Shanghai's Trade, China's Growth: Continuity, Recovery, and Change since the Opium War[1]

Wolfgang Keller[2] **University of Colorado**

Ben Li[3] **Boston College**

Carol H. Shiue[4] **University of Colorado**

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Abstract

In this paper, we provide an analysis of China's trade performance from the 1840s to the present. Based on a new historical benchmark we argue that China's recent gains are not exclusively due to the reforms since 1978. Rather, trade and growth in China should be understood by developments that were set in motion in the 19th century. Our focus is on Shanghai, the world's largest port, which began direct trade relations with Western nations starting in 1843. We find, first, that trade today is by no means inexplicably high from the perspective of the 19th century. Applying the well-known gravity equation of trade for the historical period, it is shown that when this relationship is projected into the modern period it fits today's actual trade in China quite well. Second, we demonstrate that the volume of China's trade during the treaty port era was increasing with the foreign presence in China, as measured by foreign firms and residents, just as it is today. Third, treaty port FDI raises China's trade today, even controlling for today's FDI, which suggests that FDI is one of the sources of persistence in China's foreign trade that we document. Fourth, we show that China's share in world GDP since the 1870 is highly correlated with Shanghai's openness, suggesting that the 19th century liberalization that started in Shanghai had slowly emerging economy-wide effects over the following 150 years. We also find that China followed the same steps of adopting a more open trade regime as other countries in the world in the Post World War II period, albeit with some lag.

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[2] Also affiliated with NBER and CEPR; University of Colorado, Boulder, CO 80309; kellerw@colorado.edu

[3] Department of Economics, Boston College, Chestnut Hill, MA 02467; benli36@gmail.com

[4] Also affiliated with NBER and CEPR; University of Colorado, Boulder, CO 80309; shiue@colorado.edu

1. Introduction

China today is the largest exporter in the world, and one of the top three importers.[5] Its trade has increased by almost 18% per year on average in the last couple of decades, a performance that is routinely described as "astonishing" and "breathtaking".[6] China's rapid trade growth has implications not only for production, incomes and current accounts in developed and developing countries, but more immediately on the welfare of her own population. What is the relationship between trade and income? Figure 1 shows a highly suggestive positive correlation between openness and GDP per capita in China (R-squared: 0.95). While the pattern of Figure 1 holds by no means universally, it does indicate that the determinants of trade in the case of China could be very important. This paper investigates these issues, taking a long view from the mid-19th century.

While recent analyses of China's economic prospects typically focus on the period since the 1978 reforms (Perkins 2007, Lin 2011), we introduce a historical benchmark by quantifying international economic activity in Shanghai from the late 19th century onwards. Shanghai is a good starting point for understanding China's trade dynamics. Today it has the largest port in the world (www.aapa-ports.org), and in the mid-19th century, under the pressure of British military threat, Shanghai granted access to merchants from Western countries seeking wider markets in China. The city quickly gained importance for China as its center of foreign trade, the recipient of the lion's share of FDI into China, and it served as the link between China and the world. After World War II Shanghai was among the regions hardest hit by restrictive economic policies, however, in the years after the 1978 reforms Shanghai has recovered. This suggests that temporary policies do not overcome regional fundamentals that are reinforced by new institutions and foreign trade.

We find that while some features of China's performance are truly extraordinary, others are within the norm. The bulk of the paper examines China's recent performance in the light of China's experience before the 1978 reforms, going back to the middle of the 19th century. We find, first, that the levels of trade today are by no means inexplicably high from the perspective of the 19th century. Applying the well-known gravity equation of trade, it is shown that when the historical relationship is projected into the modern period it fits actual trade in China today quite well.

[5] Data from United Nations COMTRADE and the National Bureau of Statistics of China.
[6] "China's average trade growth measured in constant US dollar between 1990 and 2010 was an astonishing 17.6%", Lin (2011), and "[T]he pace of China's integration into world trade has been nothing short of breathtaking", di Giovanni, Levchenko, and Zhang (2011).

Second, we demonstrate that the volume of China's trade during the treaty port era (the years 1843 to 1941) was increasing with the foreign presence in China, as measured by foreign firms and residents, just as it has been the case in the 1990s and 2000s.

Third, we identify a legacy effect of treaty port FDI on today's trade in China by showing that treaty port FDI is associated with higher trade of China today even if one controls for today's FDI in China. Thus FDI appears to be one of the sources of persistence in China's international economic exchange. Fourth, we extend the post-World War II finding of Figure 1 and show that openness is highly correlated with China's share in world GDP since the year 1870. Interestingly, Shanghai's openness matters even more than that of China. This suggests that the 19th century opening centering on Shanghai has had slowly emerging economy-wide effects over the following 150 years. Finally, comparing China's experience since World War II with other countries, in Asia and elsewhere, we find that China followed the same step of adopting a more open trade regime as have other countries, albeit with some lag.

By providing a detailed picture of China during the 19th and early 20th century we complement the analyses of trade and openness during this period for Europe, North America, and other parts of the world (Findlay and O'Rourke 2007, O'Rourke and Williamson 1999). Moreover, our quantitative approach complements existing accounts of China during the 19th and early 20th century, including Morse (1908), Murphey (1977), Fairbank (1978), and Wakeman (1978), and by connecting developments in China during the post-second World War and post 1978 periods to developments in the 19th century we add context to accounts of China's recent past (Lardy 2002, Branstetter and Lardy 2008).[7]

This paper contributes to the existing literature that attempts to understand China's current economic growth (Rawski 1999, Sachs and Woo 2000). While high growth today is undoubtedly due in part to improved factor allocation *post* reform (Hsieh and Klenow 2009, Song, Storesletten, and Zilibotti 2011), it remains difficult to judge how sudden growth bursts will carry over into long-run increases in living standards. Our comparison of the 19th century opening and the post-1978 opening of China, not only in terms of Shanghai's trade but also FDI as well as international migration, makes plain how a forecast for China that takes as the starting point the year 1978 would vastly overestimate China's future performance. The current rates of growth

[7] Brandt, Ma, and Rawski (2011) and Rosenthal and Wong (2010) have recently provided analyses of China's economic history starting before the 19th century.

may reflect a recovery to an underlying "natural" level of globalization, but it is not itself a good indicator of that level.[8]

Our gravity equation analysis follows the tradition of Tinbergen (1962) and many others, though we are not aware of other studies that have transplanted gravity estimates through history to compare trade relationships over time. The finding that foreign presence in terms of firms and residents stimulates trade is consistent with the role of information flows through networks that have been studied mostly in contemporaneous economies (Rauch and Trindade 2002). We find that not only the presence of a foreign country itself matters for bilateral trade, but also foreign presence from the same continent, suggesting that the boundaries of these networks can be diffuse. Because the international movement of people spurs international trade (Poole 2010, Cristea 2011) as well as technology transfer (Hovhannisyan and Keller 2012), our analysis helps to uncover possible reasons for the persistence in China's foreign trade and openness.

The analysis for the treaty port era employs newly available information collected by the Chinese Maritime Customs service (CMCS), the Western-led organization that operated China's customs system from the years 1854 to 1948.[9] While some parts of the CMCS data have been used in earlier analyses (Brandt 1989, Lyons 2003, and Kose 2005), our work is distinct both in connecting the treaty port era to China's trade today and providing detailed insights from a port-level analysis, as we do for Shanghai.

Our research speaks to research on the long-run economic impact of colonialism (Acemoglu, Johnson, and Robinson 2001, Yoo and Steckel 2009). Jia (2012) shows that former Chinese treaty ports had higher growth in the late 20th century than non-treaty ports but does not provide evidence on the mechanism; in contrast, we document the long-run impact of Western presence reinforced by trade. The impact of colonialism on, specifically, trade is analyzed by Head, Mayer, and Ries (2010). While the presence of Western countries in China during the treaty port era might not have been colonialism in the sense of that literature, a more important distinction is that our analysis identifies a particular channel, namely FDI, which is responsible for the legacy effects.

[8] Keller and Shiue (2007) have noted that the degree of regional market integration in the 18th century is highly correlated with today's income per capita across provinces.
[9] See also Keller, Li, and Shiue (2011a, b).

The remainder of the paper is as follows. The next section provides the background on Shanghai's historical position for China's trade since the 19th century and a comparison of trade, GDP, and openness across many countries. Data sources are given in section 3, with additional information provided in the appendix. All empirical results are presented in section 4, which begins with a descriptive analysis of trade, FDI, and foreign resident patterns followed by a gravity equation analysis that compares past with today's trade and also tests for legacy and other effects. A concluding discussion is presented in section 5.

2. Trade and Openness in China: some background

2.1 The emergence of Shanghai as China's center of foreign trade

This section summarizes the role of Shanghai within the broader context of China's foreign trade since the 15th century. We will see that its special role today has emerged from the city's unique geographical position together with foreign trade interests of other countries during the 19th century.

At the conclusion of the First Opium War (1840-42), Shanghai was opened to Western trade as stipulated in the Treaty of Nanjing on November 17, 1843. Before this time, Shanghai was overshadowed by nearby administrative capital cities such as Suzhou, Hangzhou, and Nanjing. Shanghai's foreign trade on the whole since the mid-15th century was fairly restrictive. It consisted mainly of interactions with non-Western areas—especially Korea, Japan and the Nanyang (traders from Southeast Asia, the Arab Peninsula, Africa, and India). Western goods, if they arrived in Shanghai, had to come by way of Guangzhou (Canton), since by a decree of 1760, Guangzhou was the only Chinese port open to Western traders.

Shanghai was one of a handful of Chinese ports selected by Western countries to be opened in the 1840s. The location was attractive because of its geographical position at the mouth of the Yangzi River, with potential access to seafaring routes as well as the traffic on the Yangzi River.[10] The city's location had long been considered promising, for example by the British East India Company, which suggested already in the year 1756 that a new factory—that is, a trading post—ought to be opened in Shanghai.

[10] The Yangzi is about 6,300 kilometers and the third-longest river in the world. It originates in the Tibetan plains and runs towards Chongqing (Sichuan province), from where it flows another 2,400 kilometers before emptying into the East China Sea at Shanghai. On the booming domestic trade of the Yangzi River Valley, see Pomeranz and Topik (2005), p. 63.

Within weeks of the official opening of Shanghai in 1843, no less than 11 foreign firms had begun operating in the city (CMCS 2001, v.159, 36). The Governor of Hong Kong and Chief Superintendent of Trade, Sir John Davis, reported in 1844 that Shanghai was the most promising of the newly opened Chinese ports and possessed all the elements of commercial success (CMCS 2001, v.159, 37). In fact, Shanghai's trade growth was initially disappointing and limited by the fact that foreign ships were not permitted to go further along the Yangzi River to tap into the trunk lines of the inland traffic, which was where most of China's markets lay. The forced opening of inland ports on the Yangzi in the early 1860s partially improved Western traders' access to internal markets. The city's multiple advantages for serving as a bridge to the Western world was noted by contemporaries. In the words of a Christian missionary: "if China is ever to be opened, if the spirit of exclusiveness is ever to be effectually broken down, that process will begin here. The rays will diverge from Shanghai".[11] Also, in 1869 a newspaper, the *North-China Herald*, would write: "The heart of foreign trade is Shanghai" (June 2, 1869; CMCS 2001, v.159, 79). The size and the structure of Shanghai's foreign trade, summarized below, generally support this claim.

We now turn briefly to the institutional structure in which this trade took place, which is important in its own right. The British were officially permitted, in 1848, to establish a foreign settlement in Shanghai. Separating the foreign population from the Chinese city was a solution the Chinese government preferred over having the foreigners reside in the city itself. British consuls and foreign merchants, on their part, also realized that the city might lack the means to secure their goods. A section of waste land less than a mile from the city and close to anchorage points in the harbor was selected for the building of foreign residences and warehouses. There were some similarities between the foreign settlement policy of the treaty port era and the practice from 1760 to 1842 when European traders were cordoned off in an enclave and forced to reside within a specified location outside of the city of Guangzhou. During the treaty port era, however, foreigners came to have a much more active role in the wider economy than in earlier times, establishing hundreds of firms, banks, and shipyards, among other things.

In addition to the right to trade, the British (and later other Western nations) proclaimed other rights, including the right to own land and buildings (Willoughby 1920).[12] There they were able to build roads, factories, and housing all according to their own preferences. Moreover, by the right of extraterritoriality, foreigners were subject not to local laws but the laws governing

[11] Davis (1852). Christian missionaries were spread between Hong Kong, Fuzhou, Xiamen, and Shanghai.
[12] The American Settlement was established in 1863, forming with the British area the "International Settlement". The French Settlement was independent of the International Settlement.

their own lands. Although the Chinese were not permitted to own property in the foreign settlement, they could and increasingly did rent property in the foreign settlements.

In the area of trade, the key organization created by Western countries was the Imperial Maritime Customs service (after 1911, the Chinese Maritime Customs service, or CMCS). It was formed in the year 1854 by Western consuls because rebel forces of the Triad Society that merged later with the Taiping Rebellion put the official Qing customs house out of action in the years 1853-54 (Murphey 1977, 198).[13] The CMCS took charge of the collection of tariffs and duties on foreign trade, and it also oversaw the increase in the number of the Chinese ports open to foreign trade, or "treaty ports" (see Map 1 for their locations).[14] While the service was formally under the Chinese Foreign Service it was *de facto* led by Western (initially mostly British) individuals. Nevertheless, the CMCS's long-time leader, Robert Hart, stressed that each member of the CMCS was "a paid agent of the Chinese government for the performance of specified work".[15]

Although there are no complete records of China's foreign trade at the time of the Treaty of Nanjing, we have information on the trade of individual countries with China before and after 1842. In Figure 2 we show the value of China's imports from Britain between 1828 and 1860. The surge in trade after the year 1854 coincides with the founding of the CMCS. It confirms other evidence that China's volume of foreign trade increased under CMCS operation (CMCS 2001, v.159, pp.13ff.). The CMCS was in operation from the year 1854 to the year 1948. Broadly speaking, its importance first increased, not least through the introduction of new treaty ports, while by the 1930s the role of the CMCS started to diminish due to territorial and political changes.

In the year 1911, a revolution ended the Qing Dynasty. The Republican period from 1912-1937 brought a temporary period of industrial expansion and prosperity, as the industrialization of the 1920s was centered in Shanghai (Bergere 2009). One of the foremost aims of the Nationalist Party (the *Guomindang*) was to take back China's national sovereignty from foreign countries, and

[13] The Qing government had established customs stations along the south coast to organize the collection of tariffs on both Chinese and foreign trade in the late 17th century, and by 1730 Shanghai had taken over from Suzhou as the main customs station of Jiangsu province. An imperial edict designated Shanghai a "superior" customs station for foreign commerce, an indication that Qing officials also recognized that Shanghai had potential to be profitable for trade.

[14] For more on the CMCS and the foreign presence in China, see Bickers (2006), van de Ven (2006), and Brunero (2006), as well as Keller, Li, and Shiue (2011a).

