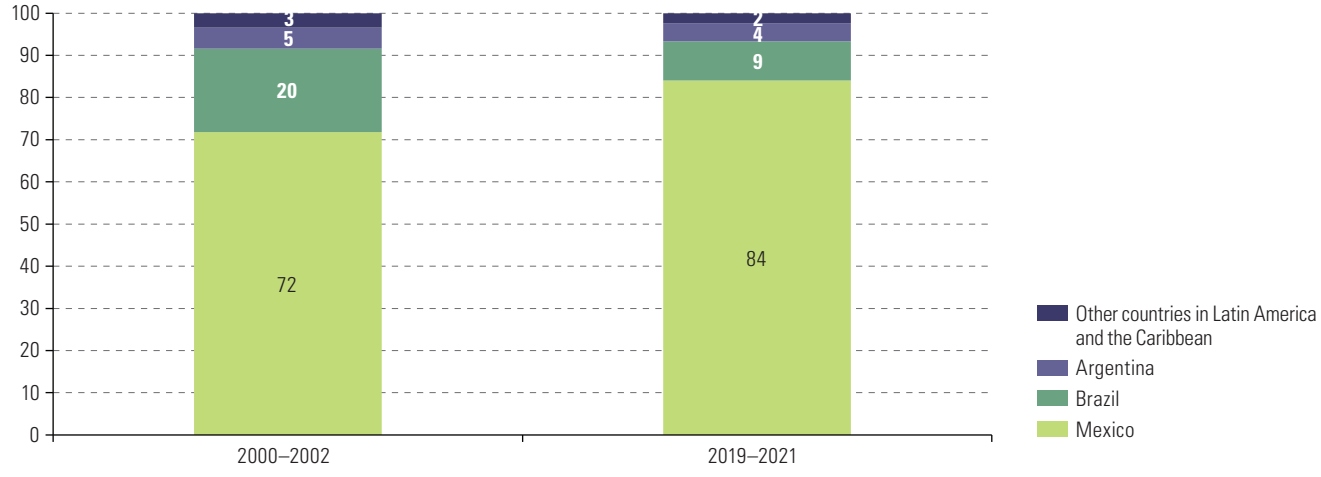


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

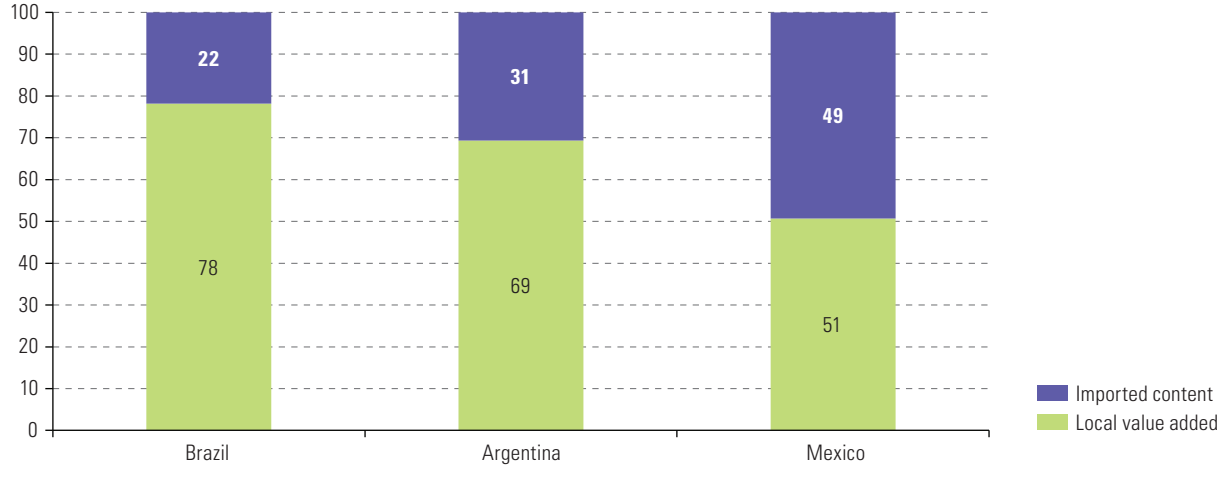
The region's automotive exports have tripled over the last 20 years, rising from an average of around US$ 45 billion per year in 2000–2002 to just over US$ 142 billion per year in 2019–2021. Between the two periods, Mexico cemented its leading export position in the region (see figure 8A), becoming the fifth largest exporter in the world. In fact, the region's trade surplus in automobiles and auto parts is entirely down to Mexico, whose surplus more than offsets the deficits of all the other countries. Of the region's exports, 87% go to the United States and the region itself. While 78% of the content of Brazilian automotive exports is local, in Mexico this proportion is much lower, owing to its integration into North American production chains (see figure 8B).

Figure 8
Argentina, Brazil and Mexico: selected indicators of automotive exports

A. Share of the region's automotive exports, averages for 2000–2002 and 2019–2021
(Percentages)



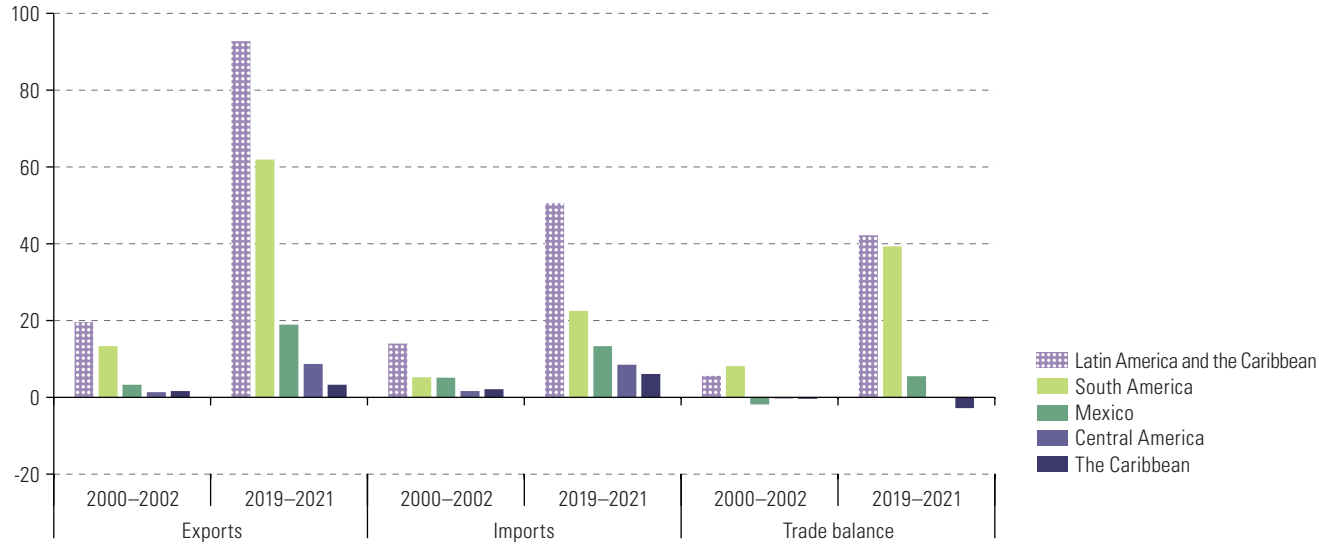
B. Breakdown of gross automotive exports by local value added and imported inputs, 2017
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/ and the 2017 global input-output matrix prepared by the Asian Development Bank (ADB), the Economic and Social Commission for Asia and the Pacific (ESCAP) and ECLAC.

Food, beverages and tobacco have been the fastest growing of all regional manufacturing sector exports over the last 20 years: their value increased almost fivefold and the regional surplus increased sevenfold. South America has a comfortable surplus, Central America is close to equilibrium and the Caribbean has a deficit (see figure 9). Brazil, Mexico and Argentina together account for two thirds of regional exports. In 2021, these countries ranked ninth, sixteenth and twenty-third, respectively, among the main exporting countries in the sector globally. Food exports are quite diversified in terms of destinations. As in other sectors, the United States and the region itself are the main destinations, but China, other Asian countries and the European Union are also important.

Figure 9
Latin America and the Caribbean (subregions and selected countries): trade in food, beverages and tobacco, averages for 2000–2002 and 2019–2021
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

Growing geopolitical tensions, technological progress linked to the fourth industrial revolution and the need to reduce the carbon footprint of freight transport seem to be contributing to a tendency to shorten or regionalize international production networks, whereby multinational companies seek to reduce their exposure to supply disruption and move closer to their main consumer markets. This situation offers attractive opportunities for the region, especially regarding the arrival of manufacturing companies that are interested in moving closer to the United States market. Given the importance of geographic proximity in this strategy, the opportunities linked to possible nearshoring seem to be concentrated in countries such as Mexico, Costa Rica and the Dominican Republic, which also have free trade agreements with the United States.

In South America in particular, the future of the manufacturing export sector is linked to revitalization of intraregional trade. For this to happen, a large and stable market must be fostered that allows efficient production scales while minimizing the transaction costs related to the cross-border integration of production. This calls for integration initiatives that transcend existing agreements and foster convergence between the various subregional groupings. In addition to tariffs, the convergence agenda includes several important topics such as the strategic use of national procurement systems, regulatory harmonization and the formulation of regional trade facilitation agreements.

All major actors in the global economy are currently implementing industrial policy initiatives to develop manufacturing capabilities in strategic sectors such as pharmaceuticals, microprocessors and e-mobility. In the region, it seems clear that market signals alone will be insufficient to reverse the export lag in the manufacturing sector. Consequently, the question is not now whether a production development policy is needed, but rather what the features, aims and tools of such a policy should be. The growing servicification of the manufacturing sector means that the design of such policies must take into account all the activities that are part of industrial value

chains. Indeed, the quality of digital, logistics and support services infrastructure for the industry, as well as national research, development and innovation capabilities, are key determinants of export competitiveness in the manufacturing sector. This is also the case of policies to increase the environmental sustainability of the region's industrial exports, particularly those based on processing natural resources, which in the coming years will be subject to stricter regulatory requirements in this regard in the European Union and other markets of advanced countries.

C. Disruptions to maritime supply chains: impacts and outlook

Maritime supply chains, which account for 80% of global goods trade by volume and 70% by value, have undergone profound disruptions since the onset of the COVID-19 pandemic in 2020. Four main factors have created bottlenecks in these chains: (i) massive shutdowns to avoid infection, which left the workforce unable to produce and provide services (including port and logistics services); (ii) increased congestion in ports; (iii) limited availability of containers and (iv) the high level of concentration in the shipping industry. These disruptions had a number of consequences, including imported product shortages, disruptions in logistics markets, more unreliable shipments owing to delays attributable to greater congestion, and a sharp increase in shipping freight rates.

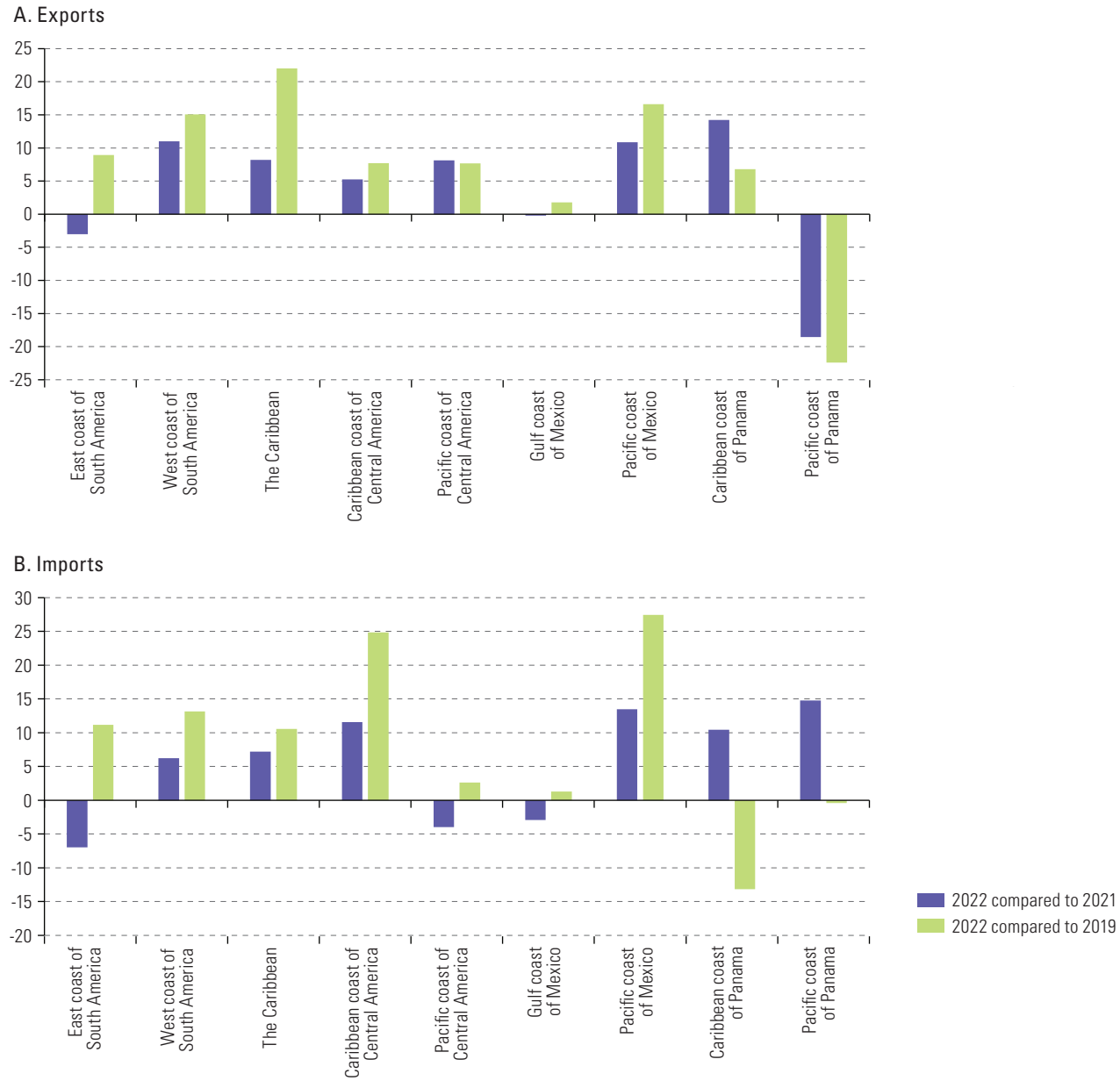
The biggest challenge in cargo shipping is regaining reliability, which has been disrupted by the aforementioned issues. In the period since January 2019, sailing schedule reliability peaked in May 2019. Between June and December 2020, this indicator reflected a marked downward trend, followed by a relative stabilization. In 2022 it remained at 34%, on average. The operational measures adopted by shipping companies during the first part of the pandemic, especially blank sailings, have had a significant impact on the decline in reliability of sailing schedules.

The disruptions in maritime supply chains were also fuelled by the massive closures of borders, ports and airports during the first stage of the pandemic. At the same time, disruptions in maritime transport triggered problems in land transport, such as the lack of drivers to transport cargo by truck and of workers to complete shifts at ports. This situation worsened congestion and further slowed supply chain operations, while the increase in e-commerce in the context of the pandemic put even greater pressure on demand. At the beginning of 2022, when it seemed that supply chains were beginning to stabilize, the conflict between the Russian Federation and Ukraine added new pressure.

As seen in figure 10, in the region, both containerized maritime exports and imports recorded mixed trends in the first half of 2022 compared to the year-earlier period. Containerized exports in the first half of 2022 were stronger than the levels seen in the same period of 2019, before the pandemic (the only exception was the Pacific coast of Panama), and containerized imports also rose compared to the first half of 2019 (the only exception was the Caribbean coast of Panama).

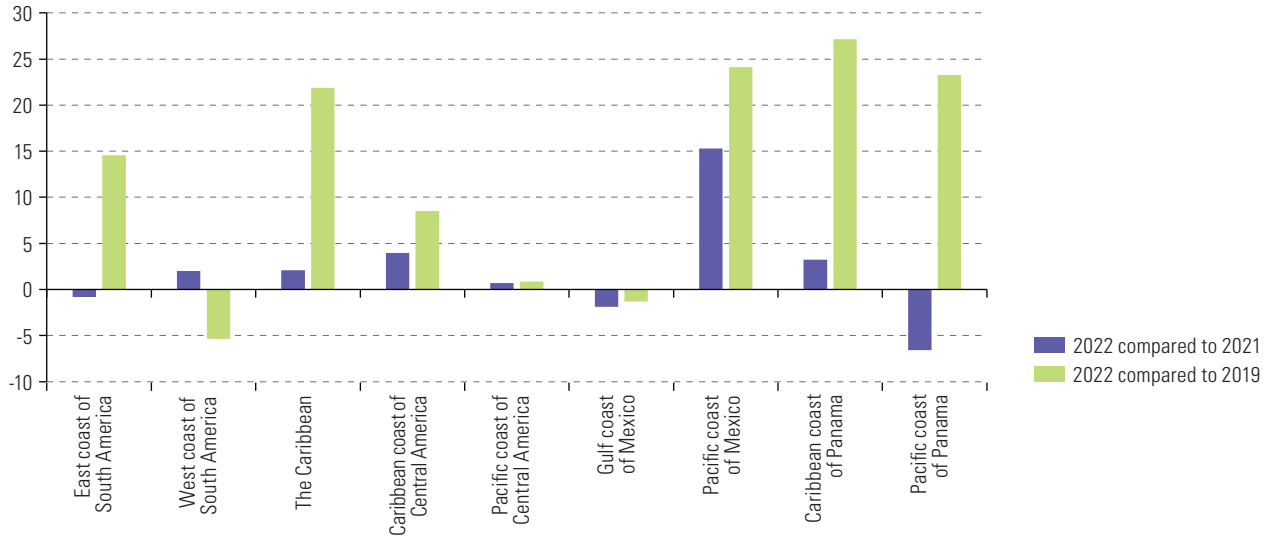
Total cargo movement in the region's ports generally reflected slight variations between the first half of 2021 and the same period in 2022, with the exception of the Pacific coast of Mexico, which showed a much higher increase than the other coasts (see figure 11). When comparing the first half of 2022 with the same period in 2019, the results are more positive, with the exception of the west coast of South America and the Gulf coast of Mexico.

Figure 10
Latin America and the Caribbean: changes in containerized maritime export and import volumes by coast,[a] first half of 2022 compared to the same period in 2019 and 2021
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from the ports.
[a] Measured in twenty-foot equivalent units (TEU).

Figure 11
Latin America and the Caribbean: variation in the movement of containers by coast,[a] first half of 2022 compared to the same period in 2019 and 2021
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from the ports.
[a] Measured in twenty-foot equivalent units (TEU).

One of the main effects of the disruptions in global supply chains has been a marked increase in shipping freight rates. After recording more rapid growth since mid-2020, shipping rates have stabilized in the last few months on routes between Asia and the United States, but not on most routes to and from Latin America. On most routes, the increase in freight rates has been much higher than the rise in volumes transported.

While the shipping industry had already been trending towards greater concentration of shipping companies since 2010, the health crisis and the resulting disruption of supply chains reinforced this trend. The historic increase in freight rates was reflected in exceptional earnings for shipping companies, particularly the industry leaders, which facilitated the vertical integration of these companies through acquisitions or investments, allowing them to expand their coverage and diversify their services.

The shipping cycle has changed in recent years, with new momentum in shipping freight rates on almost all world routes. While trade has remained relatively stable, and even trended downward in some cases, container shipping freight rates have increased more strongly. The change in the traditional functioning of the shipping cycle could be explained by the trajectory of supply, which has been affected by various factors, such as the prevailing conditions during the pandemic, blank sailings and lay-ups of vessels, problems of port congestion and inland distribution, and understaffing. The greater concentration of shipping companies and the global debate on whether the supply management of large shipping companies have led to the increase in freight rates represent one of the most difficult trends to decipher in relation to the behaviour of the shipping industry.

Long before the Sustainable Development Goals (SDGs) and the Paris Agreement on climate change were adopted, the International Maritime Organization (IMO) had already initiated actions aimed at reducing carbon dioxide (CO_2) emissions from ships, with the 1997 adoption of the Protocol of 1978 relating to the International Convention

for the prevention of pollution from ships. However, these initiatives have not gone far enough in reducing sulfur oxide emissions, which contribute to environmental pollution and the destruction of the ozone layer. The same situation has been observed in the fulfilment of the commitments made under the Paris Agreement on climate change and other successive agreements. Shipping accounts for about 3% of global greenhouse gas emissions. Therefore, rapid progress towards decarbonization is an urgent challenge in the context of the fight against climate change.

The world must make steady progress towards the use of clean energy in all modes of transport and, in the case of shipping companies, also accelerate the use of port-to-port green corridors. In accordance with the commitments arising from the Paris Agreement and the goals set by member States in other forums, ECLAC is making progress in terms of research and proposals in this regard, including mitigation of the environmental impact generated by cruise ships.

There is currently a growing trend towards the production of green hydrogen in ports. Unlike other clean energy sources, green hydrogen can be exported to other countries. To this end, the countries of the region must continue to make progress in the generation of technical alternatives for storage and transport. For example, as part of the strategies involving green hydrogen, the Ministry of Energy of Chile has signed an agreement with the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping to establish a network of port-to-port green corridors for green shipping within and beyond Chile, with financing through public-private partnerships.

Lastly, there is a persistent economic infrastructure gap in Latin America and the Caribbean, which has been exacerbated by the health crisis and the conflict between the Russian Federation and Ukraine. In this context, the implementation of public-private partnerships can help to improve the infrastructure needed in the region and to achieve the 2030 Agenda for Sustainable Development and the SDGs. Infrastructure financing and better utilization of available capacities remain unresolved issues in the region, which require a more vigorous response. On top of isolated efforts, Latin America and the Caribbean need greater regional and international coordination and cooperation.

CHAPTER I

A string of crises weakens global and regional trade

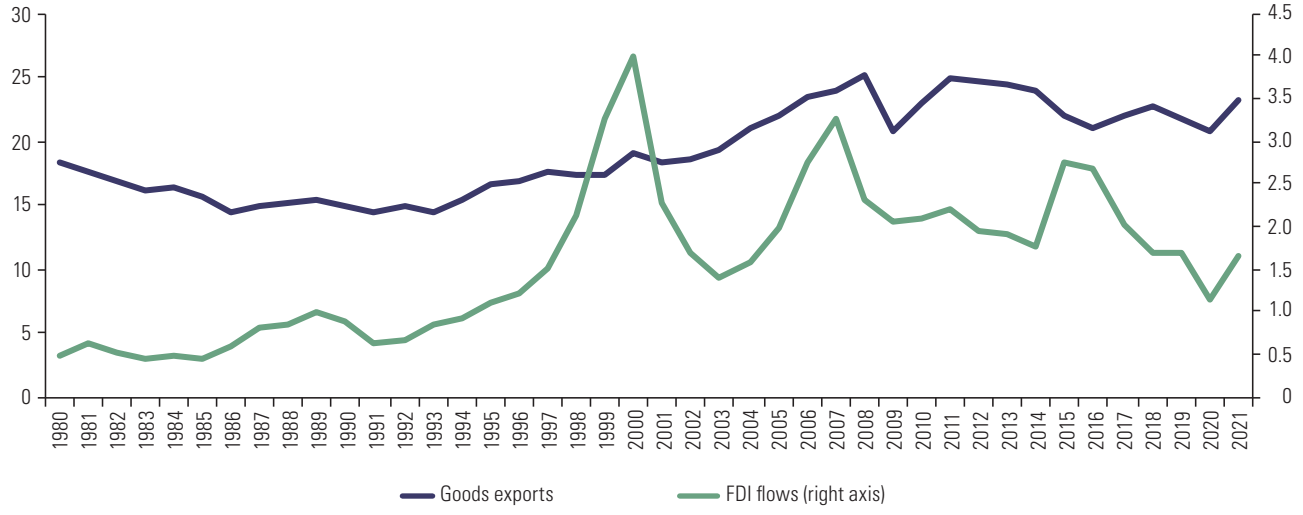
A. Hyperglobalization in crisis

Since the 1990s, the world economy has been undergoing an accelerated process of commercial and financial globalization that, by reason of its intensity and scope, has been called "hyperglobalization" (Rodrik, 2011). The end of the Cold War, the adoption of what has become known as the Washington Consensus by much of the developing world, the ascendance of China in the world economy and technological advances such as the Internet were key milestones in the creation of a global market with high levels of cross-border mobility for goods, services and capital (Bárcena and Herreros, 2021). Within the productive apparatus, this hyperglobalization can be mainly seen in the proliferation of global value chains, whereby transnational corporations —usually headquartered in advanced countries— relocate segments of their production processes to developing countries in order to benefit from lower labour costs, tax breaks, access to natural resources and various other advantages. Thus, over the past three decades, three major global "factories" have been established: Eastern and Southeast Asia, Europe and North America. The creation of the World Trade Organization (WTO) in 1995 and the subsequent accession of China to it in 2001, together with numerous free trade agreements, provided this process of productive fragmentation with institutional support.

The developing economies (mainly in Asia) that have managed to insert themselves competitively into the global value chains have succeeded in catalysing their economies and significantly improving their social indicators. In developed countries, however, hyperglobalization has had a complex impact on economics and distribution. The offshoring of industrial activities to certain developing countries and competition from products exported by those countries have contributed to a sharp increase in inequality and a drop in the share of manufacturing jobs within total employment (United Nations, 2020; Antràs, 2020; Rodrik, 2019; Nager, 2017; Atkinson, 2018). Thus, in both the United States and Europe, political forces critical of various aspects of globalization have gained momentum. Autor and others (2020) and Colantone and Stanig (2018) establish a causal link between competition from Chinese imports on the one hand, and increased political polarization in the United States and increased support for nationalist and isolationist parties in Western Europe on the other. In the absence of redistributive policies to compensate the sectors most affected by globalization, resistance to the phenomenon can be expected to continue or increase in the coming years, especially if certain technologies that reduce the demand for low-skilled workers —such as robots and automation— are more widely adopted (Antràs, 2020).

Over the past 15 years, the world economy has endured a series of major economic, geopolitical and health shocks: the global financial crisis of 2008–2009, the economic tensions between the United States and China that started in 2017, the coronavirus disease (COVID-19) pandemic of 2020 and the ongoing conflict in Ukraine. These shocks have combined to weaken globalization as an engine of global growth. Two crucial variables in the hyperglobalization of the 1990s and 2000s —namely trade and foreign direct investment (FDI)— have recorded weak momentum since the financial crisis. Whereas world goods trade volumes rose at an average rate of 6.3% per year between 1990 and 2007, between 2012 and 2021 the annual growth rate was a mere 2.4%. In turn, only in 2015 and 2016 did annual FDI flows slightly exceed their pre-crisis peak (US$ 1.9 trillion) recorded in 2007. The share of the goods trade in world GDP reached its historical maximum (25%) in 2008, and in 2021 it stood at 23% (see figure I.1). The share of FDI flows in global GDP peaked in 2000 at a level of 4%, while in 2021 it barely reached 1.6%.

Figure I.1
Share of goods exports and FDI flows in global GDP, 1980–2021
(Percentages)

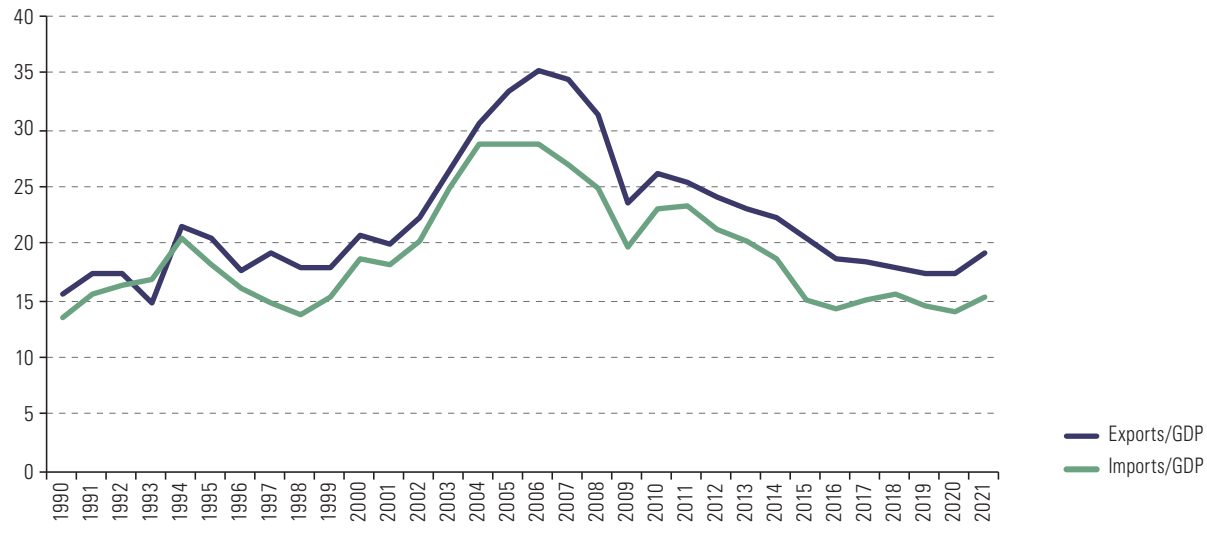


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), UNCTADstat [online database] https://unctadstat.unctad.org/EN/; International Monetary Fund (IMF), World Economic Outlook Database [online] https://www.imf.org/en/Publications/WEO/weo-database/2022/April.

The slowdown in trade and FDI over the past 15 years is due to a variety of factors. These include the growing conflict in economic relations between the major powers, especially between the United States and China, which are engaged in an intense economic and technological competition. One direct consequence of this is the weakening that the multilateral trading system has been suffering for several years (ECLAC, 2021). At the same time, the major economic transformations that have taken place in China since the opening up of its economy in the late 1970s have reduced the country's dependence on foreign trade (see figure I.2). Thus, thanks to an efficient import substitution process, China is now able to produce a range of inputs that it previously had to import, while its population's rising purchasing power has led to a growing share of its output being channelled into the domestic market. On the technological front, advances linked to the fourth industrial revolution have made it possible to automate an increasing range of industrial processes (thus reducing the incentives to relocate production to countries with low labour costs) as well as to replace trade in physical goods with flows of digital products and services in a growing number of sectors.

Over the past three decades, the dominant logic in the organization of global value chains focused on minimizing costs. This has resulted in a high geographic concentration of the global production of strategic goods such as microprocessors, medical devices, active drug ingredients and fertilizers. The problems arising from this phenomenon began to become apparent following a number of extreme weather events, such as the tsunami that hit Japan in 2011 and the floods that struck Thailand that same year (ECLAC, 2020). More recently, the massive disruptions caused by the pandemic and the conflict in Ukraine have further highlighted the limited resilience of global supply networks. In response, some of the world's leading economies are adopting industrial policy initiatives that could lead to a major reconfiguration of global value chains in the coming years (see section D). In this context, the world economy seems to be transitioning from the neoliberal order established after the end of the Cold War to a new geo-economic order shaped by an increased awareness of the security risks posed by economic interdependence (Roberts, Moraes and Ferguson, 2019).

Figure I.2
China: share of goods exports and imports in GDP, 1990–2021
(Percentages)



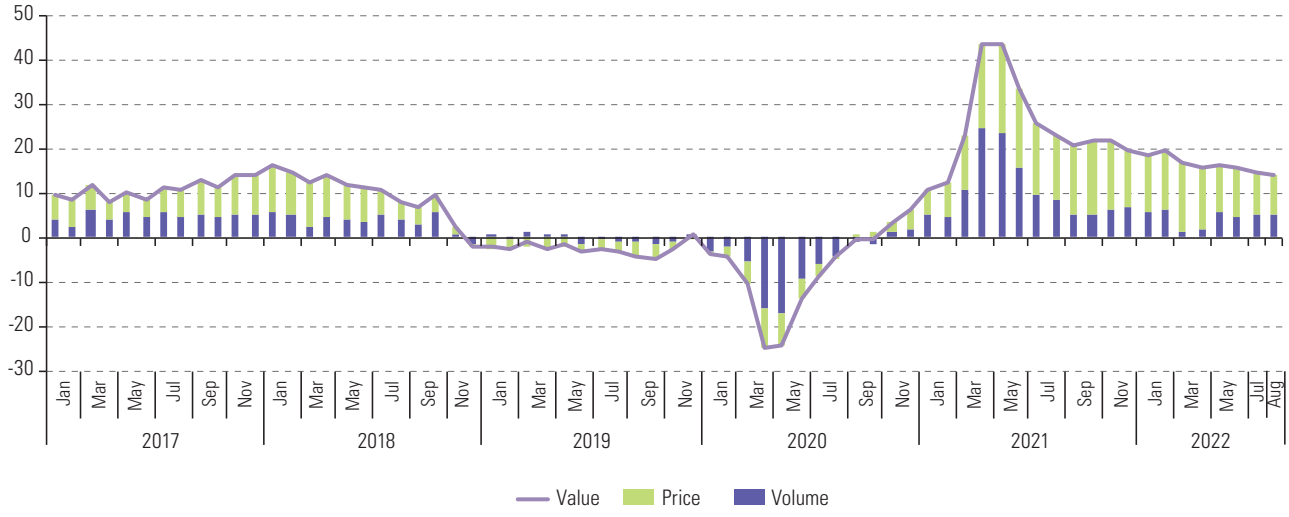
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Trade Organization (WTO), WTO Stats [online database] https://stats.wto.org/; International Monetary Fund (IMF), World Economic Outlook Database [online] https://www.imf.org/en/Publications/WEO/weo-database/2022/April.

Today, it is not yet clear that the hyperglobalization of the last 30 years has reached the tipping point of reversion. Indeed, the evolution of trade and FDI since the global financial crisis indicates a slowdown in globalization rather than a reversal. It is clear, however, that the political context has become less favourable to increased economic interdependence among the world's different regions. It is therefore likely that the coming years will see a greater regionalization of trade, FDI and productive networks. The countries of Latin America and the Caribbean must pay attention to the far-reaching changes under way in the geopolitics of world trade and devise joint strategies that will allow the region to integrate more effectively in a global context of great uncertainty.

B. World trade in goods less dynamic in 2022

After falling by 5% in 2020 as a result of the COVID-19 pandemic, the volume of the global goods trade recovered quickly and, in 2021, grew by 9.8%: its largest increase since 2010. While this figure was largely on account of the low levels recorded in 2020, initial projections for 2022 pointed to an expansion of 4.7%, equal to double the average growth rate of the global goods trade over the past decade. Following the outbreak of the conflict between the Russian Federation and Ukraine in February 2022, however, world trade volumes recorded a pronounced drop in momentum in March and April. In that context, in April WTO lowered its 2022 growth projections to 3% (WTO, 2022a). In August 2022, the value of global trade was still growing at a double-digit rate in year-on-year terms (see figure I.3). However, this was mainly on account of the price component, influenced by rising fuel, food and fertilizer prices: a phenomenon already seen in 2021 and which intensified as a result of the conflict in Ukraine. As will be discussed below, the pronounced slowdown in the world economy in 2022 tends to indicate that growth in trade will continue to lose momentum in the final months of 2022 and into 2023.

Figure I.3
Year-on-year change in world goods trade in terms of value, volume and price, January 2017–August 2022
(Percentages)



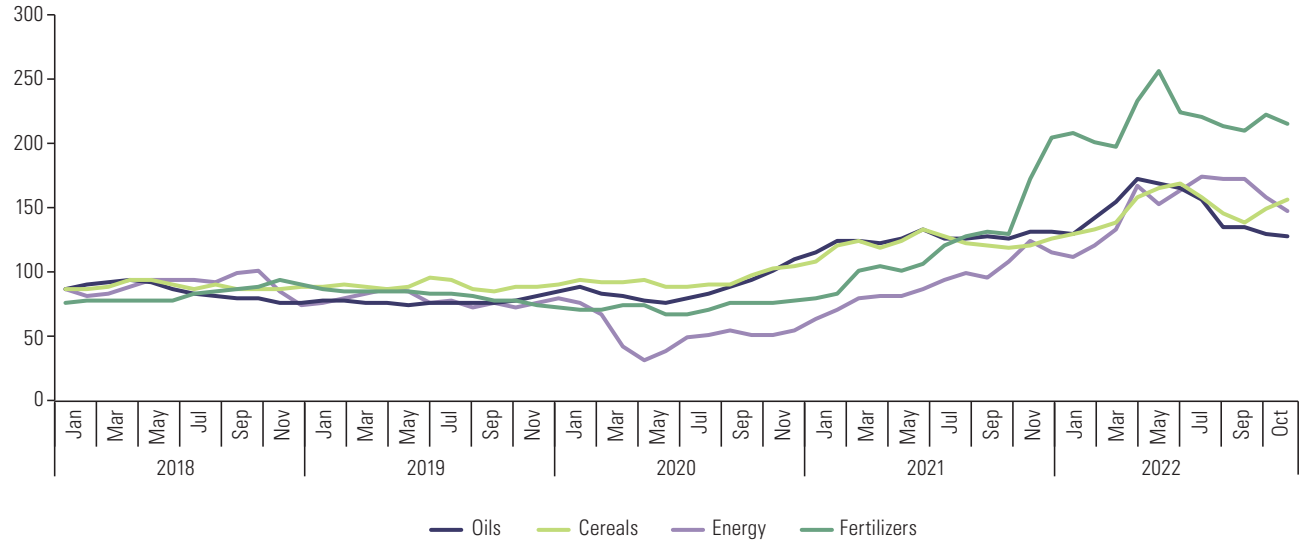
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Netherlands Bureau for Economic Policy Analysis, World Trade Monitor [online database] https://www.cpb.nl/en/world-trade-monitor-august-2022.

The slowdown in global trade in 2022 is largely due to various disruptions caused by the conflict between the Russian Federation and Ukraine. Although those two countries together accounted for just 1.9% of global GDP and 2.5% of world goods exports in 2021, their weight is much greater in the supply of grains and oilseeds and, in the case of the Russian Federation, in fertilizers, metals, oil and gas as well. In 2020, 28% of the world's wheat exports, 15% of its maize exports and about 60% of its sunflower oil exports came from one of those countries or the other (ECLAC, 2022b). In addition, in 2021 the Russian Federation was the world's leading exporter of fertilizers, with a 15% share, as well as the country of origin of 25% and 39%, respectively, of the European Union's oil and natural gas imports (European Commission, 2022).

The sanctions imposed on the Russian Federation by the United States, the European Union and other economies, the closure of Ukraine's Black Sea ports until August 2022, and the reactions of other countries (such as the ban on wheat exports announced in May by India, the world's second largest producer) have caused disruptions in the international supply of grains, oilseeds, fuel and fertilizers, resulting in sharp price increases (see figure I.4). Since the middle of the second quarter, the prices of these products have partially begun to revert their early increases. However, the hikes reinforced the inflationary pressures that had begun to accumulate in 2021 as a result of the liquidity generated by the fiscal and monetary stimulus programmes adopted after the outbreak of the pandemic and the disruptions in global supply chains in the wake of COVID-19. Consequently, inflation rates in the United States, the European Union and the United Kingdom have reached their highest levels for at least 30 years (see figure I.5). At the same time, in early 2022, more than half of the world's emerging economies were seeing year-on-year inflation rates of over 7% (Carstens, 2022). In response, both in developed economies and in several developing countries, there have been successive increases in monetary policy interest rates,[1] which has dampened economic activity.

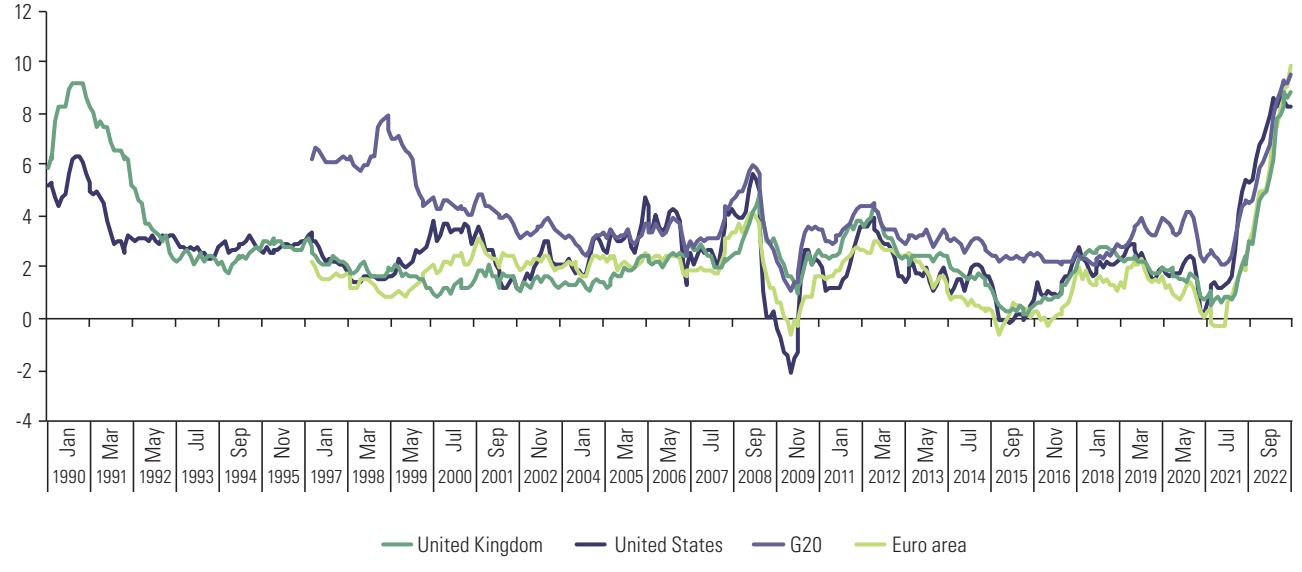
[1] Between July 2021 and July 2022, the central banks of 75 economies raised their interest rates and, on average, each one did so 3.8 times (Georgieva, 2022).

Figure I.4
Price index of selected commodity groups, January 2018–October 2022
(Index: 2010=100)[a]



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Bank, Commodity Markets [online database] https://www.worldbank.org/en/research/commodity-markets.
[a] Index based on prices in current dollars.

Figure I.5
United States, euro area, G20 and United Kingdom: year-on-year change in the consumer price index, January 1990–September 2022
(Percentages)

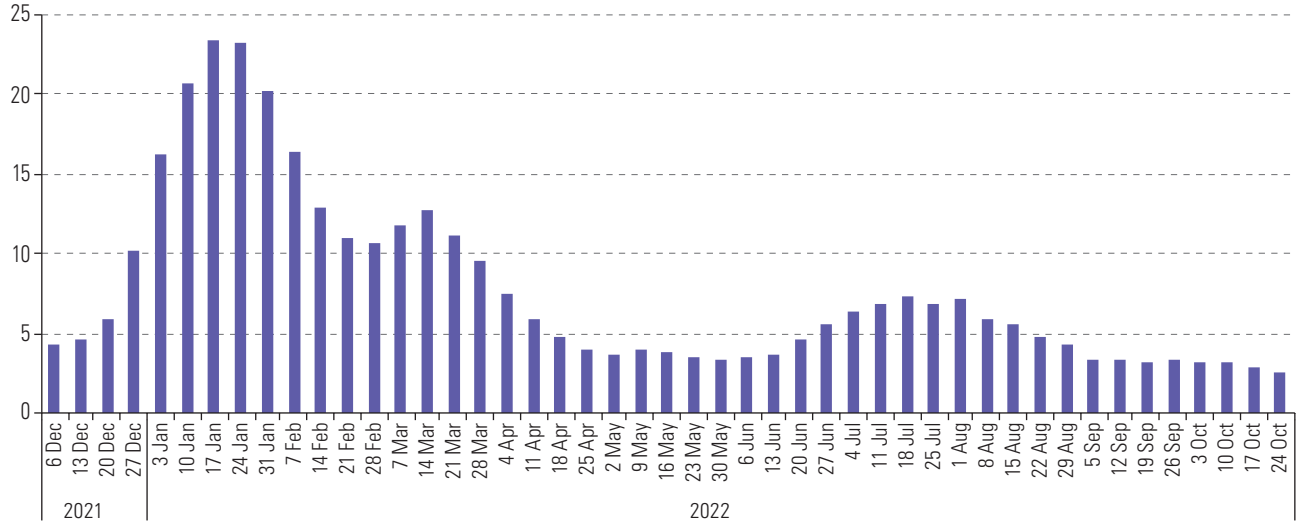


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organisation for Economic Co-operation and Development (OECD), OECD Data [online database] https://data.oecd.org/price/inflation-cpi.htm.

In addition to its impact on commodity prices, the conflict in Ukraine has exacerbated the disruptions to global supply chains that became apparent during the pandemic. For example, the Russian Federation is the world's leading producer of palladium and a leading producer of rhodium, two metals used in the production of catalytic converters for motor vehicles (WTO, 2022b). Similarly, Ukraine is the source of 70% of the world's exports of neon gas, a by-product of steelmaking that is, in turn, an important input for microprocessor manufacturing (Ruta, 2022). In addition, disruptions in Black Sea port activity, rising fuel prices and disruptions in supply chains have contributed to further increases in ocean freight fees (see chapter III).

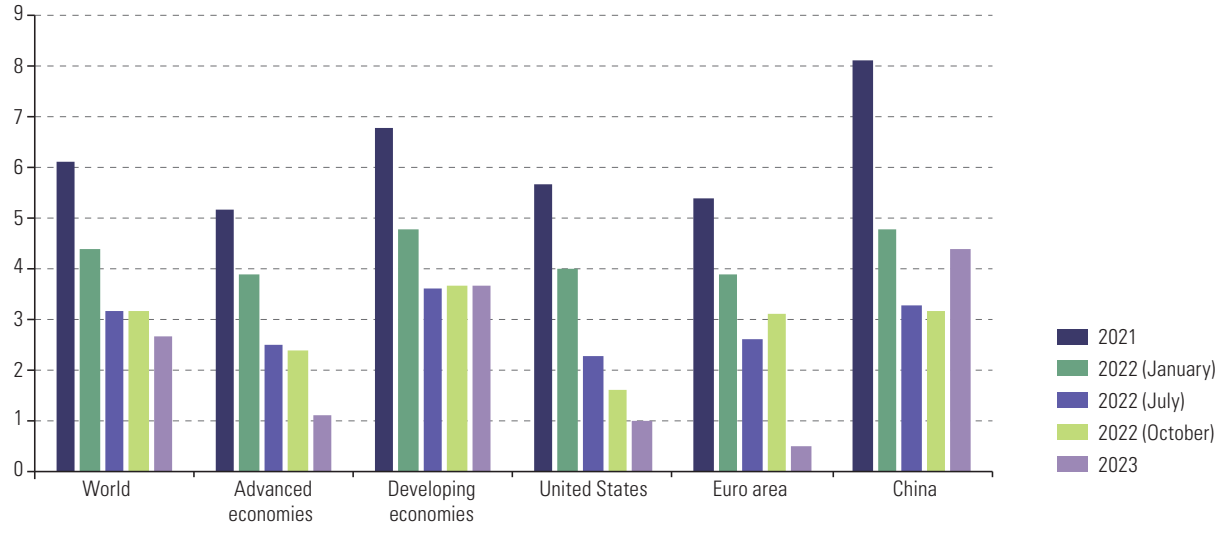
At the same time, the number of COVID-19 cases reported worldwide has been trending downwards since August 2022 (see figure I.6). Although current levels are well below the pandemic's January 2022 peak, its disruption of the global economy continues; this is particularly true in China, where the government maintained a strict "zero COVID" policy until early December. Thus, in a context marked by the prolongation of the conflict in Ukraine, strong inflationary pressures, the tightening of monetary policies and a still-ongoing pandemic, global growth prospects have been steadily adjusted downwards (see figures I.7 and I.8).

Figure I.6
Weekly totals of confirmed COVID-19 cases in the world, December 2021–October 2022
(Millions of people)



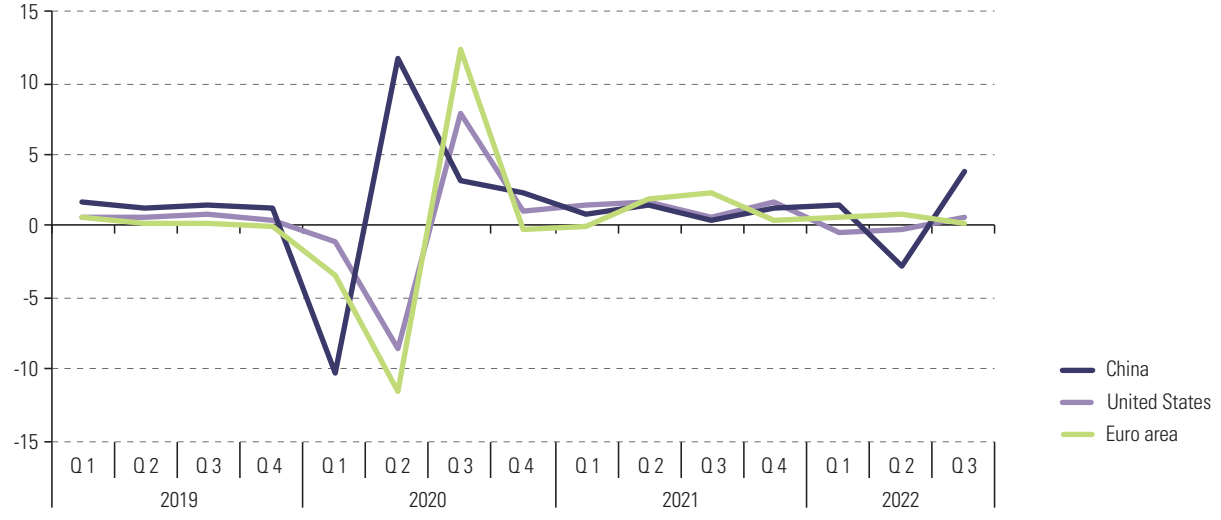
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Health Organization (WHO), WHO Coronavirus (COVID-19) Dashboard [online database] https://covid19.who.int/.

Figure I.7
World and selected groupings and countries: 2021 annual change in GDP and projections for 2022 and 2023
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Monetary Fund (IMF), *World Economic Outlook Report October 2022. Countering the Cost-of-Living Crisis,* Washington, D.C.

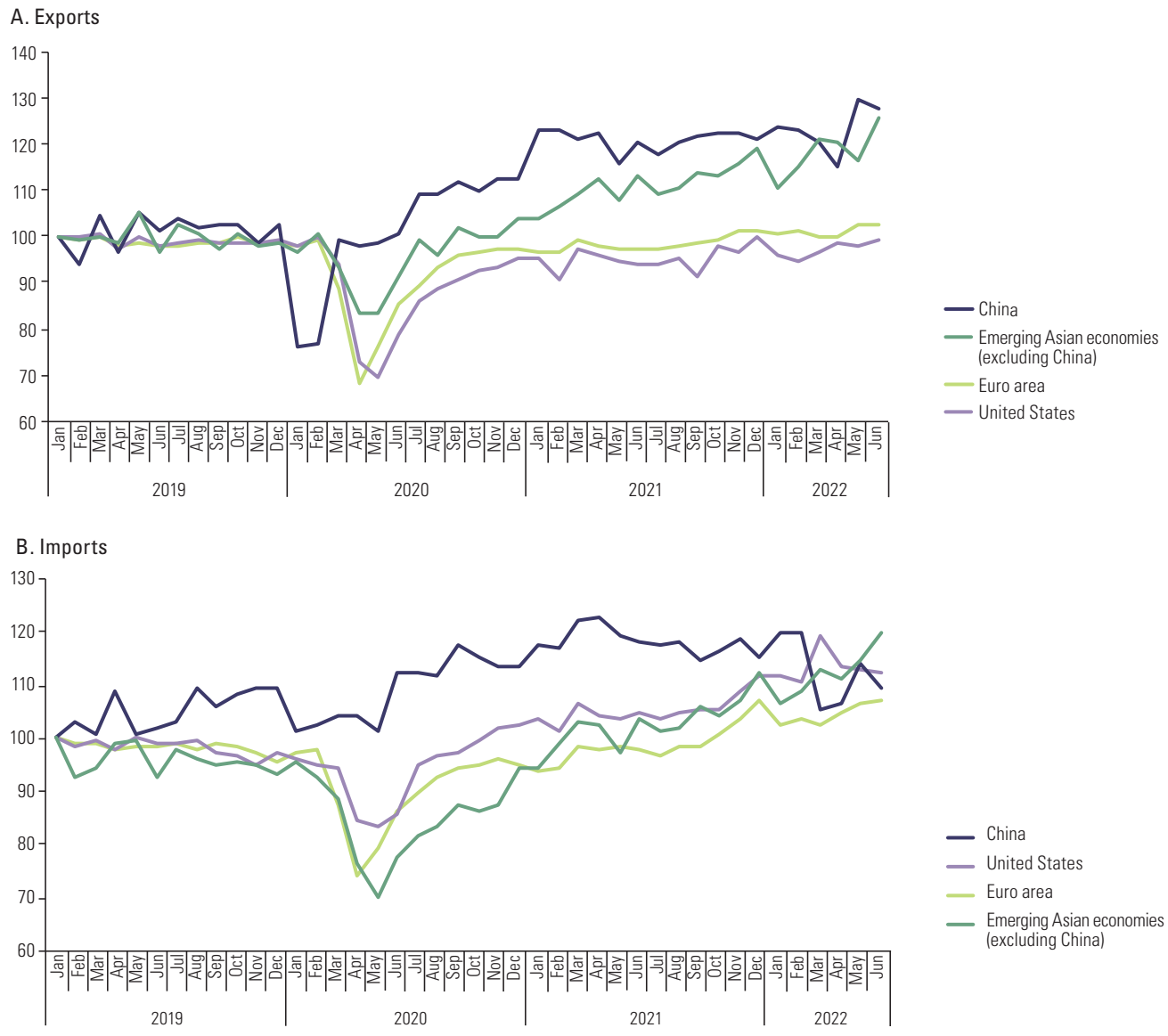
Figure I.8
China, the United States and the euro area: quarterly change in GDP, first quarter of 2019–third quarter of 2022
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Organisation for Economic Co-operation and Development (OECD), OECD Data [online database] https://data.oecd.org/gdp/quarterly-gdp.htm.

Since the beginning of the pandemic, China has enjoyed notable export momentum. After falling sharply in January 2020, the volume of Chinese goods shipments recovered much faster than exports from the United States or the euro area (see figure I.9A). Since March 2022, however, shipments from China have been performing less dynamically. They suffered consecutive declines in March and April, largely because of lockdowns at several major ports and manufacturing centres, such as Shanghai, Shenzhen and Chengdu. After recovering in May, China's exports fell again in June on the back of slowing demand among its main trading partners. Chinese imports have also recorded drops during 2022 (see figure I.9B), which can be attributed both to the lockdowns imposed in some of its main urban centres and, in particular, to the notable slowdown of the country's economy in the second quarter of 2022.

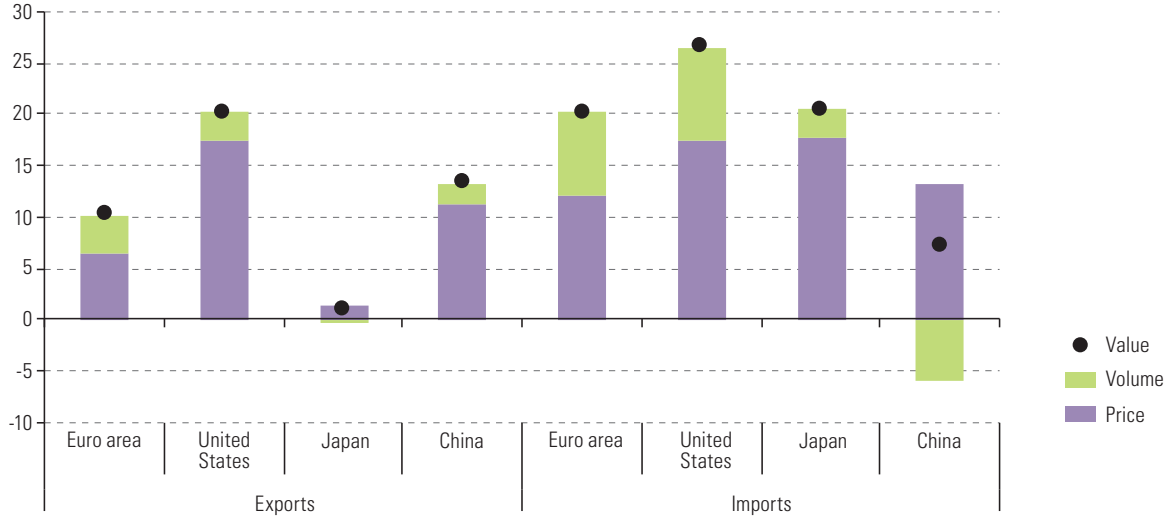
Figure I.9
Selected countries, regions and blocs: index of goods trade volume, January 2019–June 2022
(Index: 2019=100)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Netherlands Bureau for Economic Policy Analysis, World Trade Monitor [online database] https://www.cpb.nl/en/world-trade-monitor-june-2022.

Between January and June 2022, the value of goods exports from the world's three largest economies (the United States, China and the euro area) grew at double-digit rates in year-on-year terms (see figure I.10). Most of this growth was, however, due to the price component, on account of increases in the cost of oil, grains, oilseeds and other raw materials. In comparison, export volumes grew at much lower rates of between 2% and 3.8% (in Japan, the variation in the export volume was even slightly negative). Meanwhile, during the same period, the value of goods imports in the United States, Japan and the euro area rose at year-on-year rates of between 20% and 27%. As with their exports, these figures can be largely explained by the price component, while import volumes grew by between 2.8% in Japan and 8.9% in the United States. This pattern did not apply in China, where the import volume fell by 5.9% in year-on-year terms. In addition, the slowdown in the Chinese economy has been exacerbated by an energy crisis following the drought caused by the extreme heat wave that affected the country during the northern hemisphere summer.

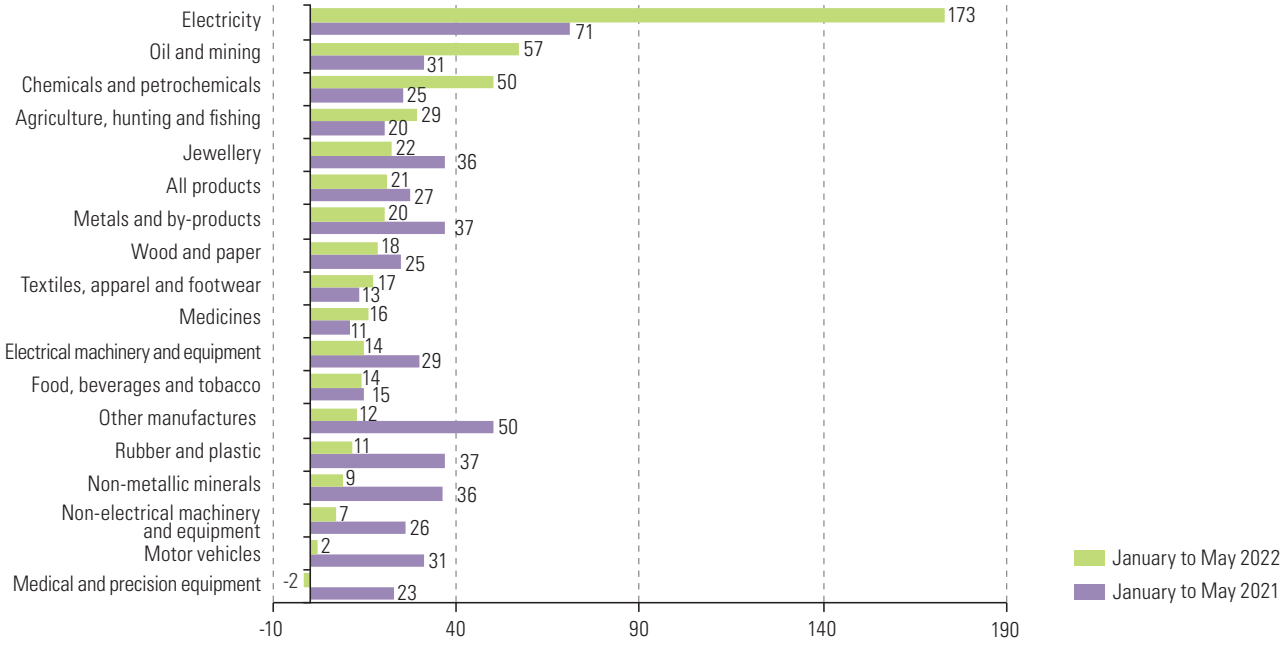
Figure I.10
Selected economies: year-on-year change in goods trade by price, value and volume, January–June 2022 compared to January–June 2021
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Netherlands Bureau for Economic Policy Analysis, World Trade Monitor [online database] https://www.cpb.nl/en/world-trade-monitor-june-2022.

To analyse the sectoral evolution of trade in goods between January and May 2022, information was compiled for 55 countries that accounted for 70% of global goods imports in 2021 (see figure I.11). The value of those countries' total imports grew at a year-on-year rate of 21% in the period in question, down from the 27% year-on-year growth recorded between January and May 2021. However, disaggregating the data by sector, two distinct patterns emerge. Purchases of fuels and other raw materials show greater momentum in the first five months of 2022 than in the same period of 2021, mainly on account of higher prices. The opposite is true for most manufacturing sectors, as a result of the slowdown in the world economy and, consequently, in the demand for imports. Purchases of non-metallic minerals, non-electrical machinery and equipment and motor vehicles were weak, while purchases of medical and precision equipment fell by 2%. Significantly, the six sectors that recorded lower growth rates in the first five months of 2022 had shown remarkable momentum in the corresponding period in 2021, when their growth exceeded 20%.

Figure I.11
Selected economies (55 countries):[a] change in the value of goods imports by economic sector, January–May 2021 and January–May 2022
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United States Department of Commerce; European Commission, Eurostat [online database] https://ec.europa.eu/eurostat; International Trade Centre (ITC); General Administration of Customs of China, and other official sources.

[a] The 55 countries included are the 27 members of the European Union, Australia, Bosnia and Herzegovina, Canada, China, Georgia, India, Indonesia, Japan, Malaysia, New Zealand, Norway, New Zealand, the Republic of Korea, Serbia, South Africa, Switzerland, Thailand, Türkiye, the United Kingdom, the United States, and nine Latin American countries (Argentina, Brazil, Colombia, Chile, the Dominican Republic, Mexico, Peru, Paraguay and the Plurinational State of Bolivia). The figures in parentheses indicate each sector's share of world goods imports in 2021.

