



Trends in transport costs in international trade: analysis of imports into the United States from Latin America and the Caribbean and other regions and countries

Background

International trade in Latin America and the Caribbean has undergone extensive structural changes since the closing decades of the twentieth century. From the 1990s onward, as a result of the entry into force of a number of different bilateral, regional and multilateral trade agreements, combined



Background	1
I. International context of trade flows and transport costs: recent trends and discussions	2
II. Key characteristics of United States import transport costs (2000–2021)	5
III. Conclusions	17
IV. Bibliography	19
V. Publications of interest	21

This *FAL Bulletin* examines the key trends in transport costs for imports into the United States from the Caribbean, Latin America and other regions and countries. To do so, this Bulletin draws on the extensive database of the United States Bureau of the Census, using data for 2000–2021 to analyse costs by mode of transport: sea, air and land.

The author of this issue, Enrique Dussel Peters, is a consultant of the Infrastructure Services Unit of the Economic Commission for Latin America and the Caribbean (ECLAC). He is a full-time lecturer of the Postgraduate Programme in Economics at the National Autonomous University of Mexico (UNAM); he is also Coordinator of the Centre for China-Mexico Studies at the UNAM School of Economics and of the Academic Network for Latin America and the Caribbean on China (Red ALC-China).

The author would like to thank Luis Humberto Saucedo Salgado, who contributed to preparing the database included in this document. He also wishes to express his gratitude to Ricardo J. Sánchez, for valuable discussions. For further information on this topic please contact: miryam.saade@cepal.org.

The United Nations and the countries it represents assume no responsibility for the content of links to external sites in this publication.

Mention of any firm names and commercial products or services does not imply endorsement by the United Nations or the countries it represents.

The opinions expressed in this document, a translation of a Spanish original which did not undergo formal editing, are those of the authors and do not necessarily reflect the views of the Organization or the countries it represents.



UNITED NATIONS

ECLAC



Working for
a productive, inclusive
and sustainable future



with widespread financial liberalization, the region saw strong growth in trade and substantial foreign direct investment (FDI) inflows. However, crises since the 2000s, such as the global financial crisis of 2008–2009, tensions between the United States and China and the coronavirus disease (COVID-19) pandemic, have affected liberalization processes, which either came to a halt or, in many cases, were even reversed. After almost a decade of discussions and policies on regional trade and the importance of geographical proximity in international trade (nearshoring and, more recently, friendshoring), new discussions have emerged on the issue of deglobalization. Nevertheless, the levels of integration in global value chains still seem high, owing to decades of global outsourcing. Such trends are crucial to understanding the current patterns in global value chains, transport costs and tariffs.

The purpose of this issue of the *Bulletin* is to analyse imports into the United States from Latin America and the Caribbean in the period 2000–2021 by mode of transport, focusing in particular on imports from the Caribbean subregion. The first section provides an overview of recent trends in world trade and examines a number of issues relating to transport of goods. The second section looks at growth in imports into the United States from Latin America and the Caribbean and China, outlining the key findings on transport and tariff costs and a set of additional variables. Notably, the analysis finds high total transport costs in the insular Caribbean relative to import value (4.27% during 2000–2021), owing to higher maritime (4.47%) and air transport prices (3.15%). These general conditions are discussed in more detail in the second section, which also studies the growing containerization of United States imports from the Caribbean, which increased from 32.69% to 58.57% as a percentage of total seaborne trade between 2009 and 2021, according to the United States Bureau of the Census (2022). The final section outlines key conclusions and offers some suggestions.

I. International context of trade flows and transport costs: recent trends and discussions

Following decades of trade liberalization and numerous bilateral, regional and multilateral free trade agreements, since the international financial crisis of 2008–2009, liberalization processes have either come to a halt or have even been reversed. As a percentage of world gross domestic product (GDP), international trade in goods rose from under 35% in the 1990s to a peak of 51.5% in 2008, subsequently declining to 42% in 2020. The downturn has been particularly marked in China (where the ratio fell from 64% to 31.6% between 2006 and 2020) and in the United States (from 23.5% to 18.3% between 2008 and 2020). World Bank data indicate that the ratio for Latin America and the Caribbean was relatively stable

from 2006 to 2020, although the countries of the Association of Caribbean States (ACS)¹ have significantly higher levels (62.3% in 2020). However, the ratio for the countries of the insular Caribbean has followed a clear downward trend since 2008, to 44.97% in 2020 (World Bank, 2021).

These trends can be understood in the context of at least three aspects. Firstly, there was growing re-orientalization of world production and trade in recent decades (Arrighi, 2007; Frank, 1998). The United States and the European Union accounted for more than 50% of world trade until the 1980s. The situation has since reversed, mainly with regard to East Asia and the Pacific, in particular China. East Asia and the Pacific, which accounted for less than 20% of world trade in goods and services until the 1990s, rose above the European Union with 31.1% in 2020. Similarly, in 2020, for the first time, China became the country accounting for the largest proportion of world trade in goods and services—above the United States, Germany and Japan—with 11.5% of all trade, more than the 11.2% achieved by the United States. In comparison, China’s share in 2000 was just 2.2% (World Bank, 2021).

Secondly, the world’s major economies—China and the United States—have been engaged in a competition of “great powers” since the 2010s, which has been abundantly apparent in the area of trade. China has not only become the world’s leading exporter but has also improved its position in global value chains in sectors such as electronics, automobiles and auto parts, e-mobility, robotization and telecommunications, emphasizing innovation and import substitution through ownership of its public sector (Dussel Peters, 2022a) and active trade and industrial policies, such as the Made in China 2025 initiative (Naughton, 2021). The United States applied substantial new tariffs on Chinese imports from 2018 onward. Most of these tariffs remain in place, drastically impacting trade between the two countries (Bown, 2021 and 2022). These systemic and trade tensions, which are affecting commercial transport,² have had multiple repercussions in Latin American and Caribbean countries, resulting in significant uncertainty.³

Thirdly, average container shipping costs between Shanghai and New York increased four- to sixfold from 2019 to 2021 (The Economist, 2021; UNCTAD, 2021), leading to severe disruption of supply chains. The Second World War was followed by several decades of subcontracting or outsourcing of production, and from the 1960s onward, globalization was characterized by widespread transfers of global value chain segments (Piore and Sabel, 1984). This led to significant growth in trade and FDI to Latin America and the Caribbean, mainly through in-bond processes in Mexico and Central America,⁴ known as maquiladoras and free zones.

Risks linked to natural disasters—such as the 2011 tsunami in Japan—and efforts to reduce economies’ dependence on trade with a single region (e.g. Asia) or country (e.g. China) have both become more significant in the context of the competition of “great powers” and especially in the wake of the COVID-19 pandemic. This is especially the case with regard to pursuing greater certainty over global value chains and proximity to consumers. Geography and transport costs have been prominent issues in recent discussions on international trade. Concepts such as nearshoring, and more recently friendshoring, are ever more central to understanding the extensive changes under way in areas such as production, FDI and trade.

¹ The member States of the Association of Caribbean States covered by this document are: Antigua and Barbuda, Bahamas, Barbados, Belize, Bolivarian Republic of Venezuela, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago.

² The United States government has been conducting detailed studies on Chinese state-owned enterprises in the maritime sector since at least the 1990s (Allen and others, 1997).

³ Accusations from the United States that China is creating debt traps in Latin America and the Caribbean and around the world, together with China’s request in September 2021 to accede to the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), have led to considerable political pressure in Latin America and the Caribbean. All the CPTPP members except Canada and Mexico already have free trade agreements with China, which means that whether China’s request is approved or rejected could affect the relationship of those two countries with the United States in the medium and long term (Dussel Peters, 2022b).

⁴ An international shipping service whereby goods are provisionally admitted at a transit point in one country for subsequent shipment to another point for onward distribution to the destination.