[15] Circular No. 8 , June 21, 1864, by Robert Hart, "The Customs Service, the spirit that ought to animate it, the policy that ought to guide it, the duties it ought to perform; general considerations and special rules" in Documents illustrative of the Origin, Development, and Activities of the Chinese Customs Service, vol. 1 p. 36-47. Murphey (1977) writes that the CMCS "stood out among foreign groups in China as freer of special interest, exploitative behavior, or blind arrogance toward things Chinese", p.198.

in fact China did regain tariff autonomy between 1929 and 1934. The Nationalist regime, however, also acted in ways that were detrimental to private industries. By 1937, war with Japan, government corruption, labor strikes, and the rise of the Communist Party of China (CPC) had turned the tide in terms of China's domestic politics.[16] The Japanese invasion was repelled in the context of Japan's loss in World War II, while domestically the CPC emerged victorious over the Nationalists when the civil war ended in 1949.

The evolution of trade since 1949 can be broadly divided into the years before and after the market reforms of 1978 (Lardy 2002, Branstetter and Lardy 2008). Prior to this time, all of trade was held under central government control through state-owned Foreign Trade Companies. Shanghai's trade, like that of any other area in China, was procured from provinces according to central plans. Shanghai was also required to remit large amounts of resources in order to support investments in the interior regions to reduce regional inequalities and make the interior regions more economically self-reliant.

China re-established its relationships with Western countries soon after the first stage of Cultural Revolution (1966 to 1971), which triggered a period of trade growth, in particular of imports. The liberalization of China's foreign trade and investment regime followed on the 1978 decision of the CPC to reform.[17] While Shanghai was not in the first batch of Special Economic Zones of the year 1980, it was one of the 14 Coastal Port Cities in the year 1984. FDI, which was closed during the early reign of the CPC, was once again welcomed as part of China's reforms, even though there remain *de facto* rules and requirements, e.g., to transfer technology, that effectively limit FDI into China. As a Coastal Port City, the goal for Shanghai was to attract capital investments and technology transfers from foreign countries, as well as to help spur growth of the region, by means of tax and profit incentives. Finally, a major step towards China's international economic liberalization was taken when China joined the World Trade Organization in the year 2001.

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[16] The year 1941 marks the end of the treaty port era. The Japanese occupation of China that took place in that year was the final phase of Japan's colonization attempt of China reaching back to the First Sino-Japanese War (1894-95), intermittent warfare (1931-37) and invasion of China after 1937. Japan was the one country that together with Britain had the most substantial interests in China during the 19th and early 20th centuries. While British interests in China were spread between Shanghai and Hong Kong, Japanese business interests were based primarily in Shanghai. In addition, Japan had territorial designs on China, specifically in Manchuria and Shandong provinces.

[17] The measures included the decentralization of the right to import and export to local areas, the loosening of controls on foreign exchange, and the use of tariffs, quotas and licenses in place of planned economy controls on imports and exports. See Lardy (2002).

In the following we take a closer quantitative look at the role of Shanghai's trade for China as a whole. Figure 3 shows the development of exports in China and Shanghai between the years 1870 and the most recent year for which data are available, 2009.[18] The figure shows that China's and Shanghai's exports have evolved similarly over this period of nearly one and a half centuries. Even though the years 1932 to 1952 are omitted from the analysis because of unavailability of comparable data, we know that foreign trade severely contracted during this period, essentially extending the downward trend that is visible in the figure from 1925 onwards.[19]

Figure 4 shows the analogous developments for imports over the period of 1870 to 2009. Also here, there is a broad congruence in how foreign imports of China and Shanghai have changed over time. Shanghai's imports during the treaty port grew noticeably faster than China's imports (3.6% versus 2.3%, see Figure 4). Projecting Shanghai's level of imports from the treaty port era shows that its level was actually surpassed only around the year 2000. This is in part due to Shanghai's especially low levels of imports in the early years of communist rule.[20]

Today Shanghai accounts for almost 15% of China's imports and exports. The fact that a city with about 1% of China's population accounts for close to 15% of China's foreign trade is in itself quite remarkable. However, during the treaty port era Shanghai accounted for roughly half of China's foreign trade between the years 1870 and 1930. On average, the import share of Shanghai was about 55% while its export share was around 45%.[21]

We conclude this overview with three observations. First, China is now relatively accessible to foreign trade. In the year 2010, China's trade-weighted average import tariff was 4.6% (WTO 2012), not far from the maximum of 5% that China was permitted to charge during the treaty port era. Second, starting from 1999 foreign firms in China have been given more leeway in terms of ownership. This recent policy actually corresponds to the policy during the treaty port era, when foreigners could establish wholly foreign-owned enterprises in China. Third, China's regime today privileges firms engaged in foreign trade and investment relative to firms

[18] Shown in Figure 3 is (the log of) China's, respectively, Shanghai's exports of locally produced goods to foreign countries. We choose the year 1870 as our initial year in part because by that time the treaty port of Shanghai had been established for more than two decades, so that the observed growth of trade is not mainly a start-up phenomenon.
[19] Major factors included the Great Depression, Japan's invasion of China, World War II, and the restrictive stance on foreign trade put in place by China's government.
[20] The relatively low levels of imports may have been due in part to political decisions by the CPC as a response to Shanghai's free-wheeling market economy of the 1920s; e.g., Bergere (2009) refers to this period as Shanghai's "disgraced years under Communism".
[21] A comparison of Shanghai with five other major ports is shown in Table C in the appendix.

that do not. Differential treatment of firms, depending on whether it was engaged in foreign markets, might be seen as a vestige of the treaty port era, when goods destined for export or foreign goods imported into China were in effect given preferential treatment relative to domestic trade. It thus appears that China's trade and FDI policies today are in some major ways similar to those that China had to follow under pressure from Treaty Powers in the mid-19th century.

After this account of the major developments in China's trade history, the following section turns to a number of comparisons of China with other countries.

2.2 China's trade and growth since 1870: international comparisons

We begin by considering trade. Table 1 presents the shares for China and five other countries in foreign trade, starting with the year 1870. In that year, China's share of world exports was 2.78%. This value was considerably larger than that of Japan, which opened around that time to foreign trade. At the same time, China's share in world trade was much smaller than India's, which traded relatively more as part of the British Empire. The high shares for the three Western countries, among them the United Kingdom with almost a quarter of world exports, were mainly due to the fact that these countries had already begun their process of industrialization. By the year 2008, China has become the world's largest exporter with close to 10% of world exports, followed by Germany and the U.S.

Next, China's share of world GDP is shown over time in Table 2. Note that China's share in world GDP in 1870 was around 17%, very similar to its share in the year 2008. India's GDP share has evolved in a similar but less pronounced U-shaped pattern. The share of the U.S. in world GDP peaked around the year 1950, around the same time China's share reached its low point of about 4.5%. Japan's share in world GDP peaked around the year 1990, at 8.5% according to Table 2.

Moreover, it is clear that the figures in Tables 1 and 2 on China's Post World War II trade and GDP developments are consistent with the strong positive correlation of openness (measured as trade to GDP) and GDP per capita that was shown in Figure 1. In the following, we compare China's trade openness during the Post World War II era with that in other countries.

Figure 5 presents the relative growth of openness since the year 1952 across some major countries in North America, Europe, and Asia (1952 is the earliest time we have data for all countries). The figure shows that unlike Japan and the countries of Western Europe, China's relative growth in openness in the Post World War II period was highly irregular and characterized by strong breaks in trend up until the 1980s. In contrast, since the mid-1980s,

China's openness has grown at a fairly steady (albeit higher) rate, not unlike the other countries in the analysis.[22]

In Figure 6, we show a comparison of openness trends in China and other Asian countries that have experienced strong growth (the so-called 'Four Asian Tigers'). The figure also gives information on the differences in the level of openness, which is related to country size. In comparison to these other Asian countries, China's trade openness growth was slower in the initial decades. However, once China moved to an outward-oriented regime its experience is not fundamentally different from other Asian countries. For example, South Korea moved decisively towards an outward-oriented regime in the mid-1960s, while China did so in the 1970s.

Overall, we conclude from these international comparisons that China's move towards more openness during the Post World War II period mirrors the policy choices elsewhere, except that in China these decisions were taken with a lag, perhaps 30 years compared to Japan, Western Europe, North America, and around 10 years compared to other major Asian countries.

We now turn to a brief discussion of the data used in this paper.

3. Data

The major source of information regarding trade of Shanghai and of China during the treaty port era is the reports of the Chinese Maritime Customs service (CMCS for short). We rely on a 170-volume compilation of the annual *Returns to Trade* and other Chinese Maritime Customs documents, CMCS (2001). The source covers the years 1859 to 1948 and contains information on (1) China's exports and imports and (2) Shanghai's exports and re-exports of Chinese goods, as well as imports and re-exports of foreign goods.[23] All trade flows except re-exports of foreign goods are available by foreign partner country.[24]

[22] China's higher rate of openness growth might be due in part to China's embrace of offshore manufacturing, which is associated with a high volume of intermediate inputs trade in addition to final goods trade.

[23] By China's foreign trade we mean the trade in the CMCS statistics; this excludes Hong Kong and the small amount of foreign trade that was not recorded by the CMCS, see Keller, Li, and Shiue (2011b) for a discussion.

[24] Trade figures for the treaty port era are given in current values, typically *Haiguan Liang*, but later also in (customs) dollar and gold denominated currency. We have converted all values into U.S. dollars using exchanges rates given in CMCS (2001) and Hsiao (1974). The current U.S. dollar values are converted into constant 2006 U.S. dollars by linking two series on U.S. inflation available from the NBER Macro History database and the Bureau of Labor Statistics (see Appendix). These conversion factors into 2006 U.S. dollars

The CMCS sources also contain information on the number of firms and residents by foreign country in Shanghai during the treaty port era (CMCS 1873, 2001). This is combined with modern data on FDI and the number of residents in Shanghai from the Shanghai Statistical Yearbooks. More details on these variables, as well as the remaining data sources are given in the Data Appendix.

In the following we turn to the empirical analysis.

4. Empirical Analysis

We begin by describing the basic patterns of foreign trade, FDI, and foreign residents to China and, in particular, in Shanghai since the mid-19th century. This is followed by gravity estimations of Shanghai's trade during the treaty port era and today. We then proceed to examine the role of the foreign presence in China in affecting the volume of its trade during the treaty port era, and conclude by examining the legacy of past FDI and foreign residents in China for its trade today.

4.1 Descriptive Statistics

The composition of Shanghai's gross imports is shown in Figure 7. On the left panel are the five largest individual sources of imports during 1870 to 1900, while on the right the same information is given for the years 1990 to 2009. During the late 19th century, Shanghai imported mostly from Britain and its colonies, accounting together for 80% of Shanghai's imports.[25] Other significant sources of imports were the U.S. and Japan. Imports were highly concentrated in the sense that the top-five sources of imports accounted for 92% of all trade. This was in part because relatively few countries had the technological as well as other resources to engage in large-scale foreign trade. By the late 20th century, Britain as well as its former colonies are absent from the top-five list of importers (Figure 7, right side). Some continuity is preserved through the major roles of Japan (21%) and the U.S. (12%), which in the 19th century were ranked 4th and 5th, respectively. Also, there is generally less concentration in terms of import sources now.

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are also applied to the values on trade during the modern period, which are given in 100 million current U.S. dollars.

[25] Shanghai's imports from Hong Kong come mainly from other foreign countries for which Hong Kong serves as a transshipment point, similar to Rotterdam, Antwerp, and Genoa at the time. With a population of around a third of a million in the year 1900, Hong Kong's own industries were mostly sugar refining and cotton yarn production (CMCS 2001, vol. 43, 51).

On the export side, almost 70% of Shanghai's exports went to Europe (45% Continent, 25% Britain, see Figure 8, left side).[26] Also interesting is that Hong Kong is less important for exports than for imports. One explanation might be that Hong Kong's expertise in matching buyers with sellers is more important for sales in China than for sales in Europe and North America. Overall, the composition of Shanghai's trade, both historically and today, is determined by factors such as size and geography, which are relevant for trade also elsewhere.

Another indicator of international economic integration is foreign direct investment (FDI). One difference between the move towards more economic integration before World War I and globalization today is the much smaller extent to which firms in the earlier period operated multi-country production networks. Setting aside the commission agents of merchants and banks which were around in the Middle Ages, multinational production in manufacturing can be found not much earlier than the middle of the 19th century, and there is little systematic evidence on it. [27] In the case of China, we have information on the number of firms by foreign country for each treaty port. Initially much of the foreign-owned activity was linked to trade, such as retailers and wholesalers, banking to finance the trade, insurance to cover risk in the trade, shipyards to repair ships, and railroads to provide land-based transportation. From there it spread into other sectors of the economy. Manufacturing and mining became important especially after the Treaty of Shimonoseki (1895) established the legal right to establish manufacturing firms in China (Hou 1965, Ch. 3, Feuerwerker 1976, Ch. V).

There was much heterogeneity in the nature and scope of foreign firms operating in China.[28] They included large firms such as the British Jardine, Matheson and Company trading company. From its head office in Hong Kong and branches in every major port it controlled its trade operations, as well as other activities such as the 41 Yangzi steamers of its affiliate, the Indo-China Steam Navigation Company, the large Shanghai and Hongkew Wharf Company, the Ewo Cotton Mill, and a silk filature in Shanghai. At the other end of the spectrum was the modest retail store Schlachterei W. Fütterer, which was the butcher to the German community in Shanghai.

[26] The commodity dimension of China's trade at the time is discussed in Keller, Li, and Shiue (2011a).
[27] Among the earliest investors known were several British who invested in Naples in the 1840's, as well as the American Haviland producing fine China in France in 1842. The German Siemens company was established in 1847 and in the early 1850's had a plant in Russia, and a plant in Britain by 1857; see Kindleberger (1985).
[28] See Feuerwerker (1976, pp.80-81); he also argues that this heterogeneity need to be kept in mind when employing CMCS foreign firm data, pp.16-18.

During the treaty port era, the number of foreign firms in Shanghai was 152 for the year 1872 and 1,741 in the year 1921, an annual growth rate of about 5%. These firms originated primarily from Japan and Britain, with 35% and 30%, respectively (Figure 9, left side). The largest five sources accounted for 87% of all FDI into Shanghai. Comparing this with figures for recent years, Japan has retained a relatively high share, while Britain has been replaced by the United States as major source of FDI (Figure 9, on the right).

Next the movement of people as another measure of foreign economic integration will be examined. We have information on the number of foreign residents in Shanghai for two time periods, the years 1872 to 1921, and the years 2000 to 2009. During the roughly five decades between 1872 and 1921, the largest groups were Japanese (29%) and British (28%), respectively, and there was also a significant number of U.S. Americans (Figure 10, on the left). About 22% of all foreign residents in Shanghai came from countries outside the top-five origins. During the years 2000-2009, Japan and the United States are again major sources of foreign residents (Figure 10, right side). Further, Britain has become a less important source, while more foreign residents come from geographically nearby countries, which parallels the findings for trade.

After this overview we now turn to the regression analysis.