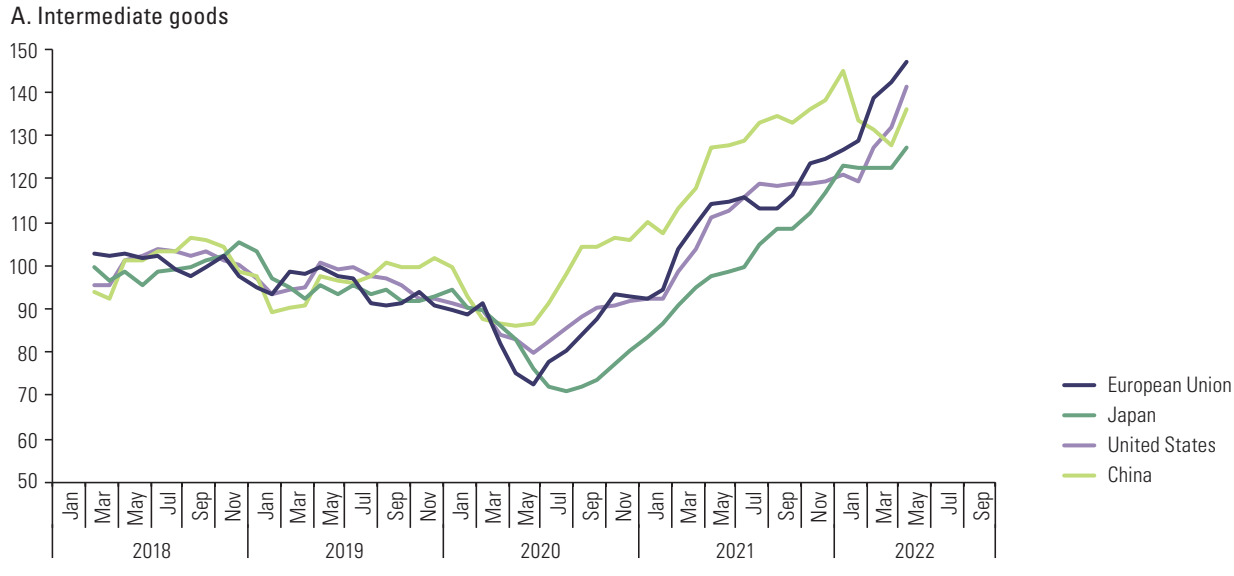
The sectoral evolution of goods imports in the world's four main economies confirms the falling momentum of demand in China. Thus, the value of the country's total overseas purchases increased at a year-on-year rate of 6.4% in the first five months of 2022: between 15 and 17 percentage points below the import growth of the United States, the European Union and Japan over the same period (see table I.1). Chinese imports of various items shrank, including medical equipment, vehicles, medicines, foodstuffs, textiles, clothing, footwear and other manufactured goods. The slowdown in Chinese imports over 2022 can be seen in all major goods categories. Notably, in April, the value of its purchases of intermediate goods rose at a year-on-year rate of 4% —the lowest level recorded since 2020— while imports of capital goods and consumer goods recorded year-on-year drops of 25% and 14%, respectively (see figure I.12).

Table I.1
United States, European Union, China and Japan: year-on-year change in the value of goods imports, by broad economic sectors, January–May 2021 and January–May 2022
(Percentages)

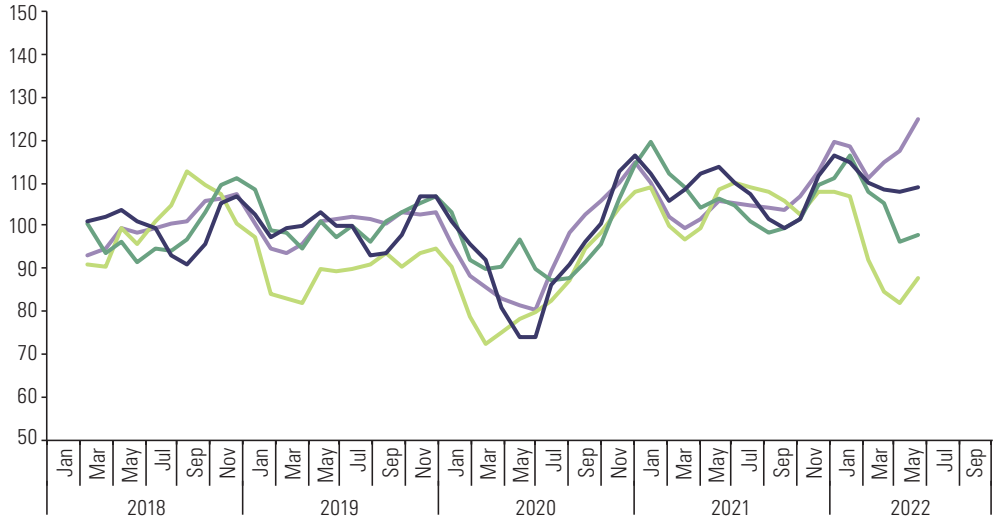
Broad economic sectors	United States		European Union		China[a]		Japan	
	2021	2022	2021	2022	2021	2022	2021	2022
Agriculture, hunting, fishing	8.5	13.9	22.8	33.2	49.7	**-3.4**	7.4	17.8
Oil and mining	25.8	78.3	39.5	95.0	41.1	13.3	5.2	70.6
Food, beverages and tobacco	15.1	27.4	13.5	11.0	20.4	**-7.0**	0.4	11.1
Textiles, apparel and footwear	16.7	32.8	11.9	12.7	36.7	**-3.1**	-9.0	0.7
Wood and paper	48.2	20.9	23.1	21.3	23.1	**-4.1**	1.8	29.7
Chemicals and petrochemicals	27.4	41.4	24.7	55.7	33.2	15.8	7.2	46.7
Medicines	3.1	11.9	13.0	16.5	18.9	**-3.8**	17.0	15.6
Rubber and plastic	42.0	14.3	37.0	12.6	30.6	2.5	17.9	3.2
Non-metallic minerals	28.1	21.5	30.3	7.0	91.5	**-10.7**	7.9	**0.1**
Metals and by-products	5.2	29.0	43.4	30.1	65.4	23.0	26.7	22.1
Non-electrical machinery and equipment	24.0	15.9	28.7	2.2	28.7	**-1.9**	10.7	**-2.0**
Electrical machinery and equipment	29.3	22.5	33.5	9.4	29.1	11.4	20.0	8.3
Medical and precision equipment	22.2	7.1	25.3	-1.0	22.4	**-21.4**	9.7	**-0.2**
Motor vehicles	27.1	9.5	35.7	**-6.5**	59.7	**-9.7**	12.1	**-10.2**
Jewellery	-3.6	59.0	43.7	11.4	180.8	**-12.1**	57.2	**-15.8**
Electricity	16.8	63.2	76.7	229.5	44.1	50.0	…	…
Other manufactures	60.6	21.8	42.3	5.8	60.5	-11.8	21.2	0.1
All products	**22.1**	**23.3**	**28.6**	**21.3**	**36.5**	**6.4**	**10.3**	**20.9**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United States Department of Commerce; European Commission, Eurostat [online database] https://ec.europa.eu/eurostat; International Trade Centre (ITC); General Administration of Customs of China, and other official sources.
[a] Includes preliminary monthly estimates for March and April.

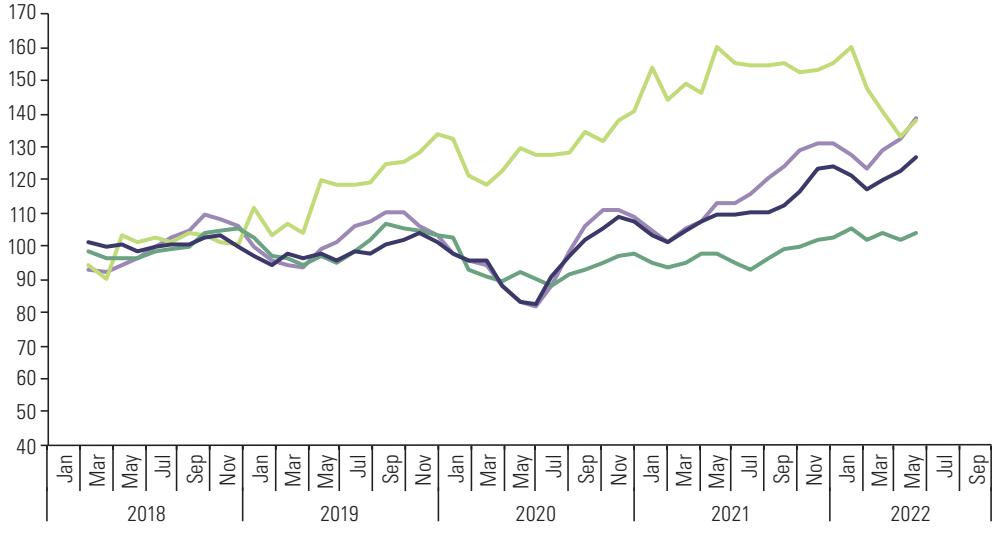
Figure I.12
Selected economies: value of goods imports by broad economic categories, March 2018–May 2022
(Index: January to March 2018=100)



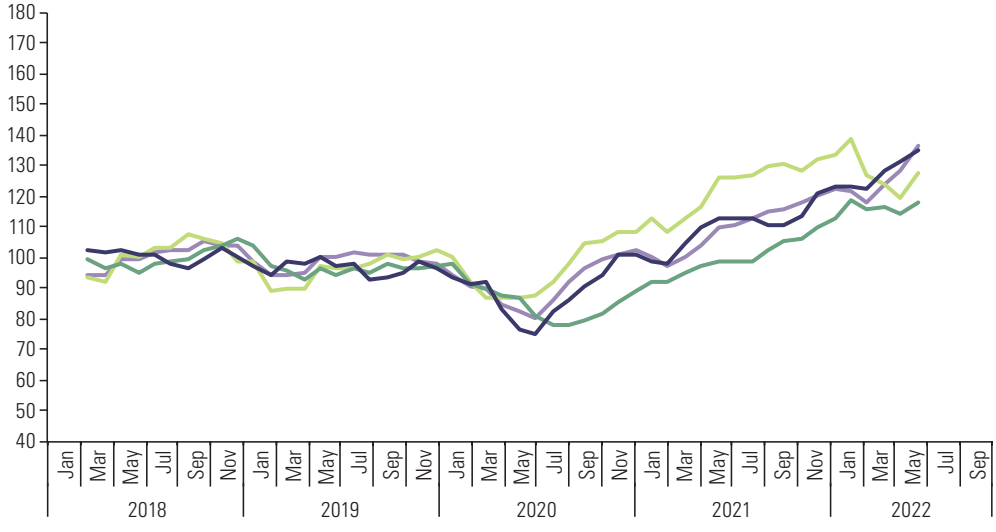
B. Capital goods



C. Consumer goods



D. All goods



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United States Department of Commerce; European Commission, Eurostat [online database] https://ec.europa.eu/eurostat; International Trade Centre (ITC); and the General Administration of Customs of China.

Among the 25 products with the largest increases in their import values between January and May 2022, there are some with particularly dramatic price rises, such as fuels, and others, such as integrated circuits and lithium batteries, that are crucial inputs for a wide range of industries. Taken together, imports of the 25 products grew at a year-on-year rate of 69.7% and contributed nearly 10% of the total rise in the value of imports over the period (see table I.2).

Table I.2
Selected economies (55 countries): 25 products with the largest increases in import value, January–May 2021 and January–May 2022[a]
(Percentages)

Harmonized System code	Description	Year-on-year change		Share		Contribution (E=B*C)/100
		2021 (A)	2022 (B)	Total 25 main products (C)	Total imports (D)	
271121	Natural gas in gaseous state	54.2	178.6	5.3	0.8	1.3
271600	Electrical energy	70.0	173.7	1.5	0.2	0.4
271111	Liquefied natural gas	9.5	162.3	5.2	0.7	1.2
270112	Bituminous coal	-8.0	147.4	2.4	0.3	0.5
270119	Coal	19.1	127.3	1.2	0.2	0.2
271019	Medium petroleum oils	16.3	69.2	9.2	1.3	0.9
270900	Crude oil	18.6	64.2	35.4	5.0	3.2
760120	Unwrought aluminium alloys	55.9	60.1	1.5	0.2	0.1
271012	Petroleum oils	41.3	60.0	6.6	0.9	0.6
271112	Propane, liquefied	50.7	53.4	1.7	0.2	0.1
760110	Unwrought aluminium	35.4	44.6	1.2	0.2	0.1
850760	Lithium-ion batteries	80.5	33.9	2.0	0.3	0.1
852852	Monitors for data processing	35.6	33.4	1.1	0.2	0.1
100590	Maize	66.2	33.3	1.3	0.2	0.1
841191	Turbojet parts	-24.2	32.5	1.6	0.2	0.1
841112	Turbojets	-14.2	31.1	1.4	0.2	0.1
852351	Solid-state semiconductors	8.5	30.1	1.2	0.2	0.1
720449	Ferrous waste and scrap	75.3	25.6	1.1	0.2	0.0
854239	Integrated electronic circuits	32.5	25.3	6.6	0.9	0.2
870380	Automobiles	168.6	25.3	2.3	0.3	0.1
950300	Tricycles and pedal cars	44.4	23.6	1.7	0.2	0.1
847330	Automatic data-processing parts	13.4	23.2	4.1	0.6	0.1
710239	Diamonds	83.2	22.7	2.0	0.3	0.1
730890	Iron and steel structures	31.1	20.1	1.2	0.2	0.0
610910	Cotton t-shirts and similar garments	27.6	20.0	1.2	0.2	0.0
	Total 25 products	**25.2**	**68.7**	**100.0**	**14.2**	**9.8**
	Other products with increases (4 055)	24.4	30.8		59.4	18.3
	Total products with increases (4 080)	**24.6**	**38.1**		**73.6**	**28.1**
	Total products with decreases (1 752)	32.4	-27.4		26.4	-7.2
	Total imports	26.5	20.9		100.0	20.9

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United States Department of Commerce; European Commission, Eurostat [online database] https://ec.europa.eu/eurostat; International Trade Centre (ITC); and the General Administration of Customs of China.

[a] The 55 countries included are the 27 members of the European Union, Australia, Bosnia and Herzegovina, Canada, China, Georgia, India, Indonesia, Japan, Malaysia, New Zealand, Norway, New Zealand, the Republic of Korea, Serbia, South Africa, Switzerland, Thailand, Türkiye, the United Kingdom, the United States and nine Latin American countries (Argentina, Brazil, Colombia, Chile, the Dominican Republic, Mexico, Peru, Paraguay and the Plurinational State of Bolivia).

C. Global trade in services continues to recover in 2022

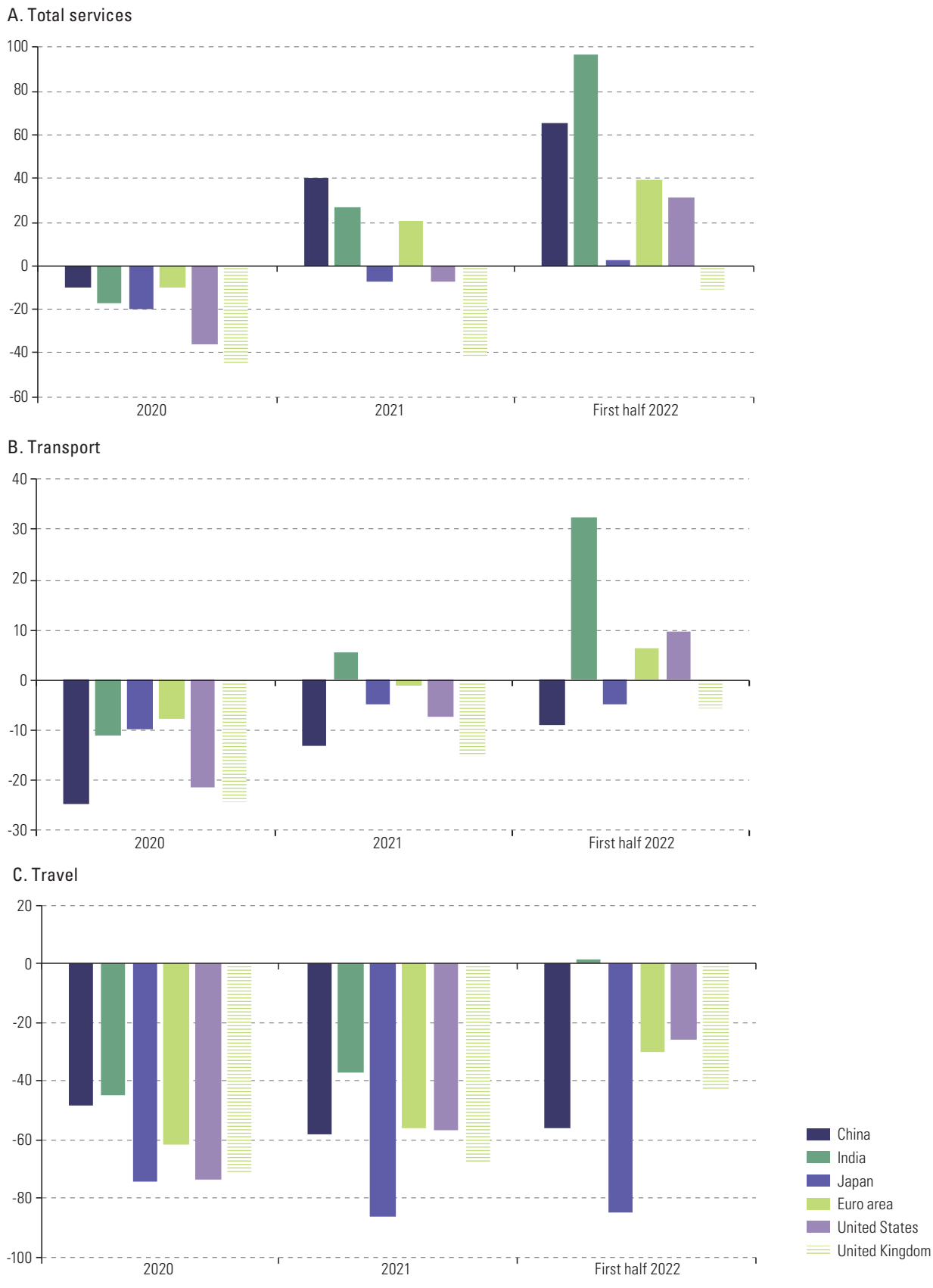
In 2021, the value of global services exports rose by 17% and thus almost fully recovered from the 18% drop suffered in 2020 in the wake of the COVID-19 pandemic. The general recovery notwithstanding, the main service categories evolved very differently. Travel was the sector hardest hit by the pandemic, with a 63% drop in value in 2020, followed by transport (-18%). In contrast, modern services —i.e. those provided digitally— posted a slight growth (0.3%). In 2021, world exports of transport services reported a strong recovery as a result of significant growth in the trade of goods, while exports of modern services accelerated their expansion. In contrast, the recovery in travel was minimal. Thus, by the end of 2021, transport and modern service exports had surpassed their pre-pandemic levels, while travel exports remained well below theirs (see figure I.13).

Figure I.13
Global value of services exports by broad categories, 2015–2021
(Index: 2015=100)

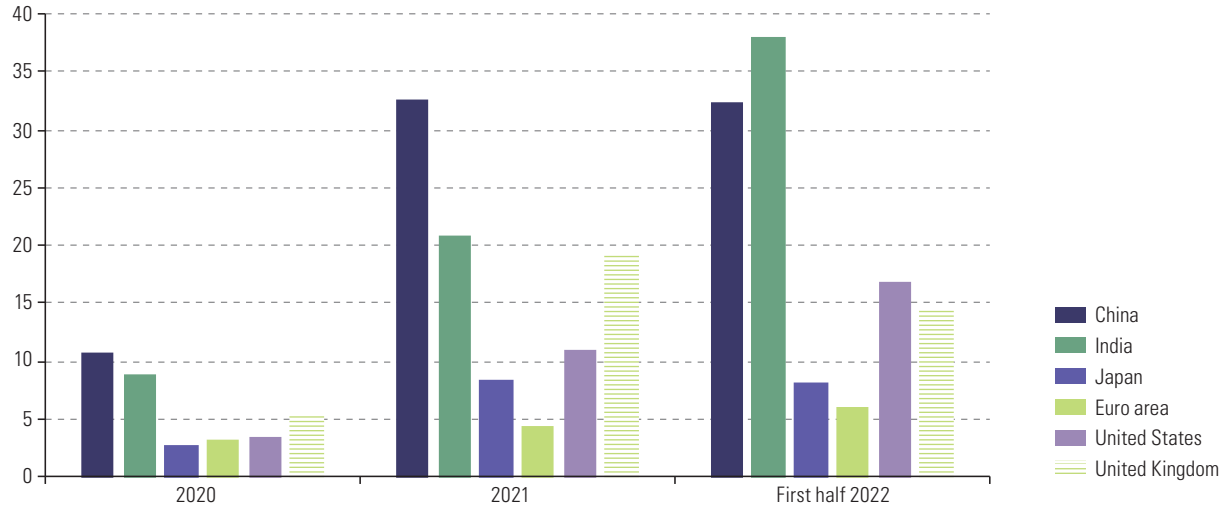
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Conference on Trade and Development (UNCTAD), UNCTADstat [online database] https://unctadstat.unctad.org/EN/.
Note: The category "other services", excluding government services, was used as a proxy for modern services.

According to the June 2022 WTO Services Trade Barometer, the recovery of the global trade in services continued in the first half of the year, despite the effects of the conflict in Ukraine (WTO, 2022c). India, the euro area and the United States led the recovery (see figure I.14A). By sector, imports of transport and modern services by the world's major importers continued to rise over the first quarter of 2022 and, in most cases, were well above their 2019 levels. In contrast, travel imports remained well below their pre-pandemic levels (see figures I.14B, I.14C and I.14D).

Figure I.14
Selected countries and blocs: change in service imports by category, 2020, 2021 and first half 2022 compared to the corresponding periods in 2019
(Percentages)



D. Modern services

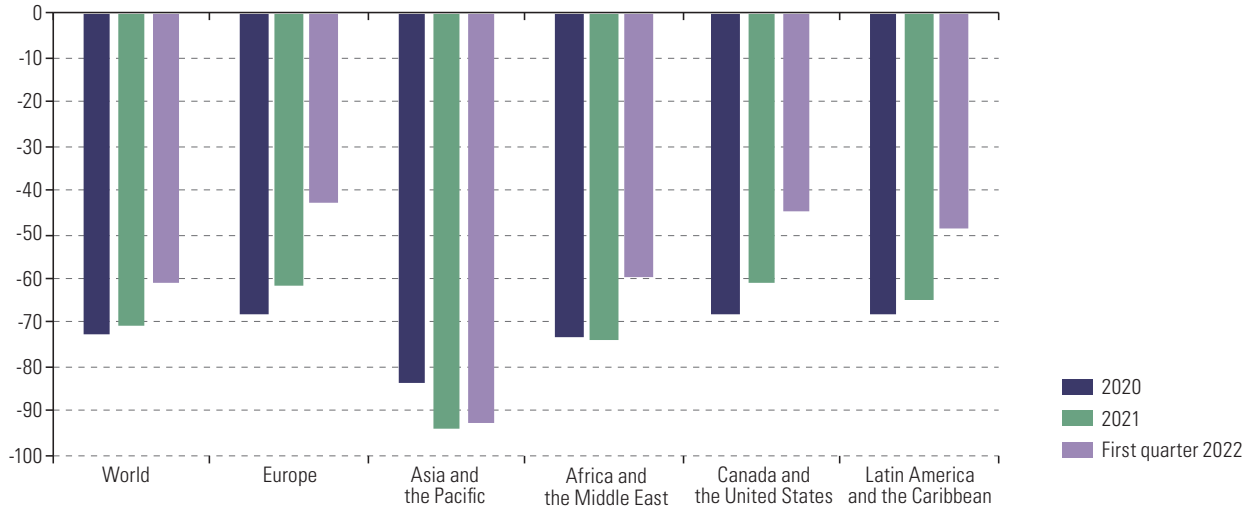


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Monetary Fund (IMF), IMF Data [online] https://data.imf.org.
Note: The euro area, the United States, the United Kingdom, China, India and Japan accounted for 52% of global service imports in 2021.

The recovery of international tourism after the collapse brought on by the pandemic has been very slow. In 2020, practically every country in the world imposed severe restrictions on international travel, resulting in the worst year for tourism activities since record-keeping began: worldwide total international tourist arrivals fell by 73% compared to 2019. In 2021, despite progress with vaccination programmes and the relaxation of border restrictions, the decline in global international tourist arrivals largely continued. In the first quarter of 2022, international arrivals nearly tripled compared to that quarter the previous year, although they were still 61% lower than the corresponding period in 2019 (UNWTO, 2022). The largest recoveries compared to 2019 were recorded in Europe, Northern America (United States and Canada) and Latin America and the Caribbean (see figure I.15). However, great uncertainty still surrounds the trend that will characterize the rest of the year, in a context where high oil prices are making travel more expensive and rising inflation is affecting tourists' purchasing power.

International shipping activity stagnated in the first half of 2022, after recovering in 2021 from the sharp drop recorded in 2020 (see figure I.16A). Freight shipping —approximated by the volume of containers handled at 94 ports— grew by just 0.1% between January and May 2022 over the level recorded in those months in 2021 (RWI/ISL Container Throughput Index, June 2022). In the second quarter of 2022, however, the downward trend in freight volumes observed in the previous two quarters was reversed (see figure I.16B). This change in the trend is on account of a combination of factors, including the conflict in Ukraine, the still-ongoing pandemic (which has particularly affected the operation of some Chinese ports) and the increase in cargo ship fuel prices (see chapter III).

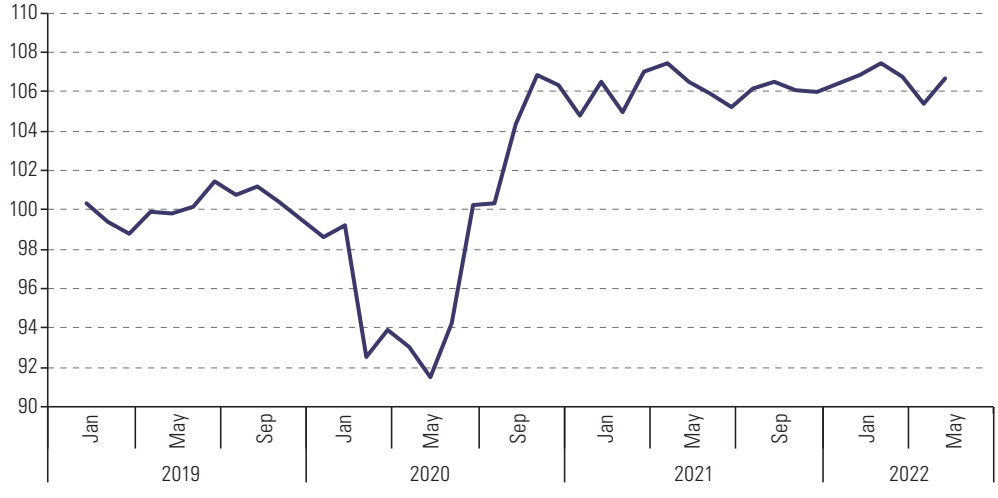
Figure I.15
World and selected regions: year-on-year change in international tourist arrivals, 2020, 2021 and first quarter 2022 compared to the corresponding periods in 2019
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Tourism Organization (UNWTO), UNWTO Tourism Data Dashboard [online] https://www.unwto.org/tourism-data/unwto-tourism-dashboard.

Figure I.16
World maritime transport: volume and prices, 2019–first half of 2022

A. RWI/ISL Container Throughput Index[a]
(Average for 2019=100)



B. ClarkSea Shipping Index price[b]
(Thousands of dollars per day)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Institute of Shipping Economics and Logistics/Leibniz-Institut für Wirtschaftsforschung (ISL/RWI), RWI/ISL Container Throughput Index [online] https://www.isl.org/en/containerindex; United Nations Conference on Trade and Development (UNCTAD), *Maritime Trade Disrupted: The War in Ukraine and Its Effects on Maritime Trade Logistics*, Geneva, 2022; Clarksons Research, Shipping Intelligence Network (SIN) [online] https://sin.clarksons.net/.

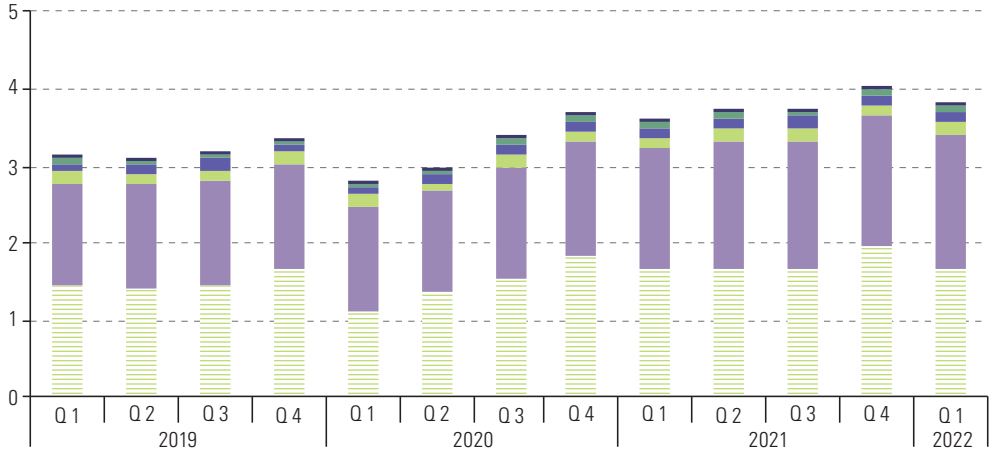
[a] The index covers container movements at 94 international ports that account for 64% of the world's container traffic.

[b] The series tracks the average revenue per ship in the main shipping sectors, including tankers, bulk carriers, container ships and gas carriers, weighted by the number of ships in each segment.

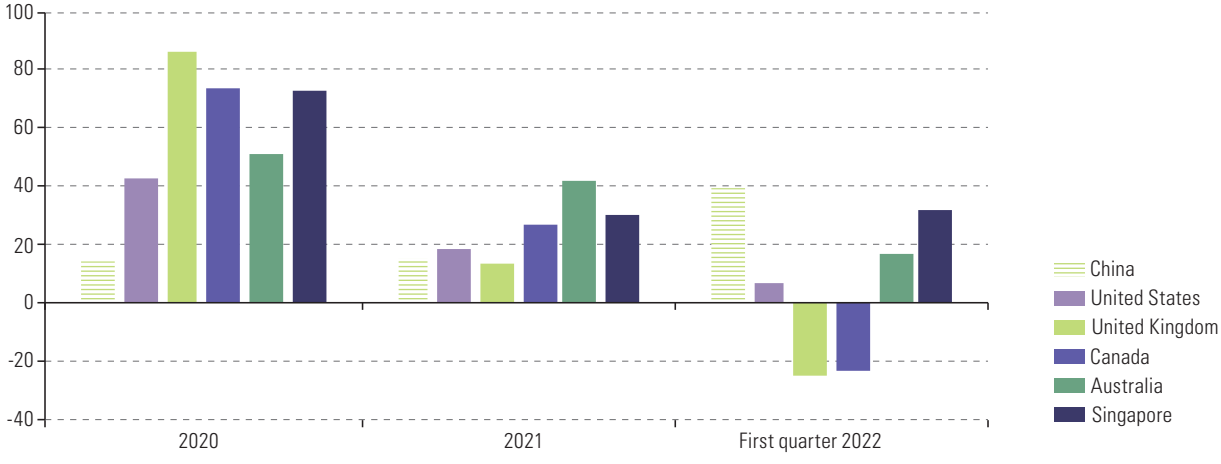
Domestic and international e-commerce expanded rapidly during the pandemic. The largest markets for business-to-consumer (B2C) e-commerce are China and the United States (see figure I.17A). In the first year of the pandemic, B2C e-commerce grew rapidly in the major developed countries, unlike in China, where this form of commerce was already widespread. In 2020, travel restrictions helped Internet commerce grow at rates of between 40% (in the United States) and more than 80% (in the United Kingdom). By 2021, the maturation of this business model contributed to growth rates falling to less than half in all those countries except Australia. In the first quarter of 2022, B2C e-commerce even declined in Canada and the United Kingdom (see figure I.17B). While the share of online sales within total retail sales increased markedly at the beginning of the pandemic in 2020, it later stagnated in 2021 and 2022, except in Australia and Singapore, where the starting levels were lower (see figure I.17C).

Figure I.17
Selected countries:[a] business-to-consumer e-commerce sales (B2C), 2019–first quarter of 2022

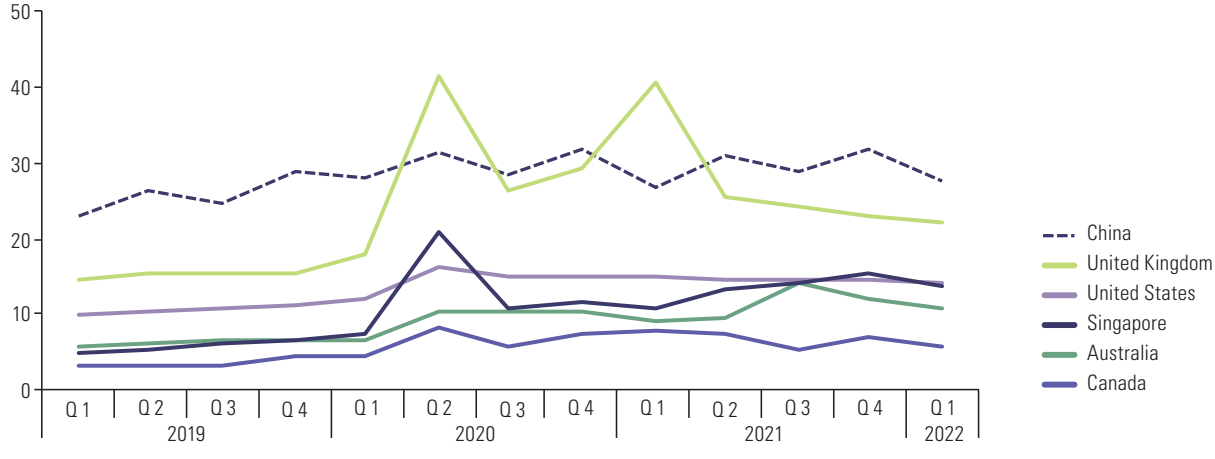
A. Sales
(Billions of dollars)



B. Change in value of sales
(Percentages)



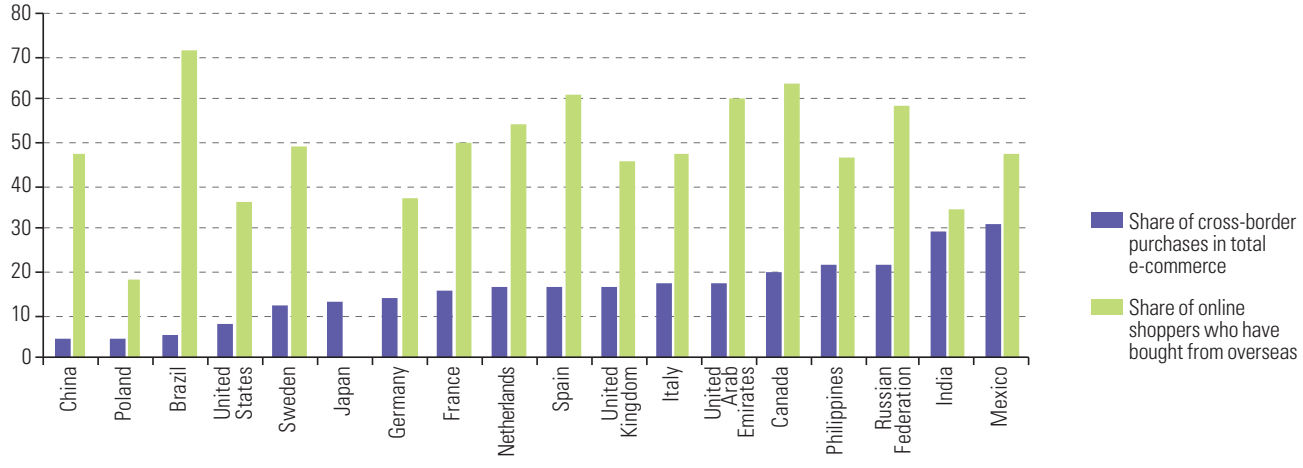
C. Share of e-commerce in total retail sales
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Australian Bureau of Statistics, Statistics Canada, Singapore Department of Statistics, United Kingdom Office for National Statistics and United States Census Bureau.
Note: Retail trade statistics coverage may vary from one country to the next. These variations are calculated on the basis of dollars in current prices.

Cross-border B2C e-sales are estimated to account for approximately one tenth of total global e-commerce sales (UNCTAD, 2021). Two-thirds of cross-border purchases are made through third-party sales platforms ("marketplaces"). In 2020, the platforms preferred by consumers making cross-border purchases were Amazon (26%), AliExpress (26%), eBay (19%), Wish (11%) and Lazada (2%) (iResearch Consulting Group, 2022). It is estimated that cross-border e-commerce could grow by more than 20% annually between 2020 and 2027, with China and the rest of Asia leading the expansion (The Paypers, 2021). The same source estimates that consumer purchases made abroad account for less than 10% of total online B2C purchases in China, Poland, Brazil and the United States, and for almost 30% in India and Mexico (see figure I.18).

Figure I.18
Selected countries: share of cross-border business-to-consumer (B2C) purchases in total e-commerce and percentage of online consumers who have shopped abroad, 2021
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of The Paypers, *Cross-Border Payments and Ecommerce Report 2021–2022*, Amsterdam, 2021.

D. Global trade and governance: between the return of multilateralism and the rising importance of geopolitics

The conflict in Ukraine has accentuated the trend towards the rising importance of geopolitical considerations within trade and global supply chains that has already been ongoing for several years. Accordingly, authorities in Europe and the United States are increasingly calling for the exploration of strategies involving reshoring, nearshoring, multi-shoring and friend-shoring (Borrell, 2020; Yellen, 2022). At the same time, in 2021 both the United States and the European Union launched a series of industrial policy initiatives aimed at increasing their productive autonomy in strategic industries, such as those linked to semiconductors, electric batteries, pharmaceuticals and critical minerals and materials (ECLAC, 2021). In the United States, these initiatives have already resulted in the enactment, in August 2022, of new laws granting major incentives for the local production of a range of products including microprocessors[2] and electric vehicles.[3]

[2] The CHIPS and Science Act provides US$ 52.7 billion for microprocessor research, development and production in the United States (White House, 2022a).

[3] The Inflation Reduction Act provides US$ 369 billion to support clean energy and climate change mitigation initiatives. The main incentives include tax credits for the local production of solar panels, wind turbines and electric batteries, and for purchases of electric vehicles manufactured in North America (White House, 2022b).

A correlate of the growing links between trade, FDI and geopolitics is the crisis that WTO has been facing for several years, as regards both the creation of new trade rules and the settlement of disputes among its members. This situation has given rise to calls from forums such as the Group of 20 (G20) for a far-reaching process of institutional reform with a view to adapting the organization to meet the current challenges of global trade. In that context, the 12th WTO Ministerial Conference, held in June 2022, achieved results that, while modest, exceeded most experts' expectations (see box I.1).

Box I.1
Main outcomes of the 12th Ministerial Conference of the World Trade Organization (WTO)

The 12th WTO Ministerial Conference (MC12) —the first in four and a half years— was held in Geneva from 12 to 17 June 2022. It was delayed because after MC11 (Buenos Aires, December 2017), MC12 had to be postponed twice on account of the COVID-19 pandemic. The period between the two ministerial conferences was marked by rising trade tensions between the United States and China in and after 2018, the termination of the functions of the WTO Appellate Body in December 2019, the early resignation of WTO Director-General Roberto Azevêdo in May 2020 and the adoption of numerous trade-restrictive measures in the wake of the pandemic. All these developments have eroded the central role of WTO in the governance of world trade.

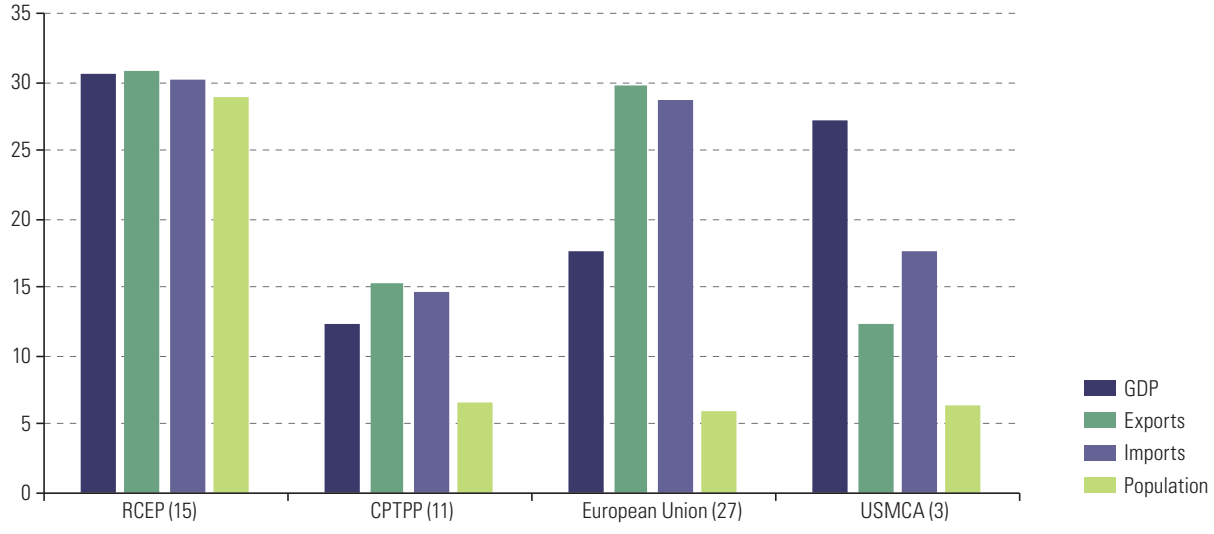
After arduous negotiations, WTO members adopted a series of agreements, known as the "Geneva Package", at the conclusion of MC12, the most significant of which were:

- Agreement on Fisheries Subsidies: The first multilateral agreement reached within the WTO framework since the 2013 Agreement on Trade Facilitation. The agreement prohibits granting subsidies to fisheries linked to overfished stocks and to those that contribute to illegal, unreported and unregulated fishing (IUU fishing), in accordance with target 14.6 of the Sustainable Development Goals. Finalized after more than 20 years of negotiations, it is the first WTO agreement to focus specifically on the conservation of a natural resource. The scope of the Agreement on Fisheries Subsidies is more limited than many WTO members wished, primarily because India objected to the inclusion of more stringent provisions. For that reason, it was agreed that negotiations would continue and that if they did not lead to the adoption of full disciplines four years after the Agreement on Fisheries Subsidies came into force, it would be terminated immediately (unless decided otherwise by WTO members).
- The waiver, for a period of five years, of TRIPS Agreement patent protection for COVID-19 vaccines in developing countries, in order to accelerate their production in those countries. This decision was reached after nearly two years of negotiations, following the submission of a related proposal by India and South Africa in October 2020. In contrast to the proposal lodged by those two countries, the decision does not apply to COVID-19 diagnostic and treatment technologies. It was agreed that WTO members would decide on its possible expansion to cover those products no later than six months after the original decision's date of adoption.
- The decision that WTO members will not impose bans or restrictions on the export of food products purchased for non-commercial humanitarian purposes by the World Food Programme.
- The decision to extend until MC13 the moratorium on imposing customs duties on electronic transmissions (i.e. trade in digital products).
- The decision to begin formal talks on the WTO reform process, which is expected to cover all the organization's functions.
- A commitment to work to overcome the current impasse regarding the Appellate Body, with the aim of implementing a fully operational dispute resolution system that is properly functioning and accessible to all members by 2024.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Trade Organization (WTO), "MC12 outcomes" [online] https://www.wto.org/english/thewto_e/minist_e/mc12_e/mc12_e.htm#outcomes.

Notwithstanding the positive outcomes of the 12th WTO Ministerial Conference, major disagreements still exist among its most influential players, and these are likely to come to the forefront in the recently announced discussions on the organization's reform. If those differences prevent the emergence of new rules on issues such as e-commerce, State-owned enterprises and the links between trade and climate change, it is likely that trade within the major regions will end up being increasingly governed by the rules established in what are known as mega-regional agreements. These include the Regional Comprehensive Economic Partnership (RCEP) in East Asia, which came into force on 1 January 2022, the Agreement between the United States of America, the United Mexican States, and Canada (USMCA) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). One feature all these agreements share is their high economic and demographic weight (see figure I.19) and, in addition, some of them contain binding provisions on issues that have not yet been regulated by WTO, such as those identified above.

Figure I.19
Selected blocs: share of global GDP, goods trade and population, 2021[a]
(Percentages)



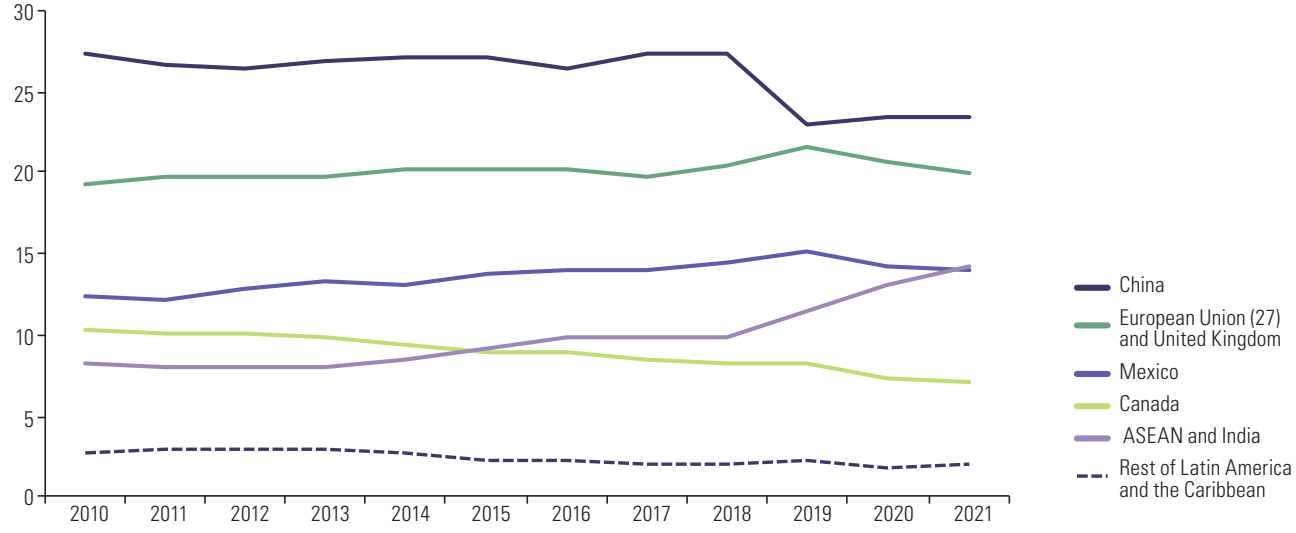
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Monetary Fund (IMF), World Economic Outlook Database [online] https://www.imf.org/en/Publications/WEO/weo-database/2022/April; World Trade Organization (WTO).
[a] The numbers in parentheses indicate the number of countries in each bloc.

The likely scenario of increasingly regionalized supply chains and their governance poses the risk of the regulatory fragmentation of global trade. Such a situation would be particularly perilous for Latin America and the Caribbean since, unlike other regions, it has not managed to generate a highly integrated regional market that would allow it to reduce its exposure to changes in its main partners' trade and industrial policies.

To date, there are no signs of a massive geographic restructuring of global value chains. The scant information available on specific cases of reshoring or nearshoring can be attributed, in part, to the fact that production offshoring usually involves large non-recoverable investments, especially if it is carried out in countries located far from the parent company. Companies that have already incurred such costs will therefore be

reluctant to undertake reshoring or nearshoring, unless they judge that the disruptions affecting global value chains are permanent and sizable (Antràs, 2020). In that context, the information available from individual companies indicates that —especially since 2019, with the ongoing trade tensions between the United States and China— there has been some relocation of manufacturing operations away from the latter country but that the beneficiaries have been mainly other Asian nations, such as Viet Nam, India and Malaysia (Wakabayashi and Mickle, 2022). This information is consistent with the fall, since 2019, in China's share of United States manufactured imports and with the increased share commanded by Southeast Asian countries and India since that same year (see figure I.20). Thus, in 2021, the combined weight of the members of the Association of Southeast Asian Nations (ASEAN) and India was equal to that of Mexico (14%), while the combined share of the remaining Latin American and Caribbean countries was under 2%.

Figure I.20
United States: share of selected countries and blocs in imports of manufactured goods, 2010–2021
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

In light of the above, great uncertainty still remains about the region's participation in the restructuring of global value chains in the coming years. The countries best positioned to benefit from any future nearshoring processes are those that, by reason of their geographic proximity, relatively low labour costs and the existence of free trade agreements with the United States, are already part of production networks centred there: examples include Mexico, the Central American nations and the Dominican Republic (Garrido, 2022; Kearney, 2022).

E. The region's 2022 export performance hinges on commodity prices and a recovery in services

1. Overview

In the first half of 2022, the value of the region's goods and services exports grew at a year-on-year rate of 23.5%, slightly down from the 26.8% result recorded in the first half of 2021 (see table I.3). However, an analysis of how exports of goods and services evolved reveals contrasting patterns in the two sectors. While total goods shipments recorded a double-digit growth rate, they also experienced a sharp slowdown compared to the first half of 2021, particularly in the mining and oil sectors (see subsection 2). Exports of services, in contrast, recovered notably. This was especially pronounced in the travel sector, on account of the reactivation of tourism (see subsection 3). A similar dynamic can be seen in the figures for imports: while goods imports slowed slightly in the first half of 2022, imports of services showed much greater momentum than in the first half of 2021.

Table I.3
Latin America and the Caribbean: year-on-year change in the value of trade in goods and services, broken down by broad sectors, first half of 2019–first half of 2022[a]
(Percentages)

Broad categories		January–June 2019	January–June 2020	January–June 2021	January–June 2022
Exports	Goods and services	**-0.8**	**-17.7**	**26.8**	**23.5**
	Goods	**-1.1**	**-15.9**	**31.4**	**22.3**
	Agricultural and livestock products	3.7	4.7	10.4	24.5
	Mining and oil	-7.2	-20.7	54.9	19.3
	Manufactures	0.0	-17.7	28.2	21.0
	Services	**0.8**	**-31.3**	**1.2**	**45.4**
	Transport	0.8	-19.2	6.0	33.3
	Travel	3.1	-54.6	-15.0	109.3
	Other services	-2.4	-2.5	10.6	16.0
Imports	Goods and services	**-1.4**	**-18.8**	**26.2**	**31.1**
	Goods	**-2.8**	**-17.5**	**31.1**	**29.5**
	Capital goods	-3.8	-16.1	22.0	18.1
	Intermediate inputs	-0.5	-12.5	32.2	25.5
	Consumer goods	-5.9	-19.0	27.3	26.3
	Fuel	-7.0	-32.5	34.4	73.6
	Services	**5.6**	**-28.8**	**6.2**	**43.3**
	Transport	-4.6	-28.4	38.7	55.8
	Travel	-9.7	-58.0	-34.2	144.9
	Other services	25.2	-12.8	1.8	17.6

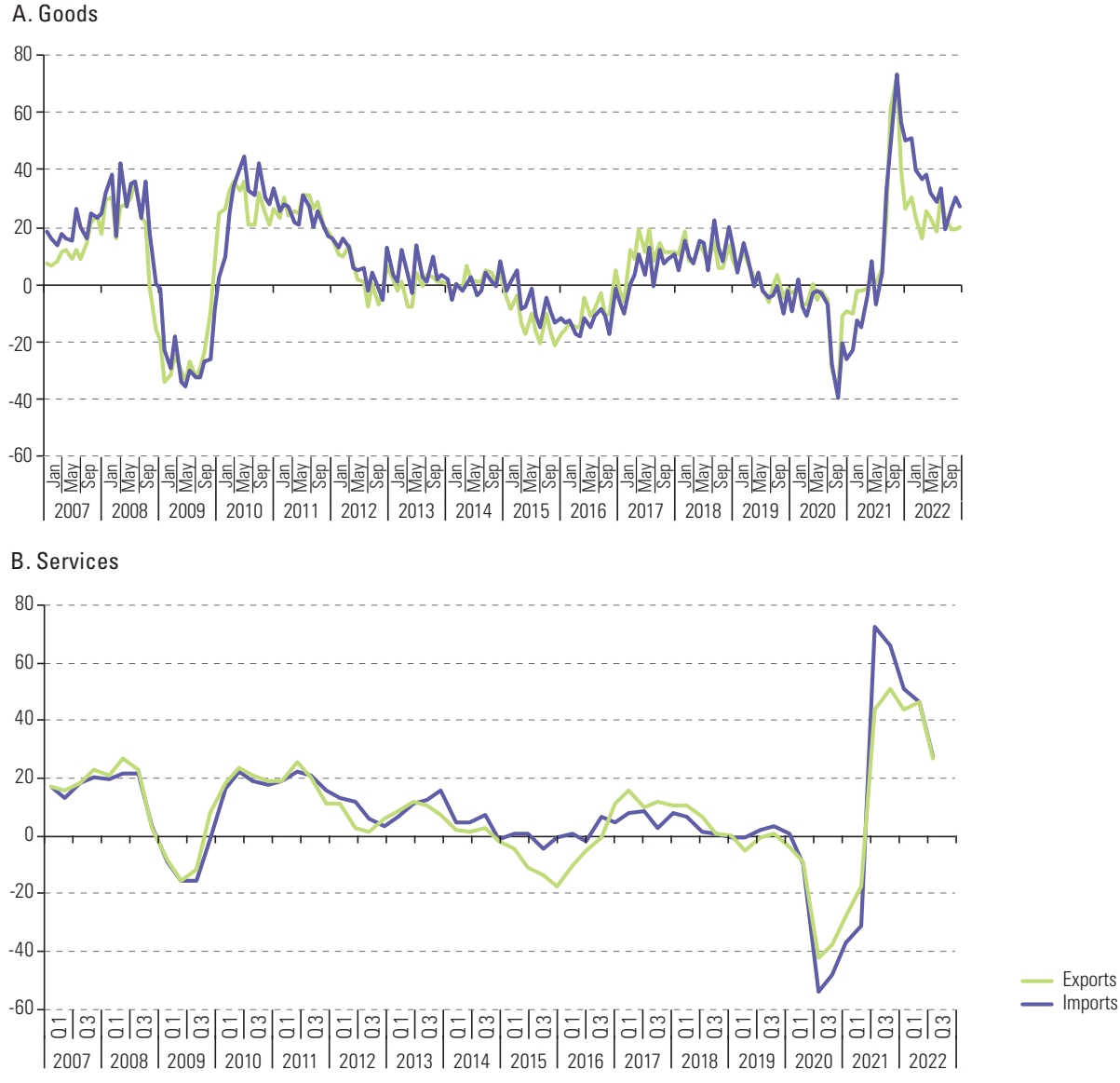
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from central banks, customs services and institutes of statistics from the region.

[a] For Guyana, Panama and Trinidad and Tobago, the figures for trade in services in the first half of 2022 include estimates for the second quarter of 2022.

During the first half of 2022, the slowdown in the regional goods trade that began in the second half of 2021 continued, after the value of exports and imports grew at year-on-year rates of close to 70% up to the middle of that year. In June 2022, the region's exports and imports were still growing, in value terms, at relatively high year-on-year rates of 20% and 27%, respectively (see figure I.21A). As will be seen below, however, this expansion was mainly on account of increased prices for oil and other commodities. In line with the sharp slowdown in regional economic activity in 2022, the increase in trade volumes has been much lower.

In the services sector, a pattern similar to that of goods can be seen, albeit with a certain lag. After registering a historic contraction in the second quarter of 2020 —mainly due to the collapse of tourism— the regional trade in services has been gradually recovering. During the first quarter of 2022, exports and imports grew at year-on-year rates of over 40%. Although that expansion slowed during the second quarter, it remains at high levels compared to the past 15 years (see figure I.21B).

Figure I.21
Latin America and the Caribbean: year-on-year change in the value of trade in goods and services, January 2007–September 2022
(Percentages)



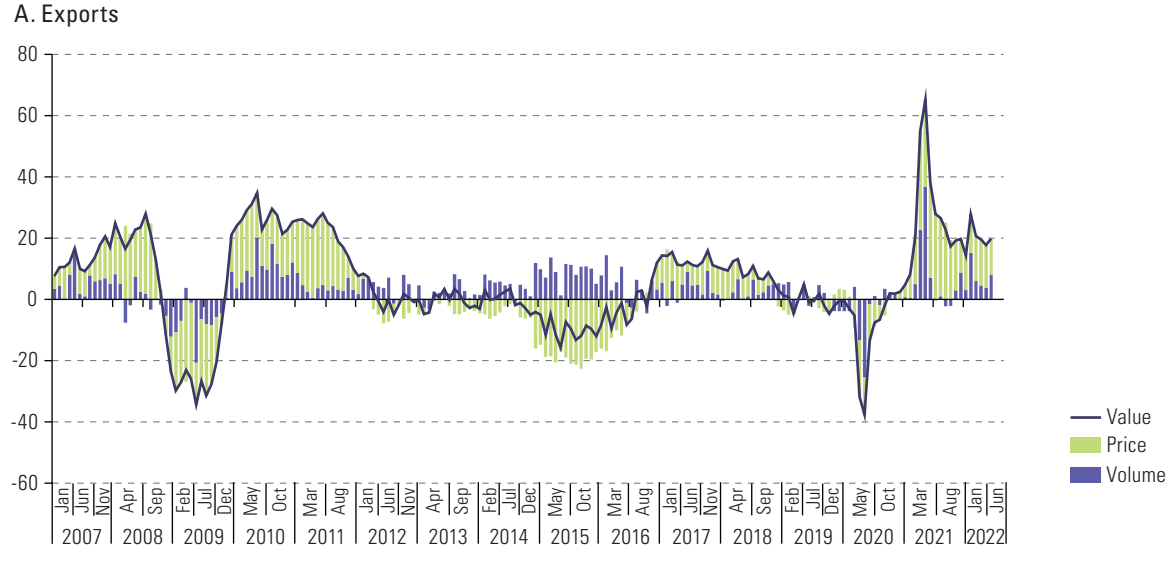
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from central banks, customs services and institutes of statistics from the region.

2. Recent developments in the region's goods trade

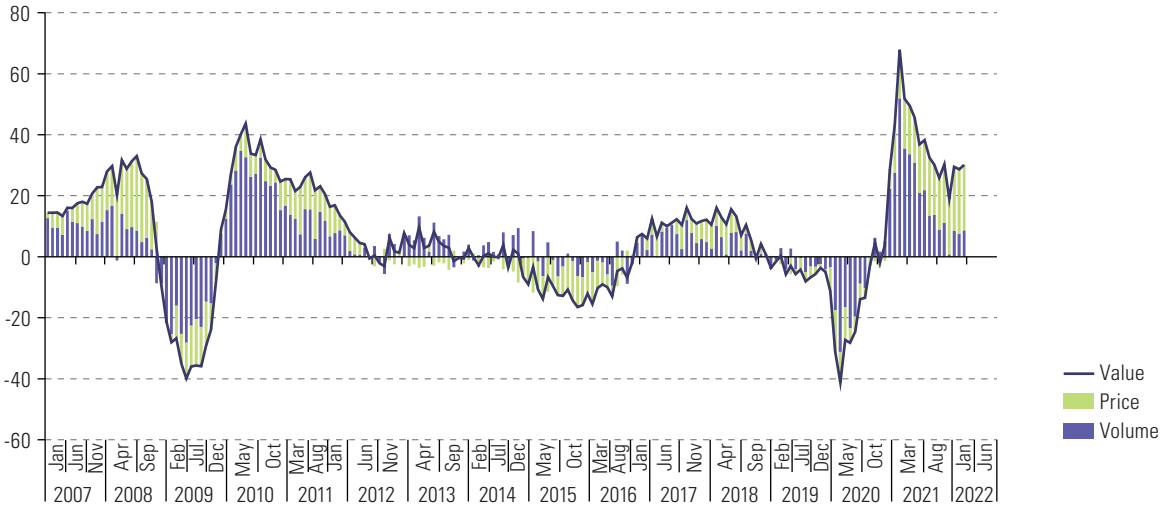
In contrast to the momentum experienced by regional goods exports during the first half of 2021, which was largely the result of the low rate recorded in the corresponding period of 2020, export growth in the first half of 2022 was mainly on account of external shocks linked to the conflict in Ukraine. Steep rises in the price of commodities —mainly energy (oil, gas and coal) and a range of agricultural and agro-industrial products (such as maize, wheat, soybeans, rice, coffee and vegetable oils)— allowed the value of the region's exports to grow at rates higher than those projected at the close of 2021. Exports were also bolstered by the depreciation of some of the region's currencies, particularly in Argentina, Chile and Colombia (Fleck, 2022).

Breaking down the change in regional goods exports by price and volume reveals a significant loss of momentum in export volumes that began in April 2021 and has been maintained throughout 2022. Thus, during the first half of this year, the increase in the price of exports outstripped growth in export volumes (see figure I.22A). In turn, over the first half of 2022, the value of goods imports has risen slightly more than that of exports (see figure I.22B). Thus, there is a dragging effect of import volumes, which until the third quarter of 2021 experienced much higher growth rates than export volumes before beginning a steep decline in October of that year. Since then, double-digit rates shifted from volume to prices as a result of the conflict in Ukraine and the onset of a period of rising prices for fuel, food, fertilizers and several key intermediate inputs used in agriculture, industry and manufacturing. Consequently, it is estimated that in the first half of 2022, the conflict in Ukraine led to a 6% drop in the region's terms of trade. That figure is the result of a 13% increase in the price of goods exports and an increase of just over 20% in the unit value of imports.

Figure I.22
Latin America and the Caribbean: year-on-year change in the value, price and volume of goods trade, January 2007–June 2022
(Percentages)



B. Imports



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

In the period from January to August 2022, the price index of the region's main commodity exports rose by 29.8% compared to the corresponding period in 2021, mainly due to a 68.1% increase in the price index of energy products (see table I.4). Similarly, the agricultural and livestock products index recorded a rise of 20.9%. In contrast to those two product groups, the price index for minerals and metals remained virtually unchanged in year-on-year terms in the first eight months of 2022. In the context of the global economic slowdown, lower growth in commodity prices can be expected in the coming months, with possible drops in the case of certain minerals and metals. Thus, for 2022 as a whole, the general price index for the commodities exported by the region is expected to grow by 22.8%.

