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Abstract:

The paper uses the panel data methodology to reassess the scholarly consensus in the economic history literature (“silver-standard myth”) that attributes Japan’s export boom of the late nineteenth century to the country’s fortuitous adoption of the silver standard. The paper, based on the annual panel data of Japanese trade flows with five gold- and five silver-standard countries for 1885–97, finds that the growth of exports was consistently higher for silver- than for gold-standard destinations (though the difference was statistically not significant), refuting the near-consensus view that the falling relative price of silver stimulated exports to gold-standard countries. This finding should be both logical and intuitive. First, given the higher rate of inflation in Japan, the yen’s real exchange rate did not depreciate during the silver-standard era. Second, Japan, as a small open economy, was a price-taker in world markets. The expansion of Japanese exports can best be understood as resulting from Japan’s increased capacity to produce goods, a surplus of which the country was able to sell at given world prices.

Keywords: silver standard; Japan and the silver standard; early industrialization in Japan; impact of the silver standard on Japanese trade

JEL classification codes: F33, E42, N15

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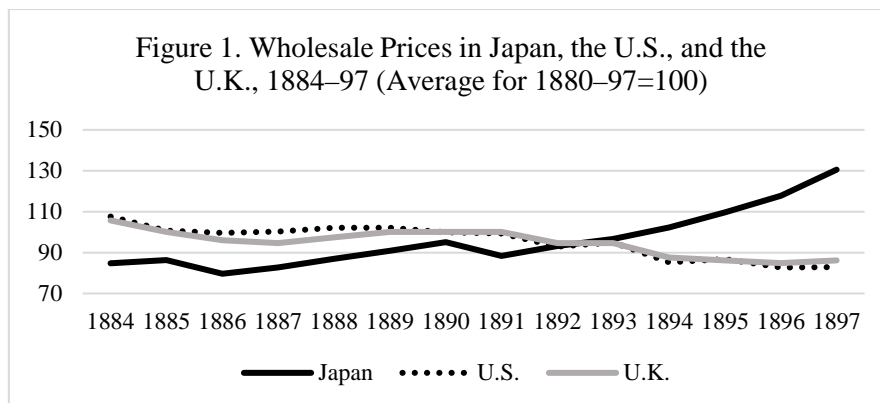
1. Introduction

This paper uses the panel data methodology to reassess the virtual scholarly consensus in the Japanese economic history literature that attributes the export boom of the late nineteenth century to the country's fortuitous adoption of the silver standard. There are two near-consensus views associated with Japan's silver-standard era (1885–97). One view observes, factually, that systematic, large-scale entrepreneurial activity emerged during the silver-standard era. Minami (1986, p. 10) states, for example, that Japan's modern economic growth (characterized by the application of modern science and technology) started in “the middle of the 1880s,” while Ishii (1997) traces the beginning of Japan's industrial revolution to the establishment of the silver standard. Rostow (1960) places Japan's economic take-off (a phase during which “growth becomes [society's] normal condition,” p. 36) in the period 1878–1900, ahead of Russia (1890–1914) and Canada (1896–1914). An authoritative view is expressed by a major collaborative work on Japan's industrial revolution edited by Oishi (1975), who states that Japan's industrial revolution began around 1887 and was completed sometime after 1897.¹

The other near-consensus view, explaining the timing of Japan's industrialization, appeals to the adoption of the silver standard, which led to a sustained depreciation of the yen against gold-standard currencies. Nakamura (1983, p. 231), for example, argues that the export boom was caused by the combined effects of an economic recovery in foreign markets

¹ The modern textile sector was firmly established in 1897. It would take another ten years to complete the industrial revolution (Oishi 1975). In 1897, about 28 percent of manufacturing production was accounted for by four principal textile-related industries, namely, raw silk (8 percent), cotton yarn and silk fabrics (7 percent each), and cotton fabrics (6 percent) (Abe 1990).

and “a low exchange rate,” while highlighting the contribution of external demand to the rise of a large number of business enterprises. Okada (1969, pp. 49–50), noting that Japan traded substantially more with countries on the gold standard than with those on silver, points to the larger trade share of gold-standard countries as a factor that magnified the impact on Japanese trade of an “effective real devaluation” attendant to the “adoption of the silver standard.” In the words of Allen (1946), “the [export] boom that lasted from the middle eighties to the middle nineties was stimulated ... by the depreciation of silver in terms of gold currencies (pp. 11–12).

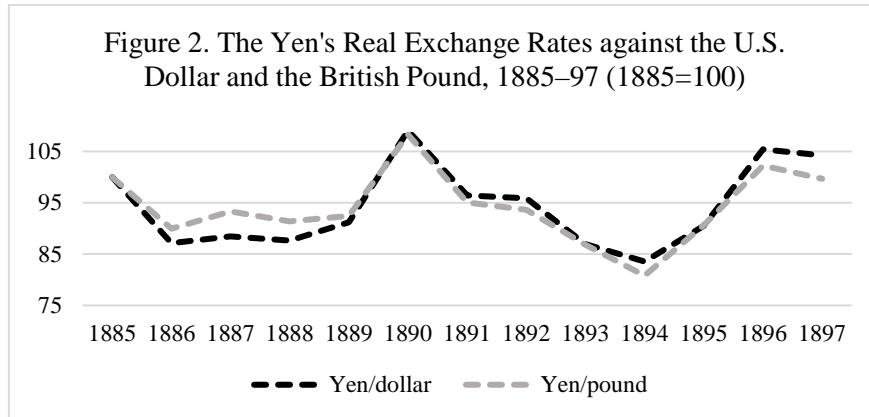


Notes: Bureau of Labor Statistics index for the U.S.; Sauerbeck-Statist index for the U.K.

Sources: author's estimates based on Bank of Japan (1986), p. 434; U.S. Department of Commerce (1949), p. 234; Mitchell (1988), pp. 725–26.

This consensus view, which finds a causal link from the falling silver price to the export growth, is not entirely consistent with another well-known observation in Japanese economic history, namely, that the silver-standard era was a period of inflation. From 1885 to 1897, Japanese wholesale prices rose at the average annual rate of 3.4 percent (Figure 1). In contrast, countries on the gold standard experienced a period of deflation, with American and British wholesale prices falling at the average annual rates of 1.6 and 1.2 percent, respectively. As a result, the yen's (WPI-based) real exchange rate appreciated by about 8 percent against the U.S. dollar and the British pound from 1885 to 1890. In 1897, the yen's real value against the pound was nearly identical to the level in 1885, while the yen stood

about 4 percent higher in relation to the dollar (Figure 2).² The falling relative price of silver, in and of itself, cannot be a satisfactory explanation of the expansion of exports to gold-standard countries.



Notes: annual averages; real exchange rates obtained from the gold-silver price adjusted for relative wholesale price indices; an increase in the value indicates a real appreciation of the yen.

Sources: author's estimates based on Bank of Japan (1986), p. 434; U.S. Department of Commerce (1949), pp. 234, 277; Mitchell (1988), pp. 725–26.

Despite this misgiving, the consensus view (“silver-standard myth”) has largely remained unchallenged. It may be that Japan’s experience with the silver standard, lasting only twelve years, has not lent itself to a rigorous quantitative analysis when annually available aggregate trade data are used. An obvious solution in such cases is to increase the number of observations by using panel data, an approach we take in this work. By creating a panel dataset of bilateral trade with gold- and silver-standard countries, we attempt to identify if the trade response to the falling silver price was different between gold- and silver-standard countries. Specifically, we test whether the falling silver price had (i) a significantly positive impact on exports to gold-standard countries (but not to silver-standard countries) and (ii) a

² A Dickey-Fuller test based on monthly data (not formally reported in the text) rejects the hypothesis that the yen’s real exchange rates against the dollar and the pound were stationary. If there was mean-reversion, it was not found during Japan’s brief silver-standard era.

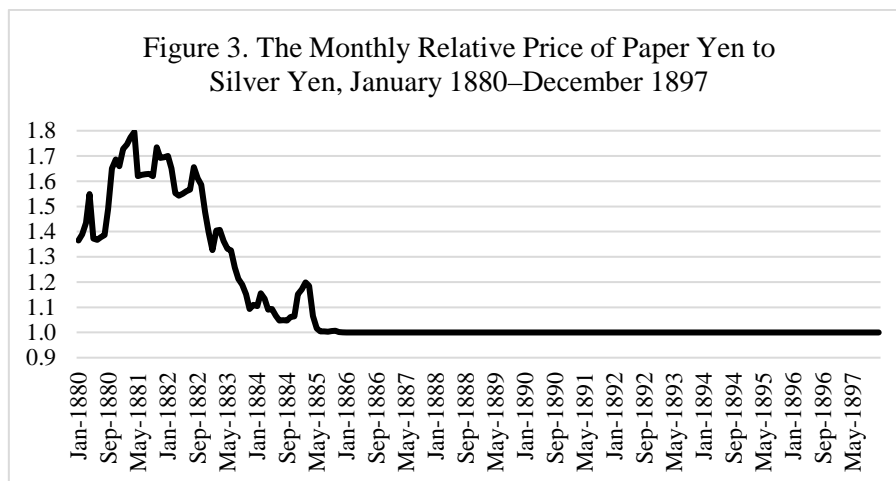
significantly negative impact on imports from gold-standard countries (but not from silver-standard countries).

The rest of the paper is organized as follows. Section 2 presents an overview of the institutional features of Japan's silver standard regime. Section 3 reviews Japan's economic and trade performance under the silver standard. Section 4 presents a panel data analysis of how Japanese exports and imports responded to changes in the gold-silver price, focusing on the difference, if any, between gold- and silver-standard countries. Section 5 attempts to understand what was behind the evolving structure of Japanese trade by examining the dynamics of domestic production during Japan's silver-standard era. Section 6, after explaining why the silver-standard myth fails to represent the reality of Japanese trade in the late nineteenth century, explores why such a mistaken notion has been widely embraced by economic historians. Finally, section 7 presents a conclusion.

2. The adoption of the silver standard

Japan's foreign exchange rate system was in a constant state of flux for a quarter of a century after 1859, when the country opened its ports to international commerce for the first time in some 250 years. A currency crisis of 1859–60 was resolved when the metallic content of token coinage was adjusted to bring the mint ratio to align with the relative price prevailing abroad. A new government that assumed power in 1868 established a gold standard *de jure* by enacting the New Coinage Ordinance in 1871, but the ensuing exodus of gold soon made it inoperative. The system turned into gold-silver bimetallism when silver was made legal tender in 1878, but with gold coinage hardly circulating, it was closer to a *de facto* silver standard. Standard silver coins were used as the means of international payment, though domestic commerce was almost entirely intermediated by currency notes issued by the central government or National Banks (private banks authorized to issue banknotes against the security of central government bonds).

The government, lacking a stable source of tax revenue, resorted to issuing currency notes and bonds when faced with a pressing need to finance rising expenditure. As the supply of government and National Bank notes multiplied, they began to trade at a discount against silver yen, which in March 1881 reached a peak of about 80 percent (Figure 3). This meant that Japan was operating a virtual floating exchange rate system: the value of domestic currency fluctuated against silver, which remained as the means of international payment. Alarmed by these developments, starting with the fiscal 1881 budget, the government launched a sustained program of fiscal austerity, in order to generate a surplus with which to withdraw government notes from circulation and to acquire specie as the backing for its notes. The spread between paper yen and silver yen began to narrow gradually in coming months.



Source: Matsukata (1899), pp. 29–33, 98–99.

A central pillar of the government's disinflation program was the establishment in 1882 of the Bank of Japan as the country's sole note-issuing bank. On June 27, the Bank of Japan Ordinance was promulgated, based in part on the statutes of the National Bank of Belgium (Yoshino 1977). The ordinance stipulated the central bank to be a private joint stock company with the paid-in-capital of ¥10 million (to which the government would contribute 50 percent). With finance ministry officials appointed as governor and deputy governor, it opened for business on October 10. At this time, silver still commanded a premium of nearly

60 percent. The government waited until May 26, 1884, when the premium fell below 10 percent, to promulgate the Convertible Banknotes Ordinance to take effect on July 1. The central bank further waited until May 9, 1885 before issuing its first silver-convertible banknotes, which immediately caused silver's premium over paper yen to disappear (see Figure 3).

The Bank of Japan Ordinance did not specify what the standard metal would be. It was the Convertible Banknotes Ordinance that specified silver as the standard metal. Finance minister Matsukata, explaining why he was adopting the silver standard, stated in a memorandum of October 1883 that Japan, as a small country, had little choice but to accept the standard prevailing in Asia. Okada (1969) identifies a particular language in the memorandum intimating another motive for adopting the silver standard, namely, that of effectively devaluing the yen without changing its silver content stipulated in the New Coinage Ordinance. The price of silver had by that time depreciated against gold by about 25 percent. By adopting the silver standard, the government was able to avoid the need to deflate the economy further.

The silver standard, as initially designed, contained operational ambiguity. The first draft of the Convertible Banknotes Ordinance stipulated the required specie backing of "at least a third," but this language was removed from the final version (Yamaguchi 1969; Suzuki 1986). Article II only specified that the Bank of Japan was to keep "an adequate amount of silver coins." On July 4, 1884, the note issuance limit was set at ¥2 million, but the limit was abolished on May 6, 1885 when the government stated that the limit would be set by the minister of finance. On the next day, the minister set the limit at ¥5 million, against which ¥2 million worth of silver coins or bullion was to be kept as the specie reserve, implying the specie cover ratio of 40 percent (Yoshino 1977). The issuance limit was progressively raised to ¥20 million on March 4, 1886, with the required specie backing of ¥8 million.

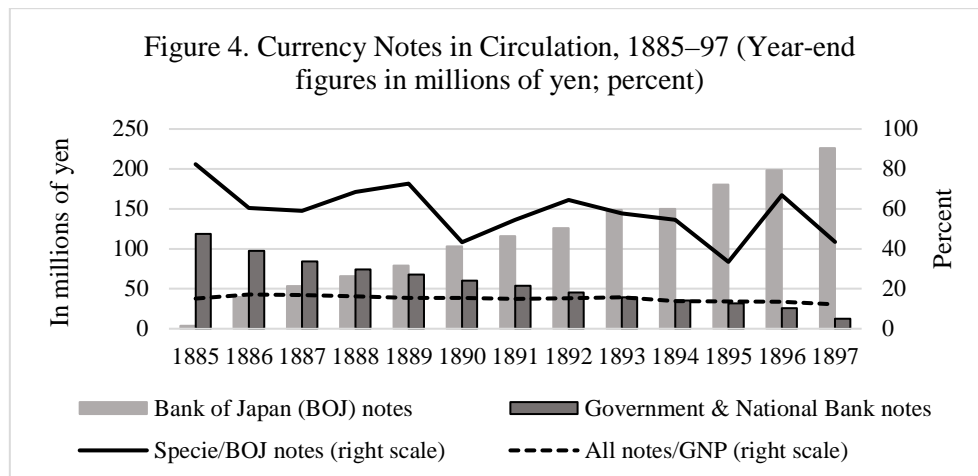
On August 1, 1888, the ambiguity was removed. Matsukata, introducing the amendment to the Diet on July 14, explained that the ambiguity had been intentional, given the uncertainty over how the system might operate in practice. The revised law required the Bank of Japan to keep “gold or silver coins, or bullion of those metals” equal to the amount of the notes issued. Further, a fiduciary limit of ¥70 million was provided within which it was free to issue additional notes against “Government bonds or Treasury bills, or other bonds and commercial bills of a reliable nature.”³ Finally, issuing notes beyond the fiduciary limit was permitted, with minister of finance approval, by paying “a special tax of not less than 5 per cent per annum” as determined in each case by the minister. The proportionate reserve system was thus changed to an “elastic fiduciary issuance limit method (*hoshō hakkō kusshin seigen hō*),” which was explained as a mixture of the British and German systems (Yoshino 1977; Bank of Japan 1982).

3. *The Japanese economy under the silver standard*

From the end of May 1885 to the end of September 1897, that is, during the period of the silver standard, the supply of the Bank of Japan’s silver-convertible notes expanded by 74.6 times, from a mere ¥2.6 million to nearly ¥200 million. This translates to a growth of 2.9 percent per month and 34.7 percent per year. Bank of Japan notes were supplied as the government and National Bank notes were withdrawn (Figure 4). The ratio of all currency notes to GNP therefore remained remarkably stable at 15–17 percent through 1893. The

³ The fiduciary issue limit was raised to ¥85 million on May 16, 1890 in part to allow the central bank to provide financial support to the semi-public Yokohama Specie Bank. The minister of finance instructed the Bank of Japan to allocate ¥10 million of the ¥15 million increase to support the Specie Bank’s trade finance business, as government support had been terminated in the previous year (Yamaguchi 1969).

specie cover of Bank of Japan notes exceeded 80 percent at the beginning of the period. The percentage declined thereafter and averaged 58.6 percent during the silver standard era. The sharp increase in specie issues (to the range of ¥100 million) in May 1896 occurred when the government deposited part of the war indemnity from China with the Bank of Japan (Yamaguchi 1969).⁴

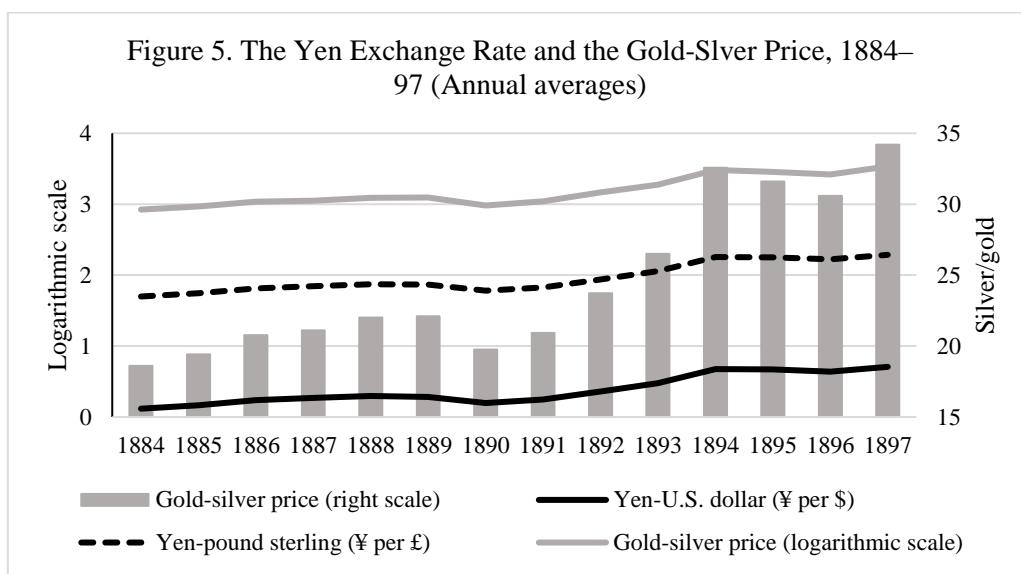


Sources: Asakura and Nishiyama (1974), pp. 280–82, 287–92; for GNP only, Ohkawa, Takamatsu, and Yamamoto (1974), p. 178.

Japan’s monetary standard from 1885 to 1897 is often called “a de facto silver standard” (Matsukata 1899, p. 88) because the gold monometalism of the New Coinage Ordinance was never abolished on paper, but it was a bona fide silver standard in its operation. The central bank stood ready to convert any number of banknotes into silver at the

⁴ Under the Treaty of Shimonoseki, signed on April 17, 1895 to end the First Sino-Japanese War, China agreed to pay in British pounds an equivalent of 200 million Kuping taels. The amount was increased by 30 million Kuping taels when Japan agreed to retrocede the Liaotung Peninsula. China also consented to the stationing of Japanese troops in Wei-hai-wei as a guarantee for the fulfillment of the terms of the treaty, for which it would cover the expense of 500,000 taels per year. With interest rate adjustments, Japan received a total of 231.5 million taels, equivalent to more than £38 million (¥358 million), between October 1895 and May 1898.

parity of 374.4 grains per yen. As a result, the yen fluctuated virtually one-to-one with the price of silver against gold-standard currencies. Given the secular decline in the price of silver, the yen depreciated by about 50 percent from 1885 to 1897 against the U.S. dollar and the pound sterling (Figure 5). This translates to an annual average depreciation of about 4.5 percent. Being on the silver standard allowed Japan to experience a cumulative price increase of 41 percent, when the U.S. and the U.K. experienced cumulative price declines of about 19 and 15 percent, respectively, in terms of wholesale prices (see Figure 1).



Note: expressed on a logarithmic scale for ease of presentation, except for the gold-silver price.
Sources: author's estimates based on Bureau of Statistics, *Teikoku Tōkei Nenkan*, annual issues; U.S. Department of Commerce (1949), p. 277.

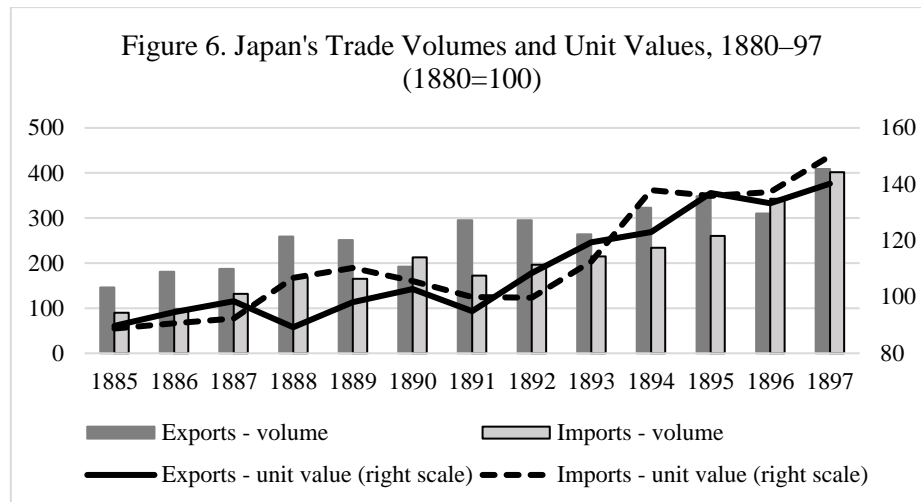
The sustained fall in the relative price of silver coincided with a remarkable expansion of Japanese trade. In nominal terms, exports increased by 4.5 times and imports by 6.5 times (Table 1). In terms of volume, exports rose by 2.8 times and imports by 4.5 times (Figure 6). The increase in unit values roughly corresponds to the depreciation of the yen against gold-standard currencies, suggesting that Japan was a price-taker in world markets. The sharp increase in both exports and imports from 1887 to 1888 reflected a change in the recording of gold-denominated prices from accounting to market valuation, that is, from 1 gold yen=1 silver yen to roughly 1 gold yen=22 silver yen (Okada 1969). There was a gradual

transformation of the trade balance, from a small surplus to a larger deficit, subject to year-to-year variation.

Table 1. Japan's Annual Balance of Payments under the Silver Standard, 1885–97
(In millions of yen; percent of GNP in parentheses)

	Exports	Imports	Trade balance	Current account balance	Long-term capital
1885	37.9 (4.70)	37.3 (4.63)	0.6 (0.07)	-2.8 (-0.35)	-0.5
1886	49.9 (6.24)	41.3 (5.16)	8.6 (1.08)	6.8 (0.85)	-0.6
1887	53.5 (6.54)	59.4 (7.26)	-5.9 (-0.72)	-7.0 (-0.86)	-0.7
1888	67.1 (7.75)	74.5 (8.60)	-7.4 (-0.85)	-4.2 (-0.48)	-0.7
1889	71.5 (7.49)	73.5 (7.70)	-2.0 (-0.21)	0.8 (0.08)	-0.8
1890	57.8 (5.47)	91.4 (8.66)	-33.6 (-3.18)	-29.8 (-2.82)	-0.8
1891	81.2 (7.13)	69.7 (6.12)	11.5 (1.01)	16.5 (1.45)	-0.8
1892	93.0 (8.27)	78.4 (6.97)	14.6 (1.30)	18.1 (1.61)	-1.0
1893	91.6 (7.65)	98.6 (8.24)	-7.0 (-0.58)	0.2 (0.02)	-1.2
1894	115.7 (8.65)	132.6 (9.91)	-16.9 (-1.26)	-10.4 (-0.78)	-1.6
1895	138.9 (8.95)	142.2 (9.16)	-3.3 (-0.21)	117.6 (7.58)	-1.9
1896	120.3 (7.22)	188.9 (11.34)	-68.6 (-4.12)	16.5 (0.99)	-2.6
1897	170.2 (8.70)	243.4 (12.44)	-73.2(-3.74)	-63.4 (-3.24)	42.5

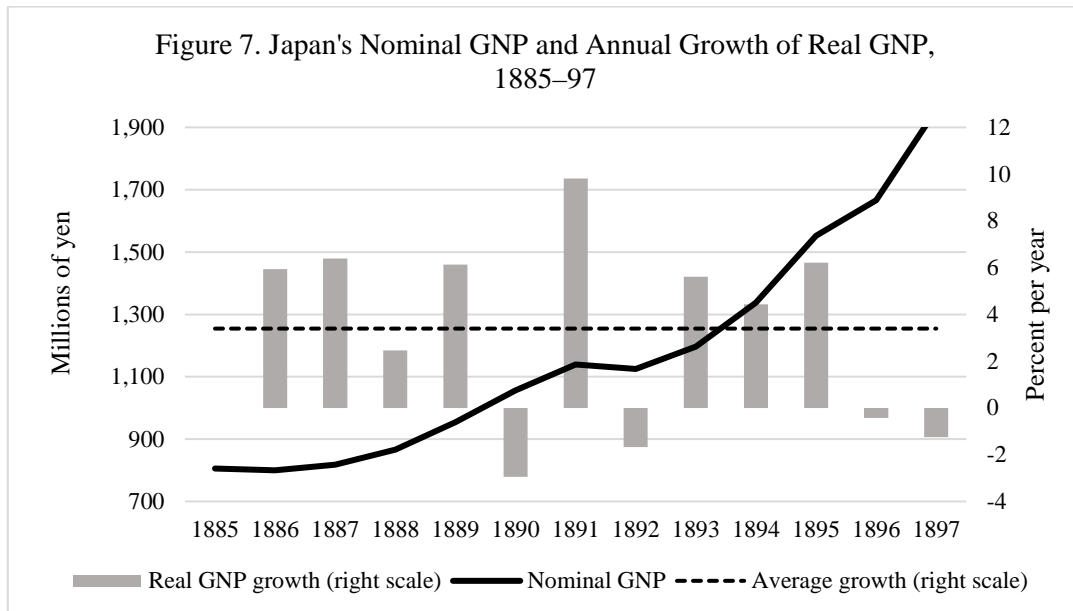
Sources: Bank of Japan (1986), p. 340; for GNP only, Ohkawa, Takamatsu, and Yamamoto (1974), p. 178; author's estimates.



Source: author's estimates based on Tōyō Keizai Shinpōsha (1935), p. 698.

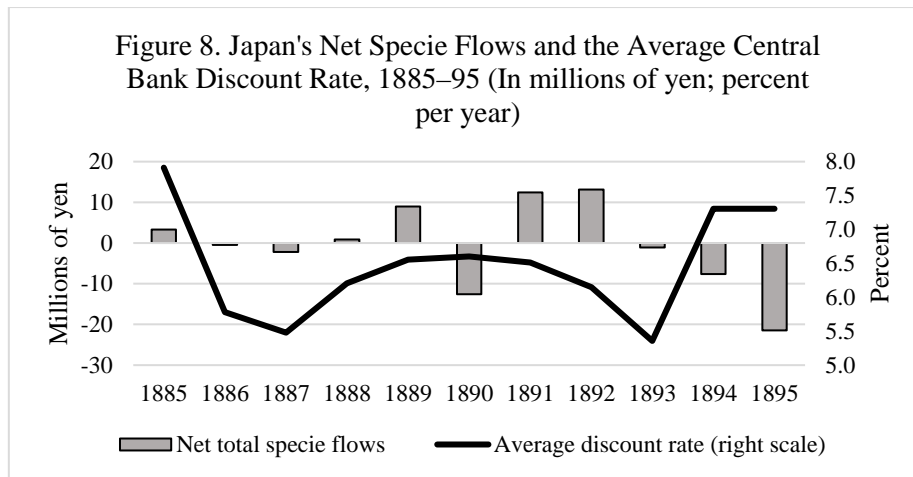
Accompanied by a strong trade performance, the silver-standard era was a period of robust economic growth (Figure 7). From 1885 to 1897, nominal GNP expanded by 2.5 times, while real GNP grew at the annual average of 3.4 percent for a cumulative gain of 1.5 times. The latter half of the 1880s, following the preceding decade of infrastructure building and technology import by the government, saw an increasing number of private companies formed in such industries as railroads, textiles, and mining. Helpful in this regard was the austerity-induced sale of government-owned factories to private hands, and the deflation-

induced dislocation of agriculture that created a large pool of land-deprived farmers who could readily be employed as wage earners. The export of minerals (mainly coal and copper) and manufactured goods increased as the period progressed, including silk and cotton textiles, hats, umbrellas, glass, and matchsticks (Nishimura 1953; Nakamura 1983).



Source: author's estimates based on Ohkawa, Takamatsu, and Yamamoto (1974), pp. 178, 213.

Japan's economic performance contrasted with the generally depressed state of the world economy, from which Japan too was not entirely immune. Most of Europe was in a protracted recession by 1891, and the United States experienced a severe recession from 1893 to 1896 (Whitten 2001). This explains the negative growth Japan experienced in 1890 and 1892. In 1890, the prospective passing of the Sherman Silver Purchase Act in the U.S. (enacted in July) caused the price of silver to rise, which coincided with a crop failure in the previous year that raised the price of rice and reduced the public's purchasing power. Japan experienced a recession, a large deficit in the trade and current account balances (see Table 1), and a specie outflow of more than ¥12.5 million (Figure 8). This was the context in which the Bank of Japan issued a small amount (¥5 million) of extra notes for the first time in March 1890 (Yamaguchi 1969).



Note: a positive number means a net inflow of gold and silver.

Sources: author's estimates based on Bank of Japan (1986), p. 352–54; Matsukata (1899), pp. 37, 104.

The Bank of Japan initially set the discount rate at 10.22 percent per year, which was gradually reduced to 4.93 percent in June 1886. This was the lowest level ever charged by the central bank over the first 50 years of its existence. Then, as Japan experienced a period of unprecedented economic expansion, the discount rate was gradually raised. In 1890, even though growth decelerated and the external balance deteriorated, the Bank of Japan maintained the high-interest-rate policy. It was only when the external balance improved and specie started to flow in that the central bank reduced the discount rate. The Bank of Japan was therefore broadly following the rules of the game of monometalism. It raised the discount rate when there was an outflow of specie and cut the discount rate when there was an inflow (see Figure 8). For the period 1888–95, the coefficient of correlation between net specie inflows (in millions of yen) and the average annual discount rate was -0.5.

4. Testing the trade impact of the falling silver price

In order to circumvent the small sample size of annual aggregate trade data, we use the panel data methodology to estimate the impact of changes in the gold-silver price on Japanese exports and imports. Starting in 1882, Japan's Bureau of Statistics published annual trade statistics disaggregated by major trading partner, retrospective to 1873.⁵ The number of

⁵ The summary statistics are reproduced in Tōyō Keizai Shinpōsha (1935).

trading partners was initially six (i.e., China, the United Kingdom, France, Germany, Italy, and the United States, reclassified for a time as North America). The number increased to nearly 50 by the early 1930s. Of these, we select ten trading partners, for which both export and import data were available without interruption from 1885 to 1897.

The ten trading partners are equally divided between those on the gold standard and those on silver. The sample of gold-standard countries and areas (referred to simply as “country” hereafter) includes Australia, France, Germany, North America (almost entirely accounted for by the United States), and the United Kingdom. They were on the gold standard throughout Japan’s silver-standard period. The sample of silver-standard countries consists of Austria, British India (including the Straits Settlements and, for statistical purposes, Thailand), China (including Hong Kong), Korea,⁶ and Russia (predominantly Asiatic Russia). Some of these countries left the silver standard before Japan did so in October 1897. Austria transitioned to the gold standard in August 1892, India in June 1893, and Russia in January 1897. When they were on the gold standard, they are counted as such for the entire year. These ten trading partners, on average, accounted for 96 and 99 percent, respectively, of Japan’s total exports and imports during 1885–97.

We use the general wholesale price index (WPI) as a somewhat more neutral way of deflating nominal trade values than the export and import price indices, which are not

⁶ To be strict, Korea did not adopt a modern silver standard until 1894 but foreign silver coinage was in wide circulation before then, especially in treaty ports where international trade was conducted. From 1882, moreover, Korea minted its own silver coinage (Lee 2000). Korea can therefore legitimately be included in the sample of silver-standard countries, especially given the fact that fluctuations in the gold-silver price did not affect its exchange rate with Japan.

available on a country-by-country basis. As we shall see below, the type of goods traded was highly dependent on the country of origin or destination, with divergent price movements. For example, the price of copper increased by more than 80 percent from 1885 to 1897, while the increase in the price of green tea was only 12 percent (Tōyō Keizai Shinpōsha 1935). The movements of the general WPI broadly mirrored, though somewhat fell short of, the movements in the general export and import price indices. This means that the WPI likely overstates the overall growth of real trade during the silver-standard period.

The panel data can be used to derive the average growth rates of real exports to, and real imports from, gold- and silver-standard countries. This is done by regressing the growth of exports or imports on a constant and a dummy variable for the gold standard. The dummy variable is set to unity for all five gold-standard countries plus the years 1893–97 for Austria, 1894–97 for India, and 1897 for Russia. The dependent variable is log-differenced, so the estimates can roughly be interpreted as annual percentage changes. The estimates are obtained for three sample periods: 1882–97, 1885–97, and 1888–97. The starting year for the last sample period is informed by the fact that an accounting change caused a one-time jump in the value of trade from 1887 to 1888. The time fixed effect model is used because it is reasonable to assume that bilateral trade flows, regardless of origin or destination, was likely influenced in each year by common factors.

Irrespective of the sample period, consistent results are obtained (Table 2). First, the average growth rate of real exports was higher for silver-standard countries, by as much as 11.5 percent in the third sample period, definitively refuting the silver-standard myth. The difference, however, was not statistically significant. Second, the average growth rate of real imports was also higher for silver-standard countries. While this is consistent with the silver-standard myth, the difference, at most 3.3 percent (in the second sample period), was small. As in the case of exports, the hypothesis that the difference was statistically significant can be

rejected. Essentially, these numbers mean that Japanese trade under the silver standard, including exports and imports, expanded more with silver-standard countries.

Table 2. Japan's Annual Growth of Real Exports and Imports under the Silver Standard by Type of Trading Partner (In percent, unless otherwise noted)¹

Type of trade	Sample period (total observations)	Trade with:		Difference, t-statistic (probability) ⁵
		Silver-standard countries ^{2,3}	Gold-standard countries ^{2,4}	
Real exports	1882–97 (160)	15.6	9.3	-0.906 (0.366)
	1885–97 (130)	15.4	6.3	-1.330 (0.186)
	1888–97 (100)	15.6	4.1	-1.694 (0.094)
Real imports	1882–97 (160)	13.5	13.2	-0.038 (0.970)
	1885–97 (130)	17.2	13.9	-0.406 (0.685)
	1888–97 (100)	15.2	14.5	-0.188 (0.852)

Notes: ¹ estimated by panel least squares, with time fixed effects; ² annual growth approximated by natural logarithmic differences expressed as basis points; ³ the estimate of the intercept; ⁴ the estimate of the intercept plus the estimated coefficient of the gold dummy; ⁵ t-statistic on the coefficient of the gold dummy.

Source: author's estimates based on Bank of Japan (1986), p. 434; Bureau of Statistics, *Teikoku Tōkei Nenkan*, annual issues.

Next, we test the hypothesis that the falling relative price of silver promoted exports to, and discouraged imports from, gold-standard countries. This is done by regressing the dependent variable (real exports or imports) on a constant and the yen's bilateral exchange rate against the currency of the respective partner countries, which is given, without loss of generality, by the gold-silver price multiplied by the gold-standard dummy (hereafter simply referred to as the silver price term) in log-level and log-difference forms. The silver price term states that the yen's bilateral exchange rate is constant (or zero in logarithm with appropriate normalization) against silver-standard countries. In the log-level form, we include the lagged dependent variable to ensure scale independence and introduce a "gravity" element by adding distance (measured by nautical miles) as an explanatory variable.⁷

⁷ Distance is measured by nautical miles between the port of Yokohama and the principal port of each trading partner: Sydney (Australia), Vienna (Austria), Shanghai (China),

Marseille (France), Hamburg (Germany), Southampton (Great Britain), Madras (India), Inchon (Korea), San Francisco (North America), and Vladivostok (Russia).

In both forms, three specifications are used. The first specification includes a dummy variable for the First Sino-Japanese War (which takes the value of unity for China and Korea in 1894 and 1895). The second specification excludes British India because the data for India proper cannot be separated from the data for the Straights Settlements, which remained on the silver standard after India transitioned to the gold-exchange standard in 1893. Finally, the third specification, while including British India, excludes the Sino-Japanese War dummy. It would have been ideal to include real output for each country as a demand-side variable, but such data are available only for a subset of the sample countries. The estimates are obtained by using the time fixed-effect model for both real exports and real imports.

Table 3. Panel Least Squares Estimates of Japan's Annual Real Exports under the Silver Standard

Specifications	1	2	3	1	2	3
	Log level, with time fixed effects, 1885–97			Log first difference, with time fixed effects, 1886–97		
Constant (p-value)	0.480 (0.243)	0.471 (0.269)	0.480 (0.241)	0.142** (0.000)	0.128** (0.002)	0.141** (0.000)
Gold-silver price x gold dummy (p-value)	-0.013 (0.682)	-0.012 (0.737)	-0.013 (0.673)	-0.868 (0.221)	-0.602 (0.405)	-0.853 (0.208)
Lagged dep. var. (p-value)	0.976** (0.000)	0.979** (0.000)	0.976** (0.000)	--	--	--
War dummy (p-value)	-0.001 (0.998)	0.002 (0.992)	--	-0.014 (0.940)	0.011 (0.955)	--
Distance (p-value)	-0.020 (0.661)	-0.021 (0.655)	-0.020 (0.659)	--	--	--
Total observations	130	117	130	120	108	120
R ² (adjusted R ²)	0.961 (0.955)	0.965 (0.959)	0.961 (0.956)	0.315 (0.231)	0.315 (0.220)	0.315 (0.238)
F-statistic (p-value)	173.988** (0.000)	172.456** (0.000)	187.229** (0.000)	3.748** (0.000)	3.326** (0.000)	4.098** (0.000)
DW	2.525	2.495	2.525	2.130	2.016	2.130

Notes: specification 2 excludes British India from the sample; ** (*) indicates statistical significance at the 1 (5) percent level.

Source: author's estimates.

First, with respect to exports, while the silver-standard myth suggests that the coefficient of the silver price term (which takes the value of zero for silver-standard countries) should be positive and statistically significant, we find in all specifications that the coefficient was negative and statistically not significant (Table 3). Excluding British India did not materially change the result. The coefficient of the Sino-Japanese War dummy had a

wrong (negative) value in half the specifications, but it was never statistically significant. The fact that the war did not last very long and the trade data include Hong Kong may explain why the dummy variable proved not to be significant. The coefficient of distance had an expected (negative) sign in all specifications, but it was not statistically significant. As we shall discuss below, this likely reflects considerable product differentiation in the composition of exports, as dictated by transportation costs.

Table 4. Panel Least Squares Estimates of Japan's Annual Real Imports under the Silver Standard

Specifications	1	2	3	1	2	3
	Log level, with time fixed effects, 1885–97			Log first difference, with time fixed effects, 1886–97		
Constant (p-value)	1.135* (0.011)	1.308* (0.010)	1.130* (0.010)	0.143** (0.005)	0.143* (0.011)	0.143** (0.003)
Gold-silver price x gold dummy (p-value)	0.040 (0.264)	0.057 (0.188)	0.041 (0.240)	0.665 (0.470)	0.703 (0.486)	0.663 (0.450)
Lagged dep. var. (p-value)	0.961** (0.000)	0.955** (0.000)	0.960** (0.000)	--	--	--
War dummy (p-value)	-0.038 (0.880)	-0.016 (0.951)	--	0.002 (0.994)	-0.001 (0.997)	--
Distance (p-value)	-0.089 (0.095)	-0.111 (0.073)	-0.089 (0.095)	--	--	--
Total observations	130	117	130	120	108	120
R ² (adjusted R ²)	0.969 (0.964)	0.969 (0.964)	0.969 (0.965)	0.173 (0.071)	0.173 (0.059)	0.173 (0.080)
F-statistic (p-value)	219.002** (0.000)	192.832** (0.000)	235.620** (0.000)	1.705 (0.070)	1.517 (0.126)	1.864* (0.047)
DW	2.169	2.152	2.165	2.144	2.127	2.145

Notes: specification 2 excludes British India from the sample; ** (*) indicates statistical significance at the 1 (5) percent level.

Source: author's estimates.

Second, with respect to real imports, the silver-standard myth suggests that the coefficient of the silver price term should be negative and statistically significant. Here again, the myth is refuted. The coefficient was found to be positive in all specifications, although it was not statistically significant (Table 4). As with the case of real exports, the exclusion of British India did not make any material difference, and the coefficient of the Sino-Japanese War dummy proved not to be significant (though it had the expected negative sign in all but one specifications). The coefficient of distance had the expected negative sign, but it was not statistically significant at the conventional levels. It was significant at the 10 percent level,

however, suggesting the marginally important role of transportation costs, hence geography, as a determinant of import volume.

The marginally significant coefficient of distance, in our view, explains the seeming contradiction between the positive coefficient of the silver price term in Table 4 and the higher growth rate of imports from the silver-standard countries in Table 2. With all but one located in Asia, the silver-standard countries as a group had a shorter average distance from Japan. Once distance is controlled for, the apparently positive impact of a higher price of gold on the imports from the silver-standard countries disappears. The silver-standard myth is therefore refuted on the import side as well. This establishes our conclusion that the falling silver price did not lead to an increase in exports to, or a fall in imports from, gold-standard countries.

5. The dynamics of production and trade, 1885–97

Table 5. The Components of Real GDP, 1885–97
(In millions of 1934–36 yen and percent shares in parentheses, unless otherwise indicated)

Year	GDP	Agriculture & fisheries	Manufacturing & mining	Current exports	Current imports
1885	3847	1590 (41.3)	266 (6.9)	68	129
1886	4169	1747 (41.9)	307 (7.4)	77	135
1887	4359	1810 (41.5)	328 (7.5)	85	189
1888	4165	1754 (42.1)	331 (7.9)	114	229
1889	4389	1606 (36.6)	374 (8.5)	109	209
1890	4778	1848 (38.7)	369 (7.7)	88	254
1891	4561	1808 (39.6)	376 (8.2)	124	212
1892	4858	1864 (38.4)	379 (7.8)	137	248
1893	4880	1814 (37.2)	399 (8.2)	126	287
1894	5453	1960 (35.9)	438 (8.0)	150	362
1895	5532	1987 (35.9)	480 (8.7)	166	397
1896	5234	1808 (34.5)	511 (9.8)	156	483
1897	5336	1731 (32.4)	569(10.7)	206	637
Growth, 1885–97	38.7%	8.9%	113.9%	202.9%	393.8%

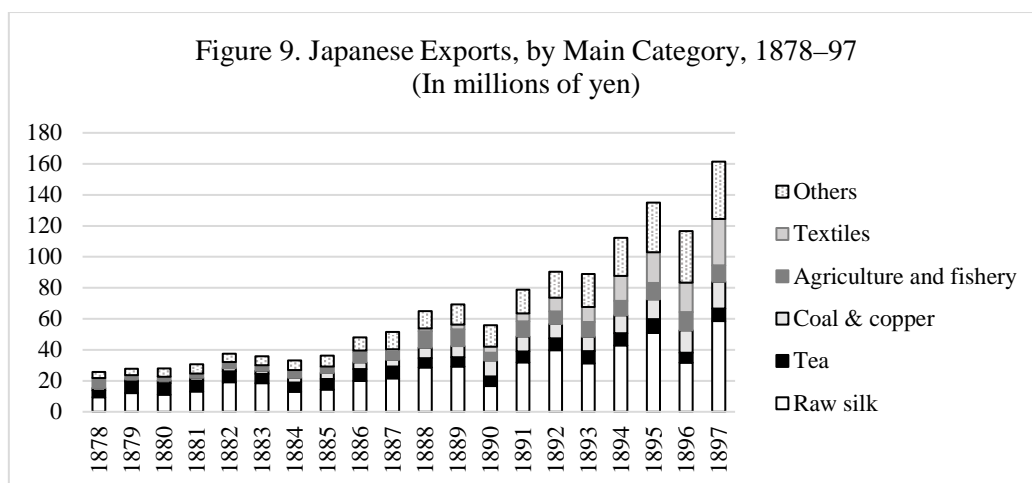
Notes: current exports and imports, obtained from the national income accounts, include invisibles and factor payments and therefore differ from the concepts of exports and imports in Table 1.

Source: Ohkawa, Takamatsu, and Yamamoto (1974), pp. 213, 227.

To understand why the silver-standard myth receives no support in actual data, we must recognize several key developments that drove the evolving structure of Japanese trade during the silver-standard era. First, Japan's capacity to produce goods, especially in manufacturing and mining, expanded considerably, while at the same time the country's

openness to trade (exports plus imports divided by GDP) increased (Table 5). From 1885 to 1897, real GDP grew by 38.7 percent, and trade openness increased from 9.3 percent to 21.1 percent (based on nominal values, not reported in Table 5). The primary sector grew but only by 8.9 percent, overwhelmed by the growth of 113.9 percent experienced by the secondary sector. As a result, the share of the secondary sector increased from 6.9 percent of GDP in 1885 to 10.7 percent in 1897.

Second, despite the growth of manufacturing, Japan remained an agrarian economy, with its exports consisting predominantly of traditional resource-based goods, including mineral and agricultural products (Yasuba 1996). This is clearly seen in the composition of exports disaggregated by main product category (Figure 9). For example, the share of green tea peaked at 18.4 percent in 1885 before declining gradually (see Appendix Table 1 for these detailed numbers). Rice was also an important agricultural export, mainly shipped to Australia, Europe, and the U.S. (Sugiyama 1989), with its export share fluctuating between 2.1 and 11.4 percent. Accounting for around 4 percent of total exports, fishery products, including dried fish, dried shellfish, and kelp, were mainly exported to China and Hong Kong.



Source: author's estimates based on Tōyō Keizai Shinpōsha (1935).

Raw silk was the most important export product of Meiji Japan. Its export share, at 36.4 percent in 1878, remained just below or above 40 percent throughout the silver-standard

period, which saw a three-fold increase in domestic production (Table 6). About two-thirds was exported, initially to European markets, but the U.S. came to absorb an increasing amount as it promoted the domestic silk textile industry but lacked a viable domestic sericulture (Sugiyama 1989). In 1884, the U.S. overtook Europe as the largest market for Japanese raw silk.

Table 6. The Real Outputs of Selected Export Sectors, 1885–97
(1885=100, unless otherwise indicated)

Year	Textiles ¹	Raw silk	Silk yarn	Cotton yarn	Copper	Coal
1885	100.0	100.0	100.0	100.0	100.0	100.0
1886	126.2	139.2	137.5	93.0	92.6	106.5
1887	151.7	156.6	162.5	131.3	104.9	135.9
1888	173.5	148.7	162.5	171.1	125.9	155.4
1889	216.0	177.8	200.0	341.4	153.1	187.0
1890	231.6	200.5	200.0	501.6	171.6	200.0
1891	282.5	219.6	262.5	650.0	179.0	244.6
1892	310.2	225.9	287.5	856.3	196.3	244.6
1893	315.5	254.5	325.0	835.9	170.4	256.5
1894	361.5	274.1	362.5	1048.4	187.7	329.3
1895	393.1	337.0	462.5	1024.2	180.2	367.4
1896	416.2	304.2	437.5	1202.3	190.1	387.0
1897	423.6	322.2	475.0	1375.0	192.6	403.3
Growth, 1885–97	323.6%	222.2%	375.0%	1275.0%	92.6%	303.3%

Note: ¹ textiles is used as an umbrella term that includes silk, cotton, and wool at all stages of processing.

Source: Shinohara (1972), pp. 144, 190, 262–63.

Copper and coal were also traditional products whose domestic production expanded considerably during the silver-standard era. Between 1885 and 1897, domestic production nearly doubled for copper and more than quadrupled for coal (see Table 6). An estimated 92.4 percent of copper and 62.6 percent of coal were exported, with their export shares peaking at 9.6 and 8.6 percent in 1890. At the outbreak of World War I, copper and coal were, respectively, the fifth and the sixth most important export products (Yamamoto and Oku 1990).