As Hummels (2007 and 2009) notes:

- Roughly 23% of world trade by value occurs between countries that share a land border (by truck, rail and pipeline) and the remainder is transported by sea or by air;
- Manufactured goods account for the largest portion of world trade, and the percentage of air transport has risen dramatically in value terms (although ocean shipping constitutes 99% of world trade by weight);
- Despite the marked trend towards lower transport costs in international trade since the mid-twentieth century, several aspects contribute to understanding transport costs, including energy and port costs, infrastructure saturation as a result of growth in international trade, the technological revolution with containers in maritime trade and the substantial growth in the size of ships, as well as the reduction in the costs of air transport and fast transport (Hummels and Schaur, 2010);
- Trends in the characteristics of maritime transport as a consequence of technological advances compared to air transport, the growth of open registry shipping permits ships to register under flags of convenience, the quality of infrastructure and the market power of shipping lines⁵ may be the cause of rises in energy and oil prices, as well as infrastructure inefficiencies and bottlenecks.⁶



At the beginning of the twenty-first century, the cost of transport represented 8.8% of the value of imports globally, and 8.6% in Latin America and the Caribbean (Sánchez and others, 2003). The same study also highlights that in 2000, the seven major economies—with the exception of Mexico—used seaborne and air transport for over two thirds of their international trade. The analysis is particularly relevant when comparing port efficiency with maritime costs: the elasticities of shipping costs with value per weight (0.54) and frequency of services (-0.18) are very significant. In other words, higher efficiency of maritime-port infrastructure (controlling for variables such as distance, type of product, shipping company service and insurance costs) is closely linked to lower transport costs.⁷

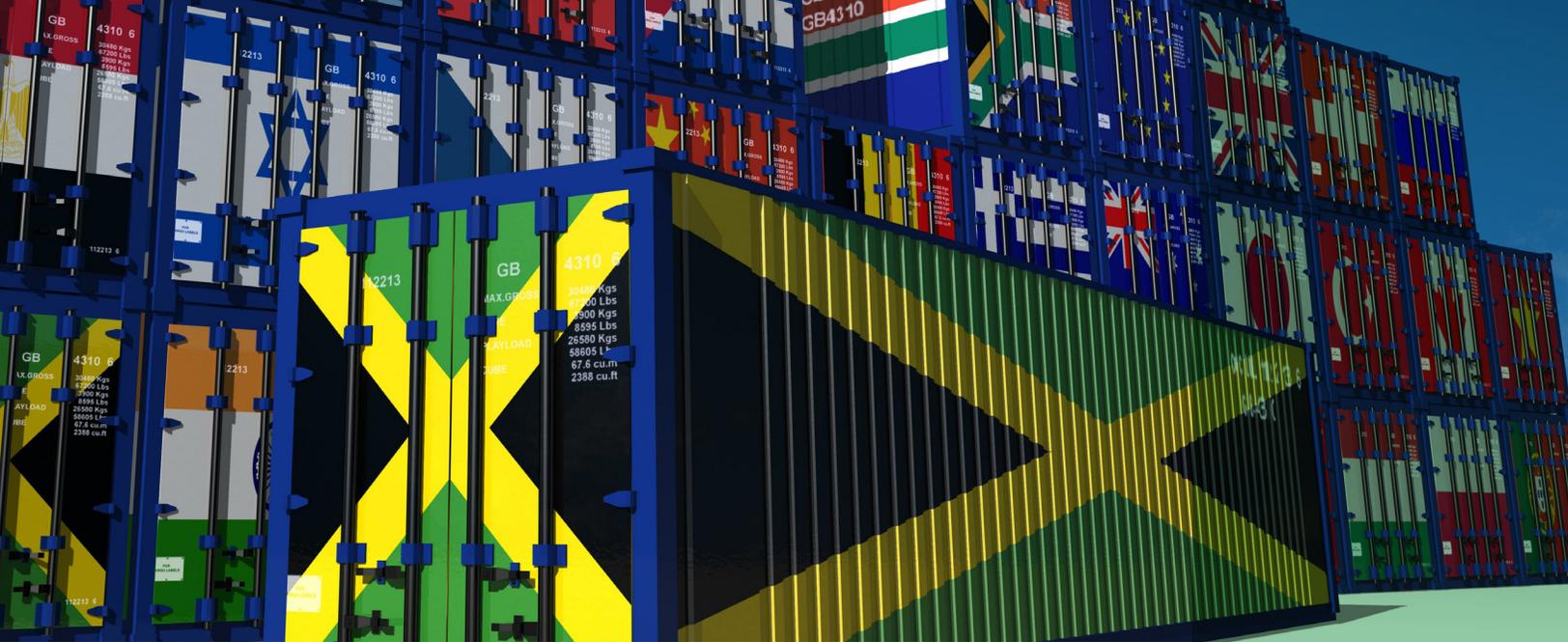
Until 2018, empirical literature analysing shipping costs in Caribbean international trade was not vast (Hoffmann, 1997; Nicholson, 2015).⁸ In general, analysis has been insufficient for the subregion, considering the links between transport costs and international trade by type of transport, global value chains, the main products of trade specialization and tariffs. To broaden the analysis, the following section contextualizes transport costs linked to imports into the United States, given the recent trends of an increased proportion of trade with Asia, competition over trade between great powers and the tendency towards offshoring and outsourcing of production.

⁵ The conceptual and empirical contributions of ECLAC and its Division of International Trade and Integration have been substantial in this field in recent decades, emphasizing the characteristics of international transport and its governance, as well as entry barriers, high levels of concentration at the company level, “incomplete contracts” and the effects on future price formation (Sánchez, 2019).

⁶ The Federal Maritime Commission (FMC, 2015) offers some conclusions on challenges in United States maritime infrastructure and intermodal systems that were neglected for budgetary and public finance reasons. The analysis already noted a “container ports congestion crisis” (FMC, 2015, p. 10), which is fundamental to understanding the current situation in terms of congestion and price increases in United States ports and the challenges of integrating innovations and new technologies: physical expansion in marine and container terminals and connections to and from terminals to offer services to very large vessels on time (in particular ocean carriers), modern cargo handling and new financial instruments; all of this calls for enormous medium-term investments and more capital-intensive processes, including own chassis—increasingly outsourced by shipping lines—and, in particular, their handling, transfer and dispatch at terminals, which lead to delays and bottlenecks.

⁷ Analysis by Clark, Dollar and Micco (2004) confirms the connection in the United States between maritime infrastructure and transport costs and trade: improving port efficiency from the twenty-fifth to the seventy-fifth percentile reduces shipping costs by 12%; the same reduction in port inefficiencies can increase bilateral trade by 25%.

⁸ These initial studies emphasized not only that the ratio of trade to GDP was higher for the Caribbean than for the rest of Latin America and the Caribbean—100% in the case of Jamaica—but also that seaborne transport was also more costly, at 5.4% for the world, 7.5% for Latin America and the Caribbean, 13.6% for Jamaica and 18.5% for Suriname (Hoffmann, 1997).



II. Key characteristics of United States import transport costs (2000–2021)

For decades, analyses by regional and national institutions in the Caribbean, such as ACS and the Caribbean Community (CARICOM), have emphasized the importance of transport infrastructure, in particular maritime infrastructure. More recently, these and other organizations, such as ECLAC (ECLAC, 2020), have underscored its importance in the context of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). Maritime transport infrastructure is particularly important in the Caribbean, because around 84% of the volume and 70% of the value of foreign trade is transported by sea. The 345 coastal port terminals in the Caribbean—containers (27), passengers (53), liquid bulk (81), solid bulk (46), liquid and solid bulk (1) and multipurpose (137)—reflect significant heterogeneity and complexity in the subregion, although this is reduced by the concentration of terminals in the countries to the north and east of the central Caribbean coast (Sánchez and Barleta, 2020).

The *Strategic Plan for the Caribbean Community 2015–2019: Repositioning CARICOM* (CARICOM, 2014) emphasizes the importance of international trade in goods and services for the subregion and defines strategies around developing the air/maritime transport infrastructure and services. The initiative addresses aspects of efficiency and costs from intraregional and extraregional perspectives in areas such as regulation, research and regional dialogue among stakeholders, implementation of new technologies and training of specialized labour. However, several strategies stalled during the health crisis caused by COVID-19.

The following analysis focuses on United States imports from the region over the 2000–2021 period and highlights some subperiods, such as 2018–2021, in order to assess the impacts of trade tensions between the United States and China. The particularities of transport costs by country and conditions in the Caribbean (ACS and insular Caribbean) are also examined. The empirical review is based on the United States Bureau of the Census database.⁹

⁹ For variables and details of the database, see [online]: <http://www.economia.unam.mx/cechimex/index.php/es/transporte-eu-es>.