Table I.4
Latin America and the Caribbean: change in the price indices of main export commodities, January–August 2022 compared to January–August 2021
(Percentages)

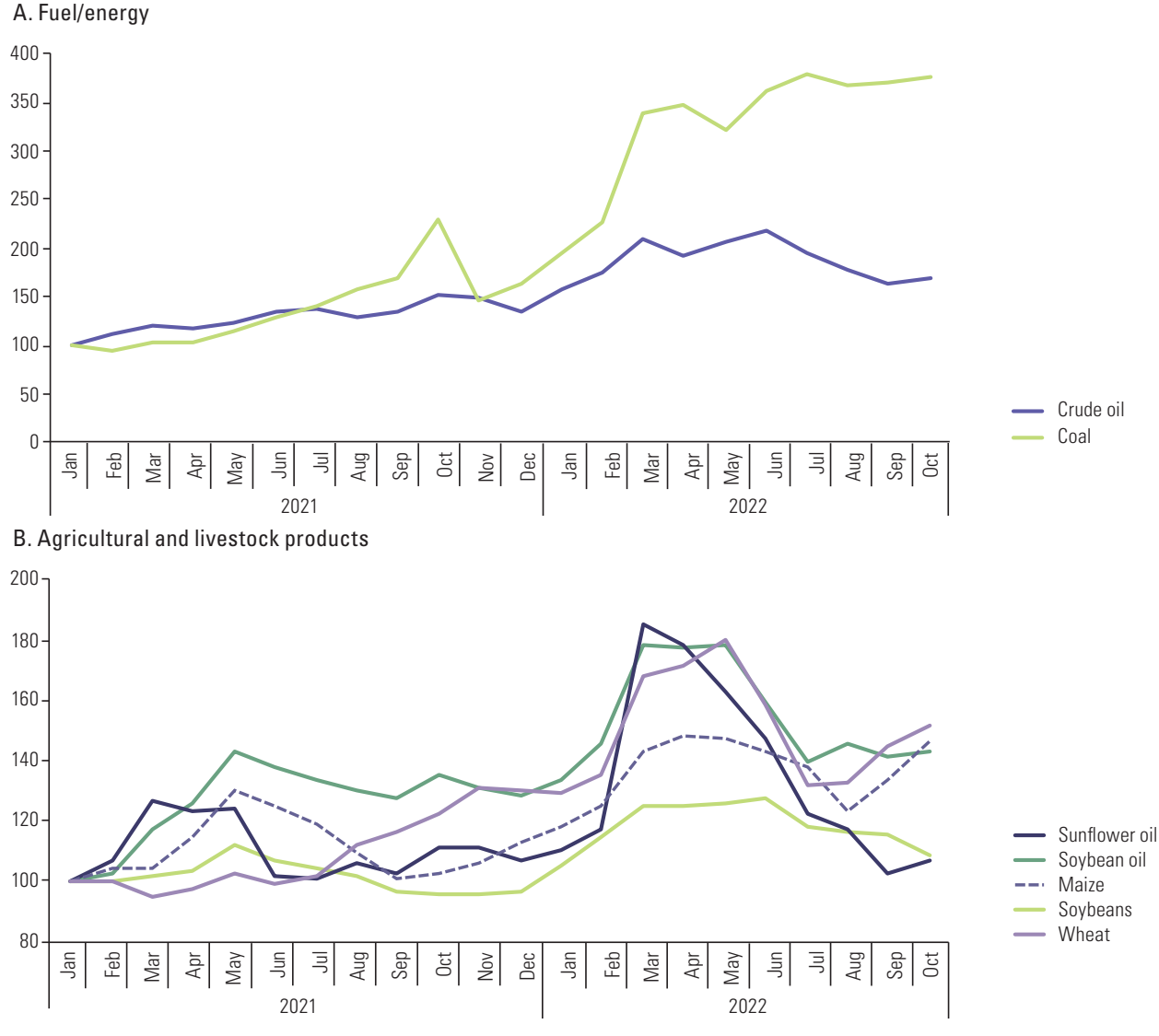
Main export commodities	Share of the region's exports (2021)[a]	Change in January–August 2022 compared to January–August 2021	Projected annual change for 2022
All commodities	**39.0**	**29.8**	**22.8**
Energy	**10.6**	**68.1**	**53.9**
Oil	8.4	58.1	47.0
Petroleum derivatives	1.5	80.0	62.6
Natural gas	0.3	94.7	90.0
Coal	0.4	138.7	77.0
Minerals and metals	**13.7**	**0.4**	**-2.5**
Other minerals and metals	4.5	6.3	2.9
Copper	2.4	0.4	-5.0
Gold	1.9	2.0	0.4
Iron	4.3	-28.6	-23.4
Aluminium	0.5	25.2	11.4
Nickel	0.1	49.6	41.7
Tin	0.1	24.8	8.1
Agricultural and livestock	**14.7**	**20.9**	**16.5**
Soybean oil	2.1	28.2	20.4
Bananas	2.8	12.5	19.0
Beef	2.6	17.3	10.0

Main export commodities	Share of the region's exports (2021)[a]	Change in January–August 2022 compared to January–August 2021	Projected annual change for 2022
Soybeans	**1.9**	**15.8**	**8.3**
Coffee	1.0	40.9	23.8
Sugar	**1.1**	**11.3**	**5.2**
Fish meal	1.0	3.9	6.5
Maize	1.5	21.3	21.9
Shrimp and other seafood	0.7	11.6	7.7

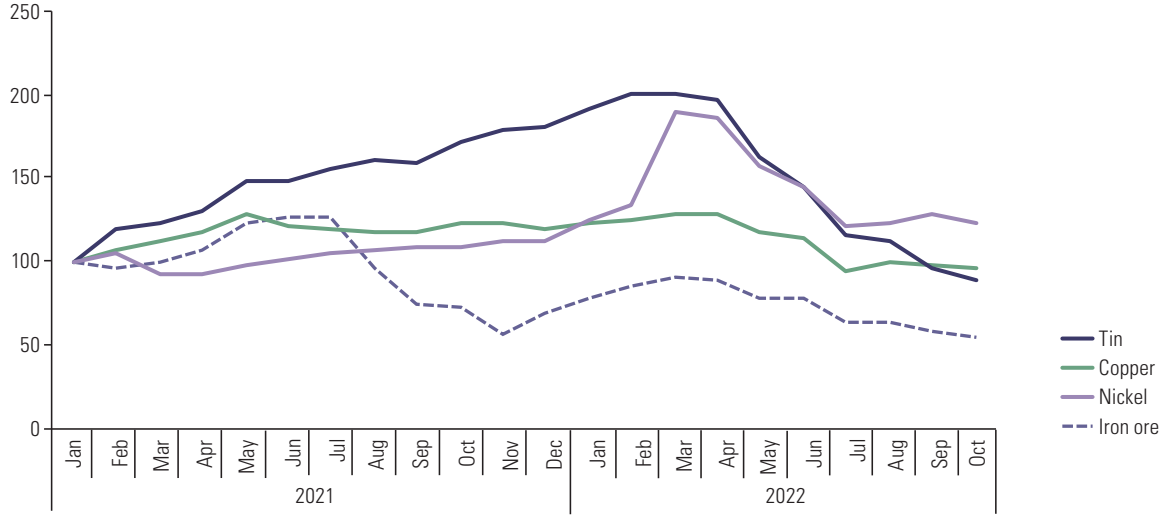
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Bank, Energy Information Administration (EIA), Chilean Copper Commission (COCHILCO), Agrarian Research and Policy Office of Chile, Rosario Board of Trade and other official sources.

In recent months, as global supplies have normalized, much of the increase in oil, grain, oilseed and fertilizer prices recorded during the early months of the conflict has been reversed (see figure I.23). There have also been significant declines in the prices of several of the main minerals and metals exported by the region, due to the slowdown in the world economy and, most particularly, to the sharp deceleration of the Chinese economy. As a result, prices for metals and minerals are expected to report slightly negative growth rates at the end of 2022.

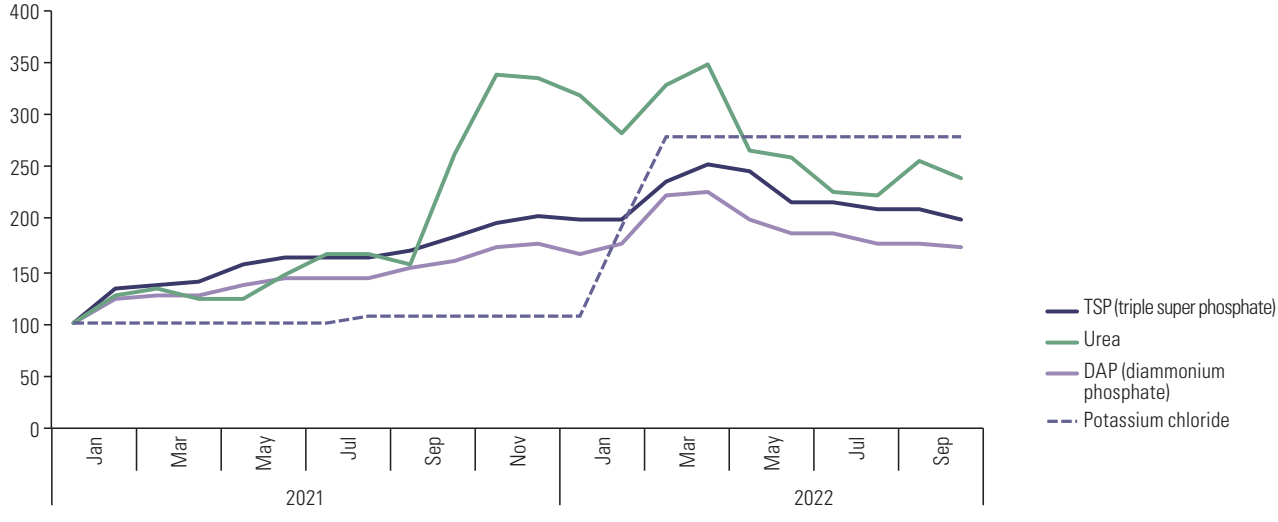
Figure I.23
Selected commodities: price indices, January 2021–October 2022
(January 2021=100)



C. Minerals and metals



D. Fertilizers



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Bank, "Commodity Markets" [online] https://www.worldbank.org/en/research/commodity-markets.

In the first half of 2022, almost all the region's countries recorded increases in the value of their goods exports (see table I.5). In South America, Paraguay alone experienced a drop in shipments (-6.8%), which was mainly on account of a 54% drop in the volume of soybean exports —the country's main export product— as a result of adverse weather conditions (CAPECO, 2022). At the same time, Jamaica's shipments showed virtually no increase compared to the first half of 2021 (0.1%), mainly because of lower exports of alumina and bauxite. This situation is expected to be reversed during the second half of the year, with the planned restart of operations at the Alpart mine (The Economist Intelligence Unit, 2022).

The value of imports increased in all the region's countries, with the exception of Haiti (-3.5%), where the economy is expected to contract by 2% in 2022 (ECLAC, 2022a). Import growth in the first half of 2022 outpaced export growth in the region as a whole and in most Latin American countries, largely because of higher fuel, food and fertilizer costs caused by the conflict in Ukraine.

Table I.5
Latin America and the Caribbean: year-on-year change in the value of goods exports and imports, first half 2021 and first half 2022
(Percentages)

	Exports		Imports	
	January–June 2021	January–June 2022	January–June 2021	January–June 2022
Latin America and the Caribbean	**31.4**	**22.2**	**31.1**	**29.5**
Southern Common Market (MERCOSUR)	**32.1**	**22.7**	**30.0**	**33.3**
Argentina	28.9	25.6	48.2	44.3
Brazil	35.2	20.5	26.5	30.9
Paraguay	16.9	-6.8	21.0	26.3
Uruguay	31.5	24.0	27.7	34.6
Venezuela (Bol. Rep. of)	-10.3	93.7	19.5	22.1
Andean Community	**41.0**	**34.6**	**34.0**	**35.9**
Bolivia (Plur. State of)	58.5	35.6	28.5	37.5
Colombia	18.0	57.4	28.4	44.5
Ecuador	31.5	34.9	29.4	43.9
Peru	64.1	18.4	44.2	22.4
Pacific Alliance	**30.9**	**20.2**	**32.4**	**27.0**
Chile	30.9	12.6	42.7	30.5
Mexico	29.0	18.8	30.3	25.0
Central American Common Market	**28.7**	**18.7**	**33.3**	**31.7**
Costa Rica	24.8	12.6	18.2	31.6
El Salvador	48.1	16.9	43.1	27.5
Guatemala	21.0	22.6	38.3	34.1
Honduras	16.6	25.3	47.6	24.9
Nicaragua	20.2	18.4	37.1	24.6
Panama (domestic exports)	108.7	15.0	27.5	44.6
Panama (including the Colón Free Zone)	43.9	19.7	26.3	38.9
The Caribbean	**30.2**	**49.8**	**20.3**	**27.1**
Cuba	1.4	15.0	-10.1	21.0
Dominican Republic	22.2	12.5	36.8	34.8
Caribbean Community (CARICOM)	**38.6**	**74.1**	**15.7**	**22.1**
Bahamas	31.7	151.8	-13.1	52.3
Barbados	28.1	30.5	48.2	5.3
Belize	21.5	25.9	19.5	39.6
Guyana	61.4	114.8	20.4	31.2
Haiti	39.7	11.0	9.9	-3.5
Jamaica	25.7	0.1	15.2	31.6
Suriname	-22.3	50.5	-5.4	4.2
Trinidad and Tobago	58.2	80.1	29.9	23.0
Organisation of Eastern Caribbean States (OECS)	**-22.5**	**12.2**	**29.3**	**8.0**
Antigua and Barbuda	-20.4	12.8	28.2	11.8
Dominica	-24.0	18.5	108.1	3.5
Grenada	45.0	20.9	3.2	3.5
Saint Kitts and Nevis	-15.7	9.1	-0.6	11.3
Saint Lucia	-21.1	9.4	19.4	12.2
Saint Vincent and the Grenadines	-46.1	8.3	40.3	2.6

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

Net exporters of fuels and, to a lesser extent, net exporters of agricultural products recorded an increase in shipments above the regional average, as they benefited from the rising prices of those products. The first group includes the Bahamas, Guyana, Trinidad and Tobago, the Bolivarian Republic of Venezuela, Colombia, Suriname, Ecuador and the Plurinational State of Bolivia, which benefited considerably from the rise in oil, gas and coal prices. In several of those countries, the volume of exports declined, but that was more than offset by higher prices[4] (see table I.6). In contrast, in the mineral- and metal-exporting countries (Chile, Cuba, the Dominican Republic, Jamaica, Nicaragua, Panama and Peru), shipments rose more slowly than the regional average. This was because of the less favourable evolution of the prices of certain minerals —including copper, iron ore, nickel, gold and silver— which in some cases was compounded by a drop in export volumes. The lower momentum of mineral and metal exports is expected to worsen during the second half of the year due to a combination of falling prices and reduced global demand.

Table I.6
Latin America and the Caribbean (13 countries):[a] change in exports of energy and mining products, January–June 2022 compared to January–June 2021
(Percentages)

Products	Share of total exports (Jan–Jun 2021)	Change		
		Value	Volume	Price
Energy and mining	**24.5**	**21**	**-3**	**24**
Energy	**9.1**	**63**	**-4**	**70**
Oil[b]	8.4	54	-6	64
Natural gas	0.3	150	31	90
Coal, coke and briquettes	0.4	161	-5	175
Mining	**15.4**	**-4**	**-1**	**-3**
Iron cluster	6.1	-23	1	-24
Copper cluster[c]	6.6	-2	-8	7
Molybdenum cluster[d]	0.3	41	-5	49
Lithium cluster	0.1	860	48	548
Bauxite and aluminium cluster	0.1	-40	-55	32
Zinc	0.4	31	-3	35
Tin	0.1	12	-22	43
Gold	1.2	10	6	4
Silver	0.1	-11	1	-12
Other mining products	0.5	2	-3	5

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from central banks, customs services and institutes of statistics from the region.
[a] Argentina, Bolivarian Republic of Venezuela, Brazil, Colombia, Chile, Dominican Republic, Ecuador, Jamaica, Honduras, Guatemala, Mexico, Peru and Plurinational State of Bolivia.
[b] Includes estimates of oil exports from the Bolivarian Republic of Venezuela based on records of export volumes and market prices.
[c] Includes copper concentrate and copper cathodes.
[d] Includes molybdenum oxide, molybdenum concentrate and ferromolybdenum.

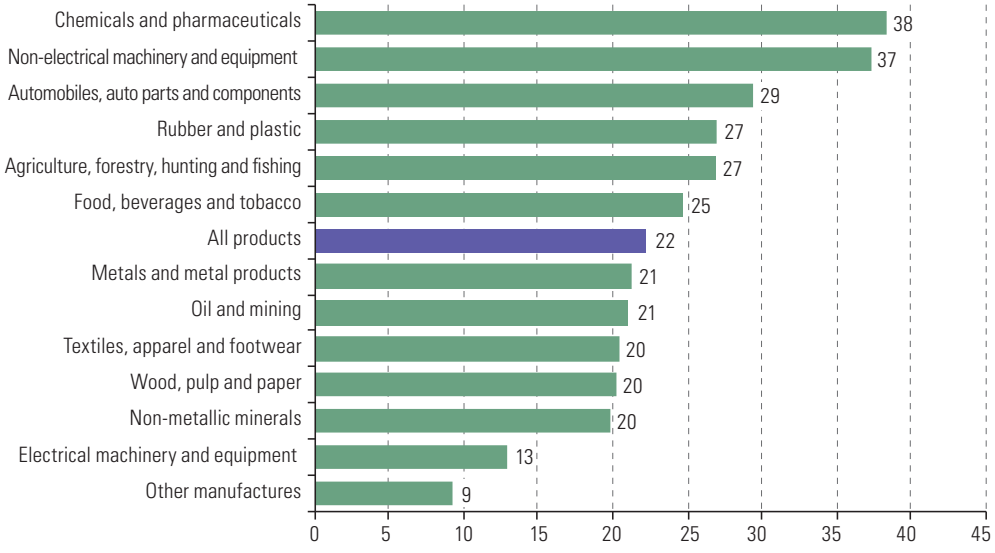
Exports from the Central American countries, with the exception of Guatemala and Honduras, were less dynamic than the regional average because of the drop in demand for maquiladora-related manufactured goods caused by the global economic slowdown. The slower growth in shipments of manufactures from this group of countries was partly offset by higher prices for certain agricultural export products (coffee, sugar, bananas and vegetable oils), which recorded year-on-year increases of 11%, 40%, 12% and 30%, respectively. The sluggishness of Central American manufactured exports also reflects the slowdown in economic activity in several of the subregion's countries since the second quarter of 2022, which negatively affected trade among the Central American countries.

[4] The volume of Ecuador's oil exports recorded a year-on-year drop of more than 10% during the first half of the year. In the Bolivarian Republic of Venezuela, after growing at year-on-year rates of over 30% between January and April, the volume of oil shipments plummeted by 59% in May and by a further 16% in June (Luján, 2022). In the Plurinational State of Bolivia, the volume of gas exports posted a year-on-year drop of 18% during the first six months of 2022 (IBCE, 2022).

Similarly, over the first half of 2022, Mexico's exports —of which manufactured goods make up 88%— also grew more slowly than the regional average (18.8% and 22.2%, respectively). The growth of non-oil exports (16.4%) was driven by shipments to the country's main market, the United States (17.9%) (Bank of Mexico, 2022). Since the United States accounted for 78% of Mexico's goods exports and 82% of its non-oil shipments in 2021, the slowdown in its economy will lead to lower export momentum for Mexico in the second half of 2022.

The disaggregated information available for 14 Latin American and Caribbean countries that together accounted for 96% of the region's total goods exports in 2021 reveals that, in the first half of 2022, the group's exports rose across the board and, in almost all of them, at double-digit year-on-year rates. The most dynamic sectors are all manufacturing industries and are primarily driven by shipments to the United States and within the region itself. These include chemicals and pharmaceuticals, non-electrical machinery and equipment and the automotive industry (see figure I.24). Also notable were the agriculture, forestry, hunting and fishing and food, beverages and tobacco sectors, where shipments grew above the regional average and maintained the good performance recorded during 2020 and 2021 (ECLAC, 2021). It should be noted that export performance by sector varies significantly among different subregions and groupings: for example, the agricultural sector was less dynamic than the regional average in the Andean Community and Caribbean countries, and the same was true for oil and mining in the Southern Common Market (MERCOSUR).

Figure I.24
Latin America and the Caribbean (14 countries):[a] change in the value of goods exports by broad economic sectors, January–June 2022 compared to January–June 2021
(Percentages)



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

[a] Argentina, Barbados, Brazil, Colombia, Costa Rica, Chile, Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, Peru, Plurinational State of Bolivia and Trinidad and Tobago.

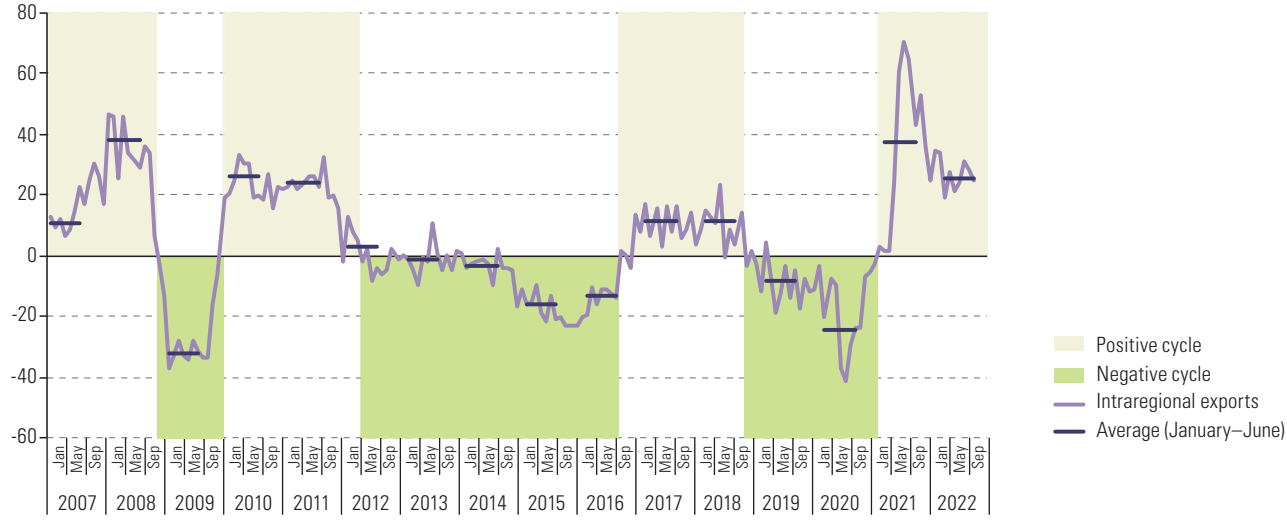
Exports of goods to the main extraregional trading partners did not perform uniformly during the first seven months of 2022. First, there was a marked slowdown in shipments to China, which in July posted a year-on-year growth rate of just 3%. This contrasts with the performance of exports to the European Union and the United States, which as of the same month continued to grow at double-digit year-on-year rates (see figure I.25A). In 2022, purchases from China trended downward, in contrast to imports from the United States (see figure I.25B). In July 2022, the region's purchases from its three main extraregional partners continued to register year-on-year variations of more than 15%. In the second half of the year, however, imports are expected to be less dynamic, in line with the slowdown in the regional economy.

Figure I.25
Latin America and the Caribbean: year-on-year change in the value of the goods trade with China, the United States and the European Union, January 2018–July 2022
(Percentages)

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

In the first half of 2022, the value of intraregional exports grew at an average year-on-year rate of 25%, after reaching a peak of 70% in May 2021 (see figure I.26). With this, the recovery of intraregional trade continued after the negative cycle recorded between September 2018 and November 2020, which was largely influenced by the outbreak of the COVID-19 pandemic. The average expansion of intraregional trade in the first six months of 2022 is very similar to that recorded in the same periods of 2010 and 2011 and is equal to twice that achieved in the first half of 2017 and 2018, before the last negative cycle.

Figure I.26
Latin America and the Caribbean: year-on-year change in the value of intraregional goods exports, January 2007–July 2022
(Percentages)



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

In the first half of 2022, the value of intraregional exports recorded double-digit increases across almost every sector (see table I.7). Due to sharp increases in the prices of oil, fuels and chemicals, those sectors experienced the largest increases in shipments, followed by wood, pulp and paper, non-electrical machinery and equipment, and automotive products and auto parts. Significantly, the sectors with the highest increases produce capital goods and intermediate inputs for various industries. Similarly, as the only three sectors where intraregional exports have posted uninterrupted growth since 2019, agricultural and livestock products, food, beverages and tobacco, and pharmaceuticals are notable for their resilience. In the case of the agricultural and livestock sector, intraregional shipments experienced greater momentum in the first half of 2022 than in the same period of 2021 as a result of the conflict in Ukraine, especially wheat and meslin flour shipments from Argentina to Brazil and other countries in the region.

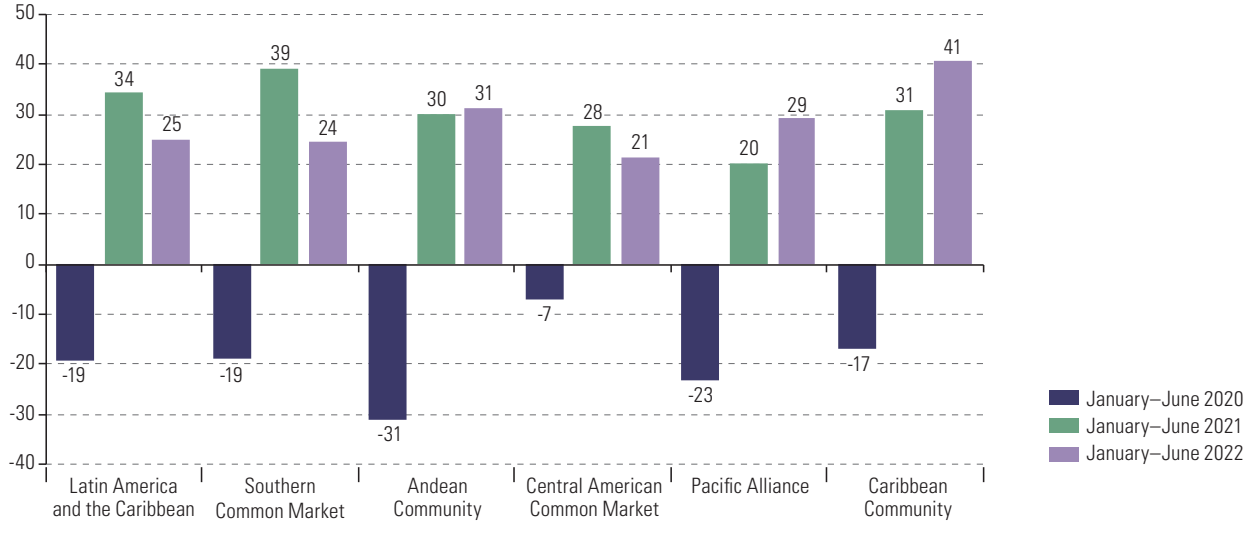
Table I.7
Latin America and the Caribbean: year-on-year change in the value of intraregional goods exports, 2019–2021, January–June 2021 and January–June 2022
(Percentages)

Sector	2019	2020	2021	Jan–Jun 2021	Jan–Jun 2022
Agricultural and livestock products	8.8	4.9	24.5	17.6	28.2
Oil and mining	-16.1	-28.9	48.3	28.9	51.9
Food, beverages and tobacco	3.1	9.1	25.5	24.1	15.8
Textiles, apparel and footwear	8.7	-23.1	44.7	57.3	23.9
Wood, pulp and paper	-2.8	-13.1	27.6	14.3	46.6
Chemicals and petrochemicals	4.5	-8.9	30.5	18.9	52.4
Pharmaceuticals	0.8	1.5	10.9	5.6	28.4
Rubber and plastic	-1.6	-11.1	44.1	45.1	29.6
Non-metallic minerals	-3.2	-12.6	43.3	55.9	21.0
Metals and metal products	-6.1	-14.5	65.4	65.0	25.2
Non-electrical machinery and equipment	-9.7	-19.5	36.3	43.0	31.1
Electrical machinery and equipment	-2.4	-14.3	42.4	71.2	8.6
Automobiles, auto parts and components	-22.7	-30.5	39.4	56.8	30.4
Other manufactures	9.7	-16.0	40.2	30.9	1.2
All sectors	**-4.0**	**-14.0**	**37.0**	**34.4**	**25.0**

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

The positive performance of intraregional trade during the first half of 2022 was enjoyed by all the major subregional blocs (see figure I.27). As a result, intraregional trade is close to recovering its pre-pandemic share of the total exports of the region and its various blocs (see table I.8), especially in those sectors where complementary relationships encourage intra-industry trade (in particular, the chemical, pharmaceutical, wood and paper, automotive and agri-food industries) (ECLAC, 2021). It should be noted, however, that the share of intraregional trade in total exports from Latin America and the Caribbean continues to be one of the lowest in the world.

Figure I.27
Latin America and the Caribbean and selected blocs: year-on-year change in intraregional goods exports, January–June 2019, 2020 and 2022
(Percentages)



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

Table I.8
Latin America and the Caribbean and selected blocs: coefficient of intraregional and intrabloc trade, January–June 2019, 2020 and 2022
(Percentages of total goods exports)

	2019	2020	2022	Most dynamic sectors
Latin America and the Caribbean	**15.2**	**14.6**	**14.9**	**Agribusiness; oil and mining; pharmaceuticals; wood, pulp and paper**
MERCOSUR	12.9	11.7	11.9	Oil and mining; pharmaceuticals; wood, pulp and paper
Andean Community	6.6	6.1	6.4	Oil and mining; chemicals and petrochemicals; automotive
Central American Common Market	28.2	27.2	27.7	Oil and mining; wood, pulp and paper; metals and metal products
Pacific Alliance	2.9	2.6	2.9	Oil and mining; chemicals and petrochemicals; wood, pulp and paper
Caribbean Community	8.9	8.4	8.0	Oil and mining; chemicals and petrochemicals; wood; electrical machinery and equipment

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

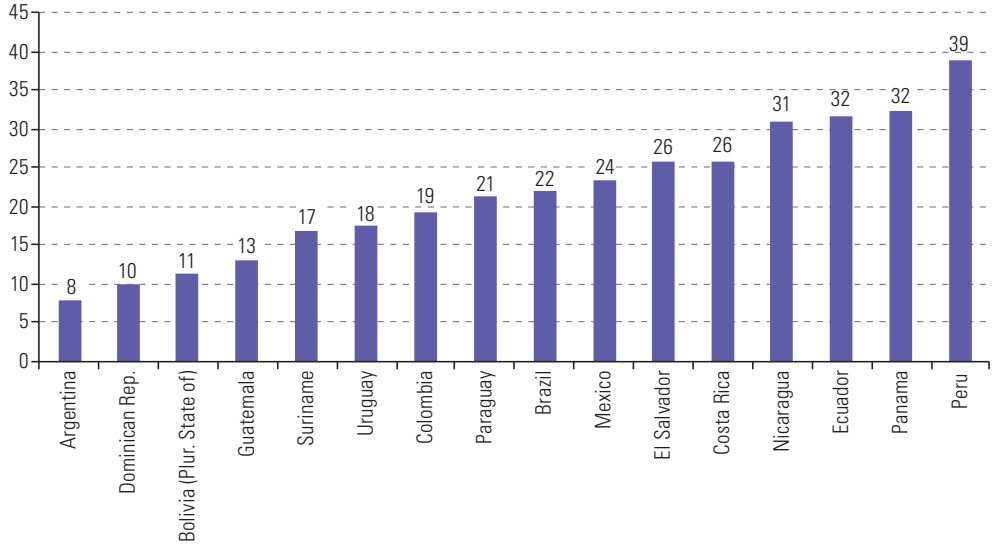
In general, the Latin American and Caribbean region has a low direct exposure to the commercial impact of the conflict in Ukraine (ECLAC, 2022b). In 2020, the Russian Federation and Ukraine accounted for 0.6% of the region's goods exports, while 0.7% of its imports came from those countries. There are three countries in the region where the Russian and Ukrainian markets are relatively important for exports: Jamaica (5.8%), Paraguay (5.6%) and Ecuador (5%). As for imports, the combined share of the Russian Federation and Ukraine is below 2% in all the region's countries. The Russian Federation and Ukraine are not major suppliers of grains and oilseeds to the region, in contrast to Africa, the Middle East and Central Asia. However, the impact of the conflict has been felt in the region in two main ways: the high cost and reduced availability of fertilizers, and inflationary pressures resulting from the increase in fuel, grain and oilseed prices.

Several Latin American countries are highly dependent on fertilizer shipments from the Russian Federation (see figure I.28). It should be noted that the country is the world's leading exporter of fertilizers and that global shipments are highly concentrated geographically.[5] Thus, the shortages that arose in the international market, especially during the first months of the conflict, could have a negative impact on the region's harvests and, consequently, on food security beyond 2022. This situation is aggravated by the fact that only one country in the region (Trinidad and Tobago) is a net exporter of fertilizers, and also by the fact that fertilizers account for a large share of agricultural production costs: between 30% and 50% for soybeans, legumes, maize, coffee and rice, and between 15% and 20% for bananas, potatoes, sugarcane and cocoa (Aldana, 2022; Perfetti and others, 2022).

At the same time, rising prices for food, fertilizers and energy (all essential inputs for food production) have meant a sharp increase in regional inflation. In particular, in June 2022, year-on-year food and beverage inflation hit double-digit values in most of the region's countries for which information is available (see figure I.29). This situation threatens regional food security, especially in the countries with food trade deficits, most of which are located in the Caribbean subregion (see table I.9).

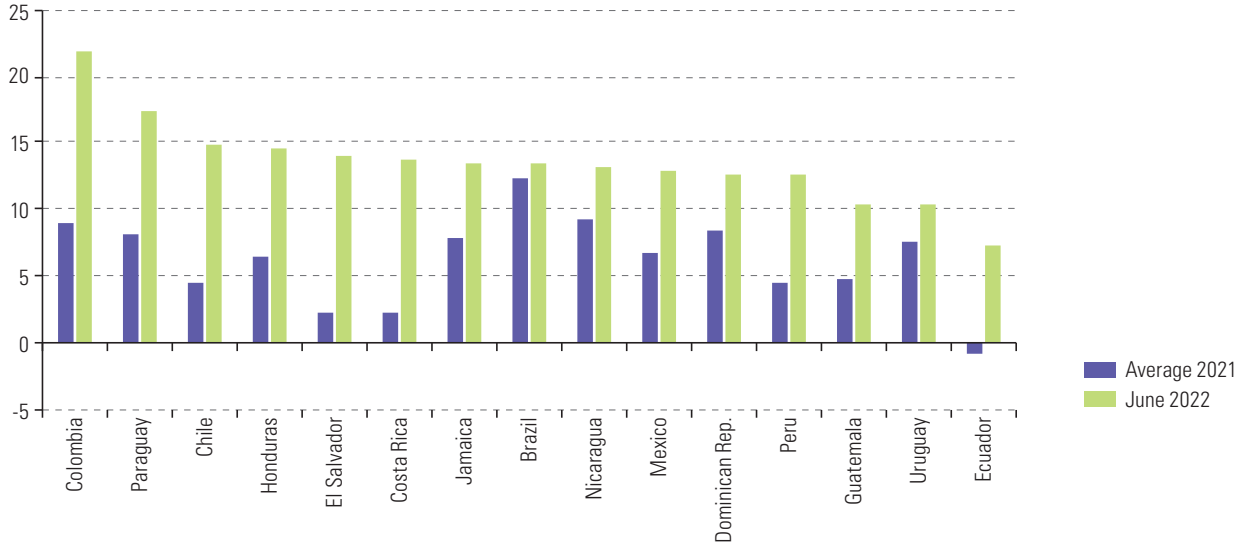
[5] In 2021, the top five exporters (the Russian Federation, China, Canada, Morocco and the United States, in that order) accounted for 47% of global fertilizer shipments.

Figure I.28
Latin America and the Caribbean (16 countries): Russian Federation's share of fertilizer imports, 2020
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

Figure I.29
Latin America and the Caribbean (15 countries): annual food and beverage inflation rates, average for 2021 and June 2022[a]
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), CEPALSTAT [online database] https://statistics.cepal.org/portal/cepalstat/index.html?lang=en.
[a] June 2022 data for Brazil, Chile and Costa Rica use May 2022 figures.

Table I.9
Latin America and the Caribbean: food trade balance, by subsector, average for 2019–2021
(Millions of dollars)

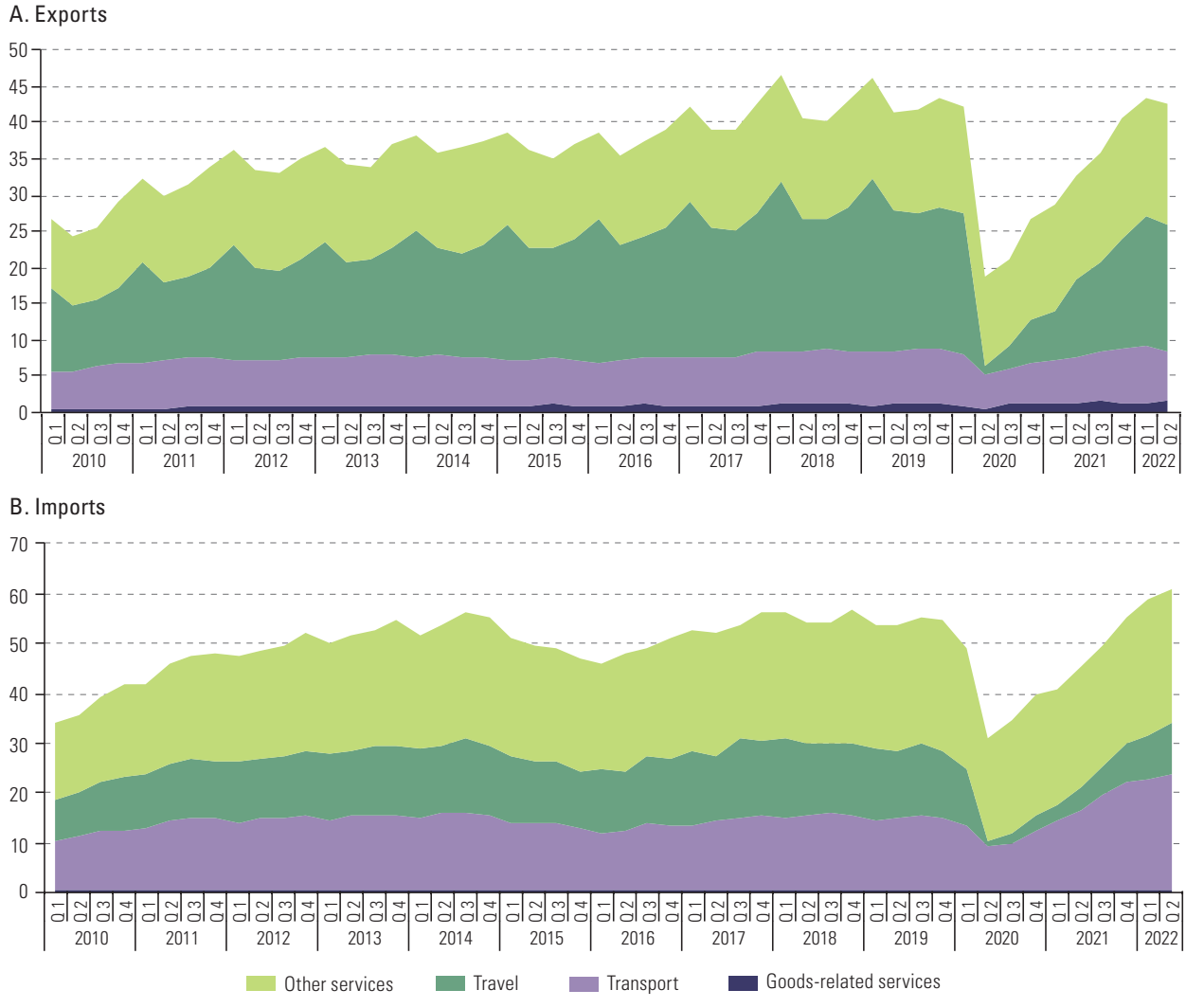
Countries/subregions/region	Meat and meat by-products	Fish and seafood	Dairy products	Cereals	Sugar	Other processed foods	Total food
Latin America and the Caribbean	**20 080**	**13 263**	**-2 109**	**37 067**	**10 261**	**69 818**	**148 381**
Latin America	**20 433**	**13 209**	**-1 970**	**37 414**	**10 063**	**69 902**	**149 050**
South America	**23 081**	**12 748**	**392**	**45 400**	**7 724**	**50 187**	**139 531**
Southern Common Market (MERCOSUR)	**23 527**	**1 014**	**946**	**50 082**	**7 958**	**30 182**	**113 710**
Argentina	3 341	1 526	765	11 214	317	16 219	33 382
Brazil	17 240	-845	-416	35 181	7 962	14 316	73 437
Paraguay	1 295	-10	0	2 992	-31	660	4 906
Uruguay	1 696	67	619	1 338	-88	-137	3 496
Venezuela (Bolivarian Republic of)	-45	276	-20	-643	-202	-876	-1 511
Andean Community	**-172**	**6 401**	**-316**	**-3 668**	**185**	**13 503**	**15 933**
Bolivia (Plurinational State of)	60	0	2	139	-16	651	836
Colombia	-258	-322	-164	-2 393	324	3 333	521
Ecuador	-18	5 819	-6	-438	-80	4 491	9 767
Peru	43	904	-148	-976	-43	5 028	4 809
Pacific Alliance	**-2 151**	**6 132**	**-2 020**	**-10 287**	**1 541**	**31 722**	**24 937**
Chile	-274	5 333	-239	-1 014	-419	6 502	9 888
Mexico	-1 662	217	-1 469	-5 904	1 679	16 859	9 719
Central America	**-225**	**469**	**-354**	**-1 017**	**886**	**4 318**	**4 078**
Costa Rica	2	-51	80	-426	23	2 862	2 490
El Salvador	-290	53	-223	-305	253	-724	-1 235
Guatemala	-260	13	-209	251	604	2 047	2 446
Honduras	-118	173	-32	-220	-9	693	486
Nicaragua	564	290	154	-73	116	397	1 448
Panama	-122	-9	-124	-245	-101	-957	-1 557
The Caribbean	**-1 114**	**-171**	**-678**	**-1 412**	**-27**	**-1 545**	**-4 947**
Cuba	-353	54	-139	-346	199	-84	-669
Dominican Republic	-277	-214	-267	-646	16	107	-1 280
Caribbean Community (CARICOM)	**-484**	**-12**	**-272**	**-420**	**-241**	**-1 569**	**-2 998**
Bahamas	-104	57	0	-13	-22	-245	-326
Barbados	-34	-25	-22	-30	-27	-131	-269
Belize	-9	23	-20	-8	62	-45	3
Guyana	-10	44	-33	186	-6	-100	81
Haiti	-128	-4	-46	-329	-116	-493	-1 117
Jamaica	-80	-105	-37	-152	-80	-276	-729
Suriname	-21	26	-14	19	-15	-70	-75
Trinidad and Tobago	-98	-28	-100	-94	-37	-209	-565
Organisation of Eastern Caribbean States (OECS)	**-116**	**-22**	**-51**	**-24**	**-26**	**-273**	**-512**
Antigua and Barbuda	-27	-8	-12	-3	-5	-95	-149
Dominica	-9	-1	-3	-1	-2	-19	-35
Grenada	-19	-2	-11	-2	-5	-43	-83
Saint Kitts and Nevis	-10	-3	-3	-1	-2	-20	-39
Saint Lucia	-31	-10	-15	-3	-7	-66	-133
Saint Vincent and the Grenadines	-20	2	-8	-14	-5	-30	-75

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.
Note: Data for the Bahamas, the Bolivarian Republic of Venezuela, Cuba, Dominica, Haiti and Saint Kitts and Nevis were obtained from mirror statistics.

3. Recent developments in the regional services trade

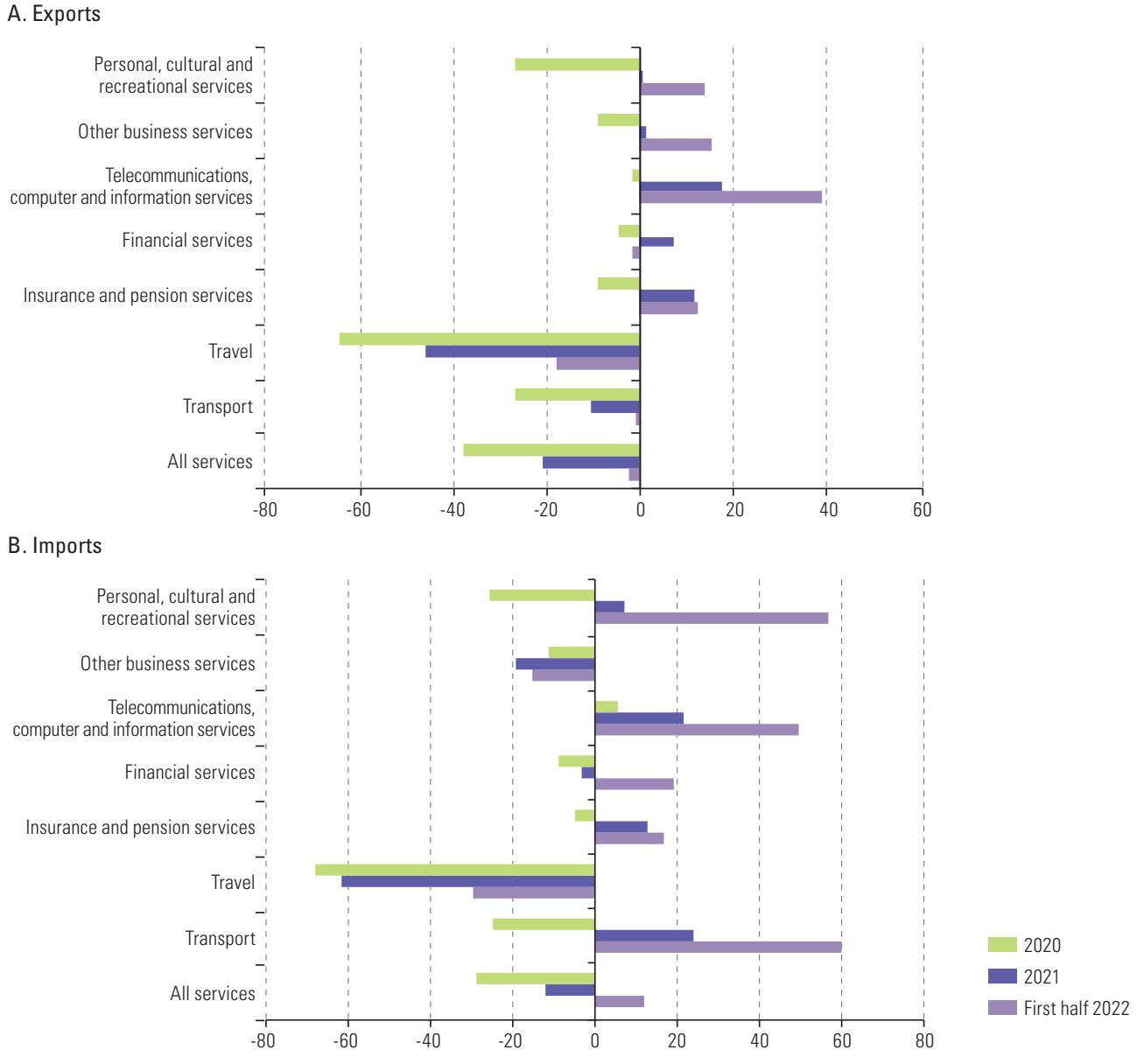
The recovery in the regional services trade that began in the third quarter of 2020 continued in the first half of 2022, following the sharp drop that the pandemic caused in the second quarter of 2020 (see figure I.30). The recovery has been most notable in imports, the value of which in the first half of 2022 exceeded that recorded in the corresponding period of 2019 by 6%. In contrast, the value of the region's exports in the same period was still 5% lower than the 2019 result (see figure I.31). Particular levels of momentum were seen in telecommunications, computer technology and information services, where exports and imports grew at year-on-year rates of 39% and 49% respectively. Meanwhile, travel exports (mainly tourism) in the first half of 2022 were still 18% below the level recorded over the same months in 2019.

Figure I.30
Latin America (23 countries):[a] value of trade in services, first quarter of 2010–second quarter of 2022
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of balance of payments data from the countries.
[a] Argentina, Bahamas, Belize, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Plurinational State of Bolivia, Suriname, Trinidad and Tobago and Uruguay.

Figure I.31
Latin America (23 countries): change in the value of services trade by category, 2020, 2021 and first half of 2022 compared to the same periods in 2019
(Percentages)

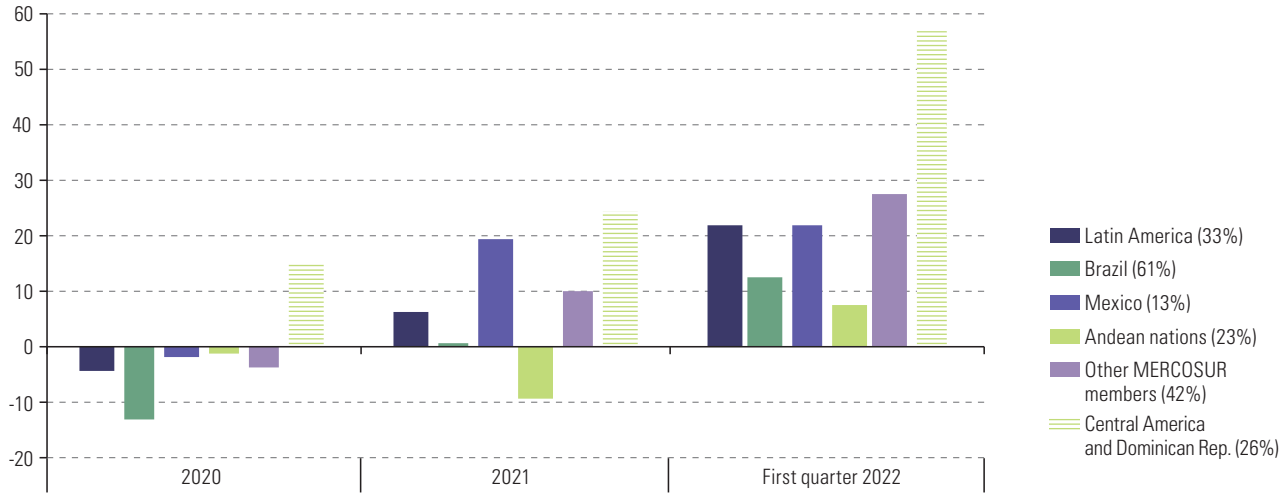


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of balance of payments data from the countries.
[a] Argentina, Bahamas, Belize, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Plurinational State of Bolivia, Suriname, Trinidad and Tobago and Uruguay.

While Brazil, Mexico and the three blocs shown in figure I.32 have similar patterns in terms of their exports of travel and modern services in the first quarter of 2022, their results in transport service exports were less uniform. In all the countries and blocs, travel exports remained below their 2019 levels, while the opposite was true for modern services. Transport service exports from the South American countries and blocs in the first quarter of 2022 exceeded the levels recorded in the corresponding period of 2019, while those of Mexico, the Central American countries and the Dominican Republic remained below them. This differentiated pattern can be partly explained by the boom in commodity exports from the South American countries in the first quarter of 2022, which has boosted exports of transport services.

Figure I.32
Latin America (17 countries) and selected countries and blocs: change in the value of services exports, by category, 2020, 2021 and first quarter of 2022 compared to the corresponding periods in 2019
(Percentages)

D. Modern services



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

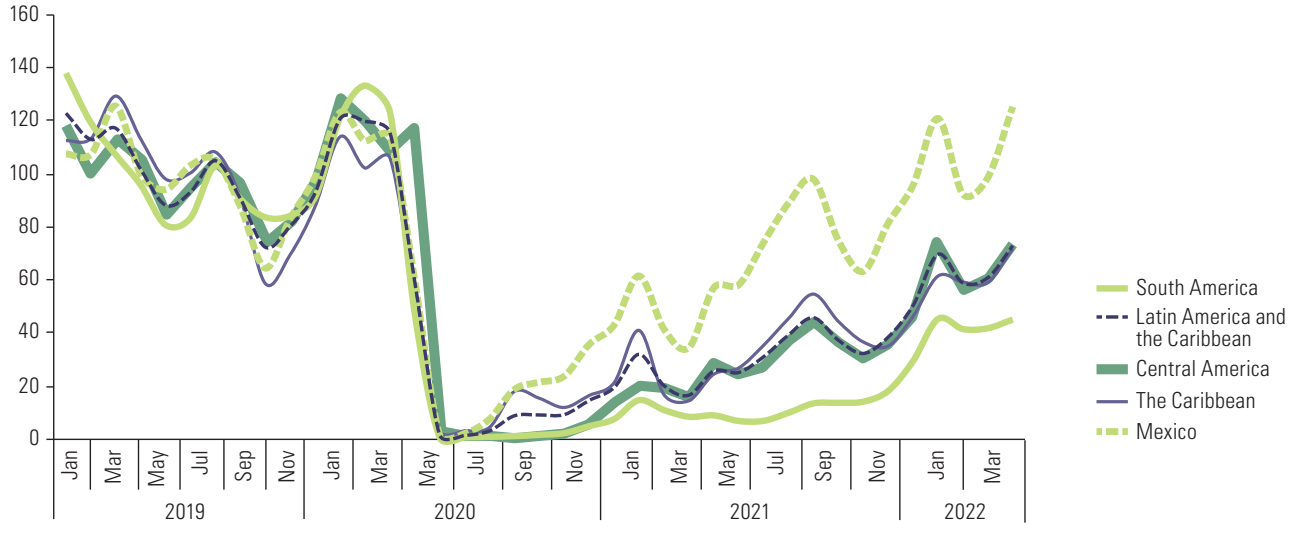
Notes: Central America includes Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua; other MERCOSUR members include Argentina, Paraguay and Uruguay; and the Andean countries group includes Chile, Colombia, Ecuador, Peru and the Plurinational State of Bolivia. The percentages in parentheses indicate the category's share in the total services exports of each country or bloc in 2019. Totals are less than 100%, as they do not include services related to the production of goods, intellectual property usage fees or personal, cultural and recreational services. Modern services are estimated by totalling the following categories: insurance and pension services, financial services, telecommunications, computer and information services, and other business services.

In 2019, travel accounted for 46% of total services exports from Latin America and the Caribbean: a share that was double that sector's weight in global services exports. Thus, the collapse of tourism activity during the pandemic was the main cause of the contraction in regional services exports in 2020 and 2021. Since then, tourism activities have recovered, albeit with major differences from one subregion to the next. South America was the subregion where international tourist arrivals dropped most sharply in 2020 and where recovery has been slowest; in March 2022, the arrivals figure stood at 45% of the 2019 average. In March 2022, international tourist arrivals to Central America and the Caribbean were back up to three quarters of their pre-pandemic levels, albeit with major differences between individual countries in those two subregions. Mexico recorded the strongest recovery in terms of international tourist arrivals, which in March 2022 exceeded their 2019 average by 25% (see figure I.33A).

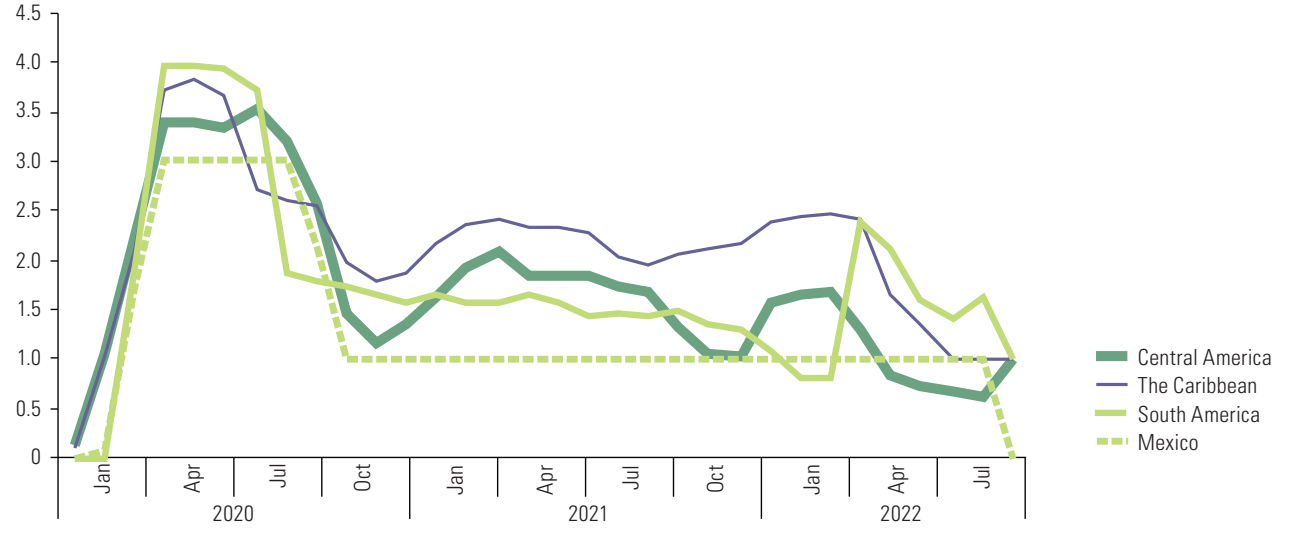
Part of the lack of uniformity in the recovery of tourism is due to the evolution of the measures adopted by governments to deal with the pandemic, which have an impact on people's international mobility. These range from quarantine measures and requiring travellers to present a vaccination certificate to partial or total border closures. Mexico has reduced the restrictiveness of its measures since October 2020, while, in general, the other countries in the region have maintained stricter measures for longer periods (see figure I.33B). Since 2021, however, several countries in the region have taken steps to encourage the recovery of the tourism sector (see box I.2).

Figure I.33
Latin America and the Caribbean, Mexico and subregions: international tourist arrivals and international travel restrictions, January 2019–first half of 2022

A. International arrivals[a]
(Index: average for 2019=100)



B. Restriction index[b]
(From 0 to 4)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of University of Oxford, COVID-19 Government Response Tracker [online] https://www.bsg.ox.ac.uk/research/covid-19-government-response-tracker; and official sources from the respective countries.

[a] Central America includes Costa Rica, Guatemala, Honduras, Nicaragua and Panama; South America includes Argentina, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, the Plurinational State of Bolivia and Uruguay; the Caribbean includes Antigua and Barbuda, the Bahamas, Barbados, Belize, Cuba, Dominica, the Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Saint Vincent and the Grenadines, Saint Kitts and Nevis, Saint Lucia, Suriname and Trinidad and Tobago. Data for Brazil from 2021 onwards are estimates based on immigration data provided by the border police.

[b] The restriction levels are: 0 (no restrictions), 1 (arrival checks), 2 (quarantine for travellers from some or all regions or countries), 3 (ban on arrivals from some regions or countries) and 4 (total closure of borders).

Box I.2
Measures to reactivate tourism in the countries of Latin America and the Caribbean

In 2021 and 2022, several Latin American and Caribbean countries adopted a series of measures aimed at reactivating domestic tourism and inbound international travel. In simplified terms, these measures are classified as follows: economic incentives for tourists, financial support for tourism companies, joint initiatives with the private sector, tourism promotion campaigns and medium- and long-term planning initiatives.

Among the measures to offer economic incentives to tourists, Argentina has launched the third version of the *Previaje* programme, which provides for the advance sale of tourism packages to domestic tourists and pays backs 50% of the expenses incurred. The money saved can be spent only on tourism services, either on the same trip or on a later one. The previous version of the programme had a turnover of more than US$ 350 million. Similarly, Uruguay launched the *Turismo Para Todos* programme, which included discounts on package tours for domestic tourists under the National Social Tourism System, as well as the elimination of value added tax (VAT) on lodging for domestic tourists between March and April 2022, and on restaurants, car rentals and accommodation mediation services for non-resident tourists between 1 November 2021 and 30 April 2022.

Financial support to tourism sector companies consisted of financial leverage and access to credit. In Chile, the *Impulsa Turismo* Reactivation Support Programme (PAR) provides financing so that SMEs in the tourism sector can implement their investment or working capital plans. In 2021, more than 1,300 projects benefited from an amount close to US$ 4 million. Similarly, the Guarantee Fund for Small Entrepreneurs (FOGAPE) extends the limits of its guarantees up to 90% for companies in the tourism sector (restaurants, travel agencies, tour operators, tourist transport and lodging services) for public and private financing. In Costa Rica, the Financial Support Program for the Hotel Sector (2022–2025) offered financing for working capital and the restructuring of long-term loans. From the onset of the pandemic through November 2021, a total of 837 loans worth more than US$ 270 million were restructured, accounting for 67% of the tourism sector's total loan portfolio. To improve tourism companies' access to bank financing, Panama launched programmes managed by the Inter-American Development Bank (IDB), the National Bank of Panama and the Authority for Micro, Small and Medium-Sized Enterprises (AMPYME).

Among the joint initiatives with the private sector for the development of the tourism sector in Honduras is the creation of destination management organizations (DMOs). This is a local management model, implemented in 8 of the 11 localities planned for 2022, that encourages the forging of alliances and the adoption of coordinated actions among local stakeholders to strengthen partnerships and to support women, young people and the Indigenous population. In turn, the Uruguayan Rural and Natural Tourism Society (SUTUR) introduced a passport that allows visitors to prove their stay in an establishment associated with the society and receive a 15% discount at the next accredited establishment they visit. In Brazil, the aeronautical authority has taken steps with the aviation companies to restore service frequency, aiming to increase operations by a year-on-year rate of 191% by April 2022.

Countries with high levels of tourism activities and globally recognized destinations —such as Brazil, Peru and the Dominican Republic— are designing strategies to promote and position their tourism supplies, for domestic and foreign tourists alike, including participation in international fairs and road shows with operators, agents and sector entities and associations. In addition, Brazil plans to host massive events, such as the *Festas Juninas* (traditional in June and July), the Rock in Rio festival, a Formula 1 race and New Year's Eve festivities.

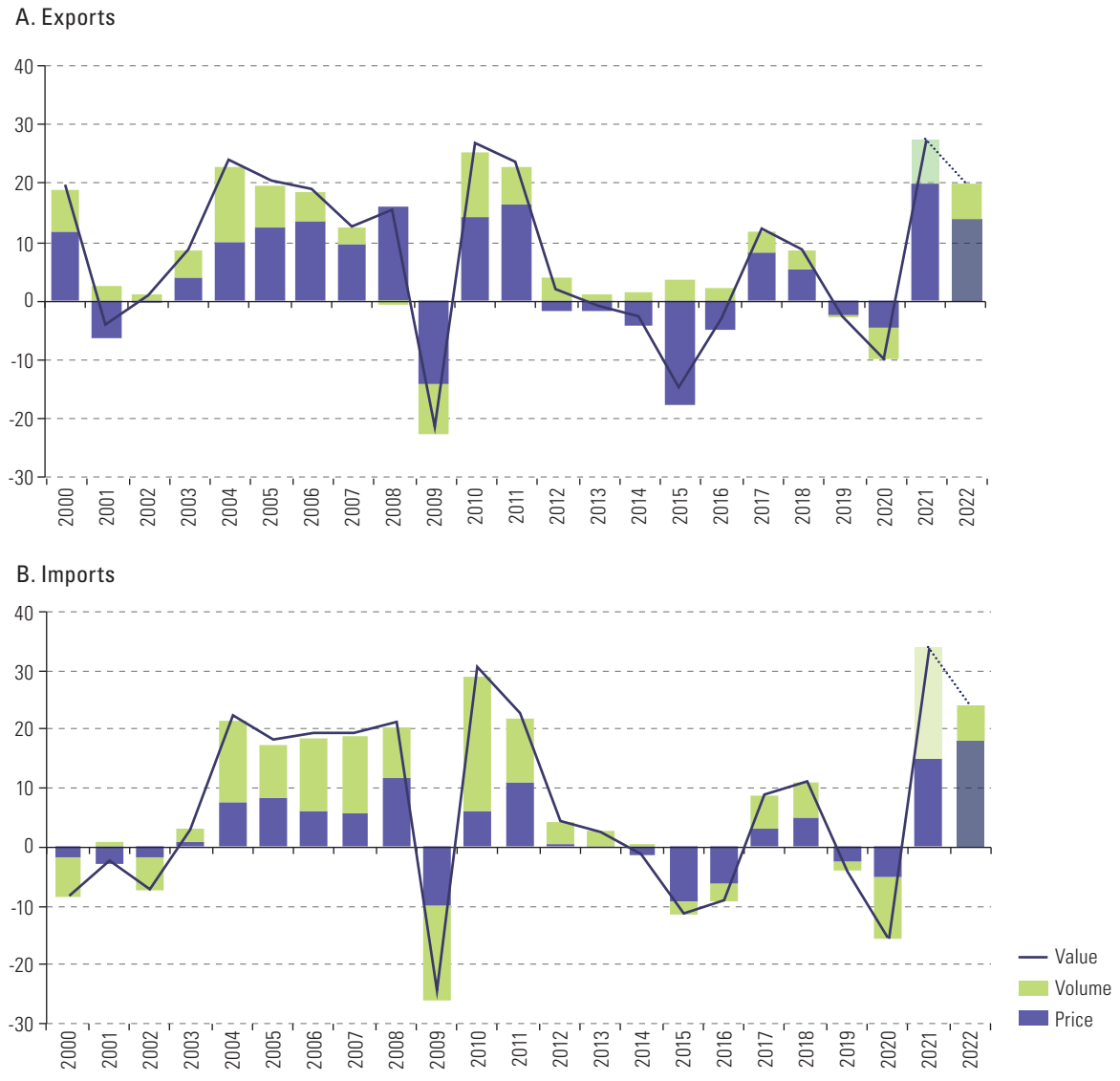
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from the respective bodies and tourism programmes.

The outlook for the tourism sector in the second half of 2022 remains uncertain. On the one hand, rising air fares —largely due to the rising oil prices— make travel more expensive and reduce demand. In addition, slower economic growth and high inflation in most countries are affecting tourists' purchasing power. On the other, the appreciation of the dollar and the euro against some Latin American countries' currencies makes visits cheaper for tourists from the United States and the European Union, the region's main sources of international tourism.

4. Forecasts for 2022

During the second half of the year, regional goods exports are expected to slow slightly, in line with the slowdown in global demand. Therefore, an annual growth of 20% in their value is projected, driven by a 14% increase in prices and a 6% expansion in export volumes. The value of the region's imports is expected to increase by 24%. As in the case of exports, the bulk of the projected increase in the regional import value will be on account of the price component (18%), while the volume growth would account for the remaining 6% (see figure I.34).

Figure I.34
Latin America and the Caribbean: annual change in the goods trade, 2000–2022[a]
(Percentages)



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

[a] Figures for 2022 are projections.

By destination, the greatest momentum in 2022 is expected to be in shipments to the European Union and within the region itself, while exports to the United States are expected to expand at a rate similar to that of total exports (see table I.10). It should be noted that the behaviour of the region's exports to the European Union during the second half of 2022 is subject to considerable uncertainty due to the negative impact on the European economy of the restriction of natural gas supplies caused by the conflict in Ukraine. For the first time since 2015, shipments to China are expected to be the least dynamic among the region's main trading partners, reflecting the sharp slowdown in the Chinese economy over 2022. At the same time, purchases from the United States are expected to grow by more than the regional average, while imports from China, the rest of Asia and the European Union are expected to be less dynamic.

Table I.10
Latin America and the Caribbean: annual change in the value of the goods trade, by main trading partners, 2021 and forecast for 2022
(Percentages)

	Exports		Imports	
	2021	2022	2021	2022
World	**27**	**20**	**38**	**24**
United States	21	21	35	31
European Union	23	26	25	16
Asia	33	9	38	18
China	32	8	40	20
Other Asian countries	35	17	35	15
Latin America and the Caribbean	35	22	40	22

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

The Caribbean is expected to be the subregion with the largest rise in export value in 2022, at 43% (see table I.11). This can largely be explained by strong projected increases in shipments of natural gas from Trinidad and Tobago, oil from Guyana and bauxite from Jamaica. These three countries account for 43% of the total value of Caribbean exports and 77% of the total value of Caribbean Community exports. In the case of imports, the higher forecast increase is, as noted above, mainly due to the higher cost of food and basic inputs, mainly chemicals and agrochemicals, as well as of various manufactured goods such as machinery, vehicles and so on. The increased cost of imported manufactured goods can be explained by higher transportation costs (see chapter III) and by the impact of high prices for intermediate inputs on final product prices.

By country, the value of exports is expected to increase across the board, with the sole exception of Grenada. However, if export value growth is broken down by price and volume, differentiated patterns emerge. Thus, the largest relative increase in export prices can be seen in South American countries —in particular, the Bolivarian Republic of Venezuela, Colombia, Ecuador and, to a lesser extent, the Plurinational State of Bolivia— along with a group of Caribbean countries (the Bahamas, Barbados, Guyana and Trinidad and Tobago). All these countries have energy-intensive export baskets (oil and derivatives, gas and coal). The Bolivarian Republic of Venezuela and Trinidad and Tobago are expected to post the largest increases in export value, mainly on account of the resumption of oil exports to the United States and Europe in the first case, and to a sharp rise in fertilizer prices in the second.

Table I.11
Latin America and the Caribbean (blocs and countries): projected change in goods trade by price, value and volume, 2022
(Percentages)

	Exports			Imports		
	Price	Volume	Value	Price	Volume	Value
Latin America and the Caribbean	**14**	**6**	**20**	**18**	**6**	**24**
Latin America	**13**	**5**	**19**	**18**	**6**	**24**
South America	**19**	**1**	**20**	**22**	**4**	**26**
Southern Common Market (MERCOSUR)	**20**	**0**	**20**	**25**	**3**	**28**
Argentina	20	-3	16	21	14	35
Brazil	18	3	22	27	-1	26
Paraguay	29	-24	6	34	-20	14
Uruguay	16	14	32	20	1	21
Venezuela (Bolivarian Republic of)	66	-3	63	25	-13	12
Andean Community	**22**	**9**	**32**	**16**	**11**	**27**
Bolivia (Plurinational State of)	23	7	31	17	9	26
Colombia	36	10	49	15	13	28
Ecuador	31	1	32	24	17	41
Peru	8	12	21	12	6	18
Pacific Alliance	**10**	**8**	**18**	**15**	**6**	**21**
Chile	9	-3	6	21	-4	17
Mexico	7	11	19	14	8	22
Central America	**8**	**8**	**16**	**18**	**9**	**27**
Costa Rica	9	3	12	15	7	22
El Salvador	11	5	16	16	3	19
Guatemala	10	11	21	17	18	34
Honduras	11	16	28	22	10	32
Nicaragua	7	10	17	19	-3	16
Panama (excluding the Colón Free Zone)	4	21	24	24	9	33
Panama (including the Colón Free Zone)	10	4	14	18	11	29
The Caribbean	**25**	**19**	**43**	**18**	**8**	**26**
Cuba	6	19	25	8	6	14
Dominican Republic	4	15	19	20	12	32
Caribbean Community (CARICOM)	**38**	**11**	**58**	**20**	**5**	**25**
Bahamas	19	-1	17	23	7	30
Barbados	22	-4	18	20	-15	5
Belize	9	11	19	16	2	18
Guyana	25	20	45	19	9	28
Haiti	5	1	6	15	-3	12
Jamaica	14	28	41	26	13	39
Suriname	4	5	8	15	25	40
Trinidad and Tobago	60	9	69	21	11	31
Organisation of Eastern Caribbean States (OECS)	**7**	**6**	**12**	**16**	**-9**	**7**
Antigua and Barbuda	12	-3	7	5	2	7
Dominica	4	3	7	45	-43	2
Grenada	6	-9	-3	7	-5	2
Saint Kitts and Nevis	4	6	10	19	-8	11
Saint Lucia	7	5	12	20	-8	12
Saint Vincent and the Grenadines	8	34	42	16	-13	2

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

Net agricultural exporting countries, such as Argentina, Paraguay and Uruguay, will also see an increase in export prices in 2022 in excess of the regional average. Especially in the first months of 2022, those countries benefited from high prices for products such as wheat, maize, barley and vegetable oils. In contrast, mineral and metal exporting countries —such as Chile, Peru, Panama and Nicaragua— will experience an increase in export prices lower than the regional average. Those countries have been affected by the fall, in 2022, in the prices of such products as iron ore, copper ore, aluminium, silver and gold. Finally, in those countries where manufactured goods command a greater weight in export baskets (Brazil, Mexico and some Central American countries), growth in export volumes will generally have a greater impact on the increase in export value than in commodity-exporting countries. Brazil is the main exception to this pattern: since it is also a major agricultural exporter, it will benefit from the increases seen among those products, especially in the first half of 2022.

The conflict in Ukraine and the global economic slowdown are expected to have a negative impact on the region's terms of trade (i.e. the purchasing power of its exports). They are expected to fall by 4% in 2022, due to lower increases in the prices of exported goods relative to those of imports (see figure I.35). In volume terms, the projected adverse effect on the region's terms of trade is just over US$ 60 billion. This amount is equal to 80% of the total exports of Central America forecast for 2022, and higher than the exports of the Caribbean Community forecast for that year (see table I.A1.1).

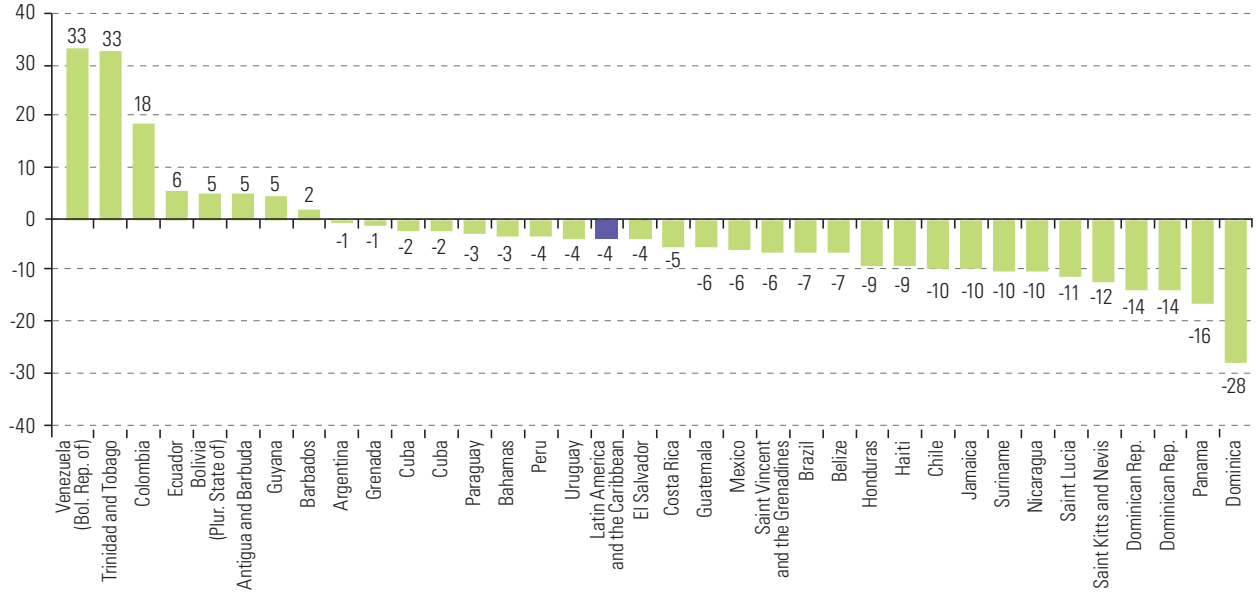
Figure I.35
Latin America and the Caribbean and selected blocs and countries: projected change in the terms of trade, 2022
(Percentages)

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

It should be noted that variations in commodity prices do not affect the countries of the region uniformly, since their impact on the terms of trade varies according to those products' weight in their corresponding export and import baskets. Thus, the sharp increase in the price of oil, gas and coal benefits net exporters of energy products such as the Bolivarian Republic of Venezuela, Colombia, Ecuador, Guyana, the Plurinational State of Bolivia and Trinidad and Tobago. The terms of trade of this group of countries are expected to improve by 17% in 2022, while the agricultural exporters are expected to experience a drop of 2%. These countries are affected by the double negative impact of the higher cost of both energy and fertilizers, which the increase in their main export product prices is not enough to offset.

Those countries that are net energy importers will be adversely affected by the higher cost of oil and its derivatives, especially the English- and Dutch-speaking Caribbean countries (excluding Guyana, Jamaica and Trinidad and Tobago) and the nations of Central America. The terms of trade are expected to fall by 11% and 9%, respectively, for those two groups. Net exporters of minerals and metals will also suffer a deterioration in their terms of trade (-7%) because of the higher cost of the energy required for their extraction and because of the fall in prices caused by slower growth in the world economy. In total, 25 of the 33 countries of the region are expected to experience worsening terms of trade in 2022 (see figure I.36).

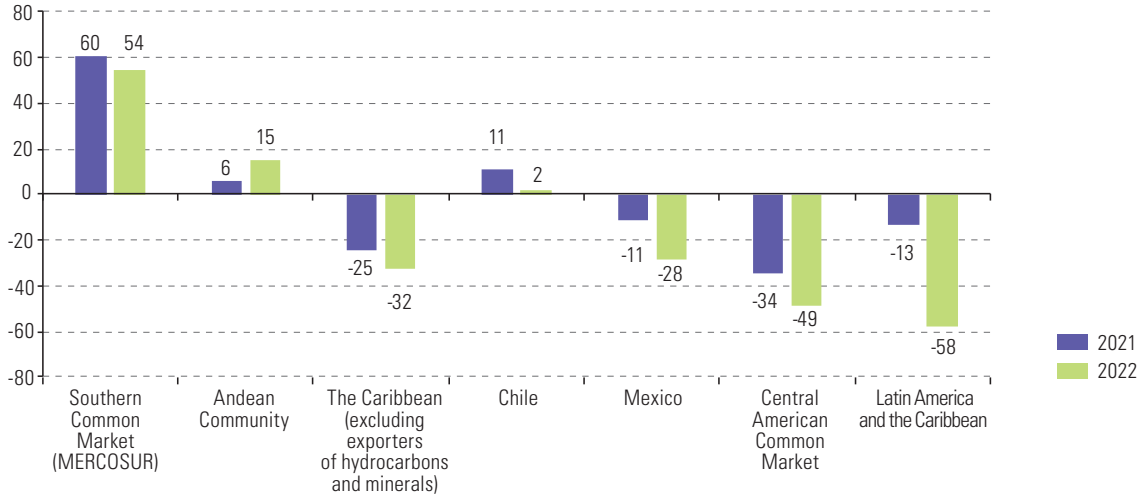
Figure I.36
Latin America and the Caribbean: projected change in the terms of trade, 2022
(Percentages)



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

The expected deterioration in the region's terms of trade is directly reflected in its trade balance. For the region as a whole, a trade deficit of US$ 58 billion is projected for 2022, up US$ 45 billion from the 2021 result (see figure I.37). Mexico, Central America and the energy- and mineral-importing countries of the Caribbean are expected to post trade deficits, in contrast to the members of MERCOSUR and the Andean Community and Chile.

Figure I.37
Latin America and the Caribbean (selected blocs and countries): trade balance in goods, 2021 and forecasts for 2022
(Billions of dollars)



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

To summarize: after the pandemic-induced contraction of 2020, the region's goods exports will post their second consecutive year of double-digit growth in 2022. As was the case in 2021, however, the growth in shipments in 2022 will be driven primarily by exogenous factors (rising commodity prices) and not by expanded export volumes or the diversification of the region's exports into new dynamic and knowledge-intensive sectors. Furthermore, for the second consecutive year, regional imports of goods will increase more than exports, creating an undesirable situation in a context of rising external financing costs. As regards services trade, the region's dependence on tourism far exceeds the global average, so this sector's slow recovery continues to have a negative impact on the prospects of several economies, especially in the Caribbean.

As in 2021, intraregional trade will again increase more than the region's total exports in 2022. This recovery, however, will not be enough to offset the effects of the downward trend that began in the mid-2010s, which deepened in 2020 because of the pandemic. The weakening of intraregional trade in recent years makes an inclusive and transformative recovery difficult. Indeed, for the vast majority of the region's countries, this is the most intensive trade for manufactured goods and involves the widest range of products, as will be seen in chapter II. It is also the trade segment where the highest numbers of companies participate, especially micro-, small and medium-sized enterprises (MSMEs). For all these reasons, it is the most promising segment for the diversification of production and exports.

In a global context in which the major economic powers are seeking to further their own commercial and productive regionalization processes, relaunching the regional economic integration project is essential. Progress toward the creation of an integrated regional market, through a progressive convergence of the various subregional blocs, is essential not only to generate efficient scales of production and to diversify exports, but also to secure greater autonomy in strategic sectors. That latter objective has acquired particular importance in light of the disruptions to global supply chains caused by the pandemic and growing geopolitical tensions.

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Annex I.A1

Table I.A1.1
Latin America and the Caribbean: value of goods exports and imports, 2020–2022[a]
(Millions of dollars)

Countries/regions/blocs	Exports			Imports		
	2020	2021	2022	2020	2021	2022
Latin America and the Caribbean	**973 235**	**1 248 304**	**1 504 123**	**922 550**	**1 261 245**	**1 562 404**
Latin America	**947 095**	**1 212 443**	**1 452 938**	**875 433**	**1 199 304**	**1 484 075**
South America	**469 361**	**639 992**	**774 816**	**398 499**	**562 839**	**703 584**
Southern Common Market (MERCOSUR)	**292 517**	**401 227**	**485 111**	**243 892**	**340 941**	**430 884**
Argentina	54 946	77 987	90 075	40 315	59 291	80 049
Brazil	210 707	284 012	343 796	178 337	247 648	311 461
Paraguay	11 494	14 025	14 835	10 035	13 086	14 912
Uruguay	9 924	15 086	19 914	7 848	11 137	13 511
Venezuela (Bol. Rep. of)	5 446	10 117	16 491	7 356	9 779	10 952
Andean Community	**102 759**	**144 088**	**189 821**	**99 497**	**137 749**	**174 419**
Bolivia (Plur. State of)	6 953	10 966	14 311	6 517	8 740	11 047
Colombia	32 309	42 736	63 462	41 179	56 719	72 434
Ecuador	20 591	27 236	35 951	17 092	23 972	33 688
Peru	42 905	63 151	76 097	34 709	48 317	57 202
Pacific Alliance	**566 623**	**695 653**	**825 877**	**514 170**	**695 190**	**840 779**
Chile	74 086	94 677	99 884	55 110	84 148	98 280
Mexico	417 323	495 090	586 434	383 172	506 005	614 796
Central America[b]	**48 562**	**63 299**	**74 861**	**69 429**	**97 449**	**123 649**
Costa Rica	11 991	14 823	16 547	13 699	17 671	21 482
El Salvador	4 143	5 385	6 243	9 289	13 592	16 175
Guatemala	10 127	12 413	15 047	16 441	23 333	31 266
Honduras	7 683	10 216	13 020	10 241	15 034	19 845
Nicaragua	4 396	5 575	7 106	5 324	7 451	8 606
Panama (excluding the Colón Free Zone)	1 709	3 558	4 427	8 077	10 495	13 959
Panama (including the Colón Free Zone)	10 223	14 889	16 899	14 435	20 368	26 275
The Caribbean	**26 140**	**35 861**	**51 185**	**47 117**	**61 941**	**78 330**
Cuba	1 547	1 600	2 000	7 228	8 868	10 066
Dominican Republic	10 302	12 462	14 827	17 105	24 143	31 981
Caribbean Community (CARICOM)	**14 292**	**21 799**	**34 358**	**22 785**	**28 929**	**36 283**
Bahamas	400	565	480	2 224	3 201	4 162
Barbados	345	372	438	1 422	1 764	1 853
Belize	289	424	505	731	956	1 129
Guyana	2 590	4 356	8 450	2 250	4 376	5 601
Haiti	885	1 130	1 195	3 764	4 604	5 175
Jamaica	1 251	1 441	2 034	4 199	4 266	5 929
Suriname	2 344	2 489	2 700	1 283	1 358	1 900
Trinidad and Tobago	5 965	10 800	18 300	4 996	6 400	8 400
Organisation of Eastern Caribbean States (OECS)	**224**	**223**	**256**	**1 915**	**2 004**	**2 134**
Antigua and Barbuda	36	37	39	385	532	569
Dominica	15	16	17	188	177	180
Grenada	28	30	29	348	371	379
Saint Kitts and Nevis	26	27	30	269	281	311
Saint Lucia	64	67	75	459	378	424
Saint Vincent and the Grenadines	54	47	66	267	265	272

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

[a] Figures for 2022 are ECLAC projections.

[b] Does not include trade flows from the Colón Free Zone.

CHAPTER II

An overview of the manufacturing export performance of Latin America and the Caribbean, 1990–2021

Introduction

Since the dawn of the first industrial revolution, the history of economic development has been inextricably linked to the expansion of manufacturing, for this sector, unlike agriculture and services, has usually allowed productivity gains to be combined with large-scale job creation for low-skilled workers. Because it is also a highly tradable sector, the various benefits of engaging in international trade, such as scale and learning economies, can be exploited (Hallward-Driemeier and Nayyar, 2018). In particular, manufacturing exports have been a key determinant in the rapid economic growth of several Asian economies (Japan, the Republic of Korea, China, Taiwan Province of China and several South-East Asian countries) since the mid-twentieth century. Manufacturing currently accounts for about 80% of world goods trade by value.

The global crisis generated by the COVID-19 pandemic has once again highlighted the critical importance of the manufacturing sector for development. A recent study by the United Nations Industrial Development Organization (UNIDO, 2021) found that countries with higher manufacturing capacity (as measured by manufacturing's share of GDP in 2019) before the pandemic experienced smaller declines in output than countries with limited manufacturing capacity. This negative relationship was observed among both developed and developing countries. One of the main causes was the role played by the manufacturing sector in the production of essential goods to cope with the emergency, such as food, medicines and medical supplies (UNIDO, 2021).

The manufacturing sector is currently undergoing a period of intensive transformation linked to the so-called fourth industrial revolution. The ongoing digital revolution has brought increasing automation of industrial processes, as well as the introduction of disruptive technologies such as artificial intelligence, the Internet of things and additive manufacturing (ECLAC, 2016; Hallward-Driemeier and Nayyar, 2018; UNIDO, 2021). As a result, intangibles such as software and a wide range of services (research and development, design, installation and maintenance, etc.), are becoming increasingly important in manufacturing value generation (Miroudot, 2017; Mukherjee and Rallan, 2021). Disruptive technologies are also having a major impact on global trade (WTO, 2018). The intensity of these transformations, coupled with the shocks caused by the pandemic and changes in global geopolitics, is likely to lead to a geographical reconfiguration of industrial production in the coming years, with major effects on manufacturing employment.

Since colonial times, Latin America and the Caribbean's export specialization has been based on the supply of raw materials to the world's major consumption centres, and has been characterized by a generally low level of industrial development. This pattern remained largely unchanged until the interwar period, when the Great Depression of the 1930s, the sharp contraction of world trade and, subsequently, the outbreak of the Second World War drastically restricted access to manufactured imports. This forced the countries of the region to move towards industrialization, first in labour-intensive sectors such as food, textiles and footwear, and later in capital-intensive sectors such as the steel and petrochemical industries and cement production. From the 1950s onward, ECLAC proposals for import substitution industrialization played a central role in these efforts. The greatest manufacturing development took place in economies that had larger domestic markets and could therefore approach efficient scales of production (mainly Brazil, Mexico and Argentina). The peculiarities of industrial development in the different countries of the region are well documented (Fajnzylber, 1990; Thorp, 1998; Rougier, 2016).

In contrast to the successful examples of industrialization in East Asian countries, industrialization processes in the region were mainly oriented towards domestic markets, and the region's exports actually remained heavily dominated by raw materials. This situation meant that industrial expansion was quickly constrained by the small size of domestic markets in most countries of the region (Fajnzylber, 1990). At the same time, limited exposure to international markets slowed progress in the industrial sector in terms of innovation. Integration initiatives from the 1960s onward had modest results when it came to overcoming the limits imposed by the size of domestic markets.

Starting in the 1990s, as part of trade liberalization processes, some countries in the region managed to join international production networks and expand their manufacturing exports. On the one hand, Mexico, the Central American countries and the Dominican Republic attracted foreign investment geared mainly towards exports to the United States. On the other hand, in South America, the creation of the Southern Common Market (MERCOSUR) in 1991 and the reactivation of the Andean integration process boosted intraregional manufacturing exports. In the last two decades, however, the rise of China in the world economy has once again incentivized the export of raw materials and created strong competition for the region's manufacturing production.

This chapter presents an overview of the region's foreign trade in manufactures over the past three decades, with particular emphasis on its export performance. The definition of manufactures used encompasses four categories from the classification of goods by technological intensity developed by Lall (2001) and adapted by ECLAC (Durán Lima and Álvarez, 2011), namely: natural resource-based manufactures and low-, medium- and high-technology manufactures (see table II.1). The analytical unit adopted for this classification is not the Harmonized Commodity Description and Coding System (HS) but the chapters of the Standard International Trade Classification (SITC), second revision. These have been combined in turn into 11 major industries or economic sectors.[1]

Table II.1
Classification of manufactured products by technological intensity

Category	Examples	Main characteristics
Natural resource-based	Prepared foodstuffs, beverages, wood products, alloys of non-ferrous metals, cement, glass.	Tend to be simple, labour-intensive products, although there are segments that are capital-, skill- or scale-intensive.
Low-technology	Textiles, clothing and footwear, leather products, ceramics, furniture, toys, plastic products.	Tend to be based on mature technologies and be relatively undifferentiated. Barriers to entry and economies of scale are generally low, as is the income elasticity of demand for these products.
Medium-technology	Vehicles and vehicle parts, synthetic fibres, chemicals, fertilizers, iron, industrial machinery.	Tend to feature complex technologies and moderately high levels of research and development (R&D). Usually require advanced skills and long learning periods.
High-technology	Electronic, pharmaceutical, optical and measuring products, aeronautical industry products.	Characterized by the use of advanced and rapidly changing technologies, with high levels of investment in R&D and an emphasis on product design.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of S. Lall, *Competitiveness, Technology and Skills*, Cheltenham, Edward Elgar, 2001; J. Durán Lima and M. Álvarez, "Manual on foreign trade and trade policy: Basics, classifications and indicators of trade patterns and trade dynamics", *Project Documents* (LC/W.430), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2016.

The analysis is based on an integrated approach that includes: (i) the manufacturing sector's share of the region's foreign trade, (ii) the technological intensity incorporated into shipments, (iii) characterization of export sectors by their ties to the rest of the economy through inter- and intraindustry linkages and relationships and (iv) identification of domestic and external production linkages (especially intraregional ones in the case of the latter). The purpose of this analysis is to highlight the importance of the regional market in attracting investment, increasing demand and stimulating the development of an increasingly complex supply of products with a higher technology content, which is a key determinant of economic growth.

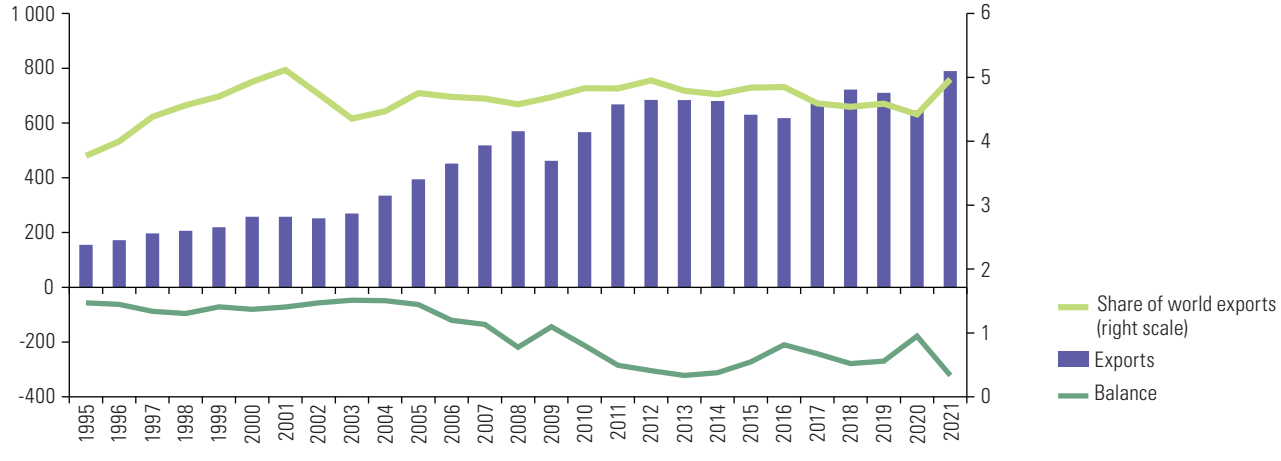
[1] Annex II.A1 details the product groups belonging to each of the four manufacturing categories. Annex II.A2 gives a breakdown of the product groups making up each industry or sector.

The rest of this chapter is structured as follows. Following this introduction, section A presents an overview of the region's manufacturing export performance in terms of momentum, the trade balance, its share of world exports, sectoral structure and technological intensity, and geographical distribution. Section B analyses in detail the performance of three sectors that are particularly important to the region's manufacturing exports, namely vehicles and vehicle parts and components; food, beverages and tobacco; and chemicals and pharmaceuticals. Section C summarizes the results of an econometric exercise aimed at estimating potential intraregional trade in manufactures. Lastly, section D presents conclusions and policy recommendations aimed at stimulating the region's manufacturing exports.

A. Overview of the region's manufacturing exports

Between 1995 and 2021, the value of the region's manufacturing exports increased fivefold from US$ 155 billion to US$ 790 billion. Over this period, the region's share of world manufacturing exports ranged from a low of 3.8% in 1995 to a high of 5.1% in 2001, with a 2021 figure of 5% (see figure II.1). Between 1996 and 2001, the region's manufacturing shipments grew by more than world shipments, mainly owing to the increase in Mexican exports during the early years of the North American Free Trade Agreement (NAFTA). The region has not succeeded in sustaining this momentum over the past two decades, however, and has recorded a deficit in its external trade in manufactured goods throughout the period under review. This deficit, which averaged 3% of regional GDP between 1995 and 2005, increased from the mid-2000s and reached 6% of GDP in 2021.

Figure II.1
Latin America and the Caribbean: manufacturing exports and trade balance, 1995–2021
(Billions of dollars and percentages of world manufacturing exports)



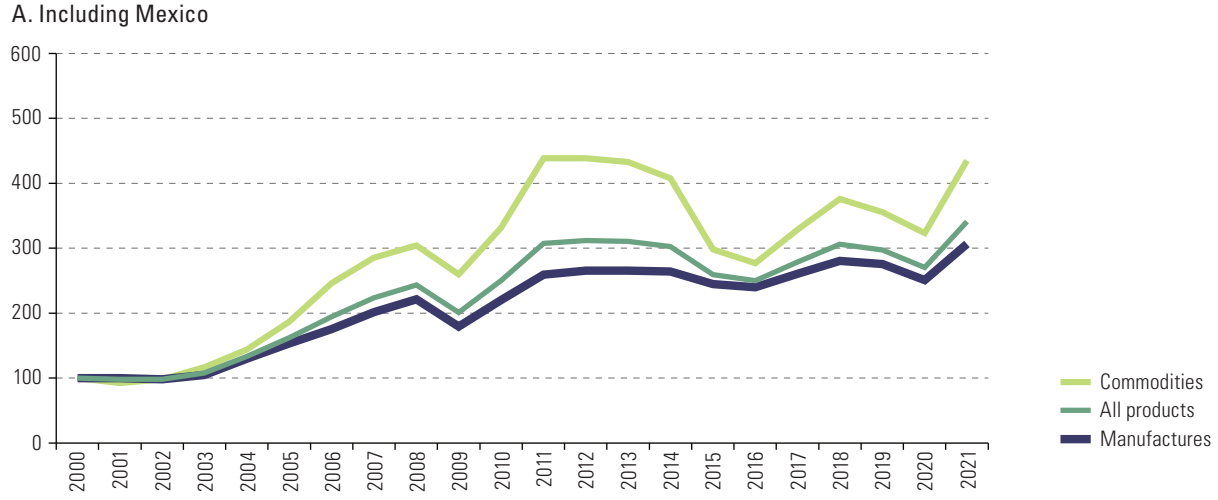
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

The manufacturing share of the region's total goods exports by value fluctuated between 62% and 75% in the period 2000–2021. The trough was in 2011–2012, towards the end of the so-called commodity supercycle. The share of manufactures has been recovering since then, reaching 66% of total shipments in 2021 (see figure II.2A). If Mexico (the region's largest exporter of goods and manufactures) is excluded, the manufacturing share of the region's total goods shipments is much lower, at just 49% in 2021 (see figure II.2B). For most of the period 2000–2021, regional shipments of raw materials, measured by value, were more dynamic than those of manufactures, whether or not Mexico is included (see figure II.3A and B).

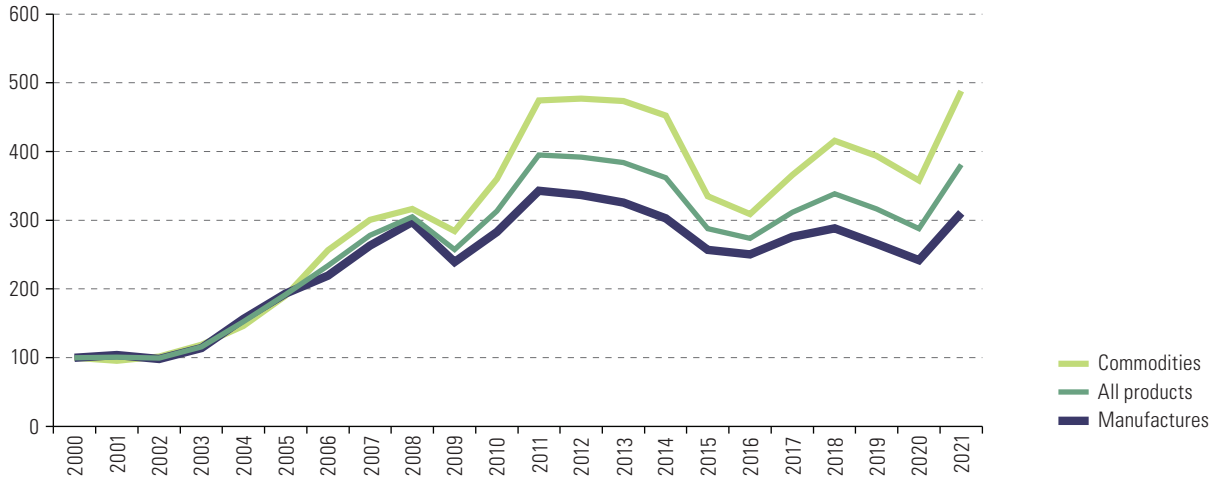
Figure II.2
Latin America and the Caribbean: commodity and manufacturing shares of total goods exports, 2000–2021
(Percentages)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

Figure II.3
Latin America and the Caribbean: momentum of total exports of goods, commodities and manufactures, 2000–2021
(Index: 2000=100)



B. Excluding Mexico

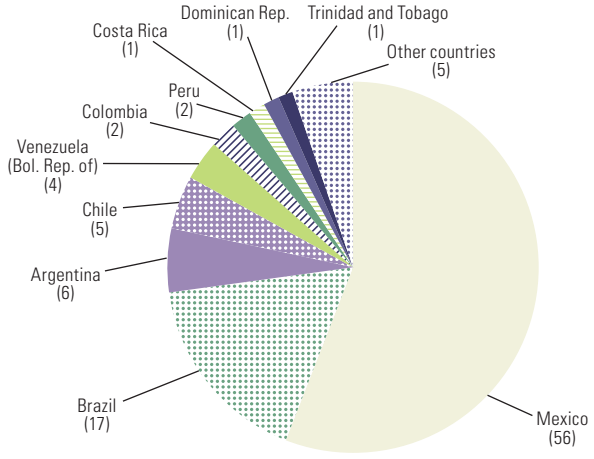


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

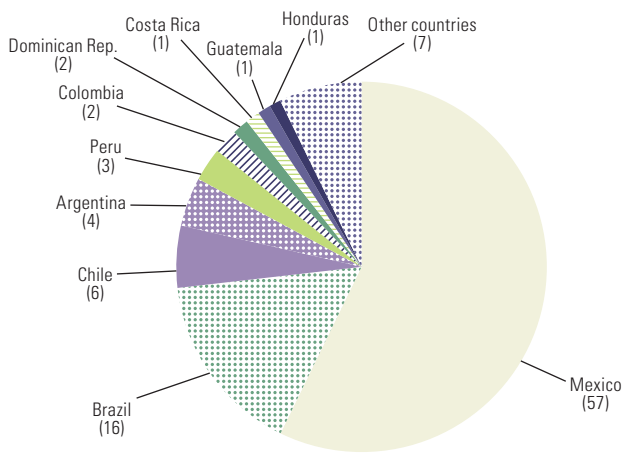
The region's manufacturing exports are highly concentrated as regards origin: at the beginning of this century, Mexico and Brazil accounted for almost three quarters of total shipments, and this share is still the same today (see figure II.4). The manufacturing share of total goods exports is much higher in the subregions of Central America and Mexico and the Caribbean than in South America (see figure II.5). In fact, over the past two decades, most countries in the first two subregions have increased the share of manufactures in total goods shipments, while just the opposite has happened in South America. The latter has intensified its export specialization in raw materials, driven by demand from China, which became its main export destination in the period under review. The case of Brazil, the region's second-largest exporter of manufactures, is particularly striking: the share of manufactures in total goods shipments fell by 27 percentage points, from 75% in the three-year period 2000–2002 to 48% in 2019–2021. Four other South American countries (Chile, Paraguay, Peru and Uruguay) also experienced double-digit declines over the period.

Figure II.4
Latin America and the Caribbean: distribution of manufacturing exports by origin, 2000–2002 and 2019–2021 averages
(Percentages)

A. 2000–2002

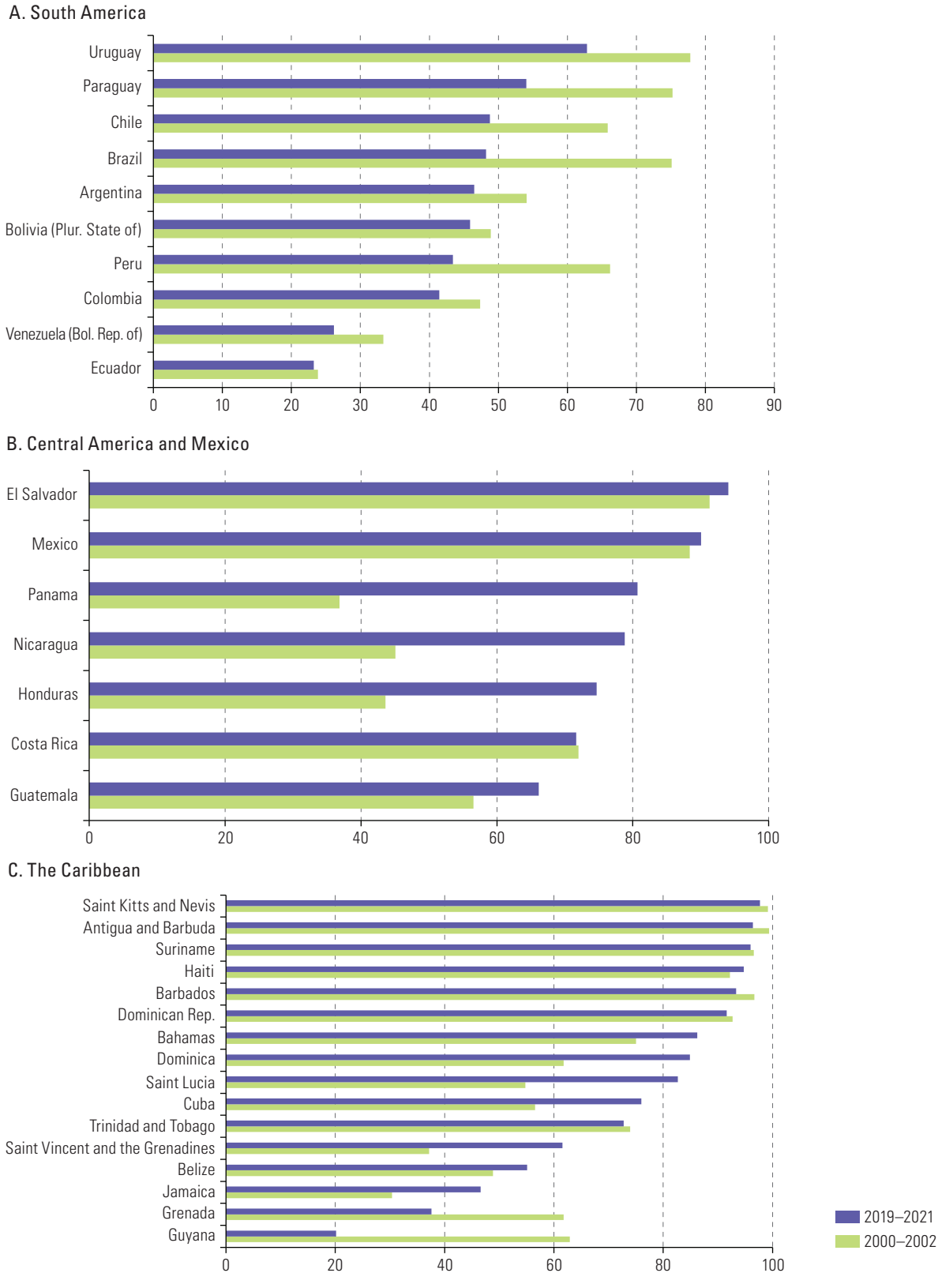


B. 2019–2021



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

Figure II.5
Countries of Latin America and the Caribbean: manufacturing share of total goods exports, 2000–2002 and 2019–2021[a]
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.
[a] Panama's exports include re-exports.

In contrast to what has happened in South America, the share of manufactures in shipments from Guatemala, Honduras and Nicaragua has increased substantially in the last two decades, as a result of greater Central American integration and the entry into force of the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR). This agreement, signed in 2004, has encouraged foreign investment in the apparel and medical supplies sectors, among others, of Central America. The companies that have made these investments use the subregion as a platform for exporting to the United States, taking advantage of the agreement's tariff preferences, low wage costs, various tax benefits and geographical proximity to the United States. Although it has increased manufacturing exports, this method of participating in international trade has a number of drawbacks, such as low local value added (owing to the heavy use of imported inputs) and reliance on low wages and tax benefits as a factor of competitiveness.

In the three-year period 2000–2002, the region's leading manufacturing export sector was electrical machinery and appliances, with almost a quarter of total shipments, followed by the automotive sector (18%) and chemicals and pharmaceuticals (10%) (see table II.2). In the three-year period 2019–2021, by contrast, the automotive and auto parts sector ranked first, with 20% of the region's manufacturing exports, followed by machinery and electrical appliances (19%). The food, beverages and tobacco sector came in third, with 13%. If Mexico is excluded, the sectoral distribution of manufactured exports changes markedly. The leading export sector becomes food, beverages and tobacco (24%), followed by metals and metal products (16%), both linked to the processing of natural resources in South America. In contrast, the automotive and electronics sectors are no longer among the main export sectors, since, as will be shown below, the great bulk of these shipments come from Mexico.

Table II.2
Latin America and the Caribbean: sectoral distribution of manufacturing exports, 2000–2002, 2010–2012 and 2019–2021 averages
(Millions of dollars and percentages)

	Value and share of total manufacturing exports			Annual change
	2000–2002	2010–2012	2019–2021	2000–2021
Total exports (including Mexico) *(Millions of dollars)*	**255 815**	**639 805**	**723 428**	**5.5**
Food, beverages and tobacco	7.7	11.6	12.8	8.6
Textiles, clothing and footwear	8.9	4.8	4.3	1.9
Wood, pulp and paper	5.2	4.1	4.4	4.5
Chemicals and pharmaceuticals	10.1	13.6	7.6	3.7
Rubber and plastic	2.9	3.2	3.3	6.4
Non-metallic minerals	3.9	2.4	2.9	3.9
Metals and metal products	9.7	12.6	9.4	5.8
Non-electrical machinery and equipment	5.3	6.2	6.6	6.7
Electrical machinery and appliances	24.0	16.8	18.7	3.9
Automobiles and parts and components thereof	17.5	16.4	19.6	5.5
Other manufactures	4.9	8.3	10.3	10.6
All manufactures	**100.0**	**100.0**	**100.0**	
Total exports (excluding Mexico) *(Millions of dollars)*	**112 823**	**359 609**	**312 536**	**5.5**
Food, beverages and tobacco	14.5	17.9	23.6	8.4
Textiles, clothing and footwear	9.7	6.4	7.3	4.6
Wood, pulp and paper	7.6	5.3	6.8	4.8
Chemicals and pharmaceuticals	17.7	19.7	14.0	3.7
Rubber and plastic	3.5	3.5	3.8	6.2
Non-metallic minerals	1.7	1.4	1.8	6.2
Metals and metal products	15.4	17.2	15.7	6.1
Non-electrical machinery and equipment	4.1	4.3	3.9	4.8
Electrical machinery and appliances	6.2	4.0	4.3	3.4
Automobiles and parts and components thereof	11.2	9.5	7.2	3.1
Other manufactures	8.4	10.8	11.5	7.7
All manufactures	**100.0**	**100.0**	**100.0**	

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

The main change in the sectoral structure of regional goods exports over the past two decades has been the increase of almost 10 percentage points in the share of commodities (from 27% to 36%), accompanied by a fall in the share of low- and high-technology manufactures (see table II.3). This phenomenon has been particularly marked in South America, where the share of commodities has increased by almost 17 percentage points to 58%, while the shares of all four categories of manufactures have declined. In Central America, the opposite trend is observed: the share of commodities in the export basket has decreased by 9 percentage points in the last 20 years, while the share of natural resource-based and low- and medium-technology manufactures has increased. Low-technology manufactures are currently the main export segment of Central America, accounting for 27% of the total, a figure that is largely accounted for by shipments from the garment sector.

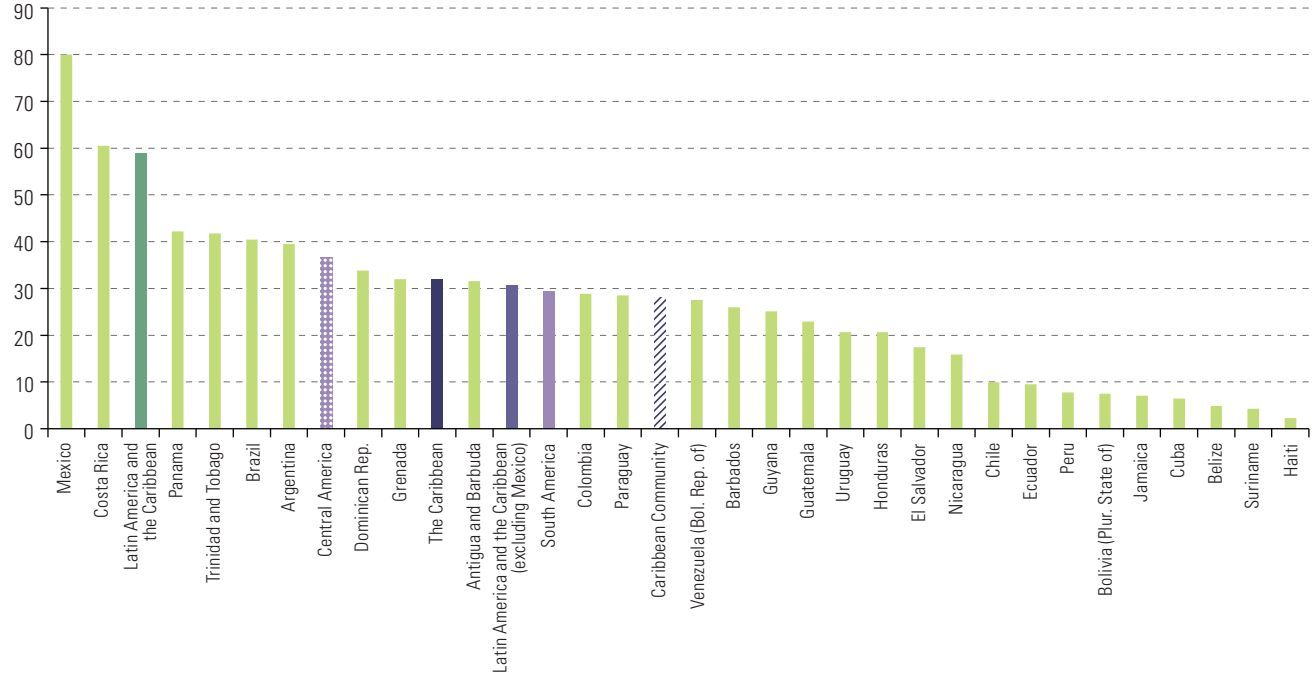
Table II.3
Latin America and the Caribbean (33 countries): distribution of goods exports by technological intensity, 1999–2001 and 2019–2021
(Percentages)

	Commodities		Natural resource-based manufactures		Low-technology manufactures		Medium-technology manufactures		High-technology manufactures	
	1999–2001	2019–2021	1999–2001	2019–2021	1999–2001	2019–2021	1999–2001	2019–2021	1999–2001	2019–2021
Latin America and the Caribbean	**26.7**	**36.2**	**18.2**	**18.3**	**13.5**	**7.8**	**25.3**	**26.4**	**16.4**	**11.3**
Latin America and the Caribbean (excluding Mexico)	**40.1**	**53.8**	**28.8**	**25.3**	**11.4**	**6.8**	**13.9**	**11.1**	**5.8**	**3.0**
Latin America	**26.6**	**36.3**	**17.6**	**18.0**	**13.5**	**7.8**	**25.5**	**26.5**	**16.7**	**11.5**
South America	**41.9**	**58.4**	**29.4**	**25.1**	**9.4**	**4.2**	**14.2**	**10.0**	**5.1**	**2.3**
Southern Common Market (MERCOSUR)	**40.2**	**58.5**	**26.5**	**20.5**	**9.9**	**4.7**	**17.0**	**13.4**	**6.4**	**3.0**
Argentina	47.2	55.8	23.6	24.3	8.6	2.3	17.5	14.6	3.1	2.9
Brazil	26.2	57.7	25.8	19.8	13.2	5.3	23.6	13.9	11.3	3.2
Paraguay	80.9	78.2	11.5	9.8	6.0	5.8	1.0	5.4	0.6	0.8
Uruguay	38.7	58.1	21.4	27.0	26.4	6.3	11.8	6.3	1.7	2.3
Venezuela (Bolivarian Republic of)	59.6	62.8	32.3	20.0	3.2	5.5	4.5	11.3	0.4	0.3
Andean Community (CAN)	**53.5**	**62.7**	**24.9**	**27.0**	**11.5**	**4.5**	**7.8**	**4.9**	**2.3**	**1.0**
Bolivia (Plurinational State of)	49.9	62.2	23.6	32.6	9.9	2.4	5.0	2.3	11.7	0.5
Colombia	55.7	56.3	14.9	24.1	14.5	7.0	12.2	10.3	2.7	2.2
Ecuador	75.9	78.0	16.7	18.2	3.4	1.6	3.2	1.6	0.8	0.5
Peru	33.6	60.1	50.7	32.5	12.0	4.3	3.0	2.7	0.7	0.3
Pacific Alliance	**17.1**	**23.5**	**12.6**	**15.7**	**14.5**	**7.8**	**32.5**	**36.1**	**23.3**	**16.9**
Chile	34.9	51.7	54.6	41.5	3.8	1.9	6.1	3.6	0.7	1.2
Mexico	11.3	11.2	6.1	8.4	15.8	9.4	38.4	48.1	28.4	23.0
Central America	**34.9**	**25.6**	**16.0**	**20.3**	**21.9**	**26.8**	**10.1**	**17.6**	**17.2**	**9.8**
Costa Rica	26.2	25.7	11.3	16.8	14.7	12.4	12.3	32.9	35.5	12.2
El Salvador	15.8	5.8	16.1	24.1	56.0	53.6	8.5	9.6	3.6	6.9
Guatemala	47.1	34.6	21.6	24.6	13.7	25.8	13.5	12.1	4.1	2.9
Honduras	58.2	37.1	21.4	18.7	11.7	32.0	7.9	11.6	0.8	0.6
Nicaragua	68.4	32.3	24.5	28.8	2.9	28.1	3.8	10.2	0.4	0.6
Panama	63.4	33.3	23.8	12.8	8.3	17.6	2.3	12.2	2.2	24.2
The Caribbean	**20.4**	**11.4**	**30.2**	**38.7**	**37.2**	**21.5**	**9.1**	**19.2**	**3.0**	**9.1**
Cuba	40.5	37.8	52.1	57.4	1.0	0.8	3.9	1.7	2.6	2.3
Dominican Republic	11.6	8.6	20.5	36.6	53.9	23.8	11.1	21.1	2.8	9.9
Caribbean Community (CARICOM)	**31.1**	**29.2**	**42.6**	**38.8**	**10.2**	**12.2**	**14.6**	**18.3**	**1.6**	**1.4**
Bahamas	25.9	17.1	29.6	37.6	4.2	2.0	34.6	42.8	5.6	0.5
Barbados	3.7	6.5	49.4	52.2	15.0	17.0	19.6	14.8	12.4	9.5
Belize	28.3	38.8	64.8	56.9	5.1	1.3	1.5	2.1	0.3	0.9
Guyana	35.1	52.9	58.3	36.7	4.4	0.4	1.6	7.8	0.6	2.2
Haiti	8.4	5.3	3.0	5.6	86.9	86.9	1.2	0.7	0.5	1.4
Jamaica	66.2	50.4	16.7	44.7	11.6	1.3	4.3	2.4	1.2	1.1
Suriname	33.8	4.1	63.3	91.4	0.5	0.4	1.9	3.8	0.5	0.3
Trinidad and Tobago	23.6	27.2	50.4	31.3	5.7	11.0	19.5	29.2	0.8	1.2
Organisation of Eastern Caribbean States (OECS)	**34.8**	**41.9**	**12.2**	**18.6**	**7.0**	**4.3**	**39.5**	**30.3**	**6.4**	**4.9**
Antigua and Barbuda	3.8	3.5	7.2	61.0	14.5	4.8	51.2	29.0	23.3	1.6
Dominica	39.3	22.6	5.7	10.0	2.3	10.1	51.7	44.0	1.0	13.3
Grenada	42.6	47.7	10.9	27.5	9.1	8.0	26.0	13.9	11.3	2.9
Saint Kitts and Nevis	2.1	1.0	23.8	9.0	8.2	1.6	53.6	37.5	12.4	50.9
Saint Lucia	57.0	40.9	21.0	21.5	10.3	8.3	9.5	26.5	2.3	2.7
Saint Vincent and the Grenadines	61.9	45.7	18.2	6.4	7.8	7.7	10.4	39.3	1.7	0.9

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

In the Caribbean, as in Central America, the total export share of commodities has fallen, declining by 9 percentage points over the last two decades to 11% today. The drop in medium-technology exports has been even more marked (16 percentage points), while the shares of natural resource-based manufactures (the subregion's main export item, at 39%) and medium- and high-technology manufactures have increased. In the case of the latter two categories, this has been due mainly to their growing weight in the exports of the Dominican Republic, the subregion's largest economy. In Mexico, lastly, the share of raw materials in total exports has held steady at 11%, one of the lowest figures in the region and the lowest among the medium-sized and large economies. Its main export segment is medium-technology manufactures, dominated by vehicles and vehicle parts. These manufactures currently account for almost half the total value of Mexican goods exports, and their share has increased by 10 percentage points in the last 20 years. The great heterogeneity of export patterns in the region's countries becomes apparent when the share of total manufacturing shipments accounted for by the sum of medium- and high-technology manufactures is calculated. This share, which is highest in Mexico at 80%, equals or exceeds 40% in only 6 countries and is 10% or less in 11 (see figure II.6).

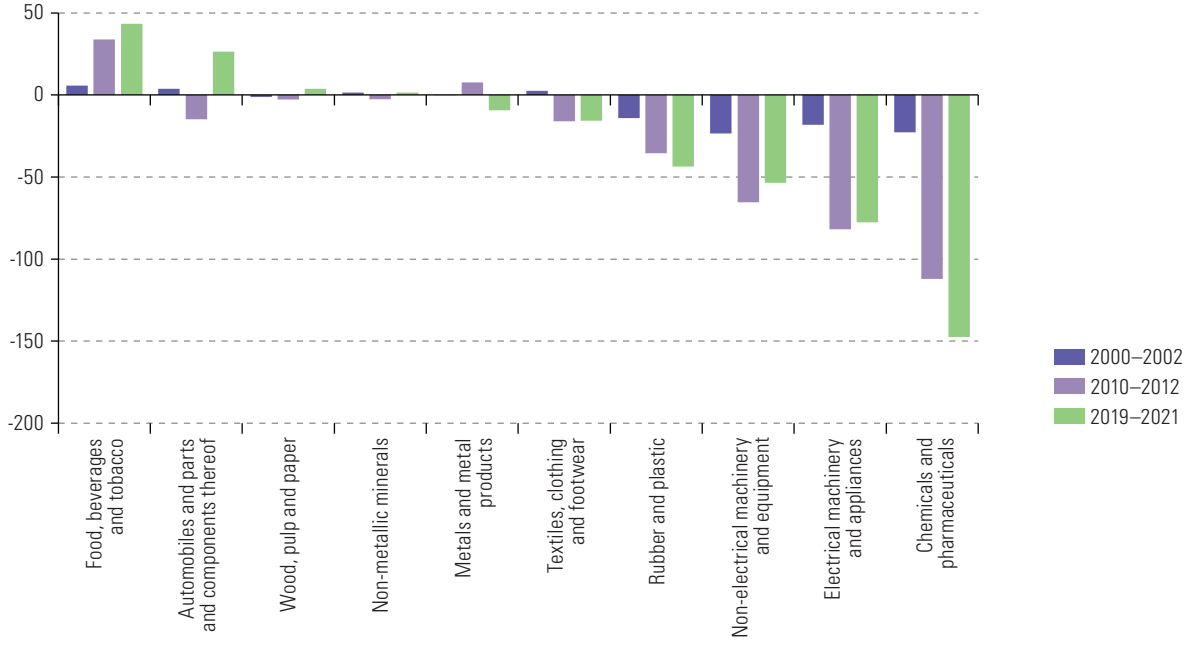
Figure II.6
Latin America and the Caribbean (28 countries): shares of high- and medium-technology manufactures in total manufacturing exports, 2019–2021[a]
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.
[a] Panama's exports include re-exports.

The region only registers significant trade surpluses in two manufacturing sectors: food, beverages and tobacco, and the automotive sector. As shown in the following section, these overall surpluses mask very heterogeneous situations at the subregion and country levels. At the other extreme, the region's trade deficits in the chemicals and pharmaceuticals, electrical machinery and appliances and non-electrical machinery and equipment sectors are not only very large but have increased over the last two decades (see figure II.7).

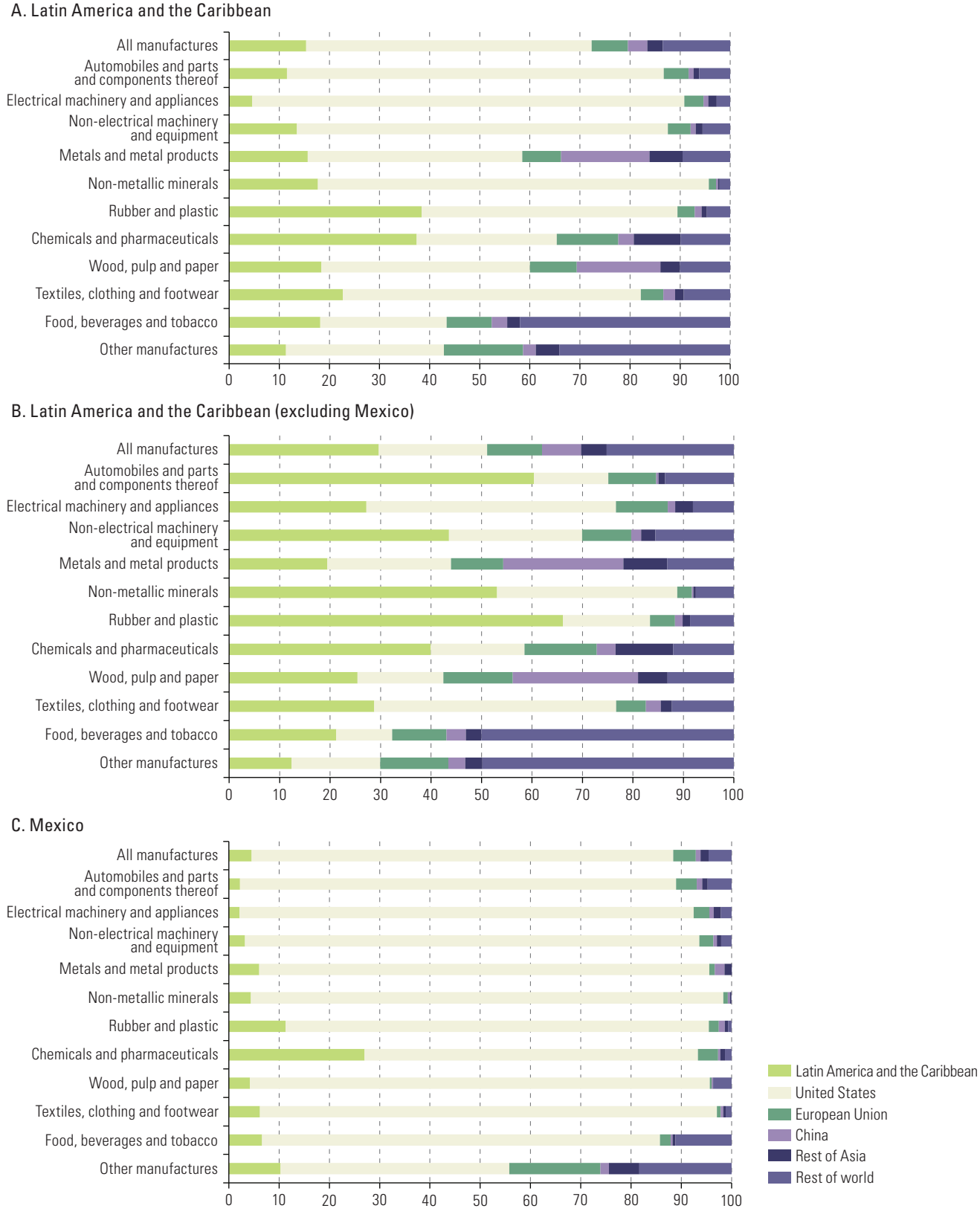
Figure II.7
Latin America and the Caribbean: trade balances by major industrial sector, 2000–2002, 2010–2012 and 2019–2021 averages
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

The distribution by destination of the region's manufacturing exports varies considerably depending on whether Mexico is included or not. In the first case, 57% of regional exports in the three-year period 2019–2021 went to the United States, while the second-largest market was the region itself, with 15%, followed by the European Union and the United Kingdom, with 7%. The United States is the largest market for manufacturing shipments in all sectors except chemicals and pharmaceuticals (see figure II.8A). Excluding Mexico, the regional market becomes the largest with 30% of shipments, followed by the United States with 22% and the European Union and United Kingdom with 11%. It should be noted that, despite being in second place, the United States remains the main market for shipments of textiles, clothing and footwear, electrical machinery and appliances, metals and metal products, and other manufactures (see figure II.8B). Lastly, in the case of Mexico, 84% of manufacturing exports go to the United States, which is by far its largest market in all sectors (see figure II.8C). Latin America and the Caribbean is the main manufacturing export market for South and Central America and the second-largest for the Caribbean Community (CARICOM) countries. China and the other Asian markets absorb very small shares of the region's manufacturing exports (4% and 3%, respectively), although in the case of South America China's share is as high as 10%.