The bulk of copper went to Europe through Hong Kong, while coal was shipped to Shanghai, Hong Kong, and Singapore, to be used as fuel for steamships (Takamura 1975). Given the geographical proximity, Japanese coal was competitive in the Asian markets and virtually drove out British and Australian coal from Shanghai in the mid-1870s and Hong Kong in the mid-1880s. The share of Japanese coal during 1886–90 was 77 percent in

Shanghai and 76 percent in Hong Kong (Sugiyama 1989). The completion in 1893 of a railroad link between the major coal producing region of Chikuho and the major international port of Moji further strengthened the price competitiveness of Japanese coal.

Third, Japan slowly developed a modern textile industry, which first competed with imports before starting to export a small amount of silk and cotton yarns. The export of silk yarn began in earnest in the mid-1880s and the export of cotton yarn in the early 1890s. Silk-reeling, utilizing domestic inputs, emerged as a fledging export industry around 1886 by adapting Western technology to local conditions.⁸ The industry, by focusing on the production of superior-quality yarn demanded by Western manufacturers, improved productivity to the point of competing successfully with Italian products in the U.S. market. In 1894, the volume of machine-reeled silk yarn exceeded that of hand-reeled silk yarn (Ishii 1975; Oishi 1975).

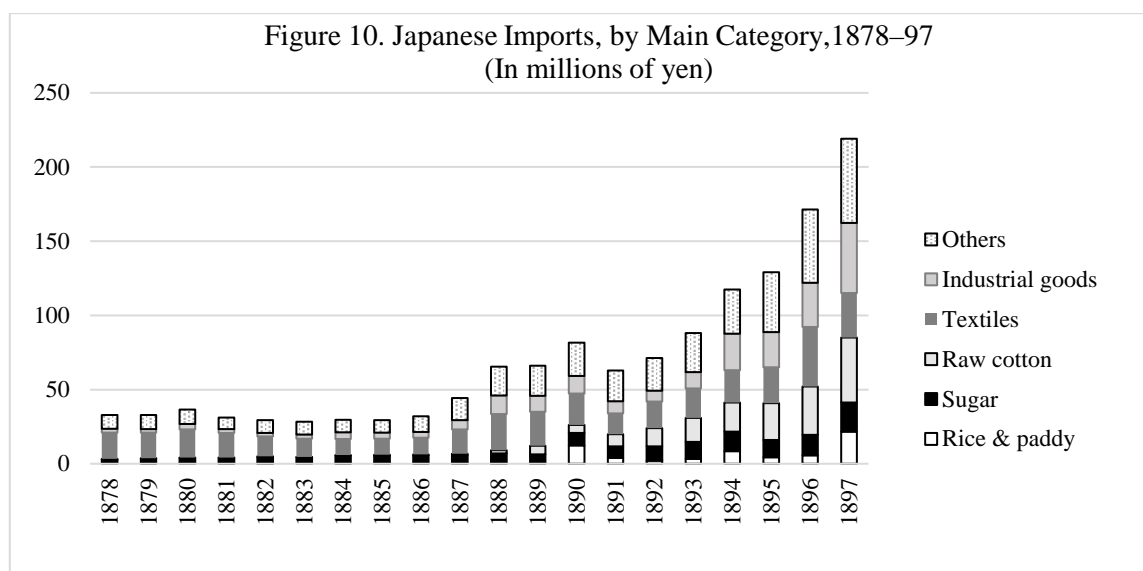
Japan's first large-scale, modern cotton mill was Ōsaka Bōseki's 10,500-spindle factory established in 1882. Inspired by this success, other companies followed. The number of such cotton mills, which stood at 19 in 1887, increased to 39 in 1890 (Abe 1990). The cotton spinning industry achieved a significant cost reduction from around 1885, when it started to replace domestic inputs with much cheaper Chinese seed cotton. The reliance on imported raw cotton accelerated after 1890 (Nishimura 1975; Abe 1990).⁹ This in turn allowed the domestic textile producers to compete with imported cotton yarn. In 1889, the domestic production of cotton yarn exceeded the imports. The export of cotton yarn to China

⁸ The technology was simplified and made more labor-intensive. Young female workers were employed on multiple daily shifts to raise productivity (Takamura 1975).

⁹ As the domestic cultivation of cotton drastically declined, the cotton fields were converted to mulberry fields or rice paddies (Takamura 1975; Nishimura 1975).

began around 1890, and, following the Sino-Japanese War, Japan drove out Indian cotton yarn and British muslin from the Korean market. In 1897, the export of cotton yarn exceeded the amount imported (Oishi 1975; Abe 1990; Yamamoto and Oku 1990).

Fourth, as a corollary, the importance of silver-based Asia grew in Japanese trade, as cotton textiles were exported predominantly to Korea and China, as noted above, and Asia supplied inputs to the cotton textile industry. Initially, Japan imported a large quantity of textiles to meet domestic consumption (Figure 10), but the combined shares of cotton products (yarn and fabrics), at 37.2 percent in 1878, gradually declined as domestic production increased (see Appendix Table 2 for these detailed numbers). In contrast, the share of ginned cotton climbed up from the mid-1880s, eventually approaching 20 percent. From around 1890, Chinese seed cotton was increasingly replaced by longer-fiber Indian seed cotton, which was more suitable for the thicker yarn Japan was specializing in producing for export (Nishimura 1975; Abe 1990).



Source: author's estimates based on Tōyō Keizai Shinpōsha (1935).

The increasing import of sugar was another factor that elevated the importance of Asia in Japanese trade. Sugar was a highly-valued consumer product, which Japan imported from Taiwan, China, and Hong Kong, where raw sugar grown in Java and the Philippines was refined by British capital (Takamura 1975). The share of sugar hardly fell below 10 percent

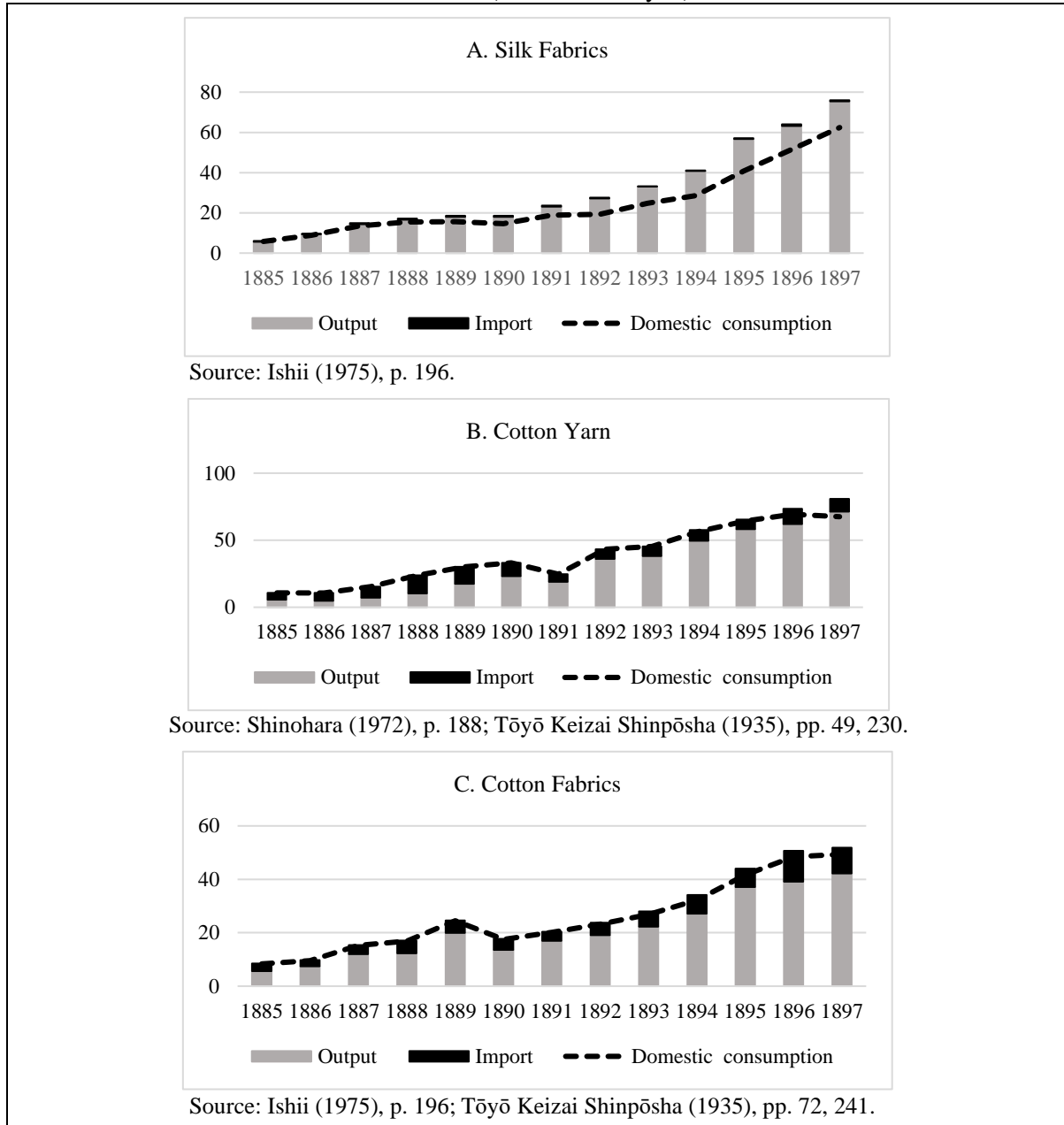
and was more than 15 percent in some years, as rising per capita income created a greater appetite for sugar. As domestic refining capacity grew in the 1890s, the import of refined sugar declined, replaced by an increasing amount of raw sugar imported from Taiwan, the Philippines, the Dutch East Indies, and India (Sugiyama 1989).

Rice was another product Japan imported from Asia. Japan was both an exporter and an importer of rice. It exported high-quality rice while importing low-quality rice, mostly from Korea but also from French Indochina, British India, Thailand, and China, both as raw materials for processed foods and for consumption by the poor. Rice imported from Korea, broadly resembling the rice produced in Japan, was consumed among the urban working class. Farmers consumed imported rice, so that they could retain the high-quality rice they produced for sale. With Korea, a system of exchanging cotton textiles for rice (and soybeans) emerged following the Sino-Japanese War. Japan's trade with Korea, small to begin with, doubled its share from 1.5 percent during 1885–87 to 2.7 percent during 1896–98 (Murakami 1975). The reason, having little to do with the relative price of silver, was largely political.

As an illustration of how industrialization gradually altered the composition of trade, the dynamic development of the modern textile sector can be summarized as follows (Figure 11). In the first stage, as domestic production was not sufficient to meet all domestic consumption, the shortfall was met by imports (though miniscule for silk fabrics). In the second stage, the domestic production of textile products expanded but not sufficiently to meet the growing domestic consumption, necessitating the import of finished products to continue. In the third stage, which began in the late 1880s, the domestic production of silk fabrics became sufficient to meet domestic consumption, allowing the surplus to be exported. In the final stage, the domestic productions of cotton yarn and fabrics (starting in the early 1890s), combined with imports, became sufficient to meet domestic consumption, allowing

the surplus to be exported. On the import side, purchases of finished cotton textiles from abroad were gradually replaced by purchases of raw cotton.

Figure 11. The Production, Consumption, Import, and Export of Selected Major Textile Products, 1885–97 (In millions of yen)



Note: because production and trade data come from difference sources, the definitions of cotton fabrics may not exactly coincide; domestic consumption is obtained by subtracting exports from the sum of output and imports.

6. Rethinking the silver-standard myth

The silver-standard myth does not describe the reality of what took place in the latter part of the nineteenth century. The actual trade data suggest: (i) exports grew rapidly to all destinations, with the growth somewhat higher for silver-standard countries than for those on

gold; and (ii) imports also grew rapidly from all origins, with the growth somewhat higher for silver-standard countries than for those on gold. These growth dynamics of Japanese trade is consistent with the rising share of silver-based Asia in Japanese trade, as Japan exported an increasing amount of coal and, over time, finished textile products to Asian markets. The increase in domestic textile production, and Japan's rising per capita income, led to greater purchases of raw cotton and sugar from Asian markets. Japan's victory in the Sino-Japanese War in 1895 opened up the Korean and Chinese markets for Japanese products. As a result, between 1886–90 and 1891–95, the share of Asia in Japanese trade rose from 24 to 28 percent for exports and from 34 to 42 percent for imports (Sugiyama 1989).¹⁰

Table 7. Export and Import Prices, 1880–97
(Index: 1885=100)

Year	Tōyō Keizai Shinpōsha (1935)		Ohkawa, Takamatsu, and Yamamoto (1974) ¹		Memorandum:		
	Export prices	Import prices	Export prices ²	Import prices ²	Wholesale prices	GNP deflator ²	Gold-silver price
1880	111.4	112.6	N.A.	N.A.	132.3	N.A.	93.0
1885	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1890	114.5	118.9	119.6	109.5	110.7	110.1	101.8
1895	152.5	153.0	146.3	113.4	127.0	127.9	162.8
1897	156.2	168.9	150.1	131.4	151.2	164.1	176.2

Notes: ¹ national income deflators (hence, imports and exports include invisibles and factor payments); ² N.A.=not available.

Source: author's estimates based on Tōyō Keizai Shinpōsha (1935); Ohkawa, Takamatsu, and Yamamoto (1974), pp. 178, 213; Bank of Japan (1986), p. 434; U.S. Department of Commerce (1949), p. 277.

The absence of a significant price effect in Japanese trade confirms that Japan was largely a price-taker in world markets. No change in the relative price of silver materially changed the prices of Japanese products faced by gold-standard countries. Any ability of Japan to influence the prices of traded goods was further limited by the highly homogeneous

¹⁰ In contrast, the share of Europe declined from 33 to 29 percent for exports and from 55 to 48 percent for imports. The share of North America largely remained the same, with the share declining only from 9 to 8 percent for imports and the share remaining at 40 percent for exports.

nature of Japanese exports and imports, including raw cotton, copper, coal, sugar, and possibly even raw silk. Export, import, general prices, as well as the nominal exchange rate, moved closely together (Table 7), suggesting that the inflation Japan experienced during the silver-standard era was, at least in part, a result of the falling price of silver and that being on the silver standard did not make the prices of its exports any cheaper to gold-standard markets.

More than relative price changes, geography appeared to matter in the determination of bilateral trade flows. The increasing export of coal to the Asian markets, for example, was dictated by transportation costs. The geographical fixity of certain trade flows, partly dictated by transportation costs, was further reinforced by the system of treaty port trade,¹¹ whereby foreign merchants based in treaty ports transacted with Japanese merchants representing the commodities' ultimate producers and consumers. The number of foreign merchant houses (mostly partnerships with a few employees) was 349 in 1885, 564 in 1890, and 388 in 1895, and more than 40 percent of them were British (Sugiyama 1989). In 1887, 87.5 percent of exports and 84.3 percent of imports were intermediated by foreign merchants. As late as 1897, the percentages were 72.8 and 63.3 percent, respectively (Takamura 1975). The system of treaty port trade may have introduced a layer of geographical rigidity by establishing long-term contractual relationships, and made Japanese trade less sensitive to relative price changes when they did occur.

¹¹ The commercial treaties signed with the foreign powers in the mid-nineteenth century restricted the activities of their citizens to a few designated treaty ports (such as Yokohama and Kobe) in exchange for granting them extraterritorial privileges. The system was abolished in the summer of 1899, when the treaty powers gave up the extraterritorial privileges in order to access the interior of Japan.

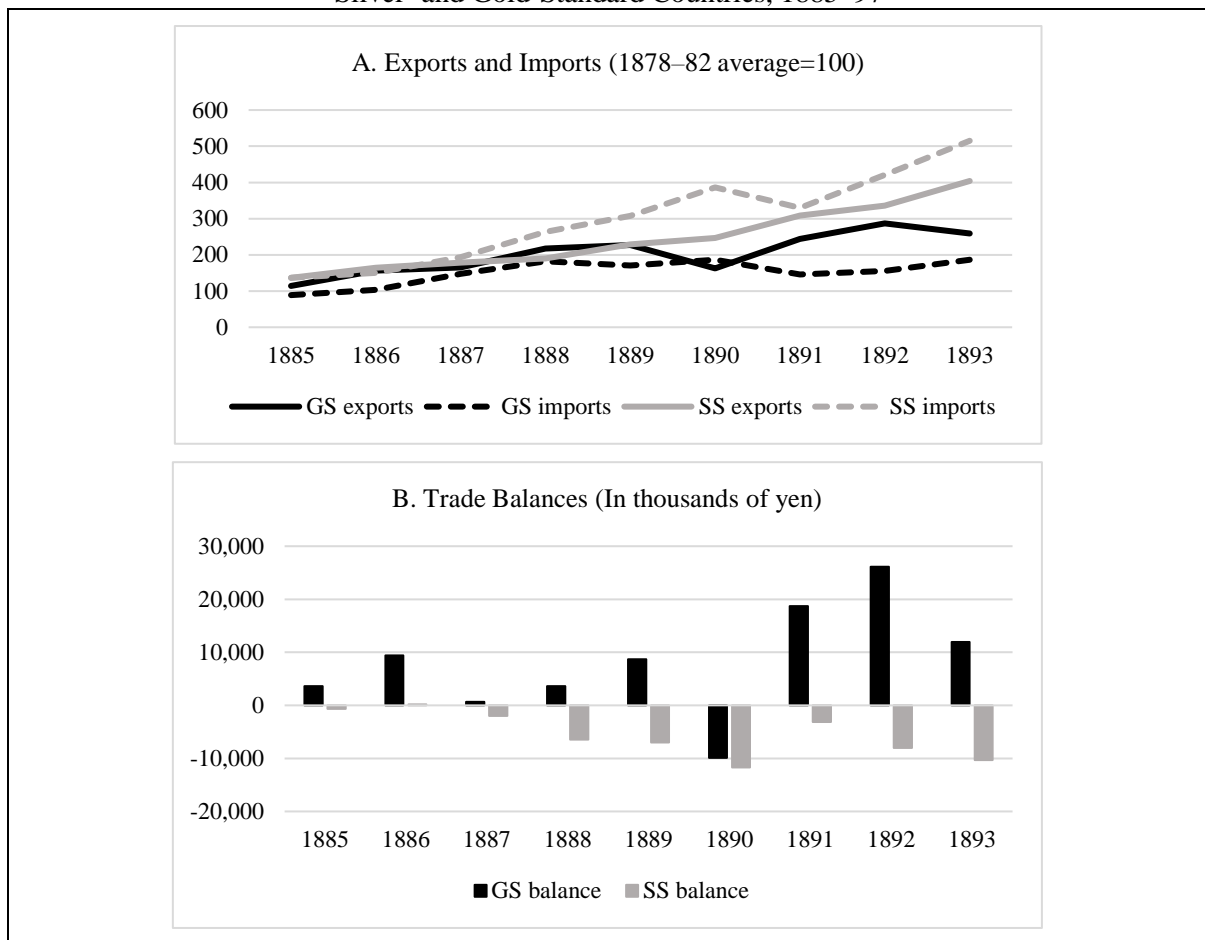
Before concluding, we must provide some explanation of why such a mistaken notion as the silver-standard myth has been widely embraced by respectable scholars and has become entrenched in the economic history literature for more than 120 years. We can only offer two *possibilities*. First, the positive correlation between the falling price of silver and the expansion of exports was overwhelming. It is possible that this led to a failure to pay sufficient attention to what was happening to the yen's real exchange rate or exports to silver-standard countries. Second, a clearly observed benefit of the silver standard was to allow Japan to avoid the deflation being experienced by gold-standard countries, which may have helped to promote industrial activity. It is possible that this aspect of the silver standard was conflated with its presumed export-promotion aspect as industrialization, export expansion, and a falling silver price all proceeded simultaneously.

The silver-standard myth was clearly invented by contemporary observers based on their own on-the-ground experience. Nakamura (1983) quotes from Eiichi Shibusawa, a prominent business leader of Meiji Japan, who, in 1895, attributed the promotion of industry to the falling export prices that led to a surge in exports and the rising import prices that facilitated import substitution. It is possible that Shibusawa was specifically referring to the period of 1890–94 when the decline in the price of silver outpaced the rate of inflation, such that the yen's real exchange rate depreciated by some 25 percent (see Figure 2). Shibusawa, too, failed to observe that exports were also expanding to silver-standard countries.

Likely contributing to the original conception of the silver-standard myth was the quantitative “evidence” reported by the 1895 report of the Coinage System Research Commission (*Kahei Seido Chōsa Kai*), established in October 1893 by an imperial decree to deliberate (i) whether there was a need to change the coinage system; and if so (ii) what coinage system should be adopted. The subcommittee of experts who contributed to the commission report was heavily represented by those who held the view that the silver

standard had been beneficial in promoting Japan's exports and that Japan should maintain the silver standard for the time being. Of the seven members, only one (a senior ministry of finance official) voted in favor of moving to a gold standard immediately,¹² with the others either opposing the idea or stating that, while Japan should adopt a gold standard in the future, to do so was premature (Ministry of Finance 1895).

Figure 12. The Coinage Commission Report: Japan's Exports, Imports, and Trade Balances with Silver- and Gold-Standard Countries, 1885–97



Notes: GS=gold standard; SS=silver standard; computational errors in the report for 1885–87 are corrected.
Source: Ministry of Finance (1895), pp. 198–200.

The quantitative data, as presented in the report, were therefore agenda-driven (Figure 12). The raw data show that: (i) the growth of imports from silver-standard countries

¹² The finance ministry official likely expressed the government's position that, now that India had transitioned, Japan should also move to a gold standard.

outpaced the growth of imports from gold-standard countries; (ii) the growth of exports to silver-standard countries outpaced the growth of export to gold-standard countries; and (iii) a surplus was mostly recorded for the trade balance with gold-standard countries while a deficit was mostly recorded for the trade balance with silver-standard countries. As to observation (i), the report, by using the average for 1878–82 (instead of 1885) as the base, exaggerates the growth of imports from silver-standard countries (from 277 to 415 percent) while minimizing the growth of imports from gold-standard countries (from 110 to 86 percent). As to observation (ii), while the text asserts that the falling price of silver raised the value of exports to gold-standard countries by more than 150 percent, it fails to mention that the value of exports to silver-standard countries expanded by more than 300 percent.

Finally, with respect to observation (iii), the commission report's presentation of trade surpluses and deficits is deceptive. First, the starting balance with silver-standard countries was a deficit while the starting balance with gold-standard countries was a surplus. Because exports and imports increased at about the same rate, it is to be expected that the deficit would turn to a bigger deficit and the surplus to a bigger surplus. Second, the trade deficit with silver-standard countries became increasingly structural, as most of them were sources of raw materials. For instance, Japanese imports from the Philippines and Peru increased rapidly but Japan exported comparably little to these countries. Likewise, Japan relied on China and India for the supply of seed cotton. The increasing deficit with silver-standard countries reflected Japan's increasing need for raw materials as its textile industry slowly developed.

In sum, the exposition in the commission report falsely implied, by association, that the silver standard led to a widening trade surplus with gold-standard countries and a widening deficit with silver-standard countries. The report asserted that the silver standard promoted exports to gold-standard countries while failing to mention that exports to silver-

standard countries increased even faster during the same period. The mere attachment of quantitative data to the text of the report served to provide an air of credibility to the exposition, deceptive and biased as it was. The silver-standard myth was thus given an authoritative expression in the government report of 1895 and likely constituted the single most important basis for those who argued in vain that Japan should not adopt a gold standard during the national debate of the late nineteenth century (Ishibashi 1936).

6. Conclusion

This paper has reassessed the virtual scholarly consensus (“silver-standard myth”) that attributes Japan’s export boom of the late nineteenth century to the fortuitous adoption of the silver standard in 1885. The paper, based on the annual panel data of Japanese trade flows with five gold- and five silver-standard countries for 1885–97, has found that the growth of exports was consistently higher for silver- than for gold-standard destinations (though the difference was statistically not significant), refuting the silver-standard myth that the falling price of silver stimulated exports to gold-standard countries. The growth of imports was also slightly higher for silver-standard origins, but once distance is controlled for, the falling silver price had a positive impact on the volume and growth of imports from gold-standard countries. The silver-standard myth is therefore rejected on the import side as well. All but one silver-standard countries in our sample were located in Asia. These findings therefore are consistent with the growing importance of silver-based Asia in Japanese trade as the country slowly developed its modern textile industry.

The failure of the silver-standard myth to receive empirical support should have an intuitive appeal. First, given the higher annual rate of inflation in Japan by about 3 percent, the yen’s real exchange rate hardly changed against gold-standard currencies during the period as a whole. Second, Japan, as a small open economy, was a price-taker in world markets. If anything, the benefit of a depreciating real exchange rate when it did occur,

worked, not through lower export prices, but through a higher profitability of the export sector. This may have characterized Japan's experience during a subperiod of the silver standard era (e.g., 1890–94 when the decline in the price of silver outpaced the rate of inflation), but cannot be a valid explanation for the silver-standard era as a whole. The expansion of exports Japan experienced under the silver standard can best be understood as resulting from Japan's increased capacity to produce goods, a surplus of which it was able to sell at given world prices.

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Appendix Table 1. The Composition of Japan's Major Exports, 1878–97 (In percent of total)

Year	Raw silk	Green tea	Coal	Copper	Rice	Traditional craft	Silk products	Cotton products	Sub-total
1878	36.4	16.4	3.4	3.3	18.1	2.0	0.0	0.1	79.7
1879	43.0	26.4	2.8	3.0	1.5	3.2	0.1	0.1	80.1
1880	39.3	26.2	3.9	1.7	0.8	4.7	0.2	0.2	76.9
1881	42.9	22.3	3.6	2.0	0.9	5.4	0.3	0.2	77.4
1882	50.9	18.3	3.1	2.3	4.4	4.1	0.3	0.1	83.6
1883	51.4	16.7	3.8	2.1	2.8	4.1	0.3	0.3	81.4
1884	39.3	17.2	5.5	4.3	6.6	4.4	0.5	0.4	78.0
1885	39.7	18.4	5.5	5.1	2.1	4.1	0.7	0.5	76.3
1886	41.3	15.6	4.6	4.6	6.9	4.4	1.6	0.5	79.6
1887	41.9	14.2	4.5	4.0	4.4	4.9	2.9	0.3	77.2
1888	44.0	9.1	4.9	5.5	11.4	4.0	2.6	0.3	81.6
1889	42.0	8.6	6.3	4.2	10.7	4.0	4.2	0.2	80.2
1890	29.7	10.9	8.6	9.6	2.4	4.7	6.9	0.4	73.2
1891	40.6	8.5	6.0	6.2	7.9	3.4	6.1	0.4	79.3
1892	44.0	8.0	5.1	5.4	4.6	3.2	9.2	0.7	80.2
1893	35.2	8.3	5.4	5.2	5.6	3.8	9.5	1.5	74.7
1894	38.1	6.7	5.9	4.4	5.0	3.0	11.6	2.7	77.5
1895	37.7	6.3	5.6	3.8	5.3	3.4	12.1	2.7	76.9
1896	27.2	5.2	7.6	4.7	6.8	4.1	10.7	5.6	71.9
1897	36.3	4.6	7.2	3.6	3.8	2.9	8.4	10.1	77.0
1878-97	38.7	10.1	5.7	4.5	5.7	3.7	6.7	2.5	77.6

Source: author's estimates based on Tōyō Keizai Shinpōsha (1935).

Appendix Table 2. The Composition of Japan's Major Imports, 1878–97 (In percent of total)

Year	Rice & paddy	Sugar	Kerosene	Ginned cotton	Cotton yarn	Cotton tissues	Woolen tissues	Industrial products	Sub-total
1878	0.0	8.8	5.5	1.2	21.9	15.3	16.5	8.0	77.2
1879	0.8	10.2	6.7	0.3	18.8	17.8	15.9	7.1	77.6
1880	1.2	9.7	3.8	0.5	21.0	15.1	15.8	10.1	77.2
1881	0.4	12.0	3.1	0.6	23.3	16.2	13.9	8.5	78.2
1882	0.1	15.1	7.9	1.6	22.3	14.3	8.9	8.2	78.4
1883	0.0	15.5	8.6	0.9	21.7	9.8	11.4	9.9	77.7
1884	0.0	18.1	6.0	1.9	17.4	8.4	10.7	15.0	77.5
1885	2.3	15.9	5.7	2.1	17.7	9.8	9.2	13.5	76.9
1886	0.1	17.4	7.3	1.9	18.4	7.2	9.3	12.4	74.4
1887	0.3	13.0	4.2	1.6	18.6	7.6	10.2	13.8	70.4
1888	0.0	10.5	5.4	2.5	20.8	7.2	9.2	19.1	75.8
1889	0.2	9.4	6.9	5.2	19.0	7.1	8.3	16.3	76.2
1890	15.1	10.3	6.1	5.1	12.2	5.1	8.2	14.5	78.6
1891	6.2	12.3	7.2	11.1	8.9	5.4	7.6	13.1	74.2
1892	2.9	13.4	4.7	15.5	10.0	6.5	7.9	10.5	73.9
1893	3.7	13.0	5.0	17.3	8.3	6.4	7.3	12.4	75.0
1894	7.2	11.3	4.4	16.3	6.8	5.9	5.3	21.0	79.1
1895	3.4	9.1	3.3	18.8	5.5	5.3	7.1	18.5	72.1
1896	3.3	8.0	3.7	18.7	6.6	6.8	9.4	17.4	74.9
1897	9.8	9.0	3.5	19.7	4.4	4.4	4.4	21.5	77.5
1878-97	4.5	10.9	4.8	11.8	11.3	7.3	8.3	15.9	76.0

Source: author's estimates based on Tōyō Keizai Shinpōsha (1935).