A. Major aggregate trends in United States imports and their transport costs

To understand flows of United States imports, in particular over the period 2000–2021, a number of different issues must be considered together.¹⁰ First, China's share of total United States imports increased significantly during the period of analysis, from 8.22% to 17.87%, with average annual growth of 7.6%. In 2017, China's share peaked at 21.59%, subsequently trending downward in the wake of the trade disputes that broke out in 2018. In the same period, Canada's share of imports into the United States declined sharply, but Mexico's increased from 11.17% to 13.58%. Overall, the share of Latin America and the Caribbean was relatively steady (averaging 18.32% in the period from 2000 to 2021); However, if Mexico is excluded, the region's share of United States imports fell considerably. Lastly, in the case of the Caribbean, the members of the Association of Caribbean States increased their share of United States imports by 0.50 percentage points between 2000 and 2021, owing primarily to the growth in Mexican exports. The share of the insular Caribbean, however, declined from 0.59% in the period 2000–2017 to 0.44% in the period 2018–2021, with 13 countries in the insular Caribbean recording negative average variations for 2018–2021.

The five main product groups imported by the United States from ACS accounted for 21.18% of its total imports from that group. These products, at the six-digit level of the Harmonized Tariff Schedule of the United States (HTS), are: (i) automatic data processing machines and units thereof (8471.50); (ii) passenger motor vehicles of more than 1,500 cc but not exceeding 3,000 cc (8703.23); (iii) motor vehicles for the transport of goods, gross vehicle weight not exceeding 5 tons (8704.31); (iv) petroleum oils (270900); and (v) televisions (8528.72). This pattern is mainly determined by the structure of Mexico's exports to the United States. The situation of the Caribbean islands is very different: their main products exported to the United States are: (i) cigars (2402.10); (ii) instruments and apparatus for medicine, surgery or veterinary medicine (9018.90); (iii) petroleum oils (270900); (iv) automatic circuit breakers (8536.20); and (v) natural gas (2711.11). All of them together accounted for 32.24% of United States imports from the insular Caribbean.

In terms of global value chains (GVC), imports into the United States have an additional set of trends. Mexico is the largest player in the region as a supplier of auto parts and automobiles (GVC-APA), electronics (GVC-E) and fibres-textiles-garments (GVC-FTG). Firstly, GVC-APA accounted for 19.82% of United States imports over the 2010–2017 period. This figure rose to 32.10% for 2018–2021, owing to Mexico increasing its presence. In the case of the insular Caribbean, the share of GVC-AA is negligible. Secondly, the share of GVC-FTG in United States imports peaked in the 2000s, and in 2021 accounted for 3.96% and 13.77% for ACS and the insular Caribbean, respectively. The garments segment was the largest of this global value chain. Lastly, GVC-E has become increasingly important in the insular Caribbean. This is reflected by the rise in imports into the United States from the subregion, which rose from 7.10% of the total to 11.08% between 2000 and 2021. Of those imports, in 2021, telecommunications equipment and medical goods accounted for 9.17%.

B. Imports into the United States, by type of transport and key characteristics

Table 1 presents the total transport costs of imports into the United States from selected countries over the 2000–2021 period. Transport costs represented an average of 3.08% of the total value of United States imports. From the 1990s until 2002, transport costs declined steadily in value as a percentage of total imports from over 4.3% to 3.34%. Subsequently, there was a brief period of growth between 2002 and 2004, followed by a significant decline, to a low for the period of 2.80% in 2019. Growth since 2020 has been significant. In 2021, total transport costs for United States imports accounted for 3.68% of the value of imports, the highest percentage since 2005.

¹⁰ The information processed and presented here, based on information provided by the United States Bureau of the Census (2022) for 2000–2022, refers to “general imports”, either for immediate consumption or through temporary import channels.

The differences among countries are substantial. Mexico has the lowest transport cost rate for United States imports (0.95% in 2021), significantly lower than that for Canada (2.42%), while the averages for ACS (heavily influenced by Mexico), China and the insular Caribbean are 1.38%, 6.95% and 3.66%, respectively. The rate for China rose sharply from its low for the period of 4.07% in 2017 to 6.95% in 2021. The insular Caribbean also has relatively high rates. Specifically, United States imports from Anguilla, Grenada, Guadeloupe, Martinique and Montserrat had higher total transport cost rates in 2021 than those from China and Viet Nam.

Table 1

United States: total transport cost of imports from selected countries, 2000–2021

(Percentages of the total value of respective imports)

	2000	2010	2017	2018	2020	2021	2000–2021	2010–2017	2018–2021
Total	3.39	2.93	2.84	2.82	3.04	3.68	3.08	2.80	3.10
Latin America and the Caribbean	2.74	2.08	1.92	1.80	2.04	1.93	2.22	1.92	1.89
Association of Caribbean States	2.11	1.57	1.46	1.35	1.49	1.38	1.64	1.45	1.38
Insular Caribbean	4.26	4.81	3.84	3.63	4.31	3.66	4.27	4.02	3.80
China	7.55	4.94	4.07	4.37	4.99	6.95	5.07	4.35	5.21
NAFTA/USMCA	1.38	1.22	1.65	1.58	1.76	1.65	1.44	1.43	1.64
Canada	1.52	1.40	2.39	2.31	2.59	2.40	1.81	1.89	2.40
Mexico	1.13	0.99	0.94	0.90	1.07	0.95	0.99	0.92	0.95
European Union (27 countries)	3.05	2.19	2.32	2.39	2.16	2.42	2.45	2.26	2.30
Viet Nam	7.74	6.86	4.18	4.28	4.48	6.17	5.14	4.74	4.93
Greater Caribbean (37 countries)									
Anguilla	2.88	2.89	3.10	1.57	6.76	7.38	2.93	2.69	3.03
Antigua and Barbuda	7.18	2.66	2.30	3.71	4.55	1.40	2.83	2.07	2.24
Aruba	4.11	5.70	2.43	1.94	1.43	5.30	3.09	1.87	2.54
Bahamas	5.57	3.39	2.67	3.43	4.62	4.22	3.86	3.52	3.90
Barbados	2.90	3.62	3.23	3.66	4.03	4.78	3.84	3.82	4.02
Belize	5.05	8.27	1.01	1.12	4.86	4.03	5.05	4.67	2.69
Bermuda	0.94	2.77	3.12	3.25	1.12	3.39	1.37	1.16	2.48
British Virgin Islands	2.00	0.97	4.68	1.59	1.38	4.23	2.69	2.21	2.17
Cayman Islands	2.52	2.92	1.28	1.92	2.29	0.90	1.95	1.60	1.45
Colombia	5.55	3.64	4.24	3.82	4.95	4.40	4.24	3.24	4.26
Costa Rica	6.11	2.72	5.80	5.46	4.93	4.68	4.24	3.08	5.04
Cuba	0.87	0.11		0.93	0.08	0.39	0.55	0.46	0.34
Curaçao			1.96	2.03	3.85	6.01	1.29	1.16	2.88
Dominica	4.82	6.95	4.07	3.69	3.39	3.08	6.38	5.16	3.20
Dominican Republic	2.34	2.72	2.62	2.62	3.11	3.13	2.65	2.63	2.90
El Salvador	2.89	3.08	2.87	2.85	3.55	4.36	3.18	3.08	3.44
French Guiana	1.08	1.05	2.64	2.19	0.70	1.29	1.13	1.66	1.04
Grenada	2.36	8.03	13.57	14.15	10.61	10.84	8.39	9.74	12.74
Guadeloupe	11.64	7.34	4.52	4.57	8.42	11.87	5.35	2.24	8.47
Guatemala	6.16	7.05	9.53	8.51	8.54	8.76	7.48	7.43	8.47
Guyana	17.23	2.95	2.61	3.23	4.37	2.13	4.46	2.42	2.88
Haiti	3.45	2.55	2.19	2.23	2.95	3.36	2.55	2.27	2.76
Honduras	3.65	4.35	5.21	5.05	5.55	4.44	4.71	4.81	4.97

	2000	2010	2017	2018	2020	2021	2000–2021	2010–2017	2018–2021
Jamaica	5.20	11.23	3.74	3.78	3.27	3.16	7.06	8.37	3.50
Martinique	37.44	3.67	5.93	3.30	4.99	16.80	3.69	2.84	5.02
Montserrat	3.40	3.44	1.73	11.69	3.26	13.04	4.64	1.93	10.35
Nicaragua	3.84	4.40	2.69	2.85	2.64	3.10	3.13	2.97	2.86
Panama	6.85	5.68	3.57	4.01	2.53	3.61	4.89	4.41	3.36
Saint Kitts and Nevis	3.66	4.66	3.51	3.68	1.96	2.49	3.66	3.53	2.75
Saint Lucia	4.07	5.79	2.61	2.15	2.50	3.24	5.08	5.27	2.54
Sint Maarten			0.39	0.30	0.53	0.60	0.48	0.58	0.36
Saint Vincent and the Grenadines	1.16	9.09	7.33	5.62	5.13	5.96	3.18	7.13	5.57
Suriname	3.55	8.89	7.59	6.68	1.95	7.12	6.93	9.14	4.64
Turks and Caicos Islands	3.53	4.64	3.53	2.75	3.80	4.73	3.13	3.60	3.45
Trinidad and Tobago	7.91	6.04	6.42	5.62	7.62	4.52	6.07	5.56	5.71
Venezuela (Bolivarian Republic of)	5.11	1.85	3.29	2.61	7.03	8.20	3.01	2.12	2.97

Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.

