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CHINA'S TRADE SPECIALIZATION PATTERN WITH LATIN AMERICAN AND AFRICAN ECONOMIES: REVISITING THE CORE-PERIPHERY DICHOTOMY[1]

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China's economic rise has led to the rethinking of international relations not only between developed and developing economies, but also within developing economies. This paper compares the trade pattern established between China and Latin American and African economies in the 21st century. Results show that the importance assumed by China through asymmetrical trade relations with other developing peers renews core-periphery development concerns central to the structuralist theory. It is highlighted that there are important differences observed among countries, but overall relations should move toward greater economic and technological upgrading, as both Latin American and African economies face difficulties to industrialize or, in some cases, the risk of deindustrialization.

Keywords: China; Latin America; Africa; trade; structuralism.

O PADRÃO DE ESPECIALIZAÇÃO COMERCIAL DA CHINA COM AS ECONOMIAS DA AMÉRICA LATINA E ÁFRICA: REVISITANDO A DICOTOMIA CENTRO-PERIFERIA

A ascensão econômica chinesa tem levado a uma reflexão das relações internacionais não apenas entre economias desenvolvidas e em desenvolvimento, mas também entre as próprias economias em desenvolvimento. Este artigo compara os padrões comerciais estabelecidos entre a China e as economias da América Latina e da África no século XXI. Os resultados apontam que a importância assumida pela China por meio de relações comerciais assimétricas com outros países em desenvolvimento renova as preocupações de desenvolvimento entre centro e periferia essenciais à teoria estruturalista. Enfatiza-se que há diferenças importantes observadas entre os países, porém as relações gerais deveriam se mover em direção à promoção de uma maior modernização econômica e tecnológica, uma vez que tanto as economias latino-americanas como africanas enfrentam dificuldades em se industrializar ou, em alguns casos, até mesmo o risco de desindustrialização.

Palavras-chave: China; América Latina; África; comércio; estruturalismo.

PATRÓN DE ESPECIALIZACIÓN COMERCIAL ENTRE CHINA Y LAS ECONOMÍAS DE AMÉRICA LATINA Y ÁFRICA: REVISITANDO LA DICOTOMÍA CENTRO-PERIFERIA

El auge económico de China ha llevado a repensar las relaciones internacionales no solo entre las economías desarrolladas y en desarrollo, sino también dentro de las economías en desarrollo. Esta investigación compara el patrón de comercio establecido entre China y las economías de América Latina y África en el siglo XXI. Los resultados muestran que la importancia asumida

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por China a través de relaciones comerciales asimétricas con otros pares en desarrollo renueva las preocupaciones de desarrollo centro-periferia centrales para la teoría estructuralista. Se ha enfatizado que hay importantes diferencias entre los países, pero las relaciones generales deberían moverse a una modernización económica y tecnológica más intensa, una vez que las economías latinoamericanas y africanas enfrentan dificultades para industrializarse o, en algunos casos, el riesgo de desindustrialización.

Palabras clave: China; América Latina; África; comercio; estructuralismo.

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1 INTRODUCTION

China's global economic rise has been leading to the rethinking of international relations between developed and developing economies. Known as the new workshop of the world, China has been rearranging global trade, production and investments, not to mention geopolitical issues. China accounted for roughly a quarter of world manufacturing output in 2016 and 12.8% of world total merchandise exports and 10.8% of world total merchandise imports in 2018, ranking first and second, respectively, in terms of international trade flows.[3]

The emergence of China as a world economic superpower has also important effects on other developing, low- and middle-income economies. Trade relations are only one among multiple facets that China has been strengthening with other developing peers around the globe. Initiatives include, for instance, the "Belt and Road Program" and increasing investments of Chinese firms in other countries, extending its influence over the global dynamics (Ramo, 2004; Halper, 2010; Leão, Pinto and Acioly, 2011).

This paper advances specifically on trade discussion made in economic literature between China and both Latin American and African economies. Works in general tend to focus on the Chinese influence on one region or a specific country but miss an overall picture to which a comparative analysis may lead. Cepal (2010), OCDE (2015) and Pérez *et al*. (2016), for instance, discuss the trade pattern of China with Latin America. Rotberg (2008) and Ribeiro (2013), in turn, discuss the Chinese trade pattern – and other dimensions – with Africa. Paus (2009), in particular, points out key challenges that the rise of China has posed to Latin American development in the early 2000s (2000-2006), urging for their diversification toward higher value-added activities.

3. See Levinson (2018) for manufacturing output data and World Trade Organization statistics for trade data, available at: <https://www.wto.org/english/res_e/statis_e/trade_profiles_list_e.htm>. United States ranked first in terms of world merchandise imports (13.2%) and second in terms of world merchandise exports (8.5%) for the same period.

The approach adopted in this research points to a comparative analysis of the Chinese trade pattern with both regions, thus contributing to elucidating similarities and differences on the constraints that these regions face in terms of development arising from their trade relationships established with China over a considerably longer period (2000-2016). These relationships are understood in light of the structuralist theoretical framework that, although originally thought to comprehend Latin American underdevelopment within a core-periphery world, remains valuable to shed light on the current relations between China and other peripheral economies as well as possible improvements in such relations after decades of increasing proximity.

The aim of this paper is, therefore, to discuss and compare the trade specialization pattern that has been established and reinforced between China and developing countries from Latin America and Africa since the 2000s, as China has become the main trade partner for many countries in both regions during this period of analysis. The hypothesis is that their asymmetrical trade patterns reproduce among peripheral economies the original core-periphery relationship, which is central to understanding the catching-up challenges from a structuralist development perspective. Differences between regions and subregions are also highlighted.

The study consists in literature review and data analysis in terms of both merchandise exports and imports classified as primary commodities and manufactured goods. Manufactured goods are also classified according to the degree of skills and technology. International trade data accounting for these relations, particularly from United Nations Conference on Trade and Development (UNCTAD) database, are applied for this purpose. Appendix presents the methodological notes on trade data, including every country covered in each region and subregion.

The paper is divided into four sections. The first section revisits the core-periphery dichotomy proposed by the structuralist development theory. The second section highlights changes in the production and trade specialization patterns within the new international division of labor arising from the worldwide influential presence of China. The third section details the trade structure between China and Latin American countries, while the fourth section does the same for African countries, in order to shed light on this new arrangement within the periphery. Concluding remarks follow.

2 THE CORE-PERIPHERY DICHOTOMY FROM THE STRUCTURALIST PERSPECTIVE

Economic development has been subject of many theories. One of them, namely the Latin American structuralism, frames it in such particular way that

both domestic and external dimensions are considered as parts of the same process in the understanding of the condition of development. In other words, development is not only a result of domestic factors but also conditioned by external forces (Myrdal, 1957; Sanchez-Ancochea, 2007; Blankenburg, Palma and Tregenna, 2008).

By flourishing in the works of the Economic Commission for Latin America and the Caribbean (Eclac), the Latin American structuralist perspective addresses ways to overcome underdevelopment in light of the historical experiences of Latin American economies. According to this framework, the world economy is taken as a unit where countries differ from each other and can be grouped, despite their heterogeneity, into core and periphery. This dynamics between central and peripheral economies is key to understanding the possibilities and limitations for the catching-up process.

As other economic theories, the Latin American structuralist tradition widely recognizes the process of industrialization as essential to facing the bottlenecks and rigidities that may prevent low- and middle-income countries from achieving higher income levels. It, therefore, contrasts with neoliberal views based on the free market approach and the Ricardian productive specialization according to a country's comparative advantages.

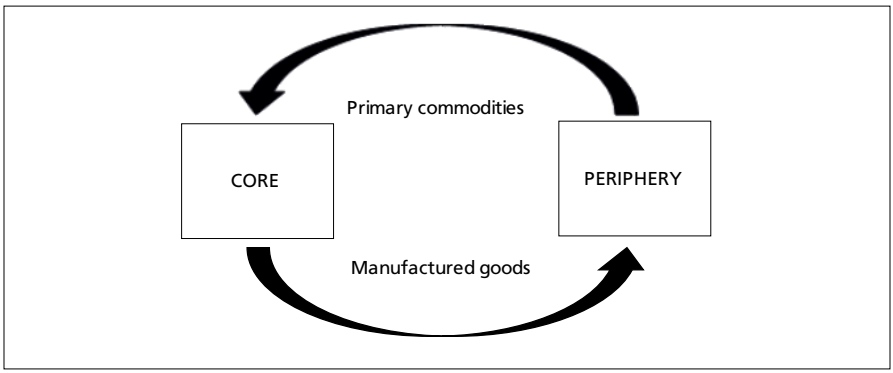
The core-periphery dichotomy expresses the international division of labor in the early twentieth century. On the one hand, the core was composed of higher-income, industrialized, and financially developed countries. On the other, the periphery was related to lower-income, mainly agricultural-based exporter, and external dependent economies. From a production and trade perspective, countries at the core were responsible for the production of manufactured goods, exporting those products to the periphery and importing from the periphery raw materials and other sorts of primary commodities, such as food, fuels and minerals (figure 1). Countries at the periphery, in turn, would not have an autonomous domestic force of demand for development, once dependent especially upon the international commodity and financial cycles given by the dynamics at core economies.

Based on the core-periphery division of the world that emerges one of the main ideas of the Latin American structuralist tradition. The Prebisch-Singer hypothesis[4] supports that a key structural economic characteristic of underdeveloped economies lies in the deterioration in their terms of trade over time due to different income elasticities of demand for exports and imports. Underdeveloped or peripheral economies tend to produce and export goods with low-income elasticity of

4. See Toye and Toye (2003; 2006) for more on the Prebisch-Singer hypothesis and, for more on Prebisch's broad perspective on development, see Prebisch (1963; 1971; 2008).

demand, such as primary commodities. In addition, the same economies import high-tech industrialized goods, which are provided with high-income elasticity of demand. The opposite relationship holds true for developed or central economies. That means a world system where cheap raw materials and commodity goods flow from the periphery to the center and more sophisticated industrialized goods flow from the center to the periphery, reinforcing productivity and technological differentials between these groups of economies (Prebisch, 1950; Singer, 1950; 1975).

FIGURE 1
International division of labor in the early 20th century



Source: Dicken (2011).
Elaborated by the author.

As a result of this dichotomy regarding the productive specialization and export-import dynamics between central and peripheral economies, a structural challenge arises for peripheral primary goods exporter economies, which is the tendency of their terms of trade to decline over time. Given that the income elasticity of demand for manufactured goods is greater than the one for primary goods, the demand for manufactured goods increases more rapidly than the demand for primary goods as income raises, as stated in the well-known Engel's law. Consequently, there is a tendency of the terms of trade in economies concentrated in the production and export of primary goods to deteriorate, especially in comparison to central industrialized economies. Peripheral economies would have to export more to achieve the same value of industrial exports over time.

Income catching-up with the core would require from the periphery structural changes toward a diversified industry, in order to form a domestic production and consumption base, thus enabling endogenous forces for development and avoiding external constraints on growth. It is not by chance

that the previous argument gave support for import substitution industrialization (ISI) programs during the 1950s and 1960s in peripheral economies, such as Latin American and even in African economies after independence, advocating for replacing imports of manufacturing goods with domestic production through state coordination. Industrialization should progressively internalize the production of consumer goods, consumer durables, intermediate inputs and capital goods. The own process of industrialization from light to heavy industries would require, in each phase, imports of intermediate and capital goods necessary to maintain the ongoing industrialization until the completeness of a diversified and interdependent domestic productive structure.

According to ISI programs, in each phase of industrialization, part of imported goods would be replaced with their domestic production spreading over the economy their demand effects as well as technological and productivity gains. In other words, domestic productive structure should continuously move toward the incorporation of higher value-added goods and consolidate domestic productive chains to assure a supply composition able to respond with national production to final and intermediate demand (Prebisch, 1959; Tavares, 1972; Bielschowsky, 1988; FitzGerald, 1998).

The main barriers to a full industrialization process would be financial and technological constraints that should be faced in order to overcome the increasing income gap between core and peripheral economies. For this reason, the Latin American structuralist tradition recognized that the large structural changes that peripheral economies would have to face in their productive structure and trade pattern would not happen spontaneously. Leaving development to spontaneous market forces would tend to accentuate over time the international arrangement where most industrialized economies account for the technological progress and the production and export of higher value-added goods while peripheral economies concentrate in primary commodities or lower value-added manufacturing goods (Furtado, 1961).

Consequently, state interventionism would be required to promote the structural change to avoid the tendency to enlarge the income gap between central (developed) and peripheral (underdeveloped) economies. This structural change would mean not only the transition from an agrarian-exporter to a modern manufacturing economy, which implies higher technological and productivity levels as well as more favorable terms of trade, but also the consolidation of a diversified productive structure with an increasing share of national content in domestic production.

3 THE NEW INTERNATIONAL DIVISION OF LABOR AFTER CHINA'S RISE

Active state intervention in many peripheral economies, particularly in East Asia, but also in Latin America, allowed them to achieve different degrees of industrialization during the post-war period (Amsden, 1989; Chang, 2002; 2003; Rodrik, 1994; 2007; Wade, 1990). However, some of these economies, especially non-Asian peripheral countries, have started reverting this process after the widespread globalization movement and their integration into value chains in an increasingly financialized world since the 1980s (Abeles, Caldentey and Valdecantos, 2018; Di Maio, 2009; Palma, 2003; 2009).

At the same time, a new economic superpower has been building its competitive advantages. China has been gaining new markets quickly, in addition to its large domestic production and consumption market (Medeiros, 2006; Naughton, 2007). Chinese exports of manufactured goods to the world, which were already high in the early 2000s, have intensified over recent years, moving from 88.2% of total Chinese exports in 2000 to 93.8% in 2016. According to data from UNCTADstat,[5] Chinese exports to developing countries surpassed the value of exports to developed economies in 2011, accentuating South-South commercial trends (Leão, Pinto and Acioly, 2011). Most of China's exports to developing economies go to Asian countries but this share has been declining while exports to African and Latin American economies have been relatively increasing (table 1).

Chinese imports, in turn, have been showing a very different pattern. Although most imports are also of manufactured goods, it is noticeable the rising import share of primary commodities, accounting for almost 40% of total imports from 2011 to 2014. China mostly imports from other developing economies and, in parallel with the movement of increasing imports of primary commodities, a change is observed regarding developing importers. China's imports from African and Latin American economies have been rising faster than imports from other Asian countries, causing the import share from Asia to decline (table 2).

TABLE 1
China's exports to developing economies (2000-2016)
(In %)

	2000	2004	2008	2012	2016
Developing economies (US$ billion)	101.5	248.5	642.8	1,047.4	1,093.1
Africa	4.9	5.4	7.9	8.1	8.4
Latin America	7.0	7.3	11.1	12.8	10.4
Asia	88.0	87.2	80.8	78.7	80.7
Oceania	0.1	0.1	0.2	0.3	0.5

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

5. Available at: <http://unctadstat.unctad.org/EN/>.

TABLE 2
China's imports from developing economies (2000-2016)
(In %)

	2000	2004	2008	2012	2016
Developing economies (US$ billion)	110.2	308.3	667.1	1,034.1	766.7
Africa	4.8	4.9	8.2	8.2	7.4
Latin America	4.9	7.0	10.7	12.1	13.4
Asia	90.2	87.9	81.0	79.6	78.9
Oceania	0.2	0.1	0.1	0.1	0.3

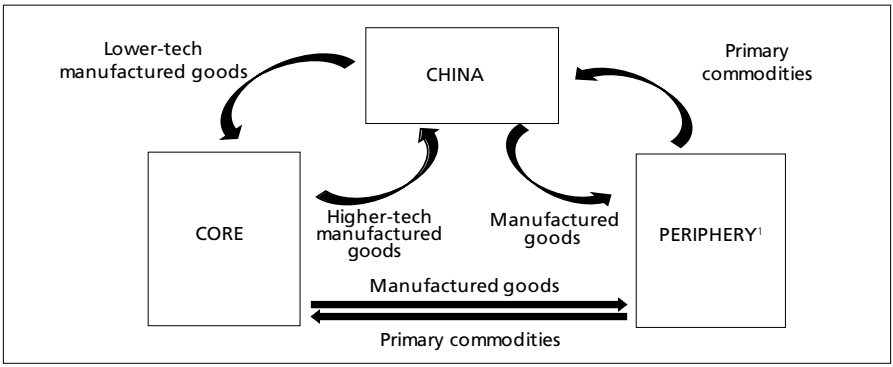
Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

After its noticeable rise in the world economy, marking the booming 2000s, China has been reshaping the old core-periphery dichotomy. It is not the purpose of this paper to discuss which role exactly China is playing in the world economic order but it seems particularly important to consider the relationship it has been establishing with countries at the periphery.

One should remark that financial and technological constraints are still present even for currently industrialized economies, including China. In the Chinese case, these constraints are lowering, as the country is clearly showing ability to deal with them in order to accelerate its catching-up process with developed and high-income countries. Control over finance, capital internationalization and large programs to invest in new technologies are examples of that (Naughton, 2007; Cintra, Silva Filho and Pinto, 2015; Cintra and Pinto, 2017; Hiratuka, 2018). In such perspective and strictly from an income *per capita* point of view, it would not be convenient to consider China at the core yet, even though its characteristics fairly mean it is also not part of the periphery in the old structuralist terms. Its position as a middle-income country but highly influential in the world's current economic order sets the country in a transitory position between the periphery and the core from the perspective of a structuralist framework.

What seems interesting to note is the fact that China has been establishing with other peripheral economies of similar or lower income level production and trade patterns that, to a great extent and from an economic point of view, do not differ from the ones that core economies had established with the periphery in the past. China is climbing up the value-adding ladder and reproducing a pattern based on exports of manufactured goods and imports of primary commodities with many peripheral economies, although not all, as China maintains a regional development structure in Asia that is highly dependent on trade of different manufactured goods and inputs among countries of that region.

FIGURE 2
International division of labor in the early 21st century



Elaborated by the author.
Note: [1] Periphery does not consider Asian industrialized peripheral economies, such as Newly Industrialized Economies, which have robust manufacturing trade relations with China.
Obs.: This figure does not account for financial relations between countries, although they could also be established in such way that Chinese capital flows could be drawn toward the core through portfolio investments and the periphery through foreign direct investments (brownfield and/or greenfield investments). Capital flows from the core to China and the periphery would also be important.

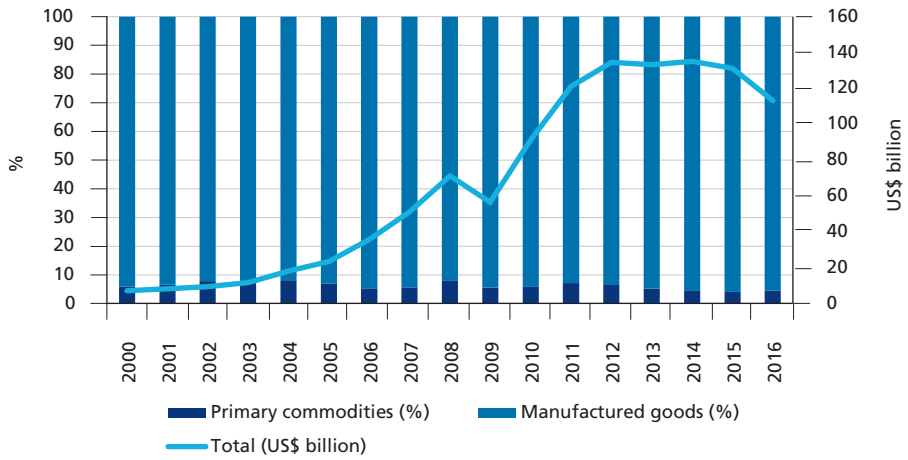
A new international division of labor, which is permanently changing, arises in the 21st century from China's increasing influence at the global level (figure 2). Whether, on the one hand, worldwide supply of Chinese manufacturing products has pressured these prices down, on the other Chinese demand for primary commodities has pressured these prices up. To a large extent, this movement has benefited commodity exporting economies, which at least until the 2008 global financial crisis have suffered from a lower deterioration in their terms of trade, thus altering partially the old structuralist concern. At the same time, however, structural difficulties in further industrializing have remained, pointing that a progressive structural change does not occur spontaneously but depend on active and combined macroeconomic and industrial policy strategies. By industrialization, one should also consider not only the production of tangible manufactured goods, but also knowledge-based, intangible assets on which most developed countries have been focusing their production. These considerations reinforce the need to detail the trade pattern that China has been establishing with these non-Asian peripheral economies, in order to evaluate the persistence or not of structural constraints on their long-term development that could be addressed by further agreements between these economies.

4 CHINA'S TRADE PATTERN WITH LATIN AMERICA

Following the great trade expansion of China with the world over the 2000s, there has been an upsurge in China's exports to and imports from Latin America,

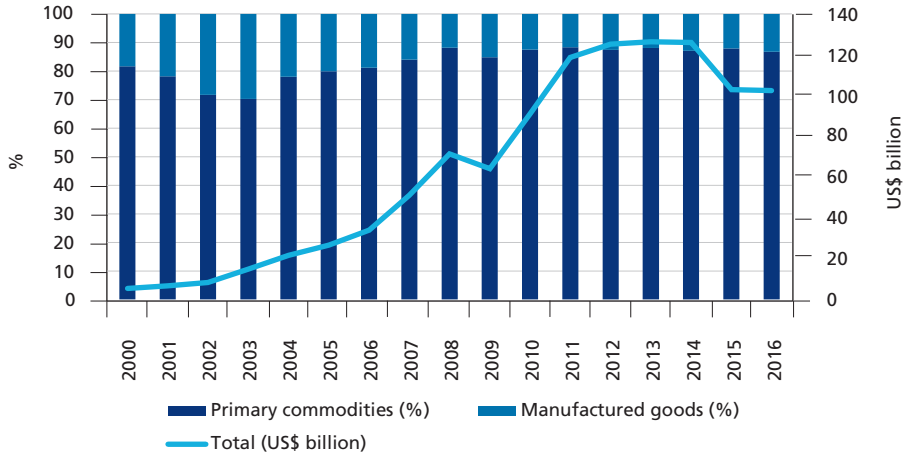
at least until 2012, when commodity prices were still high. However, export and import patterns are notably different. While Chinese exports to the region are concentrated in manufactured goods, imports are mostly of primary commodities (figures 3 and 4).

FIGURE 3
China's exports to Latin America (2000-2016)



Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

FIGURE 4
China's imports from Latin America (2000-2016)



Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

These asymmetrical trends have been reinforcing over the 2000s. Manufacturing exports, which were already high, surpassed 95% of total Chinese exports to Latin America by 2014 (figure 3). Chinese import concentration in primary commodities has been intensifying since 2003, moving from 70% in that year to over 88% in 2011 and 2013 (figure 4). These movements are in line with the increasing international competitiveness of all sorts of Chinese manufactured goods, on the one hand, and the deindustrialization and export primarization processes of some Latin American economies as well as the evolution of commodity prices in international markets, on the other (Cunha, Bichara and Lelis, 2013; Cunha, Lelis and Fligenspan, 2013; De Negri and Alvarenga, 2011; Oreiro and Feijó, 2010; Osorio, 2012; Salama, 2017; Trindade and Oliveira, 2017).

Regarding manufacturing trade between China and Latin America, tables 3 and 4 show that China's manufactures exports are much larger – and increasing much faster – than its imports. It is also interesting to note the change in the quality of manufactures exports. There is an increasing concentration in medium- and high-tech manufactured goods to the detriment especially of labor- and resource-intensive manufactures (table 3). This result means that China is not only exporting cheap and labor-intensive manufactured goods to Latin America, but also increasingly diversifying its manufacturing exports toward higher value-added and more capital-intensive goods.

TABLE 3
China's manufactures exports to Latin America (2000-2016)
(In %)

	2000	2004	2008	2012	2016
Manufactured goods (US$ billion)	6.7	16.5	65.6	125.8	108.1
Labor- and resource-intensive	40.8	35.1	22.1	24.2	21.8
Low-tech	11.1	11.9	16.1	16.0	13.2
Medium-tech	24.3	21.7	27.1	29.4	30.6
High-tech	23.8	31.3	34.7	30.4	34.3

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

Chinese manufactures imports, although concentrated in high-tech goods, have been oscillating significantly. They are much lower than exports in terms of value but still represent an important industrial base in Latin America (table 4). In other words, China is an increasingly importer of primary commodities from the region, but in what concerns manufacturing goods medium- and high-tech goods remain quite relevant. Nevertheless, in spite of representing trade possibilities to be strengthened with China, it seems a far-distant objective given current trade agreements and policies adopted in Latin America.

TABLE 4
China's manufactures imports from Latin America (2000-2016)
(In %)

	2000	2004	2008	2012	2016
Manufactured goods (US$ billion)	1.0	4.8	8.5	15.8	13.6
Labor- and resource-intensive	16.9	12.6	10.8	7.6	9.5
Low-tech	12.6	26.2	15.2	11.2	16.9
Medium-tech	14.1	17.4	15.9	17.2	26.4
High-tech	56.4	43.8	58.1	64.0	47.2

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

Differences regarding this asymmetrical trade pattern can be stressed among Latin American subregions. South America accounts for most of China's exports to the region, followed by Central America (including Mexico) and the Caribbean. Brazil and Mexico are the largest Chinese trade partners in the region. Together, their shares reach almost half of total Chinese export flows to the region for most years (table 5). China's imports from Latin America are even more concentrated in South America, accounting for nearly 90% of Chinese import flows. As Brazil represents roughly half of this share, it denotes the importance of China-Brazil trade relationship, in particular Brazilian exports of primary commodities to China, which are mainly concentrated in soybeans, iron ores and oil. China also imports from Central America and the Caribbean, although in a much smaller scale. In the case of Central America, most imports come from Mexico (table 6).

TABLE 5
China's exports to Latin America by region (2000-2016)
(In %)

	2000	2004	2008	2012	2016
Latin America (US$ billion)	7.1	18.0	71.2	134.5	113.2
Caribbean	7.3	6.4	5.7	4.1	5.0
Central America	42.1	45.2	34.1	35.0	39.1
South America	50.6	48.4	60.2	60.9	56.0
Argentina	8.6	4.7	7.1	5.9	6.4
Brazil	17.2	20.4	26.4	24.8	19.4
Mexico	18.7	27.6	19.5	20.5	28.6

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

TABLE 6
China's imports from Latin America by region (2000-2016)
(In %)

	2000	2004	2008	2012	2016
Latin America (US$ billion)	5.4	21.7	71.4	125.1	102.4
Caribbean	2.1	2.3	1.6	1.0	0.7
Central America	9.4	13.2	8.5	11.9	11.0
South America	88.5	84.5	90.0	87.0	88.4
Argentina	17.2	15.0	13.1	5.2	5.0
Brazil	30.0	40.0	41.8	41.8	44.8
Mexico	9.0	9.9	5.2	7.3	10.1

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

As already pointed out, China's exports to Latin America are predominantly of manufactured goods. This share is even higher for South America, in particular in the case of Argentina (table 7). The same holds true for China's imports from Latin America, once considering that imports are concentrated in primary commodities. Only Central America that does not follow the same pattern due to China's trade relations with Mexico, whose dynamics is largely attached to the United States economy. Given that Mexico is part of the North American Free Trade Agreement (Nafta), the country is also an entry door into the world's largest consumer market. Most Chinese imports from that region are still of manufactured goods, although the share of primary commodities has enlarged, except for 2016 (table 8).

TABLE 7
China's exports to Latin America by region and product group (2000-2016)
(In %)

		2000	2004	2008	2012	2016
Latin America	Primary commodities	5.9	8.2	7.9	6.5	4.4
	Manufactured goods	94.1	91.8	92.1	93.5	95.6
Caribbean	Primary commodities	16.4	6.8	7.0	7.9	6.3
	Manufactured goods	83.6	93.2	93.0	92.1	93.7
Central America	Primary commodities	5.4	7.8	12.4	12.7	5.6
	Manufactured goods	94.6	92.2	87.6	87.3	94.4
South America	Primary commodities	4.7	8.7	5.4	2.8	3.5
	Manufactured goods	95.3	91.3	94.6	97.2	96.5
Argentina	Primary commodities	1.6	4.1	2.0	2.5	1.5
	Manufactured goods	98.4	95.9	98.0	97.5	98.5
Brazil	Primary commodities	7.7	16.4	8.8	3.6	4.8
	Manufactured goods	92.3	83.6	91.2	96.4	95.2
Mexico	Primary commodities	7.1	6.7	4.6	7.8	4.0
	Manufactured goods	92.9	93.3	95.4	92.2	96.0

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.
Obs.: It is worth mentioning that the share evolution might be influenced to some degree by price changes over time.

TABLE 8
China's imports from Latin America by region and product group (2000-2016)
(In %)

		2000	2004	2008	2012	2016
Latin America	Primary commodities	81.7	78.0	88.1	87.4	86.7
	Manufactured goods	18.3	22.0	11.9	12.6	13.3
Caribbean	Primary commodities	96.5	96.4	85.7	78.2	64.2
	Manufactured goods	3.5	3.6	14.3	21.8	35.8
Central America	Primary commodities	14.6	19.0	19.4	32.1	25.1
	Manufactured goods	85.4	81.0	80.6	67.9	74.9
South America	Primary commodities	88.4	86.7	94.7	95.1	94.5
	Manufactured goods	11.6	13.3	5.3	4.9	5.5
Argentina	Primary commodities	86.3	91.4	96.3	93.8	92.2
	Manufactured goods	13.7	8.6	3.7	6.2	7.8
Brazil	Primary commodities	78.2	80.4	92.0	92.9	91.5
	Manufactured goods	21.8	19.6	8.0	7.1	8.5
Mexico	Primary commodities	13.5	21.9	30.4	46.8	25.7
	Manufactured goods	86.5	78.1	69.6	53.2	74.3

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.
Obs.: It is worth mentioning that the share evolution might be influenced to some degree by price changes over time.

Therefore, it is very clear a reproduction of old structuralist core-periphery trade relations between China and the two largest economies in South America, namely Brazil and Argentina. However, the same does not hold true for the trade relation between China and Mexico, although there seems to be a trend toward it. From such perspective, it is possible to identify potential areas to strengthen relations that further promote higher economic and technological upgrading between both partners.

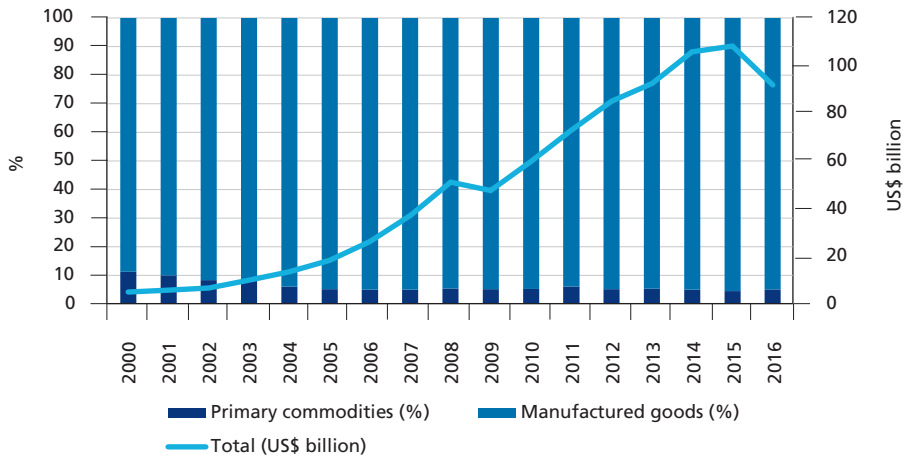
5 CHINA'S TRADE PATTERN WITH AFRICA

Similarly to what happened with Latin America, China's trade with Africa has also enlarged over the 2000s, with exports in value generally higher than imports. Chinese exports have been increasingly concentrated in manufactured goods, reaching nearly 95% in recent years (figure 5). Imports, in turn, have been concentrated in primary commodities, which, for example, achieved 97% of China's imports from Africa in 2012 (figure 6).

These movements reinforce a trade specialization pattern between China and Africa even more similar to the old structuralist core-periphery dichotomy than between China and Latin America, given the previous lower degree of industrialization of African economies. To a large extent, many Latin American

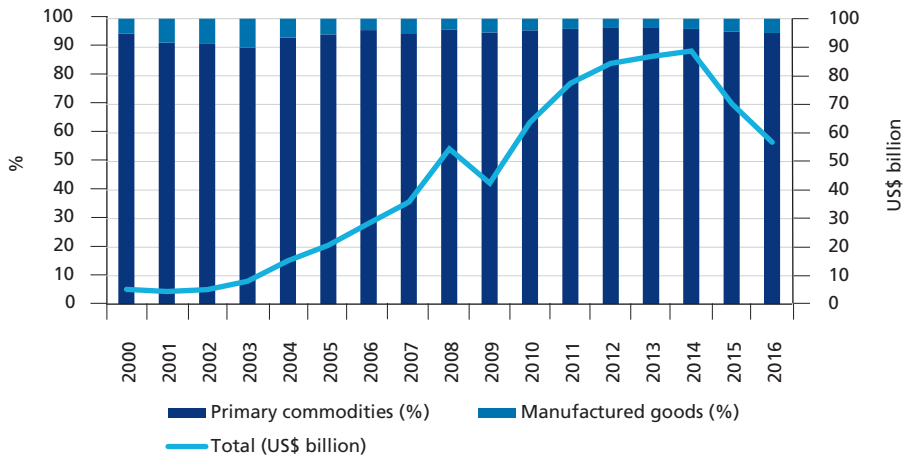
economies have more sophisticated and diversified industries that, however, have been suffering a process of deindustrialization, while many African countries remain largely as agricultural-based economies facing difficulties in promoting a more dynamic industrialization process for income catching-up (Pilling, 2017; Uneca, 2016; OECD, 2014).

FIGURE 5
China's exports to Africa (2000-2016)



Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

FIGURE 6
China's imports from Africa (2000-2016)



Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

China's manufactures exports to Africa are growing much faster than imports. Regarding exports, the share of medium- and high-tech manufactured goods has been rising while the share of labor- and resource-intensive manufactures has been declining, although the latter still accounts for most of the Chinese exports to the continent (table 9). In comparison to Latin America, the process toward higher value-added exports is slower. In relation to imports, the share of China's imports of high-tech manufactures, attached to South Africa, has been declining in favor of rising import share of low-tech manufactured goods (table 10).

TABLE 9
China's manufactures exports to Africa (2000-2016)
(In %)

	2000	2004	2008	2012	2016
Manufactured goods (US$ billion)	4.4	12.7	48.3	80.7	87.2
Labor- and resource-intensive	44.7	42.1	28.2	34.7	33.6
Low-tech	16.3	16.4	19.9	18.8	17.9
Medium-tech	23.8	24.9	33.1	31.0	29.6
High-tech	15.1	16.6	18.8	15.4	18.9

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

TABLE 10
China's manufactures imports from Africa (2000-2016)
(In %)

	2000	2004	2008	2012	2016
Manufactured goods (US$ billion)	0.3	1.0	2.0	2.5	2.9
Labor- and resource-intensive	9.8	5.5	8.1	13.1	14.8
Low-tech	29.0	44.8	45.0	39.2	52.6
Medium-tech	14.4	9.2	5.8	11.1	4.9
High-tech	46.8	40.5	41.1	36.6	27.6

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

The Chinese trade pattern with Africa can also be distinguished by subregion: Northern, Eastern, Middle (or Central), Western and Southern Africa. Two of them, namely Northern and Western Africa, account for most of China's exports to the continent. Although their share has slightly declined in recent years, Southern share's reduction, particularly due to South Africa, has been much more accentuated. In relative terms, Chinese trade with Eastern Africa during the period has increased substantially, especially after 2012 (table 11). That is in

line with China's "Belt and Road Initiative" that involves maritime routes passing through Eastern Africa's coast, such as Kenya (Pilling, 2017).

China's imports, in turn, come from different parts of Africa. For most of the period, Middle Africa has been the main source of China's imports with more than half of the total value. Imports from Southern Africa have relatively increased, followed by Eastern Africa. In turn, imports from Northern Africa have relatively reduced (table 12). These results show that China's source of imports and destination of exports in the African continent is very diverse. While Chinese exports are concentrated in Northern, Western and Eastern Africa, Chinese imports come mostly from Middle and Southern Africa.

TABLE 11
China's exports to Africa by region (2000-2016)
(In %)

	2000	2004	2008	2012	2016
Africa (US$ billion)	5.0	13.5	51.1	85.1	91.9
Eastern Africa	12.0	10.8	11.3	13.7	22.0
Middle Africa	2.0	3.4	9.2	8.7	6.1
Northern Africa	31.2	33.1	31.7	26.7	28.0
Southern Africa	21.0	23.0	17.9	18.9	14.6
Western Africa	33.8	29.8	29.9	32.0	29.3
South Africa	20.3	21.8	16.9	18.0	14.0

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.

TABLE 12
China's imports from Africa by region (2000-2016)
(In %)

	2000	2004	2008	2012	2016
Africa (US$ billion)	5.2	15.2	54.4	84.3	56.7
Eastern Africa	4.4	3.4	2.2	6.2	10.8
Middle Africa	56.5	53.6	59.4	53.7	37.1
Northern Africa	18.0	18.5	19.7	14.6	4.3
Southern Africa	13.9	17.1	15.0	19.2	39.6
Western Africa	7.1	7.4	3.7	6.4	8.2
South Africa	13.8	16.7	14.1	18.6	39.2

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.

As highlighted before, China's exports to Africa are mostly of manufactured goods while imports are largely of primary commodities. All African regions have experienced an increase in China's export share of manufactures during the

2000s. This pattern is even more intense in Eastern Africa (table 13). In relation to imports, practically all goods that China import from Western and, especially, Middle Africa are primary commodities. Only from Northern and Southern Africa that a larger share of manufactures imports could be observed. South Africa's data are shown apart in the figures, given the country's representativeness. However, there has been a rapid relative increase in Chinese imports of primary commodities from that region too (table 14). It suggests that South Africa is experiencing similar processes of deindustrialization and export primarization as other industrialized Latin American economies, Brazil as a notable example.

TABLE 13
China's exports to Africa by region and product group (2000-2016)
(In %)

		2000	2004	2008	2012	2016
Africa	Primary commodities	11.2	6.0	5.4	5.2	5.1
	Manufactured goods	88.8	94.0	94.6	94.8	94.9
Eastern Africa	Primary commodities	6.6	2.6	2.3	2.5	3.0
	Manufactured goods	93.4	97.4	97.7	97.5	97.0
Middle Africa	Primary commodities	7.7	3.9	2.7	3.9	6.6
	Manufactured goods	92.3	96.1	97.3	96.1	93.4
Northern Africa	Primary commodities	10.9	7.4	4.5	4.6	4.1
	Manufactured goods	89.1	92.6	95.5	95.4	95.9
Southern Africa	Primary commodities	9.9	6.6	5.6	3.6	4.6
	Manufactured goods	90.1	93.4	94.4	96.4	95.4
Western Africa	Primary commodities	14.3	5.6	8.2	8.2	7.6
	Manufactured goods	85.7	94.4	91.8	91.8	92.4
South Africa	Primary commodities	10.1	6.9	5.9	3.6	4.6
	Manufactured goods	89.9	93.1	94.1	96.4	95.4

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.
Obs.: It is worth mentioning that the share evolution might be influenced to some degree by price changes over time.

One should remark, however, that this movement is not only a result of the relations established with China but mostly of domestic policies adopted in each partner country. During a period of booming commodity prices, many commodity exporting countries have benefited from growing exports but have not made efforts to enhance their productive base correspondingly to produce higher value-added goods amid the expansion of global value chains. Given the increasing interconnection between these economies and China, there seems to be a large potential to improve such relations in order to promote higher economic and technological upgrading.

TABLE 14
China's imports from Africa by region and product group (2000-2016)
(In %)

		2000	2004	2008	2012	2016
Africa	Primary commodities	94.8	93.4	96.2	97.0	95.0
	Manufactured goods	5.2	6.6	3.8	3.0	5.0
Eastern Africa	Primary commodities	98.6	96.8	95.1	97.0	96.5
	Manufactured goods	1.4	3.2	4.9	3.0	3.5
Middle Africa	Primary commodities	100.0	99.9	100.0	100.0	100.0
	Manufactured goods	0.0	0.1	0.0	0.0	0.0
Northern Africa	Primary commodities	92.6	88.9	94.8	95.1	76.2
	Manufactured goods	7.4	11.1	5.2	4.9	23.8
Southern Africa	Primary commodities	72.8	74.4	83.0	89.6	91.0
	Manufactured goods	27.2	25.6	17.0	10.4	9.0
Western Africa	Primary commodities	99.8	99.6	98.2	98.6	99.2
	Manufactured goods	0.2	0.4	1.8	1.4	0.8
South Africa	Primary commodities	72.7	73.9	83.5	90.0	91.2
	Manufactured goods	27.3	26.1	16.5	10.0	8.8

Source: UNCTADstat data. Available at: <http://unctadstat.unctad.org/EN/>.
Elaborated by the author.
Obs.: It is worth mentioning that the share evolution might be influenced to some degree by price changes over time.

6 CONCLUDING REMARKS

China has become the main trade partner of several Latin American and African economies during the recent decades. The intensification of their trade relations, however, has been relying on different productive and trade structures. While China mainly exports a diversified number of manufactured goods to Latin America and Africa, their exports to China are largely concentrated in primary goods, especially unprocessed agricultural and mineral commodities.

In this regard, Latin American and African economies present a very similar pattern, although they also show important differences to some degree. Firstly, Chinese trade with both regions has increased over the period, but it has been even more intense with Latin America. Secondly, Chinese manufactures exports and imports with Latin America maintain a more sophisticated pattern in comparison to Africa's trade, according to skills and technology involved in such trade flows.

Thirdly, there are quite important differences within regions. In Latin America, Mexico – as the main economy taken in Central America – does not exactly fit into the core-periphery trade pattern, although showing a trend toward it. The most noticeable cases of growing specialization in primary exports in the region are the experiences of Brazil and Argentina. In Africa, China's source

of imports and destination of exports vary significantly, as Chinese exports are concentrated in Northern, Western and Eastern Africa, while Chinese imports come mainly from Middle and Southern Africa.

Despite these important differences, the asymmetrical trade specialization pattern observed between China and the regions under analysis in this paper leads to the conclusion that those trade patterns reproduce among developing economies the original core-periphery dichotomy discussed from a Latin American structuralist perspective. Different international context and division of labor must be taken into account, but overall concerns in terms of technological upgrading and income growth remain valid from early studies on trade relations between China and Latin American countries, as pointed out by Paus (2009), thus showing that trade relations have consolidated following the initial trade path and not much has changed regarding value chain upgrading.

Considering the structuralist framework, development opportunities and limitations arise from the consolidation of such trade relationship. On the one hand, large exporting countries can benefit from short-term gains in commodity-based trade with China, especially during commodity booms, as noticed during the 2000s for both Latin American and African economies. China's appetite for commodities as part of the transformation process of its economy through rapid industrialization and urbanization has contributed to sustaining such trends. On the other hand, the process of income catching-up becomes increasingly constrained by structural factors, above all, the difficulties to industrialize, as in many African low-income countries, or the challenges of deindustrialization, as in the case of large middle-income economies in Latin America and in the case of South Africa, which may face balance-of-payments constraints on growth amid the surge of new technologies.

As a result, long-term development strategies are required to promote greater economic and technological upgrading in the growing relations between China and both Latin American and African economies. The conclusions of this paper may pave the way for researches on detailed case studies without missing the whole picture as well as for trade and investment agreements in each region. Further studies addressing sustainable development may also shed light on the continuity or disruption of such trade patterns, as the increasing commitment of countries to zero-deforestation value chains would require significant changes in extraction and production processes from commodity exporting economies. For the reasons above, agreements that consider not only country's differences and needs but also identify areas of potential cooperation in terms of skills and technology transference between such economies and environmental protection are more likely to succeed and result in mutual economic development in a world whose dynamics is increasingly influenced in different ways by China.

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APPENDIX

METHODOLOGICAL NOTES ON INTERNATIONAL TRADE DATA

Data used in this paper were collected in mid-2018 from UNCTADstat, available at: <http://unctadstat.unctad.org/EN/>.

The following Standard International Trade Classification (SITC), Revision 3, applies for arranging exports and imports of all products into groups of primary commodities and manufactured goods:

- Primary commodities: SITC 0 + 1 + 2 + 3 + 4 + 68 + 667+ 971; and
- Manufactured goods: SITC 5 to 8 less 667 and 68.

Manufactured goods are also classified according to the degree of manufacturing, that is degree of skills and technology involved in their production, following UNCTAD (2002):[1]

- Labor-intensive and resource-intensive manufactures: SITC 611, 612, 613, 633, 634, 635, 641, 642, 651, 652, 653, 654, 655, 656, 657, 658, 659, 661, 662, 663, 664, 665, 666, 821, 831, 841, 842, 843, 844, 845, 846, 848, 851;
- Low-skill and technology-intensive manufactures: SITC 671, 672, 673, 674, 675, 676, 677, 678, 679, 691, 692, 693, 694, 695, 696, 697, 699, 785, 786, 791, 793, 895, 899;
- Medium-skill and technology-intensive manufactures: SITC 775, 772, 621, 625, 629, 711, 712, 713, 714, 716, 718, 721, 722, 723, 724, 725, 726, 727, 728, 731, 733, 735, 737, 741, 742, 743, 744, 745, 746, 747, 748, 749, 771, 773, 774, 778, 781, 782, 783, 784, 811, 812, 813, 893, 894; and
- High-skill and technology-intensive manufactures: SITC 751, 752, 761, 762, 763, 759, 764, 776, 511, 512, 513, 514, 515, 516, 522, 523, 524, 525, 531, 532, 533, 541, 542, 551, 553, 554, 562, 571, 572, 573, 574, 575, 579, 581, 582, 583, 591, 592, 593, 597, 598, 792, 871, 872, 873, 874, 881, 882, 883, 884, 885, 891, 892, 896, 897, 898.

Latin American and African trade flows with China are also analyzed according to their different subregions. Countries belonging to each subregion are:

1. Unctad – United Nations Conference on Trade and Development. *Trade and development report, 2002*. New York; Geneva: UN, 2002.

- Africa:

  a) Eastern Africa: Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, Uganda, United Republic of Tanzania, Zambia, and Zimbabwe;

  b) Middle Africa: Angola, Cameroon, Central African Republic, Chad, Congo, Dem. Rep. of the Congo, Equatorial Guinea, Gabon, and Sao Tome and Principe;

  c) Northern Africa: Algeria, Egypt, Libya, Morocco, Sudan, Tunisia, and Western Sahara;

  d) Southern Africa: Botswana, eSwatini, Lesotho, Namibia, and South Africa; and

  e) Western Africa: Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Saint Helena, Senegal, Sierra Leone, and Togo.

- Latin America:

  a) Caribbean: Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Bonaire, Sint Eustatius and Saba, British Virgin Islands, Cayman Islands, Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Montserrat, Netherlands Antilles, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sint Maarten, Trinidad and Tobago, and Turks and Caicos Islands;

  b) Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Panama; and

  c) South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Falkland Islands, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela.