UNIVERSITAT DE BARCELONA

# Asia and Latin America in Globalization: information capacity, transpacific trade, and smuggling

Songlin Wang

PhD in Economic History

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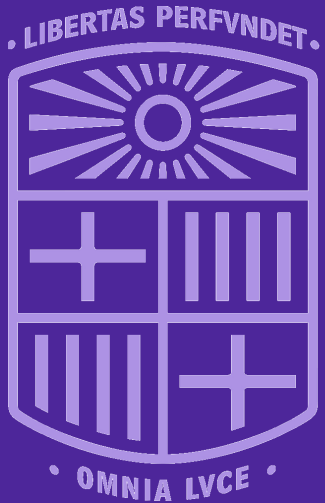


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# Asia and Latin America in Globalization: information capacity, transpacific trade, and smuggling

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# Abstract

This dissertation explores the multiple transformations in Asia and Latin America during two significant waves of globalization, focusing on institutional evolution, trade dynamics, and illicit economic activities. By examining China's institutional changes under foreign influence in 1864-1938, the evolution of transpacific trade between Asia and Latin America in 1876-1938, and the smuggling networks involving Bolivia, Chile, and China in 1980-2020, this work contributes to a deeper understanding of how globalization shapes and is shaped by peripheral regions.

Chapter 2 introduces a new approach to explore the information capacity of the Chinese Maritime Customs from 1864 to 1938. It employs a mirror analysis by comparing Chinese Maritime Customs' international trade data with that of China's major trading partners: the United States, the United Kingdom, and Japan. Findings reveal that Chinese Maritime Customs' improvements in measuring foreign trade frequently coincided with its institutional reforms. The results highlight that these improvements were not uniform across different regions. Specifically, the persistent discrepancies between Chinese Maritime Customs' and Japanese data underscore the influence of geopolitics since late 19th century.

Chapter 3 provides a novel trade series on trade between Asia and Latin America between 1876 and 1938. It shows that the role of Asia in Latin America's foreign trade was marginal in volumes, but the composition of Latin American imports from Asia reveals clues to the persistence of colonial links across the Pacific. While traditional products such as textiles, tea, and porcelain maintained a constant presence in Latin American imports, new trade patterns emerged in this period. The differences in the Asian countries as exporters could be explained by the disparities in their industrial development and foreign trade policies. The persistence of consumption patterns and influence of Asian immigrants also help to understand the continuities and changes in Latin America's import from Asia.

Chapter 4 addresses the smuggling in Bolivia's imports of Chinese products via Chile in the recent trade boom. A mirror analysis is conducted by comparing Bolivia's import data with export data of China and Chile. The analysis identifies substantial over-reporting in Bolivia's

declaration of imports from China and under-reporting in Bolivia's declaration of imports from Chile. The results also indicate that the largest discrepancies appear in textile yarn, fabrics, made-up articles, rubber manufactures, road vehicles, telecommunications equipment, electrical machinery, articles of footwear, apparel and clothing accessories. It suggests that Bolivia has imported these Chinese products through re-exportation from other transit countries. Additionally, Chile is an important entrepôt country for Bolivia's imports and part of this transit trade occurs through unofficial or illegal channels.

In summary, Chapter 2 provides a new approach of foreign trade data mirror analysis to measure the information capacity of Chinese Maritimes Customs. This contributes to the literature about how the globalization affects the institutional quality in a peripheral country like the 19th-century China. Chapter 3 offers a novel trade dataset between Asia and Latin America from 1876 to 1938, highlighting the persistence of the colonial trade compositions and the emergence of new trade patterns. This contributes to the research on the transpacific trade in a globalization wave dominated by Atlantic economies. Chapter 4 offers a quantitative estimation of the smuggling in the transpacific and intraregional trade between Bolivia, Chile and China in the recent decades. It highlights the significant size of the potential smuggling activities in Bolivia's imports from Chile. It also contributes to the understanding of the upsurge of marginal economic groups under the global trade boom.

**Keywords:** Asia, Latin America, Globalization, information capacity, transpacific trade, smuggling

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# 1. Introduction

This dissertation aims to explore the multiple transformations in Asia and Latin America during two significant waves of globalization, focusing on institutional evolution, trade dynamics, and illicit economic activities. By examining China's institutional changes under foreign influence in 1864-1938, the evolution of transpacific trade between Asia and Latin America in 1876-1938, and the smuggling networks involving Bolivia, Chile, and China in 1980-2020, this work contributes to a deeper understanding of how globalization shapes and is shaped by peripheral regions. These novel insights into the impact of globalization are obtained through the use of historical trade data analysis and foreign trade statistics mirror analysis.

Globalization is a multifaceted phenomenon that encompasses "hard" and "soft" globalization. "Hard globalization" involves the integration of global markets driven by the flow of goods, capital, and people across borders. O'Rourke and Williamson (2001) characterize the "First Globalization" (circa 1870-1914) as a period marked by significant increases in international trade, migration, and capital movements that integrated global markets to an unprecedented degree. Driven by industrialization in Europe and the United States, this era saw the rapid development of Atlantic economies and the expansion of international trade. In turn, this created a growing demand in global markets for industrial products and sources for raw materials and agricultural products. The "Second Globalization" is defined as the period of renewed and intensified global economic integration that began after the end of World War II. It is characterized by a significant increase in international trade, investment, and cooperation. This was facilitated by technological advancements, the promotion of The General Agreement on Tariffs and Trade (GATT), later succeeded by the World Trade Organization, and the establishment of international institutions such as United Nations, International Monetary Fund, and World Bank.

On the other hand, "soft globalization" shows that the exchange of ideas, institutions, cultural practices, consumption patterns, and tastes, may have persistent consequences on societies (Bonialian 2014; Dobado and Fernández de Pinedo 2023; Dobado-González 2013; De Vries 2010). This aspect is evident, for instance, in the learning and adaptation of Western technology

and institutions by China and Japan in the late 19th and early 20th centuries. These exchanges between Western countries and China and Japan transformed the long-term socio-economic landscapes of the latter (Ma 2004, 2021; Westney 1987). Similarly, the exchange of products may reshape the consumer behavior and the adoption of new consumption patterns, which in turn stimulates the global trade. This was the case of the Manila Galleon, which connected Asia, the Americas and Europe and stimulates the world exchange of Asian products and American silver from the second half of 16th century to early 19th century (Bonialian 2022; Flynn and Giráldez 2008). Thus, beyond the integration of markets, these exchanges facilitated the spread of consumption of Asian goods, such as silk products, porcelain and spices in the daily life of Americans. This first affected the elites and then moved to middle classes and common people (Bonialian 2014; Dobado and Fernández de Pinedo 2023). This global exchange also promoted cultural influences and artistic tastes (Dobado-González 2013), such as the so-called *chinoiserie*, which refers to the popularity of Chinese art style in 18th century Europe.

The revision of these concepts of globalization shows that Asia and Latin America have been connected since a long time ago and that this connection has transformed across time. During the early globalization, the Manila Galleon facilitated the exchange of goods, people, ideas between the Old and New Worlds and consumption patterns in Latin America were influenced by Asian products. During the so called First Globalization, Asia and Latin America were key suppliers of raw materials and agricultural products for the industrialization of Atlantic economies. Moreover, under the foreign imperial expansion, particularly in Asia, these peripheral regions experienced institutional and economic transformations. In this context, the transpacific trade between Asia and Latin America in this period was marginal and received limited attention. In recent decades, due to Asia's rapid industrialization and Latin America's economic liberalization, this transpacific trade experienced a new boom. The goal of this dissertation is to offer more evidence on these processes of exchange and integration.

Chapter 2 focuses exclusively on the Chinese case. During the 19th century, China experienced a significant turning point in its political and economic history. Western powers disrupted the traditional China-centric order by imposing "unequal treaties" upon the Qing government and opening treaty ports such as Shanghai, Guangzhou (Canton), and Tianjin. These actions led to

substantial changes in China's economic and socio-political institutions (Hsu 1983; Jia 2014; Keller and Shiue 2020). The legacy of this foreign intervention in China is dual. On one hand, the establishment of treaty ports and increasing foreign control over China's domestic and external trade significantly weakened China's sovereignty (Chen 2002). On the other hand, these treaty ports served as a bridge that connected China and the world, facilitating the introduction of Western technology, modern governance, legal systems, institutions, as well as culture and ideology (Ma 2021). The emergence of modern industries in China, the development of banking and financial sectors, and the construction of infrastructure such as railways and telegraph lines, were critical for China's integration into the global economy (Liang 2015; Wong 2007; Yan 1955; Yang 1997; Ye 2001).

In this general framework, Chapter 2 focuses on the Chinese Maritime Customs (CMC), an organization that was established in 1864 and that operated uninterrupted until 1949 across most of China. Managed predominantly by foreigners under nominal Chinese governance, the CMC played a dual role as both a symbol of foreign control and a pioneer for institutional modernization. It was instrumental in China's economic, fiscal, and administrative development during this transformative era (Hall and Bickers 1977; Lyons 2003).

Initially founded to ensure the collection of customs duties on behalf of the Qing Dynasty government, the CMC later implemented effective reforms and expanded its responsibilities to a wide range of activities. These included trade data collection, anti-smuggling operations, postal administration, coastal policing, and harbor and waterway management (Jin 2023; Keller and Shiue 2020; Van de Ven 2014; S. Wu 2014). While the dominance of foreigners within the service symbolized the semi-colonial status imposed on China by Western powers in the 19$^{th}$ and early 20$^{th}$ centuries, the CMC also reshaped the efficiency and informational capacity of China's customs organization. This left a lasting and multifaceted influence on China's long-term development (Jia 2014; Jin 2023), crucial for customs administration, trade facilitation, and the broader economic and institutional modernization of the country (Lyons 2003; S. Wu 2014; S. Wu and Fang 2005). Therefore, studying the development of the CMC is essential for understanding how the wave of globalization of the 19$^{th}$ century transformed institutional quality in China.

Chapter 2 contributes to the literature by exploring how the CMC's information capacity evolved from 1864 to 1938. I propose a novel approach by assessing the accuracy of the CMC's foreign trade records during this period. A mirror analysis is conducted, comparing the CMC's trade data against the official foreign trade figures reported by China's principal trading partners: the United States, the United Kingdom, and Japan. To enhance the study, I employ structural break analysis to identify if breakpoint years coincide with periods when notable shifts occurred in the mirror analysis results.

The findings indicate that periods of higher accuracy and stability in foreign trade data align with a series of institutional reforms implemented by the CMC. However, these institutional advancements were not consistently uniform. Persistent discrepancies in trade data between China and Japan may be partly attributed to regional geopolitical tensions. Additionally, global geopolitical shifts and the financial turbulence of the 1930s might account for the observed deterioration in the quality of the CMC's recorded trade data. In summary, the examination of CMC's information capacity provides insights into how the wave of globalization could transform the institutional quality of customs in peripheral regions.

After exploring China's institutional change under foreign influence, Chapter 3 looks at the evolution of transpacific trade between Asia and Latin America during the so-called First Globalization and Interwar periods. From a long-term perspective, the current transpacific trade boom recalls the prosperous historical period of Manila Galleon. During the Latin American colonial period (1492-1820s), the Manila Galleon, typically sailed twice annually from Manila to Acapulco, transporting between 300 and 1,000 tons of merchandise, with some ships reaching 2,000 tons (Yuste 1984; Schurz 1939). And large amount of American produced silver was sent back to Asia in exchange for goods (Flynn and Giraldez 1994). The Manila Galleon stimulated the convergence of three intercontinental flows: the transpacific route between the Philippines and Acapulco, the Atlantic fleet that connected Spain with Veracruz (in nowadays Mexico) and the intercolonial circuit from Mexico to Peru (Bonialian 2011).

However, the Manila Galleon ceased to operate during the 1810s, due to the independence wars in Latin America (1810s-1820s). The incessant post-independence tensions (1820s-1850s), the expansion of European powers in Asia throughout the 19$^{th}$ century and the increasing relevance

of the Atlantic economy, led to a fragmented transpacific trade between Asia and Latin America during the First Globalization and Interwar periods (Bonialian 2017). The literature about the exchange between these two regions in this period focuses on the massive migration from Asia to Latin America that took place in the second half of the 19th century and the early 20th century: Chinese migrants to Chile, Peru and Mexico, and Japanese migrants to Brazil and Peru (Hu-Dehart 1989; Hu-DeHart and López 2008). To the best of my knowledge, there are few systematic and detailed analysis of the trade between Asia and Latin America during this period that consolidated Europe and the United States as the new hegemons of world trade.

Chapter 3 provides a novel trade data series on the trade between Asia and Latin America in the First Globalization and Interwar periods (1876-1938). Using a representative sample of Asian economies (China, India, Japan) and Latin American countries (Argentina, Brazil, Chile, Ecuador, Mexico, Peru), the chapter measures the relative importance of Asia in Latin American imports and exports from 1876 onwards. The results show that Asian countries accounted for less than 5% of Latin America's foreign trade from the last quarter of the 19th century until the World War II. Asia's importance increased during the 1960s and remained stable thereafter. From the early 21st century, the relevance of Asia accelerated rapidly, reaching 18% of Latin American exports and more that 25% of its imports in 2020.

Although Asia's importance in Latin America's foreign trade was relatively low during the First Globalization and Interwar periods, the composition of Latin American imports from Asia shows continuities when comparing to the colonial period. For instance, tea, spices, rice, porcelain and textile products maintained a consistent presence in Latin America's import baskets. This reflects the existence of a historical hysteresis in terms of consumption patterns of Asian products in Latin America.

The findings also highlight differences among Latin America's imports from the three Asian countries. Imports from India were concentrated on agricultural raw materials such as jute, rice and spices. Imports from China, while also significantly formed by agricultural products, like tea, opium, rice and spices, showed some diversification, characterized by the persistence of silk products and the increasing share of cotton products in 1900s and 1910s. By contrast, imports from Japan mainly consisted of silk and cotton textiles and showed an increasing share

of manufactured goods such as toys, artifacts and machinery.

To understand these continuities and changes in Asian-Latin American trade in this period, I look at supply and demand forces. Changes in the former are clearly exemplified by disparities in Asian countries' industrial development and foreign trade policy strategies. While this period was marked by colonial restrictions on the trade policies and tariffs in China and India, Japan underwent rapid manufacturing industrialization. These contrasting institutional settings reflected in different types of insertion in global markets: while China and India concentrated in exports of few raw materials, Japan achieved some degree of exports diversification that implied a higher share of manufactures. These divergent paths, in turn, are reflected in the evolution of tea and textiles imports from Asia in Latin America.

As for demand-side forces, the archival research stresses the permanence of luxury imports. These goods were consumed by Latin American upper classes. However, data also shows the import of products that, as during the colonial period, were accessible to a broader part of Latin American population. Beyond these continuities, the chapter also highlights the relevance of the massive migration flow from Asia to Latin America that took place during this period. The arrival of this people explains in part the relevance of imports such as opium and tea. Moreover, the Asian clan communities and socio-economic associations in Latin America also contributed to the long-term transpacific trade between the two regions. Therefore, these continuities and changes in exchanges between Asian and Latin American are fundamental to understand the resurgence of transpacific trade in later periods and the relevance of current economic exchanges.

Chapter 4 focuses on the current boom of transpacific trade between Asia and Latin America. After World War II, the rapid industrialization in Asian economies, first Japan, then Four Asian Tigers (Hong Kong, Singapore, South Korea, and Taiwan) and later China, along with opening policies in Latin America, led to an expansion in trade between Asia and Latin America (Dosch and Jacob 2010). The foundation of the Asia Pacific Economic Cooperation (APEC) in 1989 between 12 different countries from Asia, North America and Oceania, with the later participation of three Latin American countries (Mexico in 1993, Chile in 1994, and Peru in 1998), shows the increasing relevance of the transpacific exchanges between Asia and Latin

America. With China's rise as a global manufacturing factory and its entry into the World Trade Organization in 2001, the trade between China and Latin America further intensified, making China one of Latin America's largest trading partners (Devlin, Estevadeordal, and Rodríguez-Clare 2006; Fornes and Mendez 2018; Peters 2005).

Beyond the current wave of transpacific globalization between China and Latin America, there are also small-scale activities in the informal economy, which opened spaces for individuals to seek opportunities and participate on their own terms (Galemba 2008; Muñoz Valenzuela 2023; Shefner and Fernández-Kelly 2011). In this context, Bolivia is among the most informal economies of Latin America and has proven to be particularly fertile ground for contraband due to its geographical landlocked position and its lax controls on irregular trade (Baspineiro 2024). The influence of the Chinese economy on the daily lives of Bolivians became evident since the 1980s, with Chinese-manufactured goods becoming widely consumed across all social strata and ethnic backgrounds (Müller 2018). In this context, before larger Chinese electronics and telecommunication enterprises officially entered the Bolivian market, Chinese electronic goods and household appliances were sourced through social networks, linking China with Bolivia via import–export firms in free trade zones such as Iquique (Chile) (Müller 2018). In this way, Bolivia's local economy has actively engaged with the global market, fostering and creating a "globalization from below" (Ribeiro 2012). Indigenous groups in Bolivia, such as aymara traders, play a central role in these local trade circuits, utilizing their local and familial ties to integrate and supply markets (López Guerrero 2018; Muñoz Valenzuela 2023).

Trade in the Bolivia-Chile border area is key to understand the illicit trade ties. The trade aperture of both economies since the 1980s, as well as the signature of international trade agreements, contributed to the emergence of free trade zones, such as Iquique Free Trade Zone or ZOFRI in northern Chile (Muñoz and Garcés 2022). In the free trade zone ZOFRI, China has become increasingly dominant as a source of imports, while Bolivia has consistently been the largest destination of ZOFRI's exports. However, in the border area trade between Bolivia and Chile there exist contraband, which dates to the colonial period (Langer 2021; Moutoukias 1988). It was intense during the 19th century and consolidated during the early 20th century

due to mining booms that toke place both in Bolivia and Chile (Langer 2009, 2021; Muñoz Valenzuela 2020). The current cross border commercial activities linked to the commercial expansion cycles have also been intertwined and strengthened by smuggling from the beginning (Laurent 2014; Muñoz Valenzuela 2023; Tassi et al. 2012).

Therefore, it is important to look beyond official trade statistics to understand the full reach of globalization. The literature also suggests the need to measure these "hidden flows" to reassess the long-term evolution of Andean economies (Langer 2024). This chapter tackles these issues by using a mirror analysis that compares Latin American countries' import data with Asian countries' export data. This approach offers a macroeconomic perspective to the debate on smuggling activities in Bolivia that allows going beyond the current dominance of anthropological approaches and contributing to the literature on the trade boom between China and Latin America.

The mirror analysis shows that, from 1995 to 2020, Bolivia reports much higher imports from China than the export data to Bolivia reported by China. Meanwhile, Bolivia reports much lower imports from Chile than the export data to Bolivia reported by Chile. These discrepancies exceed the acceptable range of bilateral trade data differences that can be attributed to transport and transaction costs. These findings suggest substantial overreporting in Bolivian imports from China and underreporting in its imports from Chile. This implies that Bolivia may be importing Chinese products through re-export from other transit countries. Furthermore, given the previous insights provided by the anthropological literature and the relevance of ZOFRI for Bolivian imports, the results also suggest that Chile serves as a significant entrepôt for Bolivia's unofficial imports.

These findings are confirmed through a detailed mirror analysis between Bolivia, China, and Chile that considers different Standard International Trade Classification (SITC) categories. The previous research on Bolivian-Chile smuggling has constantly highlighted the relevance of products like TVs, refrigerators, computers, mobile phones, etc. in the trade network between China, Chile and Bolivia (Müller, 2017; Muñoz Valenzuela, 2023; Tassi et al., 2012). The results of the detailed mirror analysis go in the same direction: the largest discrepancies appear in the categories of textile yarn, fabrics, made-up articles, rubber manufactures, road

vehicles, telecommunications equipment, electrical machinery, articles of footwear, apparel and clothing accessories.

Based on the bilateral trade data gap in the mirror analysis results, this chapter estimates a reasonable range for the size of smuggling activities that take place along these trade networks. I propose that smuggling activities from Chile to Bolivia increased from 2003 to 2014, reaching a maximum level of 6% of Bolivia's national GDP. After adjusting for potential data registration errors due to transit trade of Chinese products, the estimation on smuggling activities reduces to 4% of Bolivia's national GDP. These figures help understand the upsurge of the indigenous bourgeoisie and the radical transformation in the relative power of traditional vis-a-vis new elites that took place during the last commodity boom in Bolivia.

Summing up, Chapter 2 provides a new approach of foreign trade data mirror analysis to measure the information capacity of Chinese Maritimes Customs. This contributes to the literature about how the globalization affects the institutional quality in a peripheral country like the 19th-century China. Chapter 3 offers a novel trade data set between Asia and Latin America from 1876 to 1938, highlighting the continuities of the colonial trade compositions and the emergence of new trade patterns. This contributes to the research on this transpacific trade in a globalization wave dominated by Atlantic economies. Chapter 4 offers a quantitative estimation of the smuggling in the transpacific and intraregional trade between Bolivia, Chile and China in the recent decades. It highlights the significant size of the potential smuggling activities in Bolivia's imports from Chile. It also contributes to the understanding of the upsurge of marginal economic groups under the global trade boom.

# 2. Information capacity in the mirror of foreign trade data? A case study of Chinese Maritime Customs, 1864–1938[1]

**Abstract**

This paper introduces a new approach to explore the information capacity of the Chinese Maritime Customs from 1864 to 1938. It employs a mirror analysis by comparing Chinese Maritime Customs' international trade data with that of China's major trading partners: the United States, the United Kingdom, and Japan. Findings reveal that Chinese Maritime Customs' improvements in measuring foreign trade frequently coincided with its institutional reforms. The results highlight that these improvements were not uniform across different regions. Specifically, the persistent discrepancies between Chinese Maritime Customs' and Japanese data underscore the influence of geopolitics since late 19th century.

**Keywords:** Information capacity, Foreign Trade, Data Accuracy, Chinese Maritime Customs

[1] This paper "Information capacity in the mirror of foreign trade data? A case study of Chinese Maritime Customs, 1864–1938" by Songlin Wang has been accepted for publication by *Asia-Pacific Economic History Review* in May 2024.

## 2.1 Introduction

The Opium Wars are a turning point in China's political and economic history. Since the First Opium War (1839–1842), western powers disrupted the traditional China-centric order, imposing "unequal treaties" upon the Qing government. Consequently, over forty cities were conceded as "treaty ports" to foreign countries from the 1840s to the 1910s. The opening of treaty ports such as Shanghai, Guangzhou (Canton), and Tianjin led to significant changes in China's economic and socio-political institutions. These changes included the establishment of foreign concessions with their own legal systems, the introduction of foreign customs and trading practices, and the integration of China into the global economy (Hsu 1983; Jia 2014; Keller and Shiue 2020).

The legacy of the institutional changes in the treaty port era is complex, reflecting the dual nature of globalization and external influence: opportunities and challenges. On one hand, the establishment of extraterritoriality and the increasing foreign control over China's domestic and external trade significantly weakened China's sovereignty and led to the creation of separate legal and governance structures within the treaty ports (Chen 2002). This period also heightened tensions between Chinese residents and foreigners, exacerbating social divisions and contributing to nationalist sentiments that would later fuel movements like the Boxer Rebellion (Liao 1981).

On the other hand, the treaty ports served as bridge connecting China and the world. New rules and institutions were applied to promote modernization. These included the introduction of Western technology, modern government, law, financial institutions, as well as Western culture and ideology (Ma 2021). This transitional period saw the emergence of modern industries in China, the development of banking and financial sectors, and the construction of infrastructure such as railways and telegraph lines, which were critical for China's integration into the global economy (Liang 2015; Wong 2007; Yan 1955; Yang 1997; Ye 2001).

The Chinese Maritime Customs (CMC) is one of these new organizations created in China. It operated from 1864 to 1949 uninterruptedly and across most of China. Managed predominantly by foreigners under nominal Chinese governance, the CMC was a key institution in China's

modern history, playing a pivotal role in the country's economic, fiscal, and administrative development during this era of transformation and external dominance (Hall and Bickers 1977; Lyons 2003). Initially founded to ensure the collection of customs duties on behalf of the Qing Dynasty government, the CMC made effective reforms and extended its responsibilities to a wide range of activities, including collection of trade data, anti-smuggling operations, postal administration, coastal policing, harbor and waterway management, among others (Jin 2023; Keller and Shiue 2020; Van de Ven 2014; S. Wu 2014). The institution's involvement in these areas contributed to the development of China's communication networks and modern maritime infrastructure, facilitating domestic and international commerce and communication (Hall and Bickers 1977).

It is true that the dominance of foreigners within the service, and the extraterritorial rights that accompanied foreign trade and residence in China, were symbols of the semi-colonial status imposed on China by Western powers in the 19th and early 20th centuries. However, under this wave of globalization the CMC also reshaped the customs' organization efficiency and information capacity. This left a lasting and multifaceted influence in China's long-term development. Jia (2014), for instance, explores the long-run development of China's treaty ports from the mid-eighteenth century until today and concludes that zones closer to treaty ports grow faster in population and GDP per capita terms. In the same vein, Jin (2023) studies the switch from Native Customs to the CMC and identifies the positive impact of Western institutions in the long-run economic performance of the affected regions.

Several scholars have also highlighted the institutional impact of CMC's information capacity. Through meticulous trade data collection, adherence to international standards, and recruitment of a cosmopolitan, skilled staff, CMC developed an exceptional information capacity, making it one of the most sophisticated and effective data-gathering organizations in China during its operation (Hsiao 1974; Van de Ven 2014; Wu 2014). This capacity was crucial for its role in customs administration, internal and global trade facilitation, and the broader economic and institutional modernization of China (Lyons 2003; S. Wu 2014; S. Wu and Fang 2005).

Given these antecedents, studying CMC's information capacity is crucial to understand how the wave of globalization reshaped the customs' institutional quality, which brought

multifaceted changes in China. This paper proposes a novel approach to study CMC's information capacity by analyzing the accuracy of CMC's foreign trade records from 1864 to 1938. I employ a mirror analysis that compares the CMC's trade data against the official foreign trade figures reported by China's principal trading partners: the United States of America,[2] the United Kingdom,[3] and Japan.[4] To further enhance the insights from this analysis, a structural break analysis is used to identify the breakpoint years when notable shifts occurred in the mirror analysis results.

The results show that periods with higher accuracy and stability align with a series of institutional reforms implemented by the CMC. However, the findings also reveal that the institutional advancements were not consistently uniform. In fact, there are persistent discrepancies in trade data between China and Japan that could be partly attributed to geopolitical tensions. Additionally, the global geopolitical shifts and financial turbulence of the 1930s might account for the observed deterioration in the quality of the CMC's recorded trade data.

Following this introduction, the organization of the paper is as follows. Section 2 delves into the historical context of the CMC during the treaty port era, detailing the economic and sociopolitical influence of its enhanced information capacity. Section 3 describes the data used for this study and explains the methodologies of mirror analysis and structural break analysis. Section 4 discusses the findings related to trade with the United Kingdom and the United States, while Section 5 examines the specifics of trade with Japan. Section 6 explores the pivotal role of Hong Kong as a trade entrepôt. Section 7 offers concluding remarks.

[2] U.S.'s foreign trade data are derived from "Foreign Commerce and Navigation of the United States, 1862–1941." archived in Hathitrust (URL: https://catalog.hathitrust.org/Record/001719409).
[3] The United Kingdom's foreign trade data are derived from "Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions, 1864–1938." in RICardo Database (URL: https://ricardo.medialab.sciences-po.fr/#!/reporting/UnitedKingdom).
[4] Japan's foreign trade data are derived from "Annual Returns of the Foreign Trade of the Empire of Japan, 1874–1937." in Long-Term Economic Statistics (LTES) Database (URL: https://rcisss.ier.hit-u.ac.jp/English/database/ltes.html).

## 2.2 China in Treaty Port Era and Chinese Maritime Customs

### 2.2.1 From closed "Central Kingdom" period to Treaty Port Era

China means "Central Kingdom" o "Middle Kingdom" in Chinese. During the late Qing Dynasty (1644–1911), the self-sufficient agricultural country was still in its "World Center" daydream until 1842. Then, the western countries forced it to open the door with their powerful technological improvements of the Industrial Revolution.

As the dominant power within Asia, China's international trade was concentrated mainly in intra-Asian maritime commerce. Under Chinese imperial tributary system, the intra-Asian trade was more like a political and cultural act rather than an economic activity. For Westerners, Guangzhou was the only open port for foreign trade and the Single-Port trade was characterized by its monopolistic structure controlled by "thirteen" commercial firms known as the *hongs*, which were the sole agents of foreign trade (Hsu 1983).

Due to trade disadvantages of Western countries with China and their ambition to expand overseas markets, the following decades were full of warfare between China and countries in full industrialization. In the First Opium War between Great Britain and China, China was defeated, and the Qing government signed the Treaty of Nanking (1842). The treaty listed five cities (Guangzhou, Xiamen, Fuzhou, Ningbo and Shanghai) as treaty ports opened to foreign trade where British could establish themselves to carry out mercantile activities "without molestation or restraint" (Jia 2014). In those treaty ports, foreigners had the right to reside and have their own property. Moreover, the Treaty of Wanghia (1844) and the Treaty of Whampoa (1844) signed respectively with the United States and France indicated the concept of *extraterritoriality*, which implied that foreigners in China were subject to the legal jurisdiction of their own countries rather than to Chinese laws (Keller and Shiue 2020).

After the Second Opium War (1856–1860) between the Qing dynasty and the British and French empires, more treaties were signed and more foreign powers like Russia and Japan went to China to take a share of China's market. The most-favored-nation clauses also allowed all foreign countries operating in China to seek the same concessions (Keller and Shiue 2020). In

the Treaty of Tianjin (1858), more treaty ports were forced to open and foreign vessels got the right to navigate on the Yangtze River with freedom.

From 1840s to 1910s more than forty cities were conceded as "treaty ports" to foreign countries. In these treaty ports, tariffs on foreign imports into China were fixed at a low rate (Keller and Shiue 2020). Furthermore, foreigners played an active role in the economy, which included the ownership of hundreds of factories, firms and businesses, such as banks and shipyards (Keller and Shiue 2020). Even more, specific municipal authorities, schools, police, judiciaries, consular offices and foreign courts were also established in these ports for foreign residents in China (Jia 2014). In January 1943, China signed treaties with Britain and the United States to abolish extraterritoriality and the semi-colonial treaty port era ended.

### 2.2.2 Native Customs and Chinese Maritime Customs

The historical customs stations were established in seventeenth century for military purposes and to administer taxation on land, salt, and limited inland commerce (Jia 2014). There were about 38–40 Native Customs agencies in the Qing dynasty period and each one held a main station in a major city and several sub-stations in nearby locations (Jin 2023). During the late Qing period, the tax collection system of the Native Customs became inefficient due to inconsistent and unclear tax regulations across the various stations. This inefficiency, compounded by corruption, nepotism in employment practices, and deficit of trained personnel, significantly undermined the efficacy of the Native Customs' tax collection (Jin 2023).

After the first Opium War (1839–1842), China was opened to international trade. After the Chinese Customs House in Shanghai was sacked in 1853 by a rebellion group, the Qing government and the United States, United Kingdom and France established a customs committee. Moreover, three foreigners were appointed to the Shanghai Custom House in order to restore tariff collection (Chen 2002; Jin 2023; Van de Ven 2014). This experiment of cooperation was successful in terms of trade facilitation and increasing revenues (Van de Ven 2014). In 1861, the Qing government established the Chinese Maritime Customs (CMC), scaling the successful model of the Shanghai Customs House to other treaty ports. It also

appointed an Inspector General to oversee foreign customs commissioners and staff (Jin 2023; Van de Ven 2014). In 1900, the Boxer Rebellion against foreigners took place and the Qing government was defeated by an alliance of eight countries (Great Britain, France, the United States, Japan, Russia, Germany, Italy, and Austria-Hungary). In the treaty signed after the war, the so-called Boxer Protocol (1901), Qing government was required to pay an indemnity for compensation to the allied countries. The alliance also claimed that CMC should take over all Native Customs agencies to collect sufficient revenue as collateral for indemnity. By 1902, the CMC had officially absorbed the majority of the Native Customs agencies and endured until the establishment of the People's Republic of China in 1949 (Jin 2023).

CMC's functions included regulating trade, collecting tariffs, suppressing smuggling, and compiling trade statistics. Additionally, it managed coastal and river navigation, port affairs, postal services, quarantines, meteorology, national and foreign debts, and customs indemnity payments. Its purview extended to levying taxes such as customary duties, and it even organized international expositions, managed specialized education in tax schools, and handled diplomatic affairs commissioned by the Chinese government (S. Wu 2014).

The information capacity of the CMC was a cornerstone of its success and longevity. It not only facilitated the effective management of customs and trade but also contributed to the modernization of China's economic policies and administrative practices, integrating the nation into the global trade network. The CMC compiled detailed statistics on China's foreign trade, including transaction volumes and values, and classified traded goods. This organization regularly published trade reports, which provided valuable insights into China's economic conditions, trade patterns, and market potentials (S. Wu 2014). To enhance the precision of trade data, the CMC refined its registration criteria, expanded coverage scope, standardized measurement units, and implemented more rigorous origin and destination recording methods (Hsiao 1974; Van de Ven 2014). By adhering to international standards in its data collection and reporting, the CMC delivered reliable and comparable data, facilitating global trade operations and contributing significantly to policymaking by offering information about China's foreign trade, economic trends, and strategic policy development (Hall and Bickers 1977; S. Wu and Fang 2005).

CMC's personnel management was equally efficient. It employed well-educated individuals from prominent Western families and universities of "highest type in every respect",[5] reflecting a high standard of staffing (Hsiao 1974, 6; Van de Ven 2014). Hsiao stated that the quality of the personnel of the Chinese Maritime Customs between 1864 and 1949 "was equal to and perhaps superior to its counterpart in the Western trading nations" (Hsiao 1974, 7). CMC also employed a large staff of both foreign and Chinese employees who were trained in modern bureaucratic practices (Van de Ven 2014). The personnel mobility was constant and transparent based on employees' quality and ability, which shows the discipline and proficiency of CMC (Jin 2023; Van de Ven 2014). Through its training programs and employment practices, the CMC helped cultivate a class of Chinese professionals skilled in international trade, finance, and maritime law. This expertise was instrumental in the modernization of China's civil service and commercial sectors.

Moreover, CMC's efficient tax collection and information management provided a stable source of revenue for the Qing government (Hall and Bickers 1977). Because of the good reputation of CMC, acknowledged both by Qing government and foreign powers, Western banks even provided loans to the Chinese government secured by future tariff revenues (Jin 2023; Van de Ven 2014). This was crucial for funding modernization projects, including infrastructure development and military reforms (Hall and Bickers 1977).

Socio-politically, the CMC under foreign direction sparked Chinese nationalism, with calls for domestic control over the customs service mirroring wider aspirations for national sovereignty and self-determination, contributing to the rise of movements that eventually led to significant political changes, including the 1911 Revolution (Chen 2002).

As a historical legacy, the extensive records and reports produced by the CMC have become invaluable archival resources for historians and researchers, offering detailed insights into China's economic history, international trade, and socio-political landscape during this transitional period (Lyons 2003; S. Wu 2014). Van de Ven described the customs service as a regime in the frontier: a "state within a state," an imperium in imperio (Van de Ven 2014). With

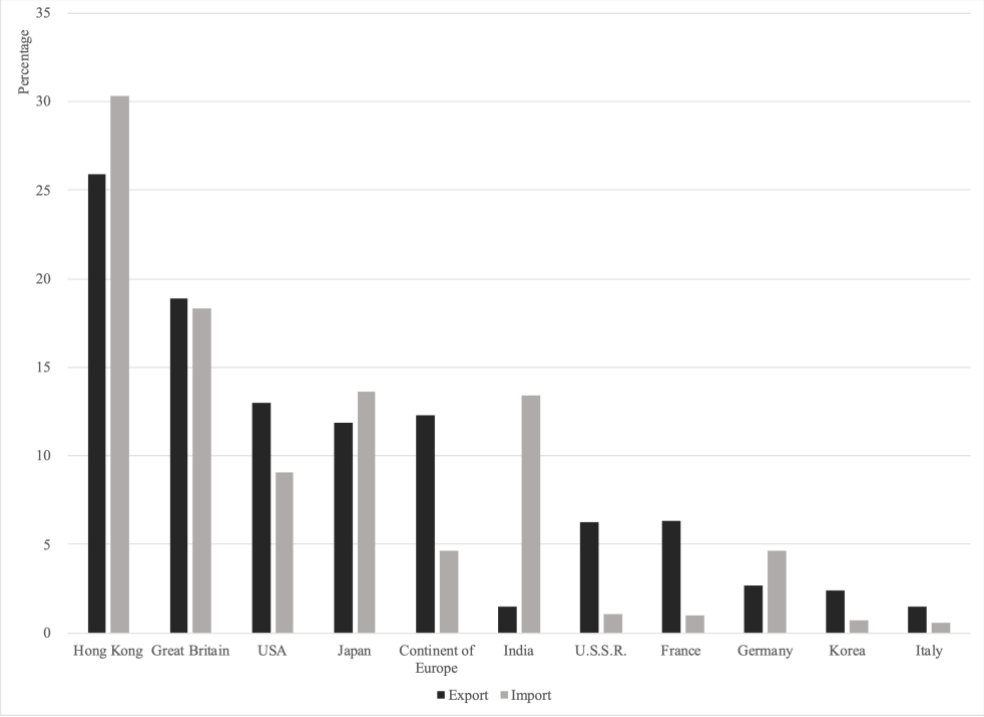
[5] Private letter dated July 5, 1864 from Burlingame to William H. Seward, *Documents Illustrative of the Origin, Development, and Activities of the Chinese Customs Service*, VII, 81, cited in Hsiao (1974, p. 6).

its own structure, ethos, traditions and regulations, this cosmopolitan civil service bureaucracy operated with considerable independence in the frontier zone and mediated between Chinese traditional regimes and foreign empires (Van de Ven 2014). Its dynamic information capabilities allowed the CMC to rapidly adapt to domestic and international shifts. The longevity of the CMC, in a context of tumultuous political upheavals and foreign imperial interventions, was attributed to its adaptive nature and strong internal governance (Van de Ven 2014).

### 2.2.3 China's overall foreign trade in Treaty Port Era, 1864–1941

In 1864–1941, China's main trading partners were Hong Kong, Great Britain, the United States of America and Japan, which accounted for around 70% in China's total export and import (see Figure 2.1). Besides these four main partners, Continental Europe accounted for 12% in China's total export and India for 13.4% in China's total import from 1864 to 1941.

**Figure 2.1: China's foreign trade with principal trading partners, 1864–1941 (in percentage)**

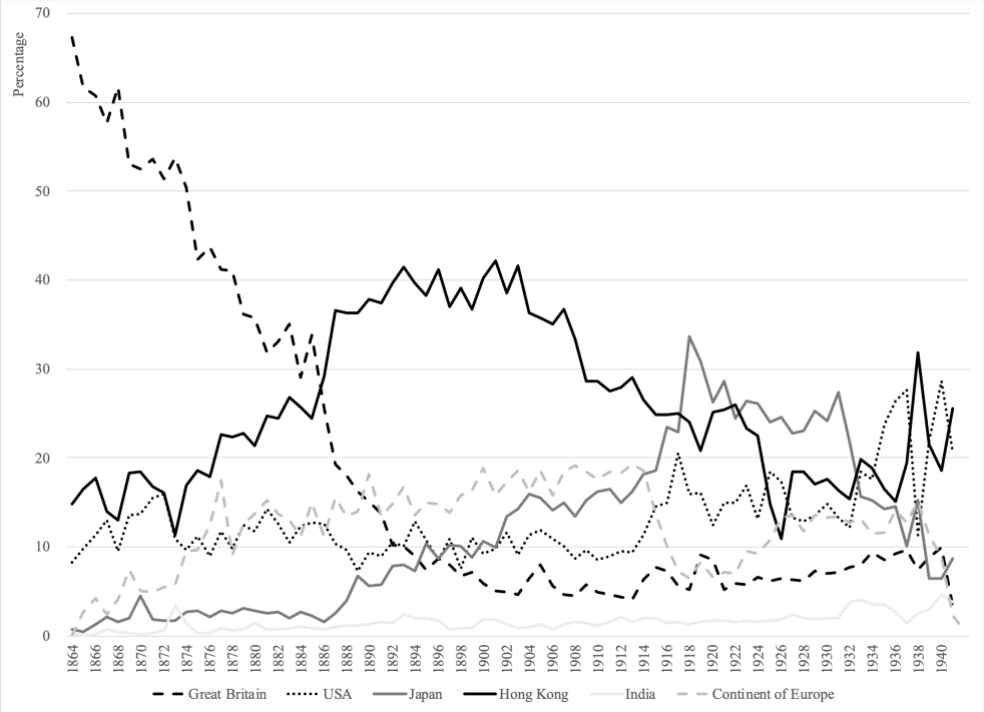



**Sources:** Author's own elaboration based on *Chinese Maritime Customs Annual Reports (1864–1941)* and Hsiao (1974).

**Notes:** 1. Data of France, Germany, Korea and Italy are for 1905–1941; 2. Since 1908, data of Continent of Europe (with Russia excepted) include France, Italy, Germany and Netherlands.

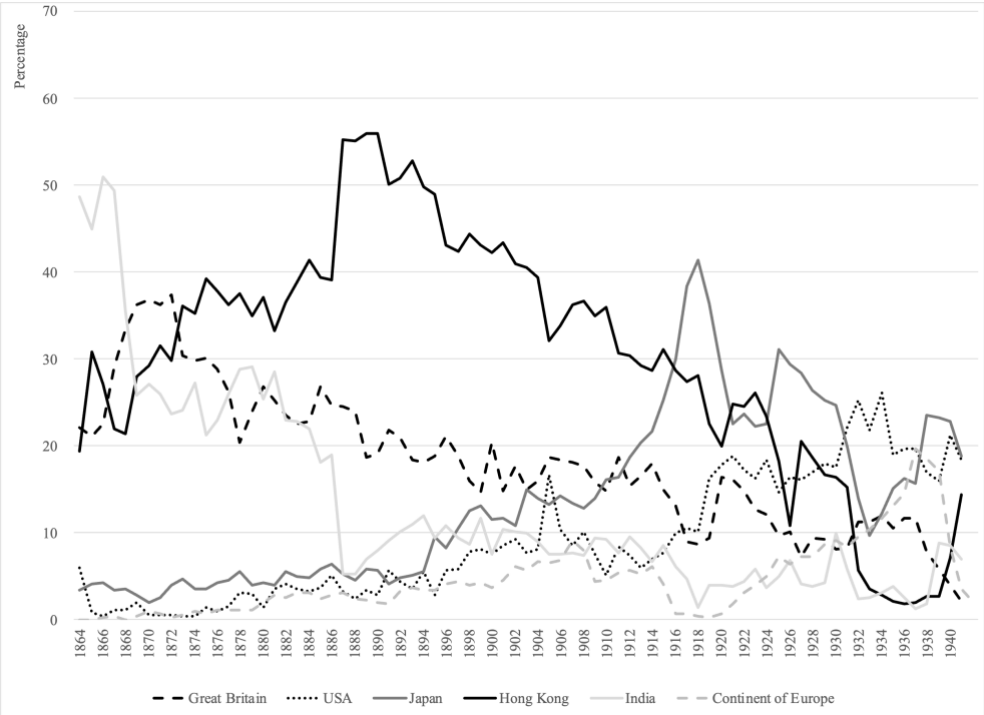
The relative importance of these trading partners changed over time. As observed in Figure 2.2, the relevance of Great Britain in China's total export shows a decreasing trend. It remained as the first China's export partner until 1886 when it was surpassed by Hong Kong. Moreover, after 1896, Great Britain tended to be the least important export partner of the four previously highlighted. This pattern repeats when looking at China's total import: Great Britain's relative weight shows a declining tendency after arriving at the vertex in 1872 (see Figure 2.3). In contrast to this decreasing trend, the relative importance of USA in China's exports was more stable in 1864–1913. As for imports, the importance of USA increased across the whole period of 1864–1941.

**Figure 2.2: China's export to principal trading partners, 1864–1941 (in percentage)**




**Sources:** Author's own elaboration based on *Chinese Maritime Customs Annual Reports (1864–1941)* and Hsiao (1974).

**Figure 2.3: China's import from principal trading partners, 1864–1941 (in percentage)**




**Sources:** Author's own elaboration based on *Chinese Maritime Customs Annual Reports (1864–1941)* and Hsiao (1974).

As for Asian trade partners, the relative importance of Japan was negligible before the 1890s. Indeed, Figure 2.2 shows that in most of the years between 1864 and 1887 Japan accounted for no more than 3% in China's total exports. Likewise, it accounted for less than 10% of China's total imports before 1897. These paths changed after the First Sino-Japanese War (1894–1895). Between 1895 and 1925, Japan's share in China's total foreign trade rose from 10.16% to 30.75% (Y. Wu 1932, cited by S. Wu 2015, 18). In 1901 Japan surpassed Great Britain and USA, and it became the most important partner in China's exports almost every year across the 1918-1931 period (see Figure 2.3). Japan's significance in China's imports also increased rapidly since the 1890s. Even more, except for very specific years, it became the most important partner in China's imports during 1916–1931 (see Figure 2.3).

The relative weight of Hong Kong shows an inverse U-shape. It increased noticeably since the 1870s. Thereafter, during the 1880s and 1890s, more than 30% of China's total exports went to Hong Kong and more than 40% of China's imports arrived from Hong Kong. Initially, this was consequence of the gradual establishment of Hong Kong as an entrepôt. After 1880s, the scope of Hong Kong's international commercial connections increased because of the higher relevance of Japan and USA (Zhang 2000, 79-82). However, from the beginning of the 20th century the dominant position of Hong Kong in China's foreign trade began to fall.

## 2.3 Methodology and data review

### 2.3.1 Foreign trade data mirror analysis

The method of mirror analysis is an analytical approach in foreign trade studies and serves as a critical tool to cross-verify the trade data reported by trading partners. This method rests on the economic principle that exports of one country should equate to imports of its trading partner after adjustments for variables such as freight and insurance costs, timing discrepancies in transaction recordings, and exchange rate differences (Bhagwati 1974; Federico and Tena 1991; Morgenstern 1963).

The application of mirror analysis is extensive within the field of economic studies, providing critical insights into customs fraud, tariff evasion, and illicit financial flows. Ferrantino, Liu, and Wang (2012) shed light on the complexities of bilateral trade statistics, particularly with reference to China, Hong Kong, and the United States, by revealing significant data inconsistencies attributed to re-exporting practices and recording disparities. Nitsch (2012) leveraged this methodology to explore trade mispricing and its facilitation of illicit financial transfers across national borders. Javorcik and Narciso's (2008) application of mirror analysis delved into the impact of differential tariff rates on the misclassification of imports at the product level, offering substantiation for tariff evasion strategies. Tena-Junguito (2010) reassessed the interplay between tariff protection and economic growth via meticulous scrutiny of tariff and trade data, exemplifying the essence of mirror analysis through cross-national data comparison. Fisman and Wei (2009) employed mirror analysis to uncover significant discrepancies in the trade of cultural property and antiques, indicative of widespread smuggling and underreporting. Liu et al. (2020) assessed trade discrepancies in logs and lumber, emphasizing the role of government policies in the emergence and resolution of trade data discrepancies.

In the realm of economic history, mirror analysis has been pivotal in enhancing the comprehension of trade data accuracy and historical trade patterns. Kuntz-Ficker (2017) employed this method to study Latin America's engagement in the first wave of globalization,

underscoring the necessity for precision in trade data. Federico and Tena-Junguito (2019) adopted this methodology to reconcile historical trade data discrepancies, thereby weaving a comprehensive narrative of global trade from fragmented data sources. Other researchers have applied mirror analysis to validate and reconstruct historical trade series for Latin American countries, offering novel perspectives on the dynamics of 19th and early 20th-century global trade (see Carreras-Marín and Badia-Miró 2008; Kuntz-Ficker 2018; Peres-Cajías and Carreras-Marín 2018; Rayes 2015; Tena-Junguito and Willebald 2013). Collectively, these diversified works show the critical importance of mirror analysis and the accuracy of trade data in historical economic research, contributing to the investigation of historical global trade networks.

The methodological application of mirror analysis in economic research offers a robust means to assess the reliability of trade statistics. The legibility and reliability of statistics allows for the evaluation of the reporting organization's capacity for data collection and management (Lee and Zhang 2017). Our study employs mirror analysis to examine the consistency between the trade data reported by China and its trading partners, providing insight into the evolving capabilities of the Chinese Maritime Customs in the management of foreign trade information.

Mirror analysis is conducted through a comparison of bilateral trade flows or via a multilateral aggregate index encompassing a broader range of countries. Developed economies, recognized for their advanced customs and data registration systems, frequently serve as benchmarks in this comparative analysis (Kuntz-Ficker 2018). For instance, historical accuracy studies of Latin American trade data often reference the trade statistics of countries such as Great Britain, France, the United States, and Germany for their mirror data (see Carreras-Marín and Badia-Miró 2008; Kuntz-Ficker 2018; Peres-Cajías and Carreras-Marín 2018; Rayes 2015; Tena-Junguito and Willebald 2013).

Our analysis compares a country's export data in Free on Board (FOB) prices, with its trading partner's import data in Cost, Insurance, and Freight (CIF) prices. The differential between FOB export data and CIF import data incorporates the costs of freight and insurance. Federico and Tena (1991) estimated freight factor differences in international trade, accounting for a variance from 2% to 21%, thus positing an acceptable confidence interval of 80-100% for

exports and 100-120% for imports. Tena-Junguito and Willebald (2013) further estimated these factors for Argentine exports between 1870-1913, finding a range from 16% to 28%, with an average of 19%. Consequently, various historical trade data accuracy studies have adopted an average CIF/FOB ratio of 20% as a standard for acceptable bilateral data discrepancies (see Carreras-Marín and Badia-Miró 2008; Kuntz-Ficker 2018; Peres-Cajías and Carreras-Marín 2018; Rayes 2015).

In our research, we apply this 20% standard to streamline the analysis of bilateral and multilateral trade data discrepancies between China and its trading partners. We assess the distance between the mirror analysis results and the acceptable data discrepancy to evaluate the accuracy of the Chinese Maritime Customs' recorded trade data over time. A structural break analysis is employed to pinpoint moments of significant changes in the mirror analysis results, while the standard deviation of these results serves as a measure of the volatility in the accuracy of the foreign trade data.

To calculate the bilateral data discrepancy between pairs of trading countries, we use these formulas on the basis of Morgernstern's work (Morgenstern 1963).

$$AX_{ch.tp} = \frac{X_{ch.tp} - M_{tp.ch}}{X_{ch.tp}} \quad (1)$$

$$AM_{ch.tp} = \frac{M_{ch.tp} - X_{tp.ch}}{M_{ch.tp}} \quad (2)$$

In formula (1), $AX_{ch.tp}$ evaluates the accuracy of China's export data to its trading partner. $X_{ch.tp}$ is China's export to its trading partner in CMC's statistics. $M_{tp.ch}$ is the import from China in its trading partner's data. In formula (2), $AM_{ch.tp}$ calculates the accuracy of China's import data from its trading partner. $M_{ch.tp}$ is China's import from its trading partner in CMC's data. $X_{tp.ch}$ is the export data of its trading partner to China.

We use these two formulas to compare bilaterally China's data with its three main trading partners: the United States of America, United Kingdom and Japan. Based on the acceptable range of around 20% because of freight factors, the bilateral data discrepancy could be accepted if the results of the formula (1) are between –0.2 and 0 and the results of the formula (2) are within 0 and 0.2. The result of formula (1) should be negative, and the result of formula (2)

should be positive given that, for the same trade flows, the import values in CIF prices are generally higher than the export values in FOB prices.

As the bilateral mirror analysis could be affected by geographical assignment and errors in the recording of ultimate origin and destination in transit trade, Federico and Tena (1991) designed a multilateral aggregate index to overcome this problem. The index is the ratio of the total trade of a country according to its own statistics to the sum of the same flows according to its partners' sources (Federico and Tena 1991). Based on this index, it is possible to offer a multilateral trade data mirror analysis (see formulas 3-6).

$$AX_{ch.g2} = \frac{X_{ch.usa}+X_{ch.uk}}{M_{usa.ch}+M_{uk.ch}} \quad (3)$$

$$AM_{ch.g2} = \frac{M_{ch.usa}+M_{ch.uk}}{X_{usa.ch}+X_{uk.ch}} \quad (4)$$

$$AX_{ch.g3} = \frac{X_{ch.usa}+X_{ch.uk}+X_{ch.jp}}{M_{usa.ch}+M_{uk.ch}+M_{jp.ch}} \quad (5)$$

$$AM_{ch.g3} = \frac{M_{ch.usa}+M_{ch.uk}+M_{ch.jp}}{X_{usa.ch}+X_{uk.ch}+X_{jp.ch}} \quad (6)$$

$X_{ch.usa}$, $X_{ch.uk}$ and $X_{ch.jp}$ are the export of China to United States of America, United Kingdom and Japan in CMC's statistics. $M_{ch.usa}$, $M_{ch.uk}$ and $M_{ch.jp}$ are China's import data from its trading partners also in CMC's statistics. $X_{usa.ch}$, $X_{uk.ch}$ and $X_{jp.ch}$ are exports of the mentioned *g3* countries to China in their own statistics. $M_{usa.ch}$, $M_{uk.ch}$ and $M_{jp.ch}$ are their import data from China. A valid data discrepancy between China and its trading partners could be accepted if the results of formulas (3) and (5) move between 0.8 and 1 and the results of formulas (4) and (6) are between 1 and 1.2.

### 2.3.2 Hong Kong as entrepôt

The significant role of Hong Kong as the major entrepôt in China's foreign trade in the Treaty Port era has been confirmed by many authors (Keller, Li, and Shiue 2011). Due to the lack of information of the ultimate origin and destination of China's trade via Hong Kong before 1931, some analysis on China's foreign trade between 1864 and 1949 nets out trade through Hong Kong (see, for instance, Keller and Shiue 2020).

Keller and Shiue (2020) shows that, during the 19th century, it was officially accepted that around 40% of China's imports originated in Hong Kong and nearly 30% of its exports were destined to Hong Kong. However, only a small part of China's imports from (and exports to) Hong Kong are originated (or consumed) there. Kong (2017) also emphasizes the importance of distinguishing the actual source and destination of Hong Kong's trade. Indeed, China's trade performance will vary greatly depending on whether Hong Kong's re-export is considered. If trade with Hong Kong is regarded as China's domestic trade, the impact of foreign powers in Hong Kong's will be underestimated and the scale of China's domestic market will be overestimated. If trade with Hong Kong is regarded as China's foreign trade with the British Empire, the re-export role of Hong Kong will be underestimated, and this will also overestimate the role of foreign countries in China (Kong 2017).

Even if there are no official statistics, as much relevant information as possible has been collected from previous literature to estimate Hong Kong's re-exports. As for the relative importance of main Hong Kong's trade partners, H. B. Morse indicates that, from 1899 to 1903, the United Kingdom, Japan and USA occupied 19%, 15% and 5%, respectively, of Hong Kong's foreign trade (Wong 2007, cited in Kong 2017, 169). From 1909 to 1922, 20% of Hong Kong's trade was with the United Kingdom (Y. Wu 1932, 250-253). Before the World War I, USA accounted for about 6% of Hong Kong's foreign trade; during the war, USA and Japan changed to 12% and 10%, respectively, of the total trade value (Y. Wu 1932, 250-253). From 1921 to 1930, 23% of Hong Kong's trade was attributed to Europe and the United States, and 70% to Asia (Sugihara 1996, cited in Kong 2017, 169). In 1931–1936, the actual destination of Chinese mainland exports through Hong Kong was as follows: 31.24% to Hong Kong, 21.61% to Mainland China, 9.33% to Vietnam, 7.89% to the United States, 6.80% to the Straits Settlements, 4.52% to Thailand, 3.28% to the United Kingdom and 3.05% to Japan (Kong 2017, 172). All this information is summarized in Table 2.1.

**Table 2.1: China mainland's exports through Hong Kong, 1899–1936 (in percentage)**

| Year \ Destination | United Kingdom | USA | Japan |
|---|---|---|---|
| 1899 – 1903 | 19% | 5% | 15% |
| 1909 – 1922 | 20% | 6% (before WWI)<br>12% (during WWI) | 10% (during WWI) |
| 1921 – 1930 | 23% to Europe and the United States and 70% to Asia | | |
| 1931 – 1936 | 3.28% | 7.89% | 3.05% |

**Sources:** See text.

Taking Hong Kong into account, the following formulas are used for the multilateral data accuracy analysis.

$$AX_{ch.hk.g2} = \frac{X_{ch.usa}+X_{ch.uk}+(X_{ch.hk}*Px_{hk.g2})}{M_{usa.ch}+M_{uk.ch}+M_{usa.hk}+M_{uk.hk}} \quad (7)$$

$$AX_{ch.hk.g3} = \frac{X_{ch.usa}+X_{ch.uk}+X_{ch.jp}+(X_{ch.hk}*Px_{hk.g3})}{M_{usa.ch}+M_{uk.ch}+M_{jp.ch}+M_{usa.hk}+M_{uk.hk}+M_{jp.hk}} \quad (8)$$

In formulas (7) and (8), $X_{ch.usa}$, $X_{ch.uk}$ and $X_{ch.jp}$ are respectively China's exports to United States of America, United Kingdom and Japan in CMC's statistics. $M_{usa.ch}$, $M_{uk.ch}$ and $M_{jp.ch}$ are imports of *g3* countries from China recorded in their official statistics. $M_{usa.hk}$, $M_{uk.hk}$ and $M_{jp.hk}$ are *g3* countries' recorded import from Hong Kong.[6] $Px_{hk.g2}$ is the percentage of Hong Kong's re-export to UK and USA in Mainland China's exports via Hong Kong and $Px_{hk.g3}$ includes Hong Kong's re-exports to Japan. Using these formulas and the import data of *g3* from China and Hong Kong, it is possible to make a mirror analysis of CMC's export data to USA, UK, Japan and Hong Kong. Given the information of destination of Chinese mainland's exports through Hong Kong as entrepôt (1899–1936) provided in Table 2.1, I estimated the value of $Px_{hk.g2}$ and $Px_{hk.g3}$ in different years (see Table 2.2).[7]

[6] The United Kingdom recorded import data from Hong Kong separately for the whole period 1864–1949 while United States of America did it in 1873–1949.

[7] a. For those years without information, we assume that the percentage of UK, U.S.A. and Japan's imports from Hong Kong were the same as the neighboring period. Thus, 1875–1898 and 1904–1908's data follow 1899–1903's data; 1923–1930 and 1937–1938's data follow1931–1936's data. b. For the years 1909–1922, we make an average of the percentages of U.S.A. before and during the WWI, which is 9%. We use the data of Japan in WWI for all this period.

**Table 2.2: Percentage of UK, USA and Japan's import from Hong Kong in China's export via Hong Kong, 1875–1938**

| Years | $Px_{hk.g2}$ | $Px_{hk.g3}$ |
|---|---|---|
| **1875–1908** | 0.24 | 0.39 |
| **1909–1922** | 0.29 | 0.39 |
| **1923–1938** | 0.11 | 0.14 |

**Sources:** See text.

### 2.3.3 Data review and correction

This subsection details the standardization of trade data from CMC and its trade partners, adhering to the standards reviewed by Kuntz-Ficker (2018). This initial step is crucial for rendering the data uniform and amenable to comparison.

Firstly, I addressed the variations in accounting for yearly periods. While some countries employ a calendar year (January to December), others use a range of fiscal years (e.g., October to September, July to June) (Kuntz-Ficker 2018). To facilitate accurate comparisons of trade statistics among various partners, it is essential to ensure that the annual period data series from the countries concerned are consistent. In our mirror analysis of trade data, we compare China's trade figures with those of its trading counterparts. While the sample countries typically report statistics on a calendar year basis, the United States' foreign trade data from 1864 to 1913 were in a fiscal year basis (July to June). To mitigate discrepancies arising from these different customs calendars, I calculated five-year moving averages of the USA's data, thereby harmonizing the bilateral trade data for the mirror analysis.

Secondly, it is accounted that original trade data from various nations are typically denominated in their respective local currencies. To make them comparable, the trade data are converted into a common currency using annual market exchange rates sourced from the RICardo Database[8] (Dedinger and Girard 2017). For the multilateral mirror analysis, China's original data,

[8] https://ricardo.medialab.sciences-po.fr/#!/

recorded in Haikwan Taels (1868–1932) and Standard Dollars (1933–1938), are converted to U.S. dollars. Similarly, corresponding trade data of the trade partners are also adjusted from their local currencies to U.S. dollars.[9]

### 2.3.4 Structural break analysis

In this study, we employ mirror analysis to evaluate the accuracy of foreign trade data recorded by the Chinese Maritime Customs (CMC), which give insights of this institution's information capacity. As we will show in the next section, the mirror analysis results exhibit temporal variations. To address these shifts, we apply the Bai and Perron (1998) structural break analysis to the mirror analysis results to identify the breakpoints years with significant changes.

The structural break test encompasses the entire span of the mirror analysis results, accommodating between one to five potential breakpoints. For clarity, Table 2.3 shows the findings assuming the maximum of five breaks, although the results remain consistent when adjusting the number of breaks permitted.

**Table 2.3: Results of the structural break analysis**

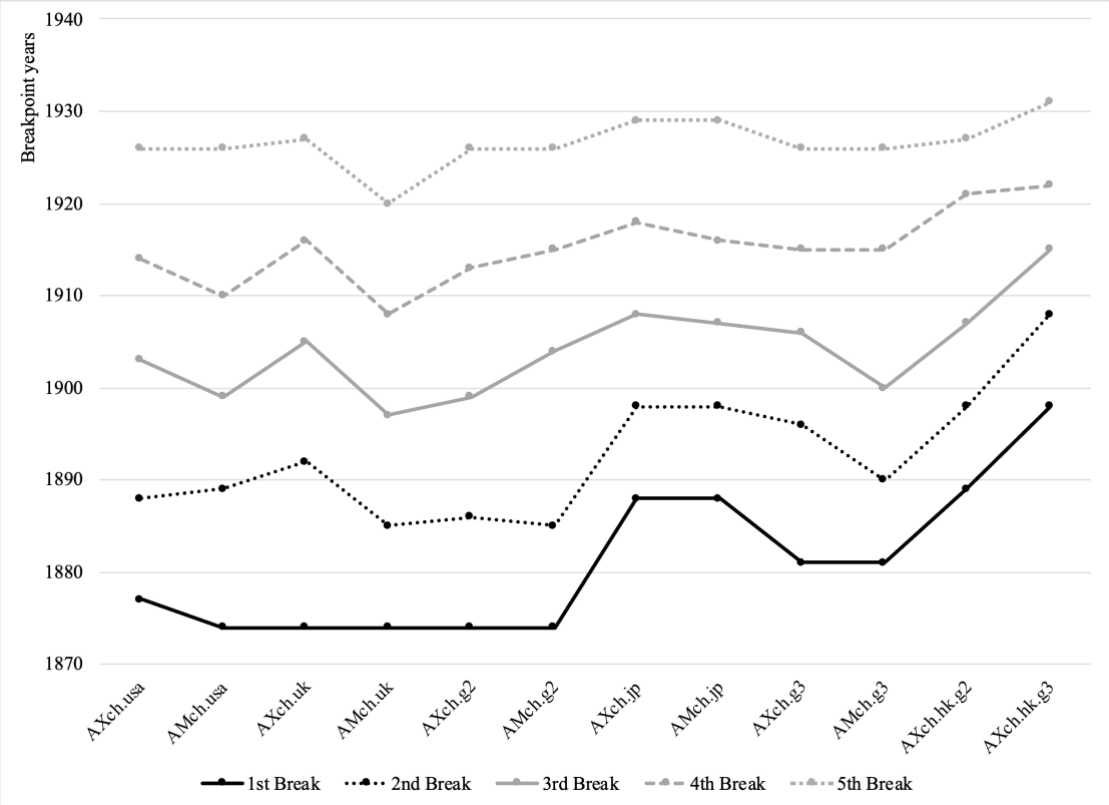
| Series | Period | 1st Break | 2nd Break | 3rd Break | 4th Break | 5th Break |
|---|---|---|---|---|---|---|
| AXch.usa | 1864-1938, 75 observations | 1877 | 1888 | 1903 | 1914 | 1926 |
| AMch.usa | 1864-1938, 75 observations | 1874 | 1889 | 1899 | 1910 | 1926 |
| AXch.uk | 1864-1938, 75 observations | 1874 | 1892 | 1905 | 1916 | 1927 |
| AMch.uk | 1864-1938, 75 observations | 1874 | 1885 | 1897 | 1908 | 1920 |
| AXch.jp | 1873-1938, 66 observations | 1888 | 1898 | 1908 | 1918 | 1929 |
| AMch.jp | 1873-1938, 66 observations | 1888 | 1898 | 1907 | 1916 | 1929 |
| AXch.g2 | 1864-1938, 75 observations | 1874 | 1886 | 1899 | 1913 | 1926 |
| AMch.g2 | 1864-1938, 75 observations | 1874 | 1885 | 1904 | 1915 | 1926 |
| AXch.g3 | 1873-1938, 66 observations | 1881 | 1896 | 1906 | 1915 | 1926 |
| AMch.g3 | 1873-1938, 66 observations | 1881 | 1890 | 1900 | 1915 | 1926 |
| AXch.hk.g2 | 1875-1938, 64 observations | 1889 | 1898 | 1907 | 1921 | 1927 |
| AXch.hk.g3 | 1889-1938, 50 observations | 1898 | 1908 | 1915 | 1922 | 1931 |

**Sources:** Author's own elaboration.

[9] Data of USA were in U.S. Dollar. Great Britain's data were in Sterling Pound. Japan's data were in Japanese yen.

Figure 2.4 presents the breakpoints identified in Table 2.3, revealing a concentration of breakpoint years, particularly within the bilateral and multilateral series comparing China's trade data with that of G2 countries (UK and USA). These breakpoints cluster around five distinct periods: 1874, 1885-1889, 1899-1905, 1913-1916, and 1926-1927. Similarly, the bilateral series between China and Japan exhibit breakpoint concentration in 1888, 1898, 1907-1908, 1916-1918, and 1929. These results suggest that during the identified breakpoint years, CMC recorded trade data accuracy underwent notable changes.

**Figure 2.4: Five structural breakpoints in trade data mirror analysis**




**Sources:** Author's own elaboration.

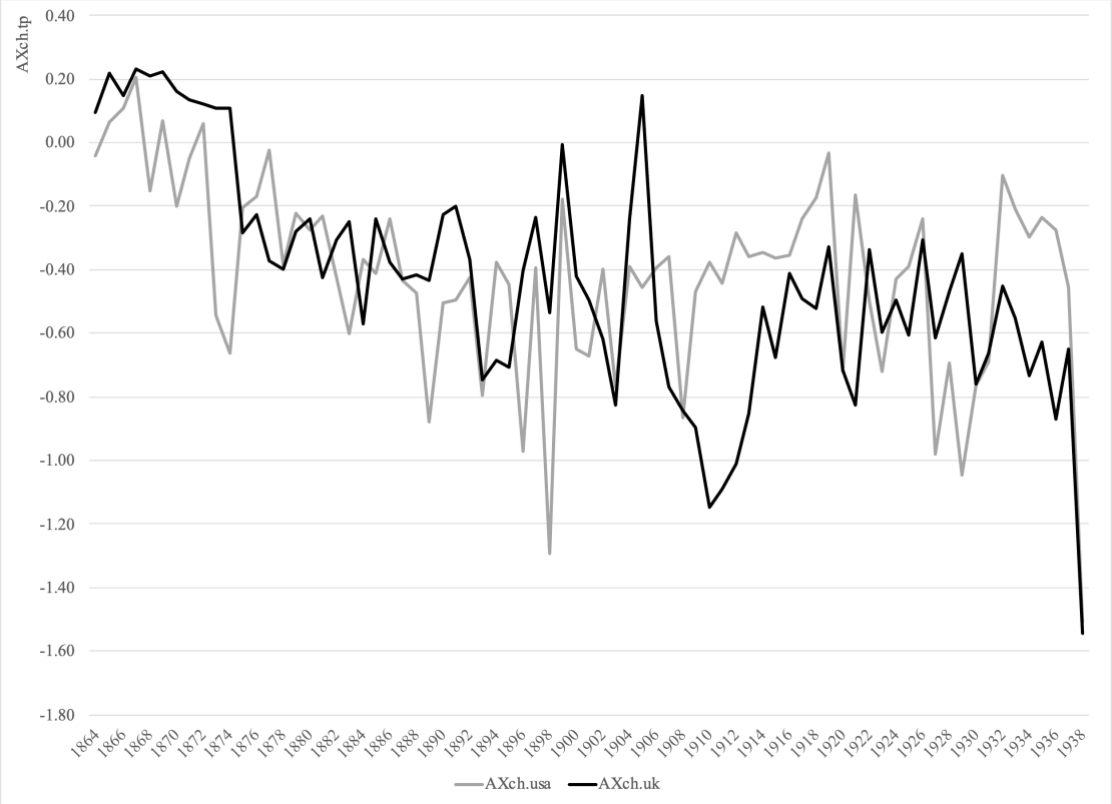
Thus, the structural break analysis serves as an indicator of significant alterations in the trade data mirror analysis results. To further assess the trade data accuracy surrounding these breakpoints, I measure the distance of the mirror analysis results to the acceptable discrepancy range and calculate the standard deviation for each period. It is proposed that a reduction in both the distance to the acceptable range and the standard deviation after the breakpoint year

indicates an enhancement in CMC's foreign data accuracy. Conversely, an increase in these metrics after the breakpoint year suggests a decline in CMC's foreign data accuracy.

## 2.4 China and the West: better institution capacity, higher accuracy

This section compares China's trade data with that of USA and UK. As illustrated in Figure 2.5, discrepancy between China's export data and USA's import data in 1865–1867 is above 0. This also happens in the comparison with UK's import data in 1864–1874, which moved between –0.05 and 0.19. These results imply that China declared more exports to USA and UK in FOB prices than its partners' recorded imports values from China in CIF price. Figure 2.6 also shows that the discrepancy between China's import data and USA's export data in 1865–1875 was below 0, which means that China declared less imports from USA in CIF price than its partner's recorded export value to China in FOB price.

**Figure 2.5: Bilateral mirror analysis between China's export data and UK and USA's import data, 1864-1938**




**Sources:** Author's own elaboration based on *Chinese Maritime Customs Annual Reports (1864–1938)*, *Foreign Commerce and Navigation of the United States (1862–1941)* and *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions (1864–1938).*

**Notes:** The mirror analysis in this figure uses the formulas $AX_{ch.usa} = \frac{X_{ch.usa} - M_{usa.ch}}{X_{ch.usa}}$ and $AX_{ch.uk} = \frac{X_{ch.uk} - M_{uk.ch}}{X_{ch.uk}}$. The acceptable range of the results are between –0.2 and 0.

**Figure 2.6: Bilateral mirror analysis between China's import data and USA's export data, 1864-1938**


**Sources:** Author's own elaboration based on *Chinese Maritime Customs Annual Reports (1864–1938)*, Hsiao (1974) and *Foreign Commerce and Navigation of the United States (1862–1941).*

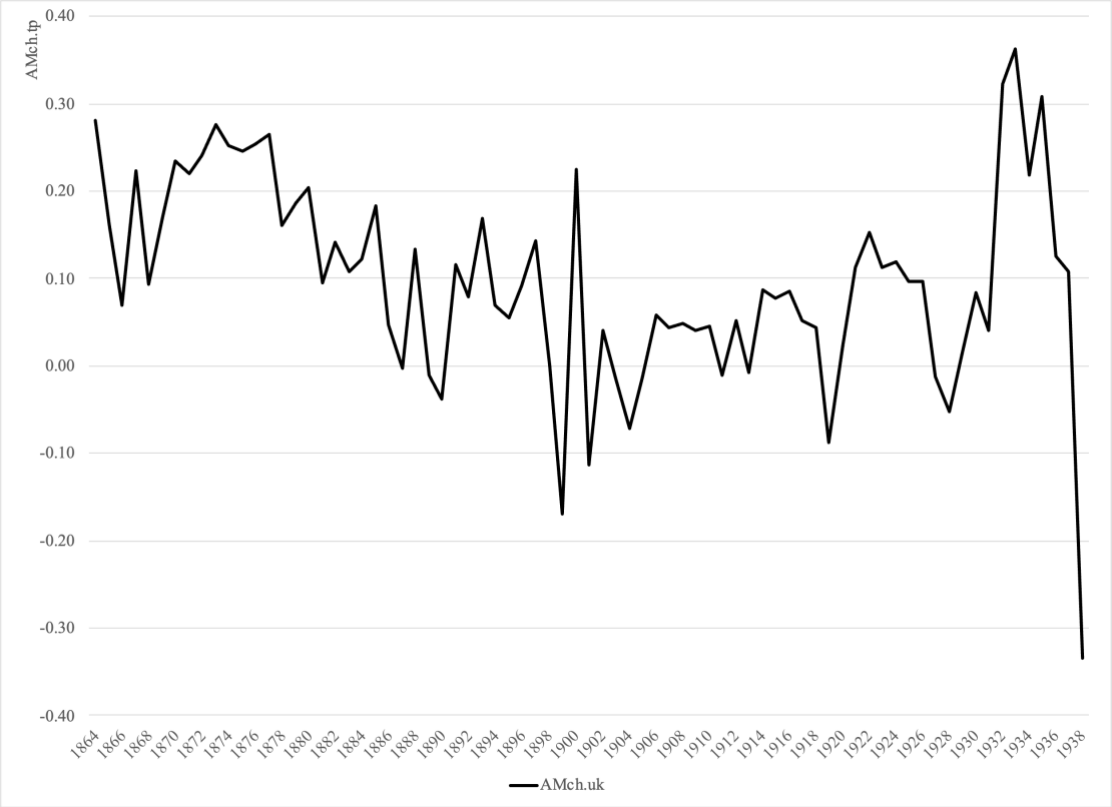
**Notes:** The mirror analysis in this figure uses the formula $AM_{ch.usa} = \frac{M_{ch.usa} - X_{usa.ch}}{M_{ch.usa}}$. The acceptable range of the results are between 0 and 0.2.

This issue of overestimating China's exports or underestimating China's imports could be related to the registration deficiencies of Chinese Maritime Customs during this period. Prior to 1932, the registration of origin of imports and destination of exports was based on the ports from which goods were imported and the ports to which they were exported (Hsiao 1974). As USA played a significant role in the transit trade between Asia and other countries in the Americas, and the United Kingdom was a semi-metropolis of China and an important re-exporter of Chinese products in the first few years after China's forced opening, the registration method used by the CMC could lead to incorrect geographic assignment of international trade.

Despite the mentioned restrictions, figures 2.5, 2.6 and 2.7, suggest a more stable trend in the similarity between China's data and its trade partners' data from 1875 to 1895. In this context,

Figure 2.8 shows that 1874 is a breakpoint year for most of the series that compare bilaterally or multilaterally China's data with *g2* countries' (USA and UK) statistics. The results show that after 1874, the distance of mirror analysis results to the acceptable range decreased or remained in 0. Furthermore, the standard deviation also tends to decrease after 1874. Overall, this suggests that 1874 could be a positive breakpoint year in terms of CMC's data accuracy.

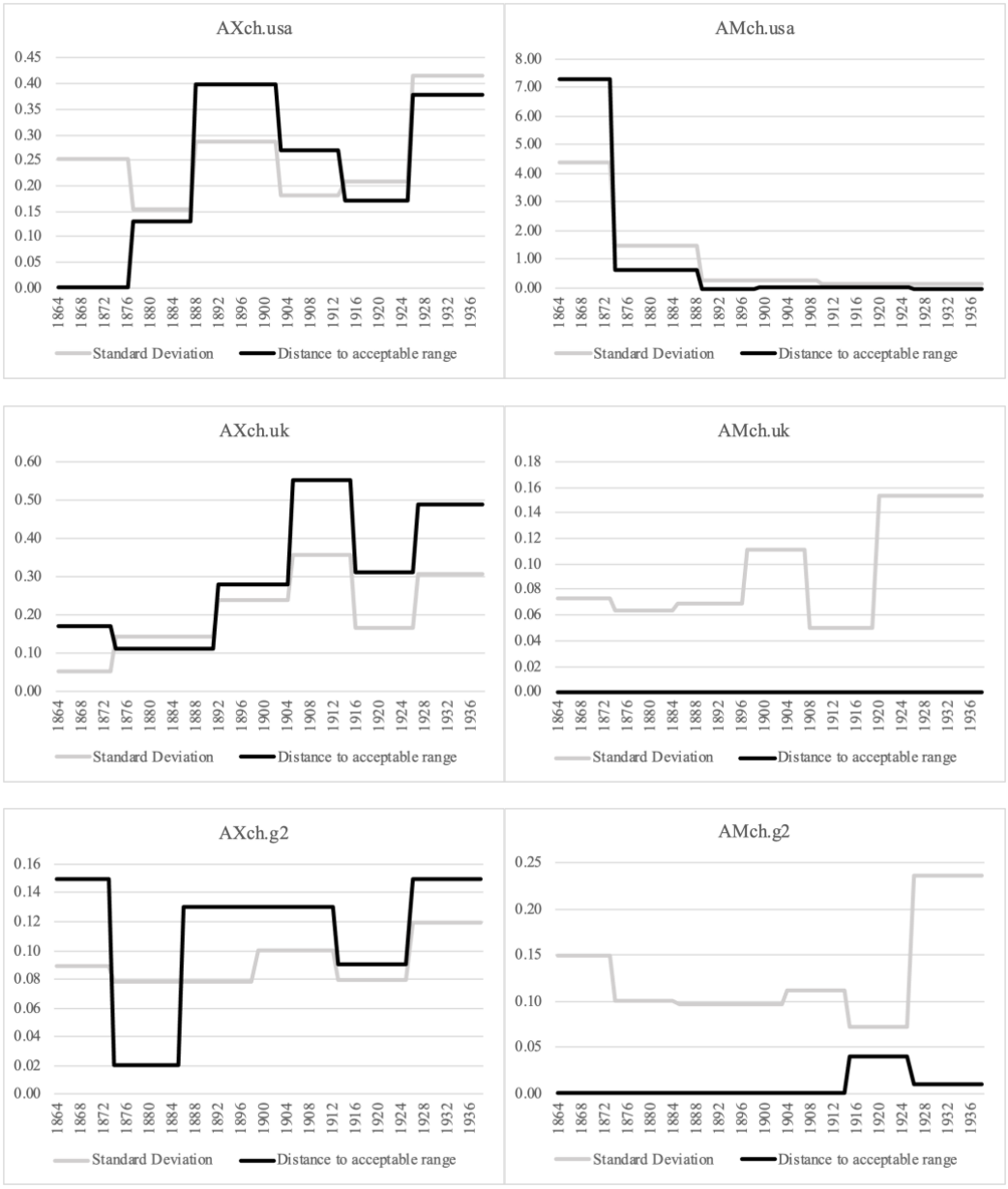
**Figure 2.7: Bilateral mirror analysis between China's import data and UK's export data, 1864-1938**




**Sources:** Author's own elaboration based on *Chinese Maritime Customs Annual Reports (1864–1938)* and *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions (1864–1938).*

**Note:** The mirror analysis in this figure uses the formula $AM_{ch.uk} = \frac{M_{ch.uk} - X_{uk.ch}}{M_{ch.uk}}$. The acceptable range of the results are between 0 and 0.2.

**Figure 2.8: Structural breaks of trade data mirror analysis between China and *g2* countries (USA and UK)**




**Sources:** Author's own elaboration.

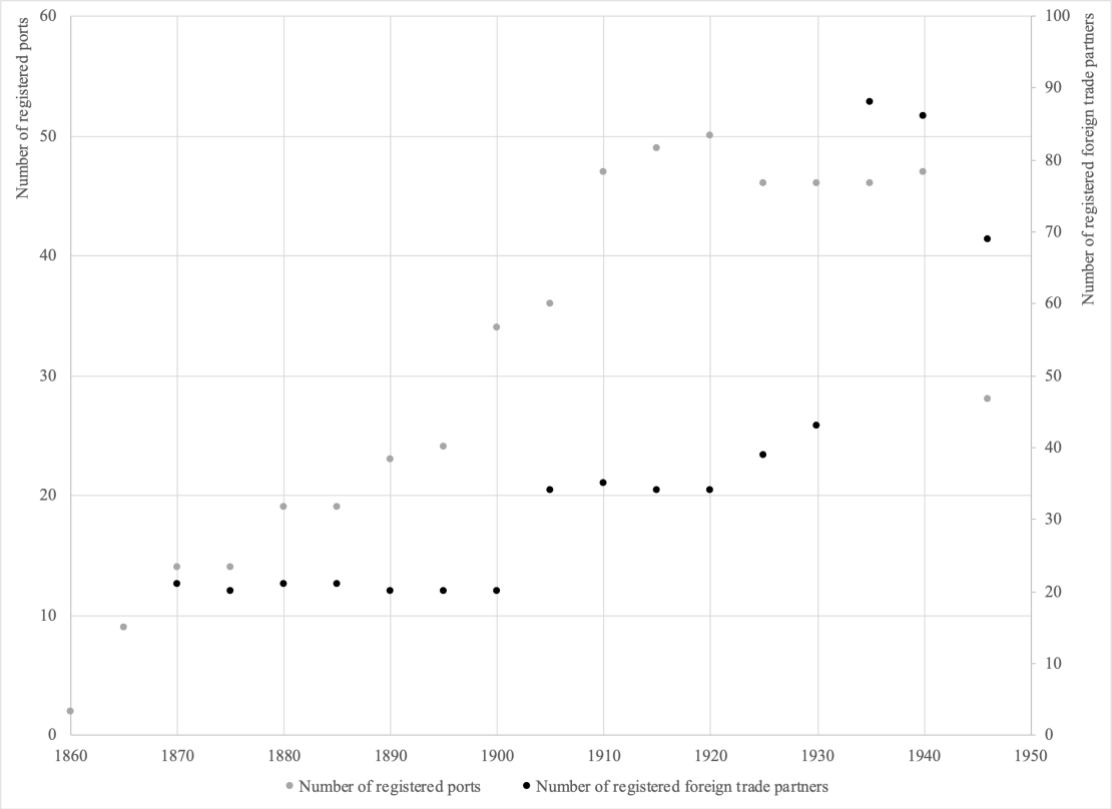
**Note:** This figure shows the years identified as structural breakpoints derived from the mirror analysis results. The black line represents the average distance of the mirror analysis results to the acceptable discrepancy range. The grey line denotes the standard deviation of the mirror analysis results for each interval before and after each identified breakpoint year. A reduction in these indicators during the post-breakpoint period relative to the pre-breakpoint period implies an improvement in the accuracy of CMC's foreign trade data, suggesting a positive breakpoint. In contrast, an increase in these metrics during the post-breakpoint period shows a deterioration in the accuracy of CMC's foreign trade data, which characterizes a negative breakpoint.

This improvement, in turn, could be explained by the change in the units of measurement used by CMC. Prior to 1875, trade values were reported in different local taels in China, but from 1875 onwards, Haikwan taels[10] were adopted as the standardized unit of account for all ports (Hsiao 1974). This shift to a unified measurement in trade data registration contributed to a more consistent and legible representation of statistics by CMC. It reflects an enhancement of the institution's capacity to compile and standardize information. Furthermore, this change implied an institutional convergence between China and the world, as well as an advancement in CMC's ability to learn and apply international rules and regulations for data collection.

Figures 2.5-2.7 also suggest a significant increase in the similarity between China's trade data and that of USA and UK from 1904 to 1926. Figure 2.8 shows that from the beginning of 20$^{th}$ century to around 1926, the mirror analysis results between China and *g2* countries were stable or showed a decrease in both distance to the acceptable range and standard deviation. These findings suggest again improvements in the accuracy and stability of China's foreign trade data recorded by CMC in this period. These improvements at the eve of the 20th century can be related with different advancements in CMC's data collection capacity. To begin with, Figure 2.9 illustrates the number of ports and foreign trade partners registered by the CMC across the 1860-1946 period. Undoubtedly, there is a big increase in both variables at the beginning of the 20th century.

[10] Haikwan tael is a currency measurement used by the customs as a unit of account. It was designated to equal the weight around 37-38g of silver. Since the actual duties were paid in local currencies in different locations in China, the equivalent of Haikwan tael to a local tael was fixed by the Customs at the time when a port was open to trade (Hsiao 1974; Jin 2023).

**Figure 2.9: Number of ports and foreign trade partners registered by CMC, 1860-1946**




**Sources:** Author's own elaboration based on *Chinese Maritime Customs Annual Reports (1864–1946)*.

Secondly, after CMC took over officially most of the Native Customs agencies in 1902, this organization made different administrative reforms. The goal of these reforms was to impose discipline and proficiency, establish clear rules, reorganize the personnel and dismiss unqualified employees, solve corruption problems, improve tax collection and registration procedures (Jin 2023; Van de Ven 2014). Thirdly, the improvement of trade data accuracy would also reflect the change in foreign trade registration standard. For instance, imports are usually registered at a CIF price including the cost of transportation, insurance and commissions, and exports are usually recorded at a FOB basis excluding those costs. But until 1903 CMC's export statistics were recorded at domestic market values, which excluded inland transportation costs and other related charges (Hsiao 1974). This method would cause a sub-estimation of the export value. From 1904 onwards, CMC adopted the international foreign trade data registration standard in CIF and FOB prices.

Fourthly, CMC's information capacity also improved via the amplification of the scope of

coverage in trade statistics. After its establishment in 1861, CMC regulated trade and collected taxes from foreign merchants only in the case of steamships, while Chinese merchants travelling on traditional sailing vessels (junks) were still regulated by the Native Customs agencies (Jin 2023). Therefore, statistics published by CMC before 1904 do not include the values of foreign trade carried by junks, which also caused a sub-estimation of total export value registered by CMC. According to the Statistical Secretary, with the inclusion of trade operated by the Chinese junks in customs returns from 1904, the Chinese Maritime Customs embraced practically the whole foreign trade of China (Hsiao 1974).

All the reasons mentioned above contributed to the improvement of CMC's information capacity after 1904. This improvement would be reflected in the increase of the accuracy and stability of foreign trade data similarity between China and *g2* countries (USA and UK) at the beginning of the 20th century. However, Figures 2.5-2.7 show that this improvement broke up in the early 1930s. The structural break analysis also detected structural breakpoints in 1926 and 1927 for almost all series. Furthermore, Figure 2.8 shows that after 1926 or 1927, both the distance to the acceptable range and the volatility increased significantly.

This worsening of CMC's data in the 1930s could be attributed to various reasons. Firstly, foreign invasions affected the scope of coverage of CMC's trade statistics. After Japan's invasion on China in 1931, Japan took over the customs house in Manchuria. As a result, the 1932 statistics included only the first six months of Manchurian trade data and from 1933 to 1940, Manchuria's trade with other ports of China was treated as "foreign" trade and was categorized under "Kwantung Lease Territory" (Hsiao 1974).

Secondly, after the restoration of Chinese tariff autonomy in 1929, the government promulgated a series of progressively higher duties. With high import tariffs, smuggling activities became more intense and the continued aggression after Japanese invasion of Manchuria in 1931 also intensified clandestine trade (Hsiao 1974). Higher smuggling activities may have caused a huge sub-estimation of trade value which worsened CMC's foreign trade data accuracy.

Thirdly, the foreign exchange rate of silver experienced violent fluctuations in 1930-1935 because the price of silver was closely related to gold and many countries abandoned the gold

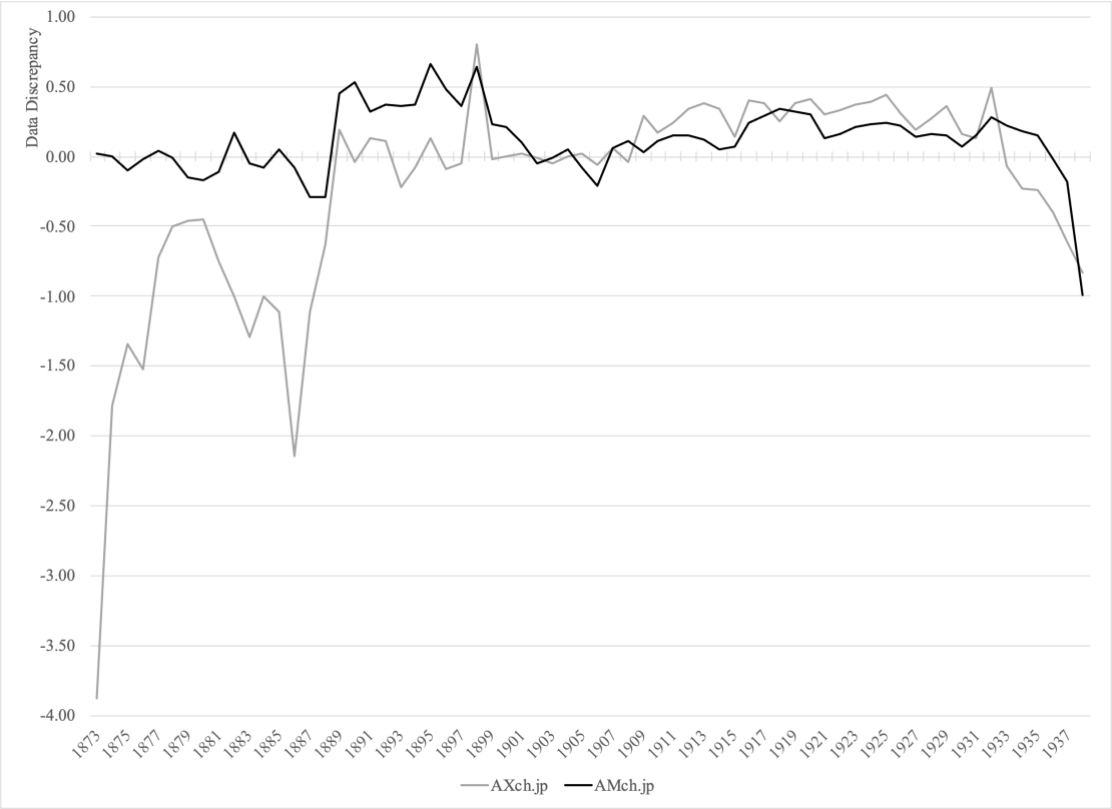
standard after the Great Depression (Du 2018). The price of silver decreased significantly in 1930 and 1931, but it rose sharply after the Silver Purchase Act of 1934. This caused a great outflow of silver from China and increased the smuggling of silver (Gu 1935). These fluctuations also affected the foreign trade stability and could hindered the trade data registration of CMC.

Finally, the 1930s also witnessed a series of changes in the unit of measurement. From 1930 to 1945 the Customs Gold Unit was adopted to levy import duties and report the value of imports. In 1933 the government adopted the Fa-pi as the basic unit of money. From 1933 to 1941, many series were recorded both in gold units and in standard dollars (Hsiao 1974). Another problem is that from 1932 export duties and surtaxes were not included in the reported export values (Hsiao 1974), which caused a export data sub-estimation. These frequent changes could have led to inaccuracy of trade data registration since the late 1920s.

## 2.5 China and Japan: the effects of geopolitics on trade data accuracy

The trade data mirror analysis between China and Japan differs from that of USA and UK. Figure 2.10 illustrates that the data similarity between China's exports to Japan and Japan's imports from China between 1873 and 1888 was far away from the acceptable range. Moreover, significant oscillations are a constant feature.

**Figure 2.10: Bilateral trade data mirror analysis between China and Japan, 1873–1938**




**Sources:** Author's own elaboration based on *Chinese Maritime Customs Annual Reports (1864–1938)*, Hsiao (1974), *Annual Returns of the Foreign Trade of the Empire of Japan (1874–1937)* and *Statistical Abstract for the Principal and other Foreign Possessions (1880–1918)*.

**Note:** The mirror analysis in this figure uses the formulas $AX_{ch.jp} = \frac{X_{ch.jp} - M_{jp.ch}}{X_{ch.jp}}$ and $AM_{ch.jp} = \frac{M_{ch.jp} - X_{jp.ch}}{M_{ch.jp}}$.

The acceptable range of the results of $AX_{ch.jp}$ are between –0.2 and 0 and the acceptable range of the results of $AM_{ch.jp}$ are between 0 and 0.2.

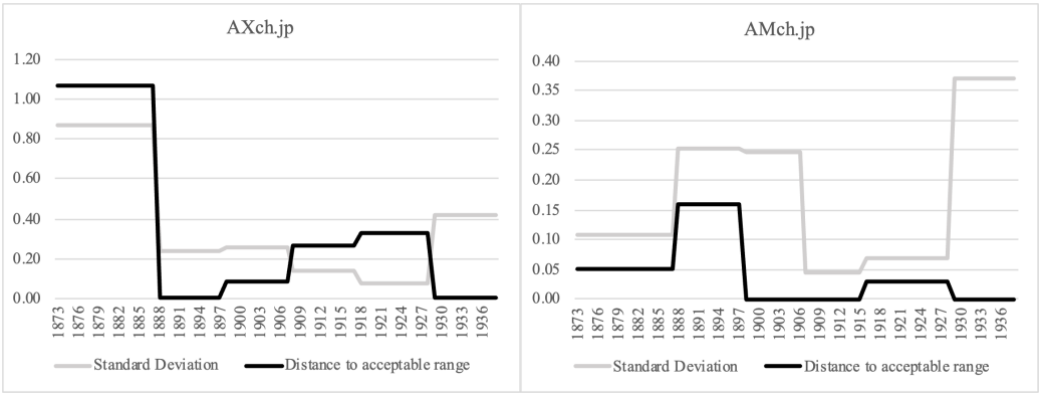
As mentioned before, the initial unbalance between both sources can be partly explained by the worse information legibility of CMC. It is also worth mentioning that Japan instituted the centralized supervision in statistics administration from 1873. So, although the trade statistical

improvement in Japan was rapid during the 1870s, the first few years would be featured by the process of adapting to new criteria and regulations (Cullen, 2009).

In any case, the discrepancy between China and Japan's foreign trade statistics during the 1873–1888 period was so large that it could not be explained only by the factors mentioned in the discussion of the USA and UK. In fact, the low bilateral trade data similarity between China and Japan also coincided with the insignificant share of Japan in China's recorded total foreign trade from the early 1870s to the early 1890s, i.e. only 3.16–5.70%, far less than that of UK and USA (Y. Wu 1932, cited by S. Wu 2015). Because of the increasing importance of Hong Kong as entrepôt and the dominant position of UK and USA in Chinese foreign trade during this period, it could be the case that some Chinese products were re-exported to Japan through these trade partners, and that these commercial flows were not recorded as China's export to Japan in CMC's data.

From 1888 onwards, the bilateral data similarity became more stable than before. The structural break analysis also detected 1888 as a breakpoint year in trade data mirror analysis between China and Japan (Figure 2.11). After 1888, China's export data to Japan were closer to Japan's import data and volatility decreased. In the same vein, although the discrepancy between China's import data from Japan and Japan's export data to China increased in 1888-1897, the change was temporary, and the discrepancy decreased soon after 1897.

**Figure 2.11: Structural analysis results for the bilateral trade data mirror analysis between China and Japan**




**Sources:** Author's own elaboration.

Beyond the institutional changes that the CMC witnessed since the beginning of the 20th century, the improvement of trade accuracy with Japan should be understood in the context of the particular relationship of this country with China. To begin with, after the First Sino-Japanese War in 1894–1895, Japan's importance in China's foreign trade increased significantly. Between 1895 and 1915, because of the military and economic expansion of Japan in Northeast China, Japan's share in China's total import and export trade rose from 10.16% to 22.66%, more than that of the United States and Great Britain (Y. Wu 1932, cited by S. Wu 2015).

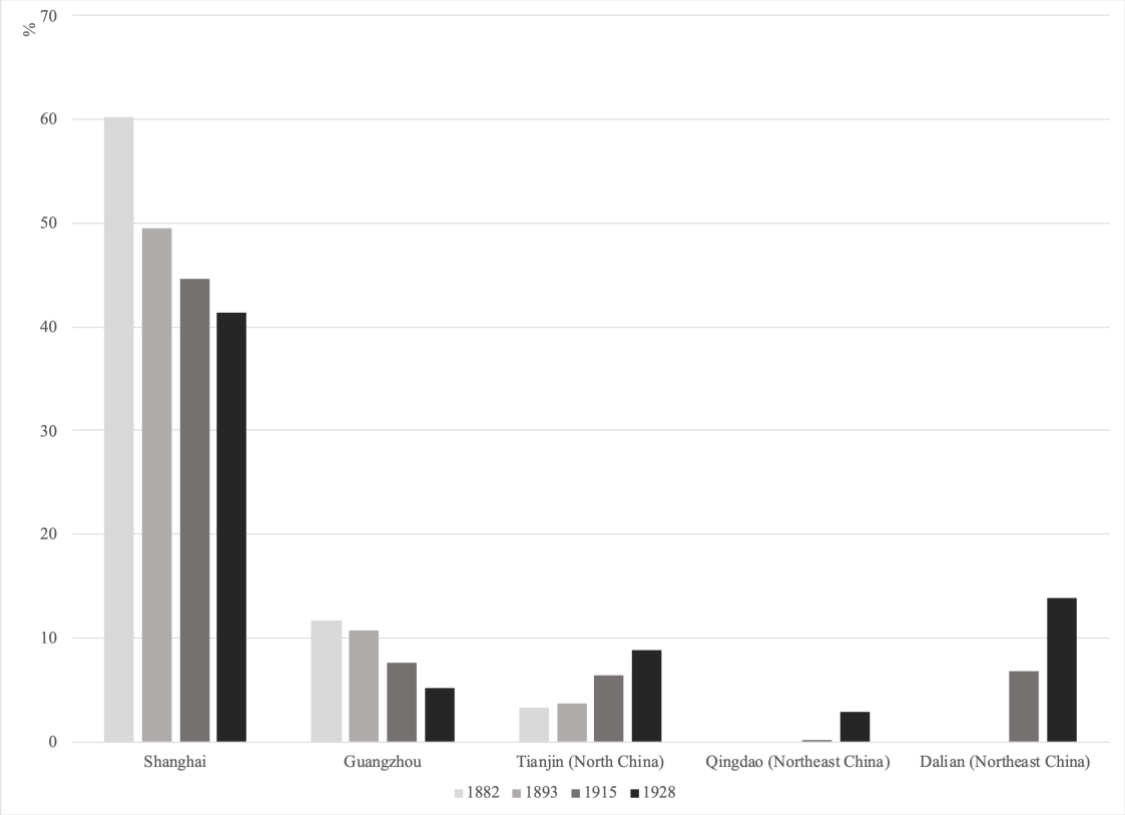
Furthermore, through the Treaty of Shimonoseki (1895), Japan occupied Formosa (Taiwan) and Penghu. Consequently, the ports Chongqing, Shashi, Suzhou and Hangzhou in the Yangtze River Basin were forced to open. China ceded to Japan the Liaodong Peninsula in the southern part of Liaoning province. In this period the number of commercial ports in Northeast China increased significantly. Gradually Japan reached out to the interior and inland borders in Northeast China and the three northeastern provinces (Heilongjiang, Liaoning and Jilin) were effectively under Japan's control (S. Wu 2015). This process consolidated through the signature of the Treaty of Portsmouth in 1905, enacted after the 1904–1905 Russo-Japanese War and the Sino-Japanese Treaty on the Establishment of the Northeastern Three Provinces (1905). The Treaty of Portsmouth allowed Japan to obtain most of Russia's previous military privileges and economic properties in Northeastern China, such as coal mines and railways.

After the outbreak of World War I (1914–1918), trade between China and Western countries declined given that long–distance freights and transaction costs rose. In this context, Japan took the opportunity to develop its trade with China. In the interwar years the imperial connections between Japan and the regions within its sphere of influence, or "shadow of power", enabled Japanese industrialization and the increase of its manufacturing exports (Ayuso-Díaz and Tena-Junguito 2020). Between 1915 and 1925, Japan's share in China's total foreign trade rose from 22.66% to 30.75%, far exceeding that of any other country or region such as Hong Kong, Great Britain and the United States (Y. Wu 1932, cited by S. Wu 2015).

Under the influence of Japan's economic expansion in China and with more new ports opened, the share of the import and export trade in the ports of Northeast China, North China and the

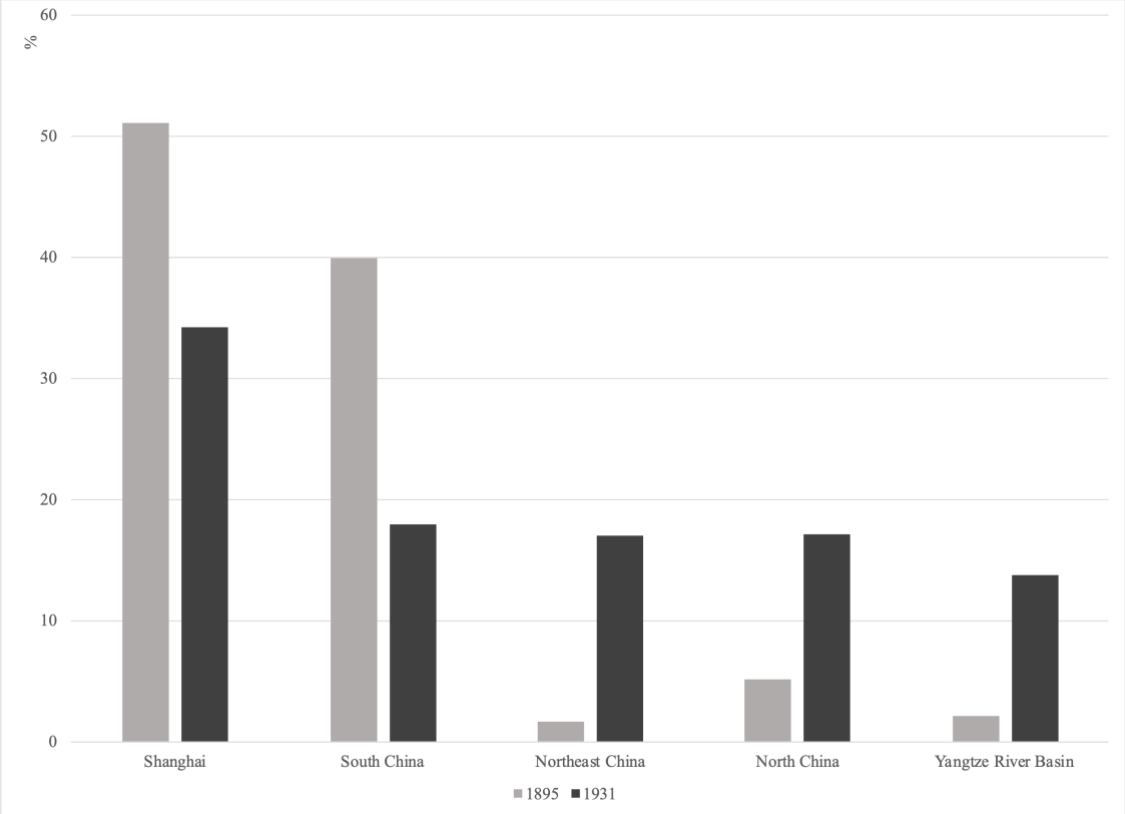
Yangtze River also increased (Figure 2.12 and Figure 2.13). Through these ports Japan could trade with China more directly and the transit trade through other regions, especially Hong Kong, was replaced by direct bilateral trade.

**Figure 2.12: Percentage of ports in China's total foreign trade value, 1882-1928**




**Sources:** Author's own elaboration based on S. Wu (2015).

**Figure 2.13: Percentage of regions in China's foreign trade, 1895 and 1931**




**Sources:** Author's own elaboration based on S. Wu (2015).

In this context, it should be noticed that, across the 1909–1932 period, all the results of the discrepancy between China's export to Japan and Japan's import from China are above 0 (Figure 2.10). This means that China registered more exports to Japan than Japan's recorded imports from China. As we have mentioned before, until 1932 CMC did not register the ultimate destination of exported goods. This registration method would have inflated the values of the country's trade where goods were transshipped to other lands and deflated the value of the nation's commerce receiving such transshipped items (Hsiao 1974). As the importance of Japan in China's foreign trade grew rapidly after its effective control of northeast China's economy, China's exports to Japan registered by CMC could have been overestimated and they would be hiding trade with other countries.

In the 1930s, the bilateral data similarity between China and Japan worsens (Figure 2.10). Likewise, the structural break analysis identifies 1929 as a breakpoint year (Figure 2.11).

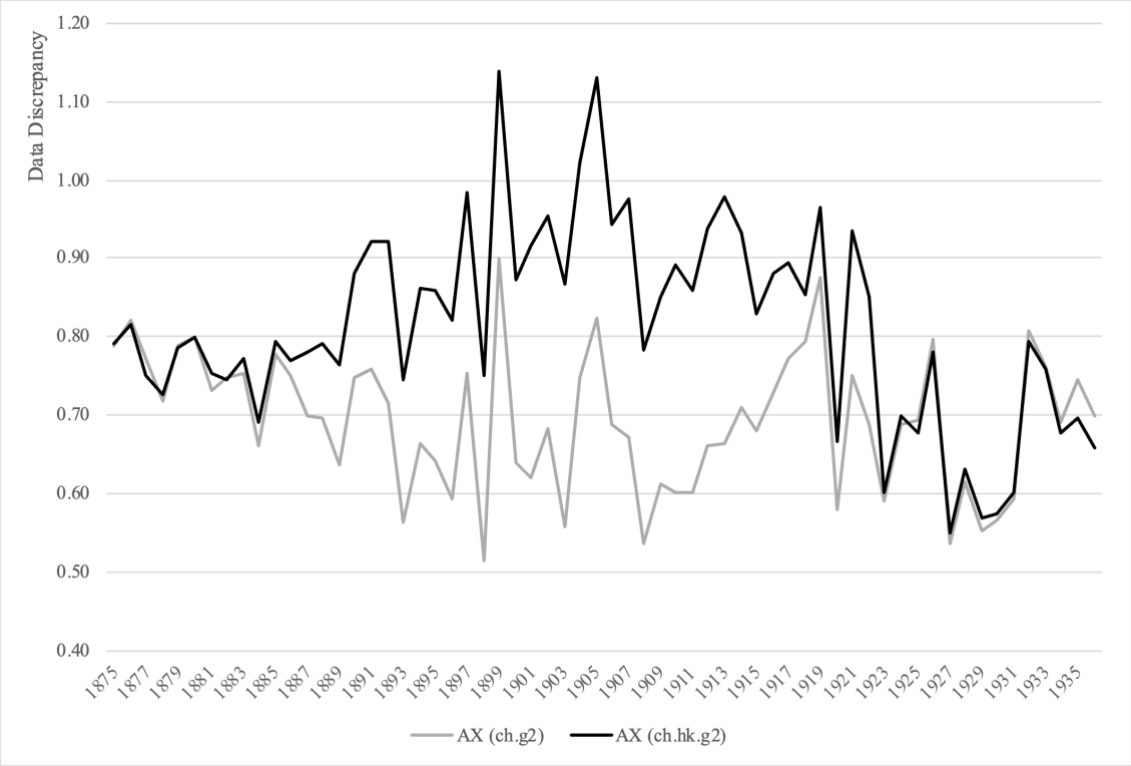
Although bilateral data discrepancy remains within the acceptable range, volatility increased a lot. As previously explained, this could reflect intensive smuggling activities driven by higher duties and the Japanese invasion of Manchuria in 1931. Additionally, the anti-foreign goods movement in China, particularly targeting Japanese products, could have amplified these smuggling efforts. In the early 1930s, as part of its imperialist expansion, Japan consolidated the protectionist policy within its colonial dominions and built markets with trading privileges for Japanese industrial firms (Ayuso-Díaz and Tena-Junguito 2020).

Even more, in 1933 Manchuria adopted Japan's tariff system after the territory's separation from the Chinese customs system. This change privileged access for Japanese manufactures (Chase 2009). The territories under Japanese occupation were also used by many Japanese and Koreans as operating bases for smuggling activities, and it was estimated that goods smuggled amounted to over 20% of the recorded value of imports when the clandestine trade reached its peak (1935 and 1936) (Hsiao 1974). As the Chinese government was unable to effectively curb smuggling activities due to humble governance under Japan's constant military operations, smugglers were often able to export tightly controlled goods from the mainland and bring in Japanese goods (Zhang 2000). All these reasons may explain the deterioration of CMC's foreign trade data accuracy with respect to Japan's statistics in the 1930s.

## 2.6 The role of Hong Kong in trade data accuracy

As explained before, Hong Kong played an important role in Mainland China's foreign trade during the second half of the 19th century. If we take Hong Kong's role as entrepôt into consideration, the trade data similarity between China and its principal commercial partners is generally better than the results without including Hong Kong's re-export data (Figure 2.14). These figures also illustrate that the impact of Hong Kong on the multilateral data similarity varied across time. In the cases of USA and UK, differences between the two series are not significant until 1886 (Figure 2.14). Since then, a clear gap appeared between these two series, but it narrowed again after 1922. A similar trend is identified when Japan is included (Figure 2.15).

**Figure 2.14: Multilateral mirror analysis between China's export data and *g2* countries' import data from China and Hong Kong, 1875–1936**



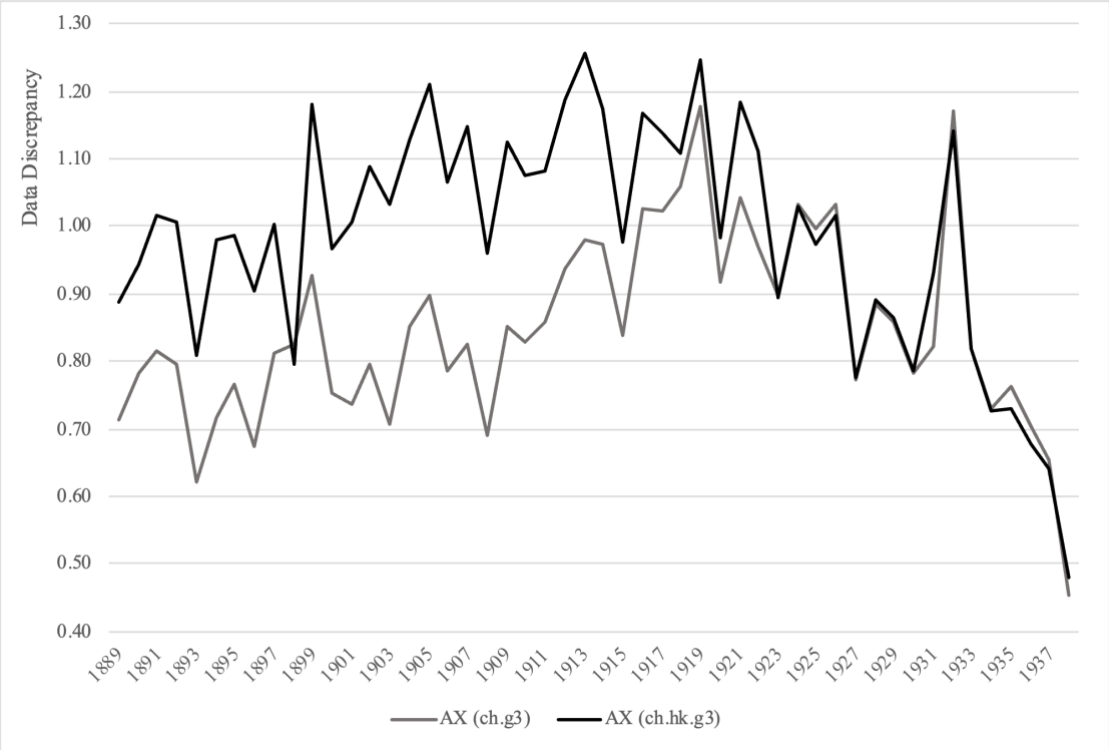

**Sources:** Author's own elaboration based on *Chinese Maritime Customs Annual Reports (1864–1938)*, *Foreign Commerce and Navigation of The United States (1875–1938)* and *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions (1864–1938).*

**Notes:** 1. The 1864-1874 period is not considered given that the required series for the analysis are available only since 1875.[11]

2. The mirror analysis in this figure uses the formulas $AX_{ch.g2} = \frac{X_{ch.usa}+X_{ch.uk}}{M_{usa.ch}+M_{uk.ch}}$ and $AX_{ch.hk.g2} = \frac{X_{ch.usa}+X_{ch.uk}+(X_{ch.hk}*Px_{hk.g2})}{M_{usa.ch}+M_{uk.ch}+M_{usa.hk}+M_{uk.hk}}$. The acceptable range of the results are between 0.8 and 1.

[11] The United States of America recorded import data from Hong Kong separately only since 1873.

**Figure 2.15: Multilateral mirror analysis between China's export data and *g3* countries' import data from China and Hong Kong, 1889–1938**

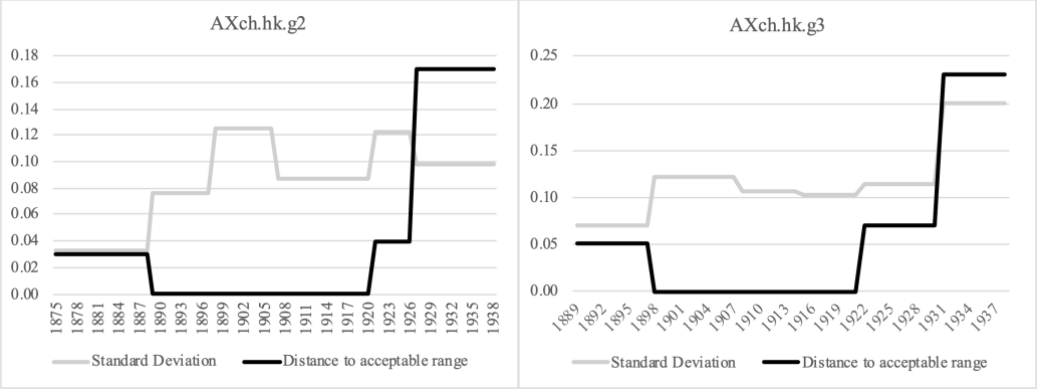



**Sources:** Author's own elaboration based on *Chinese Maritime Customs Annual Reports (1864–1938)*, *Foreign Commerce and Navigation of The United States (1875–1938)*, *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions (1864–1938)* and *Annual Returns of the Foreign Trade of the Empire of Japan (1874–1937).*

**Notes:** The mirror analysis in this figure uses the formulas $AX_{ch.g3} = \frac{X_{ch.usa}+X_{ch.uk}+X_{ch.jp}}{M_{usa.ch}+M_{uk.ch}+M_{jp.ch}}$ and $AX_{ch.hk.g3} = \frac{X_{ch.usa}+X_{ch.uk}+X_{ch.jp}+(X_{ch.hk}*Px_{hk.g3})}{M_{usa.ch}+M_{uk.ch}+M_{jp.ch}+M_{usa.hk}+M_{uk.hk}+M_{jp.hk}}$. The acceptable range of the results are between 0.8 and 1.

The structural break analysis also confirms that the multilateral trade data mirror analysis including Hong Kong shows better results across the 1890-1920 period. This is particularly true when looking at the distance towards the acceptable range (Figure 2.16). Overall, this recalls that one of the main limitations of the CMC in terms of information capacity was related with the difficulties to identify the effective place of origin or destination of those products that were exchanged with China. As previously stated, new rules were created since 1932 to overcome this problem.

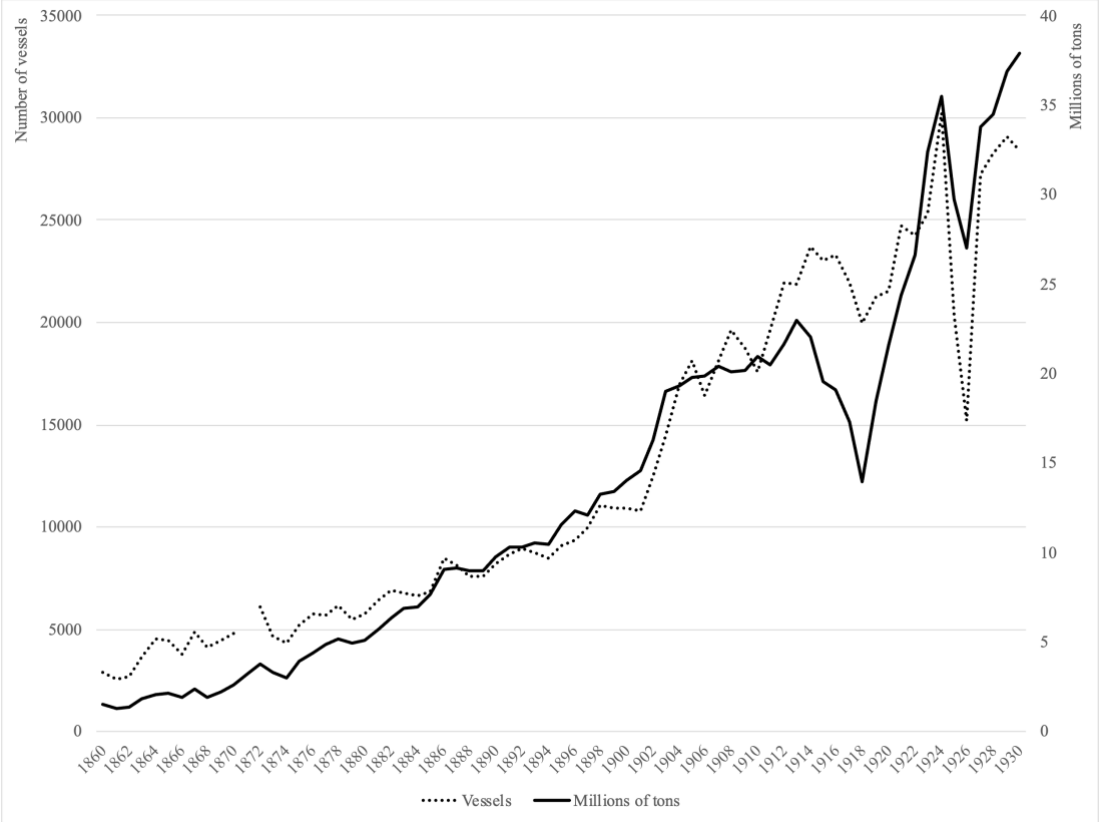
**Figure 2.16: Structural analysis of multilateral trade data mirror analysis**




**Sources:** Author's own elaboration.

The before mentioned results also reflect the changing importance of Hong Kong as a transit port over time. From 1861 to 1885, Hong Kong's trade fluctuated considerably. Its composition was restricted to opium, as the largest import, and coolies, tea and silk dominated exports (Zhang 2000). Illegal trade, mainly in opium and coolies, was rampant (Zhang 2000). However, Hong Kong's importance as entrepôt gradually consolidated during the 1880s. In fact, the development of banking, insurance, shipping and other services facilitated transit trade. Hong Kong's trade showed steady growth and, by 1885, the number of import and export vessels increased from 5,775 to 6,827 (Zhang 2000). With very few exceptions, this upward trend continued until the late 1920s (Figure 2.17). Similarly, the proportion of opium and coolie trade diminished, and legal trade increased gradually. Thus, Hong Kong consolidated as the major trading port on the South China coast.

**Figure 2.17: Vessels and tonnage in port of Hong Kong, 1860–1930**



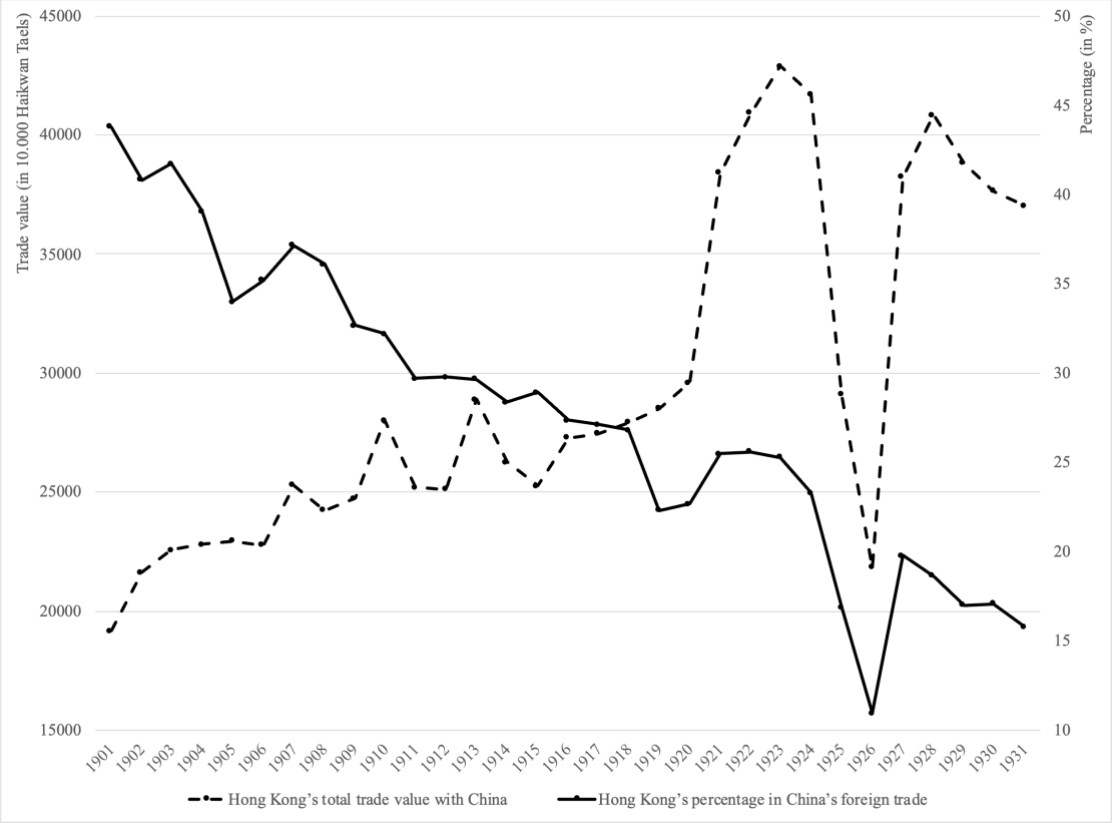

**Sources:** Author's own elaboration based on Zhang (2000).

The centrality of Hong Kong in China's foreign trade started to decrease from the beginning of the 20th century. This was a consequence of the growing relevance of Japanese trade after the First Sino-Japanese War in 1894–1895 and Japan's military and economic expansion in Northeast China. Indeed, Japan declared the northeast city of Dalian as a duty-free port in 1907, which became a great competition for Hong Kong (Zhang 2000). Moreover, as previously stated, trade between European countries and China declined sharply during the World War I when Japan expanded its economic influence (Zhang 2000).

The decreasing relevance of Hong Kong as an entrepôt also coincides with the wavering of UK's absolute dominance in China's trade. UK's share in China's total foreign trade declined from 45.4% in 1895 to less than 30% in 1911 and transit trade between both countries through Hong Kong also reduced (Figure 2.18) (Zhang 2000). Since 1924, Hong Kong's long-held top position in trade with China was replaced by Japan (Figure 2.19) (Zhang 2000). Moreover, after the 1925 Canton–Hong Kong strike, Hong Kong's proportion in China's foreign trade

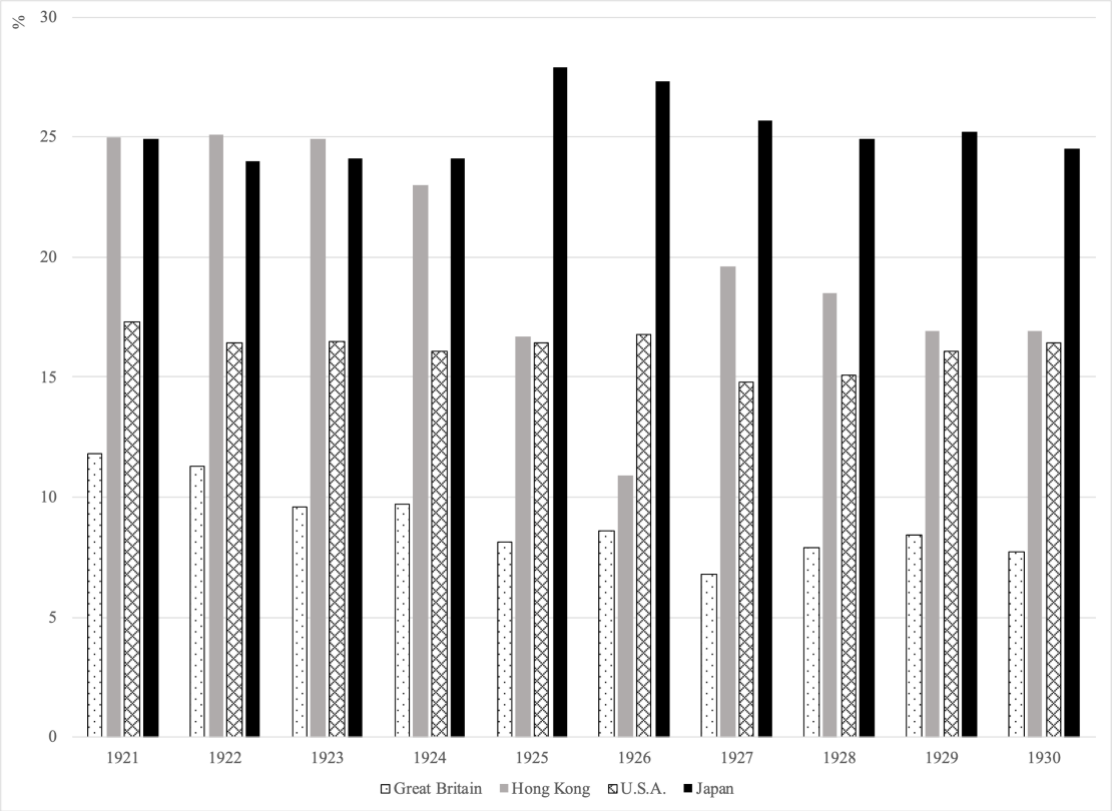
plummeted to less than 20% (Zhang 2000).

**Figure 2.18: Hong Kong's total trade value with China and its importance in China's foreign trade, 1901–1930**




**Sources:** Author's own elaboration based on Zhang (2000).

**Figure 2.19: Percentage of various trade partners in China's total foreign trade value, 1921–1930**




**Sources:** Author's own elaboration based on Zhang (2000).

During the 1930s, the global economy was in crisis and Hong Kong was severely affected. As gold price soared, the purchasing power of the domestic market plummeted and imports of foreign goods languished, which caused a setback to Hong Kong's transit trade (Zhang 2000). Thus, from 1931 onwards, Hong Kong's foreign trade volume decreased and its importance as entrepôt in China's international trade, especially in China's import, continued to decline.

The decreasing relevance of Hong Kong as a transit port of Chinese trade explains the closing gap between the series compared in Figures 2.14 and 2.15. These figures also show a clear worsening in trade accuracy results since the mid-1920s. This again points to a possible deterioration of the information capacity of the CMC during this period.

## 2.7 Conclusion

According to a growing literature, studying the development of Chinese Maritime Customs is essential to understand how the early wave of globalization transformed the institutional quality in China. This paper contributes to this literature by exploring CMC's information capacity from 1864 to 1938 through a novel methodological approach.

The results of a foreign trade data mirror analysis, along with supplementary structural break analysis, indicate significant improvements in CMC's recorded data quality in 1874 and at the eve of the 20th century. These enhancements can be partially attributed to key institutional reforms aimed at improving the CMC's information capacity, including the unification of trade value measurement for all ports, the adoption of international standard prices and a more detailed and amplified registration of ports and trading partners. The analysis also suggests that after Hong Kong's entrepôt data are included, multilateral trade data accuracy results improve. Similarly, the comparison of CMC data with that of Japan tends to present more problems than in the cases of USA or UK. These findings underscore the potential existence of systematic biases, such as misallocation of geographical data and smuggling. Overall, this study corroborates the recognized assertion in the previous literature that the effects of institutional innovations are spatially heterogeneous. As for CMC's data, this is particularly evident in regions where Chinese sovereignty was challenged by Japanese influence.

Furthermore, the study shows that both the accuracy and volatility of most trade data deteriorated after the 1926-1929 period. Various factors could account for this downturn, including the volatile silver exchange rate, frequent alterations in China's measurement units, and the enactment of higher customs duties leading to intensified smuggling. This decline underscores that institutional and informational advancements do not necessarily have a lineal positive impact; setbacks can also happen. The observed forwards and backwards in CMC's data accuracy throughout the study period call for further historical research into CMC's extensive archival records, its institutional efficacy, and China's multifaceted transformation during this pivotal phase of early globalization.

# 3. The legacy of the Manila Galleon in the First Globalization: continuity and change in transpacific Asian-Latin American trade, 1876-1938[12]

**Abstract**

The study of trade between Asia and Latin America has focused on the history of the Manila Galleon (1565-1815) and the current boom (2000 to the present). Less is known about transpacific trade during the 19th century and the beginning of the 20th century. This paper provides a novel trade series on trade between Asia and Latin America between 1876 and 1938. The paper shows that the role of Asia in Latin America's foreign trade was marginal in volumes, but the composition of Latin American imports from Asia reveals clues to the persistence of colonial links across the Pacific. While traditional products such as textiles, tea, rice and porcelain maintained a constant presence in Latin American imports, new manufactures emerged in this period. Furthermore, there were differences in terms of exporters, with Japan becoming the most important Asian exporter.

**Keywords:** Transpacific trade; Asia; Latin America; First Globalization; Interwar period.

[12] In this chapter, Songlin Wang contributes to motivation, archival research, theoretical background, data collection, data analysis, data visualization and writing; Anna Carreras Marín collaborates in archival research, data collection, data visualization and writing; José Alejandro Peres Cajías collaborates in motivation and writing.

## 3.1 Introduction

Western industrialization led to a major reconfiguration of the world economy. Among other consequences, it shifted the economic center of the world from Asia to Europe and the United States, which emerged as the new hegemons of world trade during the 19th century and the first half of the 20th century (Frank 1998; Pomeranz 2000). This process began to change later, when the economic development of Japan, followed by the rise of the "four Asian tigers" and the eventual entry of China into the World Trade Organization, reintroduced the relevance of Asia in the world economy. This late shift has fostered a renewed academic interest in Asia's role on the global economic scene.

One factor that has received particular attention is the dynamism of trans-Pacific international trade. The Asia-Pacific Economic Cooperation (APEC) was created in 1989 among 12 countries of Asia, North America and Oceania with the aim of facilitating trade, investment and economic cooperation. A few years later, three Latin American countries (Chile, Mexico and Peru) joined, a process that shows the growing relevance of East Asian markets in the region. This preponderance was consolidated during the last commodity boom (2003-2014), when China became the main trading partner of different countries, especially in South America (Devlin, Estevadeordal, and Rodríguez-Clare 2006; Fornes and Mendez 2018; Jenkins, Peters, and Moreira 2008; Kuwayama and Rosales 2012).

These connections between Asia and Latin America are not surprising from a long-term perspective. In fact, during the colonial period (1500-1820), these regions were strongly connected through the Manila Galleon, a trade route established by the Spanish authorities linking the Viceroyalty of New Spain (present-day Mexico) and the Philippines. The Manila Galleon ceased to operate in the 1810s, when most Latin American countries achieved political independence. In addition, transpacific exchanges were further disrupted by the expansion of European powers in Asia throughout the 19th century. These political changes, together with the growing importance of the Atlantic economy, led to less interest in economic exchanges between the two regions during the First Globalization and the interwar period.

Using a representative sample of countries, this chapter provides a new data set on the trade

between Asia and Latin America in this period. The relative importance of Asian economies in Latin American foreign trade from 1876 to 1938 shows that Asian markets accounted for less than 5% of total exports and imports from the last quarter of the 19th century until World War II. The relevance of Asian markets increased during the 1960s and remained stable thereafter. After a rapid acceleration since early 21st century, Asian countries accounted for 18% of Latin American exports and more that 25% of its imports in 2020.

Despite Asia's relative low trade during the First Globalization and interwar periods, the composition of Latin American imports from Asia shows clear continuities with the colonial period. For instance, tea, spices, rice, porcelain and textile products maintained a consistent presence in Latin America's import baskets. This highlights the existence of a historical hysteresis in terms of consumption patterns. At the same time, differences emerged among the three Asian countries. Imports from India were heavily concentrated on agricultural raw materials such as jute, rice and spices. Imports from China, while also saw a high share of agricultural products, like tea, opium, rice and spices, showed some diversification. This included the persistence of silk products and the increasing share of cotton products in 1900s and 1910s. In contrast, since the early 20th century, the imports from Japan consisted of silk and cotton textiles and showed an increasing share of manufactured goods such as toys, artifacts and machinery.

To understand the continuities and changes in Asian-Latin American trade in this period, we look at supply and demand forces. The relevance of supply-side dynamics is exemplified by the evolution of Latin American imports of tea and textiles. These reflect the disparities in Asian countries' industrial development and foreign trade policy strategies. In China and India, this period was marked by restrictions on the trade policies and tariffs, which led to an exports composition more concentrated in raw and low processed materials and agricultural products. In contrast, Japan underwent rapid manufacturing industrialization, which led to a diversification of Japan's exports composition with an increase in the share of manufactures.

The demand-side factors also help to understand Latin America's import from Asia. The consumption of luxury oriental goods among upper classes persisted, but also more accessible textiles remained popular among broader social consumers. Additionally, the massive Asian

migrants to Latin America in this period maintained their consumption in specific products, such as opium and tea. Moreover, the Asian communities and socio-economic associations in Latin America also contributed to the long-term transpacific trade between the two regions. These different interactions between Asian and Latin American economies are relevant to understand current economic exchanges.

After this introduction, the chapter is organized as follows. Section 2 presents the trade data sources. Section 3 reviews the long-term trade between Asia and Latin America from the colonial period to the present. Section 4 studies the continuities and changes in the composition of Latin American imports from Asia during the period 1876-1938. Section 5 proposes some hypotheses to understand Latin American imports from Asia in this period from the perspective of supply and demand factors. Section 6 concludes.

## 3.2 Data Sources

This study looks at the evolution of transpacific trade through a sample of three Asian (China, India and Japan) and six Latin American (Argentina, Brazil, Chile, Ecuador, Mexico and Peru) countries. This sample is justified because of different reasons. To begin with, it incorporates the largest Asian and Latin American economies. Indeed, the three selected Asian countries accounted for 63% of total Asian exports in 1913.[13] Likewise, imports of the selected Latin American countries were equivalent to 73% of total Latin America imports in 1913.[14] The sample is also justified by historical reasons since it incorporates some of the most relevant spaces involved in the Manila Galleon (China, Mexico and Peru) and two other countries located in the Pacific rim that could be affected by this process (Chile and Ecuador). Similarly, the sample allows considering the role of the most relevant migration flows that took place during the second half of the 19th century and the first half of the 20th century: Chinese migrants to Chile, Peru and Mexico, and, Japanese migrants to Brazil and Peru (Hu-Dehart 1989; Hu-DeHart and López 2008).

Based on the before mentioned criteria, the absence of Panama and Uruguay stands out. While the former received migrants from Asia in different periods, the latter has been among the most developed Latin American countries in per capita levels since the late 19th century. Despite of this, we decided to exclude these countries given the difficulties that their roles as entrepôt countries represent in terms of trade allocation (see Tena-Junguito and Willebald 2013). We consider that, given their relatively small size, the gains that could be obtained by their introduction were lower than the bias that reexports flows could generate. Likewise, our sample of six Latin American countries does not allow to consider some relevant exchanges (both in goods and people) that took place between Asian countries and different Caribbean economies. We excluded these countries given that they were predominantly based on colonial premises, particularly those of the United Kingdom (Blakely 1998; Fatah-Black 1972; Postma 2003; Winn 2023).

[13] Data from Federico and Tena-Junguito (2018), "Federico-Tena World Trade Historical Database: Asia", https://doi.org/10.21950/05CZKM.
[14] Data from Federico and Tena-Junguito (2018), "Federico-Tena World Trade Historical Database: America", https://doi.org/10.21950/UILNQU.

We also decided to study trade relationship from the point of view of Latin American countries, that is, to use their sources and not the Asian ones. This is explained by the fact that during this period, trade between Asia and Latin America could took place through transit ports (as Hong Kong) or transit countries (United States). Given that, at least in the Chinese case, export data was recorded according to ports of arrival instead of destination countries (Wang Forthcoming), the use of Asian sources would lead to an underestimation of trade. By contrast, previous studies on Latin American trade sources suggest that they were reliable during the periods under scrutiny (Carreras-Marín and Badia-Miró 2008; Peres-Cajías and Carreras-Marín 2018).

Trade information on Latin American countries was obtained from different publications. Data for the period 1962-2020 are available in the United Nations Comtrade Database. As for the previous period, it has been necessary to combine different primary and secondary sources. Latin American exports to Asia come from the RICardo Database. Imports from the three Asian countries in Argentina, Brazil, Chile and Peru are also from the RICardo Database.[15] Import data for Ecuador was directly obtained from official Ecuadorian trade sources.[16] Finally, Mexican import data were compiled from official trade sources published either by the Secretary of State, the Department of Finance, Public Credit and Commerce, or the Department of National Statistics.[17] All disaggregated data on Latin American imports from Asia are collected and complied from official Latin American foreign trade yearbooks for specific years.[18]

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[15] The original sources in RICardo Database are "Anuario del Comercio Exterior de La Republica Argentina_1913-1937"; "Commercio exterior do Brasil. Anos 1913-1936. Directoria de Estadística Comercial. Ministerio da Fazenda. Rio de Janeiro. 1923-1937."; "Estadística Comercial De La República De Chile. 1844-1913"; "Anuario Estadístico De Chile Comercio Exterior. 1915, 1927, 1928, 1931-36."; "Extracto estadístico del Perú. 1923. Ministerio de Hacienda y Comercio. Lima. 1924."

[16] Export and import data for Ecuador between 1909 and 1950 were compiled by Reyna Pérez (2023) and were obtained from the following official sources: *Anuarios de Comercio Exterior* (1910, 1911, 1914, 1917a, 1923b), *Boletines Mensuales de Recaudación Fiscal y Comercial* (1931, 1933), and the report *Ecuador en Cifras* (1944), published by Ministerio de Hacienda del Ecuador.

[17] "Estadística fiscal. Importación. Años fiscales de 1893-94 y 1892-93. Noticias formadas bajo la dirección de Javier Stavoli. Tomo I. Mexico. 1897."; "Anuario de Estadística Fiscal. 1911-12. Secretaría de estado y del despacho de Hacienda, Crédito Público y Comercio. Mexico. 1913."; "Anuario Estadístico. Comercio Exterior y Navegación. 1923-1924. Volumen I. Departamento de la Estadística Nacional. Mexico. 1925."; "Anuario Estadístico del Comercio Exterior de los Estados Unidos Mexicanos. Mexico. 1939."

[18] Sources for Argentina are "Anuario de la Dirección General de Estadística correspondiente al año 1905. Tomo I. Buenos Aires. 1906", "Anuario del Comercio Exterior de la República Argentina años 1921, 1922 y 1923 y noticia sumaria del periodo 1910-1923. Buenos Aires. 1924.", "Anuario del Comercio Exterior de la República Argentina año 1927 y noticia sumaria del período 1910-27. Buenos Aires. 1929.". Sources for Brazil are "Importação e Exportação. Movimento maritimo, cambial e do café da Republica dos Estados Unidos do Brazil em 1905. Rio de Janeiro. 1907.", "Commercio exterior do Brasil. Anno 1915. Rio de Janeiro. 1923.", "Commercio

The study of international trade requires to use the same unit of measurement. While data in the RICardo Database is expressed in sterling pounds, data in local sources are kept in their original currency. Therefore, to grant comparability, all trade data was converted into current US dollars and constant 1913 US dollars. The conversion was carried out using international trade data in current US dollars from the Federico-Tena World Trade Historical Database and the US Consumer Price Index (CPI) data from Measuring Worth (Federico and Tena-Junguito 2019; Officer and Williamson 2024).[19]

The use of these different sources allows measuring the evolution of trade relationships between Asian and Latin American countries from 1876. Furthermore, it offers evidence on the composition of Latin American imports from Asia in this period. To the best of our knowledge, this is the first time that this information is provided.

exterior do Brasil. Anno 1925. Rio de Janeiro. 19290". Sources for Chile are "Estadística Comercial de la República de Chile correspondiente al Año de 1889, 1895, 1899, 1902, 1910. Valparaíso. 1890, 1896, 1900, 1903, 1911.", "Anuario Estadístico de la República de Chile. Vol. XI. Comercio Exterior. Año 1920. Valparaíso. 1921.". Sources for Ecuador are "Boletín de Estadística Fiscal y Comercial. Año de 1909, 1915. Ministerio de Hacienda y Crédito Público. Quito.". Sources for Mexico are "Estadística fiscal. Importación. Años fiscales de 1893-94 y 1892-93. Noticias formadas bajo la dirección de Javier Stavoli. Tomo I. Mexico. 1897.", "Anuario de Estadística Fiscal. 1911-12. Secretaría de estado y del despacho de Hacienda, Crédito Público y Comercio. Mexico. 1913.", "Anuario Estadístico. Comercio Exterior y Navegación. 1923-1924. Volumen I. Departamento de la Estadística Nacional. Mexico. 1925."; The sources of Peru are "Estadística del Comercio Especial del Perú en el Año 1902, 1904, 1905, 1927. Lima. 1904, 1907, 1928." (for more details, see section of References).

[19] Federico and Tena-Junguito (2018), "Federico-Tena World Trade Historical Database: America", https://doi.org/10.21950/UILNQU; Officer and Williamson (2024), "The Annual Consumer Price Index for the United States, 1774-Present", *Measuring Worth*, http://www.measuringworth.com/uscpi/.

## 3.3 Trade between Asia and Latin America in the long run

During the Latin American colonial period (1492-1820s), the Manila Galleon was central in terms of the distribution of goods, people and ideas (Bonialian 2011; Cervera Jiménez 2020; Schurz 1939; Slack 2012; Yuste 1984). This route, connecting Manila and Acapulco (in current Mexico), facilitated the exchange of goods between the Old and New Worlds (Dobado-González 2013). This trade was significant in both scale and continuity. Typically, galleons sailed twice annually from Manila to Acapulco, transporting between 300 and 1,000 tons of merchandise, with some ships reaching capacities as high as 2,000 tons (Yuste 1984; Schurz 1939). And large amount of American silver was sent back to Asia in exchange for goods (Flynn and Giraldez 1994).

Indeed, from the late 16th century until the first half of the 18th century, New Spain could turn to Asian countries as a reliable source of imports when wars between European powers impacted trade in the Atlantic (Fernandez de Pinedo and Thépaut-Cabasset 2021). However, rather than substitutes, the Manila Galleon prompted the convergence of three intercontinental flows: the transpacific route between the Philippines and Acapulco, the Atlantic fleet that connected Spain with Veracruz (also in current Mexico) and the intercolonial and illicit circuit from Mexico to Peru (Bonialian 2011). As a result of this convergence, Mexico became a "neuralgic center" for the movement of Asian and European goods in Latin America and for the distribution of American silver on the fleets back to Asia (Bonialian 2011, 2014; Dobado-González 2013).

As for imports from Asia, the most important items were textiles, which accounted up for three-quarters of total imports (Dobado and Fernández de Pinedo 2023; Grasskamp and Juneja 2018). Apart from silk and cotton textiles, the import basket also included food commodities like rice, spices, tea, as well as decoration products such as porcelains, lacquerware, religious marfil images, fans, furniture (Cervera Jiménez 2020; Dobado and Fernández de Pinedo 2023). Moreover, there is evidence that objects, people and ideas that arrived from China to the Americas had an extensive and powerful cultural impact that was reflected in aesthetic dimensions and daily life practices (Bonialian 2014).

Thus, like the intensification of the consumption of new products in Europe in the 18th century (De Vries 1994), these transpacific exchanges via Manila Galleon influenced consumption patterns and the daily life of Americans. This "soft globalization" and innovation in consumption patterns were first adopted by the elites and spread soon after to the middle classes and eventually to the common people (Dobado and Fernández de Pinedo 2023; Gasch-Tomás 2018; Pierce 2016). For instance, Ibarra (2016) found that even in the remote Intendencia of Guadalajara in New Spain, consumption of Asian products was high, not only among the wealthy elites who consumed luxury goods such as porcelains and biombos, but also among the indigenous and peasant population, who wore clothes with printed silks and cottons. In the same vein, Bonialian (2014) suggests that products that were initially perceived as elitists, soon became products of wide-ranging massive use. Therefore, Asian imports had a double impact on Latin American consumption patterns: one that was characterized by exotic products and exclusive to the elites, and another one that was accessible and affordable for mass population.

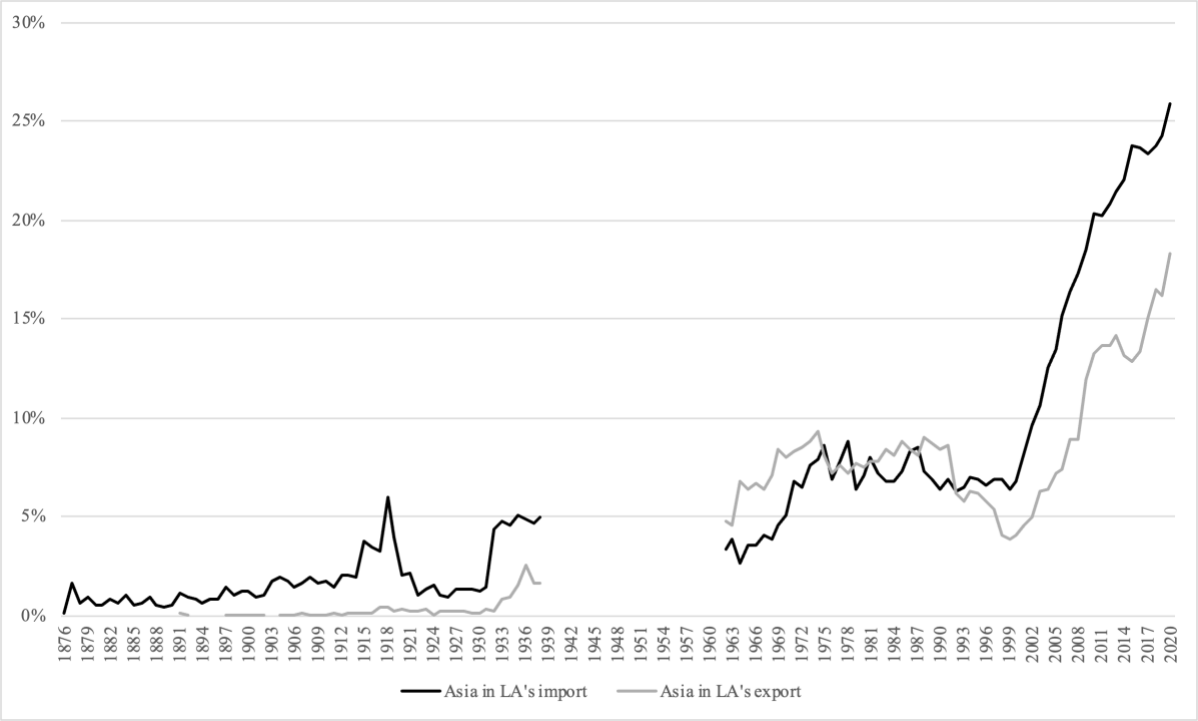
The relevance of Mexico as a neuralgic center of this trade network decreased since the mid-18th century. Competition from Peninsular trading companies over the Hispanic Pacific rim and the opening of the Cape Horn route (1740), closed the Peruvian market for foreign goods that arrived in Acapulco and Veracruz (Bonialian 2017). Thereafter, independence wars in Latin America (1810s-1820s) and incessant post-independence tensions (1820s-1850s) fostered political unrest and economic problems (Bulmer-Thomas 2017). Meanwhile, Asian countries started to feel the pressure of European expansionism and countries such as China and India reduced dramatically their economic independence. Thus, throughout the 19th century, the transpacific trade became fragmented and more dependent on the English economy (Bonialian 2017).

This crisis explains in part the limited research on trade relationships between Asia and Latin America after the colonial period. The work by Kuntz Ficker (2020) stands out among the few exceptions. Using Mexico's foreign trade data from 1821 and 1870, reconstructed through the re-exportation data of the United States and the United Kingdom, along with consular reports, the author portrays the products, routes, ports and intermediaries in Mexican imports from Asia during this period. The study suggests that well-established consumption patterns from the

colonial era and the persistence of strong demand led to a continuity in Mexico's trade with Asia. This is evident in the importation of Asian products such as spices, tea, raw silk, porcelain, and cotton and silk textiles (Kuntz Ficker 2020).

Our archival research allows to offer evidence on the evolution of trade relationships between Asian and Latin American countries since 1876 (Figure 3.1). It is evident that Asian markets were marginal for Latin American exports, making up less than 0.5% of the total exported from 1891 to 1929. Whereas there was a gradual increase during the 1930s, the ratio remained below 3%. Data from 1962 to 1974, which includes information just on China and Japan, shows that the share of Asian countries for Latin American exports grew from 4.8% to 9.3%. Despite the inclusion of India's data since 1975, this relative importance remained stagnated and even decreased until 1999. Since then, a dramatic increase took place.

**Figure 3.1: Asia in Latin America's foreign trade (in percentage), 1876-1938, 1962-2020**




**Sources:** Own elaboration based on UN Comtrade Data, RICardo Database and official trade data yearbooks of the sample countries, for more details, see "Data Sources" section.

**Note:** Trade data prior to 1938 cover different periods for different trading partners due to variations in data availability.[20]

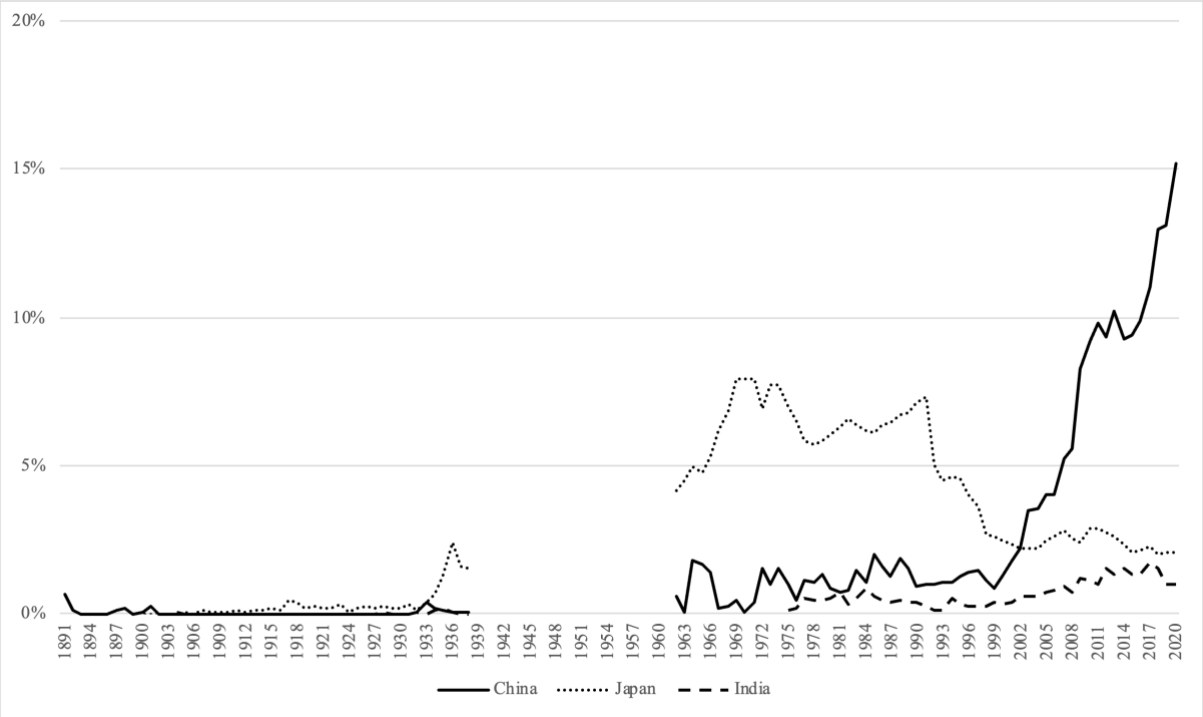
The analysis of imports shows a slightly higher relevance of Asian markets and more oscillations during the first period. Generally, imports from Asia remained below 3%. However, this figure was exceeded during the years of the First World War and from 1932 to 1938, when imports from Asia accounted for 5 to 6%. This ratio increased during the1960s and remained stable until the end of the 20th century. Once more, a notable acceleration took place during the 21st century, with an increase in the share of imports from Asia from 10% to 25%.

It becomes evident that changes in the relative importance of Asian markets were driven by

[20] Trade data include Argentina's import data from China (1910-1938), India (1904-1918, 1932-1938), Japan (1910-1938); Brazil's import data from China (1915-1938), India (1903-1913, 1915-1938), Japan (1913, 1915-1938); Chile's import data from China (1876-1918, 1924, 1927-1938), India (1876-1924, 1927-1938), Japan (1898-1924, 1927-1938); Ecuador's import data from China (1900, 1903-1904, 1906, 1908-1912, 1915-1926, 1928-1931, 1938), India (1912, 1915-1926, 1928, 1930-1931, 1938), Japan (1909-1912, 1915-1926, 1928-1931, 1938); Mexico's import data from China (1889-1890, 1893-1913, 1918-1938), India (1893-1913, 1918-1938), Japan (1889-1890, 1893-1913, 1918-1938); Peru's import data from China (1877, 1891-1892, 1897-1914, 1917-1923, 1927-1938), India (1891-1892, 1900, 1903-1938), Japan (1877, 1899-1901, 1903-1938).

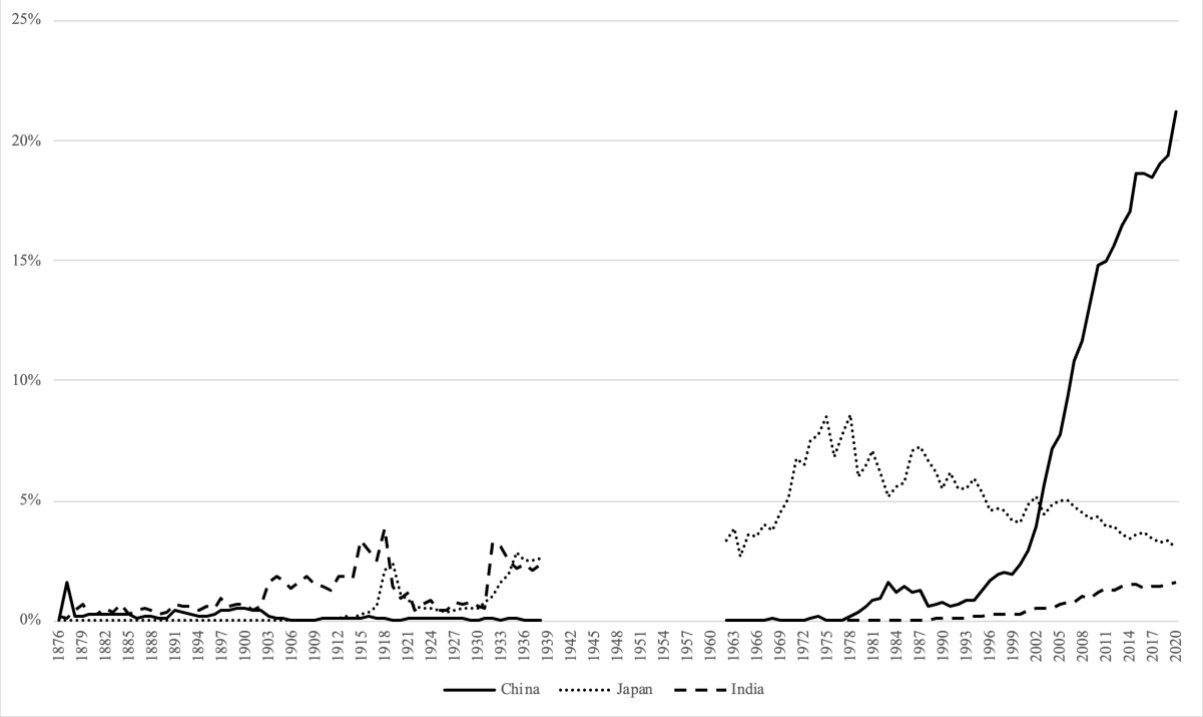
specific countries (Figure 3.2 and Figure 3.3). During the First Globalization and interwar periods, there were changes in the relevance of India and Japan. These were marginal given that Asian and Latin American trade engaged primarily with the United States and Europe. From the 1960s onwards, trade relations between Asia and Latin America expanded (Dosch and Jacob 2010), initially driven by Japan. This country exported manufactured goods, electronics and machinery to Latin America, while Latin America supplied it with raw materials, agricultural products, and minerals (Berríos 2001; Hosono 2019). This trade was also facilitated by multilateral trade agreements and regional cooperation frameworks that sought to diversify trade and reduce dependency on traditional markets (Hosono 2019). Thereafter, the economic opening of China and its subsequent rise as a global manufacturing factory further intensified trade between Asia and Latin America. In fact, China is today one of Latin America's largest trading partners (Devlin, Estevadeordal, and Rodríguez-Clare 2006; Fornes and Mendez 2018; Peters 2005).

**Figure 3.2: Asia in Latin America's export (in percentage), 1891-1938, 1962-2020**




**Sources:** See Figure 3.1.

**Figure 3.3: Asia in Latin America's import (in percentage), 1876-1938, 1962-2020**



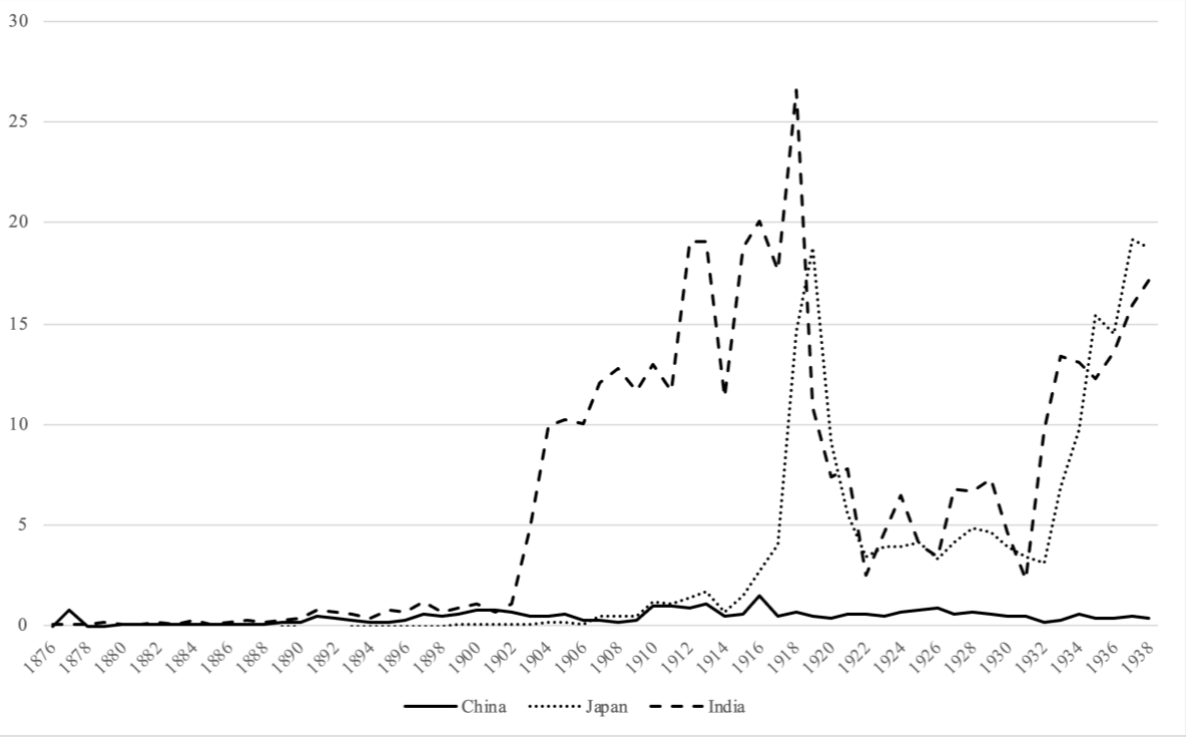

**Sources:** See Figure 3.1.

This long-term trade review suggests a contrast between the vigor of the trade between Asia and Latin America during the 17th and 18th centuries and the marginal role of Asian markets in the First Globalization and interwar periods. The latter, however, can be explained by two different forces: a reduction in trade relations in absolute terms or a reduction in relative terms due to a faster increase of other trade connections. Furthermore, as suggested by the literature on complex economies (Hidalgo 2023), the understanding of long-term trade trajectories sometimes requires looking at the evolution of the quantity and products composition rather than their value (Peres-Cajías et al. 2021). Indeed, the limited evidence available shows that in the first decades following independence (1821-1870), Mexico continued to import the same types of products as during the colonial period (Kuntz Ficker 2020). The next section will explore in detail Latin American imports from Asia at the end of the 19th century and the beginning of the 20$^{th}$ century.

## 3.4 Latin American import composition from Asia, 1876-1938

This section provides information on the composition of Latin American imports from Asia from 1876 to 1938 based on the archival research before described.[21] We focus on imports from Asia given that, during this period, they were more relevant than exports to Asia (see Figure 3.1). To begin with, total imports show some differences between the three Asian countries (Figure 3.4). While imports from China remained practically stagnated, imports from India increased from the beginning of the 20th century to the early 1920s. Likewise, imports from Japan increased during the years of the World War I. Then, whereas imports both from India and Japan reduced during the 1920s, they recovered their upward trend during the 1930s.

**Figure 3.4: Latin American import from Asia (in millions of 1913 US dollar), 1876-1938**




**Sources:** See Figure 3.1.

Secondly, the composition of imports highlights a persistence in the types of products imported

[21] Post World War II information is already available in the UN Comtrade Database and in open outlets like the Atlas of Economic Complexity database (https://atlas.cid.harvard.edu/).

from Asia to Latin America since the colonial period (Table 3.1). The table shows that Asian products transported to Latin America in the Manila Galleon (first column in Table 3.1) persisted during the post-independence period of 1821-1870 (second column in Table 3.1), primarily through re-exports from the United States and the United Kingdom (Kuntz Ficker 2020). In the import basket some products stand out: tea, rice, opium, spices (cinnamon, cloves, pepper), silk and cotton textiles, porcelain, and furniture. During the period between 1876 and 1938 (third column in Table 3.1), these products were still the main articles in Latin America's import from Asia, while some new products, such as machinery, began to appear in this trade flow.

**Table 3.1: Latin America's imported products from Asia, 1565-1938**

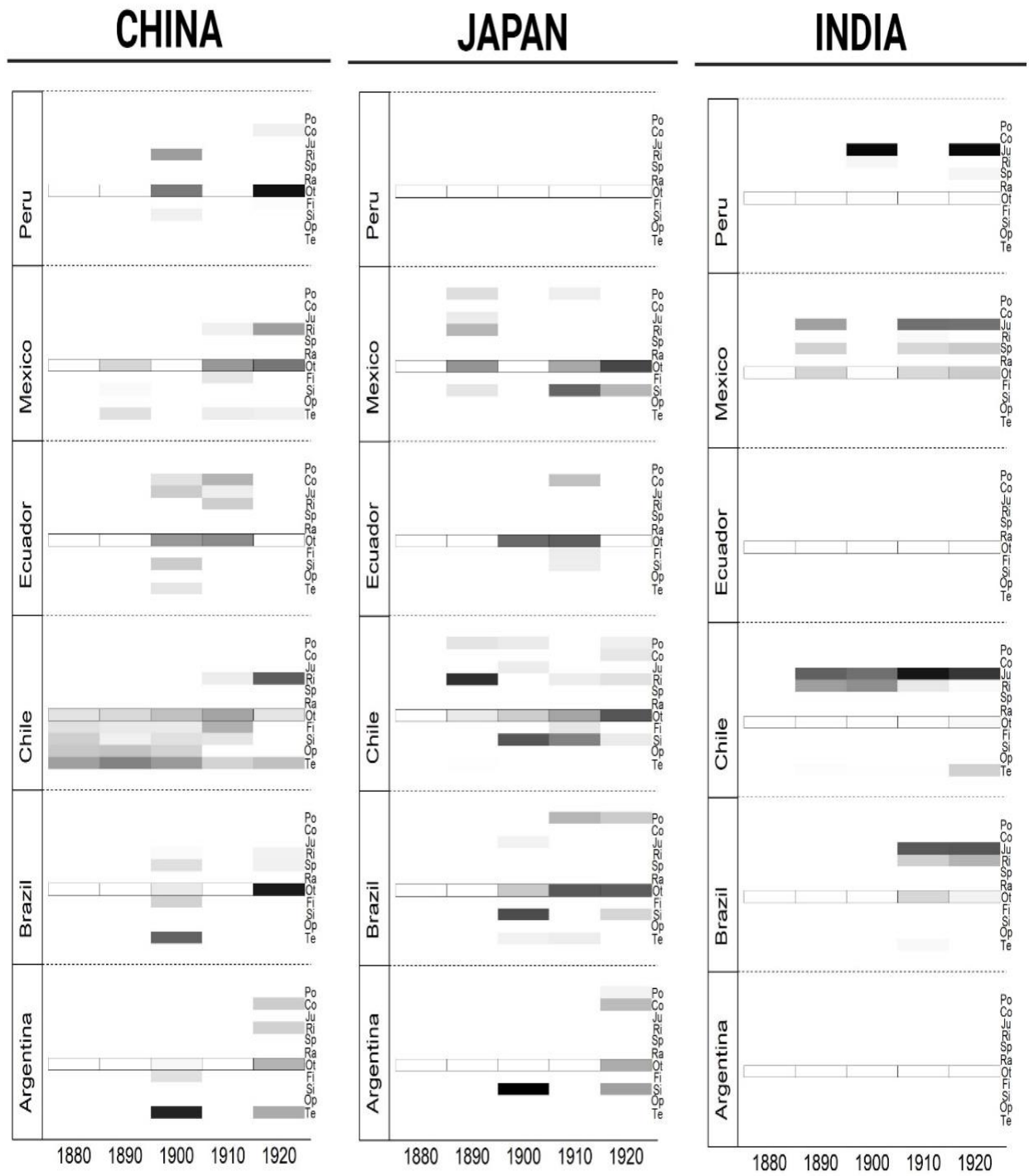
| **Latin American colonial period: Manila Galleon 1565-1815** | **Latin American post-independece period 1821-1870** | **First Globalization and Interwar periods 1876-1938** |
|---|---|---|
| Tea | Tea | Tea |
| Food and beverage<br>*rice, sesame, coconut, mango, tamarind* | Food and beverage<br>*rice* | Food and beverage<br>*rice, cocoa, vegetables, fruits, licor* |
| Agricultural products<br>*opium, hemp* | Agricultural products<br>*opium, rubber* | Agricultural products<br>*opium, rubber, jute, hemp, tobacco* |
| Spices<br>*cinnamon, cloves, pepper, ginger* | Spices<br>*cinnamon, cloves, pepper* | Spices<br>*cinnamon, cloves, pepper, ginger* |
| Textiles<br>*silk textiles, cotton textiles* | Textiles<br>*silk textiles, cotton textiles* | Textiles<br>*silk textiles, cotton textiles, wool textiles* |
| Porcelain | Porcelain | Porcelain |
| Furniture | Furniture | Furniture |
| Artifacts and curiosities<br>*fans, lacquerware, artifacts of ivory and wood, mirror, biombo* | Artifacts and curiosities<br>*combs of ivory and bamboo* | Artifacts and curiosities<br>*fans, artifacts of wood, paper, metals, iron, leather, stone, ceramic, glass* |
| | | Others<br>*machinery, toys* |

**Sources:** Data in 1565-1815 are from Cervera Jiménez (2020) and Schurz (1939); data in 1821-1870 are from Kuntz Ficker (2020); data in 1876-1938 are from Latin American countries' annual foreign trade yearbooks (see section of "Data sources").

Figure 3.5 shows each year share of the main products (Porcelain; Cotton Products; Jute and Hemp; Rice; Spices Products; Raw Silk; Fireworks; Silk Products; Opium; and Tea)[22] and other goods (this category has been framed with lines in the middle of each country box) in Latin America's import from Asia from 1880s to 1920s. A darker cell means a higher share, i.e. more concentration, meanwhile a less dark cell shows lower shares, i.e. less concentration. For instance, the Peruvian import from India in 1900 is highly concentrated in Jute and Hemp, but it is more diversified in the case of imports from China. It should be noted that there are some years with no data information, especially for imports from India. A more diversified color scale indicates more products imported, i.e. more diversification, which can be interpreted as more complexity in trade. In this sense, it is interesting to see how Indian imports are less diversified than Chinese or Japanese ones, and Chile seems to be the importer with more complex trade.

[22] These products have been identified as traditional based on the literature on the colonial trade.

**Figure 3.5: Composition of Latin American imports from Asia, 1880s-1920s**

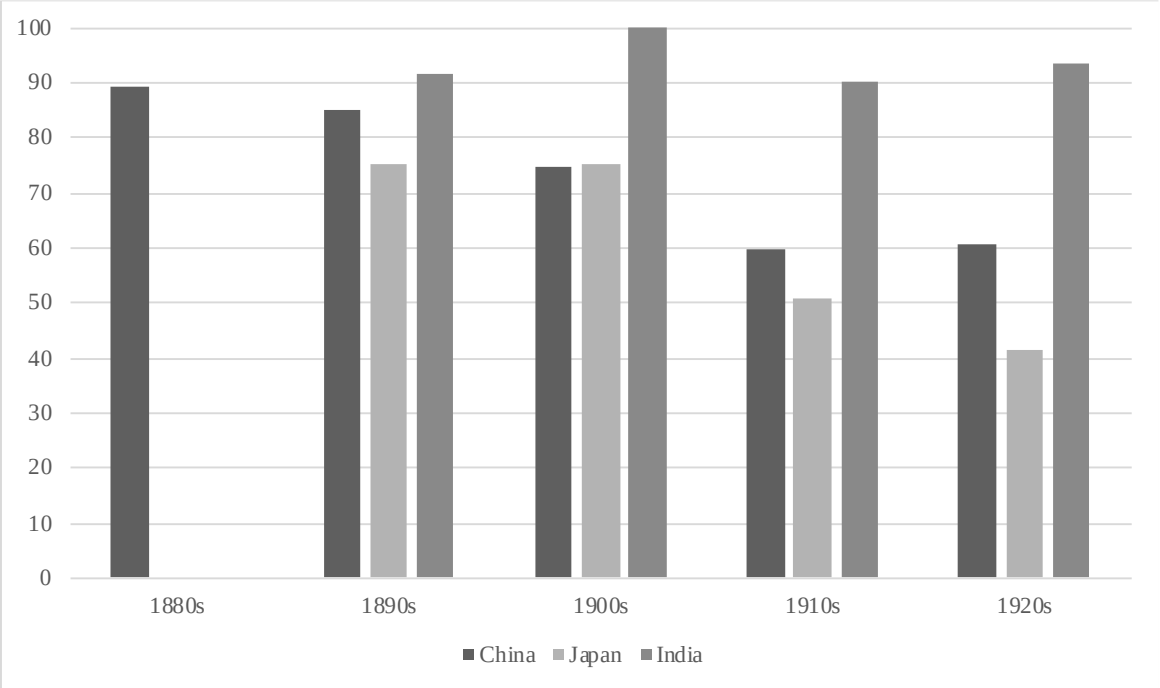



**Sources:** See Figure 3.1.

**Notes**: Po=Porcelain; Co=Cotton Products; Ju=Jute and Hemp; Ri=Rice; Sp=Spices; Ra=Raw Silk; Ot=Others; Fi=Fireworks; Si=Silk Products; Op=Opium; Te=Tea. The grey scale indicates the share of each product, white being 0 and black being 100%, for each year and each country. For instance, for 1900 regarding the Chinese exportation to Argentina almost 100% was Tea.

Focusing on traditional imports we can inferred the persistence of colonial trade and its evolution from 1880 onwards (Figure 3.6). India remains the country with the highest persistence of traditional trade with mean shares over 90% for the whole period. This may be explained by the negative effects of colonialism on this country. Regarding China and Japan, it is surprising that things do not differ so much. Both countries have a high share of traditional goods exported at the beginning of the period and both decreased it over time. It is true that Japan is slightly under the Chinese, showing a higher weight of new products. But meanwhile new products in the Japanese case were manufactures, in the case of China they were mainly agricultural goods as tobacco (to Brazil) or food (to Peru and Mexico). This result can also be explained by the fact that our items are quite aggregated, and we cannot differentiate within textiles in different stages of finishing. It has also to be pointed here, that trade volumes are also radically different in both cases. Taking all that into account, Figure 3.6 shows the persistence of traditional colonial imports in Latin America in the period, as well as the emergence of a new pattern of trade at the same time.

**Figure 3.6: Share of traditional Asian products imported by country of origin, 1880-1920**

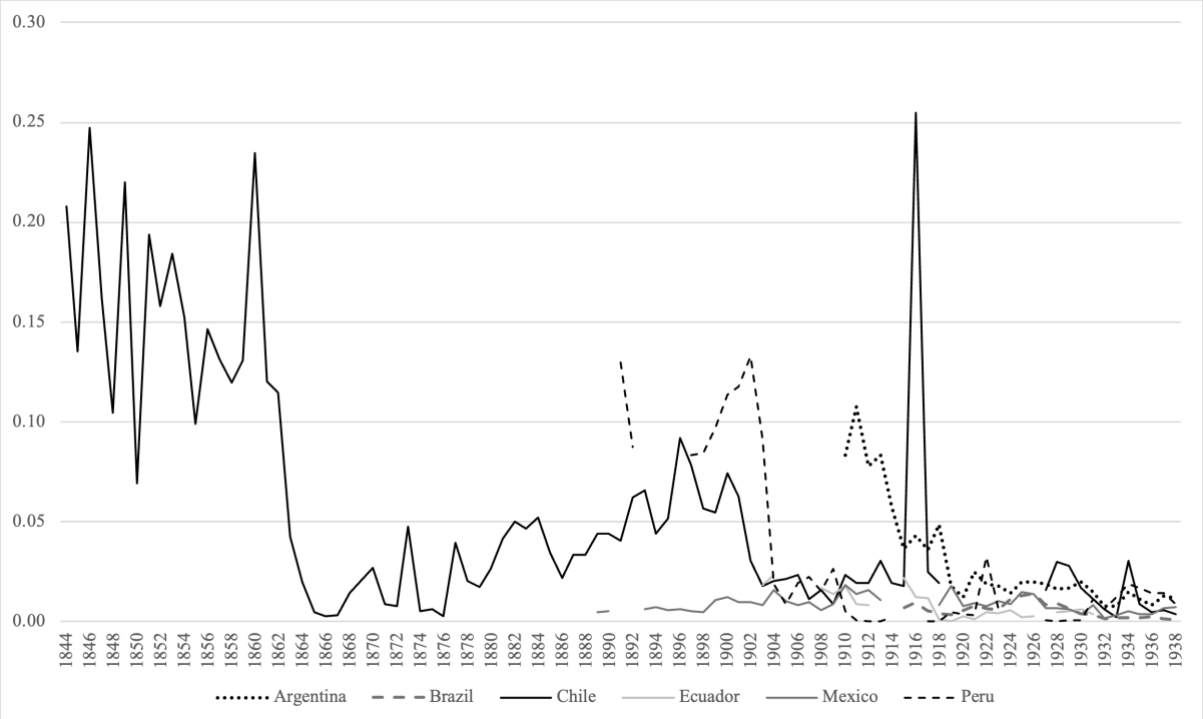



**Sources:** See Figure 3.1.

**Notes**: Mean of the shares of the data available each year for Brazil, Argentina, Chile, Ecuador, Mexico and Peru.

Although Chinese trade in the region had a complexity in trade composition similar to that of Japan, its volumes remained relatively low (Figure 3.7). In the case of Chile (the only country with available evidence since the mid-19th century), imports per capita from China decreased during the turbulent years of the Opium wars (1839-1860). Then, a timid recovery was followed by another decline. Interestedly, this decreasing pattern repeats in Peruvian imports, the second most important market for Chinese products in the region in per capita terms, on the eve of the 20th century. Indeed, except for a temporal increase of imports in Argentina and Chile during the 1910s, per capita imports from China remained stagnated at very low levels throughout the first third of the 20th century.

**Figure 3.7: Latin American imports from China (in 1913 US dollar, per capita), 1844-1938**




**Sources:** See Figure 3.1. Population data are from Maddison Project Database 2023 (Bolt and van Zanden 2024).

**Notes:** Given the significant size differences of Latin American economies, trade flows are studied in per capita levels.

The most important product imported from China in Chile from 1880s to 1900s, for Brazil and Argentina in 1900s, and for Argentina still in 1900s and 1920s, was tea (Table 3.2). In Argentina, tea dominated its imports from China during the 1900s, comprising 85.6%. Chile also recorded high imports of tea from China, particularly during the 1880s (38%), 1890s (49%) and 1900s (39%). Fireworks were notably present in the import baskets of Chile and Brazil, making up 17% of Chinese products in Brazil in 1900s and 31% in Chile in 1910s. Silk products from China were more significant before 1920s, representing 19% in Chile in 1880s, 14% in Mexico in 1890s, and 25% in Ecuador in 1900s. Cotton products began to gain importance from 1900s, making up 11% and 30% in Ecuador in 1900s and 1910s, and 17% in Peru's in 1920s. Other key Chinese products are mainly agricultural products, such as rice (63% of Chile's import from China in 1920s), opium (58% of Mexico's in 1890s), spices (78% of Chile's in 1920s), and tobacco leaf (85% of Brazil's in 1920s).

**Table 3.2: Chinese products imported by Latin American countries (in percentage), 1880s-1920s**

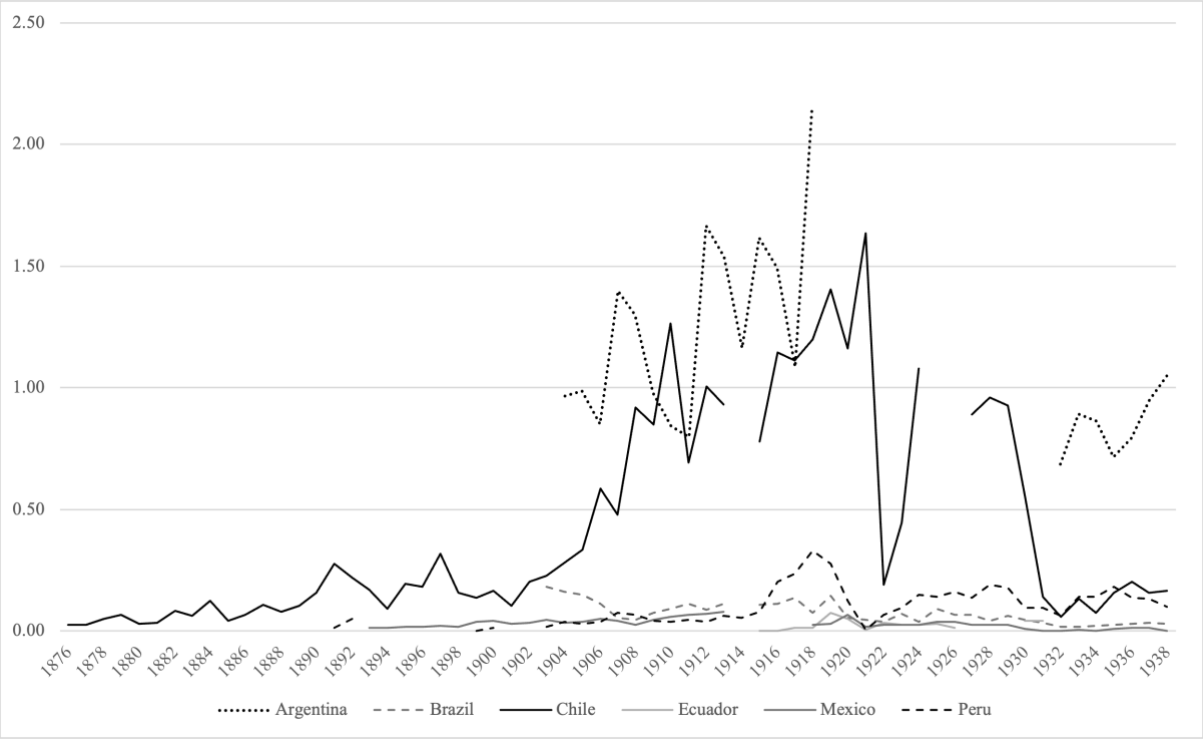
| | Argentina | | Brazil | | Chile | | Ecuador | | Mexico | | Peru | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Years** | **Product** | **%** | **Product** | **%** | **Product** | **%** | **Product** | **%** | **Product** | **%** | **Product** | **%** |
| **1880s** | | | | | Tea | 37.63 | | | | | | |
| | | | | | Opium | 21.40 | | | | | | |
| | | | | | Silk products | 18.64 | | | | | | |
| | | | | | Fireworks | 11.58 | | | | | | |
| | | | | | *Others* | *10.74* | | | | | | |
| **1890s** | | | | | Tea | 48.83 | | | Opium | 58.11 | | |
| | | | | | Opium | 23.15 | | | Silk products | 14.33 | | |
| | | | | | Fireworks | 7.95 | | | Tea | 11.87 | | |
| | | | | | Silk products | 5.40 | | | | | | |
| | | | | | *Others* | *14.68* | | | *Others* | *15.69* | | |
| **1900s** | Tea | 85.60 | Tea | 60.98 | Tea | 39.32 | Silk products | 25.17 | | | Rice | 59.45 |
| | Fireworks | 11.46 | Fireworks | 17.24 | Opium | 17.02 | Jute and Hemp | 19.64 | | | Vegetables | 15.82 |
| | | | Spices | 12.12 | Silk products | 11.69 | Cotton products | 10.71 | | | | |
| | | | Rice | 1.56 | Fireworks | 7.71 | Tea | 9.64 | | | | |
| | *Others* | *2.95* | *Others* | *8.09* | *Others* | *24.25* | *Others* | *34.84* | | | *Others* | *24.73* |
| **1910s** | | | | | Fireworks | 30.78 | Cotton products | 29.22 | Opium | 26.93 | | |
| | | | | | Tea | 17.23 | Rice | 19.17 | Silk products | 15.40 | | |
| | | | | | Silk products | 9.54 | Jute and Hemp | 6.49 | Fireworks | 9.47 | | |
| | | | | | Rice | 6.77 | Silk products | 3.82 | Tea | 6.68 | | |
| | | | | | | | Tea | 3.36 | Rice | 5.65 | | |
| | | | | | *Others* | *35.68* | *Others* | *37.94* | *Others* | *35.88* | | |
| **1920s** | Tea | 32.66 | Tobacco leaf | 85.09 | Rice | 62.90 | | | Rice | 37.80 | Spices | 77.87 |
| | Cotton products | 19.57 | Spices | 5.22 | Tea | 24.44 | | | Food | 13.88 | Cotton products | 16.76 |
| | Rice | 17.99 | Rice | 4.85 | Opium | 2.64 | | | Tea | 5.56 | | |
| | | | | | | | | | Silk products | 3.61 | | |
| | *Others* | *29.78* | *Others* | *4.83* | *Others* | *10.02* | | | *Others* | *39.15* | *Others* | *5.37* |

**Sources**: See Figure 3.1.

**Notes:** Data for Argentina are from the years 1905 and 1925; for Brazil, 1904 and 1925; for Chile, 1889, 1895, 1902, 1910 and 1920; for Ecuador, 1909 and 1915; for Mexico, 1893, 1912 and 1923; for Peru, 1905 and 1927. Due to limited primary sources at the disaggregated product level, data for certain years and countries are not available. Additional data will be collected in future research.

The study of Latin American imports from India shows the existence of two groups: one composed by most countries where imports per capita remained stagnated at lower levels and another composed by Argentina and Chile (see Figure 3.8). In these two countries, imports per capita increased from the early 20th century until the early 1920s. Thereafter, the trend of these two countries diverged: while imports per capita in Argentina remained stagnated at higher levels, imports per capita in Chile decreased systematically to low levels.

**Figure 3.8: Latin American imports from India (in 1913 US dollar, per capita), 1876-1938**




**Sources:** See Figure 3.1.

The study of imports from India highlights the dominance of jute and hemp (Table 3.3). These products accounted for over 55% of Latin America's imports from India across most decades and countries, reaching over 90% of Peru's import in 1900s and 1920s and Chile's in 1910s. Moreover, this centrality tended to maintain across time. In the case of Chile, this category largely consisted of empty sacks that were used to collect saltpeter. Thus, unlike many products imported from China, this shows how the consolidation of a new product in Latin America generated new links with Asian economies. In fact, the fluctuations in Chilean per capita

imports from India, as shown in Figure 3.8, can be partially explained by the nitrate export cycle, which had a crisis in the early 1920s and throughout the 1930s. The second most important product imported from India was rice (37% and 44% of Chile's import in 1890s and 1900s, 18% and 29% of Brazil's in 1910s and 1920s). In the case of Mexico, the presence of opium (11% in 1910s) and spices (15% in 1910s and 21% in 1920s) also stands out.

**Table 3.3: Indian products imported by Latin American countries, 1890s-1920s**

| | Brazil | | Chile | | Mexico | | Peru | |
|---|---|---|---|---|---|---|---|---|
| **Years** | **Products** | **%** | **Products** | **%** | **Products** | **%** | **Product** | **%** |
| **1890s** | | | Jute and Hemp | 58.00 | Jute and Hemp | 36.78 | | |
| | | | Rice | 33.74 | Cocoa | 29.57 | | |
| | | | | | Spices | 17.32 | | |
| | | | *Others* | *8.26* | *Others* | *16.33* | | |
| **1900s** | | | Jute and Hemp | 55.95 | | | Jute and Hemp | 96.56 |
| | | | Rice | 43.77 | | | Rice | 3.26 |
| | | | Spices | 0.19 | | | | |
| | | | Tea | 0.09 | | | | |
| | | | *Others* | *0.00* | | | *Others* | *0.19* |
| **1910s** | Jute and Hemp | 64.97 | Jute and Hemp | 91.33 | Jute and Hemp | 56.01 | | |
| | Rice | 18.04 | Rice | 8.32 | Spices | 15.43 | | |
| | Tea | 2.08 | Tea | 0.28 | Opium | 11.49 | | |
| | | | | | Rice | 2.34 | | |
| | *Others* | *14.91* | *Others* | *0.07* | *Others* | *14.72* | | |
| **1920s** | Jute and Hemp | 66.15 | Jute and Hemp | 78.59 | Jute and Hemp | 55.12 | Jute and Hemp | 96.10 |
| | Rice | 29.15 | Tea | 17.94 | Spices | 20.61 | Spices | 3.77 |
| | | | Rice | 1.33 | Cocoa | 4.35 | | |
| | *Others* | *4.70* | *Others* | *2.14* | *Others* | *19.92* | *Others* | *0.13* |

**Sources**: See Figure 3.1.

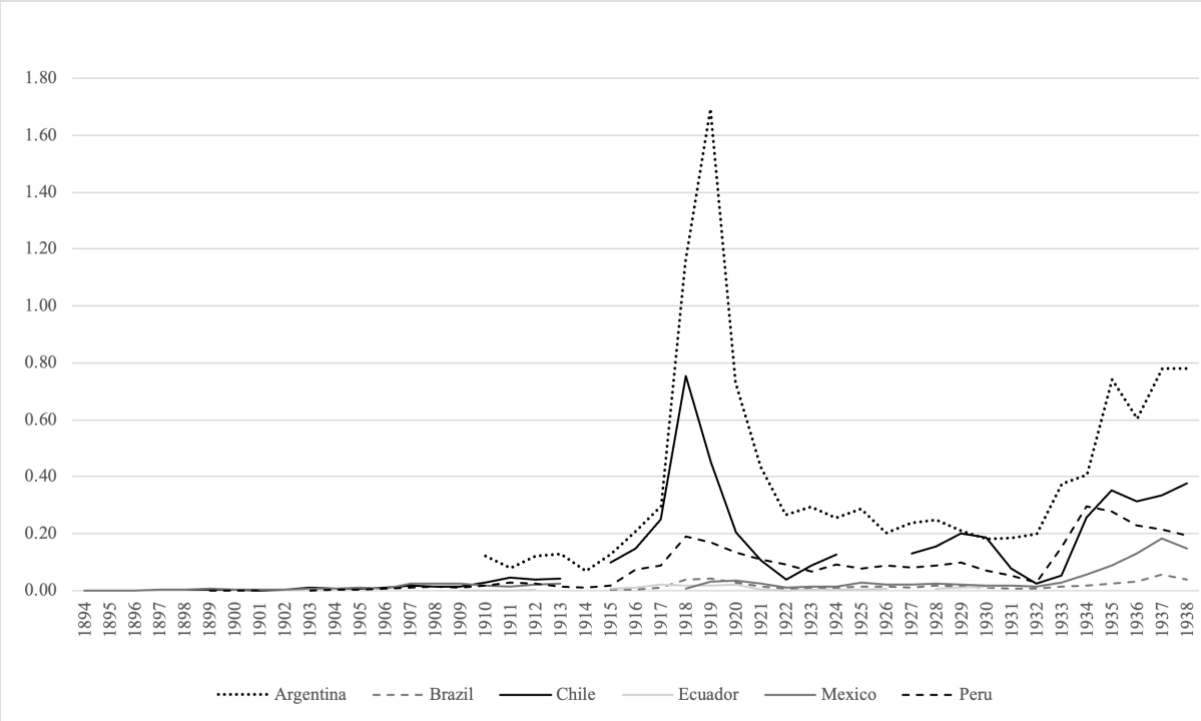
**Notes:** Data for Brazil are from the years 1915 and 1925; for Chile, 1895, 1902, 1910 and 1920; for Mexico, 1893 and 1912; for Peru, 1905 and 1927.

Finally, imports per capita from Japan show very low levels before the First World War (Figure 3.9). The war years saw a sudden increase, that lasted until the early 1920s, in Argentina, Chile and Peru. This suggests that the restrictions on Latin American imports from Europe due to the international conflict fostered new trade ties with the Asian economy.[23] Thereafter, imports per capita reduced and converged with those of other Latin American countries although at higher levels than before the war. However, from 1932 onwards they began to increase in the same

[23] These restrictions also explain a temporal increase of intraregional trade in South America (Carreras-Marín, Badia-Miró, and Peres Cajías 2013).

countries previously identified, along with Mexico.

**Figure 3.9: Latin American imports from Japan (in 1913 US dollar, per capita), 1894-1938**




**Sources:** See Figure 3.1.

During the pre-World War I years, most Latin American imports from Japan were concentrated in silk products, rice and porcelain (see Table 3.4). For instance, rice made up 81% of Chile's import and 28% of Mexico's in the 1890s. In the 1900s, silk products presented respectively 100%, 43%, and 25% in Argentina, Brazil, and Peru, respectively. These products were traditionally imported by Latin American countries from Asia. However, imports from Japan exhibited a higher diversification. For instance, around 45% of Brazilian imports from Japan in 1915 and 1925 were manufactures such as toys, buttons, articles made of various materials such as glass, paper and wood. While silk products, rice and porcelain remained important during and after the World War I, the importance of cotton textiles grew in the 1910s. For instance, in 1915, cotton products, including shirts and underpants, made up 24% of Ecuador's total imports from Japan. Similarly, 14% of Chilean imports in 1920 consisted of cotton

products, including cotton socks and stockings, satins, as well as cotton trimmings and cords. In Argentina, cotton products presented 26% in the 1920s. In Peru, cotton products constituted 52% of imports from Japan in 1927. In Mexico, the import basket in the 1920s also included artifacts, machinery, vehicles, and pharmaceutical products.[24]

**Table 3.4: Japanese products imported by Latin American countries, 1890s-1920s**

| | Argentina | | Brazil | | Chile | | Ecuador | | Mexico | | Peru | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Years** | **Product** | **%** | **Product** | **%** | **Product** | **%** | **Product** | **%** | **Product** | **%** | **Product** | **%** |
| **1890s** | | | | | Rice | 81.20 | | | Rice | 28.41 | | |
| | | | | | Porcelain | 10.48 | | | Porcelain | 12.93 | | |
| | | | | | Tea | 0.27 | | | Silk products | 9.70 | | |
| | | | | | | | | | Jute and Hemp | 7.24 | | |
| | | | | | *Others* | *8.05* | | | *Others* | *41.72* | | |
| **1900s** | Silk products | 100.00 | Silk products | 43.35 | Textiles | 65.97 | Porcelain | 41.38 | | | Silk products | 25.29 |
| | | | Fans | 26.80 | Porcelain | 7.65 | Wood products | 58.62 | | | Cotton products | 4.31 |
| | | | Tea | 4.69 | Jute and Hemp | 6.99 | | | | | | |
| | | | Straw | 4.36 | | | | | | | | |
| | *Others* | *0.00* | *Others* | *20.80* | *Others* | *19.39* | *Others* | *0.00* | | | *Others* | *70.40* |
| **1910s** | | | Manufactures* | 46.82 | Silk products | 48.71 | Cotton products | 24.11 | Silk products | 60.02 | | |
| | | | Porcelain | 28.41 | Fireworks | 9.58 | Silk products | 10.89 | Porcelain | 5.92 | | |
| | | | Tea | 6.31 | Rice | 6.69 | Fireworks | 6.96 | | | | |
| | | | Cotton products | 3.60 | | | | | | | | |
| | | | Silk products | 3.46 | | | | | | | | |
| | | | *Others* | *11.40* | *Others* | *35.02* | *Others* | *58.05* | *Others* | *34.05* | | |
| **1920s** | Silk products | 36.94 | Manufactures | 44.96 | Cotton products | 13.98 | | | Artifacts** | 36.73 | Cotton products | 51.58 |
| | Cotton products | 26.10 | Porcelain | 20.17 | Rice | 11.13 | | | Silk products | 28.22 | Silk products | 17.05 |
| | Porcelain | 4.42 | Silk products | 18.68 | Silk products | 7.64 | | | | | Spices | 13.79 |
| | | | | | Porcelain | 5.81 | | | | | | |
| | *Others* | *32.54* | *Others* | *16.19* | *Others* | *61.44* | | | *Others* | *35.05* | *Others* | *17.58* |

* This category "Manufactures" includes toys, buttons, pencils, manufactured articles of wood, paper, glass, etc.

** This category "Artifacts" includes artifacts made of ivory, coral, leather, pearls, etc.

**Sources**: See Figure 3.1.

**Notes:** Data for Argentina are from the years 1905 and 1925; for Brazil, 1904, 1915 and 1925; for Chile, 1889, 1902, 1910 and 1920; for Ecuador, 1909 and 1915; for Mexico, 1893, 1912 and 1923; for Peru, 1905 and 1927.

Summing up, at the end of the 19th century, the three Asian countries had relatively low shares in Latin America's imports. Since 1900, imports from India experienced an upward trend, and imports from Japan increased during the years of World War I. They both decreased in the 1920s but rose again in the 1930s. Meanwhile, imports from China remained quite stagnant in the whole period, with occasional fluctuations. Despite changes in the relative importance of Asian suppliers, the composition of imports shows continuities with the colonial period. Products such as tea, silk textiles, rice, spices, opium and porcelain were constantly present in Latin American import baskets from Asia. At the same time, items like non textile

[24] Some of these products are not listed in the Table 4 due to their low percentage. However, their presence highlights the diversification of Latin America's imports from Japan. So, we put this evidence in the text.

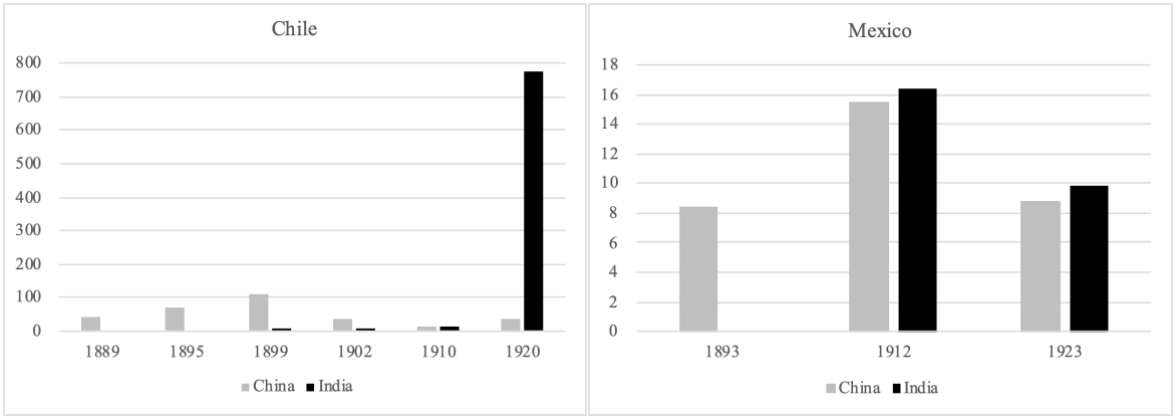
manufactured goods gained increasing relevance. This suggests that colonial trade patterns persisted during this period, albeit with gradual decline. At the same time a new trade pattern was emerging at this very moment, characterized by imports of diversified agricultural goods from China and Japanese manufactured industrial goods due to its rapid industrialization. In contrast, Indian products remained relatively stagnant and less complex, likely a consequence of its colonial status. Conversely, Japan and China demonstrated higher levels of trade complexity, though with radical distinct characteristics, industrial in the Japanese case and primary in the Chinese case.

## 3.5 Supply and demand factors into Asian-Latin American trade

### 3.5.1 Supply factors: disparities in Asian industrialization

This section looks at supply and demand forces to understand the continuities and changes in Asian-Latin American trade during the period 1876 to 1938. The relevance of supply-side dynamics can be seen through the evolution of Latin American tea imports from Asia. Following the colonial pattern, China remained the primary Asian tea exporter to Latin America through the late 19th century. However, by the early 20th century, tea from India began gaining importance, particularly in Chile and Mexico (Figure 3.10). In 1920, Chile's tea imports from India approached $800,000 (1913 US dollar) —twenty times the value of tea imported from China. In 1912, India had already caught up with China in the Mexican tea market. Although Mexico imported a greater quantity of tea from China (35,852 kgs) than from India (19,127 kgs), Indian tea had a higher total value. In 1923, Mexico imported 155,000 kgs of Chinese tea—nearly ten times the 18,000 kg from India (see Appendix: Table 6.11 and Table 6.13). However, Indian tea maintained a higher value. This suggests that in the Mexican market, the price per kg of Chinese tea was much lower than that of Indian tea, indicating a relatively lower quality of Chinese tea compared to Indian tea.

**Figure 3.10: Chilean and Mexican imports of tea (in thousands of 1913 US$), 1880s-1920s**




**Source**: Official foreign trade yearbooks of the sample countries (see section 3.2 "Data Sources").

When Great Britain is included, China's share in Latin America's tea market diminishes over the entire period (see Table 3.5). Assuming that British tea predominantly originated from India,[25] Chinese tea only surpasses British/Indian tea imports in Argentina in 1905. The British/Indian tea is clearly dominant in the Chilean imports, representing a maximum share of 93% in 1889 and maintaining a 92% share in 1920. The Mexican case is quite different as the role of the United States is more important (it may also include re-exportation from other countries but this is hard to be identified). China's share in Mexican tea imports shows a declining trend, dropping from 38% in 1893, to 31% in 1912, and 22% in 1923. The relevance of Great Britain could be also explained by its imperial expansion in Asia and its growing control over global trade routes. It is hard to know if some Chinese tea was also traded via Hong Kong to Latin America but recorded as originating from Great Britain.

**Table 3.5: Main exporters of tea to Latin America (in percentage), 1890s-1920s**

| | 1890s | 1900s | 1910s | 1920s |
|---|---|---|---|---|
| ***Argentina*** | | | | |
| China | | 46% | | |
| Great Britain | | 18% | | |
| ***Brazil*** | | | | |
| Great Britain | | | | 96% |
| ***Chile*** | | | | |
| Great Britain | 93% | 80% | 92% | 19% |
| China | 6% | 13% | 1% | 1% |
| India | | | 1% | 73% |
| ***Mexico*** | | | | |
| United States | 52% | | 22% | 43% |
| China | 38% | | 31% | 22% |
| India | 1% | | 33% | 25% |

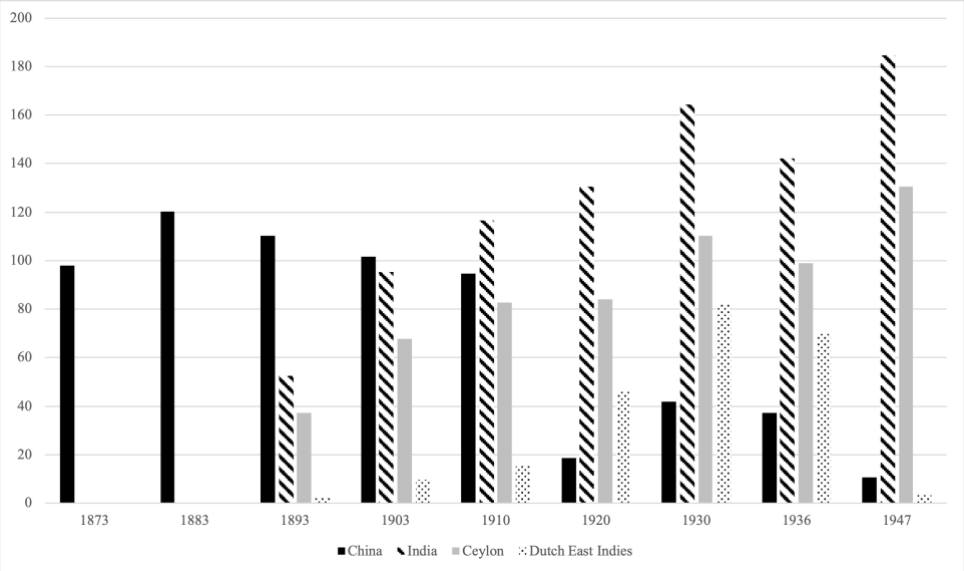
**Sources:** Official foreign trade yearbooks of the sample countries (see section 3.2 "Data Sources").
**Notes:** Data for Argentina is 1905; for Brazil, 1925; for Chile, 1889, 1902, 1910 and 1920; for Mexico, 1893, 1912, and 1923.

Whereas tea was among the most important Chinese exports, its importance began to decline toward the end of the 19th century (Wong 2007; Yan 1955). Figure 3.11 shows that China was

[25] Indeed, in 1910-1911, 71% of Indian tea were exported to Great Britain. This data is from *Statistical abstract relating to British India from 1903-04 to 1912-13.* Forty-eighth number. London: His Majesty's Stationary Office, 1915, available in South East Asia Library (https://dsal.uchicago.edu/statistics/).

the world's largest tea exporter until the late 19th century. However, British India, Ceylon, and the Dutch East Indies gradually gained a stronger presence in the global tea market. By 1903, India's tea exports quantity almost caught up with that of China. By 1920, all other three exporters had surpassed China, with India's tea exports reaching six times larger than China's. The contrast between the decline of China's tea industry and the growth of India's tea industry in this period is related to the obsolescence in cultivation and processing methods in China.

**Figure 3.11: Tea exports of major producing countries (in millions of kg), 1873-1947**

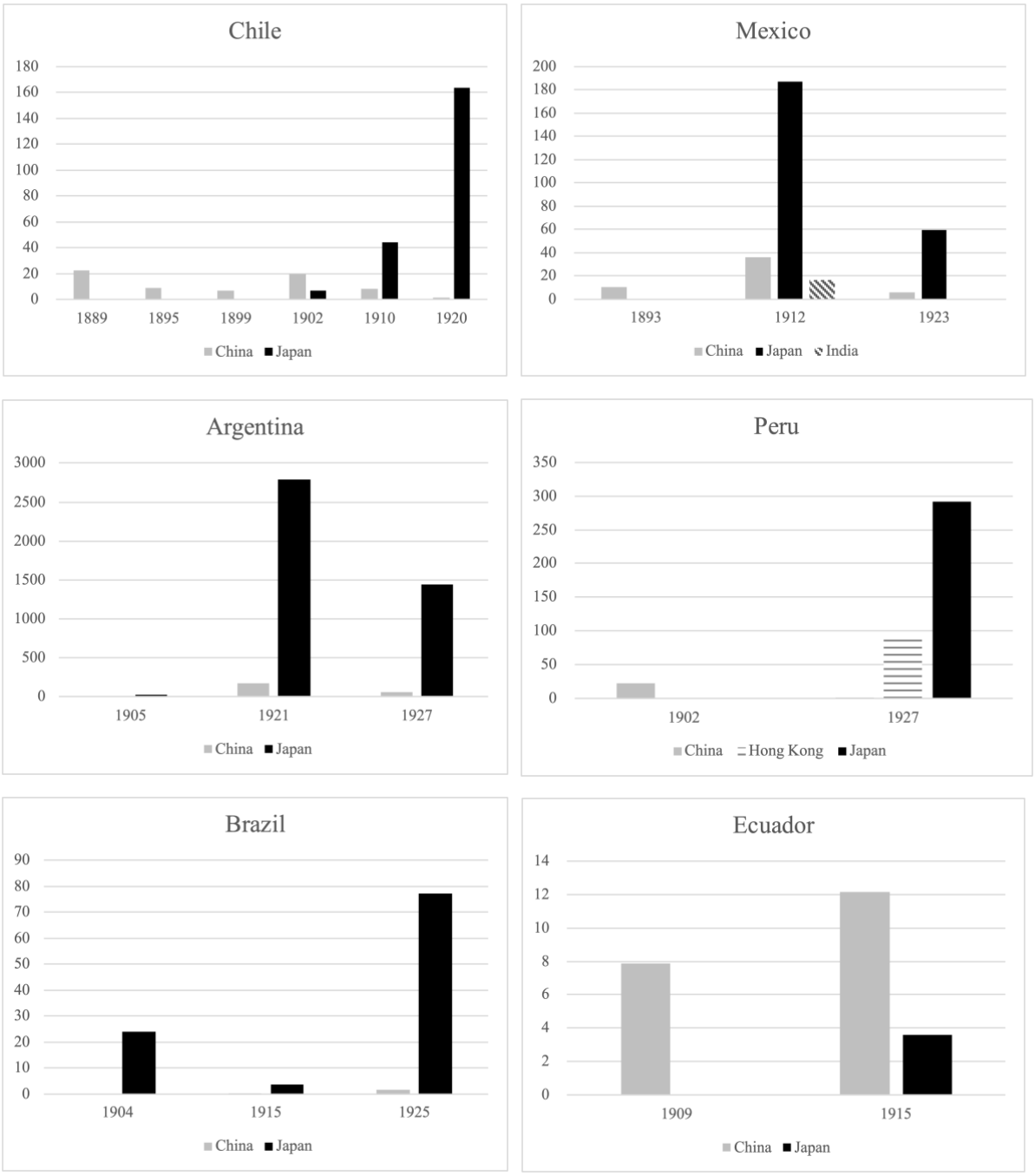



**Sources:** Yan (1955)

In China tea production was fragmented into small plots and tea leaves were picked and processed manually, leading to inefficient production and inconsistent product quality (Zhong 2021). In addition, the tax burden on domestic tea transportation damaged the price competitiveness of Chinese tea in international markets (Zhong 2021). In contrast, since early 20th century, the tea industry in India overtook China's tea industry due to more advanced production methods. Driven by considerable capital investment, the use of mechanized technology, and the efficient management of Europeans, the Indian tea industry benefited from scientific practices for seed selection, intensive cultivation in large plantations, and mechanized processing (Gupta 2008; Sarkar 1972; Zhong 2021).

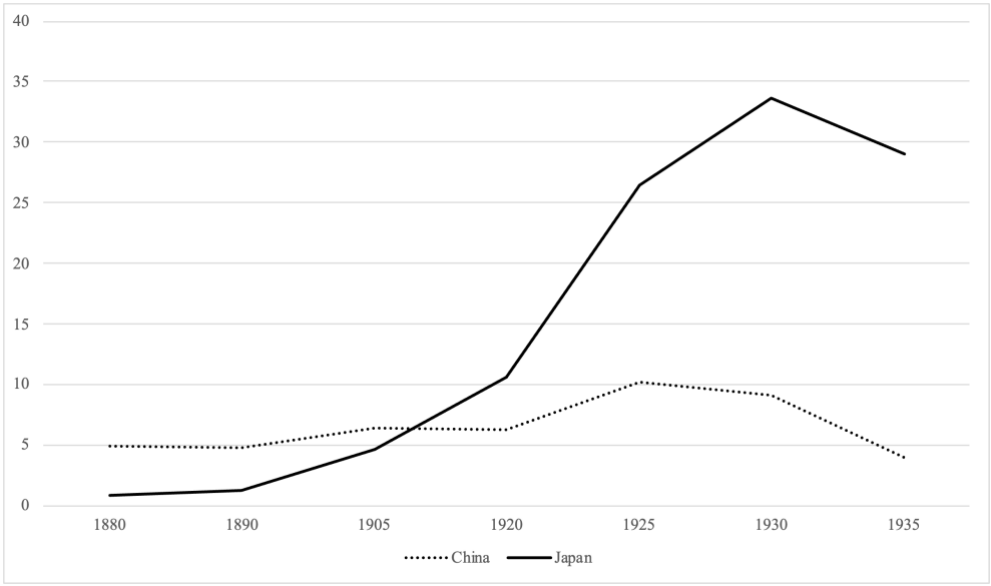
There have also been changes in Asian suppliers in terms of textiles. During the last decades of the 19th century, Latin America's imports of Asian textiles, particularly silk products such as shawls, fabrics, sashes and scarves, came mainly from China (Figure 3.12). Japanese silk and cotton textiles began to gain increasing importance from the late 19th century. By the 1910s, Japan had replaced China as the leading Asian supplier of textiles to Latin America, offering a wider range of products, including silk linings, silk scarves, dyed or painted silk fabrics, cotton socks and stockings, cotton trimmings and cordage, satins, and other cotton fabrics. In 1920s, Chinese textiles almost disappeared from the import baskets of some Latin American countries, maintaining only a modest presence through raw silk. For example, in 1921, Argentina imported silk and cotton products from Japan worth $2.8 million (1913 US dollar), sixteen times the value of its imports of silk, wool, and other textile fibers from China. In Brazil, this shift began in the 1900s, with textiles coming almost exclusively from Japan (Figure 3.12). By 1925, the value of Japanese silk manufactures in Brazil reached $77,414 (in 1913 US dollar), far exceeding that of Chinese imports. Ecuador is a different case, as China remained its primary Asian supplier of textiles in 1915. The contrast between Japan's growing raw silk exports and China's relatively stagnant status between 1880 and 1935 further highlights this shift in the international textile market (Figure 3.13).

**Figure 3.12: Latin America's import of textiles from Asia (in thousands of 1913 US dollars), 1880s-1920s**




**Sources:** Official foreign trade yearbooks of the sample countries (see section 3.2 "Data Sources").

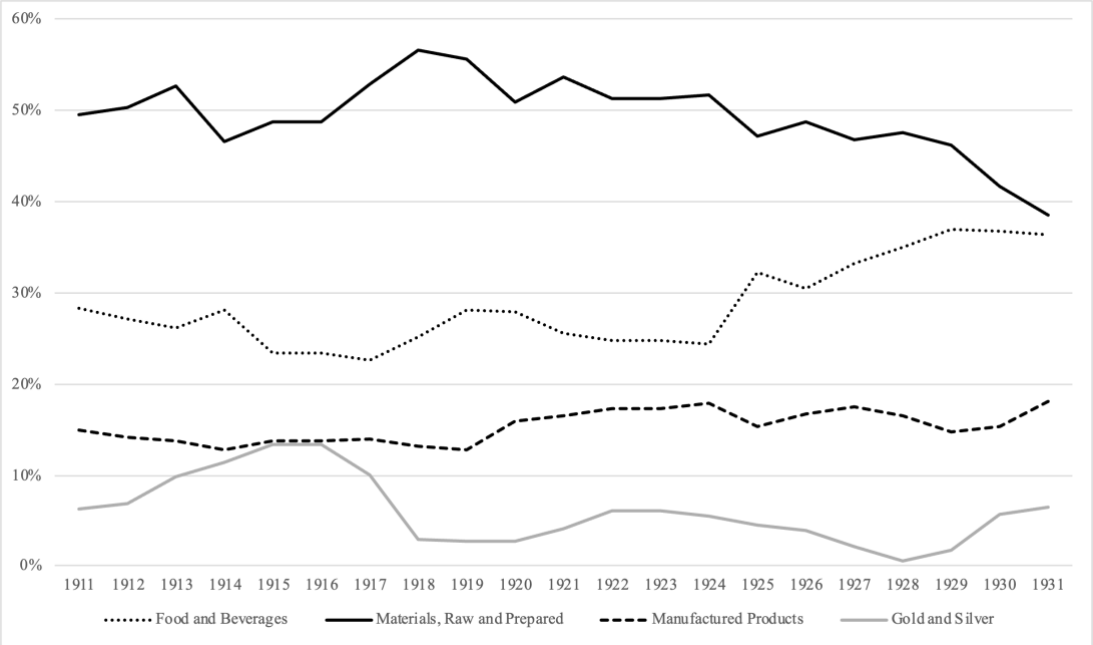
**Figure 3.13: Raw silk exports of China and Japan (in millions of kg), 1880-1935**




**Sources:** Yan (1955)

The fluctuation in the prominence of China, Japan, and India reflects disparities in industrial development and foreign trade policy strategies in these Asian countries. In China, the early 20th century was marked by political instability and the decline of the Qing dynasty. Despite attempts on modernization and industrial reform, such as the Self-Strengthening Movement (1861-1894), China remained as a predominantly agrarian economy (Ma 2021). The 1911 Revolution, led by Sun Yat-Sen, overthrew the Qing dynasty and the Republic of China was established. However, internal conflicts continued and hindered progress toward industrialization. Additionally, China remained subject to various "unequal treaties" that granted trade privileges and extraterritorial rights to foreign powers, which restricted China's autonomy over its trade policies and tariffs (Chen 2002). The situation worsened during the Warlord Era (1916-1928), when the country was fragmented into regions controlled by local military leaders. Figure 3.14 shows that from 1911 to 1931, approximately 80% of Chinese exports products consisted of raw and low processed materials as well as food and beverages, while manufactured goods made up around 15% of the total exports. Furthermore, the invasion and subsequent occupation of parts of China by Japan, especially after the 1931 Manchurian Incident, further disrupted Chinese trade.

**Figure 3.14: Main products in China's exports (in percentage), 1911-1931**




**Sources:** Hsiao (1974)

Meanwhile, India's industrialization policies were restricted by the rules imposed by British colonial rule. Thus, despite certain industrial developments in sectors such as textiles, jute and tea, British trade restrictions impeded autonomous industrial growth (Appleyard 2006; Mahajan 2015; Roy 1999; Sethia 1996). In this context, Indian raw materials, such as cotton, jute, and tea, were exported to Britain, while British manufactured goods were imported into India (Roy 2016). Between 1890 and 1920, nearly 80% of British India's exports were concentrated in a few raw materials and agricultural products, primarily raw cotton, rice, raw jute, and jute manufactures (Table 3.6).

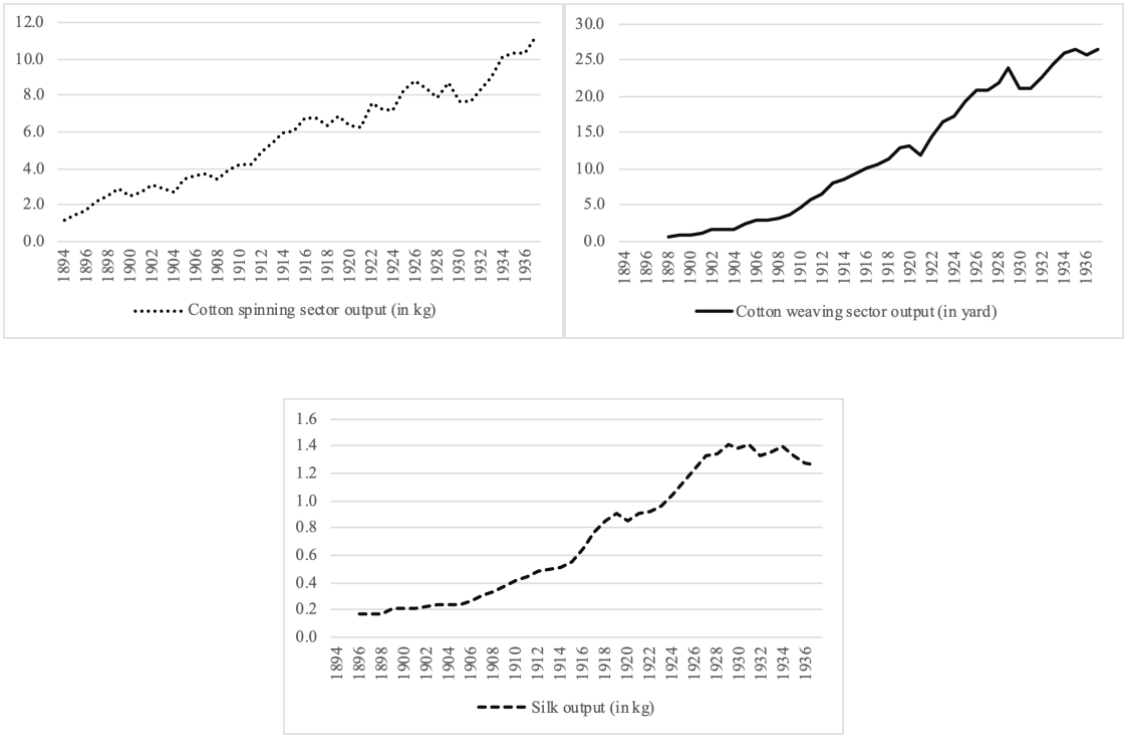
**Table 3.6: Main products in British India's exports (in percentage), 1890-1920**

| Products | 1890-1891 | 1900-1901 | 1910-1911 | 1919-1920 |
|---|---|---|---|---|
| Cotton, Raw | 17% | 10% | 18% | 19% |
| Cotton, Twist and Yarn | 7% | 4% | 4% | 6% |
| Rice | 13% | 13% | 11% | 3% |
| Jute, Raw | 8% | 10% | 8% | 8% |
| Jute, Manufactures | 2% | 8% | 8% | 16% |
| Opium | 9% | 9% | 6% | 1% |
| Seeds | 9% | 9% | 13% | 9% |
| Tea | 5% | 9% | 6% | 7% |
| Hides and Skins, Raw | 5% | 7% | 4% | 8% |
| *Sum* | *75%* | *78%* | *78%* | *76%* |

**Sources:** *Statistical abstract relating to British India from 1894-95 to 1919-20*, available in Digital South Asia Library (https://dsal.uchicago.edu/statistics/).

In contrast to the two before mentioned cases, industrialization was promoted in Japan in the Meiji era (1867-1912) and further intensified during the Taisho period (1912-1926) and Showa period (1926-1989) (Lockwood 2015). Textile industry stands out in the industrialization, with cotton textile industry remaining as the largest manufacturing sector from late 19th century through 1950s (Smitka 1998). Figure 3.15 shows an increasing trend of the cotton spinning and weaving sector output, as well as silk output per capita from 1894 to 1937.

**Figure 3.15: Cotton spinning, cotton weaving, and silk output per capita in Japan, 1894-1937**



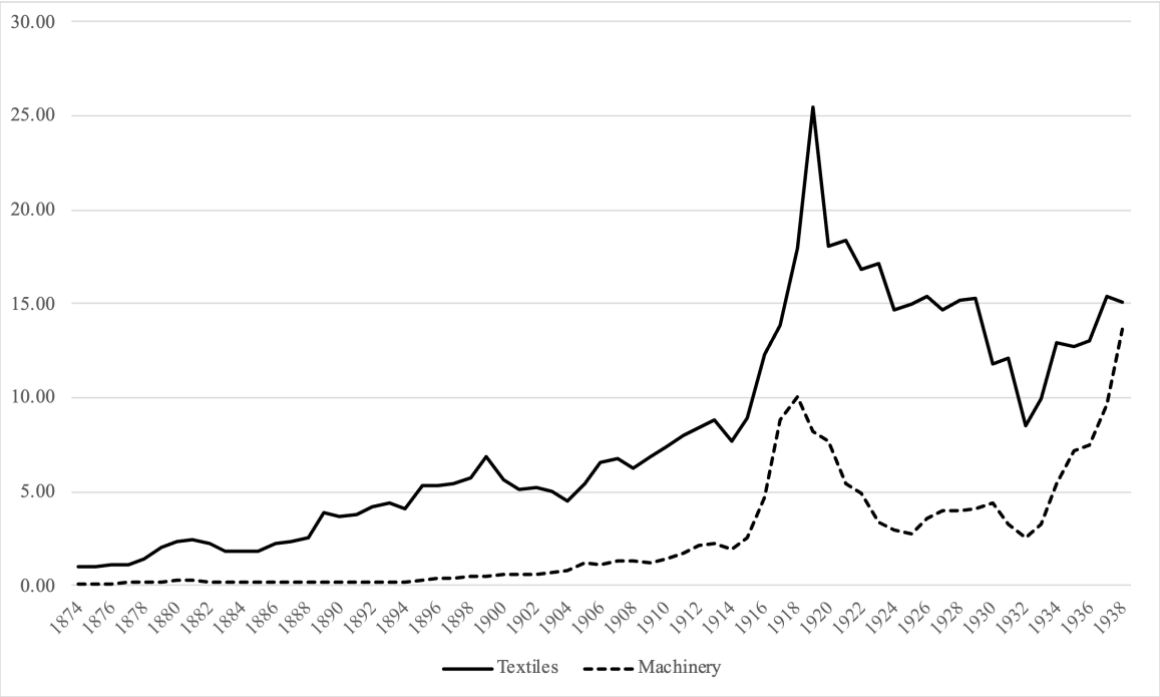

**Sources:** Long-Term Economic Statistics (LTES) Database (Japan)[26]

Moreover, Japan's colonial imperialism, initiated in 1895, promoted regional trade integration and positioned Japan as the center of Asia (Badia-Miro, Carreras-Marin, and Martinez-Taberner 2022). This process of regional integration, which particularly affected South and Southeast Asia, created more resilient markets to external disturbances like World War I (Ayuso-Díaz 2022; Ayuso-Díaz and Tena-Junguito 2020). By the 1920s, Japan had consolidated its presence in Asian markets and begun expanding into global markets by leveraging higher manufacturing productivity and advanced industrialization (Badia-Miro, Carreras-Marin, and Martinez-Taberner 2022). For example, the textiles and machinery production per capita in Japan increased from 1874 to the pre-WWI period, and during the years in WWI, textiles production per capita increased by 231% from 1914 to 1919, while the

[26] Long-Term Economic Statistics (LTES) Database (Japan) is a systematic collection of estimated and processed historical statistics of early modern Japan on economic activities in various fields based on the System of National Accounts (URL: https://d-infra.ier.hit-u.ac.jp/English/ltes/a000.html).

machinery production per capita rose by 430% from 1914 to 1918 (Figure 3.16).

**Figure 3.16: Japan's textiles and machinery production per capita (in 1913 US dollar), 1874-1938**




**Sources:** Long-Term Economic Statistics (LTES) Database (Japan)

Industrialization also led to a diversification of Japan's exports composition from 1880 to 1939, marked by a decrease in the share of agricultural products (crude foodstuff) and an increase in the importance of textiles and machinery (Table 3.7). By the eve of WWI, Japan already became a major exporter of manufactured goods (Meissner and Tang 2018). By the 1930s, the export of manufactures (including textiles, chemicals, metal products, wood products, ceramics, machinery, etc.) accounted for around 90% of Japan's exports. In correspondence to these changes, Japan's exports to Latin America changed during the years of World War I and its aftermath, evolving from primarily silk and tea to a more diversified basket of manufacture and industrial goods (Badia-Miro, Carreras-Marin, and Martinez-Taberner 2022).

**Table 3.7: Main products in Japan's exports (in percentage), 1880-1939**

| Products | 1880 | 1890 | 1900 | 1910 | 1920 | 1930 | 1939 |
|---|---|---|---|---|---|---|---|
| Crude Foodstuff | 28% | 15% | 7% | 5% | 2% | 2% | 3% |
| Textiles | 35% | 36% | 46% | 53% | 55% | 53% | 38% |
| Chemicals | 7% | 9% | 7% | 7% | 8% | 8% | 11% |
| Metal and Metal Products | 4% | 11% | 6% | 6% | 4% | 5% | 10% |
| Machinery | 0% | 0% | 0% | 1% | 3% | 4% | 13% |
| *Sum* | *73%* | *70%* | *67%* | *71%* | *72%* | *73%* | *73%* |

**Sources:** Long-Term Economic Statistics (LTES) Database (Japan)

By the 1930s, Japan had reached an advanced stage of industrialization and sought to expand its international trade relations, looking for new markets for its manufactures and new sources of raw materials (Sugihara 2005). Additionally, the geopolitical tensions prior to World War II and Japan's expansionist policies in Asia, isolated it from its Western trading partners and forced the country to seek alternative markets (Baranowski 2014; Watanabe 2018). This context helps to understand the growing importance of Japan in Latin American imports during these years. According to Japan's foreign trade data, although Latin America was not a primary export destination, its percentage in Japan's exports rose from 1% to 4% between 1930 and 1937.[27]

### 3.5.2 Demand factors: consumption patterns and Asian immigration

The understanding of Asian-Latin American trade requires also to consider demand forces. The consumption of luxury oriental goods among the upper classes and the consumption of more accessible goods, such as textile products of different values, among popular classes, rooted in the colonial period (Bonialian 2014, 2022; Dobado and Fernández de Pinedo 2023; Dobado-González 2013). These patterns persisted in the period under analysis here. The previous section showed that the highest consumption of Asian products in per capita levels were found in Argentina, Chile and Brazil and, to a less extent, Peru and Mexico. The relevance of Argentina and Chile appears as a new feature of Asian-Latin American trade compared to the colonial period. While Chile's geographic location may have played a role, the relevance of

[27] Data are from Long-Term Economic Statistics (LTES) Database (Japan).

these countries can be largely explained by their economic dynamism during the period. Indeed, both Argentina and Chile, along with Uruguay, were the most dynamic Latin American economies during these decades (Bulmer-Thomas 2017; Kuntz-Ficker 2018).

In contrast to Argentina and Chile, the presence of Mexico and Peru appears as a continuation of a consumption pattern from the colonial period. In this vein, the composition of Latin American imports reveals the continuous presence of Asian items such as porcelain, ivory and lacquer artifacts. For instance, some Asian products, especially Chinese porcelain, remained popular among the upper classes in Mexican society. In the 1920s, the Mexican newspapers *El Porvenir* and *El Nacional* reported on the wedding of upper classes people and listed the gifts they received. These included items such as Chinese porcelain for salad, Chinese porcelain tea set, and finest Chinese porcelain breakfast set (see Picture 3.1). This suggests that, much like during the colonial period, Latin American upper classes continued consuming these products. Moreover, a detailed examination of the import baskets reveals that the range of Asian products extended well beyond luxury items for elite consumption. In fact, most imports comprised mass-consumption goods such as textiles of various qualities, rice, and tea. As observed during the colonial period, this indicates that Latin America's middle and lower classes also consumed Asian products.

**Picture 3.1: Newspapers *El Nacional Revolucionario* (March 4, 1930) and *El Porvenir* (October 5, 1928)**


**Sources:** Hemeroteca Nacional Digital de México

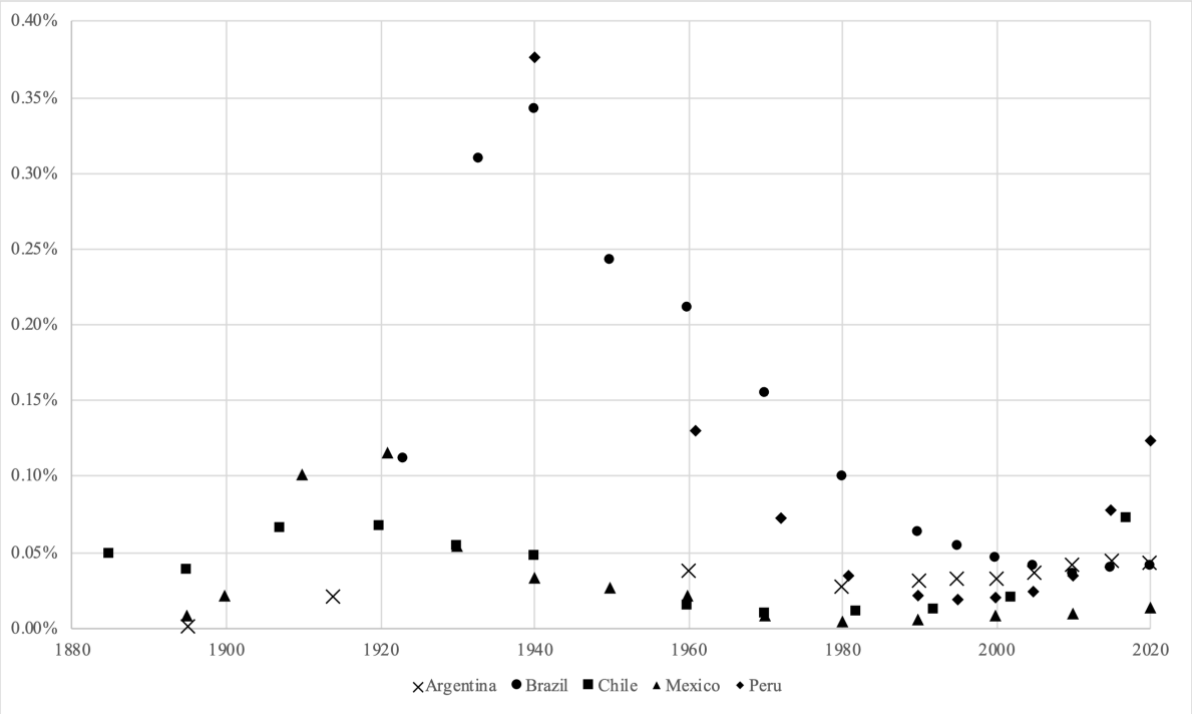
**Notes:** Left picture: The news reported on the wedding of Julio Muller and Eloísa Masoareñas, with the headline "Ayer se celebró un brillante matrimonio de distinguidas personas de nuestra sociedad" ("Yesterday a brilliant wedding of distinguished persons of uur society was celebrated"). Among the extensive list of gifts there were "juego porcelana china para ensalada" (Chinese porcelain salad set) and "juego porcelana de té" (Chinese porcelain tea set). Right picture: The news reported on the wedding of Sosa and Diaz, registering a "finísimo juego de porcelana china para desayuno" (finest Chinese porcelain breakfast set) among the listed gifts.

Beyond the apparent long-term continuity in consumption patterns among local elites and general population, it is essential to consider the impact of massive migration flows from Asia to the Americas during this period (Hu-DeHart and López 2008; Sato 1993). Between the mid-19th century and the early 20th century, approximately 250,000 to 300,000 Chinese laborers (known as coolies) and 18,000 Japanese contracted laborers, emigrated to Latin America, particularly to countries like Cuba and Peru that actively promoted labor immigration (Chang 1956; Sato 1993). From the early 20th century until the Great Depression, more free Chinese

immigrants arrived, such as artisans and small-scale merchants (Liu 2015).

Between 1908 and 1961, around 237,466 Japanese migrants settled in Brazil, driven by the Brazilian government's interest in populating and exploiting its territory by opening new agricultural lands and addressing the labor demands of coffee plantations (Saito and Rocha 1989; Sato 1993). When looking at Asian immigration (mainly Chinese and Japanese) in different Latin American countries, it becomes clear that its relative importance was marginal and much lower than other immigrant flows, particularly those from Spain and Italy. However, the proportion of Asian immigrants in the total population of Brazil, Chile, Mexico and Peru shows an increasing trend in this period (Figure 3.17).

**Figure 3.17: Asian immigrants in Latin American population (in percentage), 1880-2020**



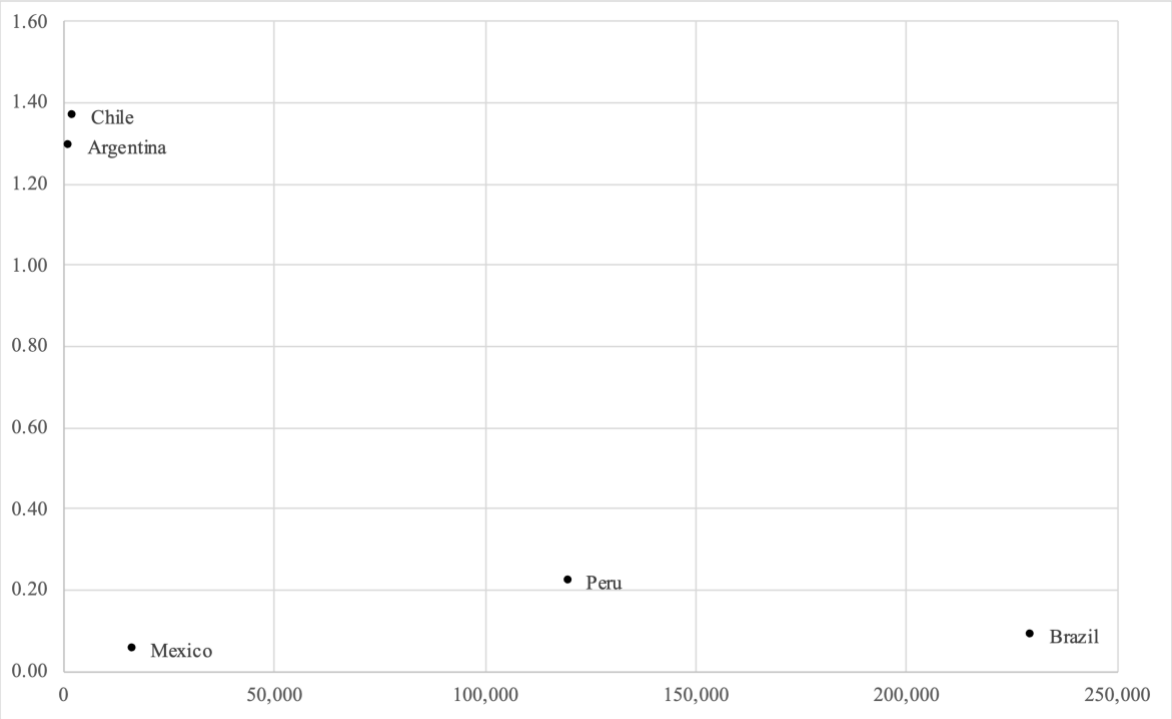

**Sources:** The data of Asian immigrants are from the censuses of Latin American countries.[28]

**Notes:** 1. These data represent legally registered Asian immigrants recorded in the official censuses of Latin American countries (except for Brazil). They do not include illegal immigrants or Asian descendants. As a result, the figures likely underestimate the actual Asian population in Latin America. However, they provide valuable insights into the intensity of the Asian immigration wave in the region. 2. In 1876 Peruvian census registered nearly 50,000 Asian immigrants, accounting for 2% of the population. This data is not included in the figure because it's relatively too high comparing to others.

[28] The data of Argentina are from "Segundo Censo de la República Argentina 1895, Decretado en la Administración del Dr. Saenz Peña", "Tercer Censo Nacional 1914. Ordenado por la ley 9108 bajo la presidencia del Dr. Roque Saenz Peña", "IV Censo General de la Nación 1947. Dirección Nacional del Servicio Estadístico", United Nations International Data Base 1991; the data of Chile are from "Censo General de la Población de Chile 1885, 1895. Oficina Central de Estadística. Santiago"; "Censo General de la República de Chile 1907. Comisión Central del Censo"; "Censo de Población de la República de Chile 1920. Dirección General de Estadística"; "Censo Nacional de Población 1930, 1940, Dirección General de Estadística"; "Censo Nacional de Población 1960 Dirección de Estadística y Censos"; "Censo Nacional de Población 1970. Instituto Nacional de Estadísticas"; "Censo Nacional de Población 1982. Ministro de Economía, Fomento y Reconstrucción"; "Censo Nacional de Población 1992, 2002, 2017. Instituto Nacional de Estadísticas"; the data of Mexico are from "Censo General de la República Mexicana 1895, 1900", "Tercer Censo de Población de los Estados Unidos Mexicanos 1910", "Censo General de Habitantes 1921", "Quinto Censo de Población 1930", "Sexto Censo de Población 1940", "Censo General de Población 1950, 1960, 1970", "Censo General de Población y Vivienda 1980, 1990, 2000, 2010, 2020"; the data of Peru are from "Censo General de la República del Perú de 1876", "Censo Nacional de Población y Ocupación de 1940, Ministerio de Hacienda y Comercio, Dirección Nacional de Estadistica", "Censos Nacionales de Población, Vivienda y Agropecuario 1961", United Nations International Data Base 1991; the data of Brazil are from Sato (1993).

Figure 3.18 plots the Asian population in Latin America (horizontal axis) versus imports from Asia per capita (vertical axis) in some years between 1910 and 1930. It seems that there is no clear trend between these two variables, and it is difficult to establish any relation as we have too few data. Nonetheless, certain products, such as opium, highlight a connection between Asian migration and specific trade items if we look at the qualitative evidence.

**Figure 3.18: Asian population in Latin America versus imports from Asia per capita, 1910-1930**




**Sources:** The data of imports are from the official trade statistics of the Latin American countries. The data of Asian population are from Gao (2012); Rodriguez Pastor (1989); Saito and Rocha (1989); Sato (1993).

**Notes:** Data for Argentina are of the year 1914; for Brazil and Chile, 1920; for Mexico, 1921; for Peru, 1925.

Despite prohibition efforts against opium consumption in China during the first half of the 19th century (Bello 2020), this product continued to circulate domestically, and its use persisted among the Chinese diaspora. During the Second Opium War, opium trade was legalized in 1858 in China (Feige and Miron 2008). While the opium trade in Asia was largely dominated by Arab, Portuguese, and British merchants, in Western countries, opium trade and consumption were often associated with the Chinese diaspora (Capó Valdivia 2015;

Escohotado 2000).

The link between Chinese migrants and opium consumption relates, initially, to the arrival of Chinese laborers, known as coolies who were almost exclusively male, to Cuba and Peru between 1847 and 1874 (Hu-DeHart 2005). Opium was an intrinsic part of this movement of people since landowners encouraged its use to control and manage the coolies, but opium consumption also generated productivity problems and posed serious social challenges (Hu-DeHart 2005).

The presence of Chinese coolies was also relevant in Chile, specifically in those nitrate-abundant regions annexed after the War of the Pacific (1879-1884), which were previously under Bolivian and Peruvian sovereignty. Indeed, opium consumption was widespread among the Chinese community in northern Chile during the saltpeter boom (1880-1930). This explains the relevant presence of opium in Chile's imports from Asia. For instance, in 1902, Chile imported 1,333 kgs of opium worth $37,324 (1913 US dollars) from China, representing 17% of its total imports from China that year (see Appendix: Table 6.6).

Similarly, Rodríguez Pastor (2017) cites a 1920 document reporting the closure of opium dens in Iquique, a northern Chilean city where roughly 30% of the Chinese population were opium consumers. Despite this closure, the Chinese community adapted other commercial establishments under their control, such as canteens, butcher shops, and gambling houses, to continue consuming opium (González Pizarro, Llanos Reyes, and Lufin Varas 2020; Rodríguez Pastor 2017). This may explain why opium was seen as harmful to the social reputation of Chinese immigrants (González Pizarro, Llanos Reyes, and Lufin Varas 2020).

The previous section highlighted the significant role of opium in Mexico's imports from Asia. For example, in 1893, Mexico imported 4,934 kgs of opium valued at $41,450 (1913 US dollars), which made up 58% of the total value of imports from China. In 1912, Mexico imported 2,677 kgs of opium from China (27% of the value of imports from China) and 4,566 kgs from India (11% of the value of imports from India), with a total value of $186,374 (see Appendix: Table 6.11 and Table 6.13). These figures reflect the opium consumption in Mexico at the time. Lugo Viñas (2022) describes a disused premises owned by a Chinese man, Liú,

where basements concealed rooms dedicated to opium consumption during the 1940s: "between walls tattooed with Chinese characters and imperial dragons and a small table with utensils for smoking, Chinese and Mexicans of middle or upper class, reclined on wooden boards that served as bunks to indulge in poppy" (Lugo Viñas 2022, 52). These establishments, along with the prevalent stereotypes that linked the Chinese community to opium, explains in part the xenophobia of the era and the association between opium consumption and the "contamination" of society by the "vices" of the Chinese (Pérez Montfort 1997; Recio 2002).

Moreover, the trade data may be an underestimation of Mexican imports of opium. This is because opium trade and smuggling developed in Baja California in Mexico since the late 19th century. By the early decades of the 20th century, international networks and ships sailing from Macao, Hong Kong and Singapore had been established in northwestern Mexico for the transit of raw opium to the United States (Capó Valdivia 2015). According to some scholars, the geography of Chinese migrants in Mexico and the smuggling networks that were developed during the early 20th century are important to understand the current geography of cartels and drug trafficking in Mexico (Murphy and Rossi 2020).

The relevance of the 19th century and early 20th century Asian migration to understand Asian-Latin American trade goes beyond opium. The most evident examples are culinary traditions in Brazil and Peru. The former is represented by the integration of Japanese food in Brazilian cuisine, which is reflected in the proliferation of Japanese restaurants; the latter becomes evident when looking at the popularity of restaurants of Chinese origin -the so-called *chifas*- across Peru (Saito and Rocha 1989; Yuan 2018). The consolidation of these culinary traditions reflects both the ability of Asian migrants to influence their host societies as well as the continuous consumption of Asian products by the Asian descendent population. To this respect, García Maya (2012) interviewed Mexicans of Chinese descent from three different generations, focusing on their tea consumption and their perceptions of this tradition. Participants included the first generation of Mexicans of Chinese descent, the descendants of the large migration wave of the late 19th and early 20th centuries, those born between 1950 and 1970, and the third generation that was born after 1970. Through these interviews, García Maya observed a continuity in tea consumption among Mexicans of Chinese descent, although with variations

in preparation methods and attitudes towards Chinese cultural heritage.

Therefore, the arrival of Asian migrants during the 19th century and early 20th century would help understanding Latin American imports from Asia. Another illustration of this phenomenon relates to the impact of Asian immigrants on local economies and their contributions to long-term transpacific trade relations (Palma and Strabucchi 2019). For instance, according to the International Chinese Business Directory of the World of 1913,[29] there were 2,166 Chinese business operating across 242 cities in Latin America and the Caribbean. Peru was at the top with 557 business establishments, followed by Mexico (554) and Panama (499) (Kin 1913; Palma and Strabucchi 2019). 80% of these Chinese businesses specialized in the sale of groceries, general merchandise and silk goods, followed by restaurants and laundries (Palma and Strabucchi 2019). Some of these businesses contributed to the transpacific trade by opening large commercial houses that imported manufactured and food products from China. They also exhibited decorations and sold luxury products such as Chinese porcelain ornaments, furniture and ivories (Lausent-Herrera 2009, 2011).

Furthermore, the formation and consolidation of Chinese clan associations and fraternities in Latin America during the early 20th century facilitated the establishment and growth of Chinese businesses in the region (Hu-DeHart and López 2008). These family ties and local networks provided crucial support, including capital raising, market access, and informal guidance on business opportunities, which helped the Chinese merchants to thrive in local economies and develop strong transpacific trade (Hearn 2012; Palma and Strabucchi 2019).

[29] *The International Chinese Business Directory of the World in 1913* in complied and published by Wong Kin in San Francisco. The objective is to promote the commercial relationship among Chinese businesses in China and around the world. It is a list of prominent Chinese firms and individuals in parts of China, Japan, the United States, South America, and other countries overseas.

## 3.6 Conclusion

This chapter offers a novel trade data set between Asia and Latin America between 1876 and 1938. This provides insights into the interactions between both regions highlighting the persistence of some colonial trade as well as the emergence of new trade patterns. Archival research shows that Asia's role in Latin America's foreign trade remained marginal, accounting for less than 5% of the region's exports and imports. However, despite this limited share, the composition of Latin American imports from Asia showed continuities with colonial consumption patterns, such as the ongoing demand for tea, textiles, porcelain, rice spices and luxury artifacts.

Asian countries experienced a different prominence throughout the period. While imports from China remained stagnated, imports from India increased from the early 20th century until the early 1920s. Likewise, imports from Japan increased during the years of World War I. Although imports both from India and Japan reduced during the 1920s, they recovered their increasing trend during the 1930s.

The composition of imports reflects continuities rooted in the colonial era. While traditional products like textiles, tea, rice, and porcelain maintained a consistent presence in Latin America's import baskets, differences emerged among the three Asian countries. Imports from India were heavily concentrated on agricultural raw materials such as jute, rice and spices. Imports from China, while also saw a high share of agricultural products, like tea, opium, rice and spices, showed some diversification. This included the maintenance of silk products and the increasing share of cotton products in 1900s and 1910s. In contrast, since the early 20th century, the imports from Japan featured even higher diversification, including more new manufactured goods such as toys, artifacts and machinery.

We look at supply and demand forces to understand the continuities and changes in Asian-Latin American trade. The relevance of supply-side dynamics is exemplified by the evolution of Latin American tea and textiles imports from Asia. Following patterns in the colonial period, through the late 19th century, China remained the primary tea and textile Asian exporter. However, in the first two decades of the 20th century, Indian tea and Japanese textiles began

gaining importance and surpassed China in the Latin American market.

The change in the relevance of China, Japan, and India in Latin America's imports reflects the disparities in their industrial development and foreign trade policy strategies. In China, this period was marked by political instability and restrictions on its trade policies and tariffs. Despite attempts on industrialization, China remained as a predominantly agrarian economy, and its exports mainly consisted of raw and prepared materials as well as food and beverages, with a share around 15% of manufactured goods. India's industrialization policies were also restricted by the rules imposed by British colonial rule. Although there were certain industrial developments in sectors like tea, jute and textiles, around 77% of its exports were concentrated in a few raw materials and agricultural products, primarily raw cotton, rice, raw jute, and jute manufactures.

In contrast, in this period Japan underwent rapid economic takeoff, fostering the manufacturing industrialization, which led to a diversification of Japan's exports composition, marked by an increase in the importance of manufactures, including textiles and machinery, to around 90% of its exports by the 1930s. Additionally, the geopolitical tensions and Japan's expansionist policies in Asia in the 1930s forced the country to take a strategy of international market diversification, which helps to understand its growing importance in Latin American imports during these years.

The demand-side factors also help to understand the continuities and changes in Latin America's import from Asia. The consumption of luxury oriental goods among Latin America's upper classes persisted, while more affordable textiles remained popular among broader social classes. Additionally, the massive Asian migrants to Latin America in this period maintained their consumption in specific products, such as opium and tea. Moreover, the Asian communities and socio-economic associations in Latin America contributed to the long-term transpacific trade between the two regions.

In conclusion, although trade volumes between Asia and Latin America were relatively modest, the period represent a transition when historical dynamics are maintained, and at the same time, new trade patterns emerge. These continuities and changes were rooted in the colonial period

and to some extent stimulate the transpacific trade boom in subsequent eras.

# 4. Globalization, smuggling and indigenous communities: the effects of China's rise on Bolivian trade, 1980-2020[30]

**Abstract**

At the margins of the great tide of transpacific globalization between China and Latin America since 1980s, there exist informal local economic activities and cross-border illicit trade. This paper addresses the smuggling in Bolivia's imports of Chinese products via Chile. It provides a macroeconomic perspective to illustrate the informal trade that has emerged in Latin America's economic periphery. To this end, we conduct a mirror analysis by comparing Bolivia's import data with export data of China and Chile. Our analysis identifies substantial over-reporting in Bolivia's declaration of imports from China and under-reporting in Bolivia's declaration of imports from Chile. The results also indicate that the largest discrepancies appear in the products of textile yarn, fabrics, made-up articles, rubber manufactures, road vehicles, telecommunications equipment, electrical machinery, articles of footwear, apparel and clothing accessories. These findings suggest that Bolivia has imported these Chinese products through re-exportation from other transit countries. Additionally, Chile is an important entrepôt country for Bolivia's imports and part of this transit trade occurs through unofficial or illegal channels.

**Keywords**: foreign trade data, smuggling, China, Latin America

[30] In this chapter, Songlin Wang contributes to motivation, archival research, theoretical background, data collection, data analysis, data visualization and writing; José Peres Cajías collaborates in motivation and theoretical background.

## 4.1 Introduction

After World War II, trade between Asia and Latin America underwent significant transformation due to shifting geopolitical dynamics, economic policies, and regional development strategies. Initially, trade between these regions was limited as both primarily engaged with the United States and Europe. However, from 1960s onwards, rapid industrialization in Asian economies, particularly Japan, the Four Asian Tigers (Hong Kong, Singapore, South Korea, and Taiwan) and later China, led to an expansion in trade relations between Asia and Latin America (Dosch and Jacob 2010). This trade relationship was further facilitated by multilateral trade agreements and regional cooperation frameworks that sought to diversify trade and reduce dependency on traditional markets (Hosono 2019).

During the last decades, China's "Go Global" economic policy, which aimed at expanding shares in emerging markets, has reoriented the center of gravity of the world economy from the saturated markets of the United States and Europe to developing countries (Tassi et al. 2012). With the economic and commercial opening of China since 1978 and its subsequent rise as a global manufacturing factory, the trade relations between China and Latin America further intensified, making China one of Latin America's largest trading partners (Devlin, Estevadeordal, and Rodríguez-Clare 2006; Fornes and Mendez 2018; Peters 2005).

This process contains not only large-scale international trade but also small-scale activities in the informal economy, which has opened spaces for individuals to seek opportunities and participate on their own terms (Galemba 2008; Muñoz Valenzuela 2023; Shefner and Fernández-Kelly 2011). In this context, Bolivia is among the most informal economies of Latin America and has proven to be particularly fertile ground for contraband due to its geographical landlocked position and its lax controls on irregular trade (Baspineiro 2024). Following the intensification of rural-urban migration in Bolivia after the 1952 revolution, and the country's debt crisis and structural adjustment in the mid-1980s, small-scale economic activities with self-employment, unprotected and hardly taxed by the state, has continued to increase (Müller 2017; Tassi et al. 2012). Indeed, these urban informal markets and cross-border trade sustain hundreds of thousands of Bolivian lives (Müller 2017; Tassi et al. 2012).

The link between the increase in small-scale trading activities in Bolivia since 1980s and the tradeable goods from East Asia has been highlighted by previous literature (Müller 2017). The influence of the Chinese economy on the daily lives of Bolivians began in the 1980s, with Chinese-manufactured goods becoming widely consumed across all social strata and ethnic backgrounds (Müller 2018). Before larger Chinese electronics and telecommunication enterprises officially entered the Bolivian market, Chinese electronic goods and household appliances were sourced through social networks linking China with Bolivia via import–export firms in free trade zones such as Iquique (Chile) and Colón (Panama) (Müller 2018). In this way, Bolivia's local economy has actively engaged with the global market through strategic international alliances, fostering and creating a "globalization from below" (Ribeiro 2012).

This "globalization from below" is driven by networks and social dynamics that surpass formal institutions and challenge the supremacy of traditional elites who have historically defined the national economy (Tassi et al. 2012). Indigenous groups play a central role in these local trade circuits, utilizing their local and familial ties to integrate and supply markets (López Guerrero 2018; Muñoz Valenzuela 2023). For instance, Aymara popular traders negotiate within the global economy's interstices, drawing on their history and relational forms to gain significant economic spaces within Bolivia's national economy (Tassi et al., 2012).

Trade in the Bolivia-Chile border area is key to understand these globalized ties commanded by indigenous individuals. The contraband trade in the border area between Bolivia and Chile dates to the colonial period (Langer 2021; Moutoukias 1988). It was intense during the 19th century and consolidated during the early 20th century due to mining booms that toke place both in Bolivia and Chile (Langer 2009, 2021; Muñoz Valenzuela 2020). The trade aperture of both economies since the 1980s, as well as the signature of international trade agreements, contributed to the emergence of free trade zones, such as those located in Bolivia (Oruro Free Trade Zone), Chile (Iquique Free Trade Zone or ZOFRI) and Peru (Tacna Free Trade Zone or ZOFRATACNA) (Muñoz and Garcés 2022). These cross border commercial activities linked to the economic expansion cycles have been intertwined and strengthened by smuggling practices from the beginning (Laurent 2014; Muñoz Valenzuela 2023; Tassi et al. 2012).

This stresses the importance to look beyond official trade statistics to understand the full reach

of globalization. In the same vein, a recent contribution suggests the need to measure these "hidden flows" to reassess the long-term evolution of Andean economies (Langer 2024). This chapter tackles these issues by taking advantage of the landlocked nature of the Bolivian economy, and the use of a mirror analysis that compares Latin American countries' import data with Asian countries' export data. This approach offers a macroeconomic perspective to the debate on smuggling activities in Bolivia that allows going beyond the current dominance of anthropological approaches.

The mirror analysis shows that, across the 1995-2020 period, Bolivia reports much higher imports from China than the export data to Bolivia reported by China. Meanwhile, Bolivia reports much lower imports from Chile than the export data to Bolivia reported by Chile. These discrepancies exceed the acceptable range of bilateral trade data differences that can be attributed to transport and transaction costs. Thus, these findings suggest substantial overreporting of Bolivian imports from China and underreporting of imports from Chile. This implies that Bolivia may be importing Chinese products through re-export from other transit countries. Furthermore, given the previous insights provided by the anthropological literature and the proven relevance of ZOFRI for Bolivian imports, we also suggest that Chile serves as a significant entrepôt for Bolivia's unofficial imports.

These findings are confirmed through a detailed mirror analysis between Bolivia, China, and Chile that considers different Standard International Trade Classification (SITC) categories. The previous research on Bolivian-Chile smuggling has constantly highlighted the relevance of products like TVs, refrigerators, computers, mobile phones, etc. in the trade network between China, Chile and Bolivia (Müller, 2017; Muñoz Valenzuela, 2023; Tassi et al., 2012). The results of our detailed mirror analysis go in the same direction: the largest discrepancies appear in the categories of textile yarn, fabrics, made-up articles, rubber manufactures, road vehicles, telecommunications equipment, electrical machinery, articles of footwear, apparel and clothing accessories.

These findings allow offering a reasonable range for the size of smuggling activities that take place along these trade networks. We propose that smuggling activities from Chile to Bolivia increased from 2003 to 2014, reaching a maximum level of 6% of Bolivia's national GDP.

After adjusting for potential data registration errors, our estimation on smuggling activities reduces to 4% of Bolivia's national GDP. The relevance of these figures helps understand the upsurge of the so-called *chola* bourgeoisie and the radical transformation in the relative power of traditional vis-a-vis new elites that took place during the last commodity boom in Bolivia and particularly in the city of La Paz (Castro 2020; Quesada 2021; Tassi 2010).

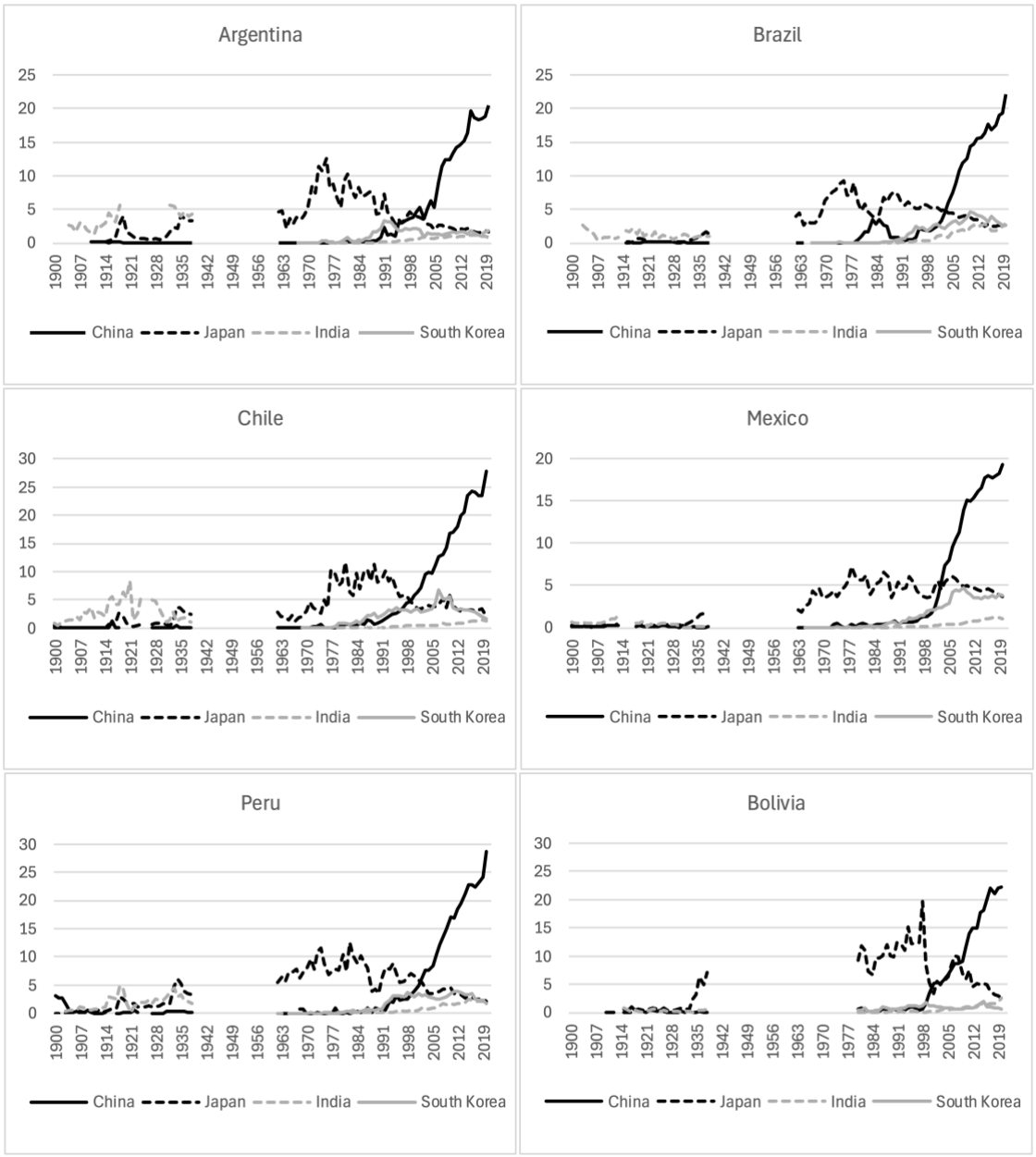
After this introduction, this paper is organized as follows. Section 2 introduces the long-term evolution of trade relationships between Asia and Latin America, as well as Bolivia's foreign trade and cross-border trade across the free trade zone of Iquique (ZOFRI). Section 3 outlines the data and the methodology of the foreign trade data mirror analysis. Section 4 presents the detailed mirror analysis results between Bolivia, Chile and China. Section 5 estimates the size of smuggling in Bolivia's import from Chile. Section 6 concludes.

## 4.2 Long-term trade between Asia and Latin America

### 4.2.1 Asia in Latin America's foreign trade, 1900-2020

In this section, we provide an overview of the long-term changes in Asia's importance in Latin America's foreign trade. Figure 4.1 illustrates the share of four Asian countries (China, Japan, India, and South Korea) in the total import value of six Latin American nations (Argentina, Brazil, Chile, Mexico, Peru, and Bolivia) from 1900 to 2020. In most of the years between 1900 and 1938, the share of each Asian countries in Latin American import remained below 5%. While China presented the lowest percentage in this trade flow, India and Japan played a relatively more significant role in Latin America's import basket. In the 1970s and 1980s, Japan emerged as the leading Asian exporter to Latin America, accounting for approximately 5% to 10% of the region's imports. However, from the late 1980s onward, Japan's share began to decline across most Latin American countries, while the shares of the other three Asian nations, particularly South Korea and China, increased. From the 2000s onward, China became the dominant Asian exporter to Latin America. By 2020, China accounted for about 20% of the imports of Argentina, Brazil, Bolivia, and Mexico, and nearly 30% of the imports of Peru and Chile. In contrast, Japan, South Korea, and India each contributed around 2% to Latin America's total imports.

**Figure 4.1: Asia in Latin America's import (in percentage), 1900-2020**

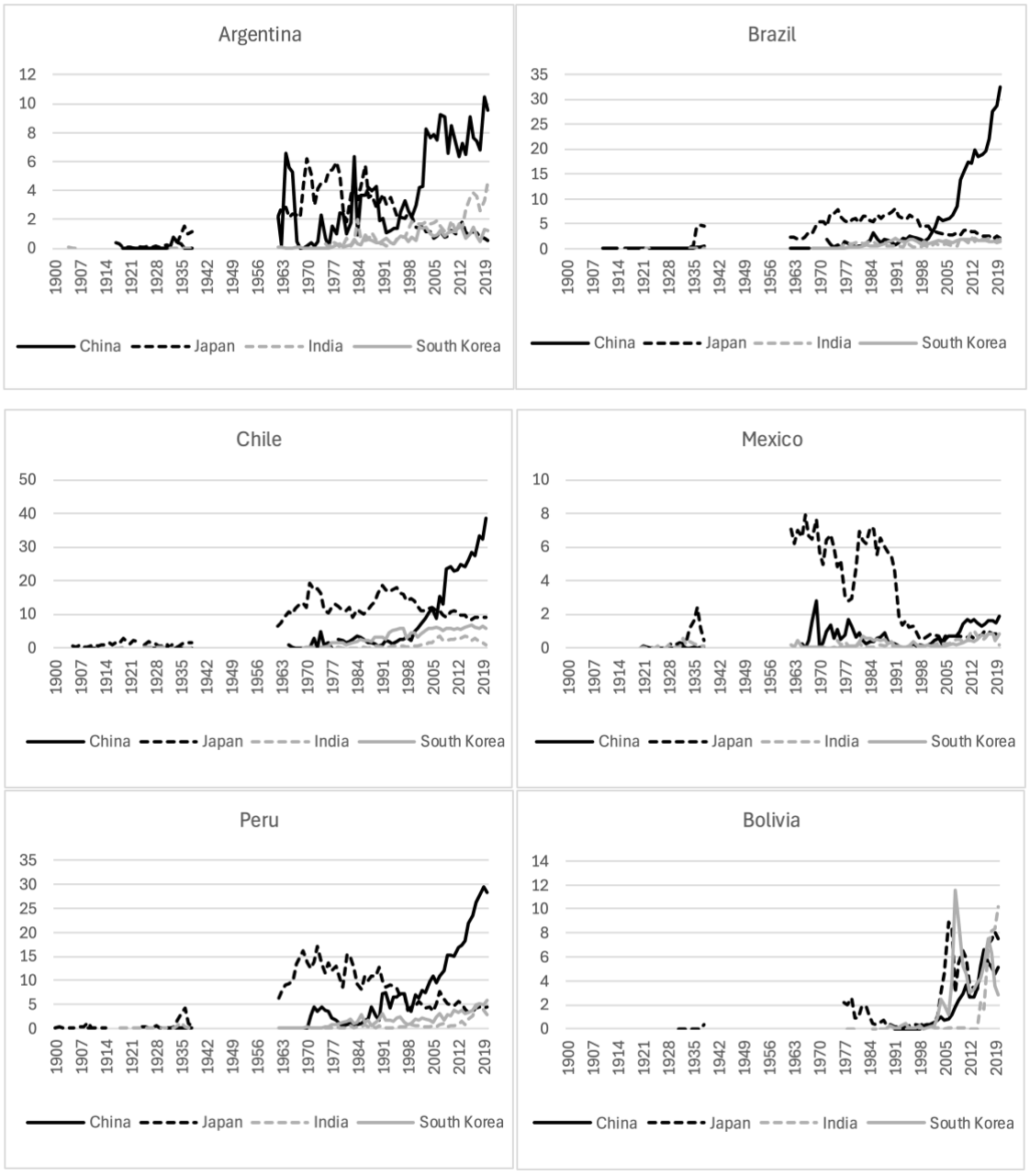



**Sources:** UN Comtrade data, Latin American countries' historical foreign trade yearbooks (see section Data Sources of Chapter 3)

Regarding Latin America's exports to Asia, Figure 4.2 shows the share of the four Asian countries in the total export value of the Latin American countries from 1900 to 2020. Between 1900 and 1938, the shares of China, Japan, and India in Latin American exports were generally under 3%, with Japan holding the largest share during this period. From the 1960s to the 1980s, Japan accounted for a higher percentage of Latin American exports, but this began to decline

in the 1990s. Meanwhile, the importance of India, South Korea, and especially China as destinations for Latin American exports increased. By 2020, China accounted for around 10% of Argentina's exports, approximately 30% of Brazil and Peru's exports, and nearly 40% of Chile's exports. Mexico, however, was an exception, with each of the three Asian countries contributing less than 2% to its total exports in 2020.

**Figure 4.2: Asia in Latin America's export (in percentage), 1900-2020**

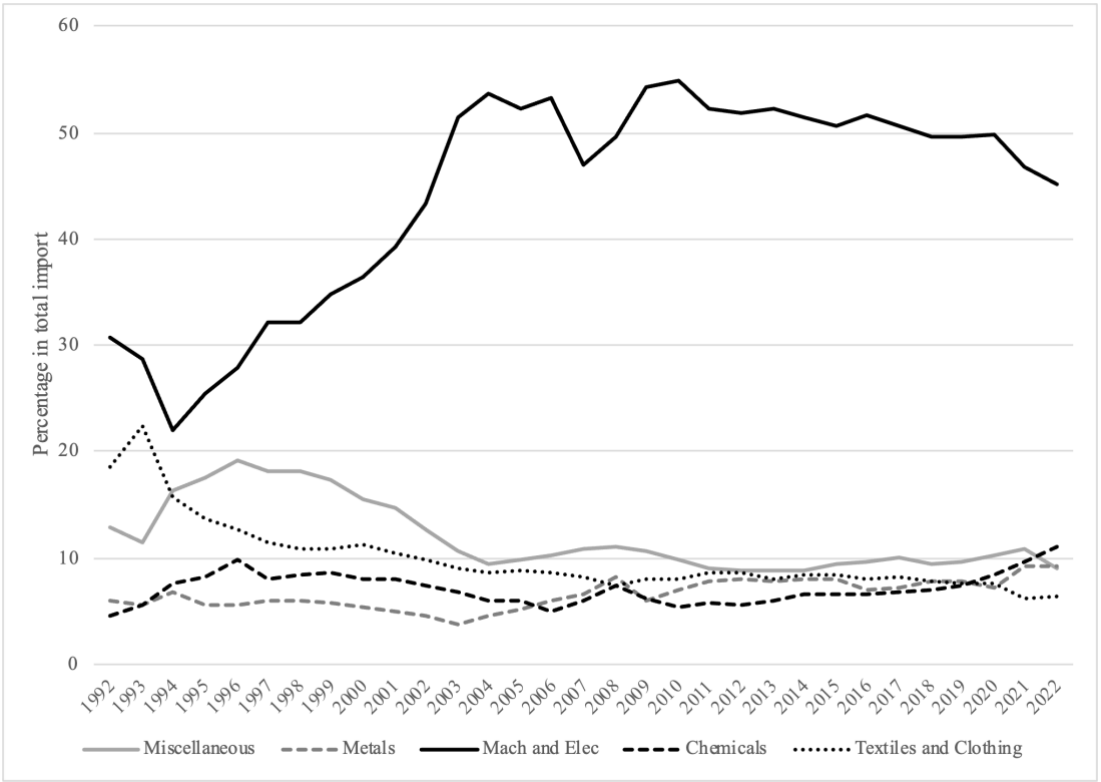



**Sources:** UN Comtrade data, Latin American countries' historical foreign trade yearbooks (see section Data Sources of Chapter 3)

Bolivia's export patterns diverged somewhat from those previously commentated. The percentage of exports to Japan and South Korea increased in the 2000s but exhibited high volatility. Meanwhile, Bolivia's exports to China also showed an increasing trajectory, although China did not become Bolivia's dominant Asian export destination, accounting for around 5% of Bolivia's total export in 2020. The most notable change occurred with India, whose share of Bolivia's exports surged dramatically after 2014. By 2020, India had become the largest Asian destination, accounting for over 10% of Bolivian exports. This increasing importance is basically explained by gold exports.

Focusing on China and looking at the trade product composition, World Integrated Trade Solution (WITS) data shows that machinery and electronics have consistently dominated Latin American and Caribbean imports from China from 1992 to 2022 (see Figure 4.3). This category increased rapidly during the 1990s, and in most years of the 21st century accounted for more than 50% of these imports. In contrast, textiles and clothing, which represented more than 10% of imports in the 1990s, have seen a declining share in the 21st century.

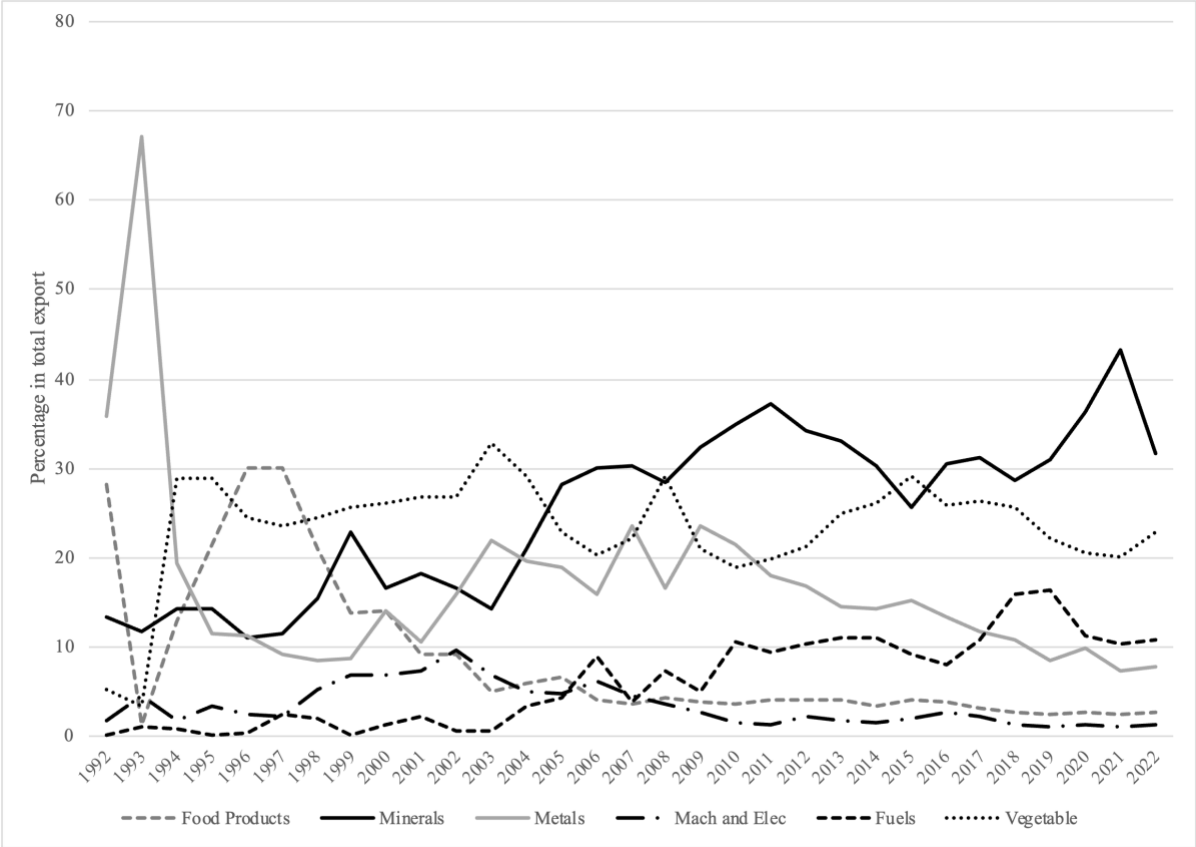
**Figure 4.3: Latin America & Caribbean import from China by products (in percentage), 1992-2022**




**Sources:** WITS

As for exports, Latin American and Caribbean countries have exhibited an increasing trend in exporting minerals and fuels to China from 1992 to 2022 (see Figure 4.4). Since 2005, minerals have accounted for more than 30% of exports in many years, while fuels have risen to around 10%. Metals have also maintained a significant presence, accounting for more than 10% of exports throughout most of this period and reaching around 20% during the 2000s. Vegetable products have consistently occupied between 20% and 30% of exports. Conversely, food products have shown a decreasing trend, accounting for less than 5% in the 21st century. Exports of machinery and electronics remained minimal, contributing less than 3% during the 2010s. Overall, this reflects a pattern where Latin America and the Caribbean serve as suppliers of primary commodities while importing high-value manufactured products from China.

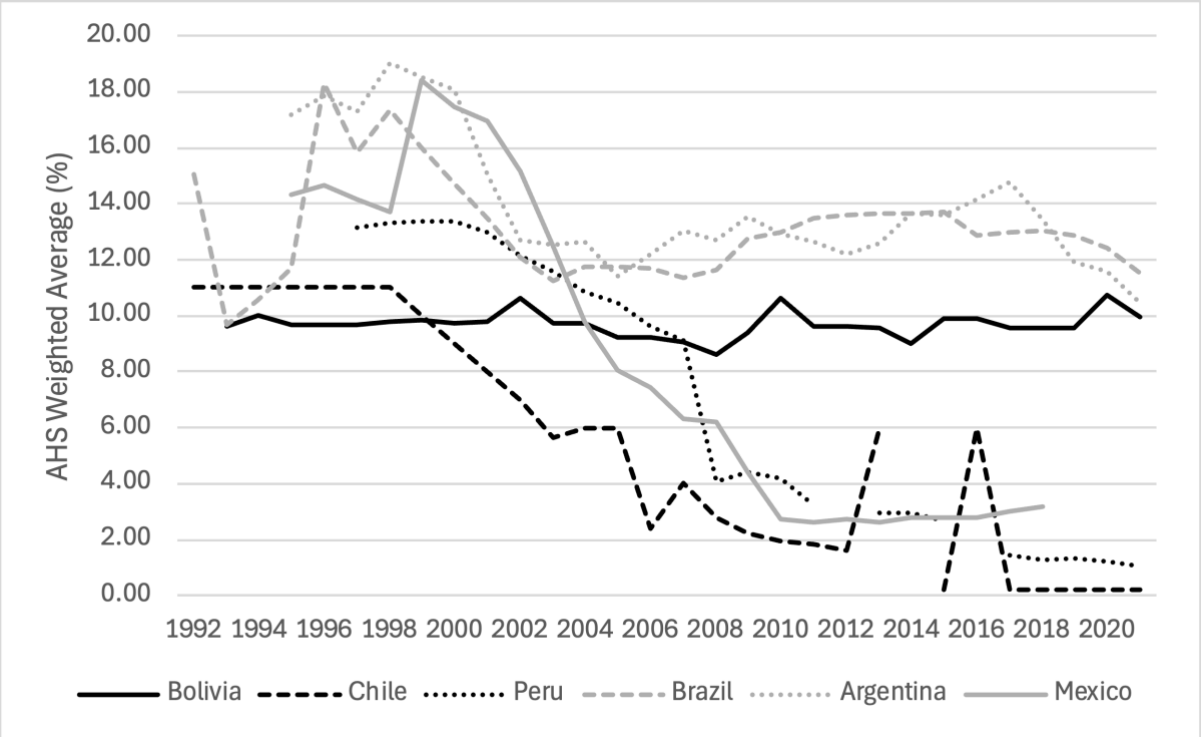
**Figure 4.4: Latin America & Caribbean export to China by products (in percentage), 1992-2022**




**Sources:** WITS

The increasing relevance of China in Latin American trade could be related to its entry into the World Trade Organization and changes in Latin American countries' tariffs on imports from China. Figure 4.5 shows the applied weighted average tariff rates imposed by several Latin American countries (Bolivia, Chile, Peru, Brazil, Argentina, and Mexico) on imports from China between 1992 and 2021. This applied tariff rates provide a more accurate picture of the tariffs, reflecting the varying trade policies and economic strategies of each country toward imports from China over this period. In 1990s, most of the countries exhibited high tariff rates, with Brazil, Argentina, and Mexico imposing particularly high tariffs, often exceeding 15%. However, from mid-1990s onwards, there is a clear trend toward tariff reduction on imports from China, especially in Chile, Peru and Mexico. By 2005, Chile's import tariff to Chinese products fell to 6% and from 2017 onwards tariffs were near zero. Peru and Mexico showed a similar trend and by 2020 Peru's tariff rate applied on import from China was around 1%.

**Figure 4.5: Latin American countries applied weighted average tariff on imports from China, 1993-2021**




**Sources:** WITS

**Notes:** AHS Weighted Average is the effectively applied weighted average tariff, which is the average of tariffs weighted by their corresponding trade value. By weighting tariffs by the trade value of each product, the AHS Weighted Average considers the actual import composition. This means that products with higher import volumes have a greater influence on the average tariff rate than products with minimal trade.

Conversely, Brazil and Argentina maintained relatively high tariffs of around 12% to 14% on import from China throughout much of the 21st century, despite some reductions in the early 2000s. Bolivia also maintained tariffs on imports from China of about 9% to 10%. However, from 2004 onwards, Bolivia began liberalizing its trade regime, especially with South American neighbors like Brazil, Argentina, and Peru. Its applied tariffs on imports from these countries dropped to less than 2%, even reaching near-zero levels by 2006. Although tariffs imposed on Chile ranged between 4% and 7%—higher than those for other South American neighbors—they were still lower than Bolivia's tariffs on imports from China, which were around 10%. These differences in tariffs may have encouraged Bolivian importers to "nationalize" Chinese products in Chile and then re-exported to Bolivia.

### 4.2.2 Bolivia's foreign trade, 1980-2020

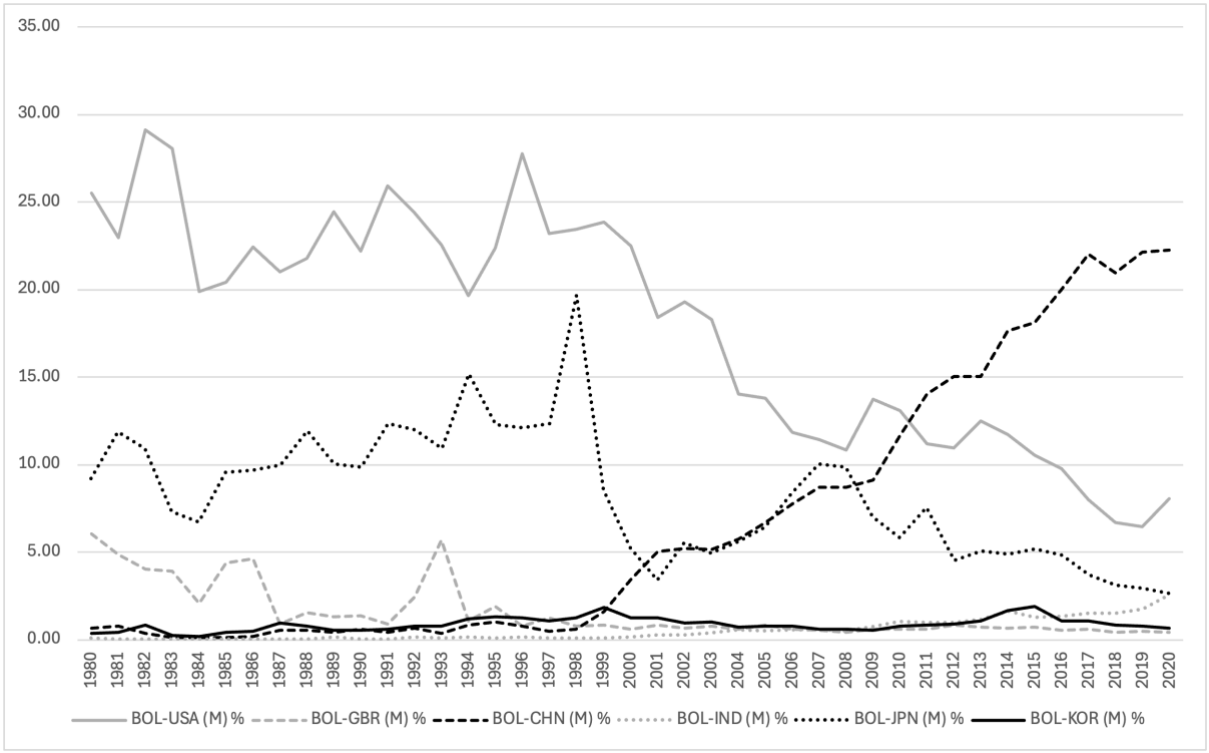
Focusing on Bolivia's foreign trade from 1980 to 2020, Table 4.1 presents the changing rankings of the top 10 countries in Bolivia's imports over this period. In turn, Figure 4.6 and Figure 4.7 illustrates the evolving shares of Bolivia's main trading partners. From 1980 to 2000, the United States was Bolivia's most significant trading partner, consistently accounting for over 20% of the country's imports. However, over the following two decades, the U.S.'s share gradually declined, dropping below 10% by 2020. Other traditionally important trading partners, such as the United Kingdom and Germany, also present declining shares: Germany accounted for 9% of Bolivia's imports in 1980 and only 2% in 2020. Similarly, the United Kingdom's share fell from 6% in 1980 to around 1% from the 1990s onward.

**Table 4.1: TOP 10 countries in Bolivia's import (in percentage), 1980-2020**

| 1980 | | 1990 | | 2000 | | 2010 | | 2020 | |
|---|---|---|---|---|---|---|---|---|---|
| USA | 26% | USA | 22% | USA | 22% | Brazil | 18% | China | 22% |
| Brazil | 12% | Brazil | 17% | Argentina | 16% | USA | 13% | Brazil | 17% |
| Argentina | 11% | Chile | 12% | Brazil | 14% | Argentina | 13% | Argentina | 10% |
| Germany F. R. | 9% | Argentina | 10% | Chile | 8% | China | 12% | USA | 8% |
| Japan | 9% | Japan | 10% | Japan | 5% | Peru | 7% | Peru | 8% |
| United Kingdom | 6% | Germany F. R. | 8% | Peru | 5% | Japan | 6% | Chile | 4% |
| Peru | 4% | Peru | 3% | China | 3% | Venezuela | 6% | Japan | 3% |
| Chile | 4% | Italy | 2% | Spain | 3% | Chile | 5% | India | 3% |
| Panama | 2% | United Kingdom | 1% | Mexico | 2% | Mexico | 2% | Mexico | 2% |
| Netherlands | 2% | Sweden | 1% | Colombia | 2% | Colombia | 2% | Germany | 2% |

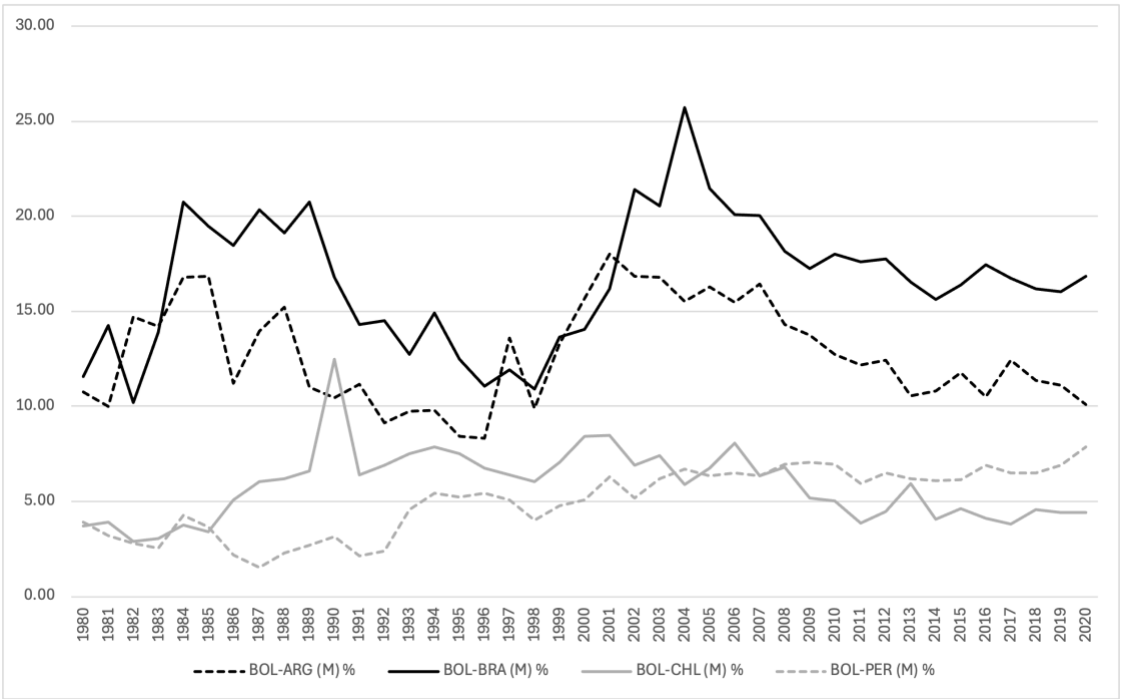
**Sources:** UN Comtrade data

**Figure 4.6: Main trading partners in Bolivia's import (in percentage), 1980-2020**




**Sources:** UN Comtrade data

**Figure 4.7: Main Latin-American partners in Bolivia's import (in percentage), 1980-2020**




**Sources:** UN Comtrade data

Table 4.1, Figure 4.6 and Figure 4.7 show that, China emerged as a major trading partner since the 2000s. From 2014 onwards, China surpassed the U.S. and other traditional partners, establishing itself as the leading source of imports for Bolivia, accounting for over 20% of the country's total imports. Japan showed a steady increase in its share from around 10% in the 1980s to nearly 20% by 1998. However, this was followed by a sharp decline to 5% at the start of the 21st century. South Korea's share grew modestly during the 1990s but remained below 3%. India exhibited an upward trend starting in the 2010s, reaching 3% of Bolivia's imports by 2020.

Historically Bolivia has maintained strong trade relationships within South American neighbors (Carreras-Marín, Badia-Miró, and Peres Cajías 2013). From 1980 to 2020, Brazil has consistently been Bolivia's most important Latin American import partner. During the 1980s, Brazil's share of Bolivia's imports grew, accounting for approximately 20% of Bolivia's total imports. Although this share gradually declined in the 1990s, it began to rise again in 1998, peaking at 25% in 2004. Although Brazil's share declined somewhat after this peak, it remained Bolivia's largest Latin American supplier, holding more than 15% of Bolivia's imports through 2020.

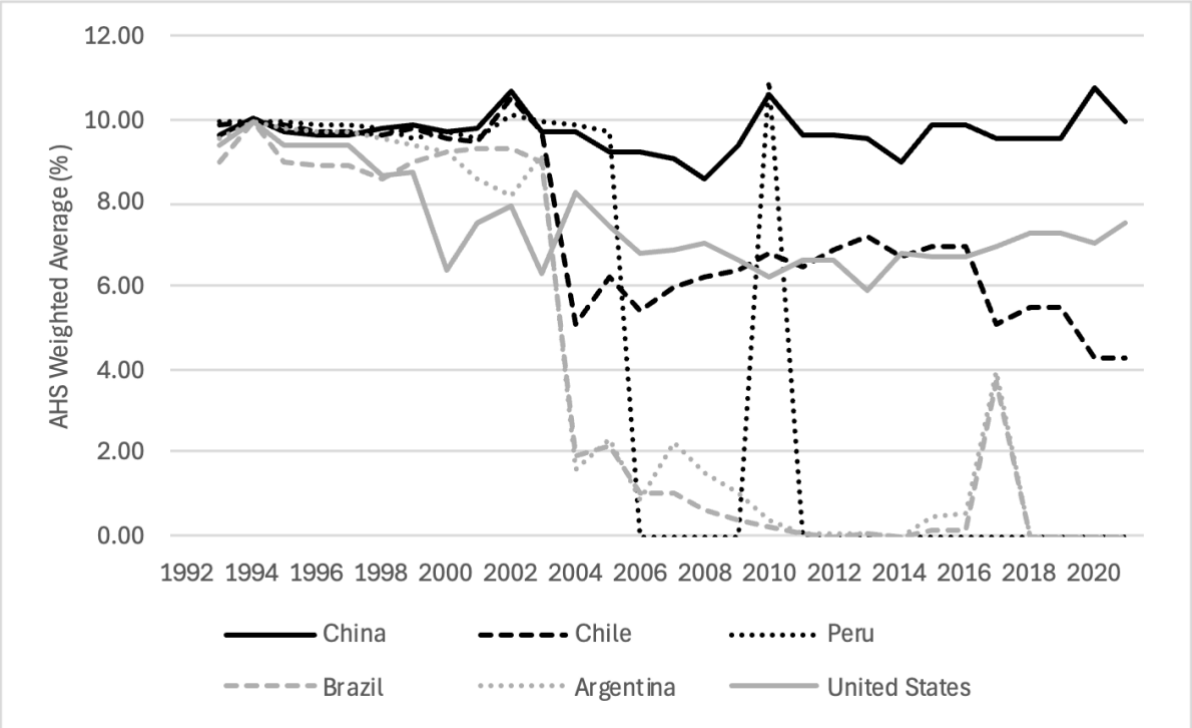
Argentina has been Bolivia's second most important import partner, following a similar pattern to Brazil. In the early 1980s, Argentina had a significant share of around 15%. This figure declined in the late 1980s and 1990s. It later increased and stabilized at around 10% to 15% in the early 2000s, before declining after 2006. By 2020, Argentina still accounted for 10% of Bolivia's total imports.

Chile's role in Bolivia's imports has been relatively stable. After an upward trend in the 1980s, Chile's share stabilized above 5%. Although there was a slight decline to around 5% in the 2010s, Chile's contribution to Bolivia's imports remained significant. Peru, meanwhile, showed consistent growth throughout this period, increasing from below 5% in the 1980s to 8% in 2020.

Figure 4.8 presents Bolivia's applied weighted average import tariffs in 1993-2021 for six trading partners (China, Chile, Peru, Brazil, Argentina, and the United States). Initially, Bolivia

maintained relatively high and stable tariff rates across all partners, with rates around 9-10% until the early 2000s. However, from 2004 onwards, Bolivia embarked on a significant liberalization of its trade regime, particularly with South American neighbors like Brazil, Argentina and Peru, where tariffs plummeted to near-zero levels by 2006. The tariffs imposed for Chile were relatively stable until 2004 when they significantly dropped. After 2006, tariffs generally stayed between 4% and 7%. The sharp decline in tariffs with these countries reflects Bolivia's regional integration efforts in Evo Morales administration, such as participation in the integration projects such as the Comunidad Andina de Naciones (Andean Community of Nations) and the South American trade bloc of Southern Common Market (Mercosur) (Mejido Costoya 2011).

**Figure 4.8: Bolivia's applied weighted average import tariffs, 1993-2021**



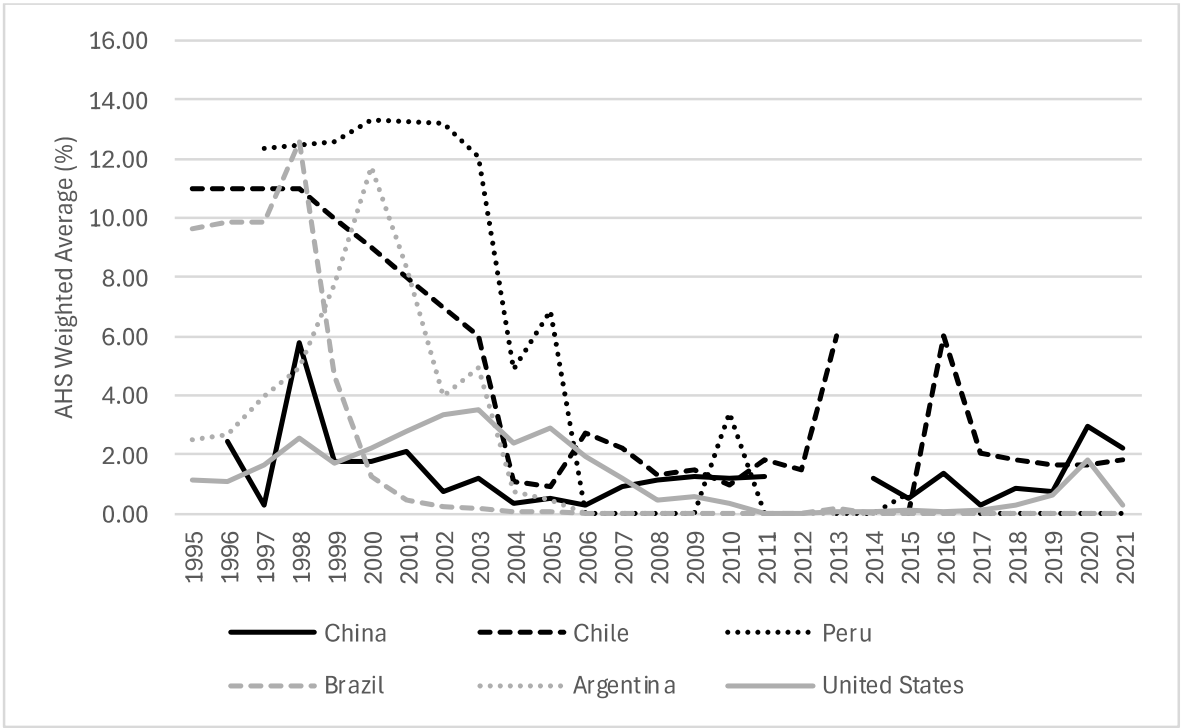

**Sources:** WITS

Tariffs imposed to U.S. started at around 9%, then dropping significantly around 2000, and stabilizing between 6% and 7%. Bolivia's import tariffs with China remained relatively higher around 10%. By 2021, while tariffs with China and the United States settled at relatively higher

levels, Bolivia maintained lower tariffs with its regional partners, especially Brazil, Argentina and Peru. Again, this may incentivize Bolivians to import Chinese or American products through its neighboring countries.

Is Bolivia's relatively higher tariff on imports from China and the United States a response to high tariffs imposed by these countries on Bolivian exports? Figure 4.9 presents the weighted average import tariffs applied by Bolivia's six trading partners—China, Chile, Peru, Brazil, Argentina, and the United States—between 1995 and 2021. The data show that from 2000 to 2019, China's applied tariffs on imports from Bolivia ranged between 0% and 2%. Between 2000 and 2005, the United States' applied tariffs were between 2% and 4%, but since 2006, they have been below 2%, dropping to under 1% in many years after 2008. In turn Bolivia's Latin American counterparts—particularly Peru, Argentina, and Chile—imposed relatively higher tariffs on imports from Bolivia. Starting in the 2000s, these tariffs decreased. Therefore, the data indicate that Bolivia's relatively higher tariffs on imports from China (around 10%) and the United States (between 6% and 8%) are unlikely to be a direct response to high tariffs from these countries, as both have maintained low tariffs on Bolivian imports during this period.

**Figure 4.9: Applied weighted average tariffs on imports from Bolivia, 1995-2021**




**Sources:** WITS

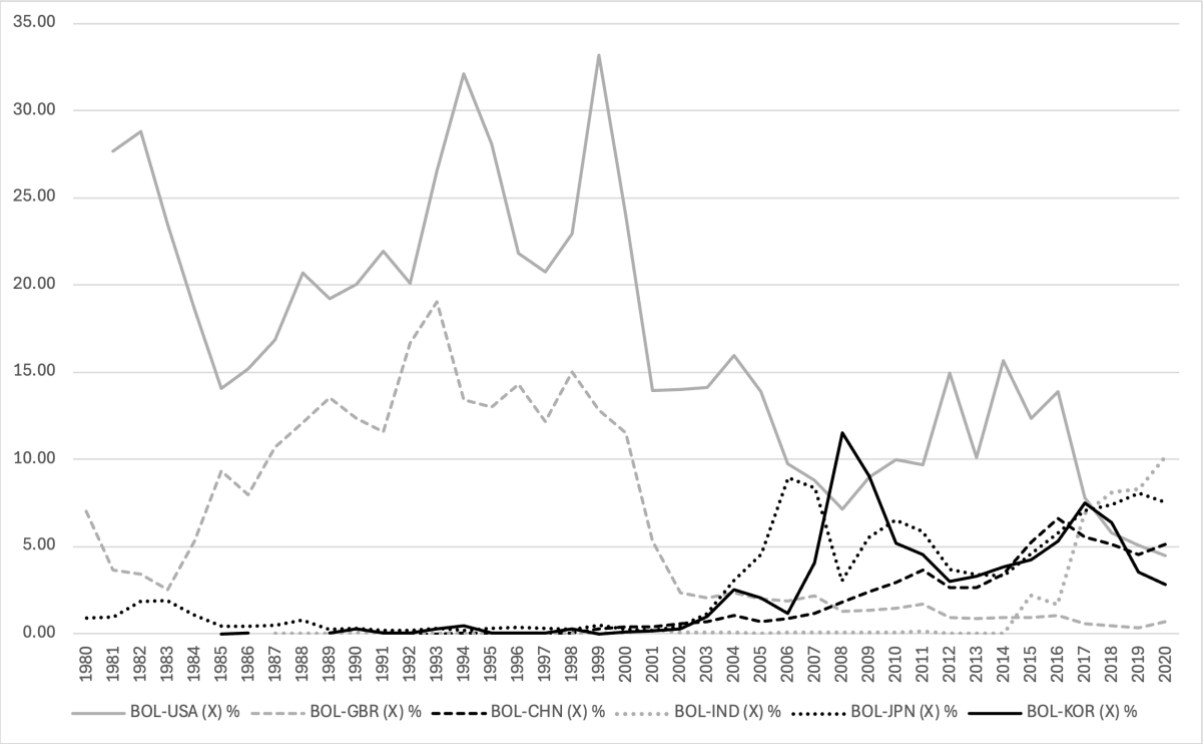
Regarding Bolivia's exports from 1980 to 2020, Table 4.2 highlights the changing rankings of the top 10 countries by percentage share during this period. In turn, Figure 4.10 and Figure 4.11 illustrates the evolving percentages of Bolivia's main trading partners. From 1980 to 2000, the United States was a significant destination for Bolivia's exports, accounting for more than 20%, and even exceeding 30% in some years. However, over the next two decades, the U.S.'s importance gradually declined, falling to just 4% by 2020. Another traditionally important trade partner, the United Kingdom, followed a similar trajectory. After an increase in the 1980s, its share of Bolivia's exports steadily decreased throughout the 1990s, eventually plummeting to less than 1% by 2020.

**Table 4.2: TOP 10 countries in Bolivia's export (in percentage), 1980-2020**

| **1980** | | **1990** | | **2000** | | **2010** | | **2020** | |
|---|---|---|---|---|---|---|---|---|---|
| USA | 29% | Argentina | 26% | USA | 24% | Brazil | 34% | Brazil | 16% |
| Argentina | 24% | USA | 20% | Colombia | 13% | USA | 10% | Argentina | 15% |
| United Kingdom | 7% | United Kingdom | 12% | United Kingdom | 11% | Argentina | 8% | India | 10% |
| Switzerland | 5% | Brazil | 8% | Brazil | 11% | Japan | 7% | Japan | 8% |
| Netherlands | 4% | Belgium-Lux | 7% | Switzerland | 11% | Peru | 6% | Peru | 7% |
| France | 4% | Peru | 6% | Uruguay | 5% | Belgium | 5% | Colombia | 5% |
| Chile | 4% | Germany F. R. | 4% | Peru | 4% | Rep. of Korea | 5% | China | 5% |
| Germany F. R. | 4% | Chile | 4% | Argentina | 4% | Venezuela | 5% | USA | 4% |
| Brazil | 3% | France | 2% | Venezuela | 4% | Colombia | 3% | UAE | 4% |
| Belgium-Lux | 3% | Switzerland | 2% | Belgium | 3% | China | 3% | Netherlands | 3% |

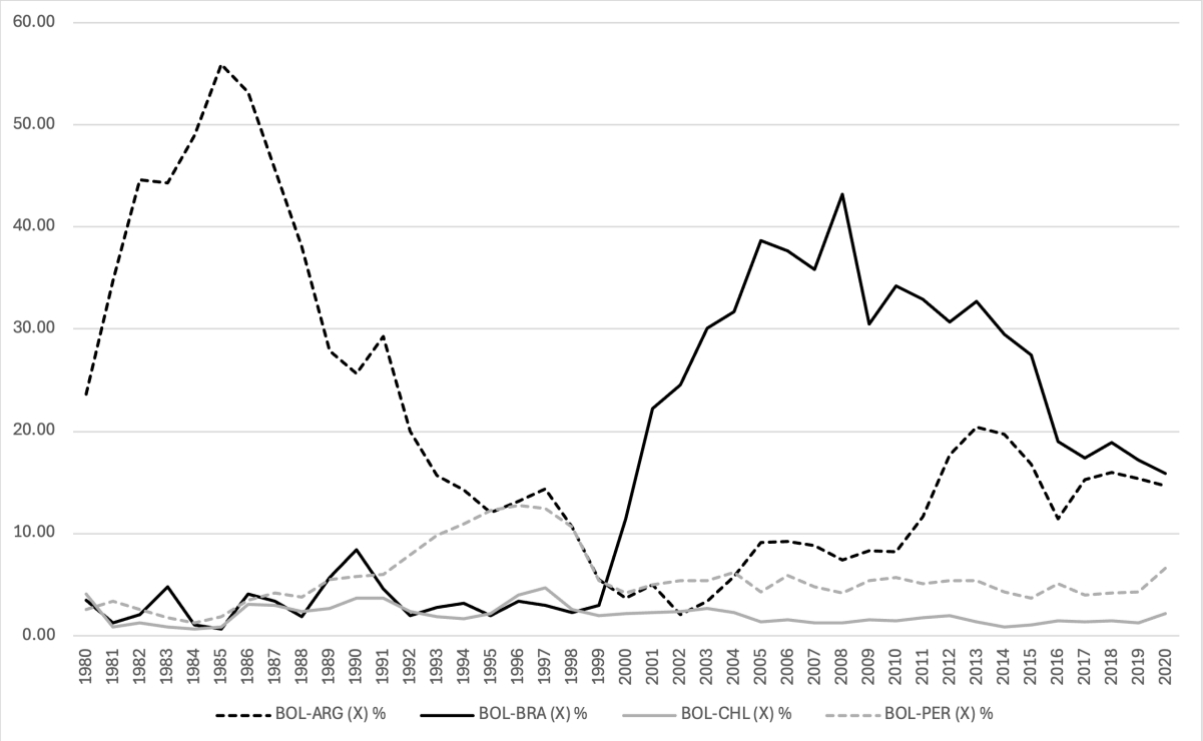
**Sources:** UN Comtrade data

**Figure 4.10: Main trading partners in Bolivia's export (in percentage), 1980-2020**




**Sources:** UN Comtrade data

**Figure 4.11: Main Latin-American partners in Bolivia's export (in percentage), 1980-2020**




**Sources:** UN Comtrade data

As for Asian countries in Bolivia's export, the data show that they accounted for less that 3% in Bolivia's export until the early 2000s. From then on, their share began to grow. The peak of each country's share occurred at different times: Japan in 2006 with a share of 9%, South Korea in 2009 with 11.5%, China in 2016 with 6.6% and India in 2020 with 10%.

Bolivia's intraregional trade with its Latin American counterparts has also been crucial for its export. Argentina, Brazil, and Peru have consistently accounted for a large share of Bolivia's exports. In most of the 1980s, Argentina represented over 30% of Bolivia's exports, peaking at 55% in 1985. However, Argentina's share drastically decreased in the 1990s. From 2002 onwards, it began to rise again, reaching 15% by 2020. Brazil accounted for less than 5% of Bolivia's exports during most of the years before 2000, but its share surged dramatically afterward, reaching 43% in 2008. Although Brazil's share declined somewhat after 2008, it remained the country with the highest share of Bolivia's total exports through 2020. Meanwhile, Chile's share of Bolivia's exports remained relatively low and stable. Peru's share of Bolivia's exports also remained steady at around 6%, except for a boom between 1993 and 1998, when its share surged to over 10%.

However, official trade statistics may not fully capture all aspects of international trade. In landlocked countries like Bolivia, which lack direct access to ports, foreign trade heavily depends on transit through third countries. As a result, there may be an underlying and less visible dimension to their foreign trade that is not reflected in the official data.

### 4.2.3 Bolivia's cross-border trade and ZOFRI

Cross-border trade is essential to Bolivia's economy due to its dependence on neighboring countries for access to international markets. Bolivia conducts trade with countries like Chile, Brazil, Argentina, and Peru, using various trade routes and border crossings. Among the neighboring countries, Chile has historically been crucial for Bolivia's access to the Pacific Ocean, with the Ports of Arica and Iquique acting as major transit points for Bolivia's international trade (see Map 4.1) (Agramont Lechín and Peres Cajías 2016). The Tambo Quemado (Bolivia) – Chungará (Chile) border crossing is a key route for transporting goods to and from these ports. Bolivia's imports from the Zona Franca de Iquique (ZOFRI) pass through

this crossing point.

**Map 4.1: Cross-border area between Bolivia, Chile and Peru**


**Sources:** Google map

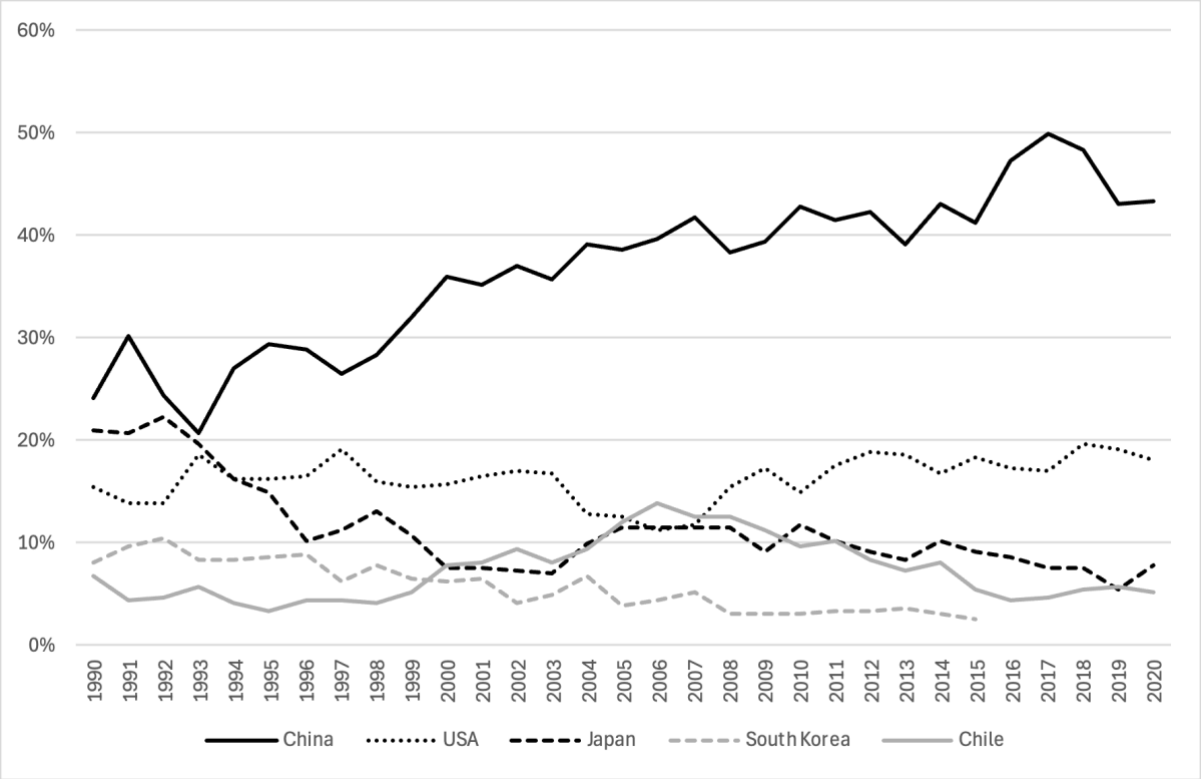
Zona Franca de Iquique (ZOFRI), a prominent free trade zone in northern Chile, plays a vital role in regional trade between Chile, Bolivia, Peru, Argentina, and global markets. Companies operating in ZOFRI benefit from tax exemptions, including Chile's Value Added Tax (VAT) and import duties (Condori Quispe 2014). The zone also simplifies customs procedures, reducing costs and time, making it an attractive hub for importing, warehousing, and re-exporting goods.

Figure 4.12 shows ZOFRI's imports from various source countries from 1990 to 2020. Among ZOFRI's main supplier countries, China is in first place, followed by the USA, Chile, Japan and South Korea. Over this period, China has become increasingly dominant as a source of imports, rising from $226 million in 1990 to a peak of more than $2 billion in 2012.[31] China's share of ZOFRI imports grew from 24% in 1990 to over 40% in the 2010s. The United States

[31] Data are from Statistical Bulletins of ZOFRI. ZOFRI S.A. publishes statistical bulletins of trade data every year (https://www.zofri.cl/en-us/Financiera/Pages/EstadisticasZofri.aspx#/boxContent).

remained the second-largest supplier, accounting for approximately 15% to 20% of ZOFRI's imports. Japan, which contributed about 20% in the early 1990s, saw its share decline to under 10% by the 2010s. Similarly, South Korea's share decreased from around 10% in the early 1990s to below 5% in the latter half of the 2010s. Imports from Chile fluctuated between 5% and 10%.

**Figure 4.12: ZOFRI's imports from different countries, 1990-2020**




**Sources:** Statistical Bulletins of ZOFRI

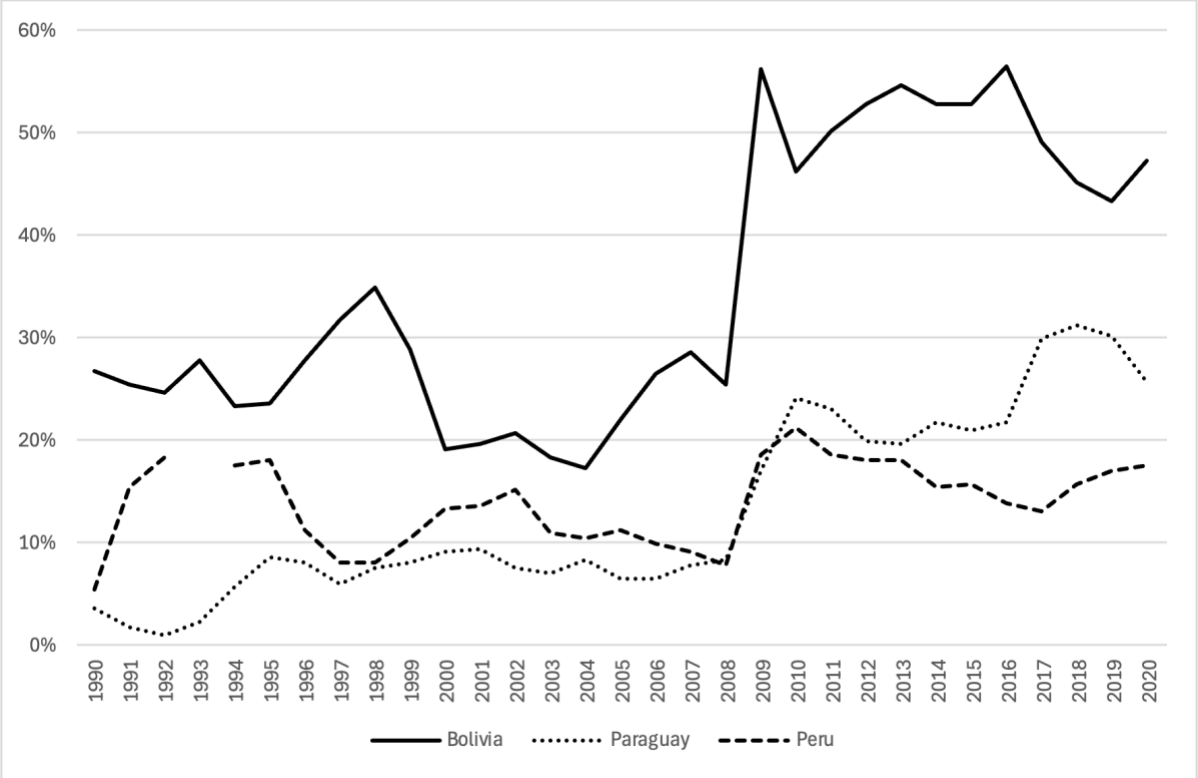
This ranking of source countries in ZOFRI's imports aligns with Chile's overall import patterns. For example, in 2010, China and the United States were Chile's top two import sources, each accounting for 17% of total imports.[32] Japan and South Korea were also among Chile's top ten import partners, each contributing 6% to the annual import total. However, Chile's Latin American neighbors, Argentina and Brazil, each accounted for 8% of Chile's imports but were not among the top suppliers for ZOFRI. This suggests that ZOFRI serves more as a transit port

[32] Data are from UN Comtrade Database.

for goods from Asian countries across the Pacific rather than for imports from regional neighbors.

Regarding ZOFRI's exports from 1990 to 2020, Bolivia has consistently been the largest destination (see Figure 4.13). In the 1990s, Bolivia accounted for 25% to 35% of ZOFRI's exports, with a slight dip to around 20% in the first half of the 2000s. However, since the second half of 2000s, Bolivia's share increased significantly, surpassing 50% from 2009 to 2016. Although Bolivia's share decreased somewhat after 2016, it still accounted for more than 40% of ZOFRI's exports from 2016 to 2020. Paraguay, while smaller, saw its share grow from under 5% in the early 1990s to more than 20%, and even over 30% in some years during the 2010s. Peru was a key destination in the 1990s, with a share as high as 18%. Then, it declined to 10%-15% in the early 2000s and rebounded to 15%-20% in the 2010s.

**Figure 4.13: ZOFRI's exports to different countries, 1990-2020**




**Sources:** Statistical Bulletins of ZOFRI

This ranking of destination countries for ZOFRI's exports does not align with Chile's overall

export pattern. In 2010, China, Japan, and the United States were Chile's top three export destinations, accounting for 24%, 11%, and 10% of total exports, respectively. Bolivia and Peru each accounted for only 2% of Chile's exports, while Paraguay represented just 1%. This suggests that ZOFRI serves more as a transit port facilitating imports for Bolivia, Paraguay, and Peru, rather than reflecting Chile's general export trends.

The data on products exported in ZOFRI between 1995 and 2020 reveals several key trends. Throughout these years, electronic devices and automotive products consistently dominated the export categories. In 1995, electronics made up 19% of total exports, followed closely by automotive products at 17%. By 2005, automotive products took the lead, accounting for 15% of total exports, a position they maintained in 2015, then they reached 17%. By 2020, electronic devices regained the top spot, making up 18% of exports, with automotive products following at 14%. Other important categories include fuels and lubricants, which increased significantly during the 2000s, contributing around 14% of exports. This category continued to be relevant, accounting for 12% in 2015 and 10% in 2020. Machinery and equipment, clothing, footwear, and household items were also consistently among the top exports categories, each contributing between 5-10% over different periods.

The products exported to Bolivia show similar trends. In 2015, automotive products made up 26% of exports to Bolivia, followed by household items (10%), clothing (9%), and textiles (9%). By 2020, automotive products remained the most significant at 17%, with electronics (11%), household items (10%), machinery and equipment (10%), textiles (9%), and household electrical appliances (8%) making up the other main categories.

Smuggling has long been an issue in Bolivia's imports from ZOFRI (Muñoz and Garcés 2022). The primary drivers are price differences created by tax and duty exemptions in ZOFRI, combined with a porous border and Bolivia's demand for affordable goods. This could include high-demanded items like electronics, clothing, and automotive parts. Smuggling often involves bringing goods from ZOFRI into Bolivia without properly declaring them to customs. In some cases, importers underreport the value or quantity of goods to avoid taxes and duties, allowing them to sell products at lower prices in the Bolivian market. The following sections of the paper seek to measure the size and composition of this irregular trade flow.

## 4.3 Data and methodology

In this paper, we use trade data from The United Nations Commodity Trade Statistics Database.[33] This database contains import and export data reported by statistical authorities of almost 200 countries or areas. We conduct a foreign trade data mirror analysis to compare the trade data reported by pairs of trading partners. This method is based on the economic principle that one country's export data should equal its trading partner's import data after adjustments for exchange rate differences and freight and insurance costs (Bhagwati, 1974; Federico & Tena, 1991; Morgenstern, 1963).

However, in practice, trade data reported by different countries for the same transactions often do not match perfectly due to several reasons. The first reason is related to the previously indicated discrepancy between export data and import data valuation. Export data are typically recorded at Free on Board (FOB) prices, reflecting the value of goods at the exporter's port and excluding international shipping and insurance costs. In contrast, import data are recorded at Cost, Insurance, and Freight (CIF) prices, which include these additional costs. This means that, in theory, the import data value should be higher than the export data for the same trade flow.

Second, registration procedures in trade data collection can cause discrepancies (Kuntz-Ficker 2018). Misallocation of the country of origin or of the final destination is common (Carreras-Marín and Badia-Miró 2008; Carreras-Marín and Rayes 2015; Peres-Cajías and Carreras-Marín 2018). In the case of transit trade flows, such misallocations can lead to discrepancies due to re-exports via third countries.

Third, smuggling and illicit trade aimed at evading tariffs can significantly distort official trade statistics (Fisman and Wei 2004; Kuntz-Ficker 2018). Importers may under-report or avoid declaring imports, leading to under-reporting in import data (Feenstra et al. 1999). Smuggling tends to be prevalent in countries with higher tariff rates (Javorcik and Narciso 2008). Thus, if tariff protection is extremely high, it can incentivize smuggling activities, which would affect the accuracy of the official trade data. This results in the registration of import values that are

[33] https://comtradeplus.un.org/

lower than the effective import flows, creating discrepancies when compared to export data.

Therefore, the use of a mirror analysis allows measuring discrepancies between bilateral trade data that can provide insights into international trade routes, transit trade, and smuggling activities. For instance, if import values registered by the receiving country are significantly higher than the export data registered by the export country, there could be potential errors in geographical assignment. Conversely, if import values are much lower than exports, this would suggest the presence of smuggling flows. The heuristic potential of the mirror analysis has been proved by previous research. For instance, Nitsch (2012) used the mirror analysis to explore trade mispricing and its role in facilitating illicit financial transfers across borders. Javorcik and Narciso (2008) examined how differential tariff rates impact the misclassification of imports at the product level, providing evidence of tariff evasion strategies. Fisman and Wei (2009) employed mirror analysis to uncover discrepancies in the trade of cultural property and antiques, indicating trade data underreporting and smuggling.

Mirror analysis is conducted through a comparison of bilateral trade flows or via a multilateral aggregate index including a broader range of countries. As we have mentioned before, our analysis compares a country's export data in FOB prices, with its trading partner's import data in CIF prices. The difference between FOB and CIF values reflects the costs of freight and insurance. Federico and Tena (1991) estimated that freight factors in international trade vary from 2% to 21%. By estimating these factors for Argentine exports between 1870 and 1913, Tena-Junguito and Willebald (2013), proposed a range averaged 19%. Various studies on historical trade data accuracy used an average CIF/FOB ratio of 20% as a standard for reasonable bilateral data discrepancies (see Carreras-Marín & Badia-Miró, 2008; Peres-Cajías & Carreras-Marín, 2018). In our research, we apply this 20% standard to evaluate the bilateral trade data discrepancies. To calculate the bilateral data discrepancy between pairs of trading countries, we use these formulas based on Morgernstern's work (Morgenstern 1963).

$$DX_{a.b} = \frac{X_{a.b} - M_{b.a}}{X_{a.b}} \quad (1)$$

$$DM_{a.b} = \frac{M_{a.b} - X_{b.a}}{M_{a.b}} \quad (2)$$

In formula (1), $DX_{a.b}$ evaluates the discrepancy between country $a$'s export data and country $b$'s import data. Here, $X_{a.b}$ is $a$'s export data to $b$. $M_{b.a}$ is $b$'s import data from $a$. The results of formula (1) should be negative because export data in FOB price should be lower than import data in CIF price. Based on the acceptable range of 20%, the bilateral data discrepancy is considered acceptable if results of formula (1) fall between –0.2 and 0. If results are below –0.2, i.e., export data lower than import data, it would suggest potential errors in data registration on the origin and final destination of the trade flow. If the results are above 0, i.e., export data higher than import data, it would be because of potential smuggling activities.

In formula (2), $DM_{a.b}$ calculates the discrepancy between country $a$'s import data and country $b$'s export data. $M_{a.b}$ is $a$'s import data from $b$. $X_{b.a}$ is $b$'s export data to $a$. The results of formula (2) should be positive given that, for the same trade flows, import values at CIF prices are generally higher than the export values in FOB prices. Considering the acceptable freight factor range of 20%, the bilateral data discrepancy is acceptable if results of formula (2) are between 0 and 0.2. If the results are above 0.2, i.e., import data higher than the export data, it could be because of transit trade or errors in data registration. If the results are below 0, i.e., import data lower than the export data, it could indicate potential smuggling in imports.

## 4.4 Results

### 4.4.1 Discrepancy between China's export data and Latin American countries' import data

Before focusing on the case of Bolivia, we calculated the trade data discrepancy between Latin American countries' reported imports from China and China's reported exports from 1984 to 2020. The acceptable range of discrepancy is [0; -0.2]. Results are presented in Table 4.3 and Figure 4.14, which show that the overall discrepancy ratio between China's export data and Latin American countries' import data tended to decrease during the period under study.

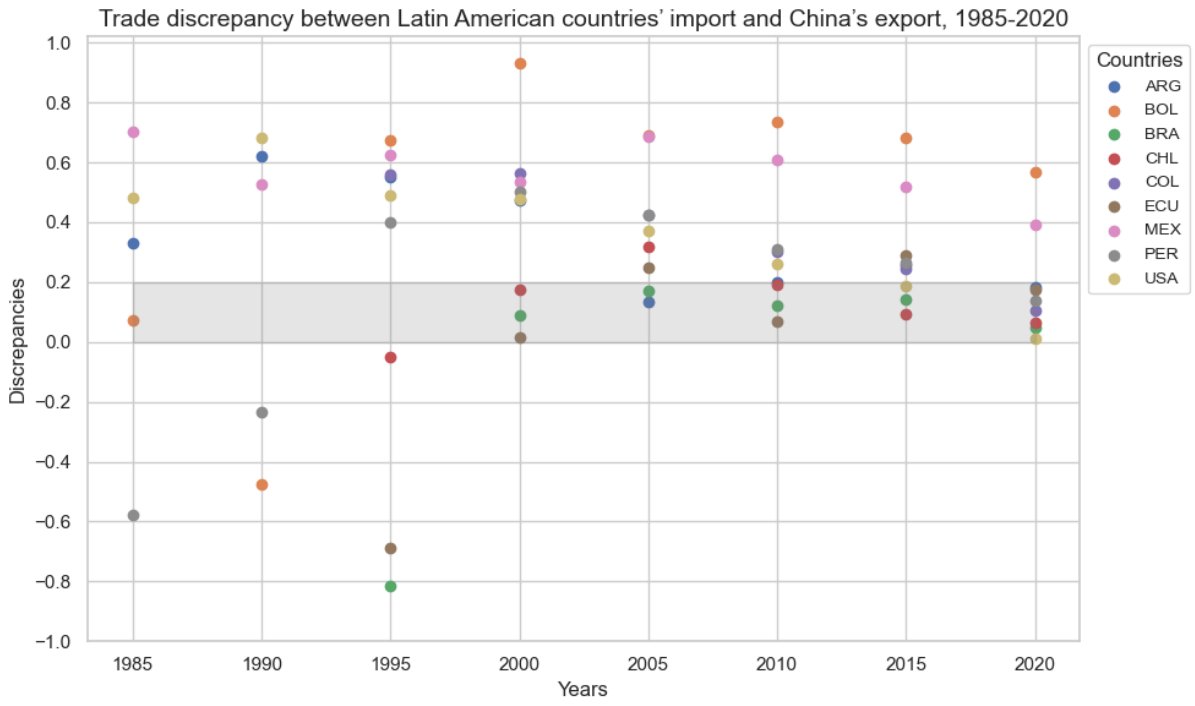
**Table 4.3: Average of trade data discrepancy ratio between Latin-American's import and China's export**

| 1984-1990 | | 1991-2000 | | 2001-2010 | | 2011-2022 | |
|---|---|---|---|---|---|---|---|
| SUR | 0.98 | SUR | 0.84 | SUR | 0.80 | SUR | 0.65 |
| MEX | 0.74 | PRY | 0.67 | BOL | 0.76 | BOL | 0.62 |
| ARG | 0.37 | MEX | 0.60 | PRY | 0.65 | PRY | 0.58 |
| BRA | 0.35 | COL | 0.55 | MEX | 0.62 | MEX | 0.47 |
| HND | 0.24 | BOL | 0.51 | DOM | 0.45 | SLV | 0.46 |
| CHL | 0.22 | CUB | 0.47 | COL | 0.40 | NIC | 0.35 |
| CUB | 0.17 | ARG | 0.36 | PER | 0.40 | CRI | 0.32 |
| URY | 0.00 | PER | 0.18 | CUB | 0.36 | DOM | 0.31 |
| COL | -0.25 | CHL | 0.08 | SLV | 0.36 | HND | 0.25 |
| BOL | -0.27 | BRA | -0.11 | ARG | 0.32 | ARG | 0.25 |
| PER | -0.46 | BLZ | -0.28 | CRI | 0.32 | CUB | 0.24 |
| GTM | -0.57 | URY | -0.58 | CHL | 0.24 | PER | 0.22 |
| NIC | -0.83 | HND | -2.41 | ECU | 0.20 | ECU | 0.21 |
| CRI | -3.66 | NIC | -4.93 | NIC | 0.15 | COL | 0.21 |
| BLZ | -4.43 | CRI | -5.77 | BRA | 0.13 | BLZ | 0.14 |
| DOM | -10.91 | ECU | -7.91 | VEN | -0.13 | CHL | 0.11 |
| SLV | -17.91 | GTM | -8.67 | URY | -0.24 | VEN | 0.09 |
| ECU | -28.60 | SLV | -61.48 | BLZ | -0.34 | BRA | 0.07 |
| PAN | -41.61 | VEN | -88.62 | HND | -0.65 | GTM | -0.02 |
| VEN | -194.42 | PAN | -118.26 | GTM | -0.88 | URY | -0.26 |
| PRY | | DOM | | PAN | -17.72 | PAN | -1.86 |

**Sources:** UN Comtrade data

**Notes:** The formula is $DM_{la.chn} = \frac{M_{la.chn} - X_{chn.la}}{M_{la.chn}}$. $M_{la.chn}$ is Latin American countries' import from china. $X_{chn.la}$ is China's export data to Latin American countries. The acceptable range of discrepancy is [0; -0.2]. The results over 0.2 represent the importing country's over-reported import, and the results below 0 represent under-reported import.

**Figure 4.14: Trade data discrepancy between Latin-American's import and China's export, 1985-2020**




**Sources:** UN Comtrade data

**Notes:** 1. Grey bar is the acceptable range of discrepancy [0; -0.2].

2. Some Latin-American countries are not included in Figure 2 because of their extremely large trade discrepancy result.

Beyond this general improvement, Table 4.3 shows that, since the 1990s, Suriname, Bolivia, Paraguay, and Mexico have reported higher imports from China than what China has recorded as exports to these countries. This suggests possible errors in China's trade data registration. In the case of Bolivia and Paraguay, both landlocked countries, these errors can be driven by the relevance of transit trade through neighboring countries such as Chile, Brazil, and Argentina. In fact, the relevance of transit trade to understand trade data accuracy has been proved for the Bolivian case (Peres-Cajías and Carreras-Marín 2018). Table 4.3 also shows that small-scale countries like Panama, Ecuador, El Salvador, Dominican Republic, Costa Rica, Nicaragua and Guatemala tend to present a large under-reporting of imports from China. This is particularly true before the 2000s.

In fact, the analysis of Figure 4.14, which does not consider countries with extreme trade data

discrepancy, shows that data discrepancy between China's export data and Latin American countries' import data was higher and more volatile before the 2000s. For instance, from 2000s on, the bilateral trade data discrepancy ratio between China and Chile and Brazil remained within or very close to the acceptable range. Moreover, by 2020 the data discrepancy ratio between China and most of its main Latin-American trade partners was within the acceptable range. This could be driven by different elements such as the increasing trade flow, the sign of bilateral free trade agreements (FTAs) and the implicit reduction of tariffs or higher state capacity both in China and Latin America (Lopez and Munoz 2020; Wise 2016). However, it is beyond the scope of this paper to explain this general improvement. By contrast, what we want to highlight is the constant discrepancy between Chinese data and those of Bolivia and Mexico stands out. The following sections will focus on the former case, leaving the Mexican one for future research.

### 4.4.2 Bolivia's foreign trade data mirror analysis

Given Bolivia's significant over-reporting of imports from China compared to China's recorded exports, this section looks at discrepancies in Bolivia's foreign trade data. Table 4.4 and Figure 4.15 provides a comparative analysis of trade discrepancies between Bolivia's import data and the export data of some of its main trading partners. Discrepancies with Western countries, particularly the United States and the United Kingdom, generally fall within or close to the acceptable range. However, Bolivia's trade data with Asian countries shows high discrepancies. In most years, Bolivia reported higher imports from Asian countries than the corresponding export figures recorded by these countries. Discrepancies are particularly large in the cases of China and Japan (see Figure 4.15). As mentioned before, this suggests that Bolivia may have imported some Asian products through re-exports from other transit countries.