Figure II.8
Latin America and the Caribbean and Mexico: distribution of manufacturing exports by destination and sector, 2019–2021 averages
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

The region's manufacturing export capacity varies greatly by sector. As discussed in the following section, Mexico accounts for almost 90% of total shipments in the two main export sectors, i.e., the automotive and electronics sectors. Mexico also accounts for three quarters of non-electrical machinery and equipment exports, followed by Brazil, with almost 20%. The region's exports are more diverse in origin in the food, beverages and tobacco, chemicals and pharmaceuticals, and textiles, clothing and footwear sectors. South American countries perform strongly in the first of these, owing to their abundant agricultural resources. In the textiles, clothing and footwear sector, meanwhile, a large proportion of the top exporters are Central American and Caribbean countries, whose shipments are made under the maquila regime and are mainly oriented towards the United States market.

The lists of the five main groups of manufactured goods exported by the region's countries show great heterogeneity (see table II.4). Especially in the South American and Caribbean countries, natural resource-based manufactures such as petroleum derivatives, copper cathodes, vegetable oils, meats, sugar, beverages and tobacco feature heavily. In Mexico, Costa Rica and the Dominican Republic, medium- and high-technology manufactures such as vehicles, electronics, medicines and medical devices predominate. Some Central American countries, especially Haiti, specialize strongly in apparel exports. Of the 29 countries analysed, the five main product groups accounted for more than 50% of total manufacturing exports in 19 countries, between 40% and 49% in six countries and between 30% and 39% in only four countries.

Table II.4
Latin America and the Caribbean (29 countries): shares of the top five manufactured product groups in total manufacturing exports, 2019–2021 averages
(Percentages)

Country	Top five export products and share of manufacturing exports	Combined share
Antigua and Barbuda	Refined petroleum products (29); alcoholic beverages (19); jewellery (7); metal manufactures (5); women's and girls' woven garments (5)	65
Argentina	Vegetable oils (21); meats (16); automobiles (13); miscellaneous chemicals (5); alcoholic beverages (4)	59
Barbados	Refined petroleum products (24); alcoholic beverages (13); pharmaceuticals (7); lime and cement (5); printed matter (4)	53
Belize	Sugar and honey (48); preserved fruits (15); alcoholic beverages (8); refined petroleum products (5); manufactured tobacco (5)	81
Bolivia (Plurinational State of)	Vegetable oils (26); tin (19); jewellery (9); silver and platinum (7); alcohols and their derivatives (4)	65
Brazil	Meats (15); sugar and honey (7); pulp and waste paper (6); refined petroleum products (5); iron and steel ingots (5)	38
Chile	Copper cathodes (48); pulp and waste paper (7); alcoholic beverages (5); meats (3); non-organic chemicals (3)	66
Colombia	Refined petroleum products (17); polymers (9); food preparations (4); pig iron, iron and steel (4); vegetable oils (4)	38
Costa Rica	Medical equipment (32); food preparations (8); miscellaneous manufactures (8); plastic products (5); pharmaceuticals (4)	57
Cuba	Manufactured tobacco (41); sugar and honey (25); alcoholic beverages (15); petroleum derivatives (5); base metal scrap (3)	90
Dominica	Switchgear and electrical circuits (13); soap and cleaning and polishing preparations (7); pharmaceuticals (6); medical instruments (6); essential oils (5)	38
Dominican Republic	Manufactured tobacco (11); medical equipment (11); electrical appliances (9); pharmaceuticals (6); jewellery (6)	43
Ecuador	Preserved fish and shellfish (26); refined petroleum products (20); worked wood (9); food preparations (5); vegetable oils (3)	60
El Salvador	Underwear (9); outerwear (11); plastic products (6); sugar and honey (5); paper and cardboard (4)	44
Grenada	Semolina and wheat flour (23); alcoholic beverages (15); non-alcoholic beverages (10); paper and cardboard (9); pigments, paints and varnishes (7)	65
Guatemala	Outerwear (8); sugar and honey (8); vegetable oils (7); underwear (6); pig iron, iron and steel (4)	34
Guyana	Vehicle trailers (33); medicines (11); alcoholic beverages (10); ships and boats (8); sugar and honey (5)	67
Haiti	Underwear (40); outerwear (30); children's clothing (5); women's outerwear (4); essential oils (3)	82
Honduras	Other vegetable oils (14); electricity distribution equipment (12); sugar and honey (7); paper and cardboard (6); food preparations (4)	43
Jamaica	Refined petroleum products (46); alcoholic beverages (17); cereal preparations (8); food preparations (5); non-alcoholic beverages (3)	78
Mexico	Passenger vehicles (11); data processing machinery (9); vehicle parts (8); goods vehicles (7); telecommunications equipment (4)	38

Country	Top five export products and share of manufacturing exports	Combined share
Nicaragua	Underwear (19); meats (17); electricity distribution equipment (13); outerwear and accessories (10); manufactured tobacco (8)	66
Panama[a]	Pharmaceuticals (19); footwear (8); data processing machinery (5); telecommunications equipment (5); perfumes and cosmetics (5)	42
Paraguay	Electricity (34); meats (27); vegetable oils (10); electricity distribution equipment (5); fabrics of textile fibres (2)	77
Peru	Copper cathodes (18%); refined petroleum products (14); zinc (6); food preparations (5); underwear (5)	48
Saint Lucia	Alcoholic beverages (21); jewellery (11); telecommunications equipment (6); watches and clocks (5); goods handling equipment and parts thereof (5)	49
Saint Vincent and the Grenadines	Semolina and wheat flour (39); alcoholic beverages (8); iron, steel and aluminium structures (8); iron and steel plates, sheets and strip (7), non-alcoholic beverages (6)	68
Suriname	Untreated wood (27); engineering machinery (19); manufactured tobacco (18); refined petroleum products (9); alcoholic beverages (6)	79
Trinidad and Tobago	Alcohols and phenols (21); inorganic chemical elements (21); pig iron, iron and steel (12), refined petroleum products (12); manufactured fertilizers (10)	76
Uruguay	Meats (40); untreated wood (14); cereal preparations (5); plastic products (4); pharmaceuticals (3)	65
Venezuela (Bolivarian Republic of)	Iron scrap (27); alcohols and phenols (24); pig iron, cast iron, iron powder (10); iron scrap (5); aluminium (5)	71

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.
[a] Includes re-exports.

B. Sectoral analysis of the region's manufacturing exports

This section analyses in detail the export performance of the automotive sector, the food, beverages and tobacco sector and the chemicals and pharmaceuticals sector. The first two were among the region's leading manufacturing export sectors in the three-year period 2019–2021, and the only ones that were in surplus. The total manufacturing export share of the chemicals and pharmaceuticals sector was lower. However, it was selected because of its strategic nature as a supplier, not only of very important final goods such as medicines, but also of inputs for a wide range of industrial sectors. The following analysis considers the main export products of each sector, the main exporting countries and destination markets, and the origin of inputs and the intensity of domestic and international production linkages in each sector (see box II.1). This provides an overview of the level of comparative advantages associated with each sector and its potential for domestic and intraregional integration.

Box II.1
Methodology for analysing production linkages in manufacturing export sectors

There are two complementary ways of analysing the extent of production linkages in an economic sector: by measuring its effects on the local economy and by assessing its degree of connection with international markets. To measure local linkages, Rasmussen's (1956) and Hirschman's (1958) indices of forward and backward linkages are analysed. If the intensity of direct and indirect inputs required by the sector under analysis is greater than the average intensity of direct and indirect inputs employed by the economy overall, the backward linkage index of that sector will be greater than 1. This indicates that the sector has the potential to be a driver of the other sectors of the economy. Forward linkages measure the ability of a sector to supply its products to other sectors for incorporation into their respective production processes. When the corresponding index is greater than 1, the sector has the potential to act as an input supplier. If there is high demand for its direct and indirect intermediate products from other sectors in the economy, the sector will be driven by those other sectors. Diagram 1 presents an analytical typology identifying four main categories of sectors according to their degree of linkage with the local economy as a whole.

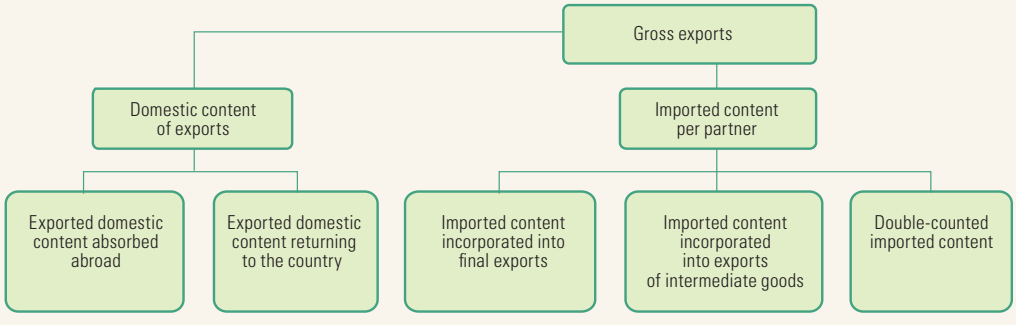
Diagram 1
Classification of economic sectors according to the Rasmussen and Hirschman indices

	Backward linkages below 1	Backward linkages above 1
Forward linkages above 1	**DRIVEN sectors** Input suppliers to the rest of the economy, dependent on the strength of demand in the economy as a whole	**KEY sectors** Important as input suppliers and customers alike, they play a vital role in the economy
Forward linkages below 1	**POORLY LINKED sectors** These have few wider economic effects because they are poorly connected to the rest of the country's sectors	**DRIVING sectors** Their output mainly supplies final demand, and they have great potential to dynamize the economy

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of J. Durán Lima and S. Banacloche, "Análisis económicos a partir de matrices de insumo-producto: definiciones, indicadores y aplicaciones para América Latina", *Project Documents* (LC/TS.2021/177), Santiago, ECLAC, 2021, p. 39.

A sector's integration into regional or global value chains is measured by analysing the degree to which domestic value added (the domestic content of exports) and imported inputs (imported content per partner) are incorporated into gross exports. If the domestic value added incorporated into gross exports goes mainly to regional markets, there will be evidence of greater integration into regional value chains, especially if this incorporated content additionally adds value that is then re-exported to third countries as part of the value incorporated by the importing partner. This relationship is measured by the share of imported content in total exports. To make the level and direction of such linkages more explicit, the individual sectoral analyses determine the traceability of intraregional and extraregional value added. Diagram 2 provides a graphic illustration of what is described in the methodology.

Diagram 2
Structure of gross exports by domestic value added and imported inputs incorporated in them



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of J. Durán Lima and S. Banacloche, "Análisis económicos a partir de matrices de insumo-producto: definiciones, indicadores y aplicaciones para América Latina", *Project Documents* (LC/TS.2021/177), Santiago, ECLAC, 2021, p. 68.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of J. Durán Lima and S. Banacloche, "Análisis económicos a partir de matrices de insumo-producto: definiciones, indicadores y aplicaciones para América Latina", *Project Documents* (LC/TS.2021/177), Santiago, ECLAC, 2021; P. Rasmussen, *Studies in Inter-Sectoral Relations*, Amsterdam, North Holland, 1956; A. O. Hirschman, *The Strategy of Economic Development*, New Haven, Yale University Press, 1958.

1. Vehicles and auto parts

The region's exports of vehicles and auto parts have tripled in value over the past two decades, from an average of around US$ 45 billion per year in the three-year period 2000–2002 to just over US$ 142 billion per year in the period 2019–2021 (see table II.5). The regional surplus in the vehicle and auto parts trade exceeded US$ 24 billion in the period 2019–2021. This is mainly accounted for by Mexico's US$ 70 billion surplus, whose value has increased almost sevenfold over the past 20 years. Whereas Mexico's

imports of vehicles and auto parts represented 68% of the value of its exports in the three-year period 2000–2002, this share fell to 41% in 2019–2021. All other countries in the region, including those with local production (mainly Brazil, Argentina and Colombia) have a trade deficit in this sector.

Table II.5
Latin America and the Caribbean: trade in vehicles and auto parts, 2000–2002 and 2019–2021 averages
(Millions of dollars)

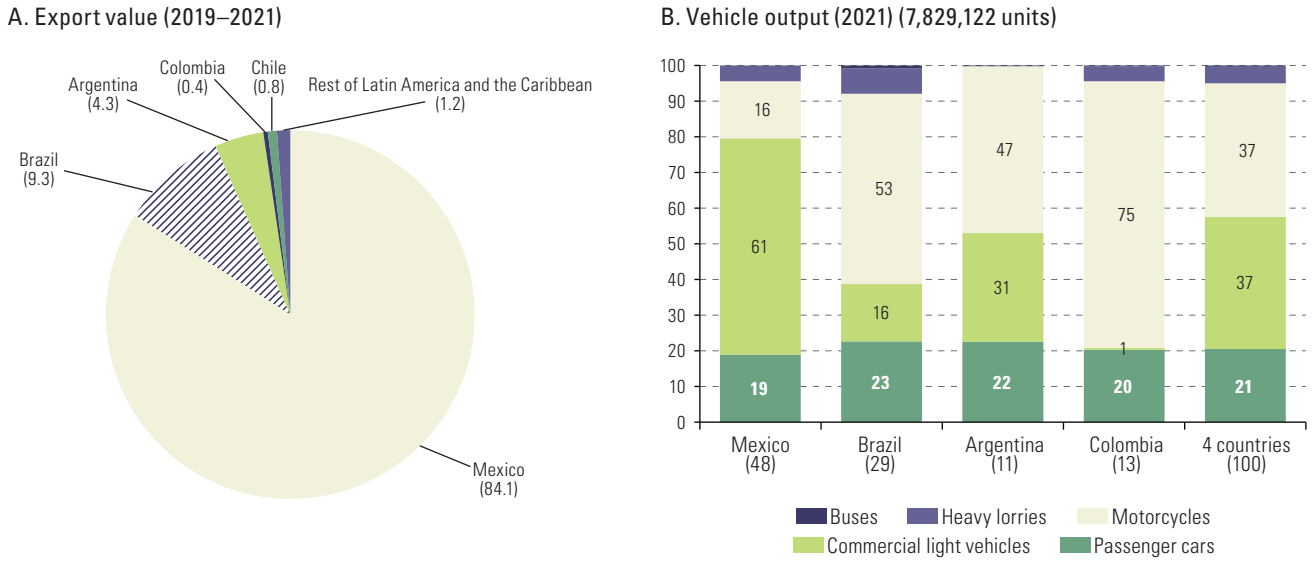
	Exports		Imports		Trade balance	
	2000–2002	2019–2021	2000–2002	2019–2021	2000–2002	2019–2021
Latin America and the Caribbean	**44 834**	**142 136**	**41 358**	**115 718**	**2 318**	**24 396**
Latin America	**44 530**	**141 225**	**39 952**	**110 061**	**4 578**	**31 163**
South America	**12 262**	**21 337**	**14 848**	**53 267**	**-2 586**	**-31 931**
Southern Common Market (MERCOSUR)	**11 458**	**19 445**	**10 280**	**31 017**	**1 177**	**-11 573**
Argentina	2 223	6 104	2 332	6 989	-110	-886
Brazil	8 860	13 170	5 443	21 751	3 416	-8 581
Andean Community	**532**	**764**	**2 935**	**13 208**	**-2 404**	**-12 444**
Colombia	382	556	1 614	6 040	-1 232	-5 484
Ecuador	71	72	638	2 207	-567	-2 135
Pacific Alliance	**32 875**	**120 969**	**25 666**	**68 253**	**7 209**	**52 716**
Chile	272	1 127	1 632	9 042	-1 360	-7 914
Mexico	32 204	119 181	21 885	49 240	10 319	69 942
Central America	**53**	**674**	**2 050**	**5 501**	**-1 996**	**-4 826**
The Caribbean	**314**	**944**	**2 575**	**7 711**	**-2 261**	**-6 767**
Caribbean Community (CARICOM)	304	911	1 406	5 657	-1 102	-4 746
Organisation of Eastern Caribbean States (OECS)	14	103	96	215	-82	-112

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

Mexico accounts for 84% of regional exports of vehicles and parts, followed by Brazil with 9% (see figure II.9A). In addition, it accounted for 7% of global exports in 2021, making it the world's fifth-largest exporter of vehicles and parts (see figure II.10). The only other country in the region among the top 30 global exporters is Brazil, with a share of just under 1%. The four countries in the region with the largest vehicle production (Mexico, Brazil, Argentina and Colombia) produced a combined 7.8 million units in 2021, of which Mexico and Brazil accounted for 77%. In these four countries, production of passenger cars and other light vehicles (including motorcycles) ranges from 92% to 96% of the total, while the lorry segment accounted for 4.8% of production in 2021 and the bus segment for just 0.34%. In Mexico, the main category in terms of units produced is light commercial vehicles, while motorcycles predominate in Argentina, Brazil and Colombia (see figure II.9B).

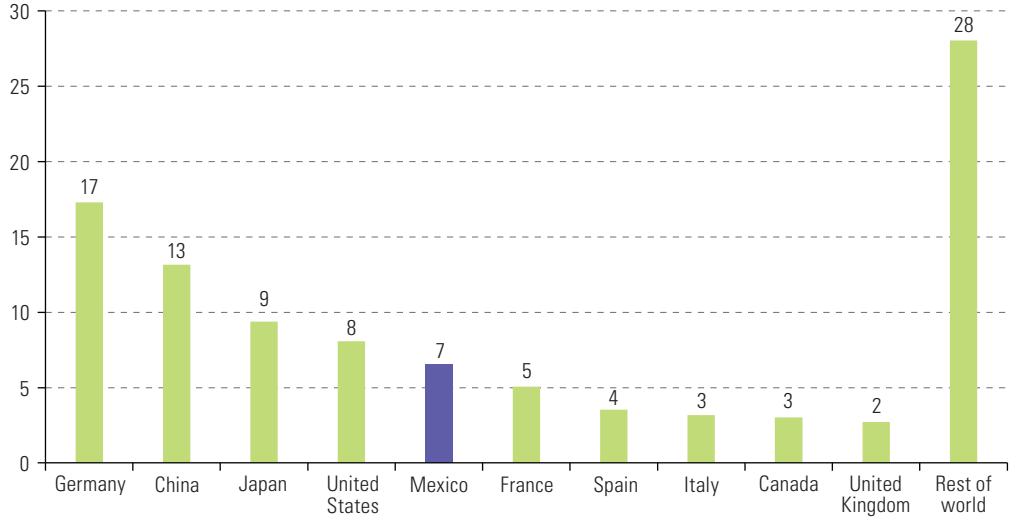
The exports of the region's four main vehicle producers are dominated by cars, goods and passenger vehicles, parts and components, and engines (see table II.6). All except Mexico run deficits in most segments. Exceptions include cars and other passenger vehicles in the case of Brazil, and goods vehicles in Argentina's. Although it is not part of the automotive industry, Brazil runs a surplus in the aircraft segment, where Embraer dominates trade.

Figure II.9
Latin America and the Caribbean: largest exporters and producers of vehicles and auto parts, 2019–2021 average and 2021
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from National Institute of Statistics and Geography (INEGI) of Mexico; National Association of Motor Vehicle Manufacturers (ANFAVEA) of Brazil; Motor Vehicle Manufacturers Association (ADEFA) of Argentina; National Association for Sustainable Mobility (ANDEMOS) of Colombia; National Administrative Department of Statistics (DANE) of Colombia; Mexican Automotive Industry Association (AMIA); Autobody Magazine, "Valor de producción de motos supera los 12 mil MDP en México", 18 July 2022 [online] https://www.autobodymagazine.com.mx/2022/07/18/valor-de-produccion-de-motos-supera-los-12-mil-mdp-en-mexico/; Chamber of the Automotive Industry, "Las motocicletas en Colombia: aliadas del desarrollo del país", *Estudio del Sector, 2019*, vol. 2, National Business Association of Colombia (ANDI), Bogotá, 2019; Chamber of Motorcycle Manufacturers (CAFAM) of Argentina.

Figure II.10
World: largest exporters of vehicles and auto parts by value, 2021
(Percentages of world exports)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

Table II.6
Argentina, Brazil, Colombia and Mexico: trade in vehicles and auto parts, by major product group, 2019–2021 averages
(Millions of dollars)

		Major product group	Argentina	Brazil	Colombia	Mexico
Exports	713	Internal combustion piston engines, and parts thereof, n.e.s.	427	1 947	20	9 149
	781	Motor cars and other motor vehicles principally designed for the transport of persons (other than public transport type vehicles) including station wagons and racing cars	833	3 270	253	40 037
	782	Motor vehicles for the transport of goods and special-purpose motor vehicles	4 085	1 430	97	26 210
	783	Public transport type passenger vehicles	1	776	8	7 754
	784	Parts and accessories of the motor vehicles of groups 722, 781, 782 and 783	629	2 441	65	29 604
	785	Motorcycles (including mopeds) and cycles, motorized and non-motorized; invalid carriages	1	125	38	471
	786	Trailers and semi-trailers; other vehicles, not mechanically propelled; specially designed and equipped transport containers	12	126	12	2 084
	791	Railway vehicles (including hovertrains) and associated equipment	0	67	0	2 414
	792	Aircraft and associated equipment; spacecraft (including satellites) and spacecraft launch vehicles; parts thereof	14	2 927	51	511
	793	Ships, boats (including hovercraft) and floating structures	102	62	12	948
		All products	**6 104**	**13 170**	**556**	**119 181**
Imports	713	Internal combustion piston engines, and parts thereof, n.e.s.	1 030	2 653	367	11 744
	781	Passenger cars	1 889	2 733	2 105	7 213
	782	Goods vehicles	576	2 692	779	1 366
	783	Passenger transport vehicles	230	106	381	173
	784	Parts and accessories for groups 722, 781, 782 and 783	2 462	7 287	774	25 617
	785	Motorcycles, scooters and other light vehicles	485	1 079	438	1 240
	786	Trailers	47	105	43	857
	791	Railway vehicles	38	137	10	784
	792	Aircraft and associated equipment	123	2 080	1 105	152
	793	Ships, boats and floating structures	107	2 878	37	93
		All products	**6 989**	**21 751**	**6 040**	**49 240**
Trade balance	713	Internal combustion engines	-602	-706	-347	-2 595
	781	Passenger cars	-1 056	537	-1 852	32 824
	782	Goods vehicles	3 509	-1 261	-682	24 844
	783	Passenger transport vehicles	-229	670	-373	7 581
	784	Parts and accessories for groups 722, 781, 782 and 783	-1 833	-4 846	-710	3 987
	785	Motorcycles, scooters and other light vehicles	-484	-954	-400	-769
	786	Trailers	-36	20	-30	1 227
	791	Railway vehicles	-38	-70	-10	1 630
	792	Aircraft and associated equipment	-109	847	-1 054	359
	793	Ships, boats and floating structures	-6	-2 816	-25	855
		All products	**-885**	**-8 581**	**-5 484**	**69 942**

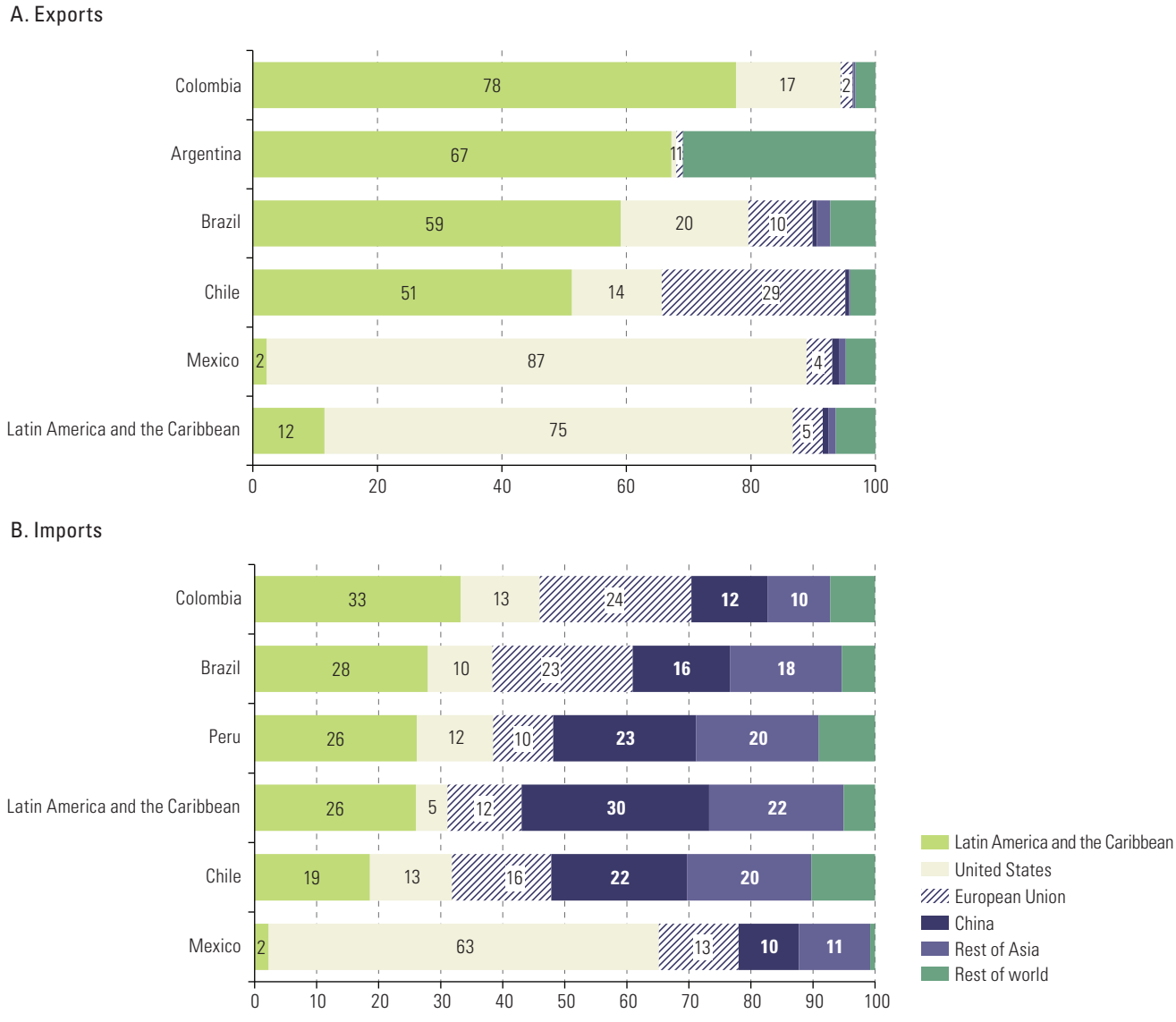
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

The region is highly reliant on extraregional imports of inputs for vehicle production (internal combustion engines, parts and components). Only Mexico has a surplus in the parts segment, owing to its intensive linkages with the United States automotive industry, especially since NAFTA came into force in the mid-1990s. In 1993, before this, there were 10 vehicle plants in Mexico, belonging to five brands. Today, there are 21 plants manufacturing vehicles of 36 brands, led by General Motors, Nissan, Kia, Volkswagen and Toyota. These five brands accounted for 52% of Mexico's total vehicle production between January and August 2022 (INEGI, 2022a and 2022b).

Almost 90% of the region's exports of vehicles and auto parts go to the United States and the region itself. In contrast, imports show a more diversified distribution, with a large share coming from the European Union, China and other Asian countries (see figure II.11). The main destination for Mexican exports is the United States, which takes 87% of the total by value. The country is also the source of 63% of Mexican imports. In contrast, exports from Colombia, Argentina, Brazil and Chile go mainly to the regional market. Argentina and Brazil have a high degree of complementarity in the sector, which is manifested in high levels of bilateral trade in intermediate inputs and final products. For example, the Argentine metalworking industry imports iron ore from Brazil and then processes it and transforms it into intermediate products

such as pipes, galvanized profiles and parts for the automotive industry (Amar and García Díaz, 2018). Similarly, Colombia's automotive industry is linked to its Andean Community (CAN) partners, mainly Ecuador, one of its main buyers of cars, lorries, motorcycles and buses. Colombia also imports inputs from Mexico and Argentina, to which it likewise exports its products.

Figure II.11
Latin America and the Caribbean and selected countries: distribution of trade in vehicles and auto parts, by origin and destination, 2019–2021 averages
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

The information available for 18 countries in the region reveals that Mexico and Brazil accounted for 86% of the region's automotive GDP in 2017. Argentina contributed an additional 9%, while the other 15 countries accounted for the remaining 5%. While Mexico's automotive GDP in 2017 was 2.3 times Brazil's, its exports in 2019–2021 were nine times as great. This shows that, while the Mexican automotive industry is clearly export-oriented, the Brazilian one is mainly focused on the local market. Regarding the

share of the automotive sector in each country's manufacturing GDP, this is greatest in Mexico (19.8%) and much smaller in Brazil and Argentina (see table II.7). Only the food industry represents a larger share of Mexico's manufacturing GDP than the automotive industry (AMIA/INEGI, 2018).

Table II.7
Latin America (18 countries): characterization of the automotive industry according to the Rasmussen and Hirschman indices and selected indicators, 2017[a]

	Categorization of the sector	Automotive GDP *(Millions of dollars)*	Share of total GDP *(Percentages)*	Share of manufacturing GDP *(Percentages)*	Total employment *(Number of jobs)*	Ratio IE/DE[b]
Mexico	Key	44 180	4.0	19.8	989 000	5
Brazil	Key	19 512	1.1	7.1	588 796	3
Argentina	Key	6 751	1.3	4.6	184 130	1
Colombia	Poorly linked	771	0.3	1.9	42 402	2
Other 14 countries[c]	…	2 684	2.9	1.2	106 683	1
Latin America (18 countries)	**…**	**73 898**	**1.5**	**8.3**	**1 911 011**	**4**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the 2017 global input-output matrix prepared by the Asian Development Bank (ADB), the Economic and Social Commission for Asia and the Pacific (ESCAP) and ECLAC.
[a] Around 2021 in the case of Mexico.
[b] Ratio of indirect employment (IE) to direct employment (DE), measuring the number of indirect jobs generated for each direct one associated with exports.
[c] Includes the Bolivarian Republic of Venezuela, Chile, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia and Uruguay.

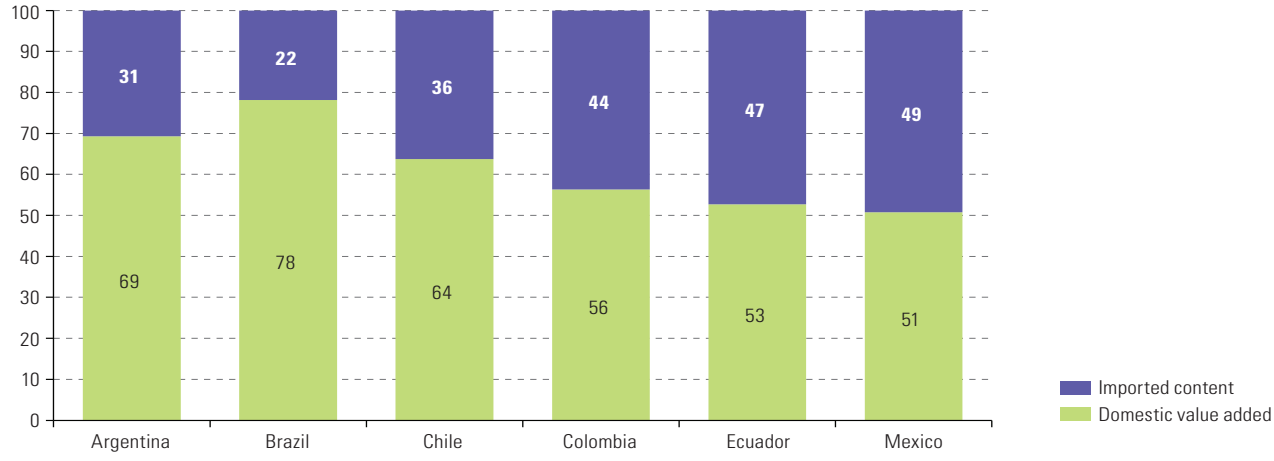
Vehicle production requires a range of intermediate goods, both domestic and imported (parts and components, engines, electronic components and rubber and plastic products, among others). In turn, automotive industry products are in demand in other sectors, especially passenger and freight transport, mining and agriculture. Consequently, this is considered a key industry in Mexico, Brazil and Argentina because of its extensive backward and forward linkages. On average, the automotive industry in the region generates four indirect jobs for every direct job linked to exports, a figure that rises to five in the case of Mexico.

As regards the composition of value added in vehicle and auto parts exports, Brazil (78%), Argentina (69%) and Chile (64%) are the countries in the region with the highest domestic content in their exports, followed by Colombia, Ecuador and Mexico. In these six countries, the share of local value added is between 51% and 78% (see figure II.12), a fact that indicates how important local linkages are in vehicle production. In the case of Mexico, half of every dollar exported corresponds to imported inputs, reflecting the country's close links with North American production chains in the sector.

In the countries analysed, analysis of the domestic value added of automotive sector exports by destination shows two patterns. On the one hand, Argentina, Brazil, Chile and Colombia send their exports mainly to Latin America and the Caribbean while, on the other, Ecuador and especially Mexico direct their shipments primarily to the United States (see figure II.13A). This pattern is repeated when the origin of the imported components incorporated into exports is analysed. Argentina, Brazil, Chile and Colombia procure these components mainly from within the region, while Ecuador and, above all, Mexico import them from the United States (see figure II.13B). The relationship of all six countries in the region with China, the rest of Asia, Europe and other partners is limited. In the case of China, this is because the reference year of the matrix analysed is 2017; trade relations between the region and China have intensified since then.[2]

[2] China has increased its share in the apparent consumption of the region's industry in recent years, particularly as a supplier of intermediate inputs for a range of industries including metalworking, electronics and the automotive industry (Durán Lima and Herreros, 2022).

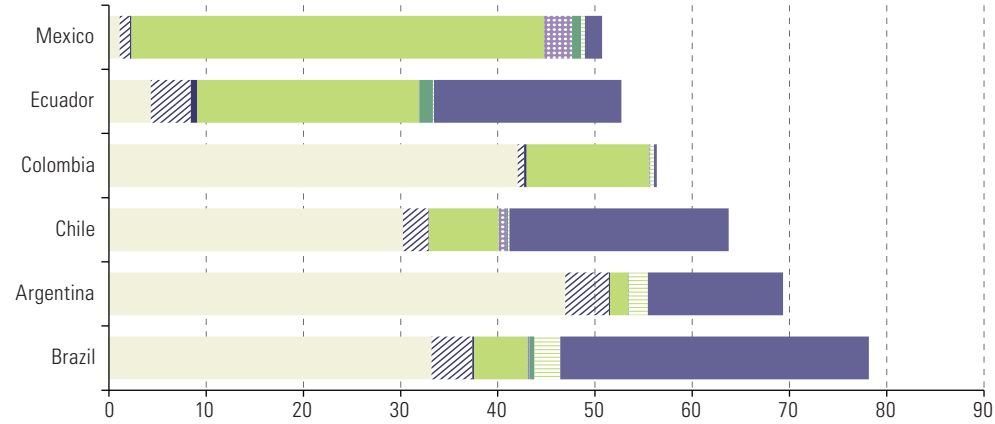
Figure II.12
Latin America (6 countries): composition of gross exports in the automotive sector, by domestic value added and imported inputs incorporated in them, 2017
(Percentages)



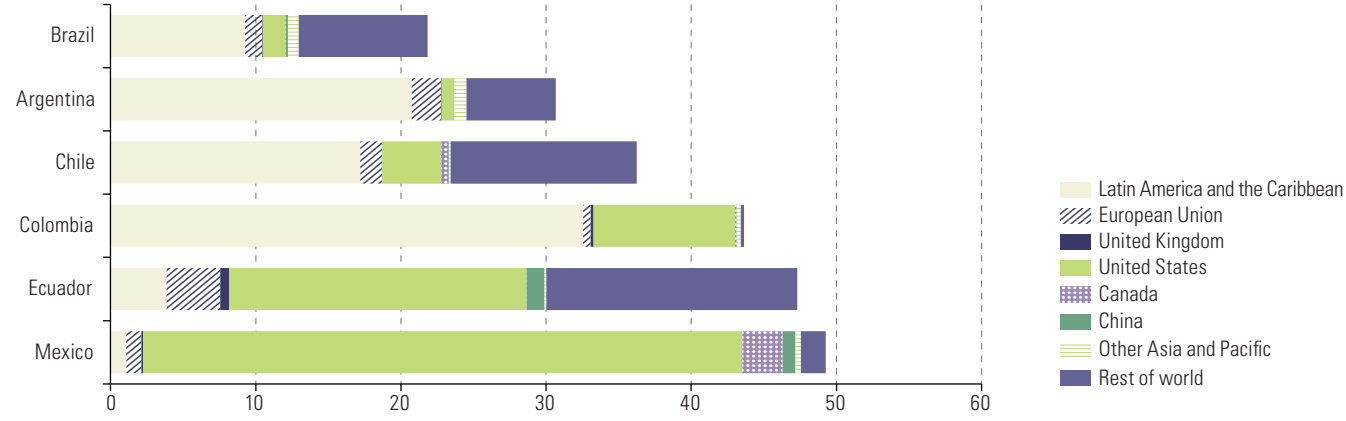
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the 2017 global input-output matrix prepared by the Asian Development Bank (ADB), the Economic and Social Commission for Asia and the Pacific (ESCAP) and ECLAC.

Figure II.13
Latin America (6 countries): distribution of gross automotive sector exports by domestic and imported value added, by partner, 2017
(Percentages)

A. Destination of domestic value added



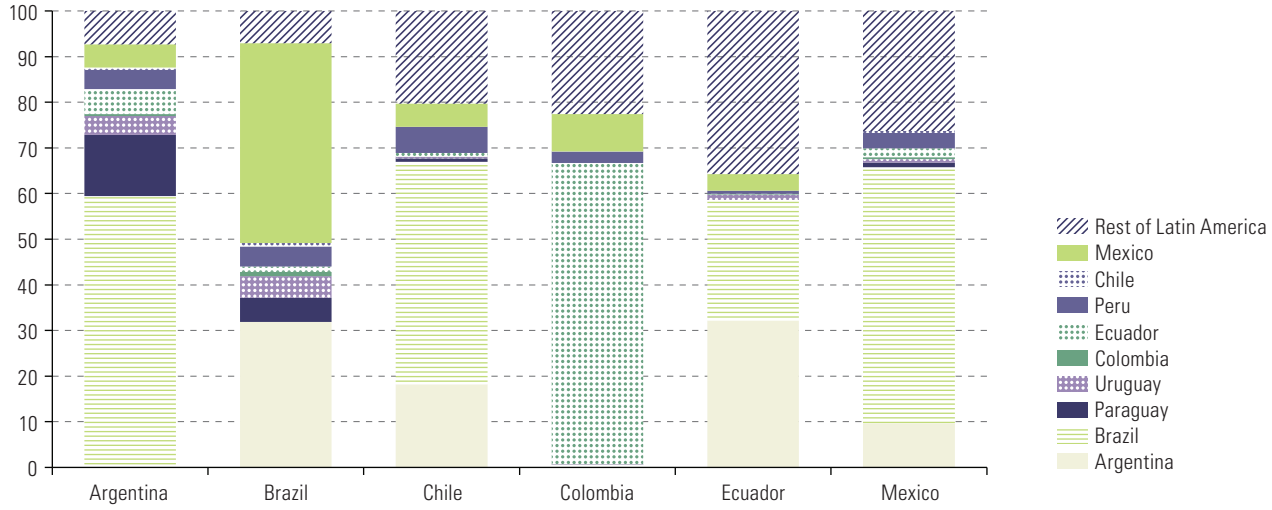
B. Origin of imported value added



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the 2017 global input-output matrix prepared by the Asian Development Bank (ADB), the Economic and Social Commission for Asia and the Pacific (ESCAP) and ECLAC.

When the distribution by destination country of the domestic value added exported to the region by the selected countries is analysed, it can be seen that the most intensive links are between Argentina and Brazil and between Colombia and Ecuador (see figure II.14). Although Brazil receives 56% of the domestic value added exported by Mexico to the region, the amount of these shipments is very small, as only 2% of the domestic value added embodied in Mexico's automotive exports goes to Latin America and the Caribbean.

Figure II.14
Latin America (6 countries): distribution by destination country of local value added exported to Latin America and the Caribbean in the automotive sector, 2017
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the 2017 global input-output matrix prepared by the Asian Development Bank (ADB), the Economic and Social Commission for Asia and the Pacific (ESCAP) and ECLAC.

Globally, the automotive industry is undergoing a rapid process of change marked by the transition to electromobility. China is the world leader in the electrification of public transport, while several developed countries have set ambitious targets for the electrification of their car fleets. These efforts, initially led by European countries, have been strongly joined by the United States. Since the latter absorbs 87% of Mexico's automotive exports, Mexico will need to rapidly adapt its industry to the growing demand for electric vehicles and components in the United States (Montoya, 2022).

In the region, the main electromobility efforts have focused on the decarbonization of public transport. Thus, several cities (such as Santiago, Bogotá, Mexico City, Buenos Aires and São Paulo) are renewing their conventional bus fleets, replacing them with new electric or hybrid units. This process relies heavily on imports, especially from China, even though Argentina, Brazil, Colombia and Mexico are among the world's top 20 producers of buses (Durán Lima and Herreros, 2022). As a group, the countries in the region are net importers of finished and semi-finished intermediate products used in the manufacture of electric buses. Prominent among these products are lithium-ion batteries, even though Argentina, Chile and the Plurinational State of Bolivia are home to almost 60% of the world's lithium resources. This situation severely limits the development of the region's electric vehicle industry. Thus, coordinating policies and investments around the lithium value chain could generate substantial productive and technological capabilities in the region's electromobility sector and would support the big push for sustainability proposed by ECLAC.

2. Food, beverages and tobacco

The value in current dollars of the region's food, beverage and tobacco exports has almost quintupled over the past 20 years, averaging almost US$ 93 billion a year in the three-year period 2019–2021 (see table II.8). Since imports in this sector have grown by less during this century, the region's trade surplus increased sevenfold to an average of nearly US$ 42 billion between 2019 and 2021. However, situations differ at the subregional level. South America has a large surplus, reflecting its abundant agricultural resources. Central America is in a fairly balanced position, while the Caribbean subregion runs a persistent deficit. At the same time, two thirds of the region's exports come from South America. In fact, Brazil and Argentina account for almost half the region's total output and shipments. Mexico is also an important player, with a 20% share of total exports and of regional agrifood production (see figure II.15).

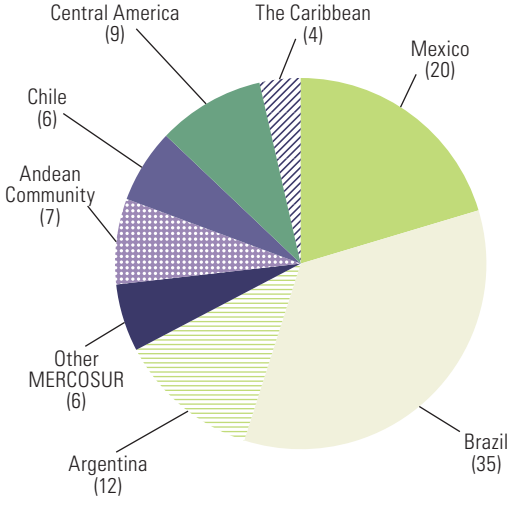
Table II.8
Latin America and the Caribbean: trade in food, beverages and tobacco, 2000–2002 and 2019–2021 averages
(Millions of dollars)

Country/subregion/region	Exports		Imports		Trade balance	
	2000–2002	2019–2021	2000–2002	2019–2021	2000–2002	2019–2021
Latin America and the Caribbean	**19 585**	**92 752**	**14 007**	**50 491**	**5 578**	**42 261**
Latin America	**17 905**	**89 440**	**11 914**	**44 413**	**5 990**	**45 027**
South America	**13 293**	**61 890**	**5 181**	**22 525**	**8 113**	**39 365**
Southern Common Market (MERCOSUR)	**10 468**	**49 006**	**3 283**	**10 136**	**7 185**	**38 870**
Argentina	3 379	11 493	661	1 257	2 718	10 236
Brazil	6 099	32 046	1 421	6 214	4 678	25 832
Paraguay	146	2 008	145	689	1	1 319
Uruguay	506	3 301	193	891	313	2 409
Andean Community	**1 435**	**6 919**	**1 233**	**6 528**	**202**	**391**
Pacific Alliance	**5 556**	**29 279**	**6 694**	**23 999**	**-1 138**	**5 280**
Chile	1 391	5 965	665	5 861	726	104
Mexico	3 265	18 891	5 113	13 344	-1 848	5 547
Central America	**1 346**	**8 659**	**1 620**	**8 544**	**-275**	**115**
The Caribbean	**1 680**	**3 312**	**2 093**	**6 078**	**-413**	**-2 766**

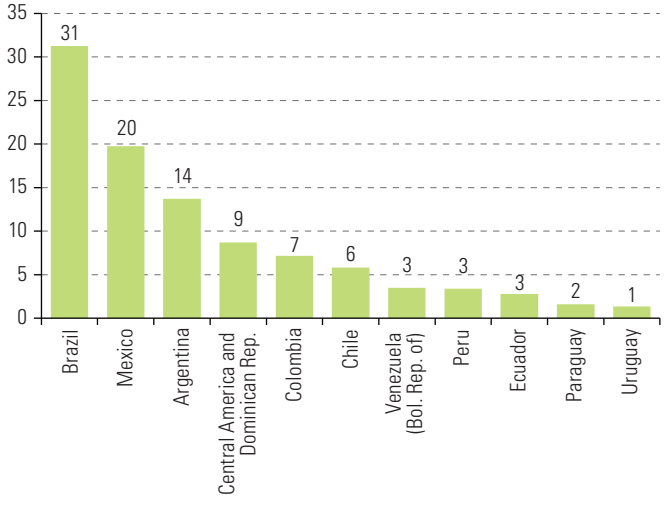
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

Figure II.15
Latin America and the Caribbean: largest exporters and producers of food, beverages and tobacco, 2019–2021 and 2017 averages
(Percentages)

A. Exports (2019–2021)



B. Production (2017)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/ and United Nations Industrial Development Organization (UNIDO), UNIDO Data Portal [online] https://stat.unido.org/.

In 2021, Brazil ranked ninth in the world as an exporter of food, beverages and tobacco (fifth if the European Union is treated as a single entity), with a 4% share of total exports in this sector. Mexico and Argentina were also among the world's top 25 exporters, ranking sixteenth and twenty-third, respectively (see figure II.16). Brazil and Argentina are major suppliers of meat, cereals, processed fruits and vegetable oils, while Mexico excels as an exporter of food preparations and confectionery and is the world's leading exporter of beer (Ramírez Hernández and Avitia Rodríguez, 2021). Unlike Brazil and Argentina, which have traditionally run trade surpluses in the food, beverages and tobacco sector, Mexico moved from a deficit to a surplus in 2016 (Ramírez Hernández and Avitia Rodríguez, 2021). This change was due to an increase in the productivity and sown area of a number of products essential for agro-industrial activity, such as cereals, avocados, berries and fresh fruit (Díaz, 2019).

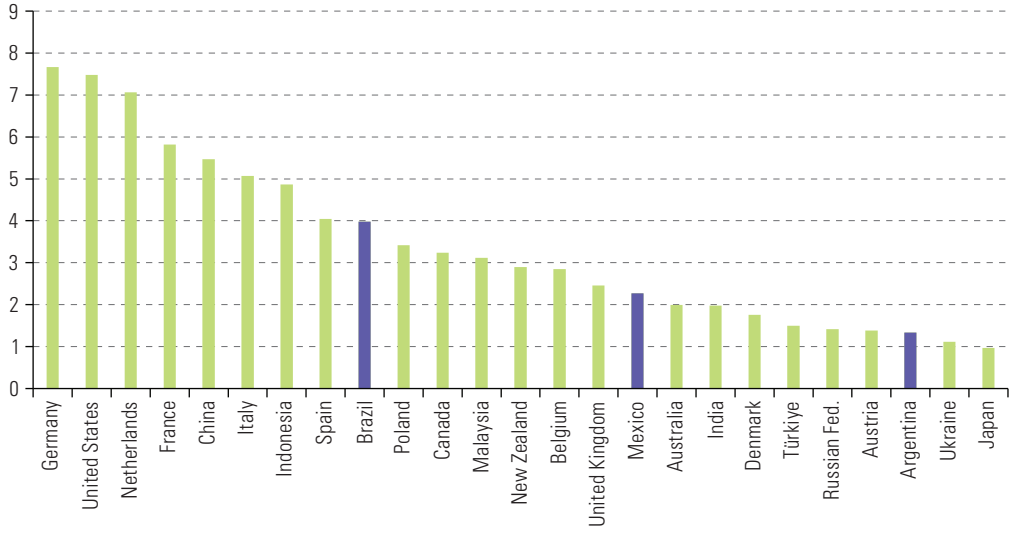
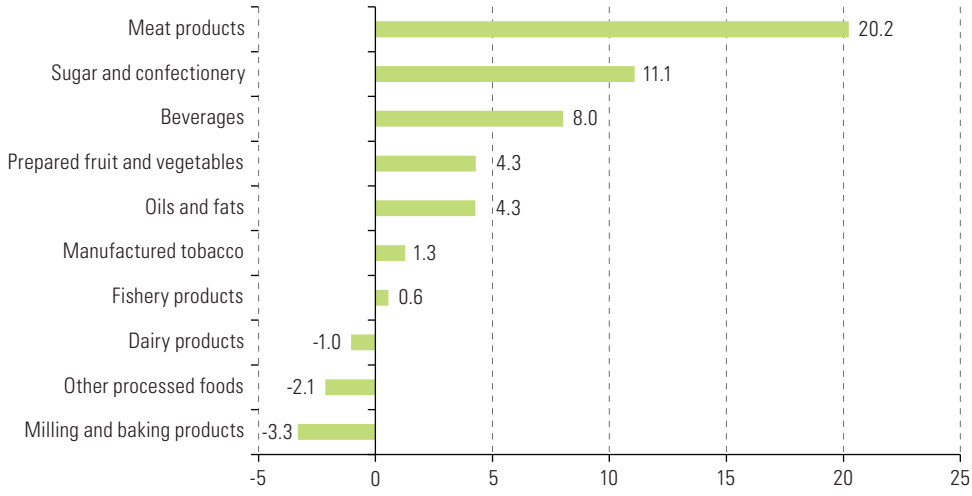


Figure II.16
World: top 25 exporters of food, beverages and tobacco, 2021
(Percentages of world exports)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

In the food, beverages and tobacco industry, the region's largest surplus is in meat products (see figure II.17), which accounted for a third of its total exports between 2019 and 2021. Other large surpluses are in sugar and confectionery (16% of total exports) and beverages (14% of total exports). In the meat segment, the main exporter is Brazil (58% of the total), while Argentina, Paraguay and Uruguay between them account for 24% (see table II.9). Brazil is also the leading regional exporter of sugar and confectionery (54% of the region's total exports). Of this figure, 95% is accounted for by sugar. Mexico is the leading regional exporter of beverages (64% of the total), with 91% of shipments being alcoholic beverages (mainly beer and tequila). The second-largest regional exporter of beverages is Chile, with a 15% share, and almost all its shipments are alcoholic beverages (especially wine). Like most of its countries, the region has trade deficits in dairy products, bakery and pasta products, and other processed foodstuffs.

Figure II.17
Latin America and the Caribbean: trade balances by category in the food, beverage and tobacco industry, 2019–2021 averages
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

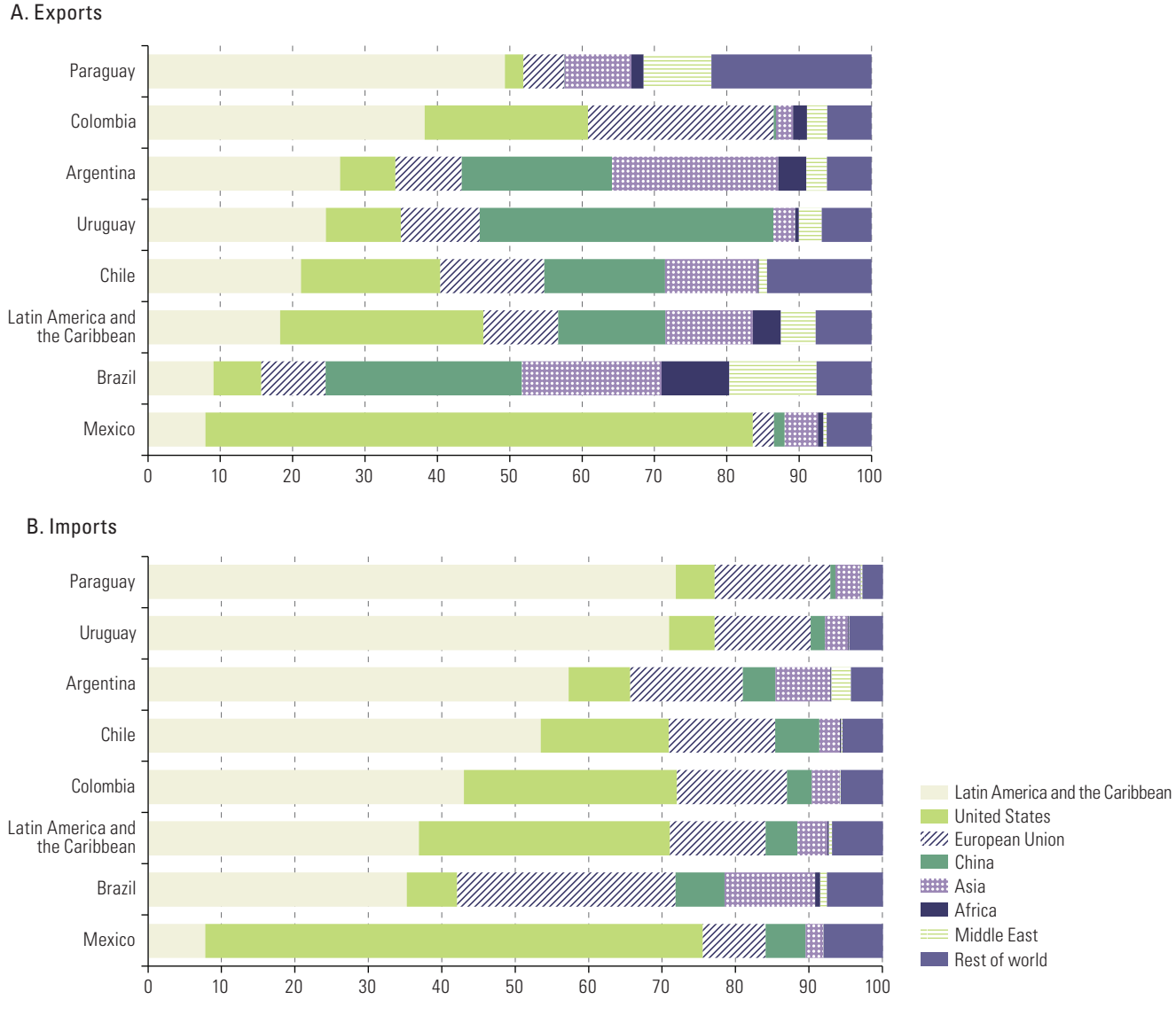
Table II.9
Latin America and the Caribbean and selected countries and groupings: trade in food, beverages and tobacco by major product group, 2019–2021 averages
(Millions of dollars)

	Major product group	Brazil	Argentina	Mexico	Paraguay and Uruguay	Chile	Andean Community	Central America	The Caribbean	Latin America and the Caribbean
Exports	Meat	17 546	3 471	2 671	3 668	1 601	436	873	31	30 297
	Dairy	22	284	50	356	46	13	256	9	1 036
	Fisheries	39	9	84	4	165	1 418	351	14	2 084
	Milling and baking	956	247	405	55	93	130	235	99	2 220
	Sugar and confectionery	8 219	410	2 677	85	84	927	2 273	529	15 204
	Prepared fruit and vegetables	1 986	707	3 250	276	1 161	781	1 259	187	9 607
	Beverages	172	842	8 083	89	1 928	87	758	619	12 578
	Manufactured tobacco	112	0	13	51	68	4	287	1302	1 837
	Oils and fats	1 544	4 839	263	589	345	1 688	910	48	10 226
	Other processed foods	1 450	682	1 395	136	474	1 435	1 458	474	7 504
	All products	**32 046**	**11 493**	**18 891**	**5 308**	**5 965**	**6 919**	**8 659**	**3 312**	**92 593**
Imports	Meat	306	130	4 333	287	1 876	617	1 383	1140	10 072
	Dairy	152	11	567	36	252	119	635	302	2 074
	Fisheries	189	103	143	27	200	383	159	330	1 534
	Milling and baking	1 156	314	2 129	64	467	698	433	278	5 539
	Sugar and confectionery	257	93	998	210	504	753	744	562	4 121
	Prepared fruit and vegetables	911	110	1 525	175	406	508	1 162	530	5 327
	Beverages	739	83	780	297	518	542	817	788	4 564
	Manufactured tobacco	31	47	1	36	11	135	99	205	565
	Oils and fats	1 326	71	1 230	140	634	1 325	823	417	5 966
	Other processed foods	1 147	296	1 639	307	994	1 446	2 289	1525	9 643
	All products	**6 214**	**1 257**	**13 344**	**1 580**	**5 861**	**6 528**	**8 544**	**6 079**	**49 407**
Trade balance	Meat	17 240	3 341	-1 662	3 381	-275	-181	-510	-1 109	20 225
	Dairy	-130	273	-517	320	-206	-106	-379	-293	-1 038
	Fisheries	-150	-94	-59	-23	-35	1 035	192	-316	550
	Milling and baking	-200	-67	-1 724	-9	-374	-568	-198	-179	-3 319
	Sugar and confectionery	7 962	317	1 679	-125	-420	174	1 529	-33	11 083
	Prepared fruit and vegetables	1 075	597	1 725	101	755	273	97	-343	4 280
	Beverages	-567	759	7 303	-208	1 410	-455	-59	-169	8 014
	Manufactured tobacco	81	-47	12	15	57	-131	188	1 097	1 272
	Oils and fats	218	4 768	-967	449	-289	363	87	-369	4 260
	Other processed foods	303	386	-244	-171	-520	-11	-831	-1 051	-2 139
	All products	**25 832**	**10 236**	**5 547**	**3 728**	**104**	**391**	**115**	**-2 767**	**43 186**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/ and mirror statistics for Antigua and Barbuda, Bahamas, Cuba, Dominica, Grenada, Haiti, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines.

Regional exports of food, beverages and tobacco show considerable diversification by destination market. The two main markets are the United States, with a 28% share, and the region itself (18%), while China, the rest of Asia and the European Union also take substantial shares (see figure II.18A). There is considerable heterogeneity between countries. As in other sectors, the bulk of Mexican exports go to the United States, while China has become the main market for Brazil and Uruguay. In the case of regional imports, the main sources are the region itself and the United States, which together account for 71% of the total (see figure II.18B). Among the region's main exporters, Mexico is the only country whose main supplier of food, beverages and tobacco is not the region itself but the United States.

Figure II.18
Latin America and the Caribbean and selected countries: distribution of the trade in food, beverages and tobacco by origin[a] and destination, 2019–2021 averages
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

The food, beverages and tobacco sector accounts for double-digit shares of total GDP and manufacturing GDP throughout Latin America (see table II.10). Owing to its extensive linkages, both backward and forward, it is considered a key sector in all the countries; it is highly backward-linked with several other economic sectors, in addition to agriculture and livestock production. These include particularly the plastics and paper and cardboard industries and the chemical and pharmaceutical industry in its fuel, fertilizer and pesticide segments. Agrifood production also requires a wide variety of services such as transport and other professional services (agronomists, food engineers and pest control specialists, among others). Also noteworthy is the high proportion of indirect jobs created for each direct job, which ranges from two to six with an average of three.

Table II.10
Latin America (18 countries): characterization of the food, beverage and tobacco industry according to the Rasmussen and Hirschman indices and selected indicators, 2017 and 2018

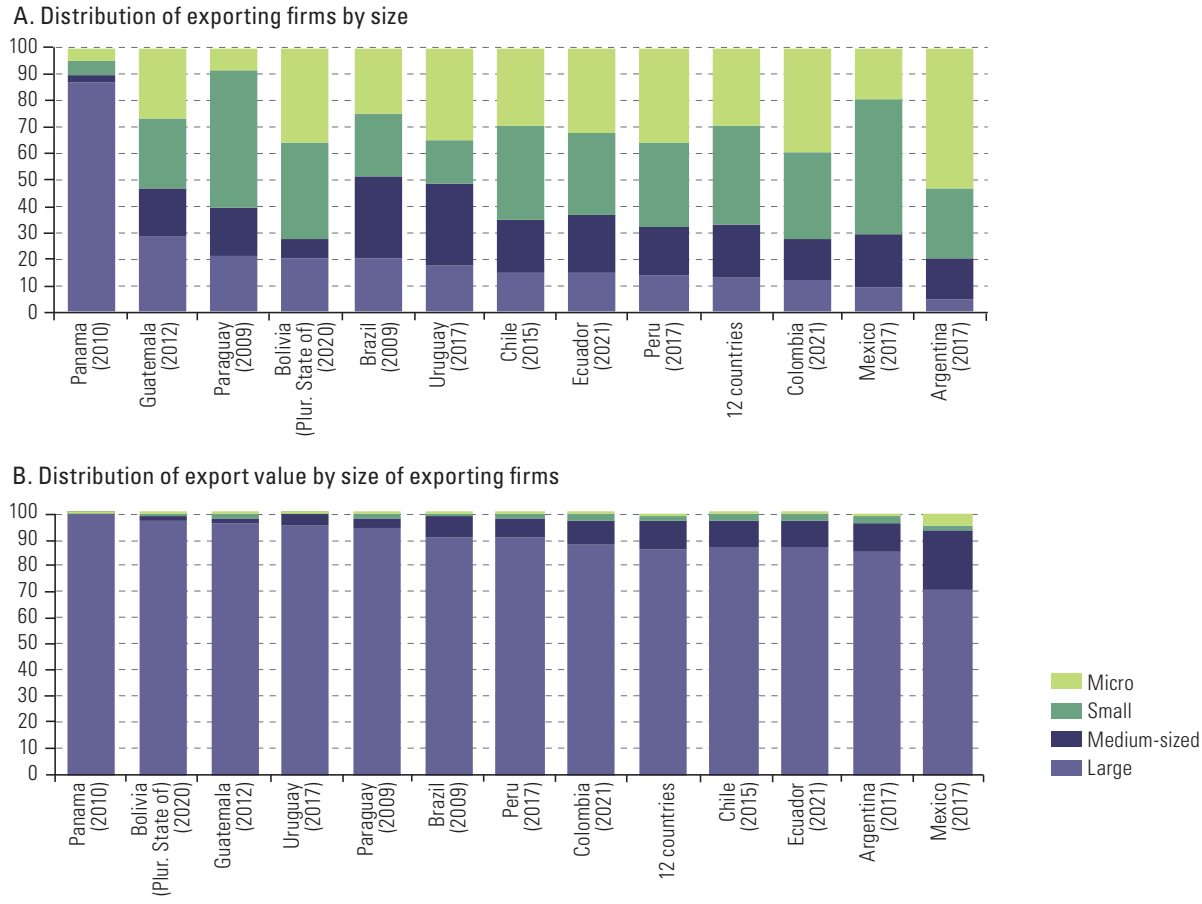
	Categorization of the sector	Share of GDP	Share of manufacturing GDP	Export propensity[a]	Total employment *(Number of jobs)* (2018)	IE/DE ratio[b]
Brazil	Key	12.2	18.6	17.0	1 789 353	4
Mexico	Key	19.0	22.0	8.7	1 384 115	2
Argentina	Key	17.5	20.5	22.2	639 289	3
Chile	Key	15.7	34.2	32.7	271 266	2
Uruguay	Key	17.6	38.2	46.6	72 925	2
Paraguay	Key	30.1	41.9	42.6	60 859	6
Colombia	Key	17.4	27.4	9.8	824 184	3
Ecuador	Key	19.8	36.0	30.7	242 366	5
Peru	Key	12.0	23.1	19.0	397 020	3
Bolivia (Plurinational State of)	Key	21.3	32.9	27.6	152 221	5
Venezuela (Bolivarian Republic of)	Key	10.5	19.0	...	491 975	5
7 other countries[c]	Key	19.1	36.5	20.3	1 017 128	3
Latin America (18 countries)	**Key**	**15.5**	**22.6**	**16.4**	**7 600 704**	**3**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the 2017 global input-output matrix prepared by the Asian Development Bank (ADB), the Economic and Social Commission for Asia and the Pacific (ESCAP) and ECLAC.
[a] Measures the share of output exported.
[b] Ratio of indirect employment (IE) to direct employment (DE), measuring the number of indirect jobs generated for each direct one associated with exports.
[c] Includes Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama.