4.2 Regression Analysis

4.2.1 Gravity and Shanghai's Trade, Then and Now

In the following the gravity equation of trade is employed to examine Shanghai's bilateral trade with foreign countries, both during the treaty port era and in recent years. We do so because, first, the gravity equation is the standard benchmark for trade. Not only is the gravity equation highly successful in explaining bilateral trade (with R^2's upwards of 0.70 the norm), it has also been established that many micro-founded trade models imply a version of the gravity equation (Anderson 2010 presents an overview). Second, the gravity equation allows us to directly investigate whether Shanghai's bilateral trade patterns during the treaty port era were

unusual. The fact that trade treaties were imposed upon China may give rise to doubts as to whether a model of trade based on voluntary exchange can fit the data.[29]

The gravity equation of trade is, in its simplest form, given by

$$TRADE_{ij} = \frac{GDP_i^{\alpha} GDP_j^{\beta}}{DIST_{ij}^{\gamma}}, \quad (1)$$

where i and j are two trading economies, $TRADE$ is either exports or imports, GDP is gross domestic product, and $DIST$ is shipping distance. In its usual log regression form, the equation is

$$lnTRADE_{ij} = \alpha lnGDP_i + \beta lnGDP_j + \gamma lnDIST_{ij} + X'_{ij}\delta + \epsilon_{ij}, \quad (2)$$

where X refers to a set of control variables, and ε is a regression error. The usual signs of the coefficients are $\hat{\alpha} > 0, \hat{\beta} > 0$ because bilateral transactions increase in the size of the trade partners, and $\hat{\gamma} < 0$ because greater distance means more trade resistance due to higher transport costs and other impediments.

In contrast to other work on gravity in trade, we do not have a fully square data set. While economy i denotes a particular trade partner of Shanghai, economy j is always Shanghai. In the time dimension, we observe each bilateral relation for multiple years between 1869 and 1904 (the historical sample) and 1953 to 2009 (the modern sample), and time fixed effects are employed in some specifications. To reduce autocorrelation concerns we use five-year averages of the data. Since data on Shanghai's GDP for much of our sample period are unavailable, we use population instead. Population is the most natural replacement because GDP and population are interchangeable in measuring the size of an economy in many theories that provide micro-foundations for the gravity equation.

The following countries and regions are included as Shanghai's trade partners in the analysis: Continental Europe, Egypt, Hong Kong, Japan, the Philippines, Singapore, Thailand, and the U.S.[30] Among those, Hong Kong and Singapore were major entrepôts, and to control for this we include an indicator variable for Hong Kong and Singapore.

[29] The typical micro-foundation for the gravity equation also relies on allocation through markets that are functioning smoothly, conditions that may not have been present during the treaty port era.
[30] Trade here is net not gross trade of Shanghai because data including re-exports become available only after 1990, which would reduce our "modern" sample. Britain is excluded because of idiosyncratic features: its status as transshipment point in Europe during the treaty port era was eroding over time, something that is not easily captured in the gravity framework. Also, we include Continental Europe because for trade

We first run the gravity regression using data on the treaty port era. Results are reported in columns 1 to 4 of Table 3. There are positive coefficients on the GDP of trade partners and negative coefficients on shipping distance, while the population variable does not enter significantly. Notably, the coefficients of GDP and distance are both around one, a finding that is in line with results reported in studies using a wide range of data sources (see Head and Mayer 2012). This provides additional evidence for the generality of the gravity equation. Columns 3 and 4 use time fixed effects instead of Shanghai's population, which leads to similar results.

Next, we run gravity regressions using the same set of countries but with modern data. Here, "modern" refers to the years 1953 to 2009, during which the Communist Party of China was in power.[31] The new government abolished all trade treaties with Western powers. What interests us is whether there is any connection between the historical and modern trade relationships. To ensure comparability we use, as before, five-year averages, Shanghai's population in place of its GDP, as well as the entrepôt indicator variable. Columns 5 to 8 in Table 3 report the results. The modern gravity regression results differ from the historical ones in some ways. First, the partner country GDP variable has now a smaller coefficient, which may be in part because China currently trades with a more diversified set of countries than it did in the past, as seen above.[32]

Second, Shanghai's population now has a positive and significant coefficient. Moreover, the coefficient of distance becomes smaller in absolute value relative to the treaty port era results. This is different from the common belief that the effect of distance on trade remains stable over time (e.g., Leamer and Levinsohn 1995). Finally, the entrepôt dummy has a smaller coefficient than before; this may have to do with their rapid industrialization and becoming independent from Britain.[33] At the same time, the gravity regression for the treaty port sample has an R^2 around 0.85 in columns 1 and 2, whereas for the modern period the R^2 in columns 5 and 6 is lower, around 0.70.

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before the year 1905, the CMCS publications do not distinguish many individual European countries. Trade with Continental Europe was mostly trade with France, Italy, and Germany.

[31] The year 1953 is the first year for which data under the CPC government becomes available.

[32] This effect is actually underestimated in Table 3, because only countries that were Shanghai's trade partners in the treaty port era are included in the regression.

[33] From the 1990s there is less re-exports via Hong Kong than before (Feenstra and Hanson 2004).

Overall, size and geography determines the volume of Shanghai's bilateral trade, and moreover, the relationship is even stronger in the historical than in the modern period.[34]

Beyond the question whether gravity was present in Shanghai's trade patterns during the treaty port era, we are interested in seeing how similar the historical and modern trade patterns are. To this end, we employ the values of the GDPs and bilateral distance during the modern era together with the regression coefficients from the historical era (columns 1 and 2 of Table 3) to predict modern trade. This prediction is then compared with the actual trade of Shanghai in the modern period.

The results are reported in Figure 11, with exports in the top row and imports at the bottom. A diagonal in any graph of Figure 11 denotes the 45-degree line, where the prediction using historical gravity coefficients for Shanghai's trade during the modern period (horizontal axis) is exactly equal to its actual modern trade volume (vertical axis). In the top left corner of Figure 11, we show the results for Shanghai's exports in the year 1904. This serves as a benchmark for the other three exports graphs in Figure 11, because given that the year 1904 is part of the historical period from which the gravity coefficients are estimated, the fit will be high by construction.

Column 2 of Figure 11 does the projection and comparison using data on the year 1974, seven decades later. The projected exports are similar to the actual volume, while the projected imports are higher than the actual volume. These imports results confirm our finding on overall foreign trade from Figure 4 at the bilateral level; they are most likely driven by the Cultural Revolution and policy choices during this period.

In the year 2004, three years after China's accession into the World Trade Organization, the projected exports are generally slightly lower than the actual volume, while the projected imports are quite close to the actual volume. Exceptions are Singapore and Hong Kong, which are economies with fading roles as entrepôts for Shanghai's trade. Column 4 uses data on 2009, the latest year with available bilateral trade data, when the pattern becomes clearer still. Projected exports deviate further from the actual bilateral volumes, while projected imports are close to the actual volume. As noted above China's exports are high by historic standards in part because

[34] The modern time is a six-decade period, during which Shanghai, China, and the world changed in dramatic ways. In particular, in 1978, China began its transition to a market economy; in 1984, Shanghai was designated by China's central government as a Coastal Port City (see section 2.1). To evaluate the impact of these changes on Shanghai's bilateral trade, we examine separately the post-1978 and post-1984 periods. As can be seen from Table A in the Appendix, this yields similar results.

China is involved in substantial amounts of offshoring-related processing trade that did not exist in the treaty port era. In contrast, in the case of imports Shanghai's 2009 trade volumes predicted from historical trade are often very close to the 45 degree line (e.g. Continental Europe, or the Philippines). Moreover, for both imports and exports, Shanghai's trade of the treaty port era as pinned down by the gravity estimates fits the cross-sectional pattern of trade today remarkably well.

Because Shanghai was the most important port of China during the treaty port era, a natural question is to what extent was Shanghai's foreign trade representative of China's trade at that time? To address this question we now apply the gravity equation (2) using data on all other treaty ports, which is computed as China minus Shanghai.[35] We first show gravity regression results in Table 4, which are analogous to those for Shanghai of Table 3. Comparing the historical estimates of columns 1 and 2 in Table 4 and in Table 3, the results are similar (foreign GDP (+), distance (-), and population insignificant). Also the results for the modern period using China without Shanghai are quite similar to those for Shanghai (columns 3 and 4 of Table 4, and columns 5 and 6 of Table 3). One difference is that for Shanghai, the R^2 are higher in the historical samples while for China without Shanghai the R^2 are higher in the modern samples. This is reasonable because there were likely frictions within China during the treaty port era that might prevent the gravity equation from holding as well as it does for a relatively modern sea port such as Shanghai. We have also repeated the trade projection analysis for China without Shanghai, see Figure 12. The results turn out to be similar to the findings we had for Shanghai.[36]

To conclude, we find that the bilateral trade between Shanghai and foreign countries follows the gravity equation during both the treaty port era and the modern era. The gravity equation in trade is typically derived for models of market economies based on voluntary exchange, whereas our finding indicates that it applies also in a time when colonial trade and regular trade intertwined. Moreover, Shanghai's modern bilateral trade largely follows its historical pattern, a level of persistence that may be unexpected in light of the changes in the institutional and economic context in which this trade takes place.

[35] For example, the foreign exports of all other treaty ports are computed as China's exports minus the foreign exports of Shanghai.
[36] The year 2009 is omitted in Figure 12 because we do not have all relevant data.

The remainder of this section will seek for possible linkages between China's historical and modern trade, and we start with the role of FDI and foreign residents in promoting trade during the treaty port era.

4.2.2 Does foreign presence affect trade?

There are different views on the relationship between trade and FDI in the literature. Some authors hold that trade and FDI are often alternative ways of serving a foreign market, and even if trade supplies to some extent intermediates for FDI, once market size, geography, and other fundamental determinants have pinned down the volume of activity there is no additional effect from FDI on trade (e.g., Keller and Yeaple 2012). According to this view the correlation between trade and FDI is negative, or at most equal to zero. In contrast, it may be the case that FDI raises trade, perhaps because it generates new information relevant for trade, as networks do in Rauch and Trindade (2002). The following analysis will shed new light on the relationship between foreign presence (firms and residents) and trade in the gravity framework.

We now shift the focus from Shanghai to all of China and the years 1905 to 1925 for data availability reasons.[37] Table 5 shows the results. In the first column we present the simple gravity results for exports. Distance and Foreign GDP have the expected significant signs whereas the point estimate of China's GDP is positive but not precisely estimated. In column 2, the number of foreign firms that a trade partner had in China during these years is added to the regression. This new explanatory variable reduces the size of the distance coefficient (in absolute value), which is a consequence of the strong negative correlation between distance and the number of firms from a foreign country. The negative correlation between FDI and distance means that gravity characterizes not only trade but also FDI. This is an interesting result in its own right, because it says that the gravity finding for FDI today (e.g., Keller and Yeaple 2012) extends also to FDI during the Chinese treaty port era.

The estimate on foreign firms is positive at 0.4 and highly significant. One interpretation of these results on distance and foreign firms is that the trade cost effect in a narrow sense is about -0.84 (as in column 2), not -1.5 (as in column 1). Beyond this the effect of trade costs on bilateral

[37] This allows us to include a larger number of foreign countries, as the CMCS started to report data for more countries individually in 1905. Moreover, for all of China we have information on FDI and foreign residents annually during this period, not only in 1911 and 1921; employed is data every five years.

exports depends on whether or not the foreign country has located its firms in China. If it has, its trade costs are substantially lower.

The number of foreign residents is also positively related to trade (see column 3 of Table 6), and the size of the distance variable changes similar to column 2. This is not surprising given that a large fraction of the foreign residents would have been the employees of foreign firms and their families. Employing time fixed effects instead of China's GDP does not change these findings (see columns 4 and 5).[38] These results are consistent with FDI and foreign residents providing information that lowers the costs of trading with China.

What is the order of magnitude of this effect? To answer this question we report standardized (or, beta) regression coefficients that can be directly compared across variables in columns 2 and 3 in parentheses. The beta coefficients on foreign firms and foreign residents are about 0.24 while it is around 0.52 for foreign GDP. From these figures, on average a 10% increase in the foreign presence of a country in China raised China's exports to that country by almost as much as a 5% increase in the foreign country's GDP. Other research has shown that GDP changes typically account for most changes in trade volumes (Baier and Bergstrand 2001), so the foreign firm and resident estimates of column 2 and 3 imply economically large effects. The foreign presence beta coefficients are also almost twice as large as that for distance.[39]

In the following we extend the analysis of the impact of foreign presence on trade further by incorporating third-country effects. The hypothesis is that if the number of Danish residents in early 20th century China raised the volume of China's exports to Denmark, it may at the same time also have influenced China's trade with Norway, because these countries are similar in a number of ways. For example, any information on preferences that Danish residents in China reveal to the locals will plausibly aide Chinese exporters not only to sell products in Denmark but also in Norway as well.

A simple specification is adopted to shed some light on this issue. We define the third-country variable on the basis of geography. In particular, the variable *Other Foreign Firms* is defined as the sum of firms located in China from a particular continent, where we distinguish

[38] The coefficient for China's GDP cannot be estimated time fixed are included because it is collinear to the time fixed effects, given that China is part of every observation.
[39] We have also experimented with including the foreign firm and foreign resident variables together into the regression. Given the high correlation between firms and residents the results are poor, and neither variable turns out to be significant.

America, Asia, and Europe (there are three, one, and twelve countries from these continents in the sample, respectively). The variable *Other Foreign Residents* is analogously defined.

Results of employing these variables are given in Table 5, columns 6 to 9. Firms from other countries in the same continent positively affect bilateral trade, see column 6. This effect is somewhat smaller than the own country effect but still sizable (the beta coefficients are 0.15 for other, compared to 0.20 for own country firms). Similar findings are obtained using the foreign resident third-country variable in column 7. As seen from columns 8 and 9, these results are robust to including time fixed effects (although the significance is somewhat lower).

In sum we have shown that China's exports during the treaty port era are positively and economically strongly affected by foreign presence in terms of firms and residents. While the impact of foreign presence of the own country is strongest, also foreign presence from the same continent has a sizable effect on China's bilateral exports. These results are consistent with substantial trade-cost lowering informational flows from foreigners to Chinese exporters.

We now show results for China's imports during the same period, following the same approach as for exports; see Table 6. Foreign presence affects imports positively, and by more than exports (columns 2 and 3 for firms and residents, respectively). One possibility is that this is due to demonstration effects from the consumption of foreigners in China.[40] As before, the results are robust to the inclusion of time fixed effects instead of China's GDP (see columns 4 and 5). One difference is that in the case of imports there is no evidence for third-country effects (columns 6 to 9). This might suggest that the consumption information flows surrounding imports are more country-specific than those on the production side.

To sum up, there is a strong contemporaneous correlation between trade and foreign presence during the treaty port era, which is consistent with information flows lowering trade costs below what is captured by distance. In the following we turn to the intertemporal relationship between the foreign presence during the treaty port era and China's trade today.

[40] By including the GDP terms the estimation holds constant the size of importer and exporter, which ensures that we do not simply pick up the purchases of foreign residents from home.

4.2.3 The Legacy of the Foreign Presence on Shanghai's Trade Today

In this section we examine the determinants of Shanghai's bilateral trade in recent years. Two questions are addressed: first, does foreign presence today raise trade, in the way that was just shown for the treaty port years? Second, we ask whether the foreign presence during the treaty port era affects Shanghai's trade still today. If so, we may think of this as one of the legacies of the historical foreign presence.

We begin by examining the relationship between exports and foreign residents in Shanghai today (see Table 7). The sample period covers the years 2000 to 2009, which is determined by the availability of foreign resident data. Column 1 shows the basic gravity results for this sample. Including the number of foreign residents in the regression yields a strong positive coefficient (column 2).[41] This confirms the trade-enhancing effect from foreign residents that was presented above for the treaty port era. If alternatively the number of foreign residents in the year 1921 is included, it too yields a positive coefficient, although smaller than for today's foreign residents (compare column 3 with column 2). The correlation between foreign residents in 1921 and residents today is 0.56--positive but far from one. Finally, when today's and past foreign residents are included as variables in the regression, only today's residents raise significantly Shanghai's exports, while treaty port residents play no role. In sum, we do not find an effect from foreign residents during the treaty port era that is independent of Shanghai's foreign residents today.

In the following, we consider the relationship between FDI and trade in the same way, see Table 8. The period here is from 1986 to 2009, where we have consistent information on modern-day FDI in Shanghai for eleven countries. In column 1 we show the basic gravity results with GDPs and distance. Compared to the results for the treaty port era, the distance coefficient is now around -0.5 whereas before it was about -1.5 (see Table 5, column 1), a finding that may be due do declining trade costs. Further, the size of the foreign and Chinese GDP coefficients has been reversed over time, which is consistent with the relatively high growth of China now, whereas China's relatively low growth during the treaty port era.

The coefficient on current FDI is positive and significant (column 2), which is in line with the results on the export-enhancing effect of foreign firms during the treaty port era (Table 5). If

[41] The sign on distance changes, which reflects the negative correlation between distance and residents.

alternatively a measure of FDI in the year 1921 is included, the coefficient is also positive (column 3). We also introduce FDI measures for 1911-1921 and 1872-1921 in columns 4 and 5 of Table 8. Going back in time reduces the significance of the FDI variable and also lowers the R^2. It appears that the best FDI predictor variable of today's exports is information on the most recent patterns of FDI that we have, and that is for the year 1921.

The main finding here is that if both current and treaty port FDI variables are included, both enter with positive and significant sign (column 6 of Table 8). It means that past FDI affects today's trade not only by inducing persistence in FDI, as in the case of foreign residents, but also because past FDI has put processes in motion that affect Shanghai's exports today and which are unrelated to today's FDI activity. In column 7 we show that this results is robust to the inclusion of time fixed effects (although the size of the FDI in 1921 coefficient falls somewhat).

In order to find out more about this legacy effect, we have added a large number of standard gravity variables, such as contiguity, trade agreement membership, and others. If the inclusion of any of these variables turns the treaty port FDI variable insignificant, then this variable appears to be crucially related to the legacy effect. It turns out that the two variables that enter the regression most significantly are Common Language and Time Zone Differences, and results are shown in Table 8.

FDI from countries where the same language is spoken is strongly and positively correlated with Shanghai's exports, see column 8 of Table 8. The inclusion of Common Language reduces the size of the FDI in 1921 coefficient, although it remains significantly positive at standard levels. In contrast, there is no trade-increasing effect anymore from today's FDI once Common Language is included. Further, Shanghai's exports are declining in the number of time zones between importers and exporters (see column 9), indicating that time differences act as a powerful barrier to trade. The FDI legacy effect is estimated smaller in size but still significant at a 10% level. Overall, while common language and time zone differences appear to be relevant, the FDI legacy effect we estimate does not appear to be simply due to some variable that is omitted in our regression.[42]

The results can be summarized as follows. First, contemporaneously both FDI and foreign residents affect positively the volume of trade. This is true for both exports and imports, and it is

[42] We have also asked whether the foreign presence during the treaty port era had a long-run effect on Shanghai's imports today, finding that not to be the case (results are given in the Appendix, Table B).

the case both in recent years (Tables 7, 8, and B in the Appendix), as well as during the treaty port era (Tables 5 and 6). Second, from one era to another, both past foreign residents and past FDI have a positive effect on today's exports, while neither has an impact on today's imports. Among the influences on today's exports, past FDI has an independent legacy in the sense that it does not only affect today's exports through today's FDI.

4.2.4 Openness and Income: 1870 to today

The empirical results in this paper have covered aspects of both the city of Shanghai and China as a whole. It is therefore important to return to the relationship between Shanghai's openness and the economic performance of China as a whole. To be sure, a city of about 250,000 people can hardly be expected to determine the fate of a vast country with about 350 million inhabitants (both values for the year 1870). At the same time, it is worth asking whether Shanghai's openness and China's growth might be related. In Figure 13, we present evidence on this question.

Figure 13 shows China's share of world GDP between the years 1870 and 2009. Today, China has about 17% of world GDP, similar to the year 1870, and the low point was around the 1960s with about 4.5% of world GDP. We ask whether this U-shaped pattern is related to openness, either in Shanghai or of China as a whole. There are three openness measures shown in Figure 13, one for Shanghai (trade per capita) and two for China (trade per capita and trade over GDP), all in logs. Interestingly, Shanghai's openness has a correlation of 0.88 with China's share in world GDP, far higher than the correlation with China's openness (which is 0.19 [0.38] for trade over GDP [trade per capita]). All openness measures track more or less the rise after 1970, however only Shanghai's openness falls with the initial decline in China's share in world GDP.[43] We conclude that while China's long-run growth performance is driven by a number of factors, this is evidence that not only China's but specifically Shanghai's openness has played a role in it.

We now turn to some concluding observations.

[43] In the period from 1870 to 1930, Shanghai's rising population outpaced the increase of foreign trade so trade per capita fell. For the post-World War II period, one concern is that Shanghai's population increase was partly due to territorial changes in what is defined as Shanghai. However, a smaller increase in population would mean stronger growth in openness; from Figure 13, this would only increase the correlation between Shanghai's openness and China's share in world GDP.

5. Conclusions

Recent observers routinely characterize China's growth in trade and income with superlatives, so much so that it would be easy to believe that China's economy is fundamentally different from that in any other country. In this paper we examine which part is hyperbole and which is not by comparing China's recent trade performance with other countries using a historical benchmark that extends back to the 19th century. Shanghai is used as the lens through which we try to understand China, which is fitting because Shanghai was China's largest treaty port in the 19th century and it is the largest port in the world today.

Many countries have adopted more open foreign trade regimes since World War II. China is no exception. In the early post-World War II period China's foreign trade was severely restricted, and Shanghai was among the hardest-hit regions. In the aftermath of reforms China's foreign trade started a period of sustained growth, which is exactly what happened in other countries that moved to a more open trade regime. Our analysis has not conclusively shown that China's comparatively high GDP growth was caused by its trade growth, but the pattern in the relationship between income and openness are no doubt highly suggestive. Compared to Western Europe, for example, China waited about 30 years longer (the year 1978) before it adopted an outward-oriented development strategy. In comparison to other developing countries, the timing of China's outward-oriented policy choice was quite similar, perhaps only one decade later compared to South Korea, another Asian country. Today, China's trade to GDP ratio is high for a country its size, and while there are other countries such as Mexico where trade growth has been fueled by processing trade, China clearly is engaged in offshore manufacturing more than virtually all other countries in the world.

Taking a longer view, we have noted that China's share of world GDP today is similar to her share in the year 1870. China's share in world trade in 1870, however, was not nearly as large as her GDP share. As other countries industrialized before China, their share in world trade rose in the 20th century while China's share fell over time. Shanghai is an exception—the 19th century opening of Shanghai led to a significant increase in its population size, which seems to have foreshadowed the growth in China's GDP as its foreign trade grew in the post-World War II period. From this perspective the result that Shanghai's trade openness is highly correlated with China's GDP share in the world is not surprising because the 19th century opening centering on Shanghai had slowly emerging economy-wide effects over the following 150 years.

Our analysis of Shanghai's openness in terms of trade, firms, and residents since the Opium Wars indicates that while some features of China's performance are truly extraordinary,

others are within the norm. For one, we find that the levels of trade today are by no means inexplicably high from the perspective of the 19th century. Applying the well-known gravity equation of trade for the historical period, it is shown that when this relationship is projected into the modern period it fits today's actual trade in China quite well. We also demonstrate that the volume of China's trade during the treaty port era was increasing with the foreign presence in China, as measured by foreign firms and residents, just as it has been the case in the 1990s and early years of the 21st century.

These findings show that there are many similarities between China's trade opening of the treaty port era and China's opening after the 1978 reforms. The question is, what causes these similarities? We can think of at least two (not mutually exclusive) reasons. First, the evidence shown above, related to geography and market size in particular, holds for virtually all economies under virtually any institutional setting. If that were the case it would be no surprise to find similarities for two eras in the development of one country that are one century apart. Now, while the gravity equation of trade is known to be quite general, our analysis shows that it holds even for 19th century trade in a pre-industrialization setting when trade was opened under foreign pressure.

The second possibility is that there is persistence, in the sense that the past influences the future. Our analysis has found evidence for that. We identify a legacy effect of treaty port FDI on today's trade in China by showing that treaty port FDI is associated with higher trade of China today even if one controls for today's FDI in China. Thus FDI appears to be one of the sources of persistence in China's economic development. Moreover, the re-emergence of Shanghai as the premier port of China suggests that geography—Shanghai's location on the seaboard and a major river—plays a role for the patterns of persistence as well.

To sum up, our analysis suggests that the pro-openness policies over the last 60 years that have contributed to substantial increases in the standard of living of many countries have contributed in the past, and will contribute in the future, to living standards in China. At the same time, our analysis has demonstrated that to assess the impact of trade policy reform it will typically not be enough to compare outcomes a couple of years before and after the policy change, because frequently, the past casts a long shadow.

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Data Appendix

The data on trade during the years 1859 to 1949 comes from CMCS (2001), various volumes. One particularly noteworthy aspect of the data collected by the CMCS is that it captures re-exports with great detail. This has been a frequent source of misunderstanding, and some observers have erroneously concluded that the CMCS statistics massively overstate the actual trade that took place. For example, Murphey (1977) argues that by tracing the same goods as they are imported in Shanghai, then re-exported from Shanghai (to Tientsin), then imported by Tientsin (from Shanghai), and finally exported from Tientsin to some location of final demand, the CMCS data would create a "statistical illusion" by "quadruple counting"; he then concludes that "the recorded figures probably inflated the real import and export of goods by close to 100 percent", pp. 213-214. In fact, there is neither double-counting nor quadruple-counting in the CMCS trade data.

Information on Shanghai's trade in the communist period from 1949 onwards comes primarily from the Shanghai Statistical Yearbooks, cited as Shanghai YB (2010), which we have accessed via *China Data Online* (http://chinadataonline.org/). Parallel to the data available for the treaty port era, these yearbooks contain information on the foreign trade of firms located in Shanghai proper (denoted local trade). This covers the years 1953 to 2009 for exports and 1955 to 2009 for imports. They also have data on the total trade through the Shanghai customs for the years 1990 to 2009 (denoted customs trade). This contains foreign trade activity of firms located in Shanghai as well as firms located elsewhere in China. We compute re-exports as customs trade minus local trade.[44] Trade data for China as a whole comes from China Statistical Yearbooks and *China Compendium of Statistics 1949-2008*, compiled by Department of Comprehensive Statistics, National Bureau of Statistics of China. These figures include trade using any mode of transportation (including air). All values in current U.S. dollars are converted to constant $ U.S. 2006 by constructing a long-run U.S. price index from using Series m04051, for 1860 to 1939, from the NBER Macro History Database, http://www.nber.org/macrohistory/, and the U.S. Consumer Price Index from the Bureau of Labor Statistics, for the years 1913 to 2009.

The figures on trade of major countries other than China and on world trade comes from Maddison (2001), the Groningen Growth and Development Centre of the University of Groningen (www.ggdc.net), as well as the World Bank's Development Indicators database. Information on the number of residents by various foreign countries is available for the years 1872, 1891, 1901, 1911, and 1921 (sources: CMC 1873, as well as CMC 2001, various volumes). The figures include men, women, and children, where it is reasonable to believe the large majority were men. The figures do not include temporary residents, such as seamen staying in the city between the arrival and departure of their ship. During the modern period, foreign resident data is based on information on visa requirements, and it is available in Shanghai YB (2010).

Data on the number of firms from various foreign countries in Shanghai for the period 1872 to 1921 is available from the same sources as the foreign resident data. In the early years, foreign firms mainly engaged in importing and exporting, whereas especially after the turn of the 20th century they increasingly undertook manufacturing activities as well. For the modern period, we do not have counts of foreign firms in Shanghai by foreign country, so we estimate the number of foreign firms in Shanghai for a given foreign country by allocating the total number of foreign firms in proportion to the value of foreign capital absorbed, which is available by foreign country for the years 1995 to 2009. Both data series come from the Shanghai Statistical Yearbooks. In the regressions, the modern FDI measure is the contracted foreign capital Shanghai receives from each foreign country; this is available since the year 1986 (source: Shanghai Statistical Yearbooks).

[44] Customs trade also includes relatively small amounts of trade in form of foreign aid and gifts.

Data on the Chinese population of Shanghai during the treaty port era comes from CMC (2001) and Mitchell (1998). For the post 1949 period it comes from the Shanghai Statistical Yearbooks (Shanghai YB 2010). GDP of foreign countries is from the online database of the Groningen Growth and Development Centre (GGDC, http://www.ggdc.net), University of Groningen. The GGDC database reports all GDP data consistently using the 1990 International Geary-Khamis dollars. Historical GDP, if unavailable for a particular year, is estimated using data on the years 1870 and 1913. GDP of these two years are available for all countries in our sample. To estimate data for missing years, we compute the growth rate of a given country's GDP during this 43-year period and project its GDP for years using this growth rate. Distance between countries is available from the website www.searates.com. The website provides distance of ocean shipping in nautical miles between Shanghai and the major ports in the countries included in the analysis below.

The Influence of past foreign presence on Shanghai's Imports today

The results, analogously to Table 7 and 8 in the text, are shown in Table B. Neither past FDI nor past foreign residents in Shanghai have a significantly positive effect on Shanghai's imports today, see columns 1 and 3. In contrast, today's FDI as well as today's foreign residents do have a positive effect on Shanghai's imports, see columns 2 and 4. This may be due to the fact that Shanghai's import pattern has changed drastically since the early 20th century, as noted above, away from far-away early-developing countries to more near-by countries. Further, we note that the size of the foreign resident effect appears to be larger, as judged by the beta coefficients.

Table C: A comparison of Shanghai with other major treaty ports

	Year 1890		Year 1910	
	Imports	Exports	Imports	Exports
Canton	11,098	14,864	32,561	54,025
Dairen	*	*	18,672	20,183
Hankow	149	5,670	18,836	17,895
Kowloon	17,960	14,841	32,770	14,986
Tientsin	1,858	4,602	32,678	5,852
Shanghai	66,251	32,742	198,286	175,672

* Not a treaty port yet

Note: Gross value of trade in 1,000 Haiguan Liang; source: Hsiao (1974), Table 7a

Map 1: Chinese Maritime Customs Stations

Note: from Lyons (1973)

Table 1: China's Share of World Merchandise Exports in Comparison, 1870 to 2009

(In percent)

	1870	1913	1929	1950	1960	1970	1980	1990	2000	2009
China	2.78	1.98	2.50	2.14	2.08	0.76	0.92	1.79	3.86	9.62
Germany	13.43	17.98	14.03	4.46	9.23	11.27	9.77	12.12	8.55	9.02
United Kingdom	24.31	18.52	12.80	10.00	8.58	6.40	5.58	5.33	4.42	2.82
United States	4.96	9.04	12.15	14.58	16.66	14.24	11.43	11.33	12.11	8.45
India	6.88	4.46	3.28	1.86	1.08	0.67	0.44	0.52	0.66	1.30
Japan	0.10	0.79	1.74	1.20	3.28	6.36	6.61	8.28	7.42	4.65

Note: Sources are League of Nations Yearbooks, various years, and World Development Indicators database, World Bank.

Table 2: China's Share of World GDP in Comparison, 1870 to 2008

(In percent)

	1870	1913	1929	1950	1960	1970	1980	1990	2000	2008
China	17.10	8.83	7.05	4.59	5.24	4.63	5.20	7.83	11.77	17.48
Germany	6.50	8.68	6.74	4.97	6.62	6.12	5.52	4.66	4.24	3.36
United Kingdom	9.03	8.22	6.46	6.52	5.37	4.35	3.64	3.48	3.30	2.84
United States	8.87	18.93	21.68	27.29	24.27	22.39	21.12	21.39	21.89	18.61
India	12.15	7.47	6.23	4.16	3.88	3.41	3.18	4.05	5.18	6.70
Japan	2.29	2.62	3.29	3.02	4.45	7.36	7.83	8.55	7.16	5.70

Note: Figures are derived from Maddison's estimates, www.ggdc.net

Table 3. Gravity Equations for Historical and Modern Trade of Shanghai

	Treaty Port Era (1869-1904)				Modern Era (1953-2009)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep variable	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**
Foreign GDP	1.504	1.722	1.497	1.717	0.945	1.197	0.898	1.053
	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]
Shanghai population	-0.565	-0.308			1.575	3.686		
	[0.159]	[0.462]			[<.001]	[0.051]		
Distance	-0.755	-1.944	-0.741	-1.925	-0.471	-0.856	-0.457	-0.750
	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]
Entrepôt Y/N	7.771	9.725	7.746	9.704	3.580	2.464	3.396	2.065
	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]	[0.053]	[<.001]	[<.001]
Time Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes
Observations	58	54	58	54	69	52	69	52
R-squared	0.808	0.886	0.821	0.892	0.761	0.624	0.873	0.911

Notes: Dependent variable is bilateral exports and imports of Shanghai. All variables in logarithms. Sources: CMCS (2001) and Shanghai Statistical Yearbook (2010), various volumes, except Foreign GDP which is from www.ggdc.net, and Distance, which is by sea, from www.portworld.com. For details on the sources, see Section 3 and the Appendix. Bootstrapped p-values clustered at the country level are given in brackets.

Table 4. Gravity Equations for Historical and Modern Trade for China with the Exception of Shanghai

	(1)	(2)	(3)	(4)
	The historical period		The modern period	
Dep variable:	**Exports**	**Imports**	**Exports**	**Imports**
Foreign GDP	1.405 [<.001]	1.647 [<.001]	0.995 [<.001]	1.100 [<.001]
Population	-6.043 [0.125]	0.323 [0.939]	3.712 [<.001]	5.418 [<.001]
Distance	-1.625 [<.001]	-2.293 [<.001]	-0.679 [<.001]	-0.877 [<.001]
Entrepôt dummy	7.973 [<.001]	10.086 [<.001]	3.240 [<.001]	2.575 [<.001]
Observations	44	43	60	44
R-squared	0.850	0.696	0.871	0.897

Note: Dependent variable is bilateral exports and imports of the rest of China (China's total value minus Shanghai's value). Sources: CMCS (2001), various volumes, except China's total value is from the CEPII gravity dataset http://www.cepii.fr/anglaisgraph/bdd/gravity.asp, Foreign GDP which is from www.ggdc.net, and Distance, which is by sea, from www.portworld.com. For details on the sources, see Section 3 and the Appendix. Bootstrapped p-values clustered at the country level are given in brackets.

Table 5. Exports and Foreign Presence in China, 1905 – 1925

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Distance	-1.498 [<.001]	-0.841 [0.051] (-0.134)	-0.866 [0.013] (-0.138)	-0.841 [0.022]	-0.902 [0.002]	-1.623 [0.005] (-0.260)	-1.657 [0.001] (-0.265)	-1.526 [0.001]	-1.590 [0.002]
Foreign GDP	1.857 [<.001]	1.518 [<.001] (0.513)	1.587 [<.001] (0.537)	1.502 [<.001]	1.590 [<.001]	1.682 [<.001] (0.569)	1.703 [<.001] (0.576)	1.645 [<.001]	1.691 [<.001]
China GDP	1.402 [0.676]	1.275 [0.698] (0.019)	1.743 [0.579] (0.026)			0.129 [0.972] (0.002)	0.844 [0.809] (0.013)		
Foreign Firms of Trade Partner		0.402 [0.011] (0.236)		0.409 [0.009]		0.342 [0.039] (0.200)		0.357 [0.023]	
Foreign Residents of Trade Partner			0.316 [0.001] (0.235)		0.302 [0.001]		0.294 [0.003] (0.219)		0.284 [0.002]
Other Foreign Firms						0.237 [0.033] (0.150)		0.207 [0.053]	
Other Foreign Residents							0.179 [0.027] (0.151)		0.155 [0.097]
Time Fixed Effects	No	No	No	Yes	Yes	No	No	Yes	Yes
R-squared	0.546	0.568	0.575	0.612	0.616	0.574	0.580	0.617	0.620
No. of observations	79	76	76	76	76	76	76	76	76

Note: Dependent variable is China's bilateral exports. Foreign firms of trade partner is the number of firms the trade partner has located in China, foreign residents of trade partner is the number of residents the trade partner has living in China. Other foreign firms (residents) are firms (residents) of the same continent as the trade partner (excluding the trade partner). All variables in logarithms. Sources: CMCS (2001), various volumes, except Foreign GDP which is from www.ggdc.net, and Distance, which is by sea, from www.portworld.com. For details on the sources, see Section 3 and the Appendix. Bootstrapped p-values clustered at the country level are given in brackets. Standardized beta coefficients are reported in parentheses (beta).

Table 6: Imports and Foreign Presence in China, 1905 – 1925

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Distance	-1.654 [<.001]	-0.397 [0.216] (-0.056)	-0.495 [0.138] (-0.070)	-0.449 [0.149]	-0.559 [0.077]	-0.353 [0.496]	-0.257 [0.609]	-0.290 [0.600]	-0.181 [0.728]
Foreign GDP	1.741 [<.001]	1.106 [<.001] (0.340)	1.261 [<.001] (0.387)	1.129 [<.001]	1.283 [<.001]	1.097 [<.001]	1.228 [<.001]	1.099 [<.001]	1.231 [<.001]
China GDP	1.168 [0.812]	1.436 [0.780] (0.019)	2.400 [0.667] (0.033)			1.497 [0.771]	2.653 [0.631]		
Foreign Firms of Trade Partner		0.778 [<.001] (0.402)		0.745 [<.001]		0.781 [<.001]		0.754 [<.001]	
Foreign Residents of Trade Partner			0.583 [<.001] (0.386)		0.551 [<.001]		0.588 [<.001]		0.559 [<.001]
Other Foreign Firms						-0.013 [0.917]		-0.049 [0.728]	
Other Foreign Residents							-0.054 [0.538]		-0.086 [0.355]
Time Fixed Effects	No	No	No	Yes	Yes	No	No	Yes	Yes
R-squared	0.416	0.483	0.497	0.509	0.520	0.483	0.497	0.509	0.520
No. of observations	83	80	80	80	80	80	80	80	80

Note: Dependent variable is China's bilateral imports. Foreign firms of trade partner is the number of firms the trade partner has located in China, foreign residents of trade partner is the number of residents the trade partner has living in China. Other foreign firms (residents) are firms (residents) of the same continent as the trade partner (excluding the trade partner). All variables in logarithms. Sources: CMCS (2001), various volumes, except Foreign GDP which is from www.ggdc.net, and Distance, which is by sea, in nautical miles, from www.portworld.com. For details on the sources, see Section 3 and the Appendix. Bootstrapped p-values clustered at the country level are given in brackets [p-value]. Standardized beta coefficients are reported in parentheses (beta).

Table 7. Foreign Residents during the Treaty Port Era and Shanghai's Exports Today

	(1)	(2)	(3)	(4)
Distance	-0.367 [<.001]	0.217 [0.080]	-0.273 [<.001]	0.230 [0.051] (0.166)
Foreign GDP	0.582 [<.001]	0.291 [<.001]	0.511 [<.001]	0.279 [<.001] (0.336)
Shanghai GDP	2.133 [<.001]	0.592 [0.136]	2.152 [<.001]	0.618 [0.132] (0.159)
Foreign Residents Today		0.845 [<.001]		0.833 [<.001] (0.674)
Foreign Residents in Year 1921			0.027 [<.001]	0.006 [0.469] (0.031)
R-squared	0.784	0.885	0.792	0.885
No. of observations	90	86	90	86

Note: Dependent variable is Shanghai's bilateral exports; sample period is the years 2000 to 2009. Foreign Residents is measured as the number of foreigners from a particular trade partner living in Shanghai in various years. All variables, except Foreign Residents, are in logarithms. Sources: Foreign Residents during the treaty port era: CMCS (2001), various volumes, and CMCS (1873). Shanghai's exports, GDP, and foreign residents from Shanghai Statistical Yearbooks, Foreign GDP from www.ggdc.net; Distance from CEPII gravity dataset. For details on the sources, see Section 3 and the Appendix. Bootstrapped p-values clustered at the country level are given in brackets. Standardized (beta) coefficients shown in parentheses in column 4.

Table 8: The Legacy of Treaty Port Era FDI for Shanghai's Exports Today

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Distance	-0.464 [<.001]	-0.366 [<.001]	-0.279 [<.001]	-0.358 [<.001]	-0.438 [<.001]	-0.251 [<.001] (-0.130)	-0.293 [<.001]	-0.399 [<.001]	0.037 [0.578]
Foreign GDP	0.596 [<.001]	0.491 [<.001]	0.463 [<.001]	0.501 [<.001]	0.564 [<.001]	0.409 [<.001] (0.394)	0.401 [<.001]	0.751 [<.001]	0.589 [<.001]
Shanghai GDP	1.471 [<.001]	1.310 [<.001]	1.520 [<.001]	1.506 [<.001]	1.482 [<.001]	1.358 [<.001] (0.579)		1.409 [<.001]	1.333 [<.001]
FDI Today		0.199 [<.001]				0.184 [<.001] (0.228)	0.264 [<.001]	0.034 [0.335]	0.159 [<.001]
FDI in Year 1921			0.089 [<.001]			0.059 [<.001] (0.123)	0.033 [0.020]	0.023 [0.003]	0.018 [0.071]
FDI in Years 1911 to 1921				0.113 [<.001]					
FDI in Years 1872 to 1921					0.079 [0.053]				
Common Language								1.613 [<.001]	
Time Zone Differences									-0.109 [<.001]
R-squared	0.808	0.848	0.822	0.815	0.809	0.854	0.910	0.901	0.876
No. of observations	205	198	205	205	205	198	198	198	198

Note: Dependent variable is Shanghai's bilateral exports; sample period covers the years 1986 to 2009. FDI during the treaty port era is measured as the number of firms a particular trade partner has located in Shanghai during the Treaty Port Era; FDI Today is measured as the contracted foreign capital of Shanghai from foreign investing country. Common Language is a 0/1 variable; Time Zone Differences is the absolute value of the number of time zones between Shanghai and the trade partner. All variables, except FDI during the treaty port era, Common Language, and Time Zone Differences, are in logarithms. Sources: FDI Treaty Port Era: CMCS (2001), various volumes, and CMCS (1873); Shanghai's exports, GDP, and FDI during the modern period: Shanghai Statistical Yearbooks; Foreign GDP from www.ggdc.net; Distance, Common Language, and Time Zone Differences from the CEPII gravity dataset. For details on the sources, see Section 3 and the Appendix. Column 7 includes time fixed effects (coefficients not shown). Bootstrapped p-values clustered at the country level are given in brackets. Standardized (beta) coefficients shown in parentheses in column 6.

Table A. Gravity Equations for Modern Trade, Different periods

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	The post-1978 period				The post-1984 period			
Dep variable:	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**	**Exports**	**Imports**
Foreign GDP	1.030	1.141	1.008	1.095	1.161	1.125	1.161	1.082
	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]	[<.001]
Shanghai population	5.273	21.530			23.475	28.432		
	[0.019]	[<.001]			[<.001]	[<.001]		
Distance	-0.526	-0.740	-0.523	-0.721	-0.621	-0.570	-0.621	-0.558
	[0.001]	[<.001]	[<.001]	[<.001]	[<.001]	[0.004]	[<.001]	[0.010]
Entrepôt Y/N	3.172	2.229	3.113	2.069	3.208	2.299	3.207	2.140
	[<.001]	[0.005]	[<.001]	[0.005]	[<.001]	[0.006]	[<.001]	[0.040]
Time fixed effects	No	No	Yes	Yes	No	No	Yes	Yes
Observations	49	39	49	39	35	29	35	29
R-squared	0.829	0.851	0.929	0.881	0.962	0.788	0.974	0.836

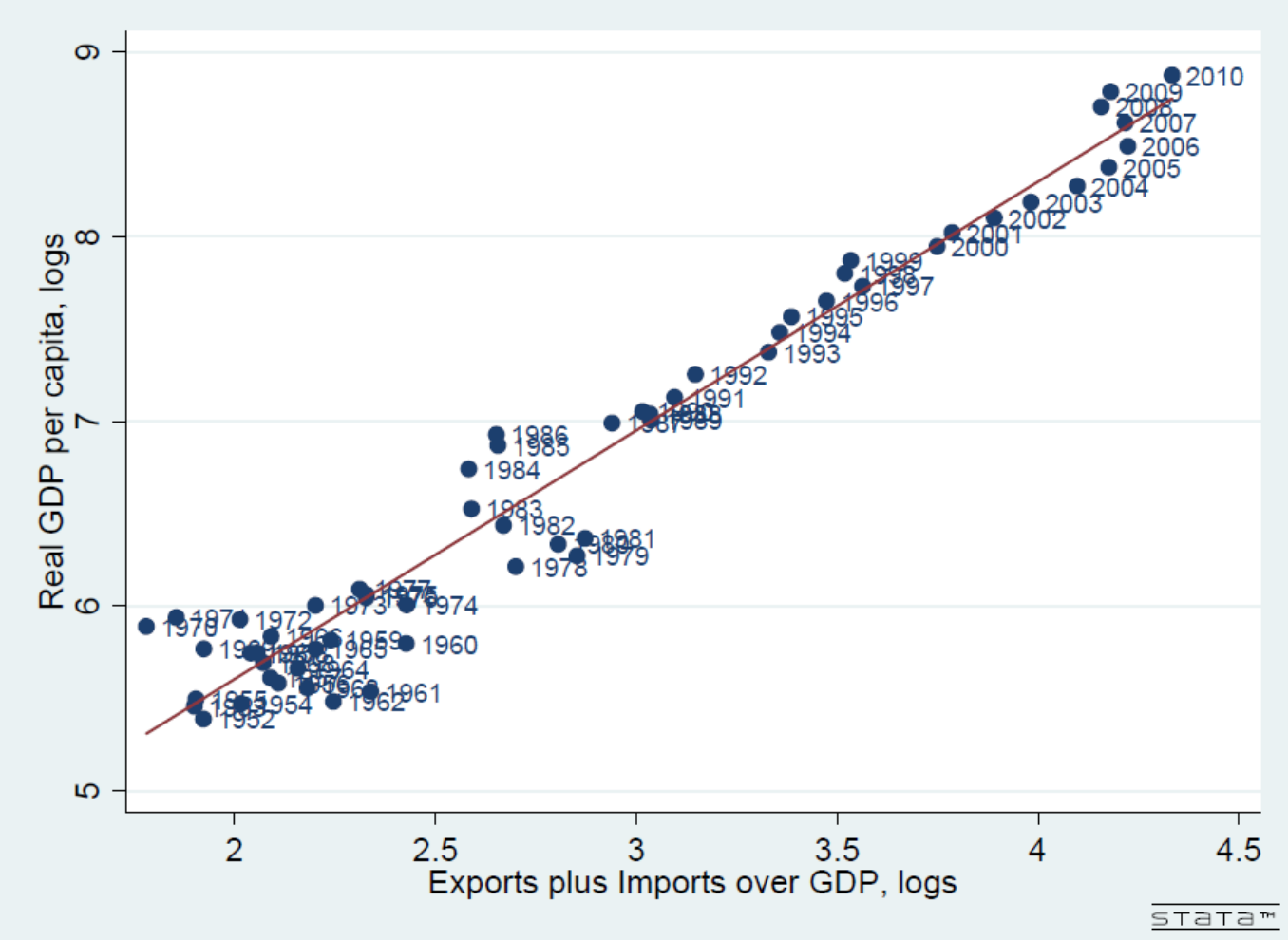
Note: Dependent variable is bilateral exports and imports of the rest of China (China's total value minus Shanghai's value). Sources: CMCS (2001), various volumes, except China's total value is from the CEPII gravity dataset http://www.cepii.fr/anglaisgraph/bdd/gravity.asp, Foreign GDP which is from www.ggdc.net, and Distance, which is by sea, from www.portworld.com. For details on the sources, see Section 3 and the Appendix. Bootstrapped p-values clustered at the country level are given in brackets.

Table B: Imports and the Legacy of the Foreign Treaty Port Presence in Shanghai

	(1)	(2)	(3)	(4)
Distance	-0.802 [<.001]	-0.776 [<.001] (-0.328)	-0.793 [<.001]	-0.390 [0.001] (-0.289)
Foreign GDP	0.612 [<.001]	0.590 [<.001] (0.465)	0.548 [<.001]	0.357 [<.001] (0.440)
Shanghai GDP	1.973 [<.001]	1.807 [<.001] (0.630)	1.423 [<.001]	0.232 [0.517] (0.061)
FDI in Year 1921	-0.004 [0.772]	-0.027 [0.028] (-0.045)		
Foreign Residents in Year 1921			-0.012 [0.030]	-0.029 [<.001] (-0.144)
FDI Today		0.121 [0.001] (0.122)		
Foreign Residents Today				0.679 [<.001] (0.563)
R-squared	0.808	0.813	0.745	0.800
No. of observations	205	198	90	86

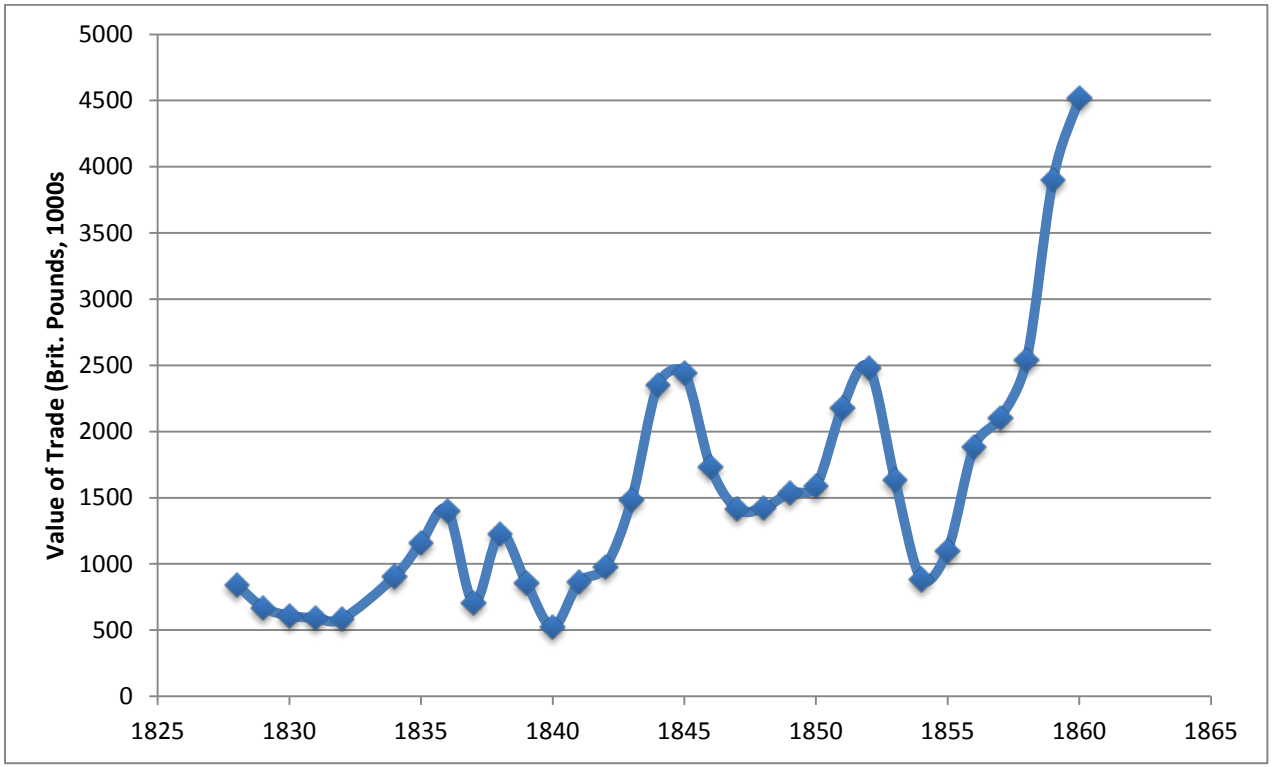
Note: Dependent variable is Shanghai's bilateral imports; sample years cover 1986 to 2009 in columns (1) and (2), and years 2000 to 2009 in columns (3) and (4). See Tables 8 and 9 for variable definitions and sources. Bootstrapped p-values clustered at the country level are given in brackets. Standardized (beta) coefficients shown in parentheses in columns 2 and 4.

Figure 1: The Correlation of Trade Openness and Income per Capita in Post- World War II China



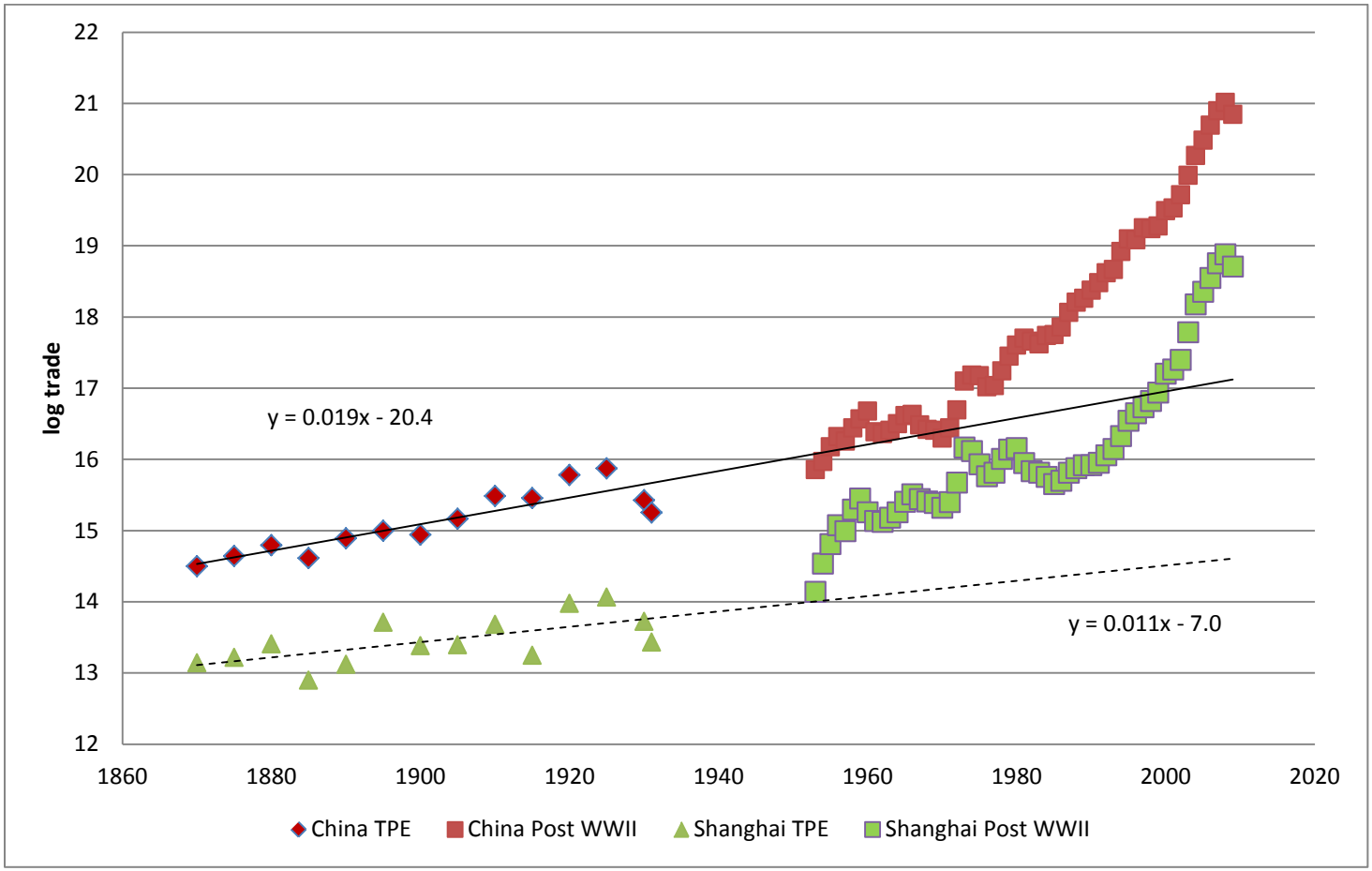
Note: Data from Penn World Tables, version 7.1

Figure 2: China's Imports from Great Britain, 1828 to 1860



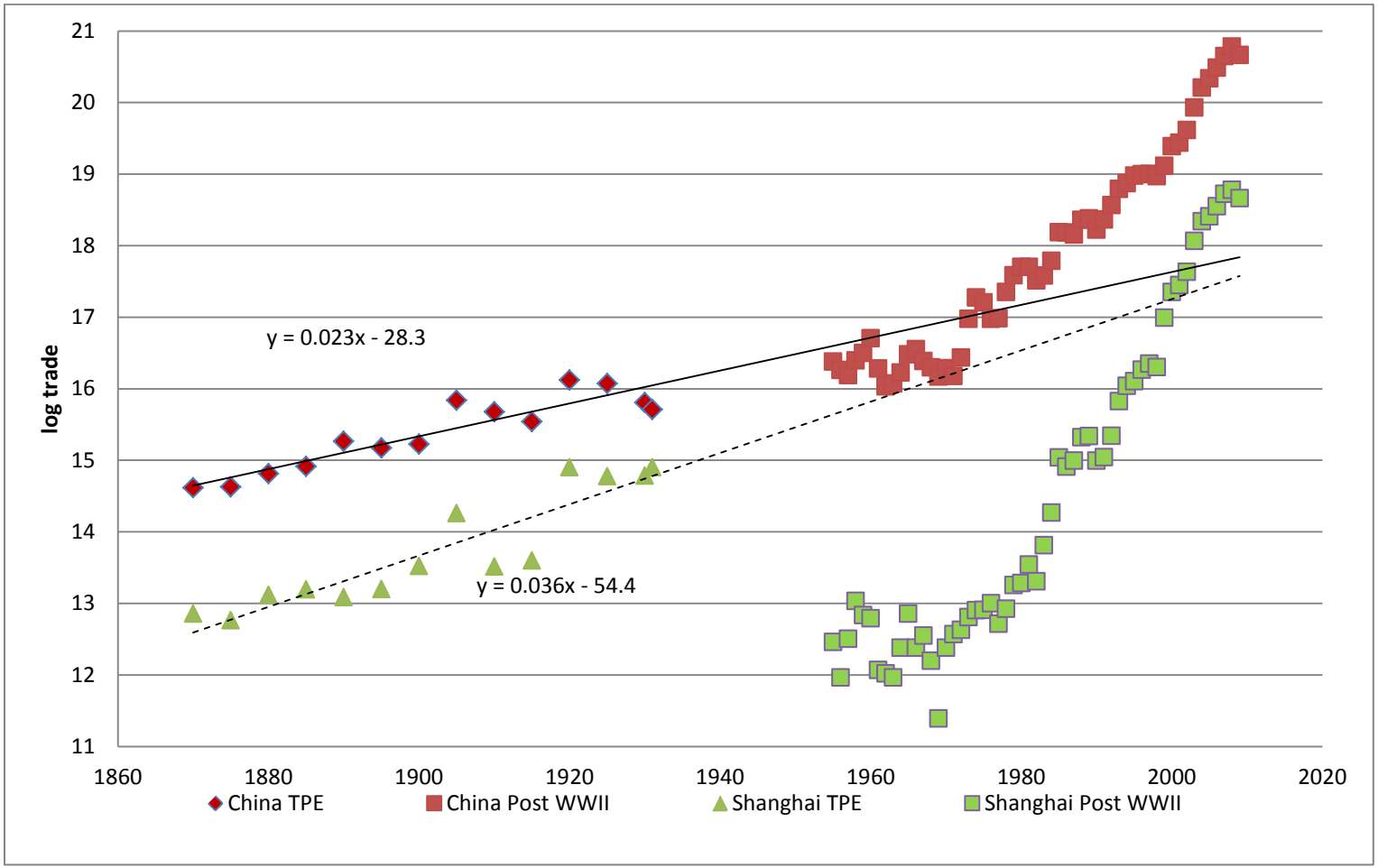
Note: Data from British Parliamentary Papers, Keller, Li, and Shiue (2011b).

Figure 3: Exports of Shanghai and China



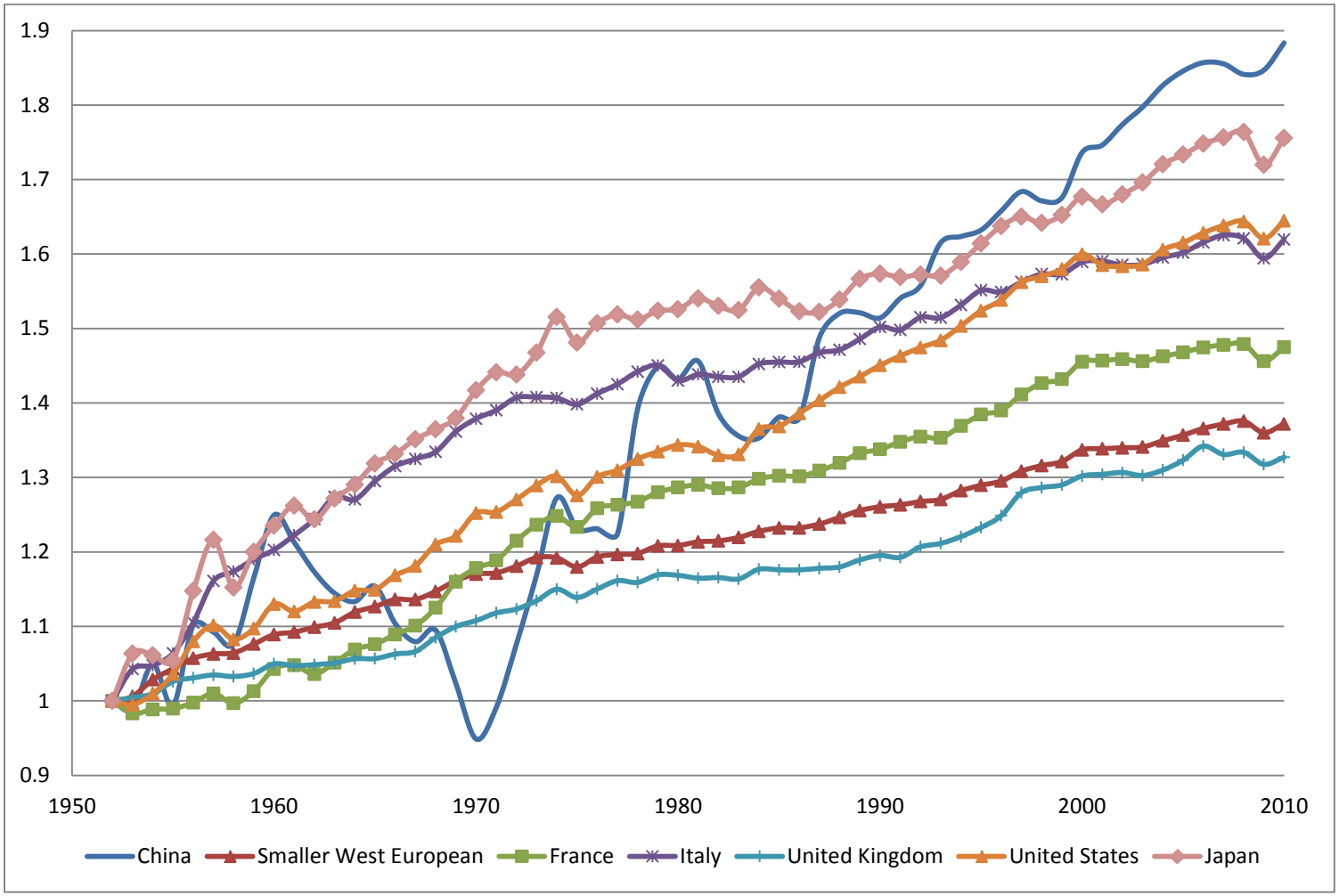
Note: TPE stands for treaty port era. Data before 1940 comes from CMCS (2001), various volumes. Information on Shanghai after World War II (WWII) from Shanghai Statistical Yearbooks, various volumes, and for China post WWII from World Development Indicators, the World Bank.

Figure 4: Imports of Shanghai and China



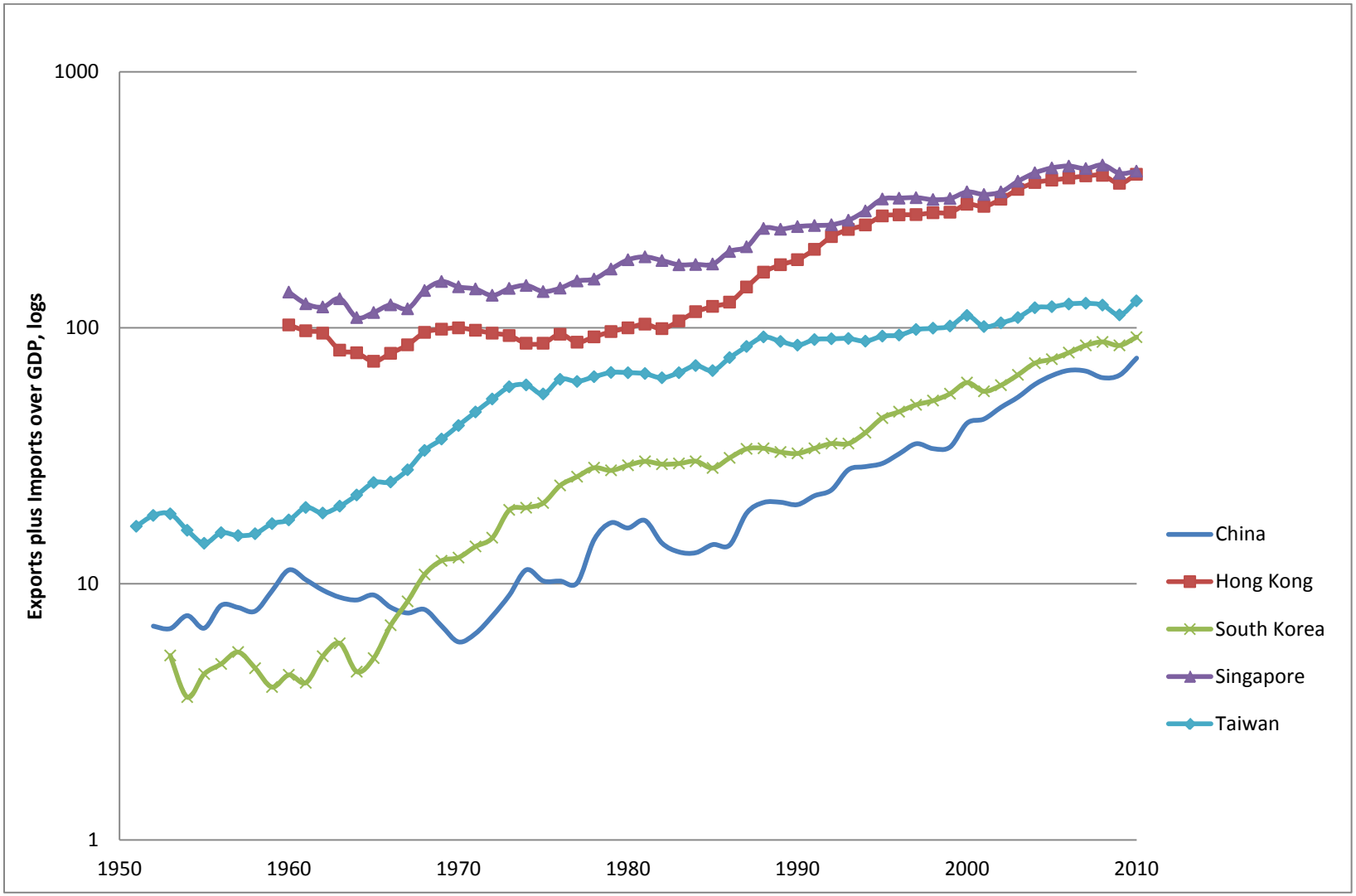
Note: TPE stands for treaty port era. Data before 1940 comes from CMCS (2001), various volumes. Information on Shanghai after World War II (WWII) from Shanghai Statistical Yearbooks, various volumes, and for China post WWII from World Development Indicators, the World Bank.

Figure 5: The Relative Growth of Openness in the Post World War II Era (1952 = 1)



Note: Openness defined as exports plus imports over GDP, from Penn World Tables, version 7.1. For each country, the percentage annual rate of growth in openness is computed, and then linked to the level of 1 in the year 1952. Smaller West European are Austria, Belgium, Denmark, Finland, the Netherlands, Norway, Portugal, Sweden, and Switzerland.

Figure 6: The Growth of Openness in Asia Since World War II



Note: Data from Penn World Tables, version 7.1

Figure 7. Composition of Shanghai's Imports: Treaty Port Era versus Today

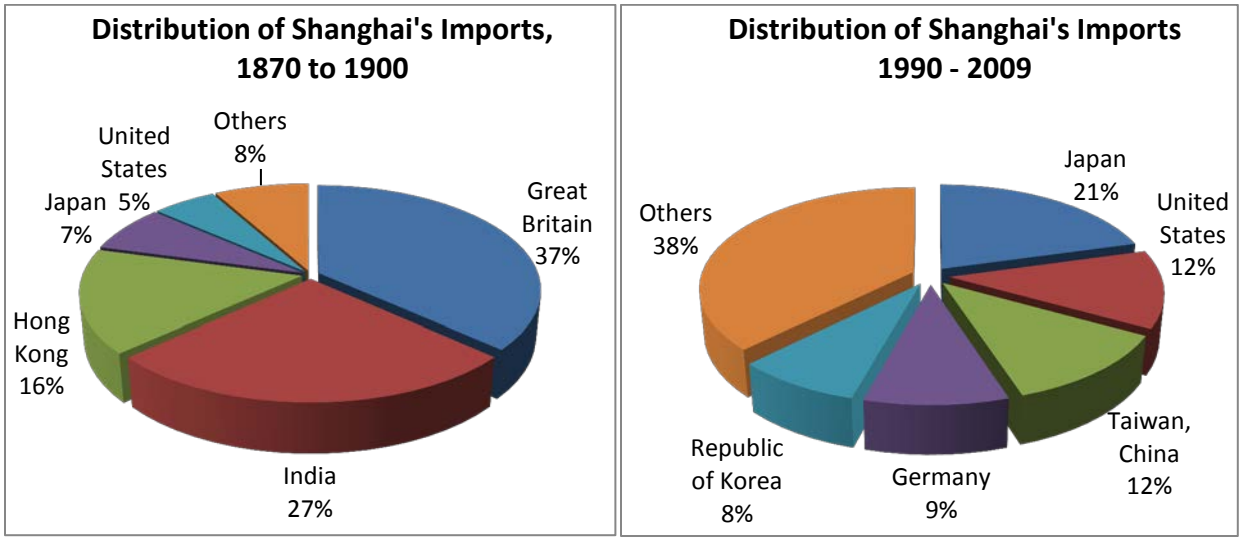
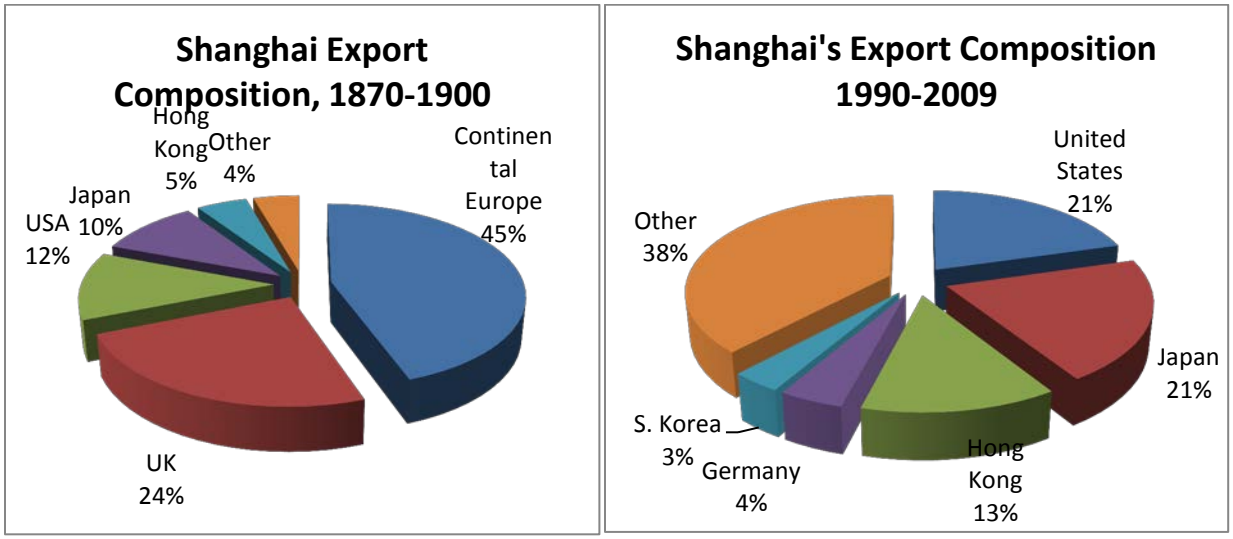
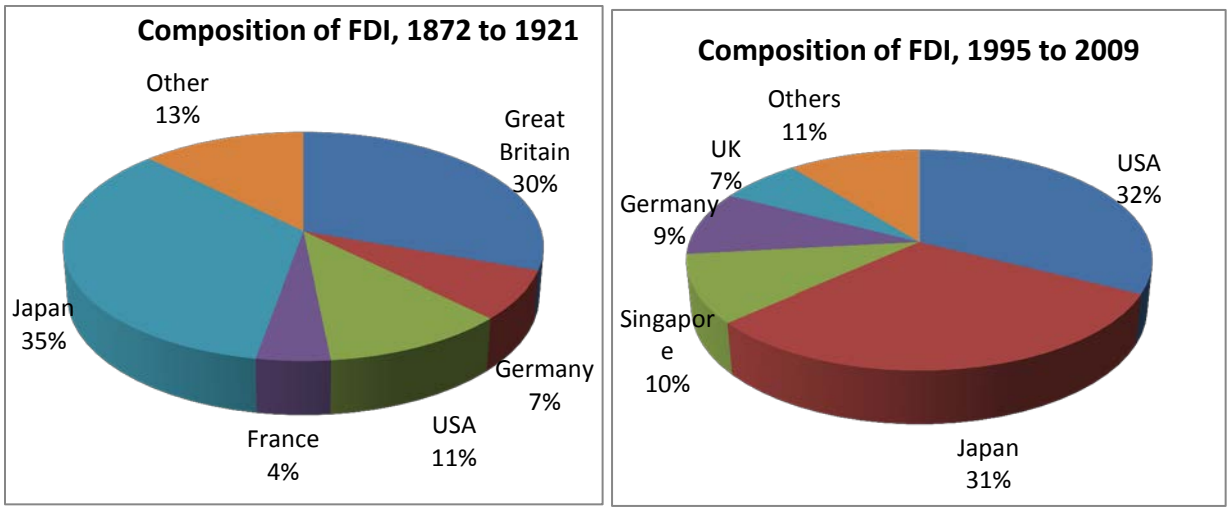


Figure 8. Composition of Shanghai's Exports: Treaty Port Era versus Today



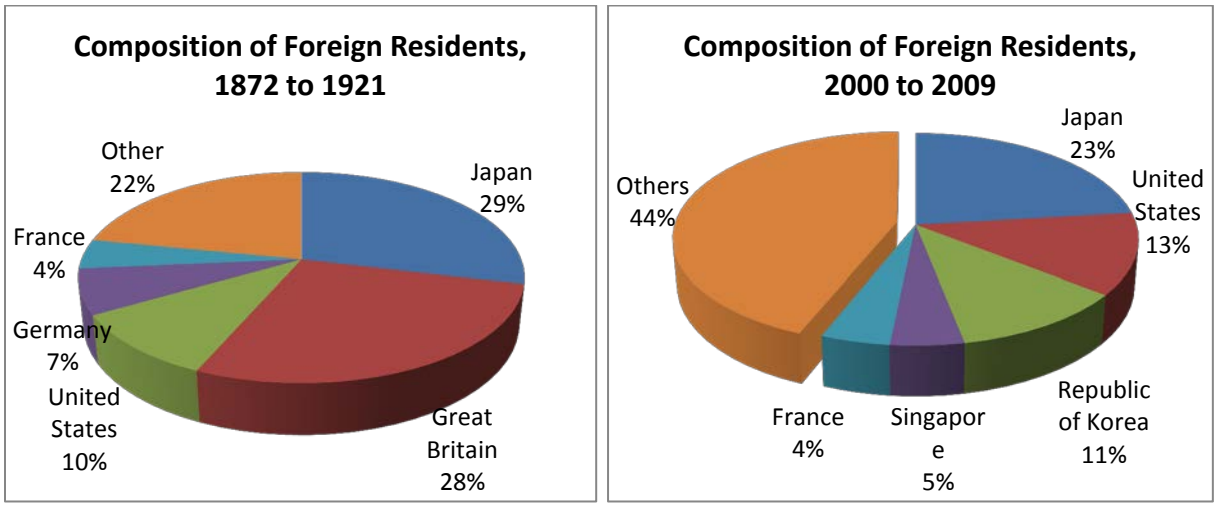
Note: Source of the underlying trade data is CMCS (2001), various volumes.

Figure 9. Composition of Foreign Direct Investment in Shanghai: Treaty Port Era versus Today



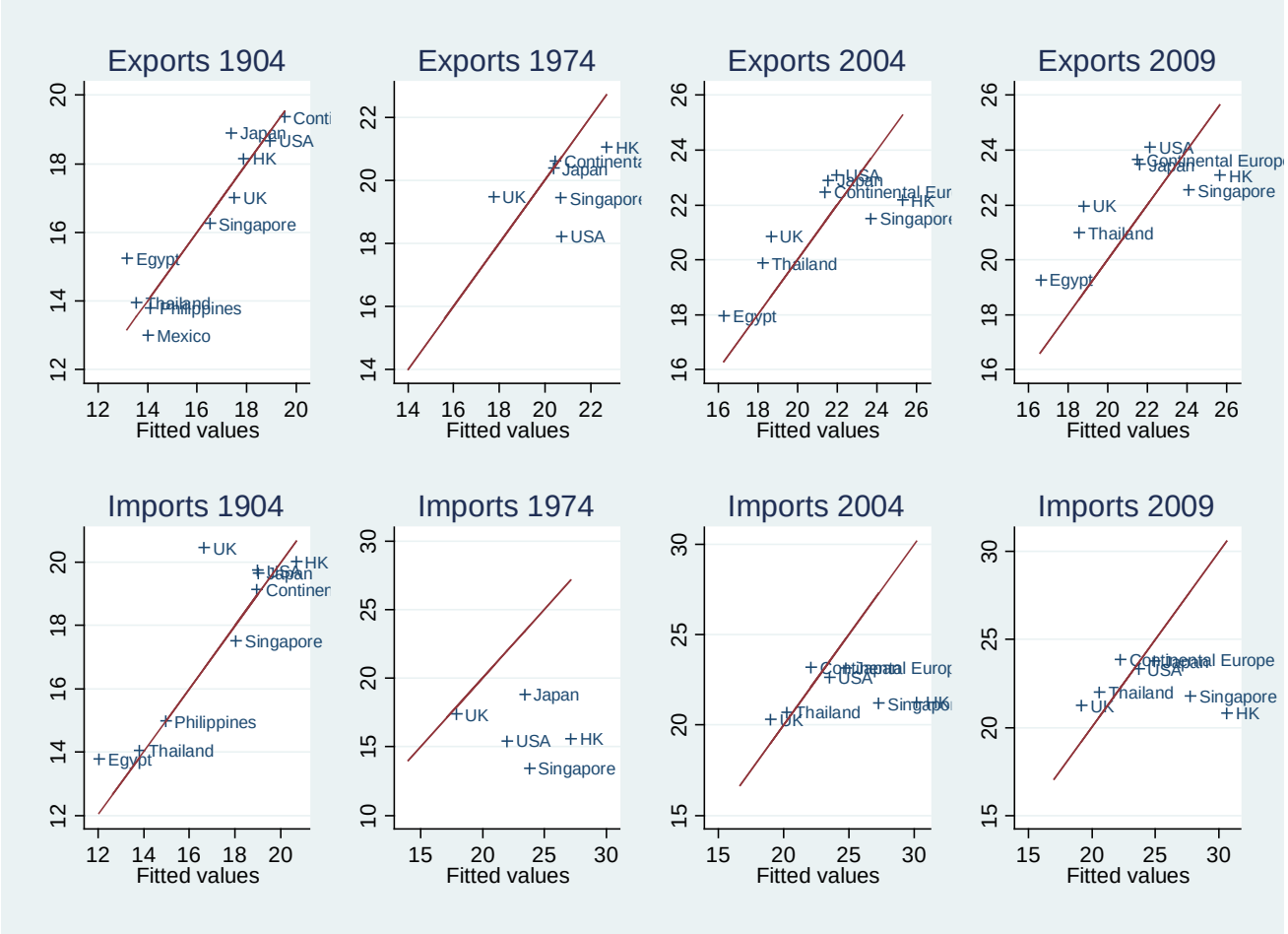
Note: For period 1872 to 1921, the shares are for the number of foreign firms (source: CMCS 1873, CMCS 2001, various volumes). For the period 1995 to 2009, the shares are derived from foreign capital absorbed (source: Shanghai Statistical Yearbook, various years). Modern period excludes FDI from Hong Kong, Taiwan, and Macao.

Figure 10. Composition of Foreign Residents in Shanghai: Treaty Port Era versus Modern Period



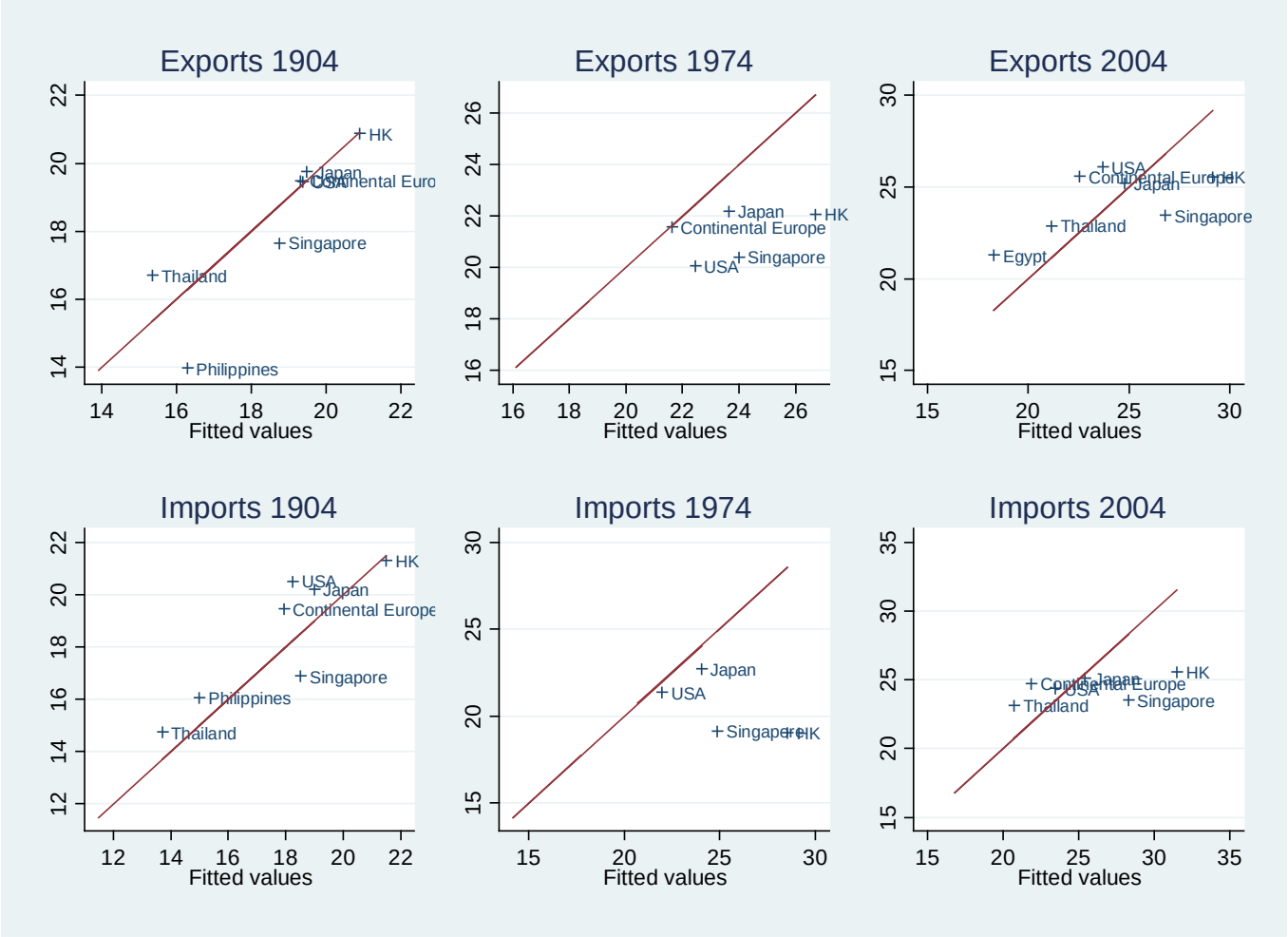
Note: Figures for 1872 to 1921 from CMCS (1873), CMCS (2001), various volumes. For years 2000 to 2009, data comes from the Shanghai Statistical Yearbook, various years.

Figure 11. Projected and Actual Bilateral Trade Patterns for Shanghai



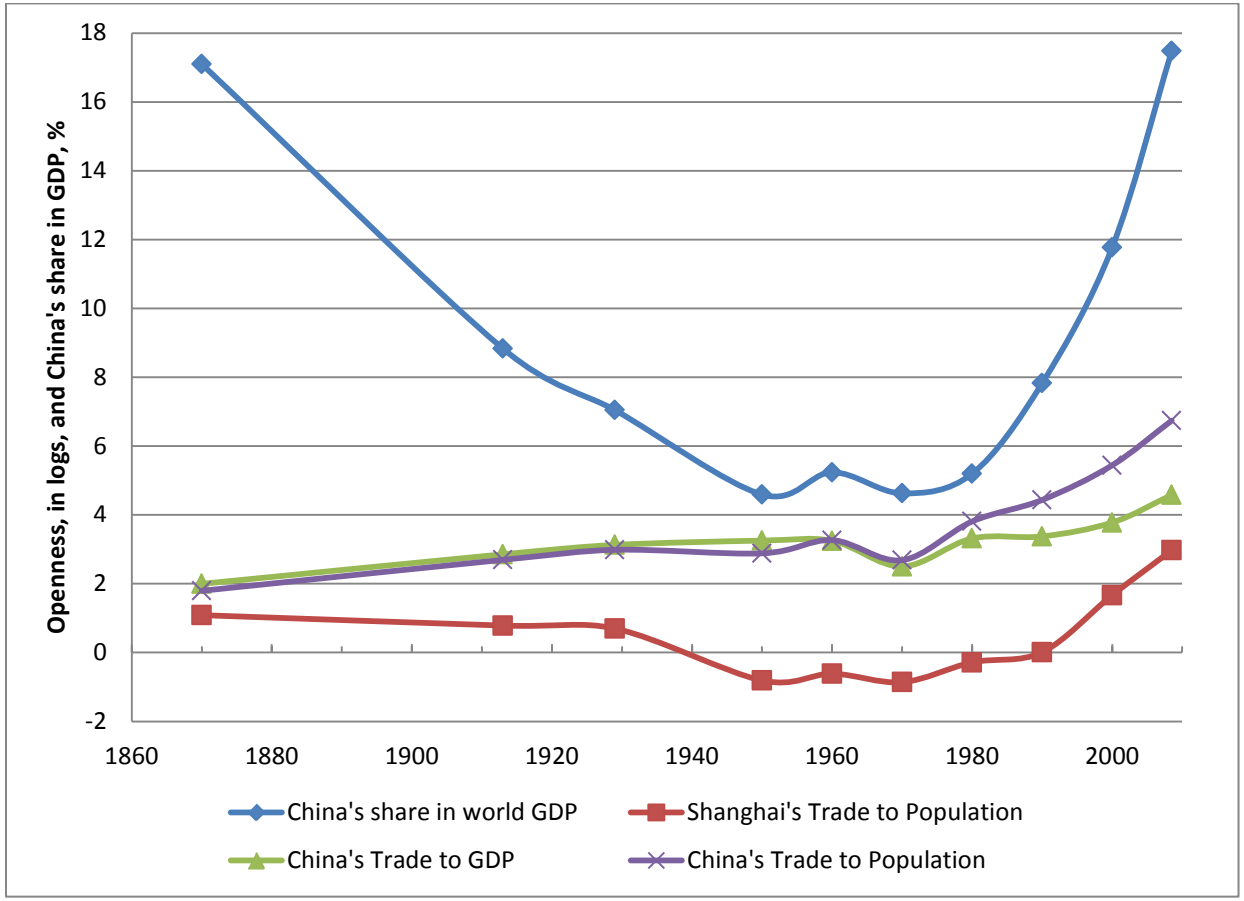
Note: On the horizontal axis is the predicted value of trade using values on the independent variables in years 1904, 1974, 2004, and 2009, respectively, together with the gravity regression coefficients for the historical period (1869 to 1904). On the vertical axis the actual value of trade for the same years is given. Trade data from CMCS (2001) and Shanghai Statistical Yearbooks, various volumes; for sources on other variables, see Section 3.

Figure 12. Projected and Actual Bilateral Trade Patterns, China with the Exception of Shanghai



Note: On the horizontal axis is the predicted value of trade using values on the independent variables in years 1904, 1974, and 2004, respectively, together with the gravity regression coefficients for the historical period (1869 to 1904). On the vertical axis the actual value of trade for the same years is given. Trade data from CMCS (2001) and Shanghai Statistical Yearbooks, various volumes; for sources on other variables, see Section 3.

Figure 13. Openness and China's Share in World GDP: What matters, Shanghai or China?



Note: GDP data from www.ggdc.net; China's population before 1940 from this source as well. China's and Shanghai's trade before 1940 from CMCS (2001), various volumes; trade data after 1940 from Shanghai Statistical Yearbook, various volumes, for Shanghai, and from World Development Indicators (WDI), The World Bank, for China. WDI is also the source for China's post WWII population. Shanghai population before 1940 from CMCS (2001), various volumes, and after 1940 from Shanghai Statistical Yearbook, various volumes.