Note: NAFTA, North American Free Trade Agreement; USMCA, Agreement between the United States of America, the United Mexican States and Canada.

The differences among transport costs of imports into the United States are closely linked to the mode of transport used (sea, air or land), always measured in value. The United States primarily uses maritime transport for its imports; however, the share of this mode of transport has followed a marked downward trend in recent years. In the early 1990s, maritime transport accounted for more than 50% of the country's imports. After 1995, the share fell below 50%, to 44.20% in 2021, the lowest level for the 1990–2021 period. For imports from Latin America and the Caribbean, use of maritime transport is significantly lower than for imports overall and trending downward. This is largely down to Mexico, with seaborne exports to the United States accounting for just 12.84% of the total in the 2000–2021 period. In contrast, imports into the United States from the insular Caribbean are largely seaborne and the share of such transport was relatively steady for the 2000–2021 period (89.30% of the total), followed by China (67.43%), the European Union (47.90%) and Viet Nam (74.89%). Even measured in value terms, seven island Caribbean economies (Aruba, Bahamas, Curaçao, Dominican Republic, Guyana, Haiti and Jamaica) had shares of maritime transport of over 70% for imports of their goods into the United States in 2021.

The cost of maritime transport (as a percentage of respective imports) is therefore critical for United States imports, especially in the cases of Asian island countries and the insular Caribbean (see table 2). While costs for total imports decreased significantly from 5.7% in 2004 to 3.9% in 2018, they have risen sharply since, reaching 5.59% in 2021. In that respect, China and Viet Nam had the highest rates in 2021, at 8.61% and 7.25%, respectively. The rates for ACS and the insular Caribbean in 2021 were 3.44% and 3.86%, respectively, higher than those for imports from members of the United States-Mexico-Canada Agreement (USMCA). Four island Caribbean economies (Anguilla, Cuba, Guadeloupe and Montserrat) even recorded higher rates than China over the 2018–2021 period.

Growing containerization of shipping is also critical to understanding the cost of United States imports. While total containerized transport has remained relatively stable (in value terms) as a percentage of total United States imports (30.43% in 2009 and 33.02% in 2021), the average proportion of maritime imports that are containerized has risen significantly, from 59.62% in 2009 to 74.70% in 2021. In other words, nearly three quarters of all United States seaborne imports are now containerized (see figure 1). However, there are considerable differences by country and product specialization. For example, in 2021, 97.73% and 96.91% of United States imports from Viet Nam and China, respectively,

were transported in containers, with much lower proportions for imports from other locations. For example, just 11.68% of imports by value from USMCA countries were transported in containers. The rate of containerization of United States imports from the insular Caribbean (58.57%) was also below the rate for the total, although rates were over 75% for 12 economies in the subregion (Anguilla, Antigua and Barbuda, Barbados, Cayman Islands, Cuba, Dominica, Dominican Republic, Haiti, Saint Kitts and Nevis, Saint Lucia, Sint Maarten and Turks and Caicos Islands). Trinidad and Tobago is a key exception, with just 6.79% containerized in 2021.

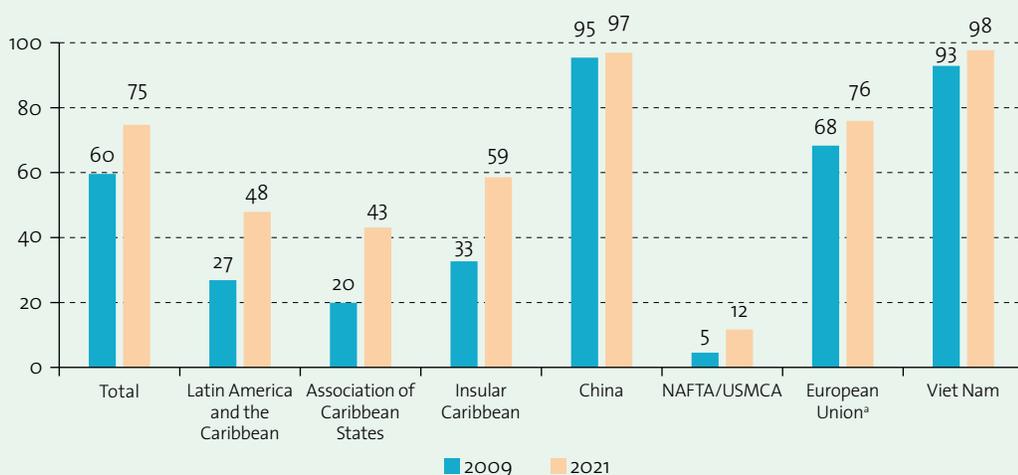
Table 2
United States imports: maritime transport cost rates, 2000–2021
(Percentages of the total value of respective imports)

	2000	2017	2018	2021	1990–1994	1995–1999	2000–2004	2005–2009	2010–2014	2015–2019	2000–2021	2010–2017	2018–2021
Total	5.26	4.00	3.90	5.59	5.04	4.83	5.33	4.64	3.70	4.04	4.38	3.85	4.53
Latin America and the Caribbean	5.39	4.30	3.84	4.24	7.43	6.43	5.76	4.29	3.11	4.32	4.17	3.53	4.21
Association of Caribbean States	4.57	3.75	3.15	3.44	6.48	5.75	4.68	3.39	2.50	3.69	3.39	2.89	3.43
Insular Caribbean	4.47	4.01	3.77	3.86	5.35	4.79	5.11	4.58	4.30	4.04	4.47	4.27	3.97
China	7.60	4.93	5.02	8.61	6.30	5.82	7.34	6.34	5.14	5.03	5.84	5.08	6.18
NAFTA/USMCA	3.76	2.59	2.22	2.36	4.36	5.47	3.65	2.31	1.67	2.50	2.35	1.94	2.41
Canada	4.92	2.71	2.50	2.35	3.87	7.48	5.00	2.95	1.97	2.77	2.80	2.25	2.58
Mexico	3.30	2.52	2.08	2.37	5.22	4.50	3.08	2.00	1.51	2.35	2.11	1.76	2.32
European Union (27 countries)	4.28	3.20	3.47	3.63	4.68	4.35	4.11	3.58	2.91	3.20	3.38	2.98	3.44
Viet Nam	6.85	4.48	4.45	7.25	7.95	6.50	6.76	6.72	5.13	4.58	5.44	4.85	5.60

Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.

Note: NAFTA, North American Free Trade Agreement; USMCA, Agreement between the United States of America, the United Mexican States and Canada.

Figure 1
Containerized United States imports, 2009 and 2021
(Percentages of the total value of respective seaborne imports)



Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.

Note: NAFTA, North American Free Trade Agreement; USMCA, Agreement between the United States of America, the United Mexican States and Canada.

^a Twenty-seven countries.

The following section looks at United States imports from various angles and compares maritime transport with air and land transport.

1. Proportion of air transport costs with respect to total United States imports

The dollar cost of air transport measured with respect to the total value of United States imports rose from 25.36% in 2000 to 28.46% in 2021. During the period of analysis, while the countries of Latin America and the Caribbean and of ACS had air transport rates for imports into the United States of under 10%, the equivalent rate for China rose from 13.24% in 2000 to 31.63% in 2021. There has also been an increase in the proportion of imports transported by air from the European Union, from an already high rate of 41.9% in 2000 to 48.02% in 2021. However, in the case of eight island Caribbean economies (Antigua and Barbuda, Bermuda, Cayman Islands, Cuba, Grenada, Guadeloupe, Montserrat and Saint Vincent and the Grenadines) the increase in air transport was smaller, accounting for 12.27% of total United States air imports in 2021.