The food, beverages and tobacco industry creates far more jobs than the automotive sector because, unlike the latter, it is important throughout the region. In relatively small agro-exporting economies such as Chile, Ecuador, Paraguay and Uruguay, between 30% and almost 50% of production in this industry goes to external markets. According to microdata available for 12 countries in the region between 2009 and 2021, there are marked differences between exporting firms of different sizes as regards their share of exports in the food, beverages and tobacco sector. In fact, 87% of exports are made by large firms, even though they represent an average of only 13% of all exporting firms (see figure II.19). This situation highlights the fact that the distribution of the benefits of export activity is highly asymmetrical, since they are concentrated in a small group of large, high-productivity firms.

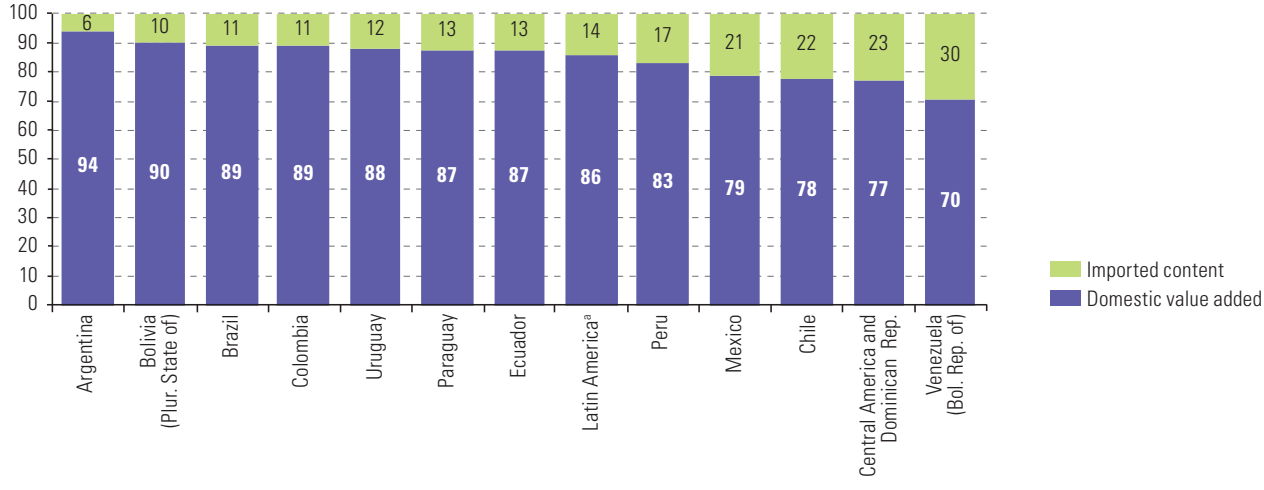
The food, beverages and tobacco sector requires fewer imported inputs than other industrial sectors, such as the automotive and chemicals and pharmaceuticals sectors. Thus, on average, 8.6 out of every 10 dollars exported by the region in this sector represents value added incorporated in the exporting country, while only 1.4 corresponds to imported content. With the exception of Chile and the Bolivarian Republic of Venezuela, the highest proportions of domestic value added are in the South American countries (see figure II.20).

Figure II.19
Latin America and the Caribbean (12 countries): structure by agents of the food, beverages and tobacco exporting sector, 2009–2021
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of microdata from the countries' customs and excise services.

Figure II.20
Latin America: composition of gross exports in the food, beverages and tobacco sector by the domestic value added and imported inputs incorporated in them, 2017
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the 2017 global input-output matrix prepared by the Asian Development Bank (ADB), the Economic and Social Commission for Asia and the Pacific (ESCAP) and ECLAC.
[a] The 12 countries named in the chart and Central America (Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua).

3. Chemicals and pharmaceuticals

The chemicals and pharmaceuticals sector generates a wide variety of products. Some of them are for final consumption (such as cleaning products, medicines and cosmetics), while others are essential inputs for various economic activities (fuels, basic chemicals, fertilizers and disinfectants, among others). Because of its importance as a supplier of intermediate inputs, this sector plays a decisive role in the region's industrial development.

The region's exports in the chemicals and pharmaceuticals sector averaged US$ 55 billion per year in the three-year period 2019–2021, double what they were in current dollar terms in 2000–2002. Meanwhile, regional imports quadrupled between the two triennia, resulting in a sixfold increase in the average trade deficit to over US$ 150 billion in the period 2019–2021 (see table II.11). All subregions and almost all countries in Latin America and the Caribbean have a trade deficit in this sector. The only exception is Trinidad and Tobago, which has managed to develop a large petrochemical industry based on its abundant oil and natural gas reserves. With few national exceptions, the regional deficit in the chemicals and pharmaceuticals sector is replicated in all its subsectors (see table II.12).

Table II.11
Latin America and the Caribbean: value of exports in the chemicals and pharmaceuticals sector, 2000–2002 and 2019–2021 averages
(Millions of dollars)

Country/subregion/region	Exports		Imports		Trade balance	
	2000–2002	2019–2021	2000–2002	2019–2021	2000–2002	2019–2021
Latin America and the Caribbean	**25 740**	**52 516**	**49 059**	**201 382**	**-25 482**	**-152 631**
Latin America	**23 121**	**48 034**	**46 787**	**194 209**	**-23 666**	**-146 174**
South America	**16 096**	**31 380**	**25 968**	**114 472**	**-9 873**	**-83 092**
Southern Common Market (MERCOSUR)	**12 419**	**19 446**	**18 892**	**73 930**	**-6 473**	**-54 484**
Argentina	2 870	3 415	3 447	11 665	-577	-8 251
Brazil	3 896	14 359	12 089	56 002	-8 193	-41 643
Venezuela (Bolivarian Republic of)	5 511	1 059	2 261	1 360	3 250	-300
Andean Community	**2 479**	**7 889**	**5 016**	**29 242**	**-2 536**	**-21 352**
Colombia	1 694	4 180	2 538	12 371	-844	-8 191
Ecuador	311	1 044	924	6 786	-613	-5 742
Peru	450	2 490	1 236	7 403	-786	-4 913
Pacific Alliance	**9 070**	**21 462**	**19 446**	**85 991**	**-10 376**	**-64 530**
Chile	1 198	4 044	2 061	11 300	-863	-7 256
Mexico	5 729	10 748	13 611	54 917	-7 882	-44 169
Central America	**1 035**	**5 029**	**4 783**	**20 176**	**-3 748**	**-15 147**
The Caribbean	**2 881**	**5 361**	**4 697**	**11 818**	**-1 816**	**-6 457**
Caribbean Community (CARICOM)	**2 619**	**4 482**	**2 272**	**7 173**	**346**	**-2 691**
Trinidad and Tobago	2 221	3 421	298	954	1 923	2 467
Organisation of Eastern Caribbean States (OECS)	**100**	**126**	**236**	**526**	**-136**	**-400**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/ and mirror statistics for Antigua and Barbuda, the Bahamas, the Bolivarian Republic of Venezuela, Cuba, Dominica, Grenada, Haiti, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines.

Table II.12
Latin America and the Caribbean (selected countries): trade in the chemicals and pharmaceuticals sector by major product group, 2019–2021 averages
(Millions of dollars)

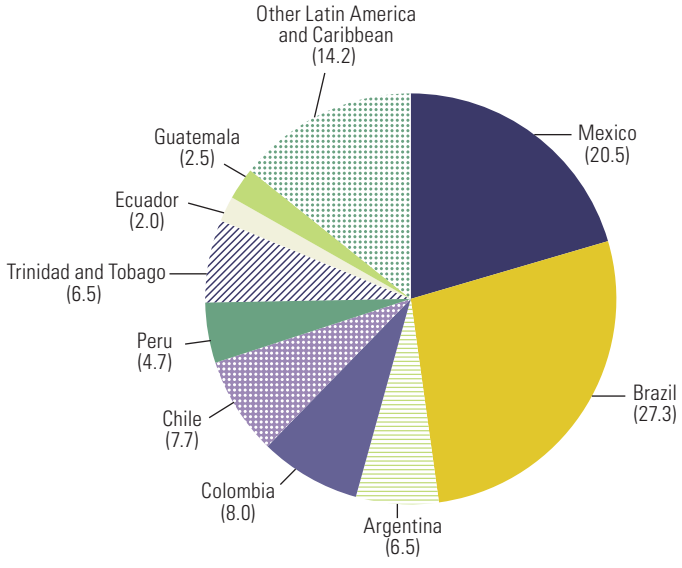
	Major product group	Brazil	Mexico	Argentina	Colombia	Chile	Peru	Trinidad and Tobago	Ecuador
Exports	Fuels	6 076	2 092	615	2 203	472	1 562	596	943
	Other petroleum derivatives	801	56	3	111	24	6	2	3
	Basic chemicals	2 135	1 213	152	138	2 353	353	1 130	7
	Alcohols and phenols	1 348	30	65	19	256	105	1 091	11
	Dyes, pigments and paints	360	544	52	96	36	132	13	10
	Manufactured fertilizers	171	235	0	58	418	36	537	5
	Perfumes and cosmetics	541	1 872	170	451	67	61	2	4
	Cleaning products	194	837	106	131	12	58	18	14
	Miscellaneous chemicals	889	1 171	1 235	129	108	82	23	9
	Disinfectants, fungicides and herbicides	343	367	267	408	72	28	7	9
	Pharmaceuticals	1 501	2 244	749	437	226	68	4	30
	All products	**14 359**	**10 659**	**3 415**	**4 180**	**4 044**	**2 490**	**3 421**	**1 044**
Imports	Fuels	11 875	24 128	1 896	3 259	4 267	2 801	413	2 091
	Other petroleum derivatives	1 528	3 790	251	955	150	68	17	1 441
	Basic chemicals	10 441	5 460	2 274	1 226	1 391	752	49	374
	Alcohols and phenols	1 289	853	141	281	105	137	6	44
	Dyes, pigments and paints	1 294	2 365	429	420	340	287	34	153
	Manufactured fertilizers	11 639	1 336	1 480	754	481	517	7	368
	Perfumes and cosmetics	443	1 188	359	428	882	433	72	273
	Cleaning products	371	561	253	163	300	183	48	108
	Miscellaneous chemicals	2 473	7 487	819	967	825	715	113	335
	Disinfectants, fungicides and herbicides	3 876	861	663	423	379	290	22	303
	Pharmaceuticals	10 772	6 887	3 100	3 495	2 180	1 221	174	1 297
	All products	**56 002**	**54 917**	**11 665**	**12 371**	**11 300**	**7 403**	**954**	**6 786**
Trade balance	Fuels	-5 798	-22 036	-1 281	-1 056	-3 795	-1 239	182	-1 148
	Other petroleum derivatives	-727	-3 735	-248	-844	-125	-62	-15	-1 439
	Basic chemicals	-8 306	-4 247	-2 122	-1 087	961	-399	1 081	-367
	Alcohols and phenols	59	-823	-76	-262	151	-32	1 085	-33
	Dyes, pigments and paints	-933	-1 821	-377	-324	-304	-155	-21	-142
	Manufactured fertilizers	-11 468	-1 101	-1 479	-696	-63	-481	530	-363
	Perfumes and cosmetics	97	683	-190	23	-816	-372	-69	-269
	Cleaning products	-177	276	-147	-33	-288	-125	-30	-94
	Miscellaneous chemicals	-1 585	-6 316	416	-838	-717	-633	-90	-326
	Disinfectants, fungicides and herbicides	-3 533	-494	-396	-15	-308	-262	-15	-294
	Pharmaceuticals	-9 271	-4 644	-2 351	-3 059	-1 954	-1 153	-170	-1 267
	All products	**-41 643**	**-44 258**	**-8 251**	**-8 191**	**-7 256**	**-4 913**	**2 467**	**-5 742**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.

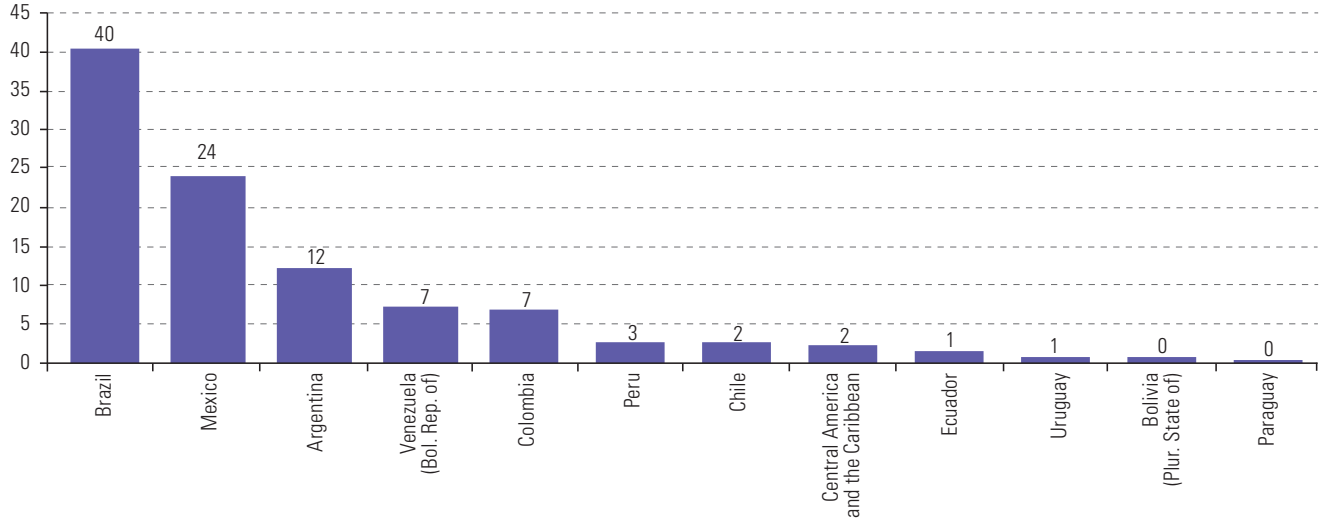
Brazil is the region's leading exporter in the chemicals and pharmaceuticals sector, with just over a quarter of total shipments, followed by Mexico, with a fifth. Other large exporters are Argentina, Colombia and Chile (see figure II.21A). Only Brazil and Mexico are among the world's top 30 exporters in the sector, ranking twenty-ninth and thirtieth, respectively, with shares of around 0.5%. In 2017, Brazil, Mexico and Argentina accounted for three quarters of the region's output in the sector (see figure II.21B).

Figure II.21
Latin America and the Caribbean: largest exporters and producers in the chemicals and pharmaceuticals sector, 2019–2021 and 2017 averages
(Percentages)

A. Exports (2019–2021)



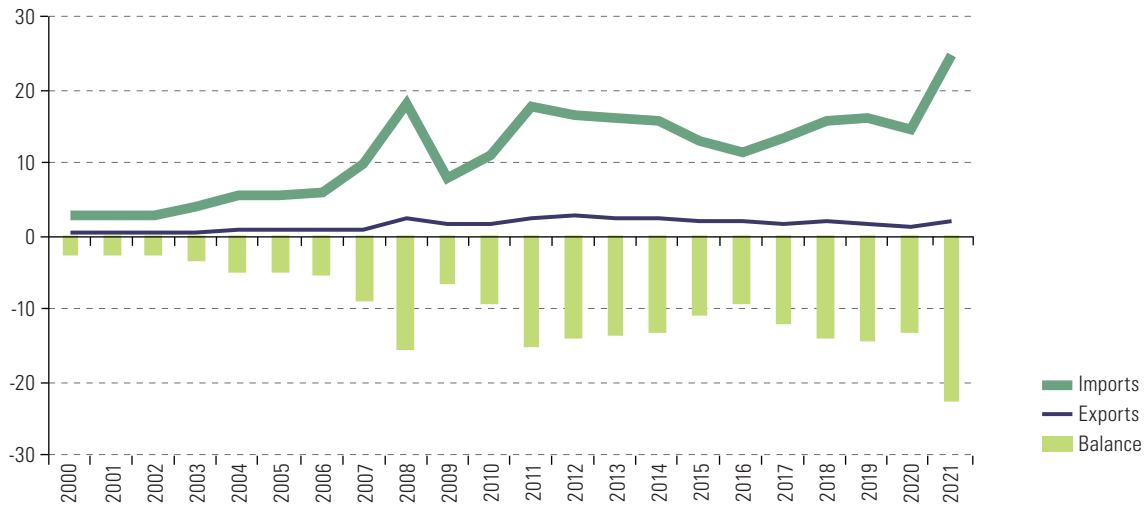
B. Output (2017)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/ and United Nations Industrial Development Organization (UNIDO), UNIDO Data Portal [online] https://stat.unido.org/.

Within the chemicals and pharmaceuticals sector, the region runs a persistent trade deficit in pharmaceuticals, averaging US$ 26 billion between 2018 and 2020. In 2020, the region's pharmaceutical imports were worth almost five times exports, reflecting its heavy reliance on extraregional supplies of active ingredients and patented medicines (ECLAC, 2021a, pp. 106–109). The region also has a large trade deficit in chemical fertilizers, which are crucial inputs for agricultural production and thus for food security and export capacity (see figure II.22). The COVID-19 pandemic and the conflict in Ukraine have highlighted how vulnerable the region is as a result of its current limited capacity to meet its own demand in these two strategic segments of the chemicals and pharmaceuticals sector.

Figure II.22
Latin America and the Caribbean: trade in chemical fertilizers, 2000–2021[a]
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/.
[a] Products covered by chapter 31 (Fertilizers) of the Harmonized Commodity Description and Coding System (HS).

In the region, the share of the chemicals and pharmaceuticals sector in total and manufacturing GDP is 1.4% and 9.1%, respectively (see table II.13). As a capital-intensive sector, it generates far fewer direct jobs than the food, beverages and tobacco sector. However, owing to its extensive forward and backward linkages, the chemicals and pharmaceuticals sector generates an average of four indirect jobs for every direct job linked to exports. Thus, the sector is considered a key one in several countries of the region, especially the more industrially developed ones. The sector's export propensity averages 12%, which is lower than that of the food, beverages and tobacco sector (16%). Of the countries for which information is available, it only exceeds 20% in Chile and Uruguay.

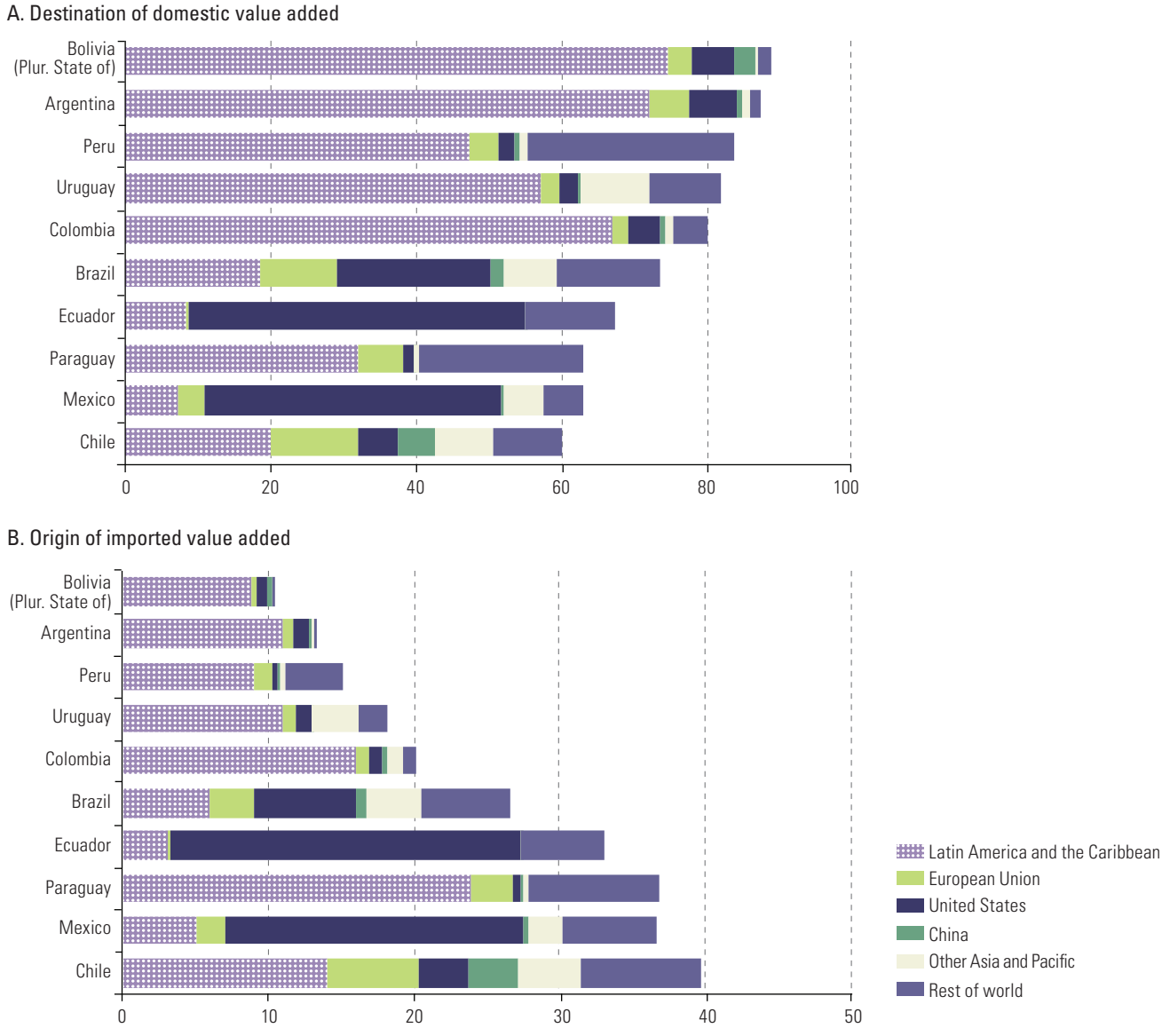
Table II.13
Latin America (18 countries): characterization of the chemicals and pharmaceuticals according to the Rasmussen and Hirschman indices and selected indicators, 2017 and 2018

	Categorization of the sector	Share of GDP *(Percentages)*	Share of manufacturing GDP *(Percentages)*	Export propensity[a]	Total employment *(Number of jobs)* (2018)	IE/DE ratio[b]
Brazil	Key	1.5	11.9	9.1	613 394	5
Mexico	Key	1.2	6.4	15.7	299 191	3
Argentina	Key	2.0	9.0	7.5	135 737	3
Venezuela (Bolivarian Republic of)	Key	1.9	12.2	6.8	158 351	4
Colombia	Key	1.5	12.3	11.7	131 454	7
Peru	Driver	0.8	6.0	12.4	55 249	13
Chile	Driver	1.0	8.2	24.1	46 693	2
Ecuador	Poorly linked	1.3	8.3	15.3	30 272	2
Uruguay	Key	1.5	11.5	27.5	14 555	1
Bolivia (Plurinational State of)	Poorly linked	2.0	10.7	7.3	12 276	3
Paraguay	Poorly linked	1.0	4.9	15.1	39 622	1
Other countries[c]	...	0.8	5.9		107 189	1
Latin America (18 countries)	**...**	**1.4**	**9.1**	**11.7**	**1 643 983**	**4**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the 2017 global input-output matrix prepared by the Asian Development Bank (ADB), the Economic and Social Commission for Asia and the Pacific (ESCAP) and ECLAC.
[a] Measures the share of output exported.
[b] Ratio of indirect employment (IE) to direct employment (DE), measuring the number of indirect jobs generated for each direct one associated with exports.
[c] Includes Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama.

As regards the participation of the chemicals and pharmaceuticals sector in regional value chains, there is significant productive integration among South American countries, especially the Plurinational State of Bolivia, Argentina, Colombia, Uruguay and Peru. These countries export a high proportion of their domestic value added to the regional market, and more than half the imported value added incorporated into their exports also comes from the region (see figure II.23). By contrast, the region's largest economies, namely Brazil and Mexico, as well as Ecuador, exhibit greater productive integration with the United States in both directions.

Figure II.23
Latin America (10 countries): distribution of the gross exports of the chemicals and pharmaceuticals sector by domestic and imported value added, by partner, 2017
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the 2017 global input-output matrix prepared by the Asian Development Bank ADB), the Economic and Social Commission for Asia and the Pacific (ESCAP) and ECLAC.

C. Analysis of the potential for exports of manufactures to the regional market

This section presents the main results of an exercise to estimate potential intraregional trade in manufactures among 13 countries for which it was possible to obtain complete export information, broken down by major economic sectors, between 2010 and 2021. The estimation was carried out for the sum of all manufactures and for the three manufacturing sectors analysed in detail in this chapter. A stochastic gravity model and a set of control variables (production levels in the exporting country and partner, existence of trade agreements and fixed effects) were used for this purpose. Another gravity model estimated the effects of a set of variables (transport costs, institutions and the existence of trade agreements) on the level of intraregional trade in manufactures. The technical specifications of both models and the data sources used can be found in annex II.A4.

Table II.14 presents estimates of potential intraregional trade in manufactures for the 13 countries included in the exercise. In all cases, there is a considerable gap (between 33% and 46%) between the value of observed and potential exports. On average, the current level of exports is 38% below the value predicted by the model. In absolute terms, this implies around US$ 58 billion in annual exports forgone, considering current production and export structures. The intraregional manufacturing trade ratio averaged 14% over the period considered. This ratio would rise to 21% in a scenario in which all 13 countries reached the potential levels of manufacturing exports predicted by the model. Excluding Mexico, more than 80% of whose manufacturing exports go to the United States, the intraregional trade ratio would rise from 30% to 41%.

Table II.14
Latin America (13 countries): observed (2019–2021 averages) and potential intraregional manufacturing exports
(Millions of dollars and percentages)

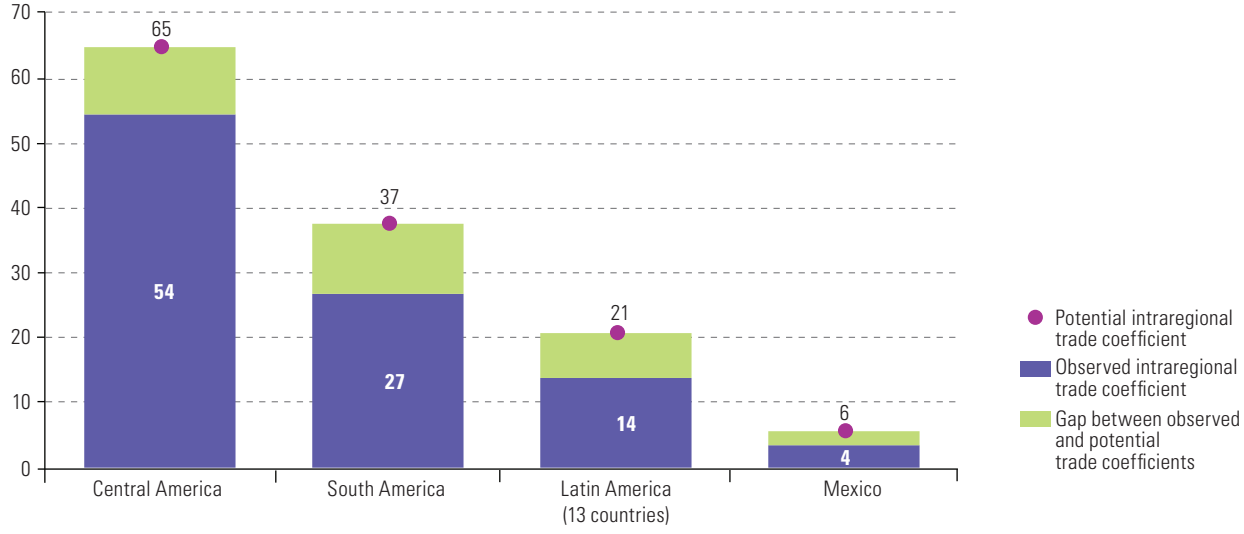
Country	Intraregional manufacturing exports				Intraregional trade coefficients[a]	
	Observed (a)	Predicted (b)	Absolute gap (c)=(b)-(a)	Relative gap (d)=(c)/(b)*100	Observed (e)	Predicted (f)
Argentina	10 303	18 896	8 593	45.5	33.6	48.2
Bolivia (Plurinational State of)	724	1 105	381	34.5	17.5	24.4
Brazil	29 778	44 459	14 681	33.0	26.1	34.5
Chile	7 819	12 948	5 129	39.6	20.2	29.6
Colombia	6 640	11 422	4 781	41.9	43.0	56.4
Costa Rica	3 004	4 707	1 703	36.2	33.6	44.2
Ecuador	2 010	3 267	1 257	38.5	37.4	49.2
El Salvador	2 819	4 219	1 400	33.2	51.2	61.1
Guatemala	4 506	6 891	2 385	34.6	55.7	65.8
Mexico	14 457	24 502	10 046	41.0	3.5	5.8
Panama	5 738	9 250	3 513	38.0	81.3	87.5
Peru	4 452	7 999	3 546	44.3	21.3	32.8
Uruguay	1 548	2 475	927	37.5	29.1	39.6
Latin America (13 countries)	**93 797**	**150 457**	**58 342**	**38.3**	**13.9**	**20.8**
Latin America (excluding Mexico)	**79 341**	**125 955**	**48 297**	**37.8**	**30.0**	**40.8**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/ and estimates from a stochastic gravity model.
[a] The coefficient is the ratio between manufacturing exports to Latin America and total manufacturing exports.

Estimates of potential trade at the subregion level indicate that the share of Central America's manufacturing exports taken by Latin America could increase from 54% to 65% if the potential levels predicted by the model were to be reached. In the case of South America, the intraregional trade ratio would rise from 27% to 37%. In

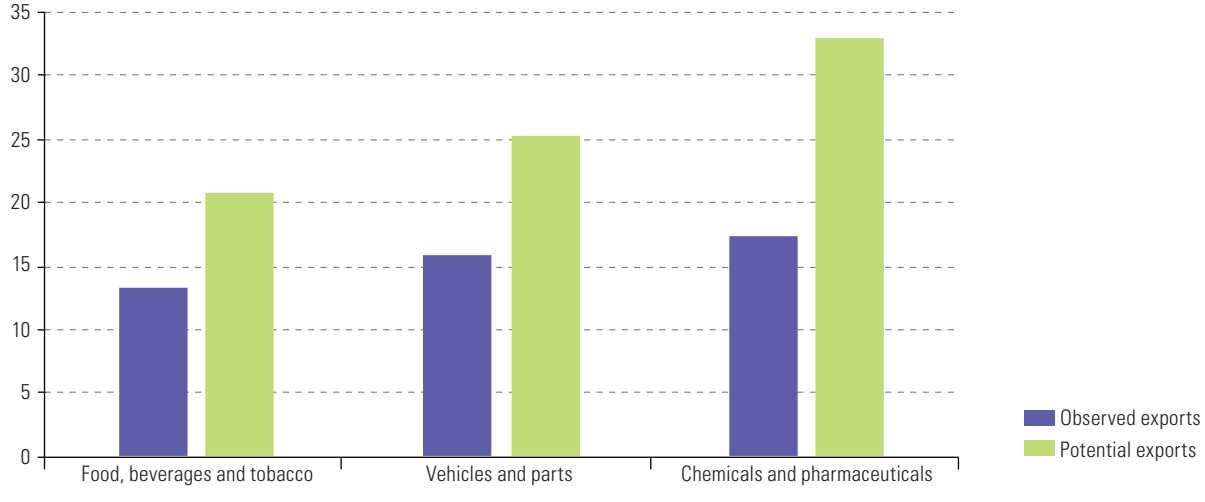
that of Mexico, the increase in the intraregional trade ratio would be smaller, given its strong export orientation towards the United States market (see figure II.24). These results highlight the underexploitation of the regional market, which is highly intensive in intermediate inputs: 41% in the food, beverages and tobacco sector, 58% in vehicles and auto parts and 94% in chemicals and petrochemicals (ECLAC, 2021b, chapter II). The gaps between observed and potential intraregional exports are 36% in the first of these sectors, 37% in the second and 47% in the third (see figure II.25).

Figure II.24
Latin America (13 countries), Central America, South America and Mexico: observed (2019–2021 averages) and potential intraregional manufacturing trade coefficients[a]
(Percentages of total manufacturing exports)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/ and estimates from a stochastic gravity model.
Note: The 13 Latin American countries are Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Panama, Peru, the Plurinational State of Bolivia and Uruguay.
[a] The coefficient is the ratio between manufacturing exports to Latin America and the Caribbean and total manufacturing exports.

Figure II.25
Latin America (13 countries):[a] observed (2019–2021 averages) and potential intraregional exports in the selected sectors
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/ and estimates from a stochastic gravity model.
Note: The 13 Latin American countries are Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Panama, Peru, the Plurinational State of Bolivia and Uruguay.

The second gravity model used suggests that three determinants are particularly important if countries are to approach potential levels of intraregional manufacturing trade: transport costs, institutions and the existence of trade agreements between them. High transport costs significantly reduce access to imported inputs and hinder export activity (Álvarez Castaño, 2020; Zamora and Pedraza, 2013). In turn, a number of empirical studies have found that countries with stronger institutions tend to achieve higher growth rates than those with weak institutions (Acemoglu, Johnson and Robinson, 2002 and 2004; North and Weingast, 1989; Davis and North, 1971). A good institutional framework not only ensures the development of policies that foster export capacity, but also enhances the effectiveness and stability of trade agreements. In turn, trade agreements promote trade by reducing or eliminating tariff and non-tariff barriers between the countries that sign up to them. Most trade between countries in the region takes place within the framework of preferential agreements that have eliminated tariffs for almost the entire range of products. However, this is not the case with some of the most important trade relationships, such as Mexico's with Argentina and Brazil. Also, despite the large reduction in tariff barriers to intraregional trade, high levels of non-tariff protection remain (ECLAC, 2021b, chapter II).

The results obtained in estimating the determinants of intraregional trade indicate that, in the case of transport costs, a 1 percentage point improvement in this indicator would generate an increase of approximately 22% in the value of intraregional exports. Likewise, a 1 percentage point increase in the institutional indicator would increase the value of exports by 21%. The existence of a trade agreement between two countries increases the value of trade by 11% compared to a situation in which there is no agreement.

D. Conclusions

Taken as a whole, the Latin America and Caribbean region exhibits a weak export performance in manufacturing, although some countries (notably Mexico) are exceptions. The region is only an important global player in the automotive and food, beverages and tobacco industries, and in both of these the larger economies account for most of its export capacity. The region's manufacturing trade deficit has doubled as a percentage of GDP in the last 20 years, from 3% to 6%. Over the same period, the share of manufactures in total goods exports has declined in all South American countries. The sluggishness of intraregional trade since the mid-2010s has particularly affected manufacturing exports, which are highly reliant on the regional market. Moreover, the COVID-19 pandemic and the conflict in Ukraine have highlighted the region's heavy dependence on external supplies of strategic manufacturing products, such as medicines, medical devices and fertilizers.

The global manufacturing sector is facing major transformations that may redefine the geography of industrial production in the coming years and have potentially significant effects for the region. Three such transformations are particularly relevant: the growing introduction of so-called Industry 4.0 technologies, increasing global geopolitical tensions, and the imperative of combating climate change.

While there is as yet no conclusive proof of the impact of Industry 4.0 technologies on manufacturing employment, some of them, such as advanced robotics, the Internet of things and additive manufacturing, tend to reduce the labour intensity of industrial processes, especially where low-skilled labour is concerned. As a result, these technologies reduce the importance of labour costs as a factor of competitiveness and tend to facilitate the reshoring of industrial processes to high-income countries with a

high level of technological development. Meanwhile, geopolitical tensions, coupled with the disruptions caused by the pandemic, are leading to a geographical reconfiguration of global value chains in pursuit of greater resilience and reliability. Lastly, the urgency of tackling climate change has highlighted the need to reduce the carbon footprint of transport flows associated with global value chains.

How the transformations described above will evolve in the coming years is highly uncertain. However, all three seem to converge on a scenario of shortening or regionalization of international production networks, in which multinational companies seek to reduce their exposure to supply disruptions and move closer to their main consumption markets. This scenario offers attractive opportunities for the region, most of them linked to the arrival of manufacturing companies wishing to move closer to the United States market. Given the importance of geographical proximity in this strategy, the opportunities associated with possible nearshoring processes seem to centre on countries such as Mexico, Costa Rica and the Dominican Republic, which also have free trade agreements with the United States.

Particularly in South America, the future of the export manufacturing sector is linked to the revitalization of intraregional trade. This entails the creation of a large and stable market combining efficient scale with minimization of transaction costs resulting from cross-border industrial integration. In turn, this requires integration initiatives that transcend existing agreements, moving towards convergence between the various subregional groupings. The convergence agenda encompasses a number of very important issues in addition to tariffs, such as the strategic use of national public procurement systems, regulatory harmonization and the establishment of regional trade facilitation agreements. This is the focus of several of the proposals in the plan for self-sufficiency in health matters in Latin America and the Caribbean (ECLAC, 2021c) approved by the members of the Community of Latin American and Caribbean States (CELAC) in September 2021.

The main players in the global economy are currently implementing industrial policy initiatives aimed at the development of manufacturing capacity in strategic sectors such as pharmaceuticals, microprocessors and electromobility. In the case of Latin America and the Caribbean, it seems clear that market signals alone will not be enough to reverse the manufacturing export deficit. Thus, what is at issue is not the need for a productive development policy, but rather its characteristics, goals and instruments. Given the heterogeneity of the region's economies, these parameters will vary from country to country. Nevertheless, the growing role of services in the manufacturing sector means that all activities forming part of industrial value chains must be taken into account in the design of production development policies. Indeed, the quality of digital infrastructure, logistics and industry support services, as well as the countries' research, development and innovation capabilities, are key determinants of manufacturing export competitiveness. This is also true of policies aimed at increasing the environmental sustainability of the region's industrial exports, especially those based on the processing of natural resources, as they will be subject to increasing regulatory requirements in the coming years both in the European Union and in other advanced countries' markets.

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Annex II.A1

Table II.A1.1
Classification of goods by the technological intensity embodied in them

Category	Product examples	Standard International Trade Classification (SITC) codes
A. Commodities		
	Fresh fruit, meat, rice, cocoa, tea, coffee, wood, coal, crude oil, gas, mineral concentrates and metal scrap	001, 011, 022, 025, 034, 036, 041, 042, 043, 044, 045, 054, 057, 071, 072, 074, 075, 081, 091, 121, 211, 212, 222, 223, 232, 244, 245, 246, 261, 263, 268, 271, 273, 274, 277, 278, 281, 286, 287, 289, 291, 292, 322, 333, 341
B. Industrialized goods		
- Natural resource-based manufactures	Preparations of fruit and meats, beverages, wood products, vegetable oils	(a) Agricultural/forestry 012, 014, 023, 024, 035, 037, 046, 047, 048, 056, 058, 061, 062, 073, 098, 111, 112, 122, 233, 247, 248, 251, 264, 265, 269, 423, 424, 431, 621, 625, 628, 633, 634, 635, 641
	Base metals (except steel), petroleum derivatives, cement, precious stones, glass	(b) Other natural resource-based products 282, 288, 323, 334, 335, 411, 511, 514, 515, 516, 522, 523, 531, 532, 551, 592, 661, 662, 663, 664, 667, 681, 682, 683, 684, 685, 686, 687, 688, 689
- Low-technology manufactures	Textiles, clothing, footwear, leather goods, travel bags	(a) Textile and fashion products grouping 611, 612, 613, 651, 652, 654, 655, 656, 657, 658, 659, 831, 842, 843, 844, 845, 846, 847, 848, 851
	Ceramics, simple metal structures, furniture, jewellery, toys, plastic products	(b) Other low-technology products 642, 665, 666, 673, 674, 675, 676, 677, 679, 691, 692, 693, 694, 695, 696, 697, 699, 821, 893, 894, 895, 897, 898, 899
- Medium-technology manufactures	Passenger vehicles and parts thereof, commercial vehicles, motorcycles and parts thereof	(a) Automotive products 781, 782, 783, 784, 785
	Synthetic fibres, chemicals and paints, fertilizers, plastics, iron and steel, pipes and tubes	(b) Medium-technology process industries 266, 267, 512, 513, 533, 553, 554, 562, 572, 582, 583, 584, 585, 591, 598, 653, 671, 672, 678, 786, 791, 882
	Machinery and engines, industrial machines, pumps, ships, watches and clocks	(c) Medium-technology engineering industries 711, 713, 714, 721, 722, 723, 724, 725, 726, 727, 728, 736, 737, 741, 742, 743, 744, 745, 749, 762, 763, 772, 773, 775, 793, 812, 872, 873, 884, 885, 951
- High-technology manufactures	Data processing and telecommunications machines, television equipment, transistors, turbines, power generating equipment	(a) Electrical and electronic products 716, 718, 751, 752, 759, 761, 764, 771, 774, 776, 778
	Pharmaceutical items, aircraft, optical and precision instruments, cameras	(b) Other high-technology products 524, 541, 712, 792, 871, 874, 881
C. Other transactions		
	Electricity, cinematograph films, printed matter, special transactions, gold, coins, animals (pets), works of art	351, 883, 892, 896, 911, 931, 941, 961, 971

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of S. Lall, *Competitiveness, Technology and Skills*, Cheltenham, Edward Elgar, 2001; J. Durán Lima and M. Álvarez, "Manual on foreign trade and trade policy: basics, classifications and indicators of trade patterns and trade dynamics", *Project Documents* (LC/W.430), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2016.

Annex II.A2

Table II.A2.1
Classification of goods by major economic sectors and technological intensity

Major economic sectors	Standard International Trade Classification (SITC) codes				
	Commodities	Manufactures			
		Natural resource-based	Low-technology	Medium-technology	High-technology
1. Agriculture, forestry, hunting and fishing					
1.1 Livestock products	001, 022, 034, 036, 211, 212				
1.2 Agriculture and forestry	025, 042, 042, 043, 044, 045, 054, 057, 071, 072, 073, 075, 081, 121, 222, 223, 232, 244, 245, 246, 261, 263, 271, 291, 292, 941				
2. Petroleum, mining and energy					
2.1 Mining (energy)	322, 323, 333, 341				
2.2 Mining (non-energy)	273, 274, 277, 278, 281, 286, 289	667			
2.3 Electricity	351				
3. Food, beverages and tobacco					
3.1 Meat	011	012, 014			
3.2 Fisheries		035, 037			
3.3 Dairy		023, 024			
3.4 Milling, baking and pasta products		046, 047, 516, 592			
3.5 Prepared fruit and vegetables		048, 058			
3.6 Sugar and confectionery		061, 062, 073			
3.7 Oils and fats		411, 423, 424, 431			
3.8 Other prepared foods		091, 098			
3.9 Beverages		111, 112			
3.91 Manufactured tobacco		122			
4. Textiles, apparel and footwear					
4.1 Textiles		264, 265	651, 652, 654, 655, 656, 657, 658, 659, 846	266, 267, 653	
4.2 Apparel			613, 842, 843, 844, 845, 847, 848		
4.3 Footwear			611, 612, 831, 851		
5. Wood, pulp and paper					
5.1 Wood pulp, paper and cardboard		251, 641	642, 892		
5.2 Wood and wood products		247, 248, 633, 634, 635	821		
6. Chemicals and pharmaceuticals					
6.1 Fuels		334			
6.2 Basic chemicals		233, 335, 511, 515, 522, 523, 531, 532		512, 533, 562, 584, 585	
6.3 Other chemicals		551		553, 554, 572, 591, 598, 882	524
6.4 Pharmaceuticals				513	541
7. Rubber and plastic		**621, 625, 628**	**893**	**582, 583**	
8. Non-metallic minerals		**661, 662, 663, 664**	**665, 666**	**773**	
9. Metals and metal products					
9.1 Iron and steel		282	671, 674, 676, 677	672, 673, 678	
9.2 Non-ferrous metals		288, 681, 682, 683, 684, 686, 687, 688, 689			
9.3 Metal products		685	679, 691, 692, 693, 694, 695, 696, 697, 699		

Major economic sectors	Standard International Trade Classification (SITC) codes				
	Commodities	Manufactures			
		Natural resource-based	Low-technology	Medium-technology	High-technology
10. Non-electrical machinery and equipment				**711, 714, 721, 722, 723, 724, 725, 726, 727, 728, 736, 737, 741, 742, 743, 744, 745, 749, 775, 951**	**712, 718**
11. Electrical machinery and appliances					
11.1 Electrical appliances				812	716, 771, 778
11.2 Office equipment					751, 752
11.3 Radio, television and communications equipment				762, 763, 772	759, 761, 764, 776
11.4 Medical equipment and precision instruments				872, 873, 884, 885	774, 871, 874, 881
12. Automobiles and parts and components thereof					
12.1 Motor vehicles				713, 781, 782, 783, 786	
12.2 Auto parts				784	
12.3 Aircraft					792
12.4 Other transport equipment				785, 786, 793	
13. Other manufactures		**961, 971**	**894, 895, 897, 898, 899**		
14. Other transactions		**896, 931**			

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of S. Lall, *Competitiveness, Technology and Skills*, Cheltenham, Edward Elgar, 2001, and J. Durán Lima and M. Álvarez, "Manual on foreign trade and trade policy: basics, classifications and indicators of trade patterns and trade dynamics", *Project Documents* (LC/W.430), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2016.

Annex II.A3

Table II.A3.1
Latin America and the Caribbean: trade in vehicles and vehicle parts, 2000–2002 and 2019–2021 averages
(Millions of dollars)

Country/subregion/region	Exports		Imports		Trade balance	
	2000–2002	2019–2021	2000–2002	2019–2021	2000–2002	2019–2021
Latin America and the Caribbean	**44 834**	**141 784**	**41 358**	**113 350**	**2 318**	**26 413**
Latin America	**44 530**	**141 225**	**39 952**	**110 061**	**4 578**	**31 163**
South America	**12 262**	**21 337**	**14 848**	**53 267**	**-2 586**	**-31 931**
Southern Common Market (MERCOSUR)	**11 458**	**19 445**	**10 280**	**31 017**	**1 177**	**-11 573**
Argentina	2 223	6 104	2 332	6 989	-110	-886
Brazil	8 860	13 170	5 443	21 751	3 416	-8 581
Paraguay	0	21	148	1 072	-148	-1 051
Uruguay	113	144	227	837	-113	-693
Venezuela (Bolivarian Republic of)	262	6	2 130	368	-1 868	-362
Andean Community	**532**	**764**	**2 935**	**13 208**	**-2 404**	**-12 444**
Bolivia (Plurinational State of)	62	32	148	1 029	-86	-997
Colombia	382	556	1 614	6 040	-1 232	-5 484
Ecuador	71	72	638	2 207	-567	-2 135
Peru	17	105	535	3 933	-518	-3 827
Pacific Alliance	**32 875**	**120 969**	**25 666**	**68 253**	**7 209**	**52 716**
Chile	272	1 127	1 632	9 042	-1 360	-7 914
Mexico	32 204	119 181	21 885	49 240	10 319	69 942
Central America	**53**	**674**	**2 050**	**5 501**	**-1 996**	**-4 826**
Costa Rica	34	110	422	971	-388	-861
El Salvador	3	20	266	693	-263	-673
Guatemala	12	63	619	1 733	-607	-1 670
Honduras	2	79	266	590	-264	-511
Nicaragua	1	7	167	310	-166	-303
Panama	1	395	309	1 204	-309	-809
The Caribbean	**314**	**592**	**2 575**	**5 343**	**-2 261**	**-4 751**
Cuba	6	3	325	286	-319	-283
Dominican Republic	4	30	844	1 768	-840	-1 738
Caribbean Community (CARICOM)	**304**	**559**	**1 406**	**3 289**	**-1 102**	**-2 730**
Bahamas	34	43	201	177	-167	-134
Barbados	7	7	85	101	-78	-94
Belize	1	2	44	56	-43	-54
Guyana	5	189	42	1 226	-38	-1 037
Haiti	2	4	62	167	-60	-164
Jamaica	8	6	324	541	-316	-535
Suriname	3	13	60	160	-57	-147
Trinidad and Tobago	232	194	492	646	-260	-453
Organisation of Eastern Caribbean States (OECS)	**14**	**103**	**96**	**215**	**-82**	**-112**
Antigua and Barbuda	7	89	29	50	-22	40
Dominica	0	0	10	35	-10	-35
Grenada	0	0	15	27	-15	-27
Saint Kitts and Nevis	1	6	12	43	-11	-37
Saint Lucia	2	6	19	40	-18	-34
Saint Vincent and the Grenadines	4	2	12	20	-8	-18

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/ and mirror statistics for Antigua and Barbuda, the Bahamas, the Bolivarian Republic of Venezuela, Cuba, Dominica, Grenada, Haiti, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines.

Table II.A3.2
Latin America and the Caribbean: trade in food, beverages and tobacco, 2000–2002 and 2019–2021 averages
(Millions of dollars)

Country/subregion/region	Exports		Imports		Trade balance	
	2000–2002	2019–2021	2000–2002	2019–2021	2000–2002	2019–2021
Latin America and the Caribbean	**19 585**	**92 752**	**14 007**	**50 491**	**5 868**	**41 859**
Latin America	**18 921**	**91 701**	**12 641**	**47 076**	**6 281**	**44 625**
South America	**13 293**	**61 890**	**5 181**	**22 525**	**8 113**	**39 365**
Southern Common Market (MERCOSUR)	**10 468**	**49 006**	**3 283**	**10 136**	**7 185**	**38 870**
Argentina	3 379	11 493	661	1 257	2 718	10 236
Brazil	6 099	32 046	1 421	6 214	4 678	25 832
Paraguay	146	2 008	145	689	1	1 319
Uruguay	506	3 301	193	891	313	2 409
Venezuela (Bolivarian Republic of)	337	159	863	1 085	-525	-926
Andean Community	**1 435**	**6 919**	**1 233**	**6 528**	**202**	**391**
Bolivia (Plurinational State of)	128	595	120	540	9	55
Colombia	599	2 210	544	2 423	55	-214
Ecuador	407	1 901	197	1 194	210	706
Peru	301	2 213	372	2 370	-71	-157
Pacific Alliance	**5 556**	**29 279**	**6 694**	**23 999**	**-1 138**	**5 280**
Chile	1 391	5 965	665	5 861	726	104
Mexico	3 265	18 891	5 113	13 344	-1 848	5 547
Central America	**1 346**	**8 659**	**1 620**	**8 544**	**-275**	**115**
Costa Rica	331	1 816	225	1 299	106	518
El Salvador	219	954	334	1 553	-115	-599
Guatemala	434	2 432	414	2 226	20	206
Honduras	100	1 040	247	1 226	-147	-186
Nicaragua	149	1 463	165	687	-16	777
Panama	113	954	236	1 553	-123	-599
The Caribbean	**1 680**	**3 312**	**2 093**	**6 078**	**- 413**	**-2 766**
Cuba	675	586	346	652	329	-65
Dominican Republic	342	1 675	381	2 011	-39	-337
Caribbean Community (CARICOM)	**663**	**1 051**	**1 367**	**3 416**	**-703**	**-2 364**
Bahamas	39	7	245	334	-206	-328
Barbados	71	82	123	246	-52	-164
Belize	34	116	36	160	-2	-44
Guyana	115	91	47	182	67	-92
Haiti	4	12	183	591	-179	-579
Jamaica	162	272	306	757	-144	-485
Suriname	10	68	50	149	-39	-82
Trinidad and Tobago	200	354	160	577	40	-223
Organisation of Eastern Caribbean States (OECS)	**30**	**51**	**217**	**419**	**-187**	**-369**
Antigua and Barbuda	1	2	52	95	-51	-93
Dominica	2	0	23	32	-22	-32
Grenada	2	6	32	77	-30	-71
Saint Kitts and Nevis	9	5	25	34	-16	-29
Saint Lucia	9	25	57	111	-48	-85
Saint Vincent and the Grenadines	7	12	29	71	-21	-58

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/ and mirror statistics for Antigua and Barbuda, the Bahamas, the Bolivarian Republic of Venezuela, Cuba, Dominica, Grenada, Haiti, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines.

Table II.A3.3
Latin America and the Caribbean: trade in the chemicals and pharmaceuticals sector, 2000–2002 and 2019–2021 averages
(Millions of dollars)

Country/subregion/region	Exports		Imports		Trade balance	
	2000–2002	2019–2021	2000–2002	2019–2021	2000–2002	2019–2021
Latin America and the Caribbean	**25 740**	**52 516**	**49 059**	**201 382**	**-25 482**	**-152 631**
Latin America	**23 121**	**48 034**	**46 787**	**194 209**	**-23 666**	**-146 174**
South America	**16 096**	**31 380**	**25 968**	**114 472**	**-9 873**	**-83 092**
Southern Common Market (MERCOSUR)	**12 419**	**19 446**	**18 892**	**73 930**	**-6 473**	**-54 484**
Argentina	2 870	3 415	3 447	11 665	-577	-8 251
Brazil	3 896	14 359	12 089	56 002	-8 193	-41 643
Paraguay	26	231	571	3 396	-545	-3 165
Uruguay	116	382	524	1 507	-408	-1 125
Venezuela (Bolivarian Republic of)	5 511	1 059	2 261	1 360	3 250	-300
Andean Community	**2 479**	**7 889**	**5 016**	**29 242**	**-2 536**	**-21 352**
Bolivia (Plurinational State of)	25	175	318	2 681	-293	-2 506
Colombia	1 694	4 180	2 538	12 371	-844	-8 191
Ecuador	311	1 044	924	6 786	-613	-5 742
Peru	450	2 490	1 236	7 403	-786	-4 913
Pacific Alliance	**9 070**	**21 462**	**19 446**	**85 991**	**-10 376**	**-64 530**
Chile	1 198	4 044	2 061	11 300	-863	-7 256
Mexico	5 729	10 748	13 611	54 917	-7 882	-44 169
Central America	**1 035**	**5 029**	**4 783**	**20 176**	**-3 748**	**-15 147**
Costa Rica	310	794	1 105	3 415	-794	-2 621
El Salvador	211	491	729	2 573	-518	-2 082
Guatemala	348	1 334	1 278	5 333	-929	-3 998
Honduras	67	259	771	2 521	-704	-2 261
Nicaragua	21	76	359	1 766	-338	-1 691
Panama	78	2 075	543	4 569	-465	-2 493
The Caribbean	**2 881**	**5 361**	**4 697**	**11 818**	**-1 816**	**-6 457**
Cuba	77	93	1 071	486	-993	-393
Dominican Republic	185	785	1 354	4 158	-1 169	-3 373
Caribbean Community (CARICOM)	**2 619**	**4 482**	**2 272**	**7 173**	**346**	**-2 691**
Bahamas	115	310	368	2 323	-252	-2 013
Barbados	78	146	201	452	-122	-306
Belize	4	13	97	203	-92	-190
Guyana	4	65	182	786	-178	-722
Haiti	5	41	115	508	-110	-467
Jamaica	80	331	697	1 130	-617	-800
Suriname	11	30	79	290	-68	-260
Trinidad and Tobago	2 221	3 421	298	954	1 923	2 467
Organisation of Eastern Caribbean States (OECS)	**100**	**126**	**236**	**526**	**-136**	**-400**
Antigua and Barbuda	48	113	74	40	-25	73
Dominica	24	3	25	161	-1	-159
Grenada	24	1	33	94	-9	-93
Saint Kitts and Nevis	0	0	24	51	-24	-51
Saint Lucia	3	9	51	114	-48	-105
Saint Vincent and the Grenadines	0	0	29	66	-29	-66

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, UN Comtrade Database [online] https://comtrade.un.org/ and mirror statistics for Antigua and Barbuda, the Bahamas, the Bolivarian Republic of Venezuela, Cuba, Dominica, Grenada, Haiti, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines.

Annex II.A4

Specification of the econometric models used to estimate potential intraregional manufacturing trade and its determinants

Model 1: Estimation of potential intraregional trade

The potential level of intraregional trade in manufactures (as measured by exports) was estimated using a stochastic gravity model and a set of control variables (level of production of the exporting country and partner, existence of trade agreements and fixed effects). The exercise covered 13 countries of the region for which it was possible to obtain complete information on trade flows over the period 2010–2021. The model used is as follows:

where: $LnX_{ij,t}=\beta 1\ RTA_{ij,t}+\beta 2\ LnGDP_{i,t}+\beta 3\ LnGDP_{i,t}+\pi_t+\mu_{ij}+v_{ij,t}-u_{ij,t}$

$LnX_{ij,t}$ is the natural logarithm of the real value of exports (deflated by the 2010 United States GDP deflator) from country *i* to country *j* in year *t*;

$RTA_{ij,t}$ is a dichotomous variable that takes the value 1 if two countries form part of a trade agreement in year *t* and 0 otherwise;

$LnGDP_{i,t}$ is the natural logarithm of the GDP of exporter *i* (indexed by the 2010 United States GDP deflator) in year *t*;

$LnGDP_{j,t}$ is the natural logarithm of the GDP of importer *j* (indexed by the 2010 United States GDP deflator) in year *t*;

μ_{ij} is the exporter-importer control variable. This is a control that will absorb the one-way change in trade from exporter *i* to importer *j* that does not vary over time;

π_t is the time control variable;

$v_{ij,t}$ is the error term with normal distribution; and

$u_{ij,t}$ is the seminormal error term representing the inefficiency term.

The econometric estimation of the model was performed using the maximum likelihood technique (Kang and Fratianni, 2006; Šimáková and Stavárek, 2015). To prevent the model from underestimating or overestimating export capacity, the estimates included exporter-importer and time fixed effects in addition to the error terms.

Model 2: Estimation of international trade determinants

Considering that there is a set of factors which directly affect the momentum of foreign trade, a second gravity model was used to estimate their impact on the region's manufacturing exports. The Poisson pseudo-maximum-likelihood (PPML) method (Santos Silva and Tenreyro, 2006), which uses panel data with fixed effects, was employed for this purpose. This minimizes possible endogeneity, which is controlled for by time-invariant bilateral trade costs. The formalization of the model is as follows:

where: $X_{ij,t}=exp[\beta 1 RTA_{ij,t}+\beta 2 Transport\ ij_{ij,t}+\beta 3\ Institutions_{ij,t}+\pi_{i,t}+\chi_{j,t}+\mu_{ij}]+\varepsilon_{ij,t}$

$X_{ij,t}$ is the value of real exports from country *i* to country *j* in year *t*;

$RTA_{ij,t}$ is a dichotomous variable that takes the value 1 if two countries form part of a trade agreement in year *t* and 0 otherwise;

$Transport\ ij_{ij,t}$ is the average of the transport indicators for countries *i* and *j* in year *t*;

$Institutional_{ij,t}$ is the average of the institutional indicators for countries *i* and *j* in year *t*;

$\pi_{i,t}$ is the time fixed effects parameter for exporter *i*;

$\chi_{j,t}$ is the time fixed effects parameter for importer *j*;

μ_{ij} is the fixed effects parameter for pairs of countries; and

$\varepsilon_{ij,t}$ is the error term of the model for countries *i* and *j* in year *t*.

The transport and institutional indicators are two of the eight components of the Productive Capacities Index (PCI) developed by the United Nations Conference on Trade and Development (UNCTAD).[3] The transport indicator measures the ease of moving goods or people from one place to another, and is defined as the efficiency of a country's road and rail network and air connectivity. The institutional indicator assesses the political stability and efficiency of countries via their regulatory quality, their effectiveness, their success in fighting crime, corruption and terrorism, and the safeguarding of citizens' freedom of expression and association. Lastly, the existence of trade agreements was captured by a dichotomous variable that takes the value 1 when trade agreements exist between each pair of countries (including subregional integration agreements) and 0 otherwise.

For the estimates, export data were collected for 14 countries in the region and their main trading partners (60 countries) over the period 2010–2021. Bilateral trade agreement and GDP data were collected from the databases of the Centre for International Prospective Studies and Information (CEPII) and the United States International Trade Commission (USITC). Trade data were obtained from the UN Comtrade database of the United Nations.

To obtain the partial equilibrium effects of transport, institutions and trade agreements, the process followed by Yotov and others (2016) was employed. The model was set up under partial equilibrium conditions and focused on investigating the significance of each of the aforementioned variables for real export values (deflated by the United States 2010 GDP price index), keeping all other variables unchanged.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of H. Kang and M. Fratianni, "International trade efficiency, Theo gravity equation, and the stochastic frontier", Kelley School of Business, Indiana University, 2006 [online] https://ideas.repec.org/p/iuk/wpaper/2006-08.html; J. Šimákováy and D. Stavárek, "An empirical sector-specific gravity model for Hungarian international trade", Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, vol. 63, No. 6, 2015; J. M. Santos Silva and S. Tenreyro, "The log of gravity", The Review of Economics and Statistics, vol. 88, No. 4, November 2006; Y. V. Yotov and others, An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model, World Trade Organization (WTO)/ United Nations Conference on Trade and Development (UNCTAD), 2016 [online] https://www.wto.org/english/res_e/publications_e/advancedguide2016_e.htm.

[3] See [online] https://unctad.org/topic/least-developed-countries/productive-capacities-index.

CHAPTER III

Disruptions to maritime supply chains: impacts and outlook

Introduction

This chapter analyses the far-reaching disruptions in global shipping supply chains since the onset of the coronavirus disease (COVID-19) pandemic in 2020, compounded since February 2022 by the conflict between the Russian Federation and Ukraine. Following this introduction, section A summarizes the impacts of the various shocks on global and regional inflation and logistics activity. These include impacts on port efficiency and a dramatic decline in the reliability of port services, congestion in distribution channels and the resulting disruptions to supply chains.

Section B looks at the disproportion between the unprecedented rise in shipping freight rates and the evolution of interoceanic traffic, which seems to conflict with the traditional theory of the shipping cycle.

Section C then discusses the peculiarities of corporate concentration in the shipping market, organized through alliances and cooperation agreements, as a consequence of the sharp increase in the capacity and operating scale of container ships since the early 2000s. In this context, it discusses the results of the United States Federal Maritime Commission's public inquiry into the state of shipping markets, released in May 2022.

Section D considers the need to review the international regulatory framework for interoceanic transport, including some antitrust proposals, as well as the necessity of adjusting this institutional framework to the urgent climate challenges facing the industry. This section concludes by looking to the future, highlighting the technological opportunities presented by the logistics sector. In particular, it points out a number of initiatives under way in the region and further afield that are aimed at associating ports with the generation, storage and transport of green hydrogen. Lastly, section E presents some conclusions.

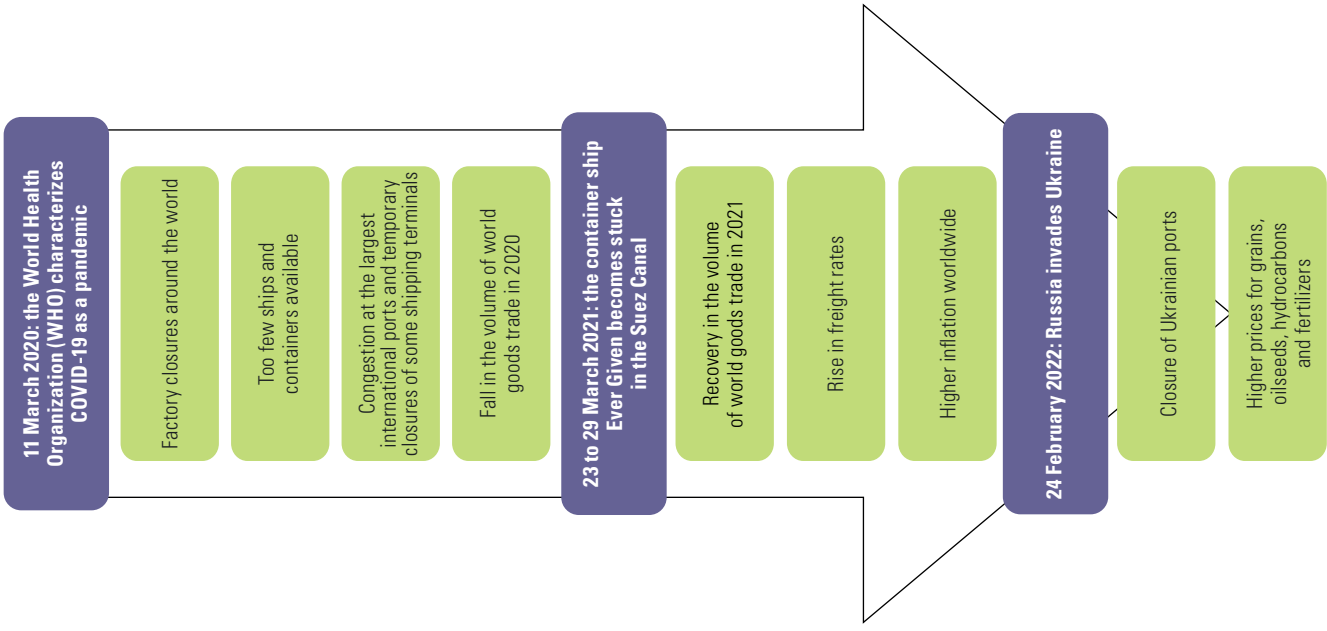
A. Three years of disruption in shipping and supply chains

1. The impacts of inflation

Since early 2020, a number of global shocks, most notably the COVID-19 pandemic and the conflict between the Russian Federation and Ukraine, have led to disruptions in maritime supply chains, which account for 80% of global goods trade by volume and 70% by value (see diagram III.1). Four main factors have created bottlenecks in supply chains: (i) massive shutdowns to avoid infection, especially in the early months of the pandemic, which left the workforce unable to produce and provide services (including port and logistics services); (ii) increased congestion in ports; (iii) limited availability of containers;[1] and (iv) the high level of concentration in the shipping industry. The main consequences include: (i) a lack of imported final goods for consumption; (ii) a lack of imported inputs and capital goods for production (with a view to both consumption and exports); (iii) disruptions in the balance of logistics markets; (iv) unreliable shipments; (v) delays, congestion and inability to plan the logistics chain; and (vi) increased inflation due to higher transport costs.

[1] According to shipowners, the limited availability of containers has resulted from the disruption in the global supply chain, the imbalance between full and empty containers, and blank sailings.

Diagram III.1
Major world shipping events, March 2020–August 2022



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

In global trade, input and export prices have reflected inflationary pressures, compounded by bottlenecks in value chains and the difficulty experienced by logistics chains in adapting effectively to supply and demand conditions. Globally, the entire supply chain was challenged by supply and demand fluctuations and by the sanitary measures taken to deal with the pandemic, which led to bottlenecks and port closures at the time and subsequently exposed the inability of operators to adapt flexibly to changing production and trade conditions.

Empirical evidence suggests that the dynamics of shipping freight rates are playing an increasingly important role in generating higher inflationary pressures. A number of studies have reported on this and provided estimates of the impact of rates on prices. For example, the United Nations Conference on Trade and Development (UNCTAD, 2021) estimated that, if freight rates were to remain at their August 2021 level until the end of 2023, this would add 1.5 and 10.6 percentage points, respectively, to global consumer and import prices in 2023.[2] The same study estimated that the impact of higher freight rates on inflation in Brazil and Mexico would be 1.2 and about 2 percentage points, respectively. In the case of small island developing states (SIDS), their heavy import dependence means that the impact of higher freight rates on import and consumer prices in 2023 is put at 24.2 and 7.5 percentage points, respectively. Moody's Analytics (2022) estimated that a 10% increase in shipping costs would raise inflation in the United States by between 20 and 30 basis points.

Carrière-Swallow and others (2022) extended the UNCTAD (2021) analysis and applied a panel data model to 46 economies (30 advanced and 16 emerging), concluding that an increase in global transport costs, as measured by the Baltic Dry Index (BDI), has statistically significant effects on import prices (especially for natural resources such as grains, minerals, gas and oil), producer prices and inflation. Estimates indicate that a 1 standard deviation increase (21.8 percentage points) in overall transport costs

[2] The freight cost indicator used in this exercise is the China Containerized Freight Index (CCFI), which rose by 243% between August 2020 and August 2021.

will have an impact on inflation of 0.15 percentage points over 12 months. The impact of the cost increase gradually escalates until it peaks in month 12, before reversing 6 months later.

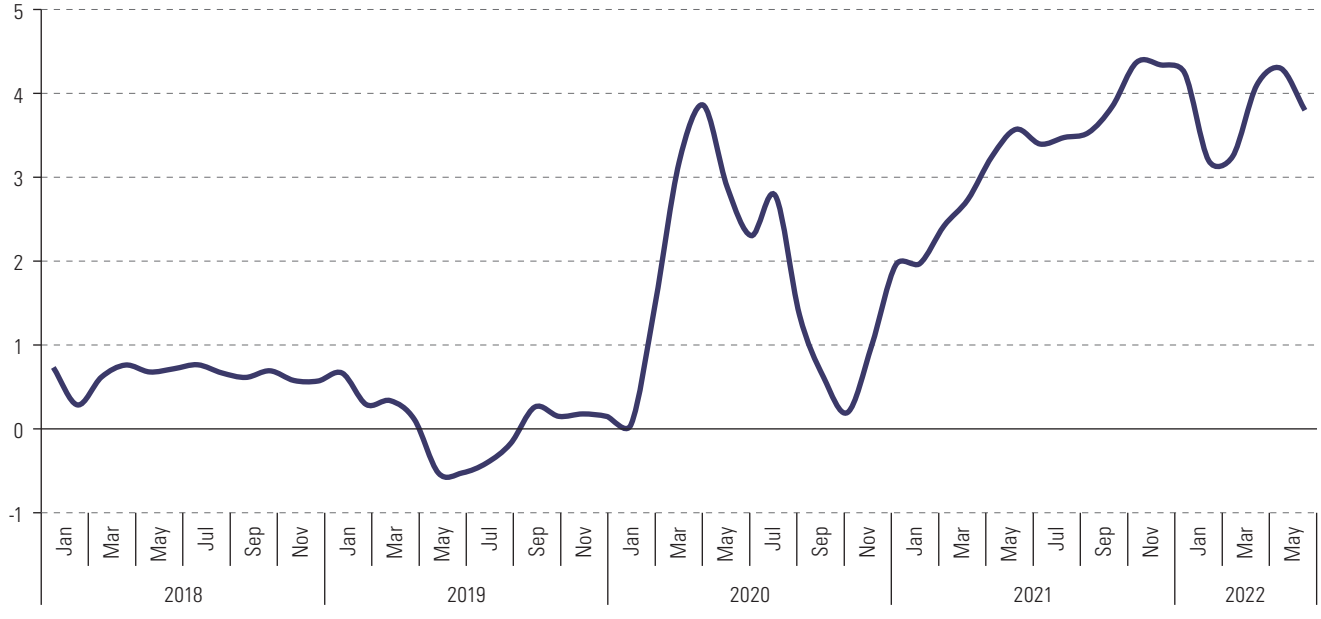
Regarding the impact of higher freight rates on inflation rates, Carrière-Swallow and others (2022) argue that the direct effect is on the prices of imports of finished goods, while the indirect effect is on the prices of imported intermediate goods, wage settlements and changes in economic agents' expectations. From the three studies reviewed here, it can be concluded that the magnitude of the impact of higher freight rates on inflation in each country will depend mainly on the share of imports in domestic consumption, its degree of openness and integration into supply chains and the soundness of its monetary framework.

2. Impacts on global logistics activity

Ports have historically been crucial nodes in complex maritime and land-based logistics networks. More and more integrated logistics activities are being carried out from them, mainly taking advantage of the potential to add value by providing industrial and distribution services for cargoes, and even energy generation. Today, a major challenge for the port system is to sustain the reliability that logistics requires, which has suffered from supply chain disruptions, especially since the onset of the pandemic. While there have been many distortions to the normal (pre-pandemic) functioning of the supply chain, this section highlights three that have taken on very significant dimensions: (i) operational disruptions, (ii) rising ocean shipping rates and (iii) the reliability of international container shipping services.

Disruptions, and their effects on supply chain performance, have been quantified through the Global Supply Chain Pressure Index (GSCPI), as shown in figure III.1. The index is normalized so that 0 indicates that it is at its mean value, with positive figures representing how many standard deviations the index is above this mean value (and negative figures representing the opposite).

Figure III.1
Global Supply Chain Pressure Index (GSCPI), January 2018–May 2022

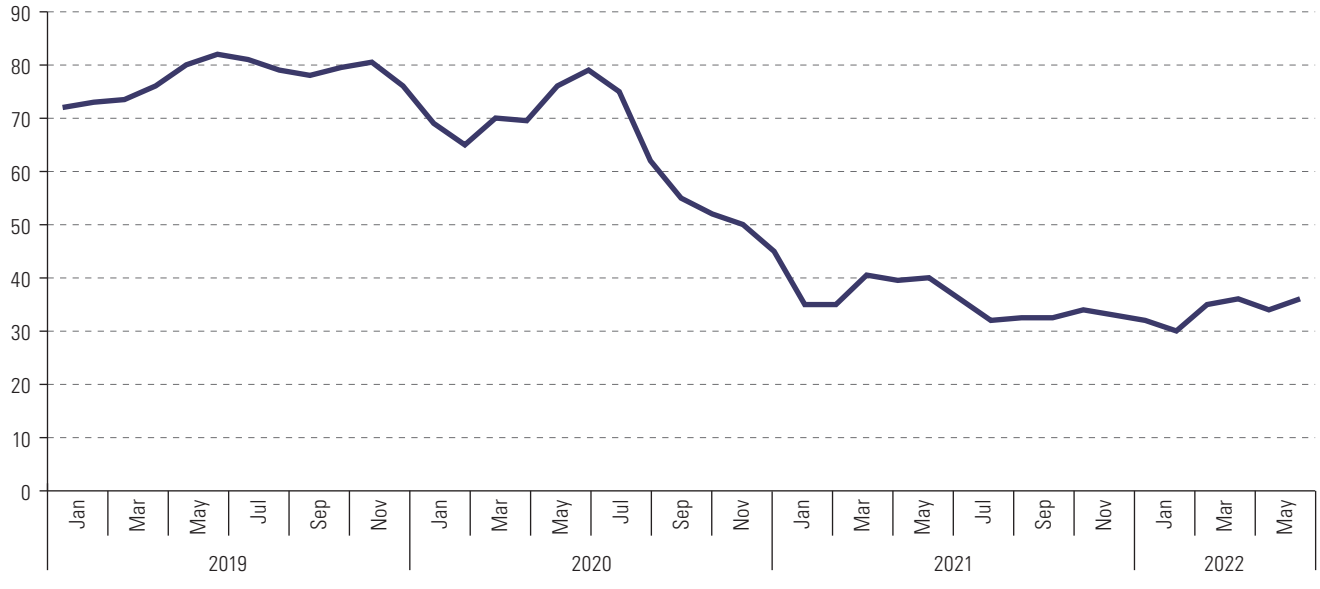


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from the Federal Reserve Bank of New York, 2022.

The onset of the pandemic triggered the initial sequence of supply chain pressures, which drove the index rapidly up to a value of 3.8 in the first four months of 2020, owing to the massive border, port and airport closures that characterized this phase. The index fell back immediately afterwards, probably as a result of the contraction in world trade. Upward pressure on the index resumed in October 2020 with the recovery of world trade, coinciding with a sharp increase in freight rates. The pressure on the supply chain started to ease in early 2022. However, when the conflict in Ukraine began, the trend turned upward again until April that year. Thus, by mid-2022 the index was still much higher than before the pandemic.

Another aspect that illustrates the problems in international logistics is the decline in the reliability of container shipping services, especially since 2020 (see figure III.2). According to data from *Sea-Intelligence* (2022), in May 2022 reliability[3] in terms of the punctuality of container ship arrivals at seaports was down by 55% from May 2019, falling from 80% to just 36%. Operational measures taken by shipping lines, especially blank sailings, have had an enormous impact on the punctuality of services.

Figure III.2
Reliability of sailing schedules, monthly averages, January 2019–May 2022
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from *Sea-Intelligence*, "Global schedule reliability", June 2022.

Just when countries were perceived to be recovering from the pandemic, the outbreak of the conflict in Ukraine triggered a new crisis: some areas of the Black Sea and the Sea of Azov became dangerous or impassable because of missile attacks on ships and the detention of vessels, compounded by route closures for commercial shipping (T21, 2022). Between the first half of February and the second half of March 2022, weekly port calls decreased by 95% at Ukrainian ports and by 15% at Russian ones (Rodrigue, 2022). Although the situation has tended to improve slowly, the current maritime environment is one of congestion and longer waiting times at European port terminals and, more recently, for the shipping and receipt of cargoes in the Russian Federation and Ukraine. The lack of port labour and the shortage of lorry drivers in Europe have also increased waiting times at container ports (Alphaliner, 2022).

[3] Schedule reliability is a measure of the actual punctuality of more than 11,000 vessels at more than 270 ports worldwide.

In the United States, congestion varies greatly from port to port. Taking the main ports on each coast as a benchmark, in June 2022 congestion ranged from 5 to 21 days on the east coast (Hapag-Lloyd, 2022) and from 5 to 12 days on the west coast (Port of Long Beach, 2022). Some services on routes from Europe to Latin America call in at North American ports, while the schedule for the service from China to Latin America includes calls at major ports in Asia, which has meant the itinerary to the region being affected by events on the major global routes.

When the pandemic broke out, the major operators began to take restrictive decisions, anticipating a drop in global activity (and consequently in international trade). These included trip cancellations, reduced frequencies and blank sailings, especially during 2020, as well as reductions in terminal operating hours. The sharp drop in the reliability of arrivals and departures generated a first wave of disruption in port operations that subsequently worsened when, contrary to initial expectations, there was a boom in import demand, especially for durable goods from Asia. Port congestion also increased because of problems with the land link, such as a lack of drivers for road haulage and of workers to make up shifts at ports. This situation led to slowdowns along the chain, while the increase in e-commerce in the context of the pandemic created further demand pressures.

The health crisis initially depressed international trade, but at the same time there was a major shift in demand away from services (many of which involve human contact) towards durable goods (electronics, household equipment, exercise equipment, etc.), which are mainly produced in Asia. This unexpectedly led to a large expansion in seaborne trade that soon reversed the initial slump. A domino effect along the supply chain resulted in overload at the ports of Los Angeles and Long Beach, even though these are the largest and second-largest container ports in the United States, respectively. The situation caused serious delays in the country's supply chain, which spread to inland distribution systems.

In these circumstances, much of the world's maritime storage capacity moved from other regions to the trans-Pacific market, with the result that disruptions spread to all international shipping routes. Thus, in 2020, the volume of containerized seaborne trade declined by 1.3% globally and by 5.7% in Latin America and the Caribbean (see table III.1). This decline reversed during 2021 as economic activity recovered, so that by the end of 2021 containerized seaborne trade volumes were higher than in 2019, both globally and in most regions (the exceptions being sub-Saharan Africa and the region comprising the Indian subcontinent and the Middle East).

During 2022, international shipping activity suffered from the effects of the global growth slowdown (see chapter I), the conflict in Ukraine[4] and the restrictions implemented by China as part of its "zero COVID" policy. These included a number of strict measures, such as lockdowns of entire cities. In particular, the two-month lockdown of Shanghai in April and May led to a number of new disruptions in the global supply chain, including stock-outs and longer dwell times for cargoes in ports. The result was that many inputs needed by the rest of the world did not arrive or were delayed. China's "zero COVID" policy is still in force at the time of writing and continues to affect supply chains because of lockdowns in other port cities or certain vital districts within them. In this context, the volume of international containerized seaborne trade fell by 1.7% in the first half of 2022 from the same period in 2021, while in Latin America, the change was -3.9%. Only Asia and the Indian subcontinent and Middle East showed positive growth in the first half of the year.

[4] The importance of the Russian Federation and Ukraine in the global container transport market is marginal and mainly centres on imports of consumer goods and processed foodstuffs. Russian and Ukrainian ports handle 0.8% of world container volume (Port Economics Management and Policy, 2020).

Table III.1
Changes in international containerized seaborne trade volumes,[a] by subregion, 2019–2022
(Percentages)

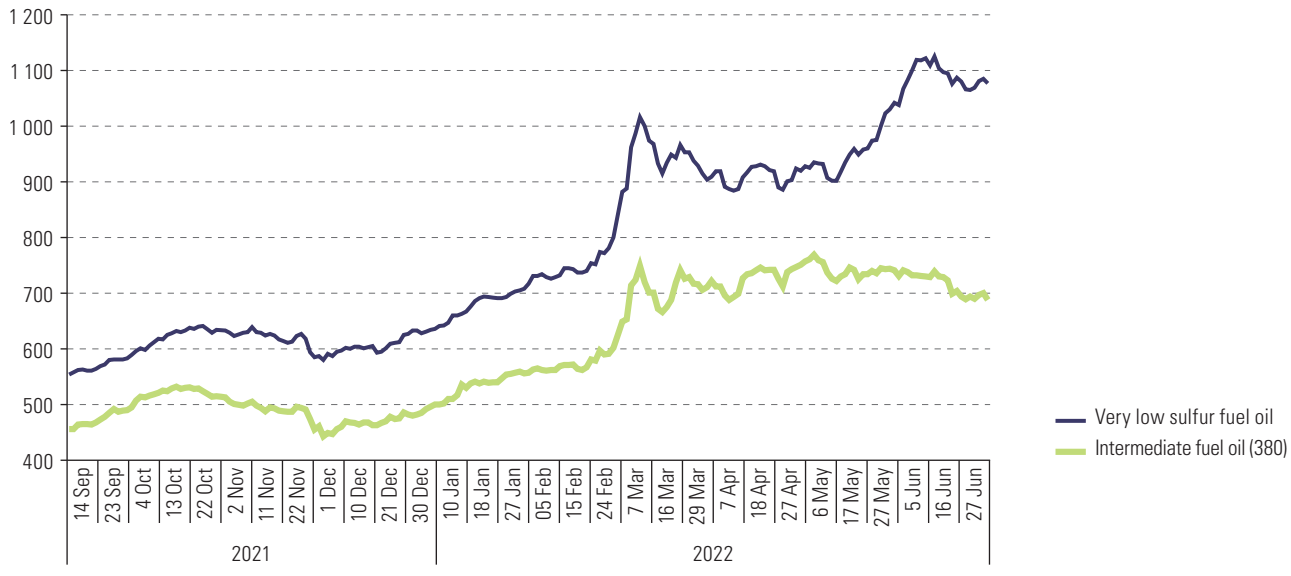
	January to June 2020 compared with 2019	January to December 2020 compared with 2019	January to June 2021 compared with 2019	January to December 2021 compared with 2019	January to February 2022 compared with 2021	January to March 2022 compared with 2021	January to April 2022 compared with 2021	Cumulative January to June 2022/2021
Sub-Saharan Africa	-9.5	-3.6	-1.0	-1.7	-0.8	-1.9	-4.3	-2.7
North America	-8.2	0.5	11.0	10.4	-6.5	-3.1	-3.1	-2.8
Latin America and the Caribbean	-12.2	-5.7	0.8	2.6	-6.3	-5.4	-5.4	-3.9
Australasia and Oceania	-2.8	0.6	4.7	1.8	-9.0	-8.9	-8.9	-6.6
Europe	-7.5	-3.0	2.8	2.1	-0.9	-4.4	-4.4	-5.3
Asia	-5.4	-0.1	7.2	6.7	-1.3	-1.8	-1.8	0.1
Indian subcontinent and Middle East	-9.0	-3.1	-0.8	-2.1	-5.2	-3.6	-3.6	0.7
World	**-7.0**	**-1.3**	**5.4**	**4.8**	**-2.8**	**-3.1**	**-3.1**	**-1.7**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Container Trade Statistics (CTS).
[a] Measured in twenty-foot equivalent units (TEUs).

The conflict between the Russian Federation and Ukraine affected port activity in both countries, with consequences of varying magnitudes for world commodity and energy markets. Both the Russian Federation and Ukraine are major producers and exporters of cereals (maize and wheat). However, most of the world's cereal output is consumed domestically and only 17.1% is traded internationally. By contrast, 73.5% of the world's oil output is exported to international markets. While Ukraine plays a very limited role, that of the Russian Federation is significant, with 12.1% of output and 11.4% of exports (Port Economics Management and Policy, 2020).

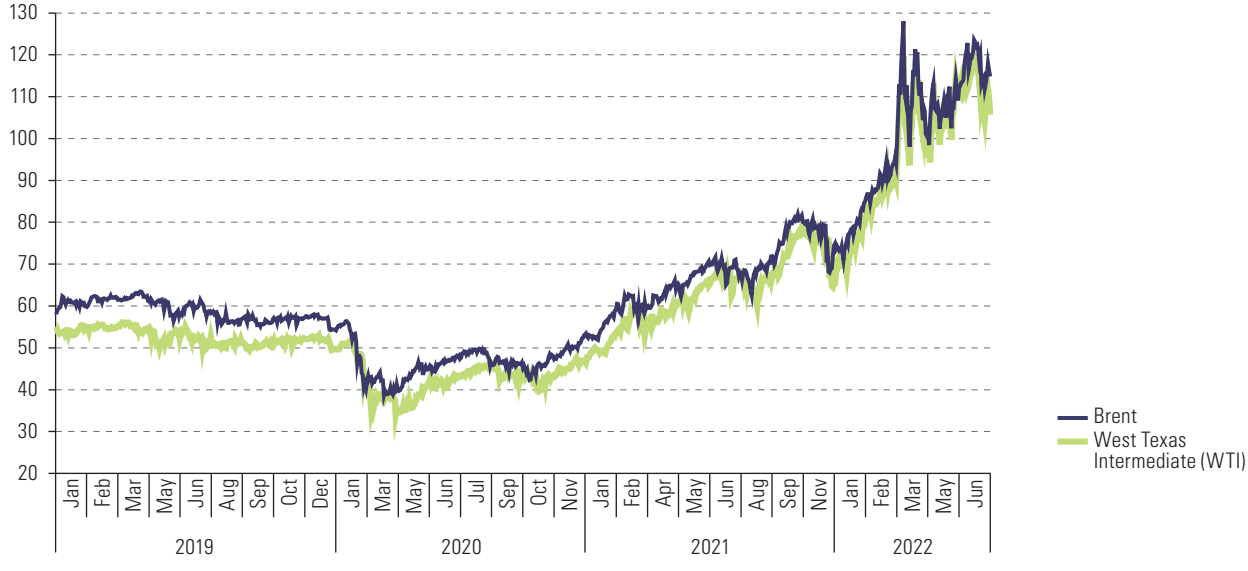
The price of fuel used for sea transport rose sharply when the conflict began. The prices of very low sulfur fuel oil and intermediate fuel oil (380) rose from US$ 669 and US$ 526 per metric ton, respectively, in January 2022 to US$ 1,016 and US$ 749 per metric ton, respectively, only a few days after the start of the conflict (see figure III.3). The impact of the conflict was also reflected in the price of West Texas Intermediate (WTI), a light crude oil that serves as a global benchmark for oil prices, and Brent, a crude oil blend whose price is a benchmark for this commodity (see figure III.4).

Figure III.3
Prices of very low sulfur fuel oil and intermediate fuel oil (380), September 2021–June 2022
(Dollars per metric ton)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Ship & Bunker, 2022.
Note: Very low sulfur fuel oil is a marine fuel used for ship propulsion with a maximum sulfur content of 0.5%. Intermediate fuel oil (380) is a similar, traditional fuel with a maximum sulfur content of 3.5%.

Figure III.4
Prices of West Texas Intermediate (WTI) and Brent crude, January 2019–June 2022
(Index: January 2014=100)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Bloomberg, 2022.

3. The recent dynamics of regional container shipping

Regarding containerized exports,[5] almost all subregions of Latin America and the Caribbean recorded positive growth in the first half of 2022 over the same period in 2021 (see table III.2). To date, only the east coast of South America and the Pacific coast of Panama have exhibited negative changes in 2022 compared with 2021. Exports from the Gulf coast of Mexico were basically unchanged in the first half of 2022 compared with 2021. The results are less positive for imports. The east coast of South America, the Pacific coast of Central America and the Gulf coast of Mexico showed negative changes between January and June 2022 compared with the same period in 2021.

Table III.2
Latin America and the Caribbean: changes in maritime export and import volumes, by coast,[a] 2019–June 2022
(Percentages)

Coast	Ports and share of the total throughput of all ports on the coast *(Percentages, calculated at 2021 levels, in TEUs)*	Period	Change in exports from 2021 to 2022	Change in exports from 2019 to 2022	Change in imports from 2021 to 2022	Change in imports from 2019 to 2022
East coast of South America	Includes all of Brazil and Uruguay plus the port area of Buenos Aires and Zárate and Rosario in Argentina (97.8)	January to June	-3.0	8.9	-6.9	11.2
West coast of South America	Includes El Callao in Peru, San Antonio, Talcahuano/San Vicente and Valparaíso in Chile, and Guayaquil in Ecuador (77.7)	January to June	11.0	15.1	6.2	13.1
The Caribbean	Includes Bahía de Cartagena, Barranquilla and Santa Marta in Colombia, Kingston in Jamaica, and Port-of-Spain and Point Lisas in Trinidad and Tobago (64.7)	January to June	8.2	22.0	7.2	10.6
Caribbean coast of Central America	Includes Puerto Barrios and Santo Tomás de Castilla in Guatemala, Puerto Castilla and Puerto Cortés in Honduras, Arlen Siu in Nicaragua and Limón-Moín (APM) in Costa Rica (100.0)	January to June	5.3	7.7	11.6	24.9
Pacific coast of Central America	Includes Acajutla in El Salvador, Puerto Quetzal in Guatemala, San Lorenzo in Honduras, Corinto in Nicaragua and Puerto Caldera in Costa Rica (100.0)	January to June	8.1	7.7	-4.0	2.6
Gulf coast of Mexico	Includes Veracruz and Altamira+Tampico in Mexico (90.0)	January to June	-0.2	1.8	-2.9	1.3
Pacific coast of Mexico	Includes Manzanillo and Lázaro Cárdenas in Mexico (91.0)	January to June	10.9	16.6	13.5	27.4
Caribbean coast of Panama	Includes Colon Container Terminal (CCT), Manzanillo International Terminal (MIT) and Cristobal in Panama (97.1)	January to June	14.2	6.8	10.4	-13.2
Pacific coast of Panama	Includes the Balboa and Rodman terminals (PSA) in Panama (100.0)	January to June	-18.6	-22.4	14.8	-0.4

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from the ports in the sample.
Note: For each coast, the share of total port throughput accounted for between them by the ports listed is shown in brackets. For the Caribbean, tier 1 and 2 ports (excluding the Bahamas) were considered. The colour blue represents positive changes and red negative changes in the periods shown in each column.
[a] Measured in twenty-foot equivalent units (TEUs).

Container throughput[6] at the regional level was generally little changed in the first half of 2022 from the same period in 2021. The main exception was the Mexican Pacific coast, which showed much greater momentum than the other coasts (see table III.3). In contrast, when the first half of 2022 is compared with the same period in 2019 (pre-pandemic), the results are more positive. This can be partly explained by the increase in transhipment at the large hub ports of the region during the pandemic. Thus, the recent loss of momentum in container throughput could signal a return to the levels of transhipment prior to the pandemic.

5 Considering only full containers measured in TEUs.
6 This concept includes all movements of full and empty containers at terminals or ports.

Table III.3
Latin America and the Caribbean: changes in container throughput, by coast,[a] 2019–June 2022
(Percentages)

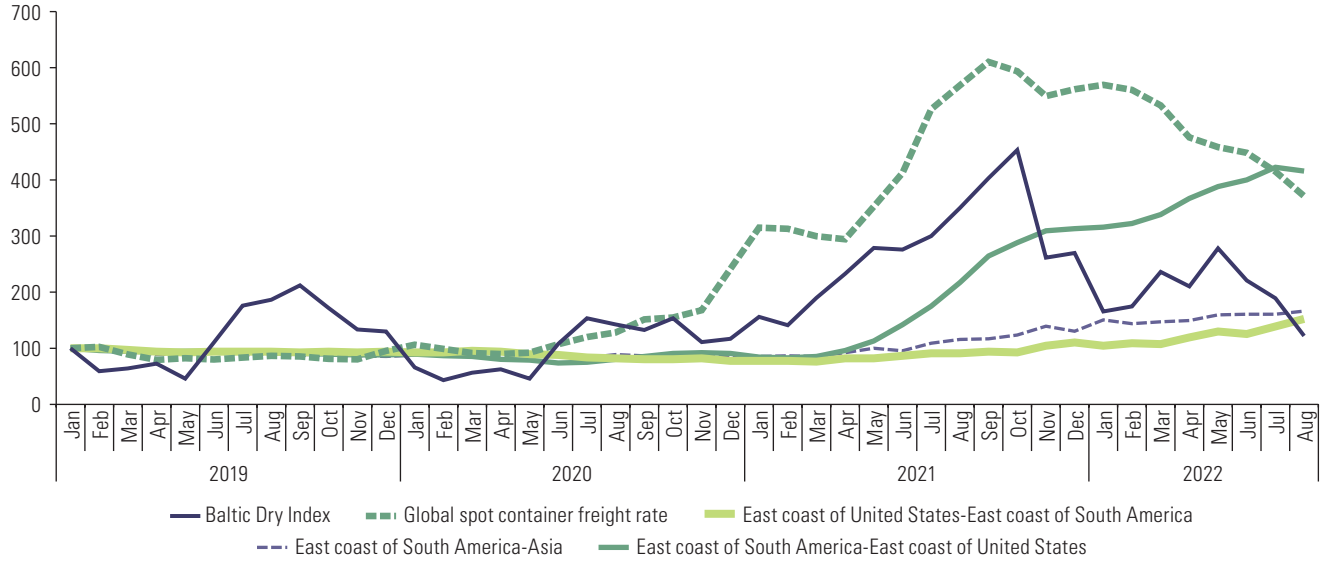
Coast	Ports and share of the total throughput of all ports on the coast (calculated at 2021 levels, in TEUs)	Period	Change from 2021 to 2022	Change from 2019 to 2022
East coast of South America	Includes all of Brazil and Uruguay plus the port area of Buenos Aires and Zárate and Rosario in Argentina (97.8)	January to June	-0.8	14.6
West coast of South America	Includes El Callao in Peru, San Antonio, Talcahuano/San Vicente and Valparaíso in Chile, and Guayaquil in Ecuador (77.7)	January to June	2.0	-5.3
The Caribbean	Includes Bahía de Cartagena, Barranquilla and Santa Marta in Colombia, Kingston in Jamaica, and Port-of-Spain and Point Lisas in Trinidad and Tobago (64.7)	January to June	2.1	21.9
Caribbean coast of Central America	Includes Puerto Barrios and Santo Tomás de Castilla in Guatemala, Puerto Castilla and Puerto Cortés in Honduras, Arlen Siu in Nicaragua and Limón-Moín (APM) in Costa Rica (100.0)	January to June	4.0	8.5
Pacific coast of Central America	Includes Acajutla in El Salvador, Puerto Quetzal in Guatemala, San Lorenzo in Honduras, Corinto in Nicaragua and Puerto Caldera in Costa Rica (100.0)	January to June	0.7	0.9
Gulf coast of Mexico	Includes Veracruz and Altamira+Tampico in Mexico (90.0)	January to June	-1.9	-1.3
Pacific coast of Mexico	Includes Manzanillo and Lázaro Cárdenas in Mexico (91.0)	January to June	15.3	24.1
Caribbean coast of Panama	Includes Colon Container Terminal (CCT), Manzanillo International Terminal (MIT) and Cristobal in Panama (97.1)	January to June	3.2	27.1
Pacific coast of Panama	Includes the Balboa and Rodman terminals (PSA) in Panama (100.0)	January to June	-6.6	23.3

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data from the ports in the sample.
Note: For each coast, the share of total port throughput accounted for between them by the ports listed is shown in brackets. For the Caribbean, tier 1 and 2 ports (excluding the Bahamas) were considered. The colour blue represents positive changes and red negative changes in the periods shown in each column.
[a] Measured in twenty-foot equivalent units (TEUs).

4. Higher shipping rates for international freight transport

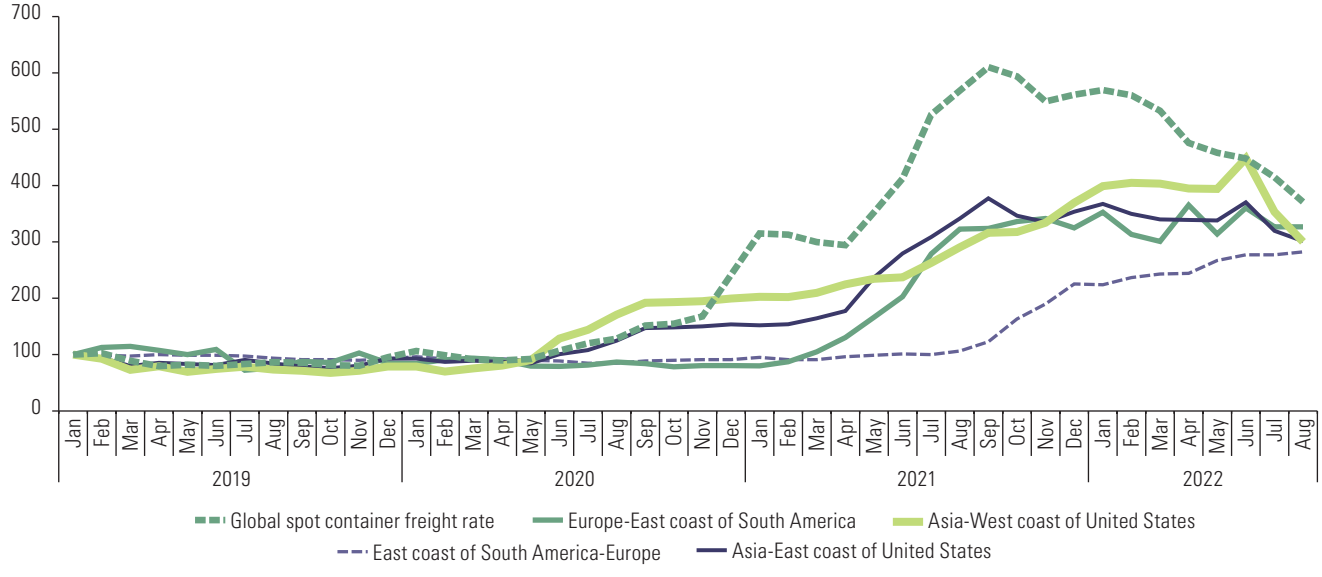
One of the most important effects of the current context has been the sharp increase in the cost of transporting goods by sea (i.e., shipping rates). Figures III.5 and III.6 show this development from before the start of the pandemic. Following strong growth on all international container routes, a downward trend has been observed in recent months on routes between the United States, Europe and Asia, but not on routes to and from Latin America. The price taken in all cases is the spot price, which differs from the contract prices signed by large exporters with carriers. Consequently, changes in freight prices most affect small and medium-sized exporters and anyone who has to use a transport service outside of existing contracts, regardless of the size of the customer. Figures III.5 and III.6 show freight rates for major international container trade routes and other medium-range routes that are particularly important for Latin America. The performance of the Baltic Dry Index (BDI), which reflects the cost of transporting bulk commodities such as agricultural and mineral products, has also been included.

Figure III.5
Shipping freight rates on major international container routes, January 2019–August 2022
(Index: January 2019=100)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Clarkson, Container Trade Statistics (CTS) and Freightos.

Figure III.6
Shipping freight rates on global and Latin American trade routes, January 2019–August 2022
(Index: January 2019=100)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Clarkson, Container Trade Statistics (CTS) and Freightos.

Figure III.5 shows that the price distortions coincided with the start of the pandemic. The cost of transporting exports from the region to the United States grew steadily: the June 2022 value was four times that of January 2019. Meanwhile, the cost of transporting imports from Asia is now 4.3 times as high as in January 2019, and has actually been well above the world average for long periods. The BDI has been volatile and always higher than its base value. In October 2021, the index rose to 4.5 times its January 2019 level, and it currently stands at just over twice that.

Figure III.6 shows the evolution since 2019 of freight rates on other major world and Latin American trade routes. It can be seen that all have increased since the outbreak of the pandemic, although by less than the global average. Most notably, all prices have maintained an upward trend despite the downward trend in the global average. It is worth noting that Latin American trade (represented in this case by the countries on the east coast of South America) has been on a steady upward trend since the third quarter of 2021, and this is true of both imports and exports.

B. The shipping cycle, market conditions and freight rates

Shipping markets can be said to operate competitively in the case of containers, liquid and dry bulk products, general products and vehicles. Since this is a service activity, however, demand for it derives from the core activity, namely the transportation of domestic, regional or international trade. For this reason, shipping demand is linked to the economic or general business cycle. This demand, and its relationship with supply and effects on the final price (the shipping freight rate), is closely tied to the so-called shipping cycle.

Because it operates with liner services, container shipping is influenced by the characteristics of the shipping cycle, which is linked in turn to the business cycle. However, the same description holds for commodity shipments, which do not generally operate with liner services.

There is evidence that a swift match or fit between supply and demand for container transport (related to the shipping cycle) hinges on an inelastic supply, which requires demand to adjust itself in equilibrium (Cipoletta and Sánchez, 2010). While there are a number of reasons for this supply inelasticity, an obvious one is that supply growth is discrete. It is subject to the lead times for commissioning and building new vessels, a process that takes an average of two years, with longer time frames when the industry has a backlog of construction orders and shorter ones when it is in the downturn of the cycle. When it comes to supply reduction, although this is also discrete, the elasticity is completely different: one or more vessels can be temporarily taken out of service, quickly changing the effective supply in the market.

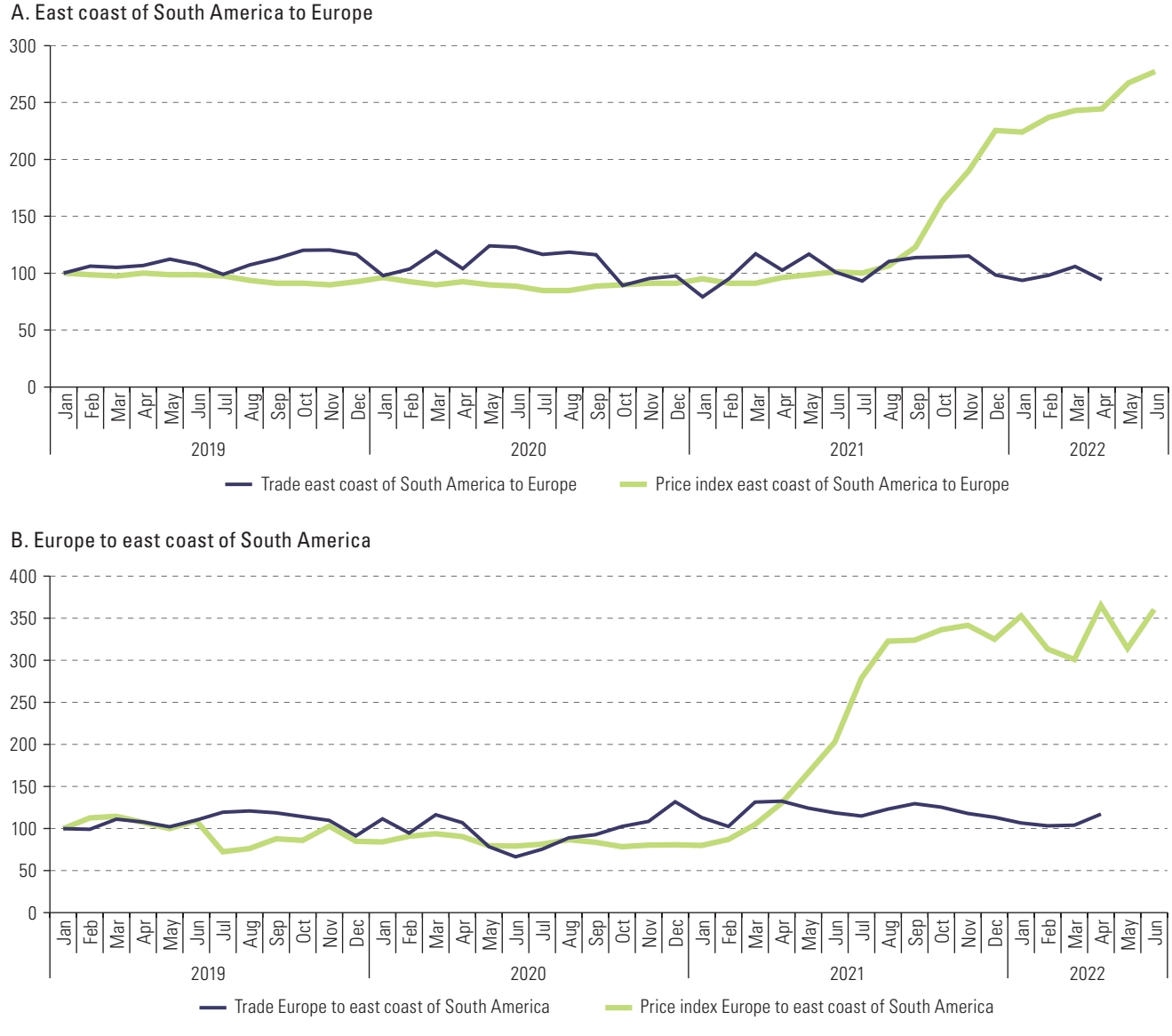
The theory of the shipping cycle has traditionally been used to understand the interplay between supply and demand in the shipping market. This can be defined as a sequence of adjustments over time in an effort to balance supply and demand for shipping services. Economic theory compares it to a spider's web in which cost and output behave cyclically: when the price is above the equilibrium level during a given period, this causes the amount of supply in the next period to rise above the equilibrium level. When that happens, cost will fall below the equilibrium level, the expansion of the fleet (shipping capacity) will stop, and when exogenous demand growth occurs the delayed reaction of supply will lift the price back above the equilibrium level, and so on.

Sánchez (2019) supplements the traditional definition given by Stopford (2009) by adding the expectations of economic agents to the characteristics of the adjustment. Closely monitoring price movements, the latter have an incentive to expand capacity (by ordering the construction of more ships) when prices rise and hold back on new construction or even break up ships when prices fall. The adjustment towards equilibrium is not immediate in the way it is when supply in an industry tends to be elastic in the short run. In the shipping cycle, the incentives generated by prices and the inelasticity of supply in this market interact. In fact, the cycle operates because of a lack of simultaneity between the production of ships (changes in supply) and the momentum of demand, which is exogenous and depends on the business cycle. In other words, in a situation where shipping rates are low, there are fewer new ship orders and more ships are sent for scrapping or simply laid up (which is equivalent to cancelling a shift

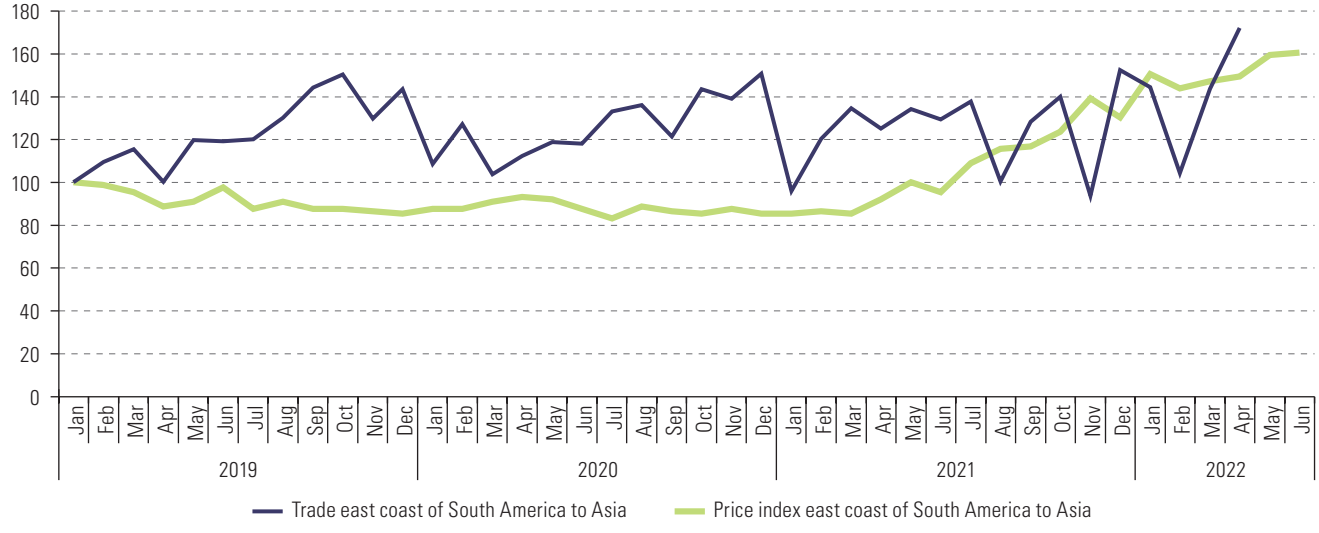
in a factory). When demand grows and more transport services are ordered, the supply (the number of vessels or amount of available transport capacity) is unable to respond quickly, which causes freight rates to rise and construction to recommence, triggering subsequent oversupply, lower cargo volumes and so on. For adjustment to work in this way, the market must operate in a competitive environment, so that no single player has the ability to disrupt its normal functioning.

The shipping cycle has long provided a generally acceptable explanation for market functioning. In recent years, the behaviour of seaborne trade as regards shipping freight rates has displayed a new momentum on almost all world routes. While trade has been relatively stable and even trended downward in some cases, container freight rates have increased more strongly. Figure III.7 shows this behaviour for a group of very important global and regional trade routes, namely those between the east coast of South America and Europe, between the east coast of South America and Asia and between the east coast of South America and the east coast of the United States (for trade in both directions), plus the routes from Asia to the east and west coasts of the United States.

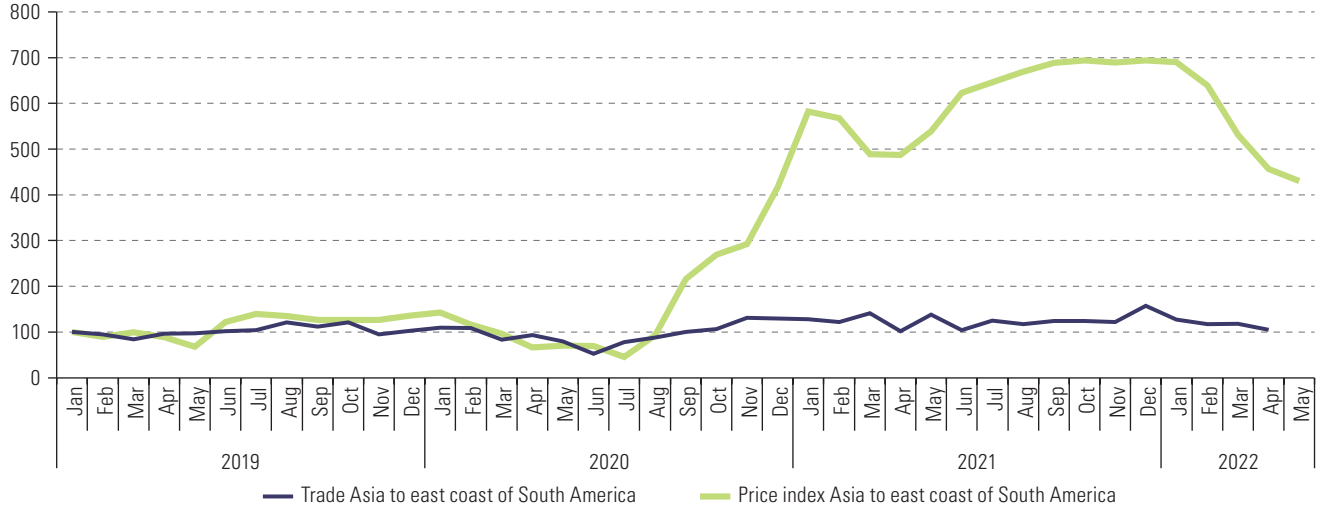
Figure III.7
Trade and shipping rates on selected sea routes, January 2019–the latest month of 2022 for which data are available
(Indices: January 2019=100)



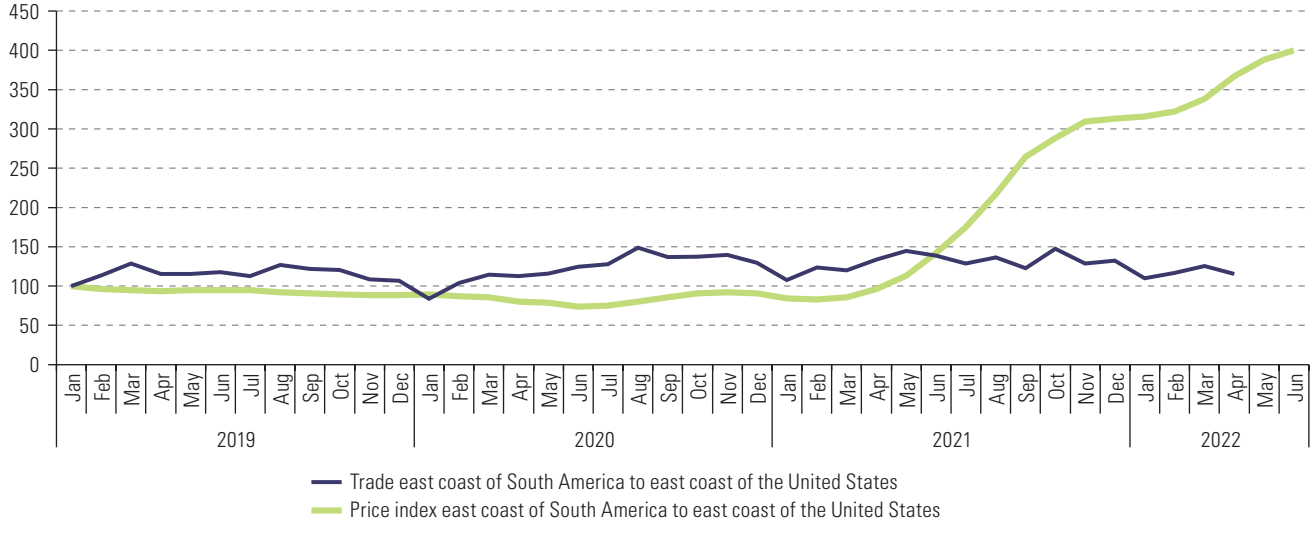
C. East coast of South America to Asia



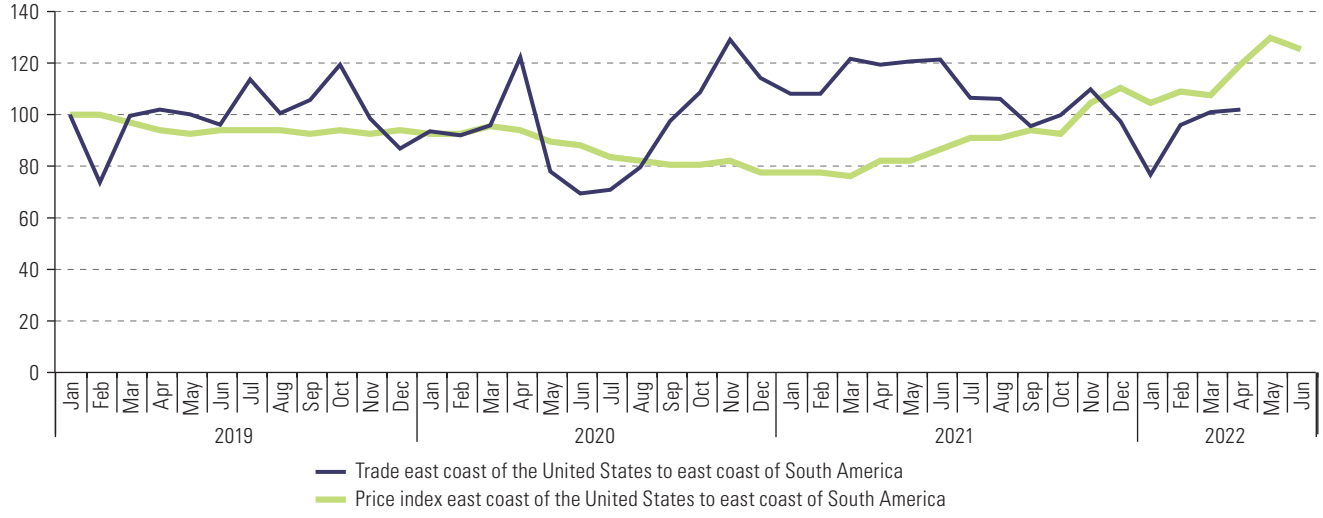
D. Asia to east coast of South America



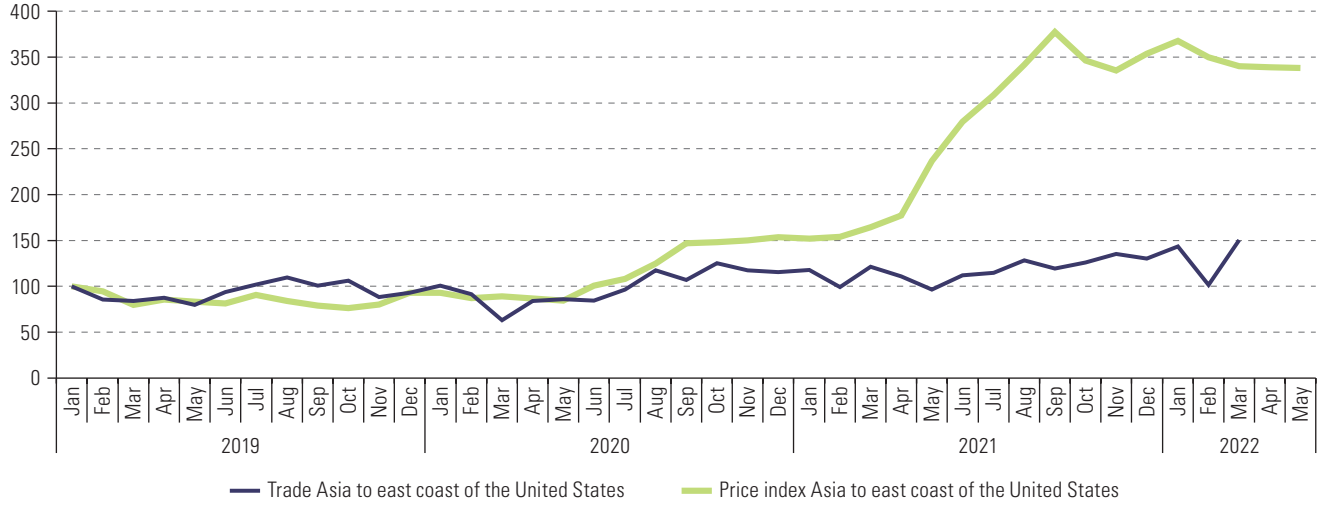
E. East coast of South America to east coast of the United States



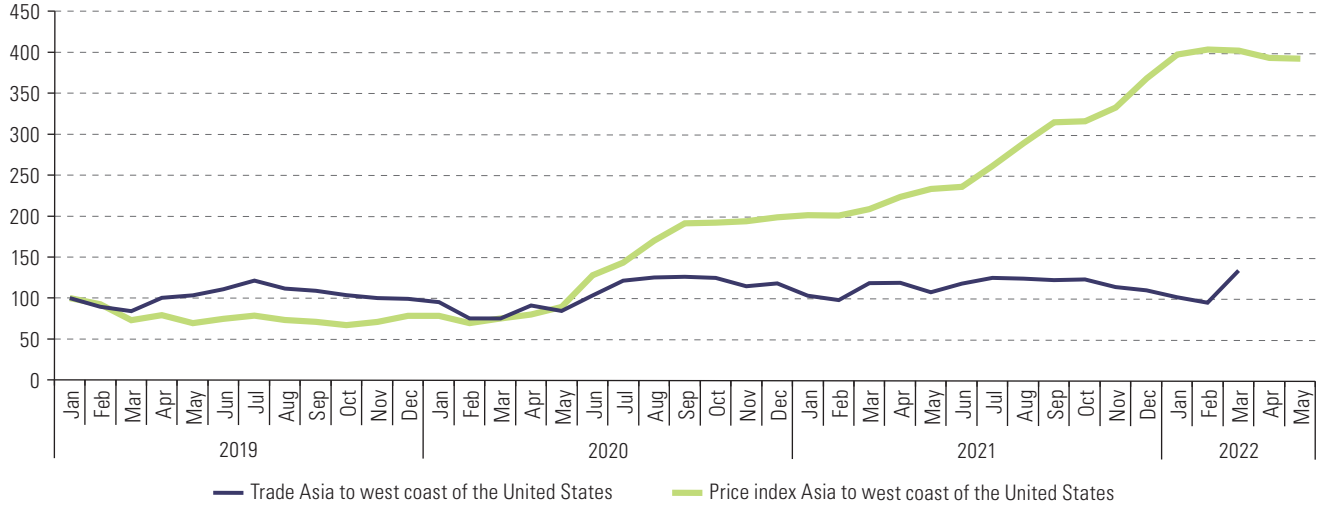
F. East coast of the United States to east coast of South America



G. Asia to east coast of the United States



H. Asia to west coast of the United States

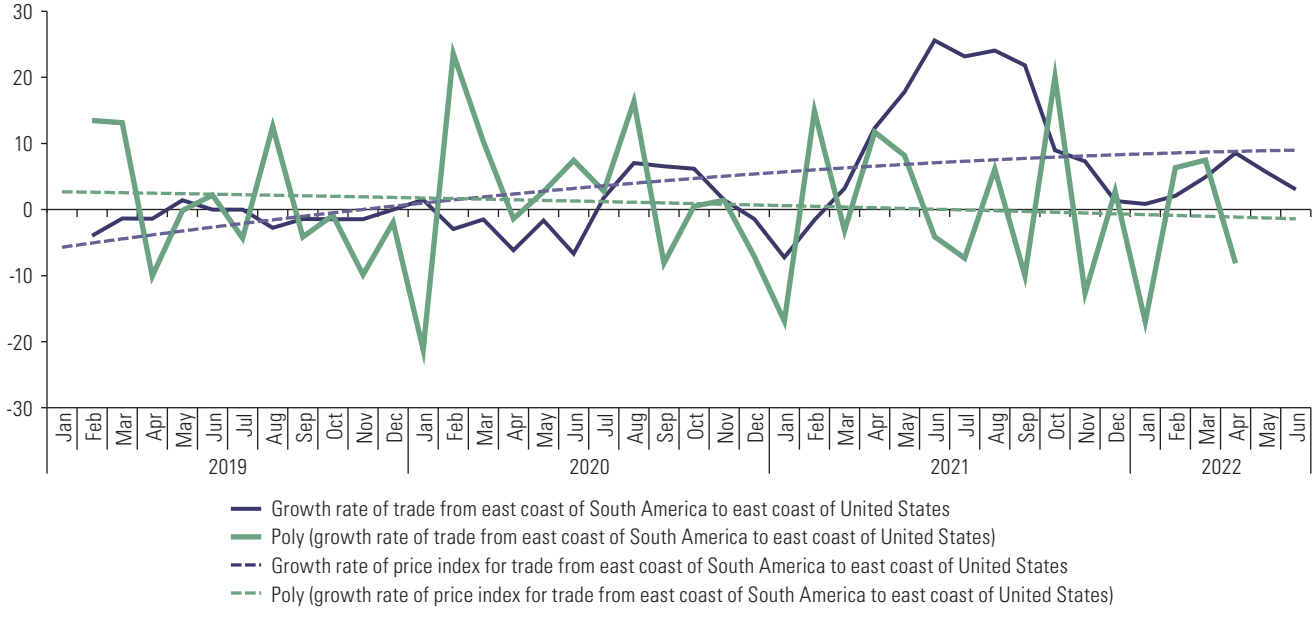


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Agência Nacional de Transportes Aquaviários (Antaq), Container Trade Statistics (CTS) and Freightos.