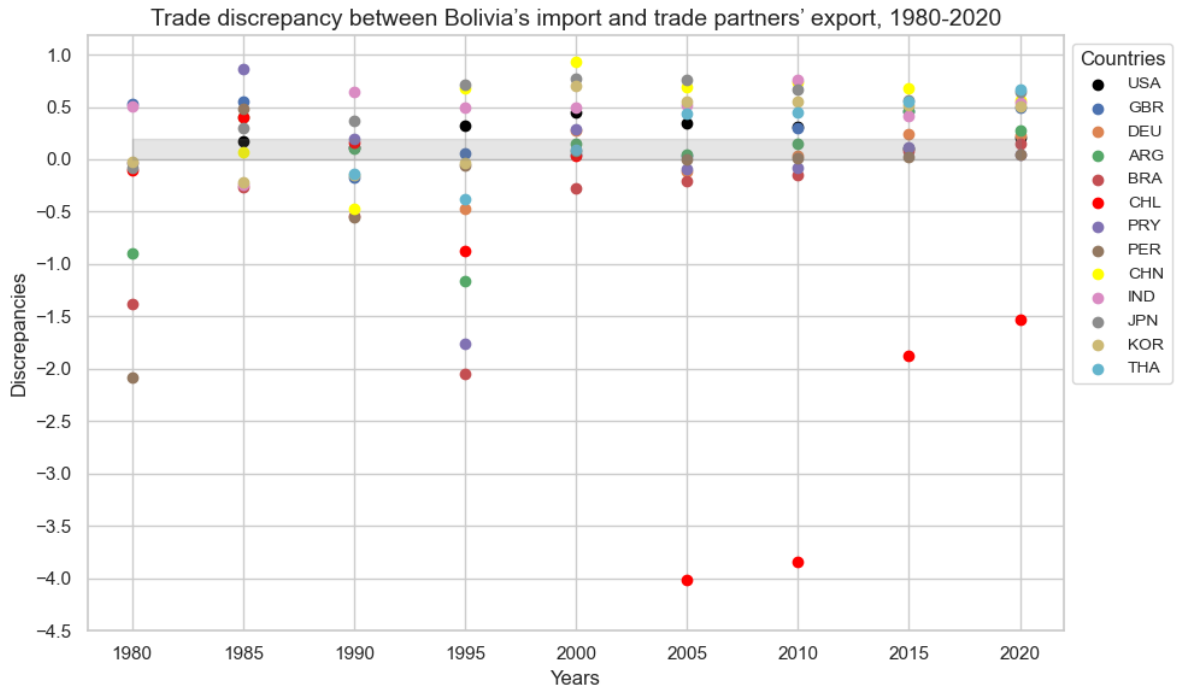
## Table 4.4: Trade discrepancy between Bolivia's import and trade partners' export

| | Western countries | | Asian countries | | | | Latin American countries | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | USA | GBR | CHN | IND | JPN | KOR | ARG | BRA | CHL | PER |
| **1980** | | 0.53 | | 0.50 | -0.08 | -0.03 | -0.90 | -1.38 | -0.10 | -2.09 |
| **1985** | 0.18 | 0.55 | 0.07 | -0.24 | 0.29 | -0.22 | 0.40 | -0.27 | 0.40 | 0.48 |
| **1990** | 0.11 | -0.17 | -0.47 | 0.65 | 0.37 | -0.15 | 0.11 | -0.54 | 0.17 | -0.55 |
| **1995** | 0.32 | 0.05 | 0.68 | 0.49 | 0.71 | -0.04 | -1.16 | -2.04 | -0.88 | -0.05 |
| **2000** | 0.44 | 0.05 | 0.93 | 0.50 | 0.77 | 0.70 | 0.15 | -0.27 | 0.04 | 0.08 |
| **2005** | 0.35 | 0.03 | 0.69 | 0.52 | 0.76 | 0.55 | 0.05 | -0.21 | -4.02 | 0.00 |
| **2010** | 0.31 | 0.30 | 0.74 | 0.76 | 0.67 | 0.55 | 0.15 | -0.15 | -3.84 | 0.01 |
| **2015** | 0.10 | 0.47 | 0.68 | 0.41 | 0.57 | 0.52 | 0.46 | 0.08 | -1.87 | 0.02 |
| **2020** | 0.21 | 0.49 | 0.57 | 0.54 | 0.64 | 0.51 | 0.27 | 0.14 | -1.53 | 0.05 |

**Sources:** UN Comtrade data

**Notes:** The formula is $DM_{bol.tp} = \frac{M_{bol.tp} - X_{tp.bol}}{M_{bol.tp}}$. $M_{bol.tp}$ is Bolivia's import from its trading partners. $X_{tp.bol}$ is its trading partner's export data to Bolivia. The acceptable range of discrepancy is [0; 0.2]. The results over 0.2 represent Bolivia's over-reported import, which implies potential transit trade and errors in data registration. The results below 0 represent under-reported import, which implies potential contraband in Bolivia's import from this trading partner. Numbers in red imply that they are outside the acceptable range.

## Figure 4.15: Trade discrepancy between Bolivia's import and trade partners' export, 1980-2020



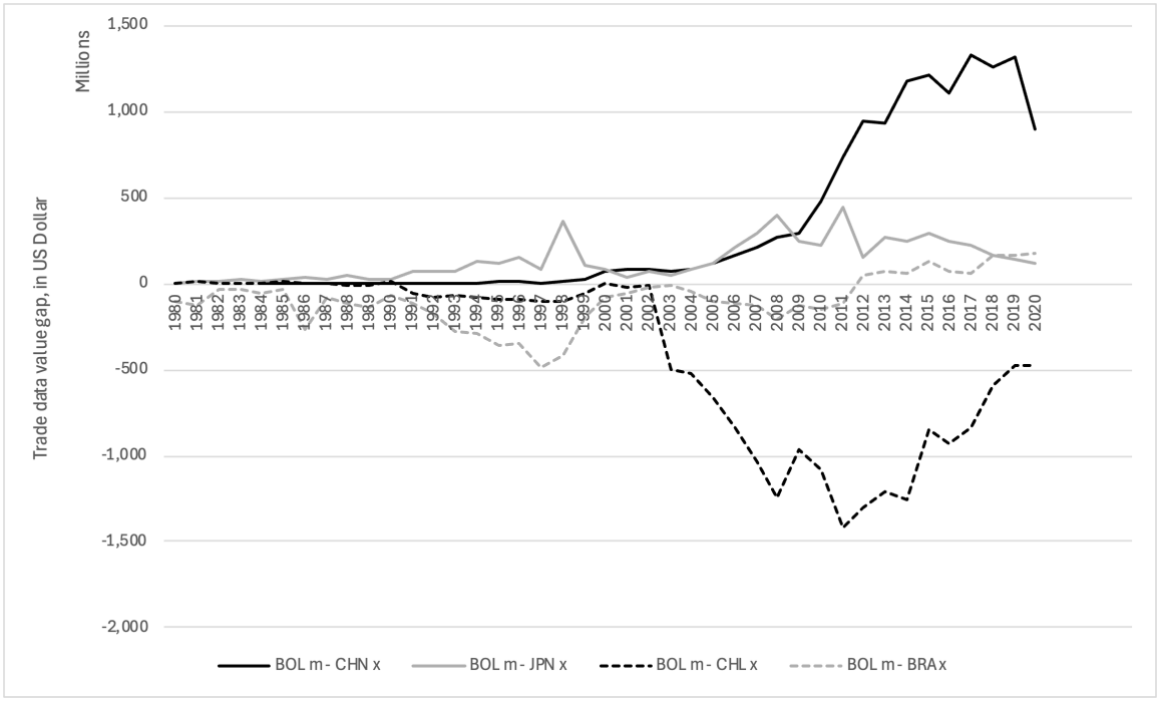

**Sources:** UN Comtrade data

**Notes:** The formula is $DM_{bol.tp} = \frac{M_{bol.tp} - X_{tp.bol}}{M_{bol.tp}}$. $M_{bol.tp}$ is Bolivia's import from its trading partners. $X_{tp.bol}$ is its trading partner's export data to Bolivia. Grey bar is the acceptable range of discrepancy [0; -0.2].

The comparison of Bolivia's import data with the export data of neighboring Latin American countries presents notable discrepancies. The cases of Brazil and Chile stand out particularly. Before 2000, Bolivia's recorded imports from Brazil were lower than the export figures reported by Brazil, with particularly significant discrepancies in 1980 and 1995. From 2005 to 2020, Bolivia's recorded imports from Chile were significantly lower than the export data reported by Chile (see Figure 4.15). Remember that during this same period, Bolivia consistently accounted for a high share of exports from Chile's free trade zone, ZOFRI. This could indicate that Chile served as key transit point for Bolivia's imports from 2005 to 2020.

How large is the trade value gap? Figure 4.16 illustrates the trade data value discrepancy between Bolivia's recorded import data and the export data of its trading partners. In most years, Bolivia's record of imports from China and Japan is higher than the export data to Bolivia in these two Asian countries' data. The gap between Bolivia's import and Japan's export data steadily increased from 1985 to 1998, followed by a sharp decline between 1999 and 2001. From then on, the discrepancy began to grow again, fluctuating between 2005 and 2015, before experiencing a slight decrease until 2020. The gap between Bolivia's import and China's export data was relatively small until 1999. After that, the gap showed a sharp increase to over 1.3 billion US dollars in 2017. In 2020, the gap narrowed.

**Figure 4.16: Trade data value gap between Bolivia's import and trade partners' export, 1980-2020**

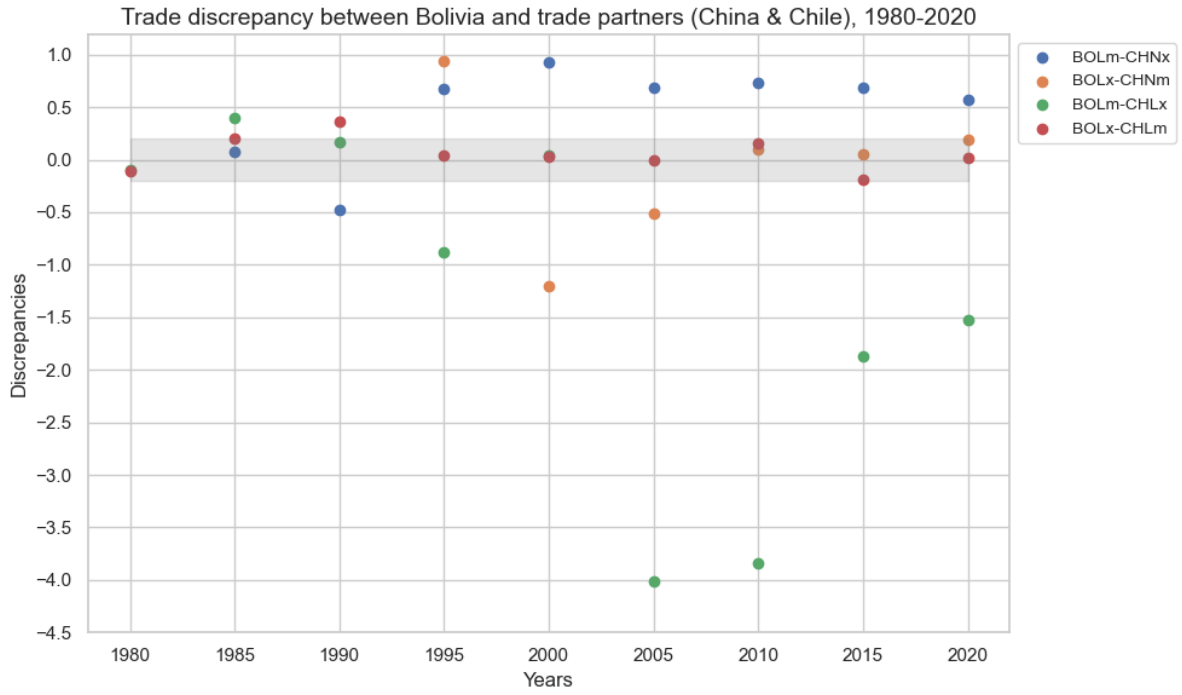



**Sources:** UN Comtrade data

On the contrary, Bolivia's reported imports from Chile and Brazil are lower than the export data recorded by these two Latin American countries. The gap between Bolivia's imports and Brazil's exports fluctuated between 1980 and 1990. Then, it increased until 1997, followed by a decline until 2003. A slight increase followed, peaking in 2008, before the gap decreased once more. Since 2012, Bolivia's recorded import data has surpassed Brazil's export data, which is in line with expected results. Meanwhile, the gap between Bolivia's import and Chile's export data grew throughout the 1990s. From 2002 onwards, the gap increased dramatically until 2011 reaching up to nearly 1.5 billion US Dollars. Then, the gap decreased significantly.

To evaluate the existence of smuggling in Bolivia's imports, Figure 4.17 presents also discrepancies between Bolivia's exports data and the import data of its trading partners. It shows that the gap between Bolivia's export data and China's import data is closer to or within the acceptable range. A similar pattern is observed when the gap between Bolivia's export data and Chile's import data is analyzed. This underscores that trade data discrepancies are related to Bolivia's imports from China and Chile and not to the overall trade relationship between Bolivia and these partners.

**Figure 4.17: Trade discrepancy between Bolivia and trade partners (China & Chile), 1980-2020**



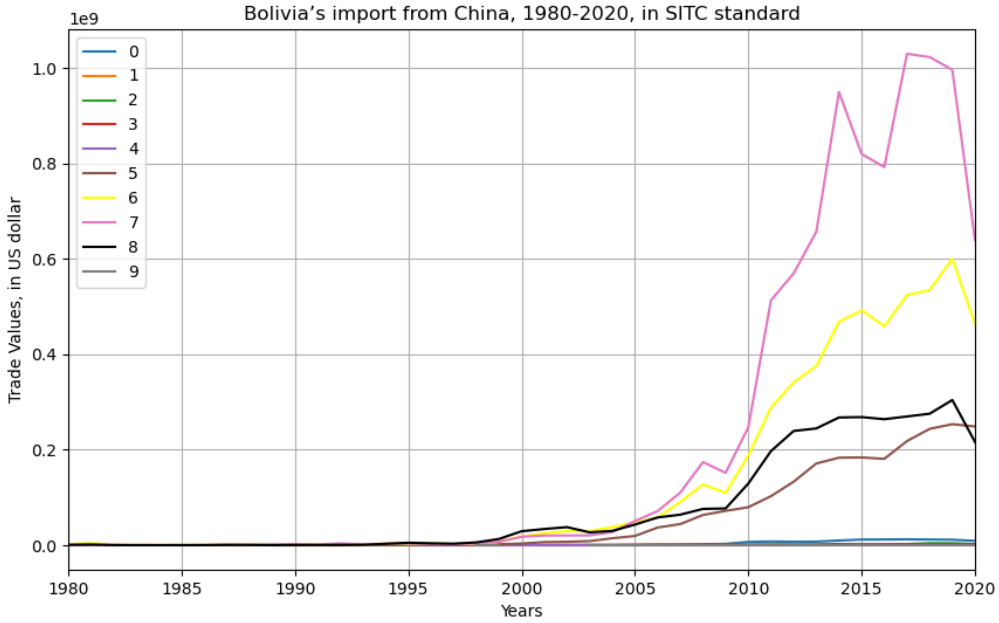

**Sources:** UN Comtrade data

**Notes:** For BOLm-CHNx and BOLm-CHLx, the acceptable range of discrepancy is [0; 0.2]. For BOLx-CHNm and BOLx-CHLm, the acceptable range of discrepancy is [-0.2; 0].

### 4.4.3 Products in the gap: Bolivia's imports from China and Chile

This section looks at the Standard International Trade Classification (SITC) categories to pinpoint the type of products that present the highest trade data discrepancies. Figure 4.18 shows Bolivian imports from China from 1980 and 2020 at the SITC-1 digit level. A noticeable increase in machinery, transport equipment, and manufactured goods occurred since 2000.

**Figure 4.18: Bolivia's import from China (in SITC 1-digit level), 1980-2020**

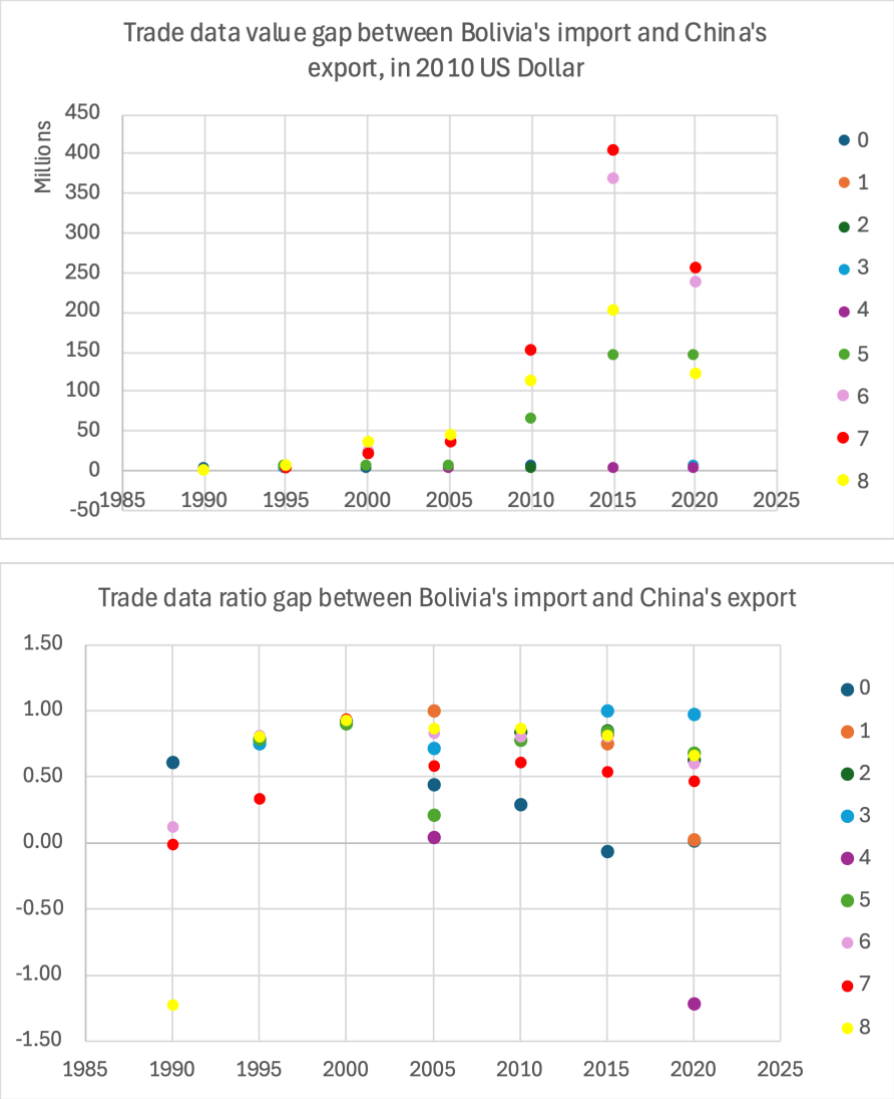



**Sources:** UN Comtrade data

**Notes:** SITC Classification (0: Food and live animals; 1: Beverages and tobacco; 2: Crude materials, inedible, except fuels; 3: Mineral fuels, lubricants and related materials; 4: Animal and vegetable oils, fats and waxes; 5: Chemicals and related products, n.e.s.; 6: Manufactured goods classified chiefly by material; 7: Machinery and transport equipment; 8: Miscellaneous manufactured articles; 9: Commodities and transactions not classified elsewhere in the SITC)

Figure 4.19 illustrates both the trade data *value* and the data *ratio* discrepancies between Bolivia's import data and China's export data across the different SITC 1-digit level categories. From 2000 onwards, a drastic rise in value discrepancies is evident in the categories of "machinery and transport equipment" (SITC 7), "manufactured goods classified chiefly by material" (SITC 6), and "miscellaneous manufactured articles" (SITC 8). In all these cases, Bolivia's import records higher figures than the ones registered by China. The trade data ratio gap confirms the relevance of disparities for these categories.

**Figure 4.19: Trade data value discrepancies and ratio gap between Bolivia's import and China's export, in SITC 1-digit level**



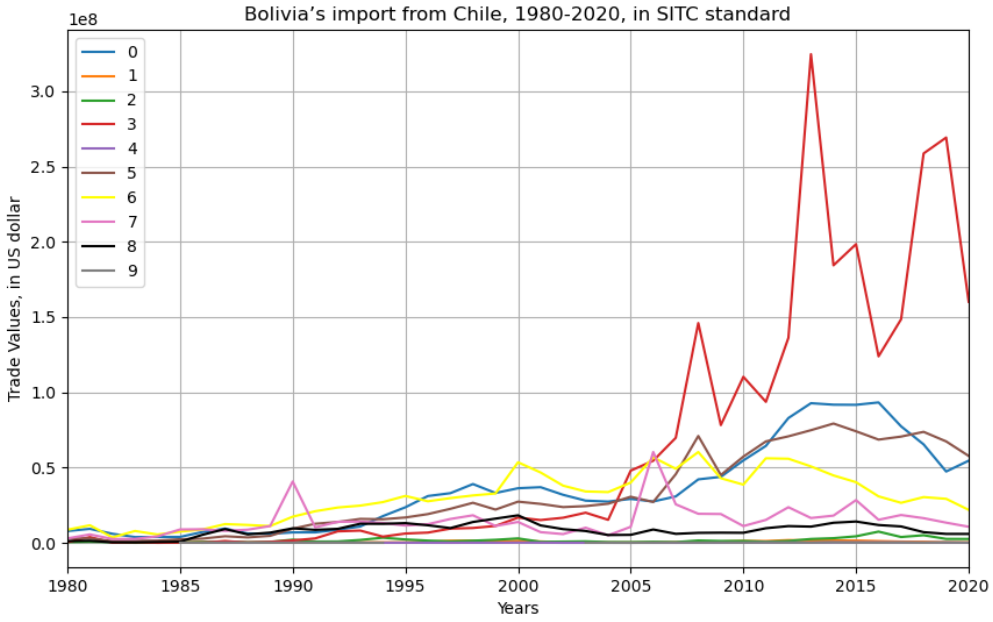

**Sources:** UN Comtrade data

**Notes:** 1. For trade data ratio gap, the formula is $DM_{bol.chn} = \frac{M_{bol.chn} - X_{chn.bol}}{M_{bol.chn}}$. $M_{bol.chn}$ is Bolivia's import from China. $X_{chn.bol}$ is China's export data to Bolivia. The acceptable range of discrepancy is [0; 0.2]. The results over 0.2 represent Bolivia's over-reported import, and the results below 0 represent under-reported import.

2. SITC Classification (0: Food and live animals; 1: Beverages and tobacco; 2: Crude materials, inedible, except fuels; 3: Mineral fuels, lubricants and related materials; 4: Animal and vegetable oils, fats and waxes; 5: Chemicals and related products, n.e.s.; 6: Manufactured goods classified chiefly by material; 7: Machinery and transport equipment; 8: Miscellaneous manufactured articles; 9: Commodities and transactions not classified elsewhere in the SITC)

Figure 4.20 shows Bolivian imports from Chile from 1980 and 2020 at the SITC-1 digit level. Before 2005, manufactured goods, food and live animals, and chemicals and related products, held the largest share of Bolivia's imports from Chile. Starting in 2000, there was an increase in the import of mineral fuels, lubricants, and related materials from Chile.

**Figure 4.20: Bolivia's import from Chile (in SITC 1-digit level), 1980-2020**

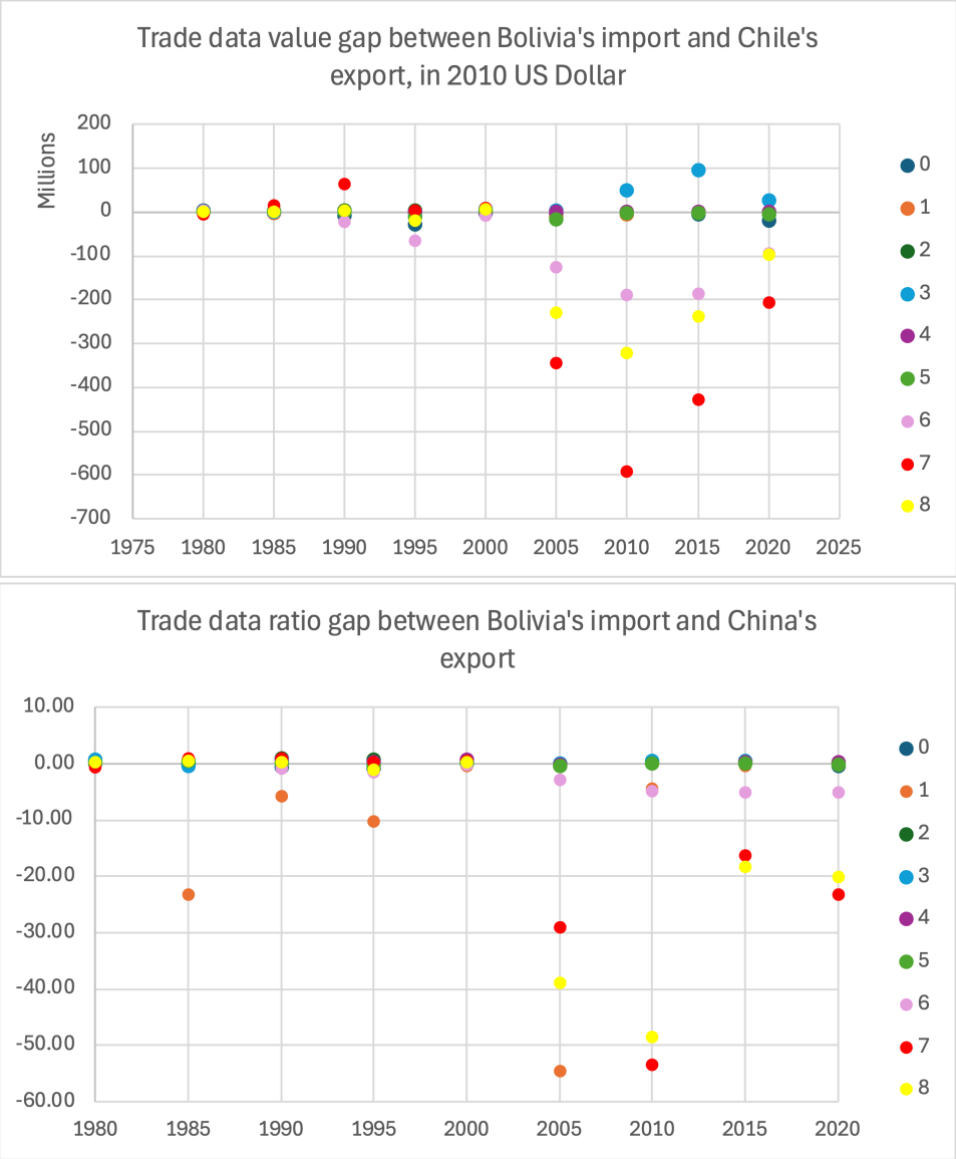



**Sources:** UN Comtrade data

**Notes:** SITC Classification (0: Food and live animals; 1: Beverages and tobacco; 2: Crude materials, inedible, except fuels; 3: Mineral fuels, lubricants and related materials; 4: Animal and vegetable oils, fats and waxes; 5: Chemicals and related products, n.e.s.; 6: Manufactured goods classified chiefly by material; 7: Machinery and transport equipment; 8: Miscellaneous manufactured articles; 9: Commodities and transactions not classified elsewhere in the SITC)

Figure 4.21 presents the trade data discrepancies between Bolivia's import data and Chile's export data at the SITC 1-digit level. Both the value gap and the ratio gap indicate that the discrepancies were higher between 2005 and 2020 than before. This is particularly true in the categories of "machinery and transport equipment" (SITC 7), "miscellaneous manufactured articles" (SITC 8), and "manufactured goods classified chiefly by material" (SITC 6). Although these discrepancies showed a decreasing trend between 2015 and 2020, the gaps remained substantial compared to other product types.

**Figure 4.21: Trade data value and ratio gap between Bolivia's import and Chile's export, in SITC 1-digit level**

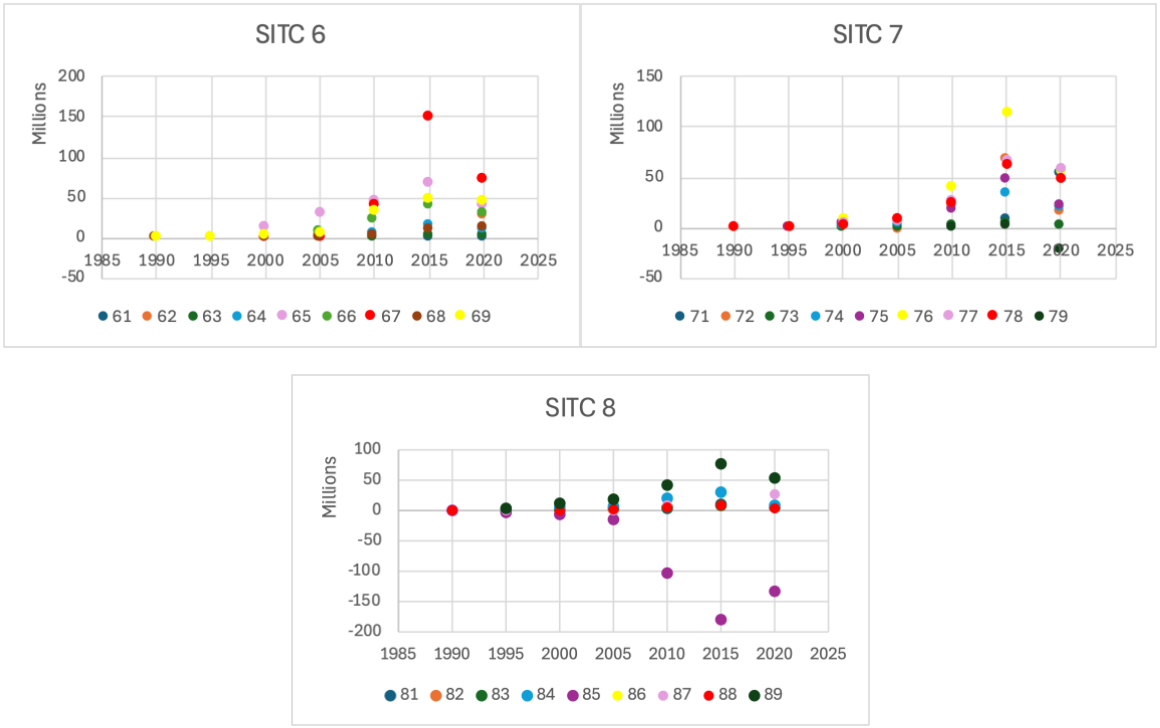



**Sources:** UN Comtrade data

**Notes:** 1. For trade data ratio gap, the formula is $DM_{bol.chl} = \frac{M_{bol.chl} - X_{chl.bol}}{M_{bol.chl}}$. $M_{bol.chl}$ is Bolivia's import from Chile. $X_{chl.bol}$ is Chile's export data to Bolivia. The acceptable range of discrepancy is [0; 0.2]. The results over 0.2 represent Bolivia's over-reported import, and the results below 0 represent under-reported import. 2. SITC Classification (0: Food and live animals; 1: Beverages and tobacco; 2: Crude materials, inedible, except fuels; 3: Mineral fuels, lubricants and related materials; 4: Animal and vegetable oils, fats and waxes; 5: Chemicals and related products, n.e.s.; 6: Manufactured goods classified chiefly by material; 7: Machinery and transport equipment; 8: Miscellaneous manufactured articles; 9: Commodities and transactions not classified elsewhere in the SITC)

Given that discrepancies between Bolivia and both Chile and China are higher in the same type of categories (SITC 6, 7 and 8), we conducted a detailed mirror analysis at the SITC 2-digit level. Figure 4.22 illustrates the trade value discrepancies between Bolivia's imports and China's exports. Significant discrepancies are observed in the following categories: "Textile yarn, fabrics, made-up articles, nes, and related products" (SITC 65), "Iron and steel" (SITC 67), "Manufactures of metals, n.e.s." (SITC 69), "Telecommunications and sound-recording and reproducing apparatus and equipment" (SITC 76), "Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof" (SITC 77), "Road vehicles" (SITC 78), "Miscellaneous manufactured articles" (SITC 89), "Footwear" (SITC 85), "Articles of apparel and clothing accessories" (SITC 84).

**Figure 4.22: Trade data value discrepancy between Bolivia's import and China's export (SITC 2-digit level), in 2010 US dollar**




**Sources:** UN Comtrade data

**Notes:** SITC 6 Classification (61: Leather, leather manufactures, n.e.s., and dressed furskins; 62: Rubber manufactures, n.e.s.; 63: Cork and wood manufactures (excluding furniture); 64: Paper, paperboard, and articles of pulp, of paper or of paperboard; 65: Textile yarn, fabrics, made-up articles, nes, and related products; 66: Non-metallic mineral manufactures, n.e.s.; 67: Iron and steel; 68: Non-ferrous metals; 69: Manufactures of metals, n.e.s.)

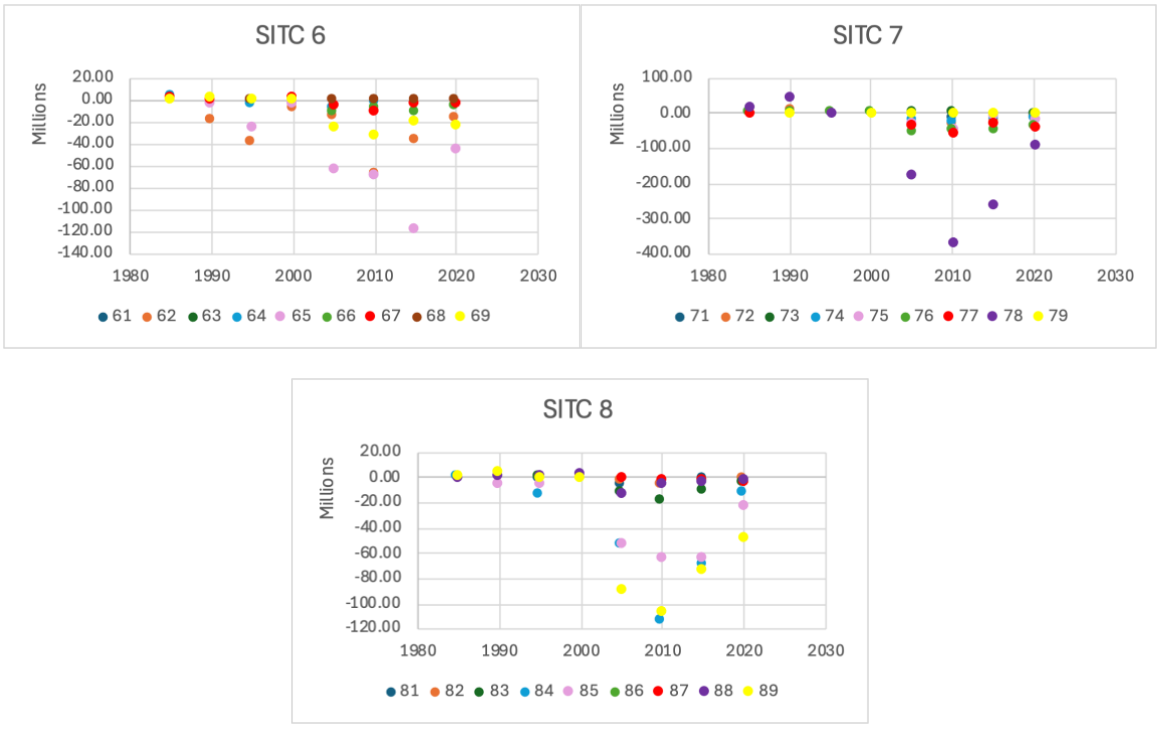
SITC 7 Classification (71: Power generating machinery and equipment; 72: Machinery specialized for particular industries; 73: Metalworking machinery; 74: General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.; 75: Office machines and automatic data-processing machines; 76: Telecommunications and sound-recording and reproducing apparatus and equipment; 77: Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household-type equipment); 78: Road vehicles (including air-cushion vehicles); 79: Other transport equipment)

SITC 8 Classification (81: Sanitary, plumbing, heating, lighting fixtures and fittings, nes; 82: Furniture and parts thereof; 83: Travel goods, handbags and similar containers; 84: Articles of apparel and clothing accessories; 85: Footwear; 86: Scientif & control instrum, photogr gds, clocks; 87: Professional, scientific, controlling instruments, apparatus, nes; 88: Photographic equipment and supplies, optical goods; watches, etc; 89: Miscellaneous manufactured articles, nes)

Figure 4.23 focuses on Bolivia's imports and Chile's exports. We observe higher discrepancies in the following categories: "Textile yarn, fabrics, made-up articles, nes, and related products" (SITC 65), "Rubber manufactures" (SITC 62), "Road vehicles" (SITC 78), "Telecommunications and sound-recording and reproducing apparatus and equipment" (SITC

76), “Miscellaneous manufactured articles” (SITC 89), “Footwear” (SITC 85), “Articles of apparel and clothing accessories” (SITC 84).

**Figure 4.23: Trade data value discrepancy between Bolivia’s import and Chile’s export (SITC 2-digit level), in 2010 US dollar**




**Sources:** UN Comtrade data

Clearly, discrepancies between Bolivia and those of Chile and China also tend to coincide at the SITC 2-digit level. This suggests that Bolivia is importing Chinese products of these categories through transit countries. It also suggests that Chile serves as an important transit country for these products and part of them arrive to Bolivia through smuggling. This finding aligns with the literature specialized on the Bolivian cross-border contraband. The emergence of the East Asian Region during the last decades of the 20th century, and particularly China, has significantly impacted trade through the Bolivia-Chile border area (Durán Lima and Pellandra 2017). In turn, the cross-border trade and the circulation of goods and imitations in Bolivian markets was substantially supplied by the intense traffic of electronic goods from Chilean cities like Iquique and Calama (Muñoz and Garcés 2022).

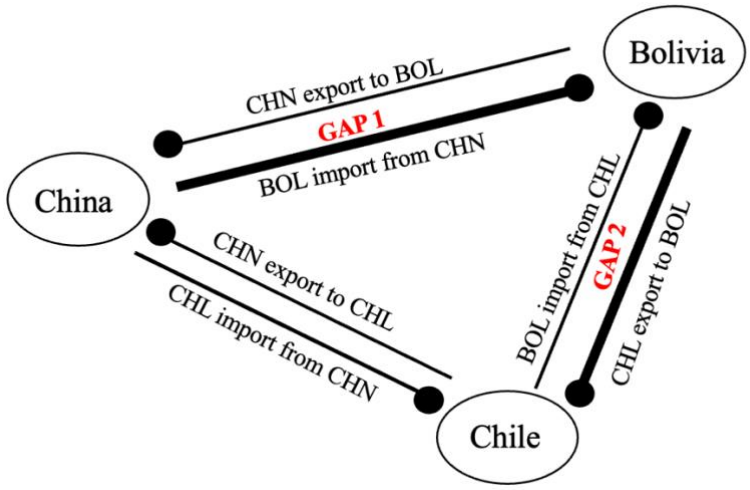
Our findings also align with the anthropological literature on the informal trade in Bolivia. This literature shows that, thanks to their strong family and community ties, indigenous populations tend to control these contraband circuits and can satisfy the changing daily demand of the Bolivian population (Rea Campos 2016; Tassi et al. 2012). This literature shows that the type of products controlled by these indigenous traders changed across time: from radios, black-and-white TVs, record players, and tape recorders in 1980s; to color TVs, stereos, and household appliances such as refrigerators and computers in 1990s; and, to laptops, mobile phones, and tablets in 2000s (Müller 2017; Muñoz and Garcés 2022; Muñoz Valenzuela 2023; Tassi et al. 2012).

## 4.5 What does smuggling mean for Bolivia?

The previous trade data mirror analysis reveals that while the discrepancies between Bolivia's export data and the import data of both China and Chile are narrow and often within acceptable ranges, discrepancies between Bolivia's import data and the export data reported by China and Chile were high, especially from 1995 to 2020. These results show an over-reporting in Bolivia's declaration of imports from China and under-reporting in its declaration of imports from Chile. This suggests that Bolivia have imported some Chinese products through re-exports from Chile. Some of these reexports took place through ZOFRI - which has Bolivia as one of its main exports' destinations. However, considering the vast literature on Bolivian informal markets and contraband, it is also fair to suggest that part of reexports from Chile to Bolivia takes place through unregular channels.

Diagram 4.1 illustrates these trade data discrepancies. Gap 1 shows that Bolivia's records of imports from China is higher than China's records of exports to Bolivia. Notice that this gap is lower once transaction costs (estimated as 10% of the trade value) are considered. Gap 1 could be explained by errors of geographical assignment in Chinese statistics. Gap 2, in turn, shows that Bolivia's records of imports from Chile are lower than Chile's records of exports to Bolivia. This gap is even higher if transaction costs (estimated as 5% of the trade value) are added. Gap 2 could reflect re-exports of Chinese (and other countries) products from Chile to Bolivia, both legal and irregular.

**Diagram 4.1: Trade data mirror analysis between Bolivia, China and Chile**




**Notes:** Black points indicate the country which records the trade flow. Line density indicates the relative volume of the recorded trade flow, with thicker lines implying higher trade volumes.

As for irregular trade flows, an extensive field interview in Bolivia with one person involved in trade with China through Chile show that smuggling activities can take place through two different scenarios.[34] On one hand, products obtained in Chile can enter Bolivia through routes that are not controlled (and, therefore, not registered) by Bolivian customs officials. On the other hand, Bolivian traders can hide some products or can underdeclared them when they enter Bolivia through official channels.

Based on this evidence and trade data discrepancies we can offer a reliable range for the value of smuggling activities that takes place through the Bolivia-Chile border. This range considers four different scenarios. **Scenario A**[35] assumes that all the bilateral trade data gap between Bolivia's reported imports from Chile and Chile's reported exports to Bolivia refers to smuggling. **Scenario B**[36] corrects the previous figure by taking into account differences in registration methods (FOB in the case of Chilean exports and CIF in the case of Bolivian imports). Given that CIF prices should be higher than FOB and given that Bolivia and Chile are close enough, we assume that this gap represents 5% of the trade value. Therefore, this

[34] The field interview was conducted in La Paz on August 16, 2024. Due to legal considerations, we are unable to provide the interviewee's information.
[35] *Scenario A*: GAP between Bolivia's import data and Chile's export data
[36] *Scenario B*: GAP between Bolivia's import and Chile's export * (1+5%)

second scenario expands the bilateral trade data gap by 5%, which is the maximum potential smuggling value in Bolivia's imports from Chile.

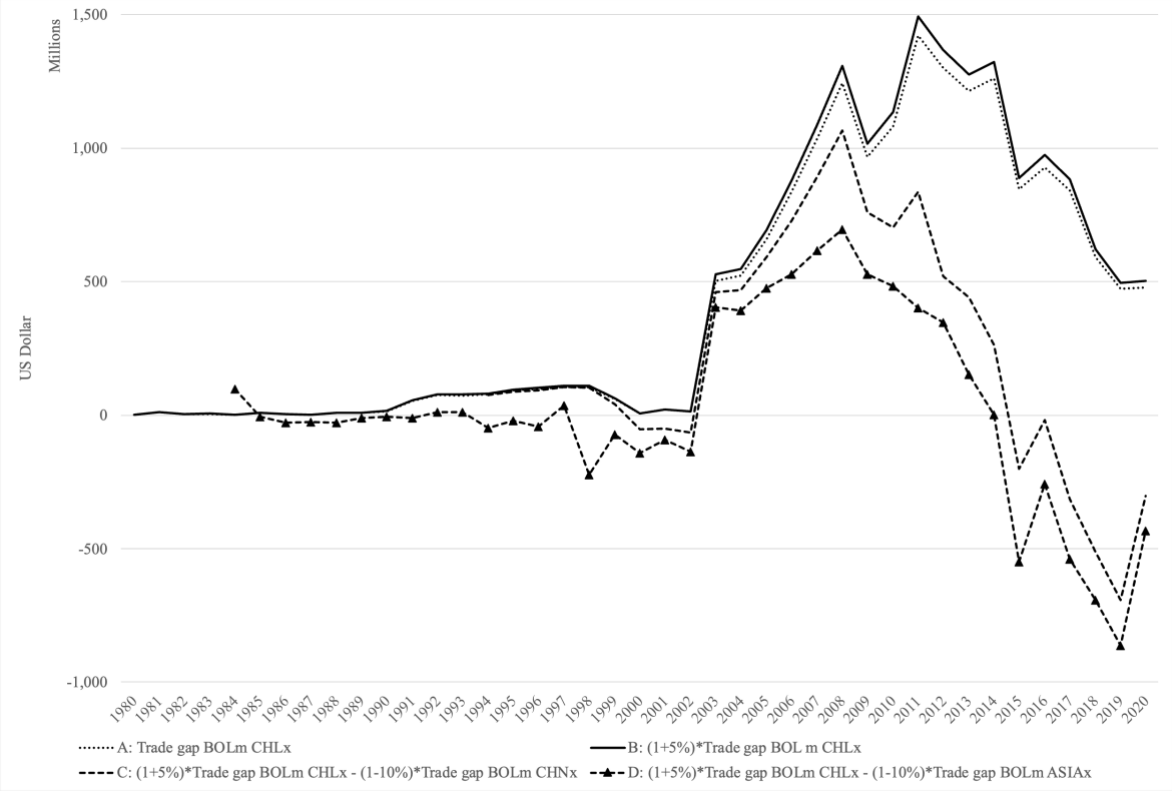
However, the data also show that Bolivia's imports from China are much higher than China's exports to Bolivia. Part of this gap can be attributed to transport costs, which we estimate as 10% of the trade value due to the long distance between Bolivia and China. Beyond transport costs, the gap may be reflecting the challenges that ZOFRI and transit trade generates in terms of geographical assignment. Under this scenario, while Bolivian authorities register products as Chinese, Chileans do it as originated in Chile. Altogether, **Scenario C**[37] corrects the gap between Bolivian and Chilean statistics by subtracting the trade data gap between Bolivia and China (excluding transport costs estimated as 10% of the trade value). Finally, given that ZOFRI free trade zone also facilitates transit trade from Japan and South Korea, **Scenario D**[38] adds to the previous correction in **Scenario C** the gap between Bolivian records and those of Japan and South Korea.

Figure 4.24 shows the potential smuggling from 1980 to 2020 under these four different scenarios. The trade gap between Bolivia's imports and Chile's exports (Scenario A)—and thus the maximum potential smuggling (Scenario B)—increased from 2003 to 2008, followed by a decline in 2009. The gap then increased again to nearly $1.5 billion in 2011, which is equivalent to 18% of Bolivia's total imports and 15% of its exports in that year. The gap remained above $1 billion until 2014, which is equivalent to 12% of Bolivia's total imports and 10% of its exports in 2014. Since 2015, it has decreased up to around $500 million in 2020. Scenarios C and D show a similar trend but different levels. Moreover, values are negatives since 2014. This suggests that the statistical evidence of smuggling in Bolivia's imports from Chile disappears from 2014 onward.

[37] *Scenario C*: Potential smuggling in Bolivia's import from Chile (deleting the misallocation error caused by transit trade of Chinese products through Chile) = (1+5%) * GAP between Bolivia's import and Chile's export - (1-10%) * GAP between Bolivia's import and China's export

[38] *Scenario D*: Potential smuggling in Bolivia's import from Chile (deleting the misallocation error caused by transit trade of Asian products via Chile) = (1+5%) * GAP between Bolivia's import and Chile's export - (1-10%) * GAP between Bolivia's import and Asia's export

**Figure 4.24: Potential smuggling in Bolivia's import from Chile in four scenarios (in US dollar), 1980-2020**




**Sources:** UN Comtrade data

Given these results, we calculated the four different scenarios in three different periods (1990–2002; 2003–2014; and 2015–2020) and we evaluated each of them as a fraction of the Bolivian GDP and the one of the department of La Paz. Our estimations suggest that smuggling activities represented a significant share of the GDP of Bolivia and La Paz across the different scenarios contemplated during the 2003-2014 period (see Table 4.5).

**Table 4.5: Fraction of potential smuggling in four scenarios in Bolivia's GDP (in percentage)**

| | As a fraction of Bolivian GDP | | | | As a fraction of La Paz GDP | | | |
|---|---|---|---|---|---|---|---|---|
| | **A** | **B** | **C** | **D** | **A** | **B** | **C** | **D** |
| **1990-2002** | 0.9 | 0.9 | 0.4 | -0.7 | 3.2 | 3.4 | 1.3 | -2.7 |
| **2003-2014** | 5.9 | 6.2 | 4.4 | 3.1 | 23.9 | 25.1 | 17.6 | 12.4 |
| **2015-2020** | 1.9 | 2.0 | -0.9 | -1.5 | 6.9 | 7.3 | -3.2 | -5.3 |

**Sources:** UN Comtrade data; Bolivia's national and regional GDP are from World Bank and Bolivian National Statistical Institute (Instituto Nacional de Estadística)[39]

This finding coincides with different macroeconomic trends. On the one hand, the relevance of Chinese imports in Latin America increased dramatically in Latin America at the early 21st century (see Figure 4.1). The relevance of China as market of destination for Latin American products also increased dramatically since the beginning of the 21st century (see Figure 4.2). Whereas China remained as a marginal market for Bolivian exports (see Table 4.2 and Figure 4.10), Bolivia benefited from the higher involvement of China in global and Latin American trade through its effects on commodity prices.

Indeed, the 2003-2014 period is characterized in Bolivia by an export boom, especially in minerals and gas, thanks to extremely favorable international prices (Kehoe, Machicado, and Peres-Cajías 2022). This commodity boom generated large trade surpluses and accelerated GDP growth (between 2002 and 2017, growth in GDP per WAP averaged 2.6% per year) (Kehoe, Machicado, and Peres-Cajías 2022). This export boom also generated an increase in family incomes and a sustainable reduction in inequality and poverty levels (Wanderley and Peres-Cajías 2018). Thus, either thanks to "spillover" effects from economic growth or social transfers from the government, the Bolivian population increased its ability to import (Tassi et al. 2012). This potential reinforced since 2011 when the Bolivian government adopted a *de facto* fixed exchange rate.[40]

[39] Bolivia's national GDP data are from World Bank (https://databank.worldbank.org/reports.aspx?source=2&series=NY.GDP.MKTP.CD&country) and GDP data of La Paz are from Instituto Nacional de Estadística (https://www.ine.gob.bo/index.php/estadisticas-economicas/pib-y-cuentas-nacionales/producto-interno-bruto-departamental/producto-interno-bruto-departamental/#1589483897558-5a3c7600-74d3).

[40] The fact that this exchange rate has not change since then and the external conditions changed since 2014 explains the growing macroeconomic tensions that the Bolivian economy is suffering nowadays (Kehoe, Machicado, and Peres-Cajías 2022).

There is agreement in Bolivia that some of this increasing demand for imports occurred through legal channels and some by smuggling. This activity, in turn, presents both positive and negative consequences for the country's economy. On the negative side, smuggling could lead to significant losses in tax revenue, which undermines the government's ability to fund public services, infrastructure, and social programs (Karafo and Kayranto 2018). This illicit activity also creates unfair competition for formal businesses that comply with regulations, pay taxes, and follow legal processes (Karafo and Kayranto 2018). Smuggling also destroys public trust in government institutions and weakens the rule of law (Buehn and Farzanegan 2012; Karras 2009).

Moreover, smuggling can flood the market with foreign products, particularly harming domestic industries. Local manufacturers and producers struggle to compete, which can lead to the collapse of small and medium-sized enterprises, increased unemployment, and reduced domestic production capacity. According to the study of Bolivia's National Chamber of Industries (CNI), smuggling has become the main problem for Bolivia's national industries. The Deputy Minister for the "Fight Against Smuggling" activity in Bolivia, highlighted that smuggling is a threat to the security and development of the state because it affects local businesses, leading to closures and layoffs.[41]

However, smuggling may provide access to goods that otherwise would be expensive or difficult to obtain. For consumers in Bolivia, where wages are relatively low, this enables access to everyday products like electronics, household appliances, and clothing at affordable prices. The journalist Baspineiro (2024) highlights this reality by quoting a buyer in La Paz's informal markets, who points out that she frequently goes to these markets for the "more affordable prices" compared to the formal market.

Smuggling also generates informal employment. Jobs in transportation, distribution, and selling of smuggled goods, although unregulated, provide a living for a lot of people, particularly in areas with limited formal employment opportunities. According to the International Labour Organization (ILO), in Bolivia, more than 80% of the population works

[41] This information is from the news of Bolivia's National Chamber of Industries (https://www.cni.bo/noticia/96).

informally (Baspineiro 2024). Indeed, participation on these informal markets has allowed people of indigenous origin to became part of Bolivian middle or upper classes.

In this context, the size of our estimates allows us understanding why the relative importance of elites in Bolivia has changed dramatically –particularly in La Paz– during the last few years. The symbolic power of the so-called Aymara bourgeoisie is reflected in palace-liked colorful and surreal "cholets" in El Alto de La Paz (see Picture 4.1). These buildings are located by the side of modest houses, landfills and wastelands (Baspineiro 2024; Quesada 2021). These indigenous traders play a central role in the informal market chains, utilizing their local and familial ties to negotiate within the global economy's interstices, integrate and supply markets, and finally cultivated significant economic spaces within Bolivia's national economy (López Guerrero 2018; Muñoz Valenzuela 2023; Tassi et al. 2012).

**Picture 4.1: Neo-Andean architecture "Cholets" in El Alto**

**Sources:** Arquitectura y Diseño[42]

These findings highlight the importance of understanding the effects of globalization beyond the usual suspects. Influenced by dependentism approaches, economic history studies of Latin America have often assumed that the opening of the economy benefited exclusively specific elites that could exploit products that were appreciated in foreign countries (see the debate presented by Kuntz-Ficker 2017). By contrast, a work focused on the same region where the current smuggling activities between Bolivia and Chile takes place, shows that indigenous communities were highly benefited by foreign trade flows during the first postindependence decades (Langer 2009). Similarly, it has been suggested that the economic and political power of Gregorio Pacheco (one of Bolivia's Silver Patriarchs and President of the country between

[42] https://www.arquitecturaydiseno.es/arquitectura/freddy-mamani-impregna-color-altiplano_2346.

1884 to 1888) are linked to its predominance on silver smuggling at the mid-nineteenth century (Langer 2021). As for the globalization process fueled by China dynamism, scholars tend to focus on exports to this country or investments from it (see the debates covered by Agramont Lechín 2022). This chapter has proved that the rise of China also generated benefits to a-priori small economic actors linked to import activities. This fact has been highlighted by the anthropological literature, either for the Bolivian case or different African countries (see Mshomba 2018; Tassi et al. 2012). Thanks to the use of the mirror analysis, we show that the potential size of this effect could varied between 3 to 6% of Bolivian GDP during the years of the commodity boom.

## 4.6 Conclusion

This paper approaches smuggling in Bolivia's import by conducting a mirror analysis of trade data between pairs of trading partners. By employing this methodology, we provide a macroeconomic perspective that sheds light on contraband activities in Bolivia. The trade data mirror analysis results reveal high discrepancies between Bolivia's import data and the export data reported by China and Chile from 1995 to 2020. These discrepancies exceed the acceptable range of bilateral trade data differences that can be attributed to transport and transaction costs. The results show a substantial over-reporting in Bolivia's declaration of imports from China and under-reporting in its declaration of imports from Chile. Meanwhile, the discrepancies between Bolivia's export data and the import data of both China and Chile are much narrower and often within acceptable ranges. This contrast suggests that Bolivia have imported some Chinese products through re-exportation from other transit countries. Additionally, Chile is an important transit country for Bolivia's imports, with part of this trade occurring through unregular channels.

A detailed mirror analysis indicates that the largest trade data discrepancies appear in the categories of textile yarn, fabrics, made-up articles, rubber manufactures, road vehicles, telecommunications equipment, electrical machinery, articles of footwear, apparel and clothing accessories. This finding coincides with the products identified by literature on the informal market in Bolivia and contraband cross-border trade in border areas of Bolivia and Chile.

Our findings also allow to measure the potential size of smuggling in Bolivia. In correspondence to the commodity boom, the potential of smuggling increased substantially during the 2003-2014 period. Our estimates show a potential size between 3 and 6% of the Bolivian GDP and between 12 and 24% of the GDP of La Paz. This size may help understanding why a group of indigenous origin and linked to smuggling activities has consolidated during the last years as a new Bolivia elite. The use of trade data discrepancies as a tool of research illustrates the complex interplay between formal trade data and informal economic activities. Moreover, our findings underscore the need for a better understanding of trade dynamics in Bolivia, taking into account transit trade routes, informal practices, and

cross-border contraband. Further investigation into the socio-economic and institutional environments could provide deeper insights into the hidden patterns of the transpacific trade between China and Latin America.

# 5. Conclusion

The globalization wave that took place from the mid-19th century to the WWI and the current wave of globalization significantly influenced Asian and Latin American economies, societies, and institutions. During the so-called First Globalization, both regions were peripheral in a world economy dominated by Europe and United States. Most of them were integrated into global trade as exporters of raw materials and agricultural goods. Under the foreign political and economic influence, Asian counties, especially China and India, also experienced drastic social, legal and institutional transformation. By contrast, in the current wave of globalization, Asia, especially China, became important in the world economy. So, the once prosperous transpacific trade between Asia and Latin America of the Manila Galleon period recovered.

This dissertation studies multifaceted changes in Asia and Latin America during these two waves of Globalization: institutional change in 19th-century China under foreign influence; continuity and change in trade exchanges between Asia and Latin America during the First Globalization and Interwar Periods; and, the magnitude of smuggling in the transpacific and intraregional trade dynamics between Bolivia, Chile and China during the current trade boom.

Chapter 2 explores Chinese Maritime Customs' information capacity from 1864 to 1938 through a novel methodological approach. I analyze the accuracy of CMC's foreign trade records by employing a mirror analysis that compares the CMC's trade data with the official foreign trade figures reported by China's principal trading partners: the United States of America, the United Kingdom, and Japan. The results indicate significant improvements in CMC's recorded data quality in 1874 and at the eve of the 20th century. These enhancements can be partially attributed to institutional reforms aimed at improving the CMC's information capacity, including the unification of trade value measurement for all ports, the adoption of international standard prices and a more detailed and amplified registration of ports and trading partners.

The analysis also suggests that after Hong Kong's entrepôt data are included, multilateral trade data accuracy results improve. Similarly, the comparison of CMC data with that of Japan tends

to present more problems than in the cases of USA or UK. These findings underscore the potential existence of systematic biases, such as misallocation of geographical data and smuggling. Overall, this study corroborates the recognized assertion in the previous literature that the effects of institutional innovations are spatially heterogeneous. As for CMC's data, this is particularly evident in regions where Chinese sovereignty was challenged by Japanese influence.

Furthermore, the study shows that both the accuracy and volatility of most trade data deteriorated after the 1926-1929 period. Various factors could explain this: the volatile silver exchange rate, frequent alterations in China's measurement units, and the enactment of higher customs duties leading to intensified smuggling. This decline underscores that institutional and informational advancements do not necessarily have a lineal positive impact; setbacks can also happen. The observed forwards and backwards in CMC's data accuracy throughout the study period call for further historical research into CMC's extensive archival records, its institutional efficacy, and China's multifaceted transformation during this wave of globalization.

Chapter 3 offers a novel trade dataset between Asia and Latin America between 1876 and 1938, shedding light on the exchanges between these two peripheral regions, traditionally considered as exporters of raw materials and agricultural products in these periods. Despite Asia's marginal role—accounting for less than 5% of Latin America's exports and imports—the composition of imports from Asia showed continuities with colonial consumption patterns, including tea, textiles, porcelain, rice, spices, and luxury artifacts. Meanwhile, the performances of three Asian countries in Latin American market varied over time. While imports from China stagnated, those from India increased in the early 20th century until the early 1920s. Imports from Japan rose during World War I, declined in the 1920s, but recovered in the 1930s.

Latin America's imports basket from Asia in this period reflects both continuities rooted in the colonial era, as well as new patterns. Imports from India were heavily concentrated on agricultural raw materials like jute, rice, and spices. Imports from China, while also rich in agricultural products such as tea, opium, rice, and spices, showed some diversification with the existence of silk and cotton products. In contrast, the imports from Japan showed higher diversification, including more new manufactured goods such as toys, artifacts and machinery.

This divergence could be explained by the disparities in industrial development and foreign trade policies in these three Asian countries. In China and India, this period was marked by political instability and restrictions on their trade policies and tariffs. As a result, their industrial developments were limited, and their exports mainly consisted of raw materials and agricultural products. On the contrary, Japan underwent a rapid industrialization, which led to a diversification of Japan's exports composition, marked by an increase in the share of manufactures, including textiles and machinery.

Demand-side factors also influenced trade patterns. The consumption of luxury oriental goods among Latin America's upper classes and the consumption of affordable textiles by broader social classes persisted as the legacy of the "soft globalization" from the Manila Galleon period. The arrival of Asian immigrants also allowed to maintain the consumption of specific products like opium and tea. In conclusion, although trade volumes between Asia and Latin America were modest, this period represents a transition where historical dynamics persisted, and new trade patterns emerged. These developments, rooted in the colonial era, should be considered to understand the transpacific trade boom in subsequent eras.

Chapter 4 studies the smuggling in Bolivia's import through a mirror analysis between Latin American countries' import data with Asian countries' export data. By using this methodology, this chapter provides a macroeconomic perspective that sheds light on the size and composition of contraband activities in Bolivia. The results reveal high discrepancies between Bolivia's import data and the export data reported by China and Chile from 1995 to 2020. These discrepancies show a substantial over-reporting in Bolivia's declaration of imports from China and under-reporting in its declaration of imports from Chile. This suggests that Bolivia have imported some Chinese products through re-exportation from other transit countries. Additionally, Chile is an important transit country for Bolivia's imports, with part of this trade probably occurring through unregular channels.

A detailed mirror analysis results indicate that the largest trade data discrepancies appear in the categories of textile yarn, fabrics, made-up articles, rubber manufactures, road vehicles, telecommunications equipment, electrical machinery, articles of footwear, apparel and clothing accessories. This finding coincides with the products identified by literature on the informal

market in Bolivia and contraband cross-border trade in border areas of Bolivia and Chile, where the main products in circulation include electrical products, household appliances, etc.

The findings also allow to measure the potential size of smuggling in Bolivia. In correspondence to the commodity boom, the potential of smuggling increased substantially during the 2003-2014 period. Our estimates show a potential size between 3 and 6% of the Bolivian GDP and between 12 and 24% of the GDP of La Paz. This size may help understanding the emergence of indigenous groups linked to smuggling activities as a new Bolivia elite during the commodity boom.

In conclusion, Chapter 2 provides a new approach of foreign trade data mirror analysis to measure the institutional capacity of Chinese Maritimes Customs. This contributes to the debates about the influence of the foreign intervention in the modernization of China and its convergence with the global economy in the First Globalization (Liang 2015; Ma 2021; Wong 2007; Ye 2001). It also offers a new perspective to the border literature about the state capacity, which is measured broadly with fiscal capacity, information legibility, etc. (Vom Hau, Peres-Cajías, and Soifer 2023; Lee and Zhang 2017; Soifer and vom Hau 2008).

Chapter 3 offers a novel trade data set between Asia and Latin America between 1876 and 1938, highlighting the persistence of colonial trade patterns and emergence of new features. This contributes to the literature on the global trade in this period with the Atlantic economies in the center (O'Rourke and Williamson 2001). This chapter also shows that the legacy of the "soft" globalization of consumption patterns in the Manila Galleon period influenced the Latin America's imports baskets of Asian products. This contributes to the discussion about the "hard" and "soft" globalization (Flynn and Giráldez 2008; De Vries 2010), highlighting that these two waves are intertwined and influence each other mutually.

Chapter 4 tackles smuggling in the transpacific and intraregional trade between Bolivia, Chile and China in the recent transpacific trade boom. It offers a new perspective to study the interoceanic trade between China and Latin America beyond the official trade statistics. It contributes to the literature on the smuggling of Latin America (Langer 2021, 2024; Muñoz and Garcés 2022; Muñoz Valenzuela 2023; Murphy and Rossi 2020) by offering a quantitative

estimation of the potential smuggling size with the approach of trade data mirror analysis. It also contributes to the studies of the economic participation of marginal groups in the globalization (Tassi 2010; Tassi et al. 2012).

Ultimately, this dissertation opens new directions for future research. A comparative study of the information capacity of other peripheral countries would help to understand the institutional transformation paths in different countries under the so called First Globalization in economic history. The Asian-Latin American trade in the First Globalization calls for a study of "hard" globalization combined with "soft" globalization, which could help to understand the global trade from the perspective of people's daily life consumption patterns. The current exchange boom between China and Latin America requires for more studies on the hidden part of the trade flow, such as transit trade mechanisms, cross-border contraband trade and the participation of marginal groups in this network.

# 6. Appendix

## Table 6.1: Argentina's imports from China (in quantity, value and percentage), 1900s-1920s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1905** | Tea | 484,789 | kilos | 320,812 | 85.60 |
| | Rockets (Fireworks) | 155,738 | kilos | 42,943 | 11.46 |
| | Artifacts made of straw, reed, estera | 99 | balas | 11,040 | 2.95 |
| | ***Total*** | | | ***374,795*** | |
| **1921** | Textile materials and their artifacts. Silk. | ND | | 124,909 | 55.90 |
| | Textile materials and their artifacts. Other textile fibers. | ND | | 45,594 | 20.40 |
| | Vegetable food substances. Substances for infusions and hot drinks. | ND | | 21,977 | 9.83 |
| | Textile materials and their artifacts. Wool. | ND | | 8,012 | 3.59 |
| | Wood, other fibrous materials and their artifacts. Artifacts. | ND | | 6,673 | 2.99 |
| | Fixed, mineral, volatile, medicinal and fatty oils. | ND | | 2,870 | 1.28 |
| | Wood, other fibrous materials and their artifacts. | ND | | 2,581 | 1.15 |
| | Vegetable food substances. Spices and other condiments. | ND | | 2,079 | 0.93 |
| | Stones, earth, glassware and ceramic products. Artifacts. | ND | | 1,959 | 0.88 |
| | Substances and chemical and pharmaceutical products. | ND | | 1,796 | 0.80 |
| | ***Total*** | | | ***223,453*** | |
| **1925** | Vegetable food substances. Substances for infusions and hot drinks. | ND | | 67,140 | 32.66 |
| | Textile materials and their artifacts. Cotton. | ND | | 40,226 | 19.57 |
| | Vegetable food substances. Legumes and cereals. | ND | | 36,988 | 17.99 |
| | Substances and chemical and pharmaceutical products. | ND | | 16,873 | 8.21 |
| | Textile materials and their artifacts. Other textile fibers. | ND | | 11,550 | 5.62 |
| | Wood, other fibrous materials and their artifacts. Artifacts. | ND | | 9,278 | 4.51 |
| | Fixed, mineral, volatile, medicinal and fatty oils. | ND | | 4,691 | 2.28 |
| | Textile materials and their artifacts. Wool. | ND | | 4,651 | 2.26 |
| | Vegetable food substances. Spices and other condiments. | ND | | 3,951 | 1.92 |
| | Artifacts and diverse manufactures. | ND | | 3,105 | 1.51 |
| | ***Total*** | | | ***205,572*** | |
| **1927** | Vegetable food substances. Substances for infusions and hot drinks. | ND | | 49,806 | 24.34 |
| | Textile materials and their artifacts. Cotton. | ND | | 32,272 | 15.77 |
| | Textile materials and their artifacts. Other textile fibers. | ND | | 24,003 | 11.73 |
| | Fixed, mineral, volatile, medicinal and fatty oils. | ND | | 22,941 | 11.21 |
| | Substances and chemical and pharmaceutical products. | ND | | 16,928 | 8.27 |
| | Vegetable food substances. Spices and other condiments. | ND | | 15,988 | 7.81 |
| | Other metals and their artifacts. Artifacts. | ND | | 14,899 | 7.28 |
| | Electricity | ND | | 4,846 | 2.37 |
| | Wood, other fibrous materials and their artifacts. Artifacts. | ND | | 4,797 | 2.34 |
| | Textile materials and their artifacts. Silk. | ND | | 4,508 | 2.20 |
| | ***Total*** | | | ***204,617*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.2: Argentina's imports from Japan (in quantity, value and percentage), 1900s-1920s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1905** | Silk handkerchiefs | 1,481 | kilos | 24,926 | 100.00 |
| | ***Total*** | | | ***24,926*** | |
| **1921** | Textile materials and their artifacts. Silk. | ND | | 2,046,769 | 51.91 |
| | Textile materials and their artifacts. Cotton. | ND | | 744,391 | 18.88 |
| | Artifacts and diverse manufactures | ND | | 416,376 | 10.56 |
| | Stones, earth, glassware, and ceramic products. Artifacts. | ND | | 187,347 | 4.75 |
| | Electricity | ND | | 108,984 | 2.76 |
| | Substances and chemical and pharmaceutical products | ND | | 76,744 | 1.95 |
| | Vegetable food substances. Substances for infusions and hot drinks. | ND | | 74,811 | 1.90 |
| | Other metals and their artifacts. Artifacts. | ND | | 51,962 | 1.32 |
| | Wood, other fibrous materials and their artifacts. Raw materials and low production | ND | | 43,993 | 1.12 |
| | Wood, other fibrous materials and their artifacts. Artifacts. | ND | | 43,817 | 1.11 |
| | ***Total*** | | | ***3,942,856*** | |
| **1925** | Textile materials and their artifacts. Silk. | ND | | 1,099,291 | 36.94 |
| | Textile materials and their artifacts. Cotton. | ND | | 776,703 | 26.10 |
| | Artifacts and diverse manufactures | ND | | 577,283 | 19.40 |
| | Stones, earth, glassware, and ceramic products. Artifacts. | ND | | 131,611 | 4.42 |
| | Vegetable food substances. Substances for infusions and hot drinks. | ND | | 74,601 | 2.51 |
| | Vegetable food substances. Spices and other condiments | ND | | 66,473 | 2.23 |
| | Wood, other fibrous materials and their artifacts. Artifacts. | ND | | 47,119 | 1.58 |
| | Substances and chemical and pharmaceutical products | ND | | 38,955 | 1.31 |
| | Wood, other fibrous materials and their artifacts. Raw materials and low production | ND | | 33,216 | 1.12 |
| | Textile materials and their artifacts. Other textile fibers. | ND | | 27,556 | 0.93 |
| | ***Total*** | | | ***2,975,789*** | |
| **1927** | Textile materials and their artifacts. Cotton. | ND | | 867,081 | 33.29 |
| | Textile materials and their artifacts. Silk. | ND | | 578,414 | 22.21 |
| | Artifacts and diverse manufactures | ND | | 451,839 | 17.35 |
| | Substances and chemical and pharmaceutical products | ND | | 165,016 | 6.34 |
| | Stones, earth, glassware, and ceramic products. Artifacts. | ND | | 130,250 | 5.00 |
| | Vegetable food substances. Substances for infusions and hot drinks. | ND | | 73,815 | 2.83 |
| | Paper and its artifacts. Paper | ND | | 58,722 | 2.25 |
| | Wood, other fibrous materials and their artifacts. Raw materials and low production | ND | | 54,821 | 2.10 |
| | Textile materials and their artifacts. Other textile fibers. | ND | | 53,537 | 2.06 |
| | Woods, other woody substances and their artifacts. Artifacts. | ND | | 53,506 | 2.05 |
| | ***Total*** | | | ***2,604,600*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.3: Brazil's imports from China (in quantity, value and percentage), 1900s-1920s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1904** | Tea | 128,823 | kilo | 90,335 | 60.98 |
| | Fireworks | 55,223 | kilo | 25,547 | 17.24 |
| | Spices | 53,743 | kilo | 17,959 | 12.12 |
| | Oil and vegetable oils for industrial uses | 21,325 | kilo | 4,407 | 2.97 |
| | Rice | 32,375 | kilo | 2,313 | 1.56 |
| | Tobacco leaf | 3,448 | kilo | 1,438 | 0.97 |
| | Mats and straw hats | 2,498 | kilo | 880 | 0.59 |
| | Powder for shoes and powder paints | 346 | kilo | 781 | 0.53 |
| | Antimony, arsenic, and bismuth | 5,185 | kilo | 633 | 0.43 |
| | Leaves, flowers, herbs, stems, hops, roots, bark, etc. | 1,489 | kilo | 622 | 0.42 |
| | ***Total*** | | | ***148,142*** | |
| **1915** | Various articles intended for food and forage | 158,765 | kilo | 83,852 | 51.21 |
| | Plants, leaves, flowers, fruits, grains, seeds, roots, peels, etc. | 155,609 | kilo | 69,713 | 42.57 |
| | Various manufactured articles | 19,473 | kilo | 7,121 | 4.35 |
| | Juices and vegetable juices | 9,218 | kilo | 2,790 | 1.70 |
| | Chemical products, medicines, and pharmaceutical specialties | 320 | kilo | 82 | 0.05 |
| | Materials or substances for perfumery, dyeing, paint, and other uses | 46 | kilo | 77 | 0.05 |
| | Silk | 3 | kilo | 43 | 0.03 |
| | Cotton | 3 | kilo | 42 | 0.03 |
| | Cereals, flours, and food grains | 102 | kilo | 23 | 0.01 |
| | ***Total*** | | | ***163,743*** | |
| **1925** | Tobacco (in leaf). Raw materials and articles applied to arts and industry | 1,108,496 | kilo | 328,834 | 85.09 |
| | Spices | 212,919 | kilo | 20,191 | 5.22 |
| | Rice | 305,822 | kilo | 18,748 | 4.85 |
| | Antimony, arsenic, bismuth, potassium, and sodium | 71,120 | kilo | 10,263 | 2.66 |
| | Tapestries and carpets. Manufactured articles | 374 | kilo | 1,701 | 0.44 |
| | Silk. In pieces. Manufactured articles | 221 | kilo | 1,665 | 0.43 |
| | Machinery for electricity and electric light. Manufactured articles | 2,927 | kilo | 1,603 | 0.41 |
| | Tea | 5,330 | kilo | 1,217 | 0.31 |
| | Paper, not listed. Manufactured articles | 15,642 | kilo | 1,096 | 0.28 |
| | Chemical products, etc., not listed. Manufactured articles | 4,361 | kilo | 675 | 0.17 |
| | ***Total*** | | | ***386,470*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.4: Brazil's imports from Japan (in quantity, value and percentage), 1900s-1920s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1904** | Unspecified manufactures. Silk with or without mixture. | 903 | kilo | 21,006 | 43.35 |
| | Fans of any quality | 3,772 | | 12,983 | 26.80 |
| | Unspecified dyed items | 222 | kilo | 2,387 | 4.93 |
| | Vegetable juices | 1,399 | kilo | 2,270 | 4.69 |
| | Straw for mats and hats | 1,229 | kilo | 2,113 | 4.36 |
| | Unspecified manufactures of earthenware and porcelain | 984 | kilo | 1,213 | 2.50 |
| | Mats and straw hats | 1,355 | kilo | 1,185 | 2.45 |
| | Rice | 9,860 | | 988 | 2.04 |
| | Unspecified fabrics | 84 | kilo | 675 | 1.39 |
| | Chemical products, drugs, and pharmaceutical specialties. Not specified. | 4,054 | kilo | 660 | 1.36 |
| | ***Total*** | | | ***48,451*** | |
| **1915** | Various articles. Manufactured articles | 12,105 | kilo | 16,719 | 33.12 |
| | Earthenware, porcelain, glass, and crystal. Manufactured articles | 25,001 | kilo | 14,340 | 28.41 |
| | Paper and its applications. Manufactured articles | 3,419 | kilo | 3,950 | 7.83 |
| | Juices or vegetable juices | 3,104 | kilo | 3,185 | 6.31 |
| | Indian cane, bamboo, reeds, rattan, wicker, and other vines. | 2,396 | kilo | 2,271 | 4.50 |
| | Cotton. Manufactured articles | 1,006 | kilo | 1,819 | 3.60 |
| | Silk. Manufactured articles | 138 | kilo | 1,747 | 3.46 |
| | Hair, skin, and feathers. Manufactured articles | | kilo | 1,497 | 2.97 |
| | Wood. Manufactured articles | 2,024 | kilo | 1,464 | 2.90 |
| | Straw, esparto, cairo, pita, piassava, ceiba, and other fibrous materials. | 1,005 | kilo | 970 | 1.92 |
| | ***Total*** | | | ***50,476*** | |
| **1925** | Manufactures of porcelain and earthenware, not listed. Manufactured articles | 332,281 | kilo | 83,569 | 20.17 |
| | Silk. In pieces. Manufactured articles | 4,786 | kilo | 66,496 | 16.05 |
| | Toys, except rubber toys. Manufactured articles | 22,519 | kilo | 57,553 | 13.89 |
| | Buttons. Manufactured articles | 23,032 | kilo | 46,526 | 11.23 |
| | Unlisted materials for spinning and weaving machines. Manufactured articles | 54,822 | kilo | 30,338 | 7.32 |
| | Paper, not listed. Manufactured articles | 35,298 | kilo | 24,855 | 6.00 |
| | Brushes, pens, brooms, and pencils. Manufactured articles | 11,175 | kilo | 20,173 | 4.87 |
| | Silk. Manufactures, not listed | 705 | kilo | 10,918 | 2.64 |
| | Manufactures of glass and crystal, not listed. Manufactured articles | 13,203 | kilo | 6,836 | 1.65 |
| | Vegetable extracts | 6,079 | kilo | 5,524 | 1.33 |
| | ***Total*** | | | ***414,330*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.5: Brazil's imports from India (in quantity, value and percentage), 1900s-1920s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1915** | Jute. Raw materials and articles applied to arts and industries | 11,727,765 | kilo | 1,709,191 | 64.97 |
| | Cereals, flours, and food grains. Articles intended for food and forage | 6,529,877 | kilo | 474,529 | 18.04 |
| | Various. Articles intended for food and forage | 656,956 | kilo | 313,357 | 11.91 |
| | Juices or vegetable juices. Raw materials and articles applied to arts and industries | 151,583 | kilo | 54,711 | 2.08 |
| | Plants, leaves, flowers, fruits, grains, seeds, roots, peels, etc. | 29,746 | kilo | 21,963 | 0.83 |
| | Hemp. Raw materials and articles applied to arts and industries | 104,037 | kilo | 21,193 | 0.81 |
| | Materials or substances for perfumery, dyeing, paint, and other uses | 6,495 | kilo | 14,286 | 0.54 |
| | Wood. Raw materials and articles applied to arts and industries | 55,767 | kilo | 13,060 | 0.50 |
| | Stones, earth, and other similar minerals | 26 | ton | 6,311 | 0.24 |
| | Preserves and extracts. Articles intended for food and forage | 4,511 | kilo | 862 | 0.03 |
| | ***Total*** | | | ***2,630,751*** | |
| **1925** | Jute. Raw. Raw materials and articles applied to arts and industries | 14,342,492 | kilo | 1,798,929 | 66.15 |
| | Rice | 17,720,073 | kilo | 792,606 | 29.15 |
| | Rubber, resin, and natural balms. Raw materials and articles applied to arts and industries | 68,747 | kilo | 50,605 | 1.86 |
| | Burlap. Manufactured articles | 243,337 | kilo | 45,291 | 1.67 |
| | Straw, retama, coconut fiber, pita, piassava, and other fibrous materials | 10,150 | kilo | 8,422 | 0.31 |
| | Straw, retama, coconut fiber, pita, piassava, and other fibrous materials | 39,006 | kilo | 6,642 | 0.24 |
| | Spices | 16,723 | kilo | 4,178 | 0.15 |
| | Tobacco (in leaf). Raw materials and articles applied to arts and industries | 1,259 | kilo | 3,195 | 0.12 |
| | Scrap iron. Raw materials and articles applied to arts and industries | 255,575 | kilo | 2,940 | 0.11 |
| | Hemp. Raw. Raw materials and articles applied to arts and industries | 15,500 | kilo | 2,838 | 0.10 |
| | ***Total*** | | | ***2,719,445*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.6: Chile's imports from China (in quantity, value and percentage), 1880s-1920s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1889** | Tea | 31,716 | kilos | 47,576 | 37.63 |
| | Drugs (Opium) | 694 | bultos | 27,059 | 21.40 |
| | Silks | 31 | bultos | 23,567 | 18.64 |
| | Rockets | 39,602 | kilos | 14,646 | 11.58 |
| | Various merchandise | 156 | bultos | 7,558 | 5.98 |
| | Provisions | 259 | bultos | 2,991 | 2.37 |
| | Silk fabric | 32 | kilos | 972 | 0.77 |
| | Silk sashes | 46 | kilos | 954 | 0.75 |
| | Items for dressmakers | 6 | bultos | 495 | 0.39 |
| | Pickles | 604 | kilos | 202 | 0.16 |
| | ***Total*** | | | ***126,432*** | |
| **1895** | Tea | 43,351 | kilos | 65,033 | 48.83 |
| | Drugs (Opium) | 40 | bultos | 30,829 | 23.15 |
| | Rockets | 27,792 | kilos | 10,583 | 7.95 |
| | Silk handkerchiefs | 269 | kilos | 7,188 | 5.40 |
| | Various merchandise | 52 | bultos | 5,679 | 4.26 |
| | Rice | 48,263 | kilos | 4,344 | 3.26 |
| | Various merchandise | 39 | bultos | 2,189 | 1.64 |
| | Provisions | 145 | bultos | 1,354 | 1.02 |
| | Silk sashes | 54,185 | grams | 1,156 | 0.87 |
| | Provisions | 78 | bultos | 1,076 | 0.81 |
| | ***Total*** | | | ***133,181*** | |
| **1899** | Tea | 124,118 | kilos | 248,236 | 67.95 |
| | Drugs (Opium) | 36 | bultos | 46,687 | 12.78 |
| | Rockets | 16,559 | kilos | 15,564 | 4.26 |
| | Rice | 77,571 | kilos | 10,860 | 2.97 |
| | Medicinal wine | 6,208 | kilos | 9,941 | 2.72 |
| | Silks | 4 | bultos | 8,222 | 2.25 |
| | Silk fabric | 81,610 | grams | 4,570 | 1.25 |
| | Cigars | 189 | kilos | 3,780 | 1.03 |
| | Silk handkerchiefs | 46,380 | grams | 3,257 | 0.89 |
| | Furniture | 57 | bultos | 2,793 | 0.76 |
| | ***Total*** | | | ***365,314*** | |
| **1902** | Tea | 107,811 | kilos | 86,247 | 39.32 |
| | Opium | 1,333 | kilos | 37,324 | 17.02 |
| | Rockets | 17,995 | kilos | 16,914 | 7.71 |
| | Silk cloaks | 183,100 | grams | 12,854 | 5.86 |
| | Handkerchiefs for the hand | 192,175 | grams | 12,785 | 5.83 |
| | Scarves, shawls, and scarves | 178,684 | grams | 11,769 | 5.37 |
| | Fabric for dress or lining | 179,230 | grams | 10,079 | 4.60 |
| | Furniture | 39 | kilos | 4,256 | 1.94 |
| | Pepper | 6,784 | kilos | 3,279 | 1.50 |
| | Various drugs | 5 | bultos | 2,990 | 1.36 |
| | ***Total*** | | | ***219,321*** | |
| **1910** | Rockets and fireworks | 57,951 | K.B. | 57,951 | 30.78 |
| | Tea | 21,632 | K.N. | 32,448 | 17.23 |
| | Handkerchiefs for the hand. Silk | 293,200 | G.N. | 17,956 | 9.54 |
| | Peanuts | 82,810 | K.B. | 16,562 | 8.8 |
| | Rice | 91,000 | K.B. | 12,740 | 6.77 |
| | Vegetable preserves | 10,095 | K.B. | 6,057 | 3.22 |
| | Sauces of all kinds | 3,355 | K.B. | 2,684 | 1.43 |
| | Mats | 4,340 | K.B. | 2,604 | 1.38 |
| | Barks, roots, leaves, flowers, and medicinal seeds | 2,614 | K.B. | 2,508 | 1.33 |
| | Fabrics for dresses or linings. Silk | 76,900 | G.N. | 2,405 | 1.28 |
| | ***Total*** | | | ***188,289*** | |
| **1920** | Rice | 501,519 | K.B. | 203,217 | 62.90 |
| | Tea | 27,045 | K.N. | 78,953 | 24.44 |
| | Opium in paste or powder | 124 | K.L. | 8,533 | 2.64 |
| | Barks, roots, leaves, flowers, and seeds, for industrial or medicinal uses | 1,894 | K.B. | 4,476 | 1.39 |
| | Mushrooms | 644 | K.B. | 3,574 | 1.11 |
| | Cotton socks and stockings | 536 | K.L. | 3,555 | 1.10 |
| | Peanuts | 22,213 | K.B. | 3,393 | 1.05 |
| | Fresh or dried fish naturally or simply salted | 973 | K.B. | 2,537 | 0.79 |
| | Sauces and condiments | 5,637 | K.B. | 2,008 | 0.62 |
| | Beans | 5,051 | K.B. | 1,863 | 0.58 |
| | ***Total*** | | | ***323,087*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.7: Chile's imports from Japan (in quantity, value and percentage), 1890s-1920s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1899** | Rice | 76,628 | kilos | 11,296 | 81.20 |
| | Porcelain | 18 | bultos | 1,458 | 10.48 |
| | Various merchandise | 9 | bultos | 1,120 | 8.05 |
| | Tea | 19 | kilos | 38 | 0.27 |
| | ***Total*** | | | ***13,912*** | |
| **1902** | Fabric for dress or lining | 117,467 | grams | 6,578 | 27.10 |
| | Handkerchiefs for the hand | 85,390 | grams | 5,383 | 22.18 |
| | Garments for women or children | 10 | bultos | 4,050 | 16.69 |
| | Porcelain | 2,857 | kilos | 1,856 | 7.65 |
| | Carpets and rugs for floors | 339 | kilos | 1,697 | 6.99 |
| | Gold or silver-plated paper for upholstery | 222 | kilos | 1,395 | 5.75 |
| | Cane baskets or wicker | 201 | kilos | 602 | 2.48 |
| | Artifacts. Papers | 106 | kilos | 394 | 1.62 |
| | Painted paper for upholstery | 183 | kilos | 366 | 1.51 |
| | Wooden artifacts (25% tax) | 89 | kilos | 325 | 1.34 |
| | ***Total*** | | | ***24,269*** | |
| **1910** | Handkerchiefs for the hand. Silk | 1,157,300 | G.N. | 68,795 | 30.79 |
| | Fabrics for dresses or linings. Silk | 856,300 | G.N. | 40,040 | 17.92 |
| | Rockets and fireworks | 21,407 | K.B. | 21,407 | 9.58 |
| | Sulfur and its salts | 101,578 | kilos | 15,237 | 6.82 |
| | Rice | 106,850 | K.B. | 14,959 | 6.69 |
| | Peanuts | 48,955 | K.B. | 9,791 | 4.38 |
| | Mother-of-pearl buttons | 522 | K.I. | 6,264 | 2.80 |
| | Handkerchiefs, cloaks, scarves, and shawls. Silk | 72,100 | G.N. | 3,474 | 1.55 |
| | Wooden artifacts. Various (25% tax) | 1,591 | kilos | 3,342 | 1.50 |
| | Pepper | 4,760 | K.B. | 3,332 | 1.49 |
| | ***Total*** | | | ***223,467*** | |
| **1920** | Rice | 745,272 | K.B. | 468,152 | 11.13 |
| | Cotton socks and stockings | 29,793 | K.L. | 389,136 | 9.26 |
| | Thick silk fabrics | 3,164,990 | Gr. N. | 321,271 | 7.64 |
| | Porcelain tableware | 278,640 | K.B. | 244,089 | 5.81 |
| | Starches | 260,911 | K.B. | 144,463 | 3.44 |
| | Rubber, celluloid, or rubber toys | 11,829 | K.L. | 122,158 | 2.91 |
| | Mother-of-pearl buttons | 6,306 | K.L. | 112,816 | 2.68 |
| | Satin and other cotton fabrics, painted or dyed | 11,319 | K.N. | 103,051 | 2.45 |
| | Trimmings and cotton cording, with or without sequin, glitter, decorations | 12,403 | K.L. | 95,675 | 2.28 |
| | Unspecified toys | 23,065 | K.L. | 88,780 | 2.11 |
| | ***Total*** | | | ***4,204,468*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.8: Chile's imports from India (in quantity, value and percentage), 1880s-1920s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1889** | Empty sacks | 1,186,897 | kilos | 219,021 | 68.61 |
| | Rice | 1,115,128 | kilos | 100,183 | 31.39 |
| | ***Total*** | | | ***319,204*** | |
| **1895** | Empty sacks | 2,146,468 | kilos | 344,148 | 58.00 |
| | Rice | 2,276,980 | kilos | 200,169 | 33.74 |
| | Coconut pulp | 489,921 | kilos | 48,992 | 8.26 |
| | ***Total*** | | | ***593,309*** | |
| **1899** | Rice | 76,628 | kilos | 11,296 | 81.20 |
| | Porcelain | 18 | bultos | 1,458 | 10.48 |
| | Various merchandise | 9 | bultos | 1,120 | 8.05 |
| | Tea | 19 | kilos | 38 | 0.27 |
| | ***Total*** | | | ***13,912*** | |
| **1902** | Empty sacks | 3,900,997 | kilos | 780,220 | 55.95 |
| | Rice | 4,360,500 | kilos | 610,471 | 43.77 |
| | Pepper | 4,060 | kilos | 1,949 | 0.14 |
| | Tea | 1,528 | kilos | 1,222 | 0.09 |
| | Cinnamon and cassia | 454 | kilos | 726 | 0.05 |
| | ***Total*** | | | ***1,394,588*** | |
| **1910** | Empty sacks | 31,661,538 | K.B. | 9,491,414 | 86.22 |
| | Rice | 6,540,800 | K.B. | 915,712 | 8.32 |
| | Metal sacks | 1,532,007 | K.B. | 462,696 | 4.20 |
| | Burlap and osnaburg for sacks | 168,420 | K.B. | 101,052 | 0.92 |
| | Tea | 20816 | K.N. | 31,224 | 0.28 |
| | Burlap and osnaburg for other uses | 3720 | K.B. | 2232 | 0.02 |
| | Pepper | 2070 | K.B. | 1449 | 0.01 |
| | Cinnamon | 1380 | K.B. | 1380 | 0.01 |
| | Raw fibers, from Siam, esparto, etc. | 1380 | K.B. | 828 | 0.01 |
| | Various merchandise (tax-free) | 1460 | Doc. | 730 | 0.01 |
| | ***Total*** | | | ***11,008,865*** | |
| **1920** | Sacks for saltpeter | 13,527,790 | K.B. | 12,608,957 | 52.75 |
| | Sacks for grains | 6,716,982 | K.B. | 5,899,181 | 24.68 |
| | Tea | 1,519,090 | K.N. | 4,288,997 | 17.94 |
| | Rice | 518,312 | K.B. | 318,227 | 1.33 |
| | Hemp twine or threads for sewing | 208,607 | K. | 279,274 | 1.17 |
| | Mineral wax | 572,453 | K.B. | 217,500 | 0.91 |
| | Hemp ropes and cords | 67,089 | K.B. | 88,605 | 0.37 |
| | Cinnamon | 26,334 | K.B. | 66,510 | 0.28 |
| | Other unspecified containers | 62,150 | K.B. | 33,413 | 0.14 |
| | Pepper | 27,886 | K.B. | 30,189 | 0.13 |
| | ***Total*** | | | ***23,904,303*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.9: Ecuador's imports from China (in quantity, value and percentage), 1900s-1910s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1909** | Mats | 30,142 | kilos | 4,322 | 19.64 |
| | Silk fabrics | 160 | kilos | 2,671 | 12.14 |
| | Cotton handkerchiefs | 210 | kilos | 2,358 | 10.71 |
| | Tea | 5,540 | kilos | 2,123 | 9.64 |
| | Silk for sewing or embroidery | 140 | kilos | 1,702 | 7.73 |
| | Food items | 3,858 | kilos | 1,335 | 6.07 |
| | Silk blankets | 103 | kilos | 1,167 | 5.30 |
| | Trunks and boxes | 6,784 | kilos | 1,026 | 4.66 |
| | Dried mushrooms | 631 | kilos | 638 | 2.90 |
| | Salted or dried fish | 1,836 | kilos | 634 | 2.88 |
| | ***Total*** | | | ***22,010*** | |
| **1915** | Cotton socks and stockings | 11,216 | kilos | 10,770 | 29.22 |
| | Rice | 126,531 | kilos | 7,068 | 19.17 |
| | Food preserves | 20,904 | kilos | 3,747 | 10.17 |
| | Mats | 27,338 | kilos | 2,391 | 6.49 |
| | Various articles | 5,598 | kilos | 2,378 | 6.45 |
| | Beer of all kinds | 44,242 | kilos | 2,110 | 5.72 |
| | Unspecified silk fabrics | 314 | kilos | 1,409 | 3.82 |
| | Food items | 7,837 | kilos | 1,398 | 3.79 |
| | Tea | 3,975 | kilos | 1,240 | 3.36 |
| | Common matches | 3,089 | kilos | 545 | 1.48 |
| | ***Total*** | | | ***36,862*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.10: Ecuador's imports from Japan (in quantity, value and percentage), 1900s-1910s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1909** | Porcelain articles | 194 | kilos | 68 | 41.38 |
| | Manufactured wood | 110 | kilos | 54 | 32.76 |
| | Wooden furniture in general | 123 | kilos | 43 | 25.86 |
| | ***Total*** | | | ***165*** | |
| **1915** | Cotton shirts and underpants | 2530 | kilos | 1,646 | 16.06 |
| | Various articles | 2215 | kilos | 1,392 | 13.58 |
| | Cotton socks and stockings | 932 | kilos | 825 | 8.05 |
| | Common matches | 8632 | kilos | 713 | 6.96 |
| | Unspecified silk fabrics | 137 | kilos | 671 | 6.55 |
| | Toys | 1166 | kilos | 623 | 6.08 |
| | Food items | 5705 | kilos | 597 | 5.82 |
| | Food preserves | 2452 | kilos | 484 | 4.72 |
| | Varnish | 438 | kilos | 483 | 4.71 |
| | Silk handkerchiefs | 79 | kilos | 445 | 4.34 |
| | ***Total*** | | | ***10,251*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.11: Mexico's imports from China (in quantity, value and percentage), 1890s-1920s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1893** | Opium of all kinds and its extract | 4,934 | kilog | 41,450 | 58.11 |
| | Raw or unprocessed silk, of all kinds | 2,167 | kilog | 9,055 | 12.70 |
| | Green or black tea of all kinds | 20,583 | kilog | 8,464 | 11.87 |
| | Unspecified seeds and edible grains | 98,293 | kilog | 3,830 | 5.37 |
| | Silk fabric of all types of weave | 173 | kilog | 1,165 | 1.63 |
| | Preserved fruits, vegetables, legumes, and tubers | 2,819 | kilog | 1,047 | 1.47 |
| | Mats made of hemp, jute, coconut, palm, or henequen | 5,435 | kilog | 895 | 1.26 |
| | Unspecified artifacts made of paper or cardboard | 1,127 | kilog | 699 | 0.98 |
| | Saltpeter or potassium and sodium nitrate | 25,657 | kilog | 671 | 0.94 |
| | Fireworks | 2,741 | kilog | 484 | 0.68 |
| | ***Total*** | | | ***71,326*** | |
| **1912** | Opium and opium extract | 2,677 | kg.l. | 62,226 | 26.93 |
| | Raw and unprocessed silk of all kinds | 4,850 | kg.n. | 25,364 | 10.98 |
| | Fireworks | 78,379 | kg.b. | 21,875 | 9.47 |
| | Tea | 35,852 | kg.n. | 15,440 | 6.68 |
| | Rice | 214,462 | kg.b. | 13,057 | 5.65 |
| | Lard | 61,331 | kg.b. | 11,756 | 5.09 |
| | Preserved fruits, vegetables, legumes, and tubers | 77,534 | kg.l. | 10,486 | 4.54 |
| | Silk fabric of all types of weave | 913 | kg.n. | 10,213 | 4.42 |
| | Straw braids for making hats | 6,644 | kg.l. | 6,908 | 2.99 |
| | Unspecified fixed oils for industrial use | 25,194 | kg.l. | 5,268 | 2.28 |
| | ***Total*** | | | ***231,096*** | |
| **1923** | Rice | 1,287,640 | kg.b. | 60,018 | 37.80 |
| | Preserved fruits, vegetables, etc. | 76,714 | kg.b. | 12,963 | 8.16 |
| | Straw braids, etc., for hats | 8,609 | kg.l. | 10,520 | 6.63 |
| | Tea | 154,573 | kg.l. | 8,826 | 5.56 |
| | Raw unprocessed silk | 566 | kg.l. | 5,737 | 3.61 |
| | Medicinal drugs, pharmaceutical specialties, and chemical products | 5,676 | kg.l. | 5,469 | 3.44 |
| | Fruits preserved in brine | 71,491 | kg.b. | 5,104 | 3.21 |
| | Paper waste and scraps, and unbleached vegetable fiber sheets for manufacturing | 84,370 | kg.b. | 4,894 | 3.08 |
| | Animal food preserves | 12,271 | kg.l. | 3,966 | 2.50 |
| | Vegetables for medicinal use, unspecified | 13,344 | kg.l. | 3,850 | 2.42 |
| | ***Total*** | | | ***158,771*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.12: Mexico's imports from Japan (in quantity, value and percentage), 1890s-1920s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1893** | Unspecified seeds and food grains | 9,236 | kilog | 460 | 28.41 |
| | Unspecified carved earthenware and porcelain pieces | 1,143 | kilog | 209 | 12.93 |
| | Knitted or any other silk fabric articles and products | 14 | kilog | 157 | 9.70 |
| | Live plants | 843 | | 149 | 9.21 |
| | Mats made of hemp, jute, coconut, palm, or henequen | 330 | kilog | 117 | 7.24 |
| | Fans with wooden ribs | 62 | kilog | 99 | 6.13 |
| | Unspecified copper, brass, bronze, and white metal artifacts | 99 | kilog | 72 | 4.44 |
| | Unspecified wooden artifacts | 227 | kilog | 57 | 3.52 |
| | Sulfur | 1,516 | kilog | 47 | 2.89 |
| | Printed, engraved, or lithographed prints, oleographs, and paintings on paper or cardboard | 48 | kilog | 39 | 2.41 |
| | ***Total*** | | | ***1,619*** | |
| **1912** | Silk fabric of all types of weave | 6,946 | kg.n. | 113,794 | 36.59 |
| | Unspecified articles and products of knitting and other silk fabrics | 2,872 | kg.n. | 50,839 | 16.35 |
| | Raw and unprocessed silk of all kinds | 3,511 | kg.n. | 22,047 | 7.09 |
| | Unspecified carved earthenware and porcelain pieces | 78,916 | kg.b. | 18,417 | 5.92 |
| | Unspecified tortoiseshell, coral, ivory, and mother-of-pearl artifacts | 4,105 | kg.l. | 11,338 | 3.65 |
| | Unspecified paper artifacts | 15,331 | kg.l. | 10,366 | 3.33 |
| | Unspecified artifacts of all kinds of wood weighing no more than one kilogram | 16,582 | kg.l. | 8,093 | 2.60 |
| | Coal | 1,550,137 | kg.b. | 6,679 | 2.15 |
| | Unspecified natural gums, resins, and balms | 6,643 | kg.l. | 6,663 | 2.14 |
| | Fans with wooden ribs | 4,179 | kg.l. | 5,720 | 1.84 |
| | ***Total*** | | | ***311,028*** | |
| **1923** | Silk fabric of all types of weave | 2,329 | kg.l. | 43,879 | 20.77 |
| | Unspecified artifacts of celluloid, gutta-percha, rubber, oiled cloth, waxed or varnished with drying oil | 29,430 | kg.l. | 24,664 | 11.68 |
| | Unspecified tortoiseshell, coral, ivory, and mother-of-pearl artifacts | 10,465 | kg.l. | 19,497 | 9.23 |
| | Raw unprocessed silk | 1,603 | kg.n. | 15,723 | 7.44 |
| | Unspecified artifacts of all materials, with leather, silk, or common metal (gilded or silvered) ornaments or accessories, and those with inlays of tortoiseshell, mother-of-pearl, or ivory | 13,670 | kg.l. | 13,397 | 6.34 |
| | Unspecified carved earthenware or porcelain pieces, decorated with gold, silver, or colors | 59,127 | kg.b. | 12,622 | 5.98 |
| | Unspecified seeds and oil-bearing fruits | 137,980 | kg.b. | 8,140 | 3.85 |
| | Whale baleen artifacts, and those of bristle, shell, etc. | 5,138 | kg.l. | 7,400 | 3.50 |
| | Arsenious acid | 13,862 | kg.l. | 6,757 | 3.20 |
| | Unspecified natural gums, resins, and balms | 6,887 | kg.l. | 5,289 | 2.50 |
| | ***Total*** | | | ***211,220*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.13: Mexico's imports from India (in quantity, value and percentage), 1890s-1920s

| Years | Products | Quantity | Unit | Value | % |
|---|---|---|---|---|---|
| **1893** | Sacks made of jute, pita, henequen, and burlap | 792,318 | kilog | 54,999 | 36.78 |
| | Cocoa of all kinds | 115,352 | kilog | 44,223 | 29.57 |
| | Cinnamon of all kinds, including Cassia | 88,441 | kilog | 22,005 | 14.71 |
| | Unspecified seeds and edible grains | 196,262 | kilog | 13,541 | 9.05 |
| | Pepper | 31,039 | kilog | 3,902 | 2.61 |
| | Sacks made of jute, pita, henequen, and burlap | 39,492 | kilog | 3,881 | 2.60 |
| | Fixed, liquid, or concrete oils for industrial use | 9,821 | kilog | 1,973 | 1.32 |
| | Clove spice | 8,244 | kilog | 1,160 | 0.78 |
| | Starches of all materials and those that are milk-based or prepared | 15,142 | kilog | 975 | 0.65 |
| | Gum arabic, copal, damar, greasewood or sandarac, lacquer | 2,419 | kilog | 627 | 0.42 |
| | ***Total*** | | | ***149,547*** | |
| **1912** | Jute, abacá (Manila hemp), pita, ixtle, henequen, and New Zealand flax (phor | 5,663,277 | kg.b. | 605,093 | 56.01 |
| | Cinnamon of all kinds, cassia, and vanilla | 291,092 | kg.n. | 166,739 | 15.43 |
| | Opium and opium extract | 4,566 | kg.l. | 124,148 | 11.49 |
| | Caraway and green anise, almond, cocoa, and pepper | 284,173 | kg.n. | 97,826 | 9.06 |
| | Rice | 411,168 | kg.b. | 25,324 | 2.34 |
| | Tea | 19,127 | kg.n. | 16,375 | 1.52 |
| | Dirty fleece wool and regenerated wool | 25,647 | kg.b. | 10,352 | 0.96 |
| | Sacks made from the fabrics of jute, abacá, pita, ixtle, henequen, New Zealan | 54,083 | kg.b. | 7,609 | 0.70 |
| | Raw and unprocessed silk of all kinds | 809 | kg.n. | 6,253 | 0.58 |
| | Sacks made from the fabrics of jute, abacá, pita, ixtle, henequen, New Zealan | 35,772 | kg.b. | 5,409 | 0.50 |
| | ***Total*** | | | ***1,080,304*** | |
| **1923** | Jute, abaca or Manila hemp, pita, etc., raw and combed | 2,488,473 | kg.b. | 209,370 | 55.12 |
| | Cinnamon, cassia, and vanilla | 230,371 | kg.b. | 62,094 | 16.35 |
| | Sacks or bags | 220,016 | kg.b. | 19,766 | 5.20 |
| | Cocoa | 81,349 | kg.l. | 16,533 | 4.35 |
| | Unspecified spices | 81,433 | kg.l. | 16,195 | 4.26 |
| | Tea | 17,840 | kg.l. | 9,875 | 2.60 |
| | ***Total*** | | | ***379,815*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.14: Peru's imports from China (in value and percentage), 1900s-1920s

| Years | Products | Value | % |
|---|---|---|---|
| **1902** | Rice | 239,748 | 48.35 |
| | Vegetables, etc. | 72,029 | 14.53 |
| | Various | 31,500 | 6.35 |
| | Silk fabrics | 21,825 | 4.40 |
| | Straw, estera, wicker, etc. | 17,101 | 3.45 |
| | Wood | 15,935 | 3.21 |
| | Drugstore items | 13,079 | 2.64 |
| | Fruits | 10,692 | 2.16 |
| | Food grains | 6,454 | 1.30 |
| | Instruments and apparatus | 6,128 | 1.24 |
| | ***Total*** | ***495,820*** | |
| **1905** | Rice | 20,198 | 59.45 |
| | Vegetables | 5,376 | 15.82 |
| | Various | 4,676 | 13.76 |
| | Fruits | 534 | 1.57 |
| | Gelatin | 496 | 1.46 |
| | Fish | 496 | 1.46 |
| | Straw | 408 | 1.20 |
| | Drugstore items | 297 | 0.88 |
| | Wood | 281 | 0.83 |
| | Food grains | 253 | 0.75 |
| | ***Total*** | ***33,975*** | |
| **1927** | Provisions and spices | 2,138 | 77.87 |
| | Cottons. Fabrics and trimmings | 460 | 16.76 |
| | Arms, munitions, and explosives | 148 | 5.37 |
| | ***Total*** | ***2,746*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.15: Peru's imports from Japan (in value and percentage), 1900s-1920s

| Years | Products | Value | % |
|---|---|---|---|
| **1905** | Silk fabrics | 1,943 | 25.29 |
| | Various | 916 | 11.93 |
| | Stones and earth | 850 | 11.06 |
| | Wax and stearin | 784 | 10.20 |
| | Sweets | 668 | 8.69 |
| | Wood | 607 | 7.90 |
| | Straw | 464 | 6.04 |
| | Cotton fabrics | 331 | 4.31 |
| | Toys | 221 | 2.87 |
| | Horsehair and bristle | 160 | 2.08 |
| | ***Total*** | ***7,681*** | |
| **1927** | Cottons. Fabrics and trimmings | 159,490 | 37.48 |
| | Natural and artificial silks. Fabrics | 72,549 | 17.05 |
| | Cottons. Garments | 60,008 | 14.10 |
| | Provisions and spices | 58,684 | 13.79 |
| | Various | 23,476 | 5.52 |
| | Cardboards, papers, and their manufactures | 10,596 | 2.49 |
| | Wood | 10,220 | 2.40 |
| | Stones, earth, ceramic products, and glassware | 6,719 | 1.58 |
| | Machines and vehicles | 3,994 | 0.94 |
| | Pharmaceutical products | 2,841 | 0.67 |
| | ***Total*** | ***425,543*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

## Table 6.16: Peru's imports from India (in value and percentage), 1900s-1920s

| Years | Products | Value | % |
|---|---|---|---|
| **1905** | Hemp and jute | 112,118 | 96.56 |
| | Rice | 3,782 | 3.26 |
| | Machinery | 116 | 0.10 |
| | Vegetables | 99 | 0.09 |
| | ***Total*** | ***116,116*** | |
| **1927** | Linen, hemp, jute, and other textile fibers. Garments | 605,714 | 83.99 |
| | Linen, hemp, jute, and other textile fibers. Fabrics | 83,334 | 11.56 |
| | Provisions and spices | 27,211 | 3.77 |
| | Linen, hemp, jute, and other textile fibers. Threads | 3,977 | 0.55 |
| | Coloring materials and paints | 531 | 0.07 |
| | Oils, varnishes, and industrial rubbers | 394 | 0.05 |
| | ***Total*** | ***721,162*** | |

**Sources:** Official yearbooks of foreign trade of Latin American countries (for details, see section 3.2)

**Notes:** Values are in 1913 US Dollar

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**Measuring Worth**

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# Àsia i Amèrica Llatina en la Globalització:
# capacitat informativa, comerç transpacífic i contraban


## Resum

Aquesta tesi explora les múltiples transformacions a Àsia i Amèrica Llatina durant dues onades de globalització, amb un enfocament en l'evolució institucional, les dinàmiques comercials i les activitats econòmiques il·lícites. En examinar els canvis institucionals de la Xina sota la influència estrangera entre 1864 i 1938, l'evolució del comerç transpacífic entre Àsia i Amèrica Llatina entre 1876 i 1938, i les xarxes de contraban que involucren Bolívia, Xile i la Xina entre 1980 i 2020, aquest treball contribueix a una comprensió més profunda de com la globalització influeix i és influïda en les regions perifèriques.

El capítol 2 introdueix un nou enfocament per explorar la capacitat informativa de les Duanes Marítimes Xineses entre 1864 i 1938. Es duu a terme una anàlisi mirall comparant les dades del comerç internacional de les Duanes Marítimes Xineses amb les dels principals socis comercials de la Xina: els Estats Units, el Regne Unit i el Japó. Les troballes revelen que les millores de les Duanes Marítimes Xineses en la mesura del comerç exterior coincidien freqüentment amb les seves reformes institucionals. Els resultats subratllen que aquestes millores no van ser uniformes a totes les regions. Concretament, les discrepàncies persistents entre les dades de les Duanes Marítimes Xineses i les japoneses destaquen la influència de la geopolítica des de finals del segle XIX.

El capítol 3 proporciona una nova sèrie de dades comercials sobre el comerç entre Àsia i Amèrica Llatina entre 1876 i 1938. Es mostra que el paper d'Àsia en el comerç exterior d'Amèrica Llatina era marginal en termes de volums, però la composició de les importacions llatinoamericanes d'Àsia revela pistes sobre la persistència dels lligams colonials a través del Pacífic. Mentre que productes tradicionals com tèxtils, te i porcellana van mantenir una presència constant en les importacions llatinoamericanes, durant aquest període van sorgir nous patrons comercials. Les diferències entre els països asiàtics com a exportadors poden explicar-se per les disparitats en el seu desenvolupament industrial i les seves polítiques comercials. La persistència dels patrons de consum i la influència dels immigrants asiàtics també ajuden a comprendre les continuïtats i els canvis en les importacions llatinoamericanes d'Àsia.

El capítol 4 aborda el contraban en les importacions de productes xinesos de Bolívia a través de Xile durant el recent auge comercial. Es realitza una anàlisi mirall comparant les dades d'importació de

Bolívia amb les dades d'exportació de la Xina i Xile. L'anàlisi identifica una sobreestimació substancial en les declaracions d'importacions de Bolívia des de la Xina i una infraestimació en les declaracions d'importacions de Bolívia des de Xile. Els resultats també indiquen que les discrepàncies més grans es produeixen en fils tèxtils, teixits, articles confeccionats, productes de cautxú, vehicles, equips de telecomunicacions, maquinària elèctrica, articles de calçat, peces de vestir i accessoris. Això suggereix que Bolívia va importar aquests productes xinesos mitjançant la reexportació des d'altres països de trànsit. A més, Xile és un país entrepôt important per a les importacions de Bolívia, i part d'aquest comerç de trànsit es produeix a través de canals no oficials o il·legals.

En resum, el capítol 2 aporta un nou enfocament d'anàlisi mirall de les dades de comerç exterior per mesurar la capacitat informativa de les Duanes Marítimes Xineses. Això contribueix a la literatura sobre com la globalització afecta la qualitat institucional en un país perifèric com la Xina del segle XIX. El capítol 3 ofereix un conjunt de dades comercials noves entre Àsia i Amèrica Llatina entre 1876 i 1938, destacant la persistència de la composició de productes colonials i l'aparició de nous patrons comercials. Això contribueix a la investigació sobre aquest comerç transpacífic en una onada de globalització dominada per les economies atlàntiques. El capítol 4 ofereix una estimació quantitativa del contraban en el comerç transpacífic i intraregional entre Bolívia, Xile i la Xina en les últimes dècades. Destaca la significativa dimensió de les activitats potencials de contraban en les importacions de Bolívia des de Xile. També contribueix a la comprensió de l'auge dels grups econòmics marginals sota el boom del comerç global.

**Paraules clau:** Àsia, Amèrica Llatina, Globalització, capacitat informativa, comerç transpacífic, contraban