Table 3

United States airborne imports, 2000–2021
(Percentages of the total value of respective imports)

	2000	2010	2017	2018	2020	2021	2000–2021	2010–2017	2018–2021
Total	25.36	23.01	25.91	26.17	30.30	28.46	24.16	23.68	27.94
Latin America and the Caribbean	7.06	7.48	6.11	5.57	5.47	5.33	5.96	6.81	5.34
Association of Caribbean States	5.52	7.02	3.87	3.38	3.97	3.96	4.50	5.37	3.66
Insular Caribbean	10.43	7.37	10.26	9.36	11.24	12.27	8.39	9.01	11.05
China	13.24	27.10	30.42	29.22	32.70	31.63	27.05	28.84	30.58
NAFTA/USMCA	4.94	4.00	3.07	2.95	3.41	2.69	3.18	3.19	3.05
Canada	5.40	3.39	3.78	3.84	5.11	3.55	3.65	3.46	4.23
Mexico	4.17	4.72	2.40	2.12	2.00	1.89	2.63	2.89	2.00
European Union (27 countries)	41.90	44.17	43.16	45.64	49.19	48.02	43.29	42.05	47.68
Viet Nam	3.98	8.48	24.43	22.36	26.55	29.74	22.07	19.15	27.49

Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.

Note: NAFTA, North American Free Trade Agreement; USMCA, Agreement between the United States of America, the United Mexican States and Canada.

2. Trends in transport costs for United States imports

The cost of air transport of total United States imports gradually declined between 2000 and 2020. However, it rose in 2021 (see table 4) to a level similar to the years prior to 2010. Although Latin America and the Caribbean is geographically close to the United States, the cost of air transport to the country from the region is high, and increased from 4.3% in 2000 to 5.13% in 2021. Air transport costs for imports from ACS and the insular Caribbean were 3.72% and 3.25% in the 2018–2021 period, respectively; these costs are higher than for imports from Canada, Mexico and the European Union, but below average for Latin America and the Caribbean. Recorded costs from ACS countries were also higher than those from China. Several countries in the insular Caribbean, most notably Grenada and Trinidad and Tobago, recorded air transport costs of over 10% in the 2018–2021 period.

Table 4

United States: air transport cost of imports, 2000–2021
(Percentages of the total value of respective imports)

	2000	2010	2017	2018	2020	2021	2000–2021	2010–2017	2018–2021
Total	2.66	2.50	2.11	2.17	2.08	2.57	2.36	2.20	2.23
Latin America and the Caribbean	4.30	3.02	3.81	4.03	4.74	5.13	4.15	3.18	4.56
Association of Caribbean States	3.22	1.92	3.41	3.76	3.50	3.83	2.95	2.19	3.72

	2000	2010	2017	2018	2020	2021	2000–2021	2010–2017	2018–2021
Insular Caribbean	3.12	3.43	3.66	3.27	4.14	2.81	3.15	2.78	3.25
China	8.17	4.02	2.57	3.20	3.49	3.96	3.51	2.99	3.47
NAFTA/USMCA	1.25	1.44	1.83	1.59	1.21	1.48	1.58	1.67	1.41
Canada	0.97	1.73	1.80	1.44	0.97	1.14	1.49	1.84	1.15
Mexico	1.85	1.19	1.88	1.84	1.72	2.07	1.75	1.45	1.89
European Union (27 countries)	2.06	1.63	1.63	1.54	1.32	1.57	1.66	1.64	1.46
Viet Nam	31.03	14.79	3.00	3.34	2.64	3.68	3.86	3.92	3.01

Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.

Note: NAFTA, North American Free Trade Agreement; USMCA, Agreement between the United States of America, the United Mexican States and Canada.

3. Relative shares of maritime transport and air transport, by weight, for United States imports from selected countries and regions

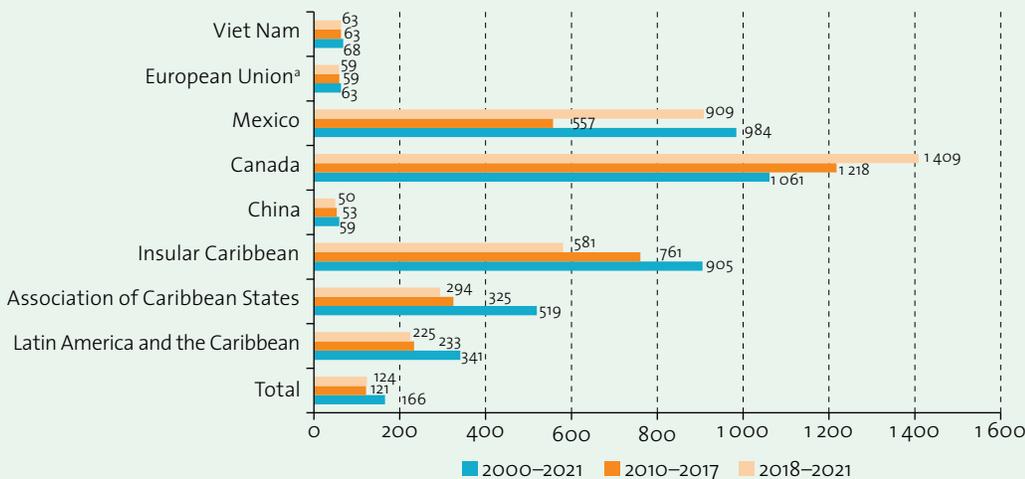
A third key exercise is comparing proportions of air and maritime transport by weight, in order to contrast them without taking value into account. The ratio of the share of maritime transport to the share of air transport for United States imports by country of origin for 2000–2021 was 165.68, meaning that maritime transport accounted for almost 166 times the amount for air transport (see figure 2). China and the European Union have the lowest ratios (49.63 and 58.52 for the 2018–2021 period, respectively), while Canada, Mexico and the insular Caribbean have the highest. For the latter group, United States seaborne imports were 581 times the weight of air imports, and for several insular Caribbean economies (Bahamas, Curaçao, Jamaica, Martinique and Trinidad and Tobago) they were more than 1,000 times.

Interestingly, although on average the ratio of weights of seaborne imports to airborne imports was almost unchanged between the periods 2010–2017 and 2018–2021, the same is not true at the country level. Mexico and Canada recorded significant increases in the ratio of the share of maritime transport to air transport between the two periods, while the insular Caribbean recorded a decline.

Figure 2

United States: ratio of weights of seaborne imports and airborne imports, 2000–2021

(Weight of airborne imports=1)



Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.

^a Twenty-seven countries.

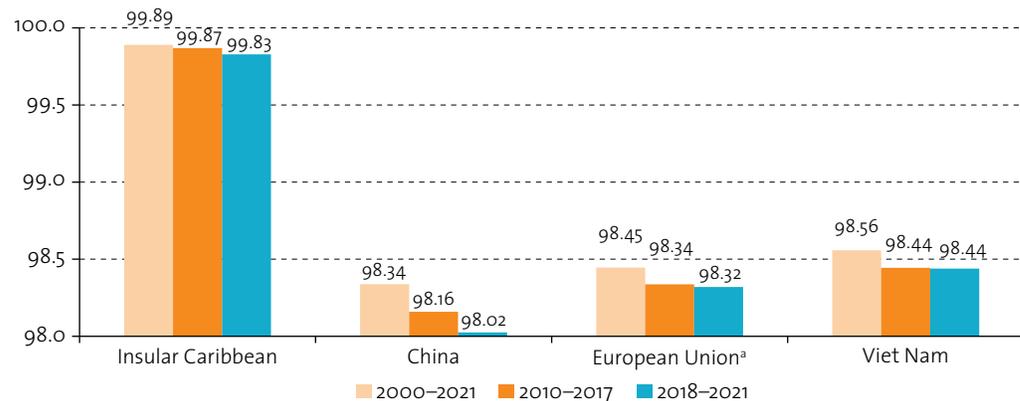
4. Share of seaborne imports in total imports into the United States for the 2000–2021 period, from selected countries and regions

The weight of seaborne imports accounted for over 98% of the total weight of all United States imports in the 2000–2021 period but followed a slight downward trend (see figure 3). Between 2018 and 2021, 98.02% of imports into the United States from China were seaborne, the lowest percentage in the sample of countries of origin that includes the insular Caribbean, the European Union and Viet Nam. Imports from the insular Caribbean had the largest share of maritime transport, at 99.83%. In the database used, it was found that only Grenada had a share of seaborne imports from the United States significantly below average for the region over the same period (17.20%).

Figure 3

United States: weight of maritime imports, 2000–2021

(Percentages)



Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.

Note: The database does not include the weight of imports transported over land and the results do not include total dollar imports, except for Canada and Mexico.