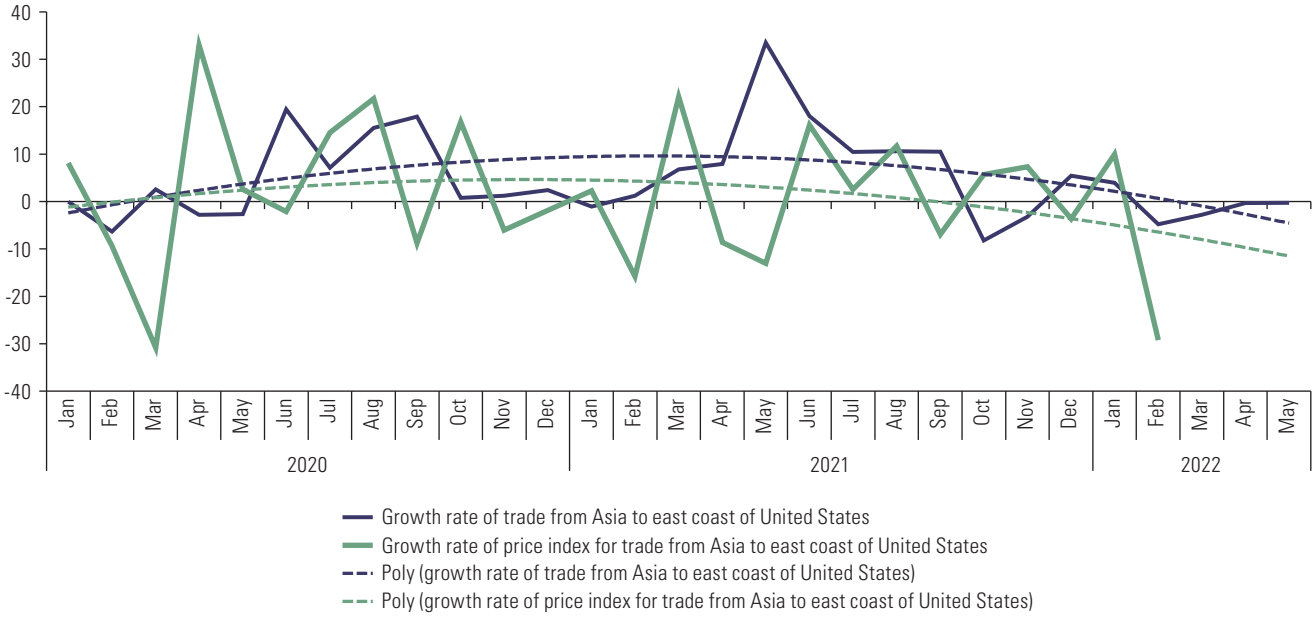
The disparity between the behaviour of demand and pricing that can be seen in most of the panels of figure III.7 can also be analysed in figure III.8, which includes some examples of important routes for illustrative purposes. It can be seen that the aforementioned disparities have obtained since the pandemic, particularly the relationship between the rates of change in demand and prices.

Figure III.8
Growth rates of trade and shipping rates on selected sea routes, January 2019–the latest month of 2022 for which data are available
(Indices: January 2019=100)

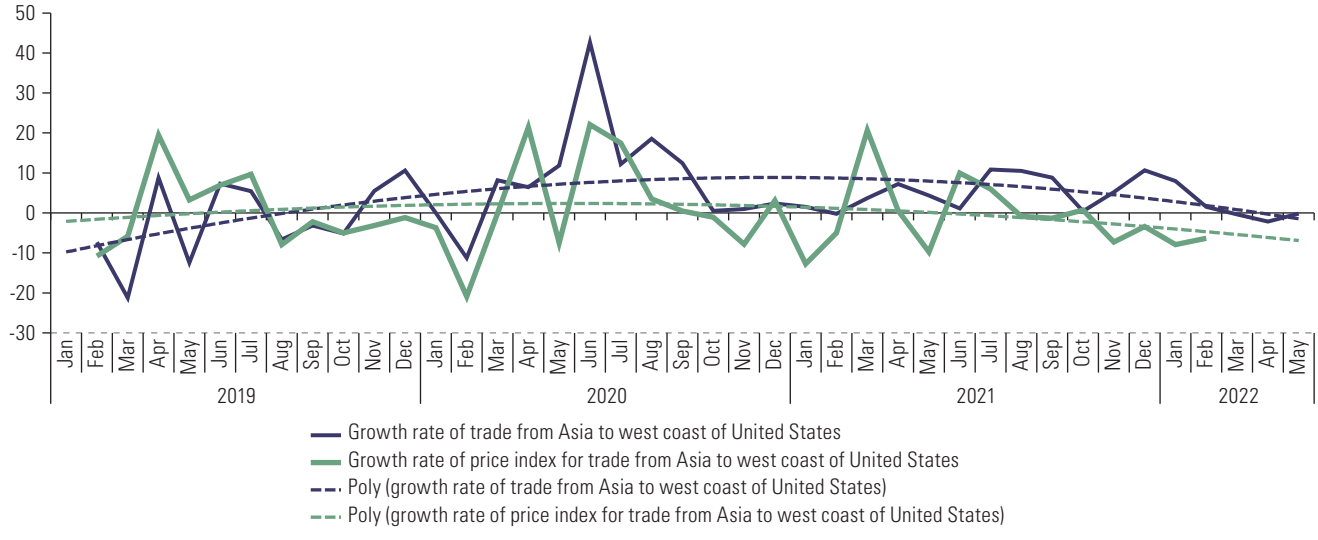
A. East coast of South America to east coast of the United States



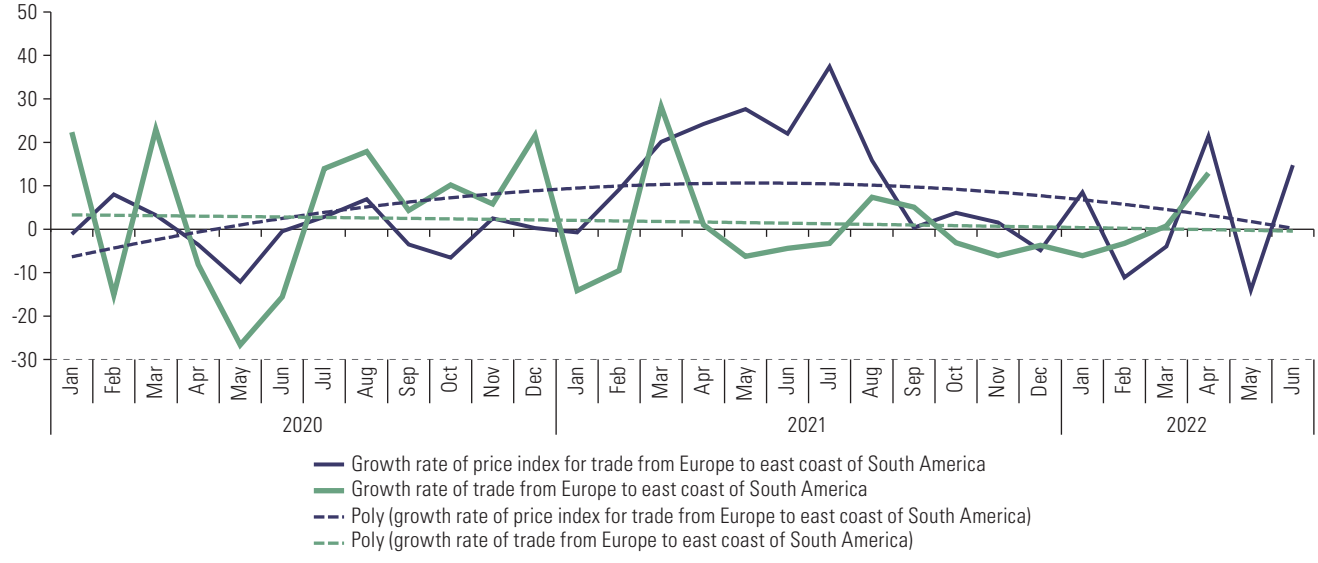
B. Asia to east coast of the United States



C. Asia to west coast of the United States



D. Europe to east coast of South America

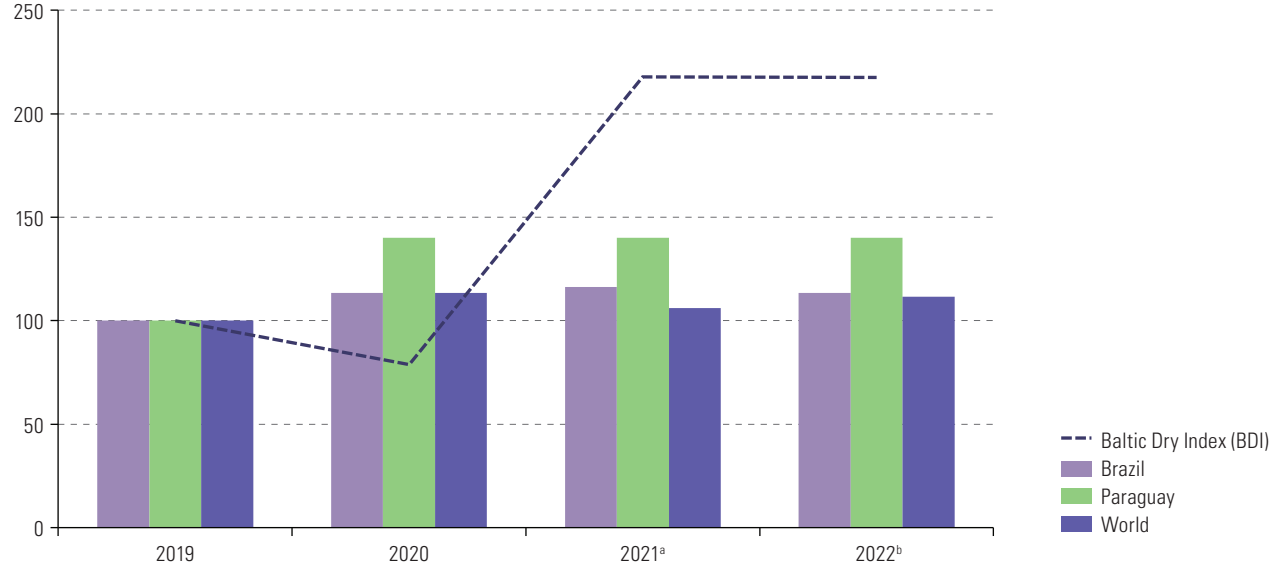


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Agência Nacional de Transportes Aquaviários (Antaq), Container Trade Statistics (CTS) and Freightos.
Note: Poly is the polynomial trend curve for each variable.

In summary, there have been some changes in the traditional functioning of the shipping cycle over recent years, with quantities and prices behaving differently. This could be explained by the trajectory of supply, which was altered by the conditions prevailing during the pandemic, and by blank sailings, lay-ups of vessels, problems of port congestion and inland distribution, understaffing due to infections and other factors. The evidence available is not enough to conclusively establish whether the behaviour of supply has been due to the deliberate actions of the industry or to the disruption caused by the conditions under which the market operated because of pandemic-related constraints. While the International Transport Forum (ITF, 2022) leans more towards the first explanation, the Federal Maritime Commission of the United States argues the opposite, claiming that what has happened is due to the action of supply and demand (see section C below for a more detailed analysis of this opinion).

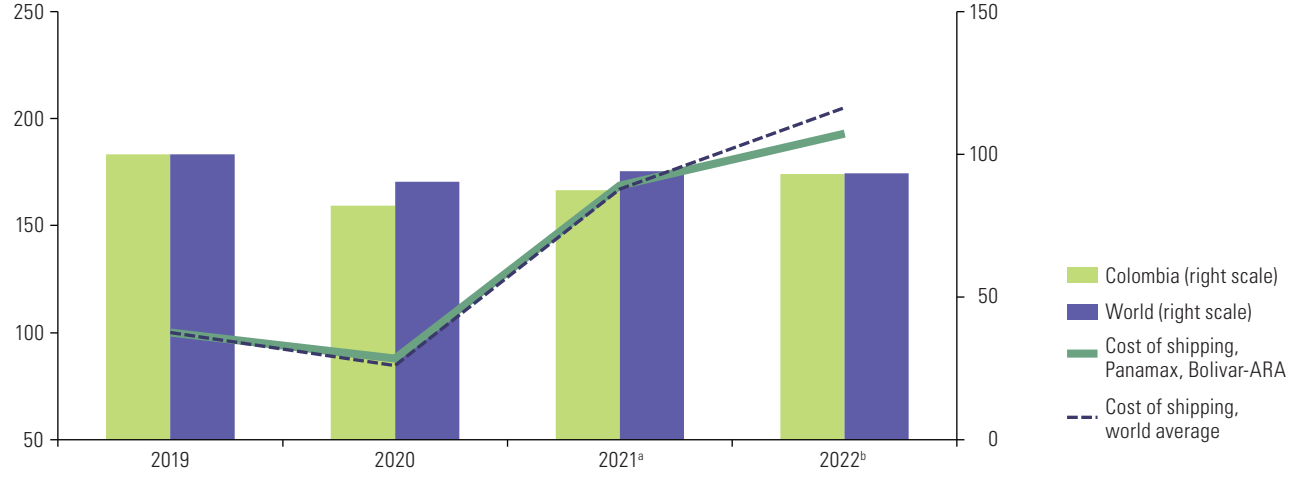
Similarly, the behaviour of commodity prices and transport volumes can be analysed. In the case of soybeans, it is observed that world exports and those of Brazil have increased moderately since 2019, while those of Paraguay have expanded more. However, the Baltic Dry Index (BDI), which measures shipping freight rates for various dry grains, has risen much faster than export volumes since 2020 (see figure III.9). Disparities can also be seen between the behaviour of prices and quantities transported in the case of coal exports (see figure III.10).

Figure III.9
Index of soybean tonnage exported by selected countries and the world and Baltic Dry Index in dollars
(Indices: January 2019=100)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Bloomberg, for the Baltic Dry Index (BDI), 2022 and Clarksons, for the volume of soybean exports, 2022.
[a] Estimate.
[b] Forecast.

Figure III.10
Index of coal tonnage exported by Colombia and the world and dollar index of shipping costs
(Indices: January 2019=100)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Clarksons Research, *Container Intelligence Monthly*, 2022.
[a] Estimate.
[b] Forecast.

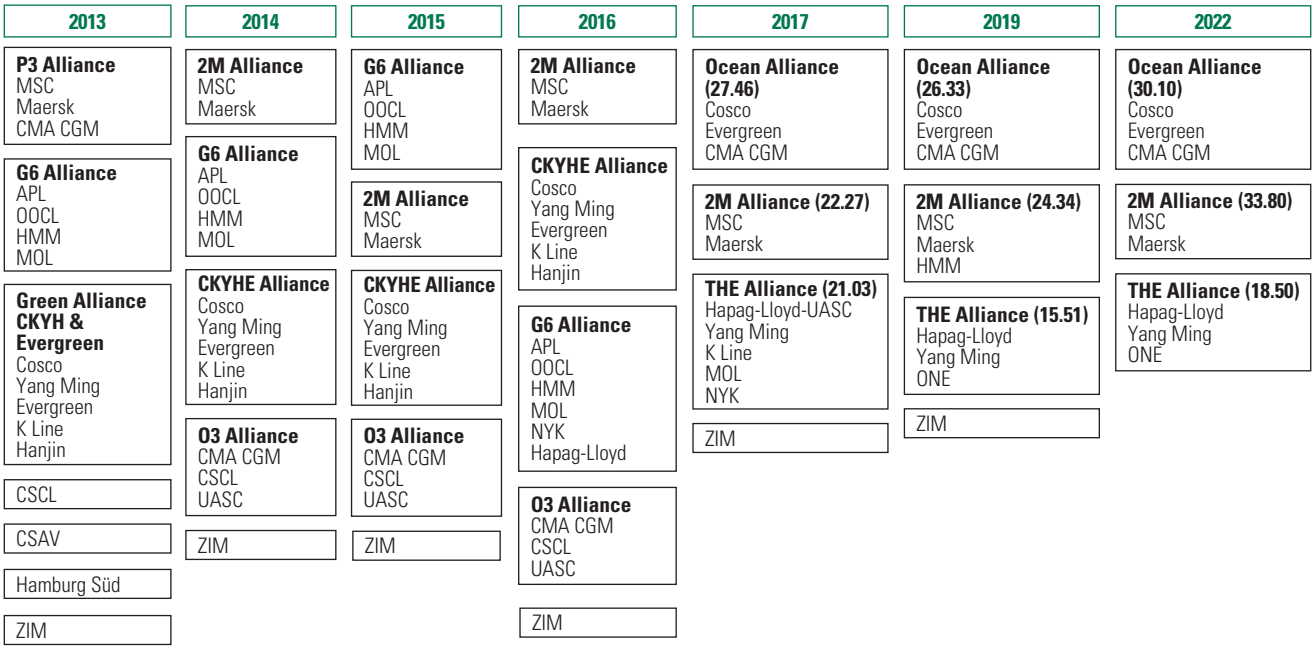
C. Concentration and vertical integration in the shipping sector

1. Growing concentration in the global shipping industry

Container shipping has evinced a new tendency towards corporate concentration since 2010. Even if a purely legalistic definition of concentration is adopted (mergers or acquisitions entailing common ownership), out of 100 registered consortiums worldwide, the top 9 account for 82.6% of total global shipping capacity measured in TEUs (Alphaliner, 2022a).

In both the United States and Europe, the shipping industry is predominantly organized through corporate cooperation agreements. This is a gradual process that started in 1995 and has resulted in the nine leading companies now forming three main shipping alliances, whose arrangements are based on the sharing of commercial information, vessels and warehouses, although they do not set common prices and, theoretically, compete with each other (see diagram III.2). This was a process driven by an overarching strategy that could be described as market capture through the construction of larger-capacity vessels (González Aregall, Sánchez and Wilmsmeier, 2017). Container ships generate major economies of scale, leading to large savings in average capital and operating costs and thus to crucial competitive advantages. According to UNCTAD (2021), vessels with a capacity of more than 10,000 TEUs continuously increased their share of total capacity between 2011 and 2021, and 74 vessels with a capacity of 20,000 TEUs or more have been brought into service since 2018 (see figure III.11). It appears that the corporate objective of lower costs and higher profitability was posited as a necessary condition for an increasing market share.[7]

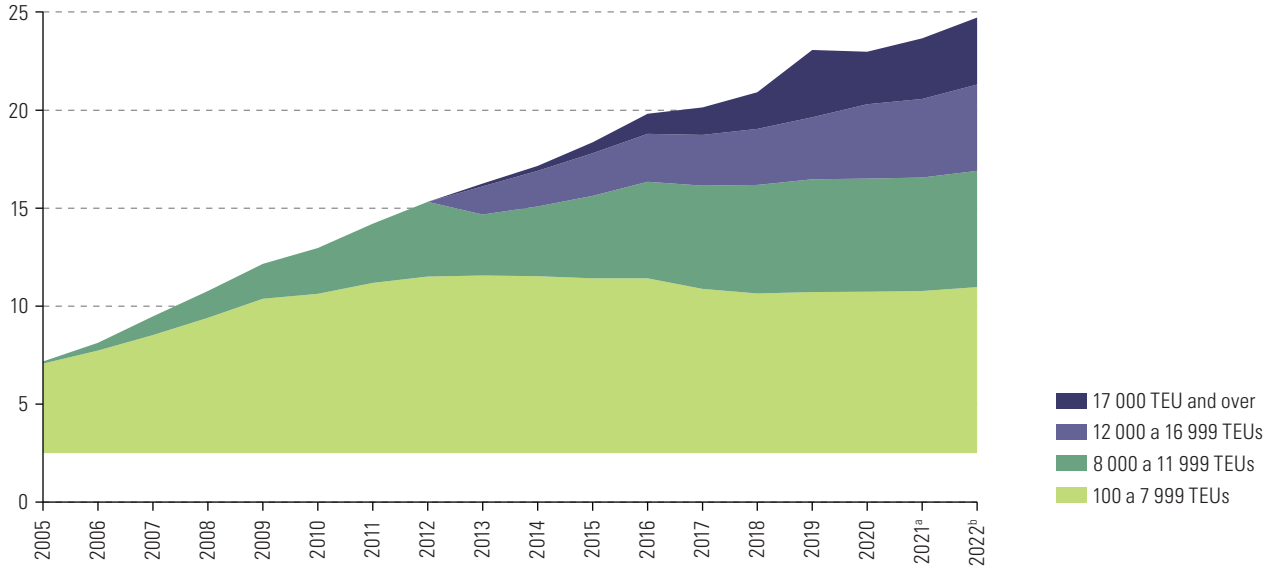
Diagram III.2
Evolution of the market share of the main shipping alliances, 2013–2022[a]
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC).
Note: The figures in brackets for 2017, 2019 and 2022 are the market shares of the alliances as a proportion of total capacity in twenty-foot equivalent units (TEUs).
[a] Market shares shown from 2017 onward.

[7] These developments do not necessarily mean that the increased efficiency and lower costs have been passed on to customers and end users. This point is addressed in more detail in section C.3.

Figure III.11
Global container shipping capacity, by vessel size, 2005–2022
(Thousands of twenty-foot equivalent units (TEUs))

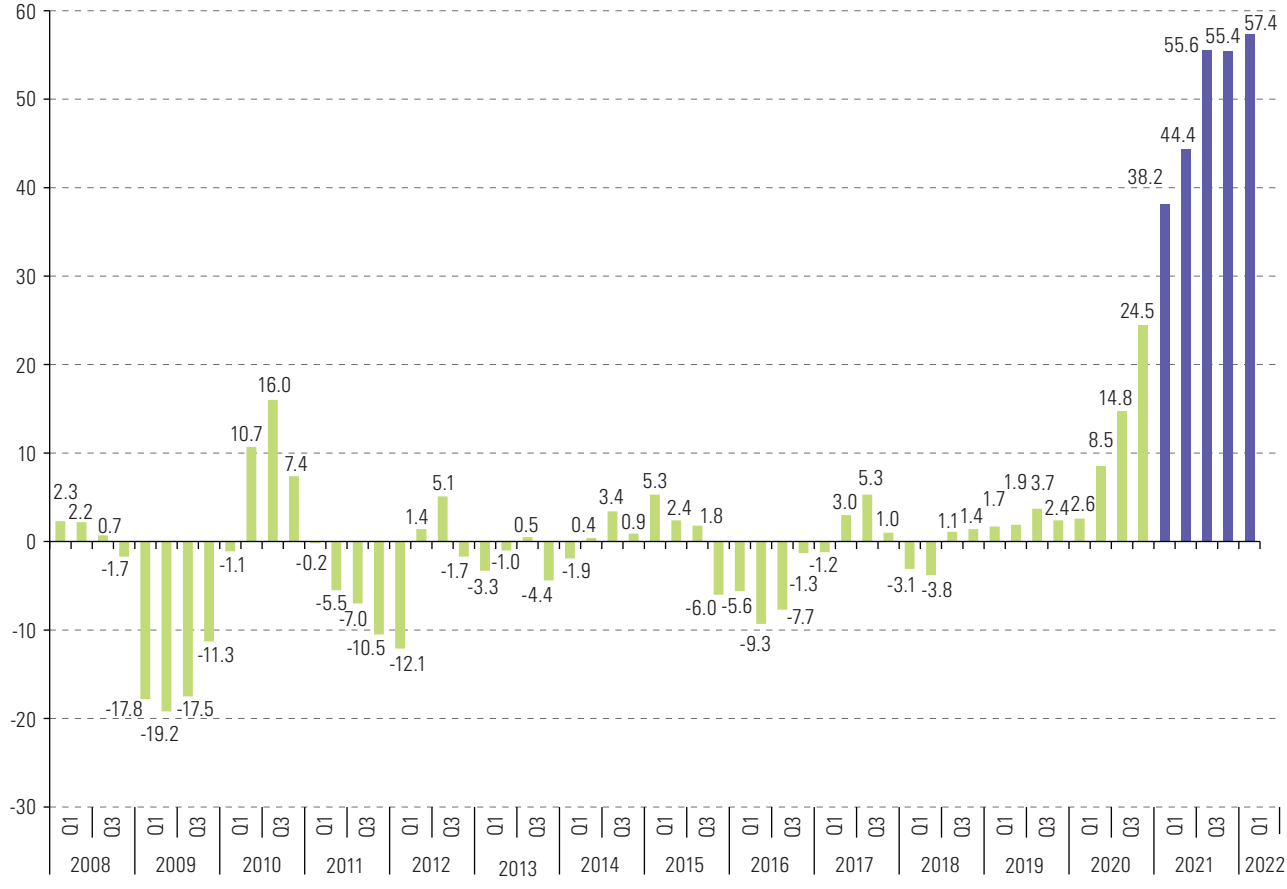


Source: R. J. Sánchez and E. Barleta, "Inputs for the future Greater Caribbean's New Maritime Strategy", *Project Documents*, Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2022.
[a] Figures for 2021 are estimated.
[b] Figures for 2022 are projections.

The crisis caused by the COVID-19 pandemic and the disruption of supply chains exacerbated the trend towards increased concentration in the structure of the shipping market. In 2017, the top 10 shipping lines had 15.4 million TEUs of capacity between them, while the next 20 had 3.2 million TEUs. In August 2022, the equivalent figures were 21.8 million TEUs and 2.5 million TEUs, respectively. In the same period, the gap between the leading and twentieth-ranked shipping line increased from 3.2 million to 4.3 million TEUs (Alphaliner, 2022b). Simultaneously, during the pandemic crisis, and mainly owing to the unprecedented increase in shipping freight rates, industry profits rose greatly, especially in the case of the leading carriers (see figure III.12). If a list of 13 shipping lines is taken, the average return on equity in the second quarter of 2021 was 135%.[8] Calculated up to the first half of July 2021, returns were even greater, averaging 187% (Drewry, 2021). With regard to the smaller shipping lines, there was a differentiated impact on those engaged in the trans-Pacific trade and the others, with the former achieving returns comparable to those of the big carriers (Alphaliner, 2022b).

8 Based on data from Alphaliner (2022).

Figure III.12
Average margins before interest and taxes of the top 13 global shipping lines, by market share, first quarter of 2008–first quarter of 2022
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from *Alphaliner Weekly Newsletter*, various editions.

2. Vertical integration and mergers and acquisitions

More than 10 years ago, the leading container shipping lines started to develop a strategy of vertical integration through acquisitions or investments, thereby expanding their coverage and diversifying their services. According to data from the International Transport Forum (ITF, 2018), the proportion of terminal operators controlled by carriers increased from 18% to 38% between 2001 and 2017. The windfall profits made by the largest shipping companies since mid-2020 have been used to strengthen this integration process. They have acquired new vessels and shipping capacity, not only with a presence on all continents, but right along the transport chain, including port services in the form of terminals and tugs, and inland transport and logistics, including air, rail and road transport and last mile services.

The leading ocean carriers have pursued various acquisition strategies in recent years (see table III.4). For example, between 2021 and 2022, Mediterranean Shipping Company (MSC), the largest container shipping company, acquired or agreed to acquire Log-In Logistica of Brazil, TAC Global Solutions of Mexico and Hurst of the United States. These moves are helping to strengthen the shipping company's logistics activities throughout the Americas. A.P. Moller-Maersk, the second-largest container shipping company, has strengthened its logistics services to include air freight in North America,

Asia, Africa and Europe. Among these operations, the most significant in terms of value (US$ 3.6 billion) is the agreement to acquire LF Logistics, based in Hong Kong Special Administrative Region of China. CMA CGM has increased its presence in Europe and North America, particularly on the west coast of the latter region, where it has made acquisitions totalling more than US$ 5 billion in logistics and port services. Its largest acquisition, Ingram Micro Commerce & Lifecycle Services, operates the logistics company Shipwire in North America, Europe, Asia and some Latin American countries. The new acquisitions by COSCO and Hapag-Lloyd have focused on strengthening shipping and port services in Europe and Africa.

Table III.4
The world's top five container shipping companies: selected acquisitions, 2021–2022

Shipping company	Acquisition	Headquarters location of the firm acquired	Share *(Percentage)*	Business	Approximate value *(Millions of dollars)*	Date acquisition agreed or transaction completed
MSC	Log-In Logistica	Brazil	67	Logistics	500	December 2021
	Hurst	Kansas (United States)	80	Industrial inputs	15.3	June 2021
	TAC Global Solutions	Mexico	Over 75[a]	Logistics	8	July 2021
A.P. Moller-Maersk	Visible SCM	Utah (United States)	100	E-commerce logistics	802	2 August 2021
	B2C Europe	Netherlands	100	Logistics and services	76	1 October 2021
	HUUB	Portugal	100	Logistics and services	10	9 September 2021
	LF Logistics	Hong Kong (China)	100	Logistics and services	3 600	2022
	Grindrod Intermodal Group	South Africa	51	Logistics and transport	13	2022
	Senator International	Germany	100	Air freight	644	2022
CMA CGM	Ingram Micro Commerce & Lifecycle Services	California (United States)		Contract and e-commerce logistics	3 000	2022
	Colis Privé	France	51	Last mile logistics	n.d.	2022
	GEFCO	France	n.d.	Logistics	517	2022
	Fenix Marine Services	Los Angeles (United States)	90	Port terminals and services	2 300	January 2022
COSCO	Container Terminal Tollerort, Hamburg	Germany	35	Port terminal	116	September 2021
	RSGT at the port of Jeddah	Saudi Arabia	20	Port terminal	280	January 2021
Hapag-Lloyd	Wilhelmshaven container terminal and Wilhelmshaven train terminal at JadeWeserPort	Germany	30 and 50, respectively	Container terminal and port services	n.d.	September 2021
	Nile Dutch Investments B.V.	Rotterdam (Netherlands)	n.d.	Shipping	n.d.	July 2021

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from the companies.
Note: n.d. = value or information not determined.
[a] Share built up in more than one purchase.

The predominant interest in logistics or freight forwarding service companies should be highlighted, as shippers have been openly announcing their intention of competing with these companies and defining their businesses in the medium term as integrated door-to-door logistics service companies.

3. Competition in the international container shipping market

The extraordinary increase in container shipping freight rates since 2020 described above prompted immediate complaints from the trade and was of concern to the authorities. It was compounded by bottlenecks in port operations on the west coast of the United States, queues of ships waiting at anchor to load and unload, and increasing disruption of domestic supply chains. This situation triggered intervention by the Federal Maritime Commission, the independent public body responsible for regulating ocean

transportation in the foreign commerce of the United States.[9] On 31 March 2020, the Commission launched a formal investigation to identify possible solutions to the problems that had arisen in maritime supply chains. The final results were released on 31 May 2022 (Federal Maritime Commission, 2022).

A major concern of that investigation related to the surcharges levied by shipping companies and port terminals on shippers for demurrage (when the container remains at the terminal for longer than expected) and detention (when the container is not returned to the terminal on time). These charges, originally conceived as an incentive to remove cargo and return equipment within the agreed time limits, became meaningless when delays were due to general congestion and were beyond the control of individual operators. To clarify this issue, the Federal Maritime Commission issued a special rule ("Interpretive Rule on Demurrage and Detention under the Shipping Act") and recommended additional regulatory amendments to facilitate the legal defence of those affected by abusive overcharging. The issue of the return and availability of empty containers, something of particular importance for United States exporters of agricultural products, also prompted a recommendation for the enactment of a special new regulation.

From the perspective of the Federal Maritime Commission, congestion and disruption of supply chains and the sharp rise in freight rates bore no relation to the state of corporate competition in the freight market. It reflected the fact that the COVID-19 pandemic had led to a major shift in global demand from services to goods, in particular imported consumer durables, resulting in sudden supply chain congestion and limited availability of warehousing and containers for foreign trade. According to the Commission, the volatility and flexibility of freight rates meant that the imbalance between supply and demand naturally fed through to pricing. The agency acknowledges frequent route cancellations and blank sailings, a cause of concern and complaints on the part of operators, but ascribes these to port congestion and the resulting service delays (Federal Maritime Commission, 2022, III.A.2).

In addressing the question of market structure, the final report of the Federal Maritime Commission states that it is not possible to speak of a process of concentration in the shipping market, since this description would only apply to corporate mergers and not to cooperative agreements between competitors such as those in force between the alliances and consortiums which predominate in the shipping industry. Indeed, the Herfindahl-Hirschman index (HHI) for the concentration of trans-Pacific shipping traffic is below 1,500, and under current rules markets with values below that level classify as "unconcentrated" (if the HHI is above 2,500, the market is considered highly concentrated) (Federal Maritime Commission, 2010).[10]

This guidance from the Federal Maritime Commission chimes with the recent amendment to title 46 of the United States Code, as set out in the Ocean Shipping Reform Act of 2022, passed by the Congress of the United States and signed by President Biden on 16 June 2022 (Congress of the United States, 2022). The reform promotes transparency and requires greater recording and publication of maritime cargo operations, while specifying certain acts that are prohibited to shipping lines and port terminals, such as the unreasonable denial of warehousing and cargo space when available and the use of other unfair and discriminatory methods. The focus of this reform is on providing greater powers to the Federal Maritime Commission to investigate abuses in the detention charges and demurrage penalties levied on shippers

[9] The Federal Maritime Commission and the Antitrust Division of the Department of Justice cooperate on antitrust enforcement in the shipping industry (United States Department of Justice, 2022).

[10] European Union regulations state that there is no concentration risk from a merger when post-merger HHI values are between 1,000 and 2,000, with an increase of less than 250, or above 2,000, but with a delta of less than 150 (*Official Journal of the European Union*, 2004).

and on encouraging complaints by shippers, with protection against possible retaliation by carriers and ports. Except for the aim of promoting an efficient and competitive ocean transportation system, the law makes no reference to the current concentration of service provision or to possible abuses of dominant positions in these markets.[11]

The investigation by the Federal Maritime Commission attributes the cancellations, blank sailings and warehousing shortages along shipping routes to congestion at major container port terminals. While this did aggravate the situation, supply restrictions, loss of speed, blank sailings and the withdrawal of vessels from service had begun well beforehand. This is explicitly recognized in the same Federal Maritime Commission investigation: in May 2020, blank sailings represented 21% of trans-Pacific commercial traffic (Federal Maritime Commission, 2022, II.A) and were a result of the expectation that cargo volumes would be reduced by the pandemic. Shipping lines reacted to keep warehouse supply in line with demand (Federal Maritime Commission, 2022, II.C3) and port terminals cut their hours in the face of reduced trade volumes (in addition to the impact of health protocols).

The reliability of shipping services on the Shanghai-Los Angeles route began to suffer in the second half of 2020 (the proportion of schedules met fell from 90% to 10% in January 2021), but congestion at the ports of Los Angeles and Long Beach, as measured by the number of ships waiting at anchor, began only in November 2020 (ITF, 2022). As ships altered their scheduled arrival times, port operations became more difficult to plan and efficiency suffered.[12]

One concern, however, arises from the report's characterization of the industrial organization and competitive situation of shipping markets. The fact that the predominant corporate structures (alliances and consortiums) do not involve uniform pricing (freight rates) does not necessarily mean that open competition prevails: the sharing of commercial information and the ability to jointly manage ships and warehouses makes it easier for them to manage supply. Their organization in the form of cooperative business arrangements also means that the companies involved can continue to be independent legal entities whose Herfindahl-Hirschman index values are within non-concentrated or moderately concentrated ranges. Moreover, under current legislation, limiting alliances to a market share of no more than 30% of the market prevents detailed investigations by the antitrust regulatory authorities.[13]

There are also intrinsic incentives for greater corporate concentration. First and foremost, there are the economies of scale provided by container ships, whose size and capacity have been growing steadily over recent decades: the share of mega container ships with a capacity of more than 10,000 TEUs increased from 6% of total fleet capacity in 2000 to 40% in 2021, with the recent expansion of individual ship capacity to over 20,000 TEUs (UNCTAD, 2021). This phenomenon has led to an improvement in the operational efficiency of transport: total costs are growing less than proportionally to the increase in capacity, leading to a marked decrease in unit costs.

There are some downsides, however, notably the great challenge entailed for port infrastructure and logistics, but most especially the accumulation of cargoes on a smaller number of vessels, which necessarily means a greater concentration of operators and their market share. As is often the case in industries with increasing returns, there is the

[11] The situation in Europe is similar. In February 2022, the European Commission rejected complaints by a number of freight forwarders about unfair competitive advantages enjoyed by shipping companies (ShippingWatch, 2022). It has only undertaken to strengthen monitoring of the level of global competition in regular coordination meetings with the maritime regulatory institutions of the United States and China (ITF, 2022).

[12] Vessels anchoring outside ports are not necessarily a sign of port congestion, however, since it is a common way of keeping them out of service (and thus adjusting capacity).

[13] On some routes, however, these shares are clearly higher. According to Merk (2021), all ocean corridors to and from Europe are operated by consortiums with shares above 30%.

dilemma of ensuring that desirable cost and efficiency improvements are transformed into actual savings for consumers and users, and not just additional corporate profits (Sánchez and Wilmsmeier, 2017).

The shipping industry also exhibits the large network economies (density) characteristic of logistics structures: in reality, customers do not demand individual point-to-point routes, but rather the densest possible set of maritime connections, including both trunk and smaller feeder routes, and companies that can offer such networks have a decisive competitive advantage.

A small number of suppliers is not necessarily evidence of lack of competition, as long as there are no barriers to entry for new competitors. In the case of the container shipping market, however, both kinds of economies (of scale and of density) imply a certain minimum volume, as a large upfront investment in vessels and geographical coverage is needed to have any chance of commercial success. This constraint has given rise to a variety of attempts to explain why freight rates have recently risen sevenfold, even as new actors have appeared in the trans-Pacific market to only a very marginal extent. These actors are the large retail shippers, such as Home Depot, Walmart and Costco, which proceeded to charter and operate their own vessels, but this represents less than 0.2% of registered capacity and is considered to be a temporary phenomenon until traffic and prices normalize.

Another element that could limit competition is vertical integration with nodal infrastructures. Examples of the increasing vertical integration of shipping lines, taking in the port industry and various types of communication, transport and warehousing infrastructure on land, have already been given, and their strategy of turning themselves into unified logistics freight forwarders is demonstrable.

D. Regulatory initiatives for the shipping industry

1. Antitrust regulation

In international trade, shipping lines have traditionally enjoyed some degree of specific legal protection from governments, which in the early days took the form of the liner conference regime: carriers in a conference offered cargo shipping customers a discount on the price of their services (freight rates) relative to what was on offer from non-conference carriers. In the United States, this discrimination was called the "dual rate". This exception to general antitrust laws was explicitly provided for in the Shipping Act of 1916 (Congress of the United States, 1916), on condition that the conference agreements were approved in advance by the United States Shipping Board, the predecessor of today's Federal Maritime Commission. This prior approval requirement was later abolished by the Shipping Act of 1984 (Congress of the United States, 1984), although there was still oversight by the Federal Maritime Commission to monitor risks of unreasonable increases in the cost of transportation or unreasonable reductions in transportation services.

The Ocean Shipping Reform Act of 1998 (Congress of the United States, 1998) brought an important partial change, as it prohibited common pricing by shipping lines, which were thenceforth required to negotiate freight rates in individual contracts with their customers. However, the Act continued to exempt from antitrust law business cooperation agreements providing for the sharing of commercial information and the pooling of warehouses and vessels. The conference regime was virtually expunged from the United States statute book and replaced by the current system of consortiums and alliances.

The situation in Europe is similar. Article 101 (1) of the Treaty on the Functioning of the European Union (*Official Journal of the European Union*, 2012) prohibits all commercial and business practices that involve restrictions on competition and that directly or

indirectly fix purchase or selling prices, but article 101 (3) provides exceptions for any agreement between enterprises which "contributes to improving the production or distribution of goods or to promoting technical or economic progress, while allowing consumers a fair share of the resulting benefit".

The European Commission can assign these article 101(1) exceptions to individual cases, and such exceptions can also be extended to certain broad categories of agreements, called "block exemptions", which are valid without the need for express individual authorization. European Union liner shipping companies were granted a specific block exemption for the formation of conferences that could set common freight rates (*Official Journal of the European Union*, 1986), although this was abolished in 2008 (*Official Journal of the European Union*, 2006).

The ban on price-setting in conferences, however, does not extend to other dimensions of cooperation agreements, such as the sharing of information and the practice of pooling vessels and warehouses. In fact, in 1995 the European Commission established a block exemption for consortiums and alliances that met certain conditions (*Official Journal of the European Union*, 2009), much like the antitrust immunity in place in the United States for business cooperation agreements in the shipping sector.

The requirements for consortiums and partnerships are as follows:

- They must generate efficiencies that can be passed on to consumers or users.
- They must be time-limited (no more than 10 years in the United States and no more than 5 years, renewable, in the European Union).
- They must ultimately lead to increased competition in the market.
- They must not hinder the entry of new competitors.
- There must be no shareholding links between the members of different partnerships.

However, regulatory authorities only investigate consortiums if they exceed the concentration limits (30% in the United States and 20% plus incremental conditions in the European Union). For this reason, such conglomerates carefully monitor the extent of their agreements and the existence of independent competitors to the partnerships that keep their own shares within these limits. Within the market share margins, temporary renewals are easily approved. It is assumed that efficiency gains are somehow shared with users and that cross-shareholdings are not reviewed.

Analytically, the essence of monopoly power is that, given a large market share, the supplier can manage supply, and therein lies its ability to set prices: the market equilibrium is one with less supply and higher prices than in a competitive situation. For this reason, antitrust law generally requires prior authorization for corporate mergers that accrue market share. As has been seen, however, within broad limits shipping alliances and consortiums enjoy legal flexibility in both the United States and the European Union in consequence of a tradition linked to the old liner conferences. Inter-company cooperation agreements are allowed when they contribute to greater efficiency, including the sharing of commercial information and the pooling of vessels and warehouses.

From the point of view of overall efficiency, whose effects extend to end users and consumers, public policy for this industry should promote corporate competition more vigorously, starting with a thorough debate on the exceptional antitrust regimes it enjoys.[14] In the hypothetical case that the optimal scale of the shipping industry converged on such a large size that it proved to be a natural monopoly, it would be necessary to evaluate the options provided by antitrust legislation, or some form of general regulation.

[14] The Office of the Attorney General has twice testified before the House Judiciary Committee in favour of abolishing such exemptions (United States Department of Justice, 2002), and the American Bar Association has argued that the rationale for the exemptions ("ruinous competition due to overcapacity", etc.) is highly dubious (ABA, 2007).

2. Environmental aspects

Maritime transport has been crucial in the development of international trade. However, there is evidence that greenhouse gas emissions from shipping have increased significantly. To the typical costs of transport, then, must be added the social cost of emissions and their impact on climate change. Long before the Sustainable Development Goals (SDGs) and the Paris Agreement on climate change were adopted, the International Maritime Organization (IMO) had already initiated actions aimed at reducing carbon dioxide (CO_2) emissions from ships, with the 1997 adoption of the Protocol of 1978 relating to the International Convention for the prevention of pollution from ships, known as MARPOL Annex VI. This protocol regulates emissions from ships, mandates the use of low sulfur fuels and sets limits for other pollutants.

It is argued, however, that initiatives such as the one adopted by IMO in 2020 requiring ships to use fuel oil with a maximum sulfur content of 0.5% (compared to the previously permitted value of 3.5%) have not gone far enough in reducing emissions of sulfur oxides, which contribute to environmental pollution and the destruction of the ozone layer. The same situation has been observed in the implementation of commitments made under the United Nations Framework Convention on Climate Change, such as those of the twenty-first Conference of the Parties, which concluded with the Paris Agreement,[15] and other subsequent agreements. In addition to the binding agreements and commitments of the parties, there is a need to move rapidly towards the decarbonization of maritime transport.

The world, and Latin America and the Caribbean in particular, must make steady progress towards the use of clean energy and implement green port corridors. During the twenty-sixth Conference of the Parties to the United Nations Framework Convention on Climate Change, several countries signed the Clydebank Declaration to support the establishment of green shipping corridors and thereby reduce carbon dioxide emissions between pairs of ports and support the transition from fossil fuels to other types of fuels, such as green hydrogen and its derivatives.

Energy consumption and production account for about two thirds of global greenhouse gas emissions, and 81% of the world's energy mix is still based on fossil fuels, a share that has held steady for decades.[16] It is becoming imperative to actually make the transition to a more inclusive, sustainable, affordable and secure global energy system that uses other types of fuel oil with low or zero sulfur content, such as liquefied natural gas or biofuels. This must be done while balancing the energy triangle of security and affordability, environmental sustainability and economic development.

High fossil fuel prices have accelerated the energy transition. Support has been secured from a number of governments in Europe and around the world for the development of green hydrogen to complement available fuels and even replace them in the long run (including liquefied natural gas, which Europe has turned to in the face of a dwindling supply of piped natural gas from the Russian Federation).

Ports are destined to play an increasingly important role, not only in the functioning of the logistics chain, but also in the productive diversification and sustainability practices needed to leave countries better placed to achieve the SDGs. In this context, and given the characteristics of the global market and the regional context, some avenues to be explored as possible solutions can be identified. These include expansion of the production and service structure associated with the supply chain, in order to provide more and better services not only to industry and producers, but also to other highly significant businesses, such as the production and marketing of green hydrogen.

15 See [online] https://www.un.org/es/climatechange/paris-agreement.
16 See United Nations [online] https://www.un.org/en/chronicle/article/role-fossil-fuels-sustainable-energy-system.

The countries of Latin America and the Caribbean have the opportunity to embark on alternative paths, boosting their economies through the generation and future export of green hydrogen. This not only represents an economic opportunity, but also means they can fulfil their ethical responsibility to put in place sustainable production systems capable of meeting the needs associated with the global development of the hydrogen market, and thence to contribute to improved product logistics, in particular storage and onward transportation to other parts of the world.

There is a realization that it is possible to construct a regional proposal for policies and action plans to accelerate the expansion of the production structure associated with the supply chain, in order to provide better and fuller services not only to industry and producers, but also for the development of the green hydrogen chain. In Europe, for instance, offshore wind farms have been installed, and public or private sector port companies can very well take advantage of them, while also using tidal energy. Productive integration in ports is a growing phenomenon in the developed world, as shown by the experience of Antwerp (Belgium), Rotterdam (Netherlands), Hamburg (Germany) and Barcelona and Valencia (Spain).

3. Technological innovation in the use of energy for transport

As has been argued throughout this chapter, Latin America and the Caribbean faces a scenario of global shocks, challenging macroeconomic conditions, supply chain disruptions and difficulties, the need to narrow the infrastructure gap, and large financial requirements. In addition, all this is taking place against a backdrop of stringent environmental demands. The world and the region need the governments that signed the Paris Agreement on climate change in 2015 to implement policies which will enable them to comply with climate change adaptation and mitigation measures by reducing greenhouse gas emissions and thus move towards a low-carbon, climate-resilient society, guided by the global commitment not to exceed 2°C by 2050.

Transport has a very major role and a crucial responsibility in the supply chain. The demands are high and technological innovation is essential if infrastructure and logistics services are to be resilient and sustainable. In this situation, the introduction of green hydrogen technology as a transport input and as part of the production chain needs to be evaluated.

There is currently a growing shift towards the production of green hydrogen in ports. Unlike other clean energy sources, green hydrogen will have to be exported to other countries, and this requires further progress in developing alternative storage and transportation techniques. Countries that succeed in exporting green hydrogen will contribute to the sustainability of the power generation market while generating substantial revenues for the region.

Different governments in the region, including Chile's, have the capacity and have made great efforts to develop strategies involving green hydrogen as an important source of clean energy (see box III.1). As part of these strategies, the Chilean Ministry of Energy has worked to create green corridors. To this end, the Chilean government signed an agreement with Maersk (Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping) to establish a network of port-to-port green corridors for green shipping within and beyond Chile, with most funding provided through public-private partnerships (Ministry of Energy of Chile/Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping, 2022). The project is called the Chilean Green Corridors Network Project.

Box III.1
Recent green hydrogen development initiatives around ports

A. While several Latin American ports are pursuing green hydrogen initiatives, the Hidrógeno Verde Bahía Quintero (HVBQ) initiative in Chile is perhaps the most advanced. The companies GNL Quintero, ACCIONA Energía and Enagás have partnered to establish an electrolysis plant for the generation of green hydrogen from water and renewable electrical energy. The project aims to offer a clean and sustainable energy alternative, thus contributing to the decarbonization of the country's energy mix and the environmental rehabilitation of the municipalities of Puchuncaví and Quintero, in the Valparaíso region.

B. The HIF plant in Magallanes (Chile) could eventually produce 13% of the world's green hydrogen, and in the near future it will be possible to produce a fuel based on green hydrogen at the Haru Oni plant, located in the same region of the country. In addition, Chile's Production Development Corporation (CORFO) has announced the award of non-reimbursable funds to different companies and consortiums, which is expected to result in the production of more than 45,000 tonnes of green hydrogen per year, enabling CO_2 emissions to be reduced by more than 600,000 tonnes per year. The projects are located in the Chilean regions of Antofagasta, Valparaíso, Biobío and Magallanes and are intended to foster an innovative industry that supports the country's decentralization.

C. Hamburger Hafen und Logistik AG (HHLA) has set up a cluster to test green hydrogen-powered equipment in port logistics and support the decarbonization of handling and transport. The Clean Port & Logistics (CPL) cluster brings together equipment manufacturers and logistics companies to cooperate across the country and conduct research and practical tests on how hydrogen can be used reliably for the supply of energy and port logistics.

D. In Belgium, a domestic consortium, Hyoffwind, has signed an agreement with John Cockerill and Besix to design and build a green hydrogen production unit at the port of Zeebrugge. The group, consisting of Virya Energy (renewable energy generation and sales) and Fluxys (green molecule transmission), aims to set up a power-to-gas facility that can convert renewable electricity into green hydrogen.

E. In the Netherlands, the Beatrix terminal of C. Steinweg - Handelsveem BV (Steinweg), located in the Eemhaven area near the port of Rotterdam, is scheduled to conduct a pilot project with a mobile facility for shore-based power using hydrogen for Cargow's multipurpose vessels. Ships will arrive twice a week for refuelling and the terminal is expected to be operational by the end of 2022.

F. In the United States, the Port of Corpus Christi port authority and Ares have signed a memorandum of understanding to develop energy infrastructure for green hydrogen production.

G. In Argentina, the government will present a bill dealing with the hydrogen sector with the aim of providing a legal framework for the activity while promoting investment. The country has a hydrogen promotion law, which was passed in August 2006 but for which regulations have never been enacted. Argentina has good natural resources, such as wind resources in Patagonia and solar resources in the northwest.

H. The port authorities of Hamburg (Germany), Rotterdam (Netherlands), Gdynia (Poland), Roenne (Denmark) and Talin (Armenia) have signed an agreement to promote port-to-port green corridors in northern Europe and the Baltic Sea. To achieve this, a step-by-step approach is envisaged, consisting in identifying potential routes, vessel types and fuels to establish high-impact green corridors in the region and assessing the technical, regulatory and commercial feasibility of the preselected routes.

I. In China, it has been announced that the port of Qingdao will be the first 5G smart terminal powered by hydrogen to fuel the equipment needed to operate the port, using lithium and titanium batteries that are non-polluting and fast-charging and have a lifespan of 10 years (compared to 2 years for the old lead-acid accumulators). With 30% greater efficiency than conventional terminals and a 70% reduction in the number of operating personnel required, the terminal will have a capacity of 4.2 million twenty-foot equivalent units (TEUs) and will be able to receive ships with a capacity of 24,000 TEUs.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Ámbito, "Hidrógeno verde: el Gobierno impulsa un nuevo marco para promover inversiones", 27 February 2022 [online] https://www.ambito.com/economia/hidrogeno/verde-el-gobierno-impulsa-un-nuevo-marco-promover-inversiones-n5381978; Ministry of Energy/Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping, "Chilean Ministries of Energy, Transport and Telecommunications, and Foreign Affairs, together with the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping launch joint project to establish green shipping corridors in Chile", 13 April 2022 [online] https://cms.zerocarbonshipping.com/media/uploads/documents/Chilean-Green-Corridors-Network_2022.04.13.pdf; Ministry of Energy, "Según estudio del Ministerio de Energía: Región de Magallanes podría llegar a producir el 13% hidrógeno verde del mundo con energía eólica", 12 March 2021 [online] https://www.energia.gob.cl/noticias/nacional/segun-estudio-del-ministerio-de-energia-region-de-magallanes-podria-llegar-producir-el-13-hidrogeno-verde-del-mundo-con-energia-eolica; Portal Portuario, "Puerto de Zeebrugge es elegido para la construcción de planta de hidrógeno verde", 16 February 2022 [online] https://portalportuario.cl/puerto-de-zeebrugge-es-elegido-para-la-construccion-de-planta-de-hidrogeno-verde/; Portal Portuario, "Cargow realizará proyecto piloto de energía móvil en tierra a base de hidrógeno en Puerto de Rotterdam", 22 February 2022 [online] https://portalportuario.cl/cargow-realizara-proyecto-piloto-de-energia-movil-en-tierra-a-base-de-hidrogeno-en-puerto-de-rotterdam/; HHLA, "Hydrogen: Clean Port & Logistics project" [online] https://hhla.de/en/innovation/hydrogen-at-hhla/clean-port-logistics; Green Car Congress, "Port of Corpus Christi, Ares Management sign memorandum of understanding for green hydrogen production, renewable energy generation", 12 May 2021 [online] https://www.greencarcongress.com/2021/05/20210512-pcc.html; Government of the United Kingdom, "COP 26: Clydebank Declaration for green shipping corridors", *Policy Paper*, 13 April 2022 [online] https://www.gov.uk/government/publications/cop-26-clydebank-declaration-for-green-shipping-corridors/cop-26-clydebank-declaration-for-green-shipping-corridors; Hynetwork Services, "Shell first customer hydrogen pipeline Rotterdam port", 12 April 2022 [online] https://hytransportrotterdam.com/en/shell-first-customer-hydrogen-pipeline-rotterdam-port/; Maritime Gateway, "Five European Ports to Launch Green Corridor" 31 March 2022 [online] https://www.maritimegateway.com/five-european-ports-to-launch-green-corridor/; Maritime Transportation System ISAC, "Port of Vancouver USA Launches Cyber Security Information Sharing Group for Lower Columbia River", 4 May 2022 [online] https://www.mtsisac.org/post/port-of-vancouver-usa-launches-cyber-security-information-sharing-group-for-lower-columbia-river; and data from Qingdao New Qianwan Container Terminal and Ministry of Energy of Chile.

The Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping had previously launched the European Green Corridors Network project with five European ports. This is in line with the Clydebank Declaration, in which the signatories certify the need to form an international coalition of governments to join forces and demonstrate that maritime decarbonization is possible.

In its search for green hydrogen-exporting countries, the port of Rotterdam in the Netherlands signed two memorandums of understanding, with Chile in 2021 and with Colombia in 2022. These instruments enable both countries to carry out further studies on the generation of this type of energy and to learn from the experiences of the port in order to understand the logistics of green hydrogen transport and commercialization. The memorandums of understanding provide for discussions to create a hydrogen export and import corridor between the three countries involved. Some local companies in the Netherlands, such as Shell, have also signed an agreement to use the HyTransPortRTM[17] hydrogen pipeline being installed by Gasunie, in collaboration with the port authority, in the port of Rotterdam, which will run from Maasvlakte to Pernis. Eventually, the hydrogen pipeline, which will start operating in late 2024 or early 2025, will be connected to the national and international hydrogen network.

At the same time, the electrification of fleets of lorries and other transport vehicles, serving mainly the last mile, has become a crucial factor in the drive towards decarbonization. Benefits such as lower purchase costs and reduced emissions, as well as increased driver satisfaction, have prompted more and more fleets to switch to electric vehicles. As environmental regulations strengthen and supply chains become more sustainable, electric transport will continue to expand. Similarly, the transition to green hydrogen in rail fleets is progressing in Canada and Chile. In the case of Chile, a project to replace diesel fuel with green hydrogen on the railway linking Antofagasta (Chile) with the Plurinational State of Bolivia is at the feasibility assessment stage.

4. Decarbonization of cruise ships

There is evidence that pollution from cruise ships is hampering the reduction of global CO_2 emissions. For this reason, the Economic Commission for Latin America and the Caribbean (ECLAC) has been moving ahead with research and proposals to mitigate the environmental impact of the cruise ship industry. ECLAC proposes a review of four fundamental pillars related to cruise ships (and applicable to all types of ships): (i) the institutional pillar, (ii) the environmental pillar, (iii) the social pillar and (iv) the economic pillar. These pillars relate in particular to cruise ships sailing in the Caribbean, but do not exclude the incipient participation of countries in other areas at certain times of the year:

(i) Where the first pillar is concerned, the current institutional arrangements, including regulatory frameworks, should be analysed and, if they are inadequate, a body should be set up to promote climate change and sustainability policies that are closely integrated into the framework of States' production development agencies, including both existing ones and those that may be created in future. The main suggestion is for the adoption of clean production agreements[18] setting specific standards and targets to be met within a fixed time frame. This will make it possible in future to measure, report and check on the reductions achieved by means of actions agreed between the parties. The clean production agreements should have their own governance and road map, by which are meant voluntary management tools to address the main environmental, social and economic challenges of the subregion's tourism sector, with feasibility, gradualism and lack of compulsion being treated as key factors in their implementation.

[17] See [online] https://hytransportrotterdam.com/en/shell-first-customer-hydrogen-pipeline-rotterdam-port/.
[18] Clean production agreements have been promoted by Chile's Sustainability and Climate Change Agency.

(ii) With respect to the environmental pillar, there should be an analysis of the carbon footprint, understood as the sum total of greenhouse gas emissions produced by tourist travel, with special emphasis on the carbon footprint of tourists from their departure point to the port of registry of the cruise ships, considering their impact, percentage share and importance in the measurements of each destination. Pursuant to this finding, technological options for CO_2 emissions reductions, public policy improvements, innovation in the necessary technology and offsetting of these emissions should be proposed to make these international routes more sustainable. Likewise, the use of shore-side energy for cruise ships docking at terminals should be promoted. This should ideally be clean energy and should include green hydrogen and derivatives to be generated locally or in the port itself, or imported and transported along port-to-port green corridors.

(iii) With regard to the social pillar, considering the impacts arising from this activity, special importance should be given to gender mainstreaming and ways of reducing and even eliminating employability and wage gaps, and of integrating the human rights of all those involved.

(iv) With regard to the economic pillar, the importance of implementing public policies to boost the development of micro, small and medium-sized enterprises (MSMEs) must be highlighted. Thus, business networks, production chains or clusters need to be promoted in order to improve productive efficiency and competitiveness, boosting the work of public-private partnerships. This will be achieved through the development of an innovative tool and methodology, incorporating subjects associated with the education or training of suitable professionals and the use of new technologies that provide access to the world of process digitalization.

The Caribbean subregion should play a vigorous role in transformative revitalization, with agreed and measurable actions. What is proposed is the generation of initiatives aimed at greater participation by various civil society actors in concrete initiatives for transformative revitalization in the cruise industry, such as the supply of all the inputs needed by ships and their crews to carry out voyages (ship provisioning) or the supply of various services to tourists and vessels that increase the value added of the cruise industry while ensuring its sustainability.

E. Conclusions

Latin America and the Caribbean has a substantial infrastructure shortfall when it comes to connectivity between ports and the region's economic hinterland. Several factors are preventing progress from being made in this area with the speed that is required. A major one is the scale of investment needed, a particularly daunting challenge at a time when countries and governments are under severe economic pressure and many sectors are crying out for resources. The infrastructure investment deficit is a constraint on the development of the region's countries and adds an extra layer of complexity to the supply chain disruptions of recent years.

Against this inauspicious backdrop, the region faces a twofold challenge. First, it needs to make good the infrastructure and interconnectivity deficit, and second, it must deal with the impacts that in the current environment are threatening to reshape the structure of international trade in respect of routes, actors and interests for the years to come. This has already begun and threatens to get worse. There are no simple solutions. However, the region's response cannot be to stand on the sidelines and wait. Nor is it enough for each country to try to deal with its own problems, ignoring what happens to the others in a regional context. This would only diminish the role of the countries

of Latin America and the Caribbean in the world and, with it, their hopes of moving towards sustainable development. On the contrary, there is now a consensus that the answer in today's globalized world is more trade, more integration, more coordination and more collaboration.

This means there is much work to be done. Governments in the region need to actively engage in infrastructure investment, assisting this effort where possible by coordinating public and private capital to carry out new projects and improve existing infrastructure. There needs to be a move towards public-private partnerships with particular emphasis on the principles of these partnerships that are in line with the SDGs and are supported by United Nations regional commissions.

Infrastructure financing and better utilization of the capabilities available remain a work in progress, and success is unlikely to be achieved without a more vigorous approach. Isolated efforts aside, however, there are new opportunities for Latin America and the Caribbean to coordinate and cooperate at the regional and international levels. Now is a good time to assess the potential for interconnection in both areas, promoting the integration of chains in the region with a view to incorporating them into flows with the rest of the world. The region must take advantage of its geographical position and the advantages available to it in order to generate and attract available routes and investments.

The experience with the COVID-19 pandemic illustrates one of these possible avenues of cooperation. Against all initial expectations, instead of a prolonged contraction in international trade, the pandemic quickly translated into a sharp and unforeseen expansion in the demand for imports of durable goods from Asia. Some upward impact on ocean freight rates was to be expected, but the extraordinary magnitude of the increase, especially in container shipping, points to the need to analyse the behaviour of the shipping market. The recent trend towards increased concentration of shipping companies and the global debate on the supply management of large shipping companies point to the need to strengthen antitrust enforcement or even consider regulating the market which, given the mainly international nature of maritime trade, is beyond the scope of national antitrust authorities, especially in the case of small and developing countries. For this reason, there is a need for greater global coordination of national authorities, which could take place within the World Trade Organization (WTO).

At the same time, there are areas of environmental cooperation that have received a boost in the current context. There is growing evidence of the need to change current practices and to fully adopt the measures required to mitigate climate change. Every day, new weather phenomena remind us of the urgent need for these measures, while the commitments made have not been fully implemented. The issue has reached critical proportions and must therefore be given the highest priority. In this situation, it is clear that both Latin America and the Caribbean and the rest of the world must move steadily towards the use of clean energy and implement green logistics corridors that contribute to a transition which will reduce the carbon footprint. This chapter concludes, then, by highlighting technological and logistical opportunities, such as the development of alternative clean energies (e.g., green hydrogen), which could place the region at the forefront of innovation and the energy transition.

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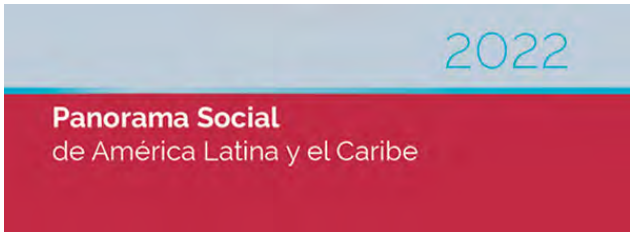

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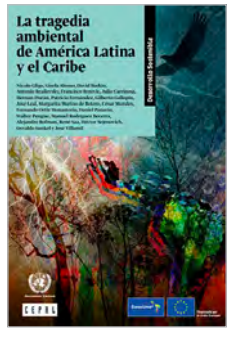

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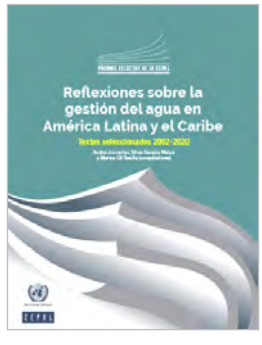

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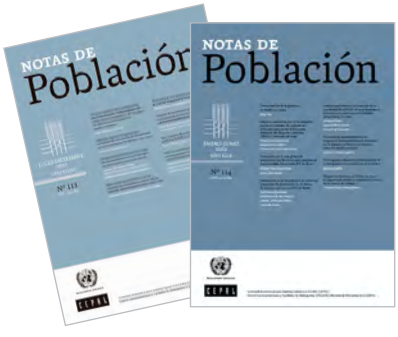

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