^a Twenty-seven countries.

5. Value-to-weight ratio of seaborne imports from selected countries

A comparison of value-to-weight ratios for air transport and maritime transport, in relation to United States imports, also reveals substantial differences among countries over the 2000–2021 period. These differences are to some degree expected in light of the preceding findings, including the growing share of air transport in dollar terms but its minimal share in weight terms. On average, the ratio for all United States imports in the period of analysis was 82.60, similar to the ratio for ACS. Table 5 shows two extreme cases:

- (i) China and Viet Nam, where the value-to-weight ratios for air transport were 23.73 and 20.66 times, respectively, those for maritime transport;
- (ii) USMCA/NAFTA members (Canada and Mexico), which have a coefficient of 367, with most United States imports from the region transported by land (for more details, see the section on land transport).

The insular Caribbean (85.07 times for the period) is very similar to the total for United States imports, and several countries have very low coefficients (9.62 for the Dominican Republic and 4.43 for Haiti), while others have extremely high levels, such as Martinique (2,247) and the Bahamas (2,363). These differences are related to the specific basket of United States imports by country and require additional analysis.

Table 5

United States imports: multiples of value-to-weight ratios, by air and sea, 2000–2021

(By sea=1)

	2000	2010	2017	2018	2020	2021	2000–2021	2010–2017	2018–2021
Total	126.76	88.32	81.62	75.96	87.37	70.16	82.60	58.44	77.60
Latin America and the Caribbean	90.70	78.65	65.97	51.75	49.91	36.78	56.07	44.64	45.53
Association of Caribbean States	127.62	135.09	79.98	59.64	69.53	50.21	81.29	61.76	58.54
Insular Caribbean	78.94	79.89	63.88	62.50	75.23	81.61	85.07	77.86	74.17
China	14.36	19.23	25.98	25.55	23.71	24.13	23.73	23.62	24.21
NAFTA/USMCA	590.49	409.48	486.40	402.09	625.52	382.98	367.41	285.81	459.25
Canada	1 026.67	579.61	1 079.47	974.17	1 785.64	1 044.97	710.60	674.01	1 191.19
Mexico	352.29	322.00	242.75	187.18	242.31	162.12	201.19	131.24	193.34
European Union (27 countries)	57.51	45.24	50.77	53.48	75.80	62.32	57.26	50.55	62.95
Viet Nam	9.60	5.71	17.77	17.84	26.16	27.15	20.13	15.60	25.01

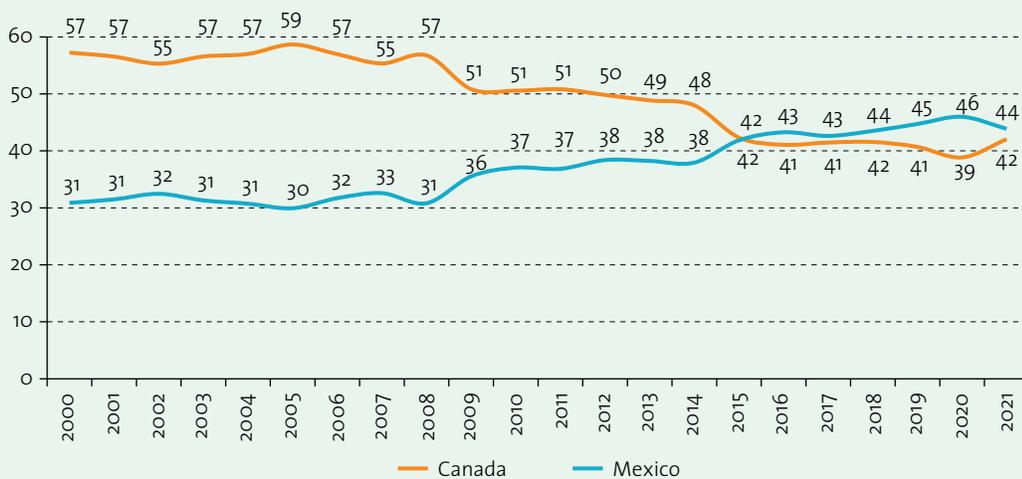
Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.**Note:** NAFTA, North American Free Trade Agreement; USMCA, Agreement between the United States of America, the United Mexican States and Canada.

6. Imports over land into the United States

Land transport, which only affects members of USMCA, has accounted for a significant share, in dollar terms, of total United States imports, but its share followed a downward trend, falling from 30.19% in 2000 to 27.34% in 2021. For both Canada and Mexico, around 90% of exports to the United States are transported by land. The analysis found the share of imports from Mexico to be increasing, making it the main source of United States imports transported by land (see figure 4).

Figure 4

United States imports over land from Canada and Mexico, 2000–2021

(Percentages of the total value of imports over land)**Source:** Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.

7. Comparative analysis: United States imports, by type of transport

Examining United States imports by type of transport, value and weight, and cost of transport enables a comparative analysis, with at least two key findings. Firstly, looking at the proportion, in dollar terms, of United States imports transported by sea in 2000 and 2021 and on average for the intervening period (44.45%, 44.20% and 48.47% respectively), it can be said that there were no major changes. However, the percentage in 2010, in the wake of the 2008–2009 global financial crisis, was higher (51.15%) (see table 6). From that year onward, the proportion of seaborne imports followed a downward trend, taking it back to the levels recorded in 2000. An analysis of United States imports by type of transport reveals at least two groups of countries:

- (i) Canada and Mexico. Around 90% of imports into the United States from these two countries are transported by land. The shares of land transport for Latin America and the Caribbean and for ACS are greatly influenced by Mexico's weighty presence in United States imports;
- (ii) China and Viet Nam. Of imports into the United States from these two countries, a respective 67.43% and 74.89% are transported by sea. However, the insular Caribbean is the subregion that is most dependent on maritime transport when exporting to the United States, with a share of 89.30% for the period, and in the case of Trinidad and Tobago, a share of 99.34%.

A second finding from the comparative analysis by type of transport is that transport costs are much lower for countries from which the United States imports by land. As previously explained, the total transport cost for imports declined over the 2000–2018 period, but in the wake of the United States-China trade dispute, it rose sharply, to 3.68% of imports in 2021, if considering all modes of transport (see table 1). The results in table 7 show that the rates for United States imports are highest for maritime transport (4.38% for 2000–2021), followed by air transport and, lastly, land transport (2.36% and 1.41%, respectively). In this regard, the differences by region and country, as well as the discussed large differences in value-to-weight ratios between airborne and seaborne United States imports, show Canada and Mexico benefiting considerably from substantially lower freight cost rates, owing to their proximity to the United States. Land transport costs for Mexico and Canada have thus been reduced, with respective rates of 0.79% and 1.77% for 2000–2021 (see table 7).

Imports from other countries, such as Viet Nam and China, with substantially higher maritime and container costs, show higher rates. For example, for the 2000–2021 period, maritime and containerized cost rates for imports from China were 5.84% and 5.44%, respectively. Lastly, table 7 also shows that the insular Caribbean has a high maritime cost rate (4.47% average for the period), but that rate is lower than the 2.99% rate for containerized transport and the air transport rate of 3.15%. Maritime transport cost rates for United States imports from countries such as Dominica, Jamaica, Montserrat and Trinidad and Tobago were substantially higher than the overall rate (including other countries and regions) for the same period.

Table 6

United States imports, by type of transport, 2000–2021

(Percentages of total dollar value of imports)

	2000			2010			2021			2000–2021		
	Maritime	Air	Land	Maritime	Air	Land	Maritime	Air	Land	Maritime	Air	Land
Total	44.45	25.36	30.19	51.15	23.01	25.84	44.20	28.46	27.34	48.47	24.16	27.54
Latin America and the Caribbean	37.37	7.06	54.23	41.50	7.48	50.28	26.68	5.33	67.21	36.27	5.96	56.73
Association of Caribbean States	31.71	5.52	62.35	34.29	7.02	58.25	18.03	3.96	77.64	28.77	4.50	66.30
Insular Caribbean	87.71	10.43		89.03	7.37		85.76	12.27		89.30	8.39	
China	84.34	13.24		68.70	27.10		62.65	31.63		67.43	27.05	
NAFTA/USMCA	6.40	4.94		11.51	4.00		7.60	2.69		8.83	3.18	
Canada	2.86	5.40	91.74	7.48	3.39	89.12	5.26	3.55	91.19	5.45	3.65	90.78
Mexico	12.37	4.17	83.46	16.38	4.72	78.90	9.79	1.89	88.33	12.84	2.63	88.62
European Union (27 countries)	46.15	41.90		46.46	44.17		44.06	48.02		47.90	43.29	
Viet Nam	94.72	3.98		89.17	8.48		67.34	29.74		74.89	22.07	

Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.**Note:** NAFTA, North American Free Trade Agreement; USMCA, Agreement between the United States of America, the United Mexican States and Canada.**Table 7**

United States: cost of transporting imports, 2000–2021

(Percentages of the total value of imports)

	2000				2021				2000–2021				
	Total	Maritime	Air	Land	Total	Maritime	Air	Land	Total	Maritime	Air	Land	
		Total	Containerized			Total	Containerized			Total	Containerized		
Total	3.39	5.26	2.66	1.26	3.68	5.59	6.39	2.57	1.73	3.08	4.38	4.54	
Latin America and the Caribbean	2.74	5.39	4.30	0.78	1.93	4.24	5.78	5.13	0.77	2.22	4.17	5.11	4.15 0.79
Association of Caribbean States	2.11	4.57	3.22	0.78	1.38	3.44	4.92	3.83	0.77	1.64	3.39	4.64	2.95 0.79
Insular Caribbean	4.26	4.47	3.12		3.66	3.86	3.54	2.81		4.27	4.47	2.99	3.15
China	7.55	7.60	8.17		6.95	8.61	8.70	3.96		5.07	5.84	5.44	3.51
NAFTA/USMCA	1.38	3.76	1.25	1.26	1.65	2.36	4.91	1.48	1.73	1.44	2.35	5.25	1.58 0.00
Canada	1.52	4.92	0.97	1.45	2.40	2.35	8.30	1.14	2.45	1.81	2.80	6.65	1.49 1.77
Mexico	1.13	3.30	1.85	0.78	0.95	2.37	4.48	2.07	0.77	0.99	2.11	4.94	1.75 0.79
European Union (27 countries)	3.05	4.28	2.06		2.42	3.63	3.84	1.57		2.45	3.38	3.30	1.66
Viet Nam	7.74	6.85	31.03		6.17	7.25	7.21	3.68		5.14	5.44	5.24	3.86

Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.**Note:** NAFTA, North American Free Trade Agreement; USMCA, Agreement between the United States of America, the United Mexican States and Canada.

8. Customs tariffs

Tariffs also play a key role in United States imports, owing in particular to trade tensions between the United States and China since 2018. The tariff cost rate for United States imports declined substantially, from over 3% of imports in the 1990s to 1.30% in 2011, subsequently rising once more to 1.41% in 2017 and 2.98% in 2021. Thus, in 2021, the United States tariff cost rate had returned to the levels recorded for the 1993–1995 period.

Table 8 shows the trends for imports into the United States, enabling an analysis by region and selected countries. Tariffs remained relatively stable, rising marginally for imports from Latin America and the Caribbean (0.23% and 0.30% in 2017 and 2021, respectively), ACS members (0.16% and 0.24% in 2016 and 2021, respectively) and Mexico (0.11% and 0.20% in 2017 and 2021, respectively). This contrasts with the sharp rise in the tariff cost for imports from China (from 2.67% to 11.23% in 2017 and 2021, respectively). All the economies in the insular Caribbean—with the exception of Anguilla, the British Virgin Islands and Dominica—recorded tariff costs of under 1% of the total value of imports in 2021.

Table 8

United States: cost of tariffs on imports from selected origins, 2000–2021

(Percentages of the total value of respective imports)

	2000	2010	2017	2018	2020	2021	2000– 2021	2010– 2017	2018– 2021
Total	1.62	1.36	1.41	1.83	2.78	2.98	1.68	1.39	2.58
Latin America and the Caribbean	0.86	0.20	0.23	0.32	0.27	0.30	0.32	0.22	0.29
Association of Caribbean States	0.73	0.14	0.16	0.26	0.20	0.24	0.23	0.15	0.24
Insular Caribbean	2.49	0.15	0.60	0.33	0.29	0.24	0.41	0.26	0.34
China	3.79	3.28	2.67	4.06	9.91	11.23	4.42	3.00	8.45
NAFTA/USMCA	0.11	0.06	0.09	0.30	0.14	0.15	0.11	0.08	0.20
Canada	0.04	0.04	0.07	0.38	0.10	0.09	0.08	0.05	0.20
Mexico	0.23	0.09	0.11	0.23	0.17	0.20	0.14	0.10	0.20
European Union (27 countries)	1.75	1.21	1.30	1.45	1.37	1.39	1.37	1.29	1.40
Viet Nam	8.63	8.95	7.15	7.91	5.11	4.77	6.90	7.76	5.78

Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.

Note: NAFTA, North American Free Trade Agreement; USMCA, Agreement between the United States of America, the United Mexican States and Canada.

The analysis and data represent a detailed contribution to recent discussions on reshoring, nearshoring and friendshoring (Huld and Zhou, 2022; Dussel Peters, 2021). In this regard, Latin America and the Caribbean, ACS, the insular Caribbean and Mexico have strong incentives to export to the United States, since their transport and tariff costs to do so are lower than those faced by Asian countries, in particular China. As shown in figure 5, the sum of the transport and tariff rates for all United States imports was 4.25% in 2017 and had risen to 6.6% by 2021. In the specific case of China, the sum of the two rates was 18.18% in 2021, 2.7 times its value in 2017. The overall percentages in 2021 for the other regions and countries were much lower, at 2.20%, 1.62%, 3.90% and 1.15% for Latin America and the Caribbean, ACS, the insular Caribbean and Mexico, respectively.

Figure 5
 United States transport costs and tariffs, 2017 and 2021
 (Percentages of the total value of respective imports)



Source: Prepared by the author, on the basis of data from United States Bureau of the Census, 2022.

III. Conclusions

This analysis was conducted in response to the structural changes seen in global trade over the first few decades of the twenty-first century, characterized by stalled progress on trade liberalization from 2009 onward and a sharp drop in the ratios of trade to economic growth (measured through GDP) for the world’s two largest economies, China and the United States. The new trends —given the trade tensions between the two economies, the rise of the Asia-Pacific region and China as the main sources of trade, the supply chain disruption since the outbreak of the COVID-19 pandemic in March 2020 and the war between the Russian Federation and Ukraine— call for a new approach, to understand recent global trade flows and the challenges in the short, medium and long term. As discussed, in the last few years of the period of analysis, the Caribbean subregion is one of the notable exceptions; not only did the ratio of international trade to GDP not decline in the subregion as it did in the other countries analysed, it has also continued to rise.

The issue of transport costs and their characteristics —mainly related to international trade— have received surprisingly little attention, with a few exceptions. Authors such as Hummels (2007) and Sánchez (2019) view international trade transport not as an effect per se of trade, but as an explanatory variable, with significant interaction between the two. A detailed understanding of transport —including its industrial organization, market structure, costs, technological development and innovation, and differences between countries and in value chains and specific products— is essential for identifying current flows and future trends in international trade.

In short, this Bulletin aims to contribute to conceptual and empirical efforts from that perspective, given the growing global interest and need for research and proposals on international trade. In this respect, the example of the Caribbean subregion is clearly significant, given its considerable dependence on maritime transport, accompanied by relatively high tariffs, reflecting the limitations of its transport infrastructure. As mentioned in the first section of this analysis, a group of recent initiatives proposed by ACS and CARICOM reflect international and subregional recognition of the issue.

The key contribution of this analysis —in addition to a comprehensive review of imports into the United States from Latin America and the Caribbean, ACS and the insular Caribbean—

is that it describes the trends in costs of the different modes of transport used, by country and region of origin. The relatively high share of total transport costs for United States imports from the insular Caribbean (4.27% for 2000–2021, see table 1) is a result of relatively high rates for maritime (4.47%, see table 2) and air transport (3.15%, see table 4). These rates —already concerning for the region when compared to those for United States imports from Asian countries and the European Union— are substantially higher for several of the 24 economies of the insular Caribbean, affecting their key products and specific value chains.

Transport costs of United States imports are discussed in more detail in the second section of this Bulletin. This analysis also considers the increasing rate of containerization of seaborne imports into the United States from the Caribbean, which —as mentioned above— rose from 32.69% in 2009 to 58.57% in 2021, as a percentage of total seaborne trade according to the United States Bureau of the Census (2022), with significant policy implications.

Maritime transport conditions are critical for the insular Caribbean: in the 2000–2021 period, 89.30% of United States imports from the subregion used this mode of transport (see table 6). Because of relatively high transport costs for imports into the United States from the Caribbean, and substantially higher tariffs than for Mexico, the subregion can only gain a partial advantage over third countries, such as China and Viet Nam. In this sense, the insular Caribbean seems to be in the worst scenario: a high proportion of imports into the United States from the subregion are seaborne, and the associated transport costs are relatively high.

Drawing upon the extensive database of the United States Bureau of the Census, this Bulletin adds to and updates analysis of conditions and trends in maritime, air and land transport of United States imports between 2000 and 2021. Canada and Mexico have benefited not only from virtually tariff-free access to the United States market but also from significantly lower costs for land transport than for other modes of transport, owing to their proximity to and shared borders with the United States.

At least two other contributions of this analysis are also important, in light of the literature review in the first section. Measured in dollars, the analysis found that the share of air transport in total United States imports rose, from under 20% in 2008 to 28.46% in 2021 (see table 6). In the same period, the share of maritime transport declined from 54.87% to 44.20%. In addition, by weight, seaborne imports were found to account for over 98% of all imports into the United States from China, the European Union, the insular Caribbean and Viet Nam.¹¹ These seemingly contradictory trends by mode of transport are a reflection of a significantly higher value of airborne imports into the United States when compared to seaborne imports.

Furthermore, rising transport costs and their relationship with tariffs are both critical for international trade flows: while the total transport cost rate for United States imports for 2000–2021 averaged 3.08%, it recently rose sharply to 3.68% in 2021 (see table 1). Tariff rates averaged 1.68% for 2000–2021 and 2.98% in 2021 (see table 8). In other words, for the entire period analysed and even more recently, the transport rate was substantially higher than the tariff rate, calculated with respect to total imports.

Although the sum of the two types of costs (transport and tariffs) creates high incentives for countries, it also provides a solid justification for improving and deepening analysis and knowledge of modes of transport in international trade and their characteristics. In that regard, this Bulletin is also an invitation to expand analysis of United States imports by mode of transport using the data by country, region, speciality products and global value chains offered by the United States Bureau of the Census.

¹¹ The database has some limitations for Canada, Mexico and total United States imports transported by land.

IV. Bibliography

- Allen, J. and others (1997), *Economic analysis of China ocean shipping Co. 1994-1997*, Washington, D.C., Bureau of Economics and Agreement Analysis (BEAA).
- Arrighi, G. (2007), *Adam Smith in Beijing: Lineages of the Twenty-first Century*, London, Verso.
- Bown, C. P. (2022), “US-China phase one tracker: China’s purchases of US goods”, Peterson Institute for International Economics (PIIE), 19 July [online] <https://www.piie.com/research/piie-charts/us-china-phase-one-tracker-chinas-purchases-us-goods>.
- ____ (2021), “The US-China trade war and phase one agreement”, *Working Papers*, No. 21-2, Peterson Institute for International Economics (PIIE).
- CARICOM (Caribbean Community) (2014), *Strategic Plan for the Caribbean Community 2015-2019: Repositioning CARICOM*, Georgetown.
- CECHIMEX (Centro de Estudios China-México) (2021), “Estadísticas”, diciembre [online] <http://www.economia.unam.mx/cechimex/index.php/es/estadisticas>.
- Clark, X., D. Dollar and A. Micco (2004), “Port efficiency, maritime transport costs and bilateral trade”, *NBER Working Paper Series*, No. 10353, National Bureau of Economic Research.
- Dussel Peters, E. (2022a), “Capitalismo con características chinas. Conceptos y desarrollo en la tercera década del siglo XXI”, *El Trimestre Económico*, vol. 89, No. 354, April–June.
- ____ (2022b), *¿Está México preparado para un tratado de libre comercio con China? El caso de la cadena global de valor del calzado*, Cámara de la Industria del Calzado del Estado de Guanajuato (CICEG).
- ____ (2021), *Oportunidades comerciales para México en el contexto de las tensiones entre Estados Unidos y China a partir de 2017*, TenarisTamsa.
- ____ (2008), “Los costos de transporte en las exportaciones mexicanas”, *INT Working Papers*, No. 13, Banco Interamericano de Desarrollo (BID).
- ____ (2000), *Polarizing Mexico: The Impact of Liberalization Strategy*, Boulder, Lynne Rienner Publishers.
- ECLAC (Economic Commission for Latin America and the Caribbean) (2020), “Advancing the decade of action for sustainable development in the Caribbean”, *Focus*, No. 2, Santiago, April–June.
- FMC (Federal Maritime Commission) (2015), *U.S. Container Port Congestion & Related International Supply Chain Issues: Causes, Consequences & Challenges*, Washington, D.C.
- Frank, A. G. (1998), *ReOrient: Global Economy in the Asian Age*, Berkeley, University of California Press.
- Hoffmann, J. (1997), “Maritime transport in the Caribbean: the potential of improving maritime transport in the Caribbean, and the potential impact of such improvements on Caribbean trade and integration”, Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
- Huld, A. and Q. Zhou (2022), “Reshoring from China to Mexico – How prevalent is it really?”, *China Briefing*, 27 May.
- Hummels, D. (2010), “Transportation costs and adjustment to trade”, unpublished.
- ____ (2009), “Globalisation and freight transport costs in maritime shipping and aviation”, *Forum Paper*, No. 2009-3, International Transport Forum 2009, Paris, Organisation for Economic Co-operation and Development (OECD).
- ____ (2007), “Transportation costs and international trade in the second era of globalization”, *Journal of Economic Perspectives*, vol. 21, No. 3.
- Hummels, D. L. y G. Schaur (2010), “Hedging price volatility using fast transport”, *Journal of International Economics*, vol. 82, No. 1, September.
- Naughton, B. (2021), *The Rise of China’s Industrial Policy, 1978 to 2020*, Boulder, Lynne Rienner Publishers.
- Nicholson, G. (2015), “Transport, logistics and competitiveness in the Caribbean”, *Caribbean Journal*, 4 September.
- Piore, M. J. y C. F. Sabel (1984), *The Second Industrial Divide: Possibilities for Prosperity*, New York, Basic Books.

- Sánchez, R. J. (2020), “The impact of 'incomplete contracts' on long-term infrastructure concessions”, *FAL Bulletin*, vol. 378, No. 2, Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
- ____ (2019), “La formación de precios en el transporte marítimo de contenedores de exportación y el rol de las expectativas”, doctoral thesis, Pontifical Catholic University of Argentina.
- Sánchez, R. J. and E. Barleta (2020), “Latin America and the Caribbean: The port terminal industry and activity indicators for 2019”, *FAL Bulletin*, vol. 380, No. 4, Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
- Sánchez, R. J. and others (2003), “Port efficiency and international trade: port efficiency as a determinant of maritime transport costs”, *Maritime Economics & Logistics*, vol. 5.
- The Economist (2021), “A perfect storm for container shipping”, 16 September [online] <https://www.economist.com/finance-and-economics/a-perfect-storm-for-container-shipping/21804500>.
- UNCTAD (United Nations Conference on Trade and Development) (2021), *Review of Maritime Transport 2021*, Geneva.
- United States Bureau of the Census (2022), “Merchandise Trade 2022” [online database].
- World Bank (2021), “World Development Indicators” [online database] <https://datatopics.worldbank.org/world-development-indicators/>.

V. Publications of interest



FAL Bulletin N° 391

2021 Port Report: early signs of a recovery in international container shipping in Latin America and the Caribbean

Eliana Barleta
Ricardo Sánchez

In 2020 the entire world was overwhelmed by the coronavirus disease (COVID-19) pandemic, which changed the daily lives of people around the globe and had a devastating impact on humankind. The pandemic and its effects in different sectors have been the object of intensive analysis. This edition of the *FAL Bulletin* will focus on the question as to whether or not the international container shipping industry in Latin America and the Caribbean is on the path to recovery. It will also look at the upward trend in container freight rates and its implications as one of the emerging issues associated with the pandemic and its aftermath.

Available in:



FAL Bulletin N° 381

Digital Transformation in Latin America and Caribbean logistics

Luis Valdés
Gabriel Pérez

This *FAL Bulletin* continues the Reflections on Disruptive Technologies in Transport that ECLAC has been publishing through this medium. The present edition analyses the importance of the digital transformation of logistics, especially in the current circumstances where the need for fluid, safe and resilient logistics calls for additional actions on traceability and process facilitation.

Available in: