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PROFESSOR JEREMIAH JENKS OF CORNELL UNIVERSITY AND
THE 1903 CHINESE MONETARY REFORM

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Abstract

The Boxer uprising in China (1900) killed quite a number of foreigners and missionaries, which induced the armies of eight Western powers to invade China and they imposed an indemnity of 400 million silver taels. The international silver price around the 1900s was slumping, and these indemnity-treaty powers (e.g. France, UK, Germany, and Belgium) strongly wished China to establish a silver monetary system that would be maintained at parity with gold. Professor Jeremiah Jenks (1856-1929) of Cornell University was mandated to establish a gold-exchange standard for China. This paper begins with Jenks's life and work and the background of his mission to China. Section 2 presents the basic principle of this reform project and its specific designs. Section 3 assesses reactions and criticisms on Jenks's proposal. Possible arbitrage activities between gold and silver are analyzed in Sections 4 in order to evaluate the sustainability of Jenks's system. We conclude that: (1) Jenks's new system might have been stable in 1904-16 and 1928-30; (2) technically speaking, this was a remarkable design.

Keywords: Professor Jeremiah Jenks (1856-1929), Chinese monetary reform of 1903, gold-exchange standard, silver standard.

JEL: E52, F33, N25.

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I. *Overview*

1. **Life and Work**

Jeremiah Whipple Jenks (1856-1929) was born in St. Clair, Michigan on 2 September 1856 and graduated from the University of Michigan with both BA and MA degrees in 1879. He taught at several liberal arts schools in various fields, including modern/classical languages and political economy. He received a PhD in economics from Hall (Germany) in 1885. He moved to Indiana University briefly, became a professor at Cornell in 1891 where he stayed for 21 years until 1912, and he also served as head of the Economics faculty. The future famous “Money Doctor”, Professor Edwin Kemmerer (1875-1945) of Princeton University, was his student during that period.

In 1912 Jenks departed for New York University where he became a faculty member in the Government Department, as well as directed the Oriental Institute. Interested especially in the political aspects of economic problems, he was frequently on government boards and commissions and made many reports on trust, currency, labor, and immigration problems. As a financial expert, he advised the governments of Mexico, Nicaragua, China, the Philippines, and Germany. He was most famous in introducing the gold-exchange standard (GES) system into developing countries. He could be called a first generation of the international Money Doctor.¹

2. **The Mission to China**

The Boxer uprising in China (1900) killed quite a number of foreigners and missionaries, which induced the armies of eight foreign powers to invade China and they imposed an indemnity of 400,000,000 silver taels. The international silver price around the 1900s was slumping, and these indemnity-treaty powers (e.g. France, UK, Germany, and Belgium) wished China to take effective steps, satisfactory to a majority of the indemnity-treaty powers, to establish a general monetary system consisting chiefly of silver coins with a fixed gold value. In pursuance of this plan, the Chinese government appointed a foreign controller of the currency, who had general charge of the system for China. (Hanna et al. 1903:51)

Why was the United States, as not one of the eight powers, motivated to organize the “United States Commission on International Exchange” in March 1903? It was because in 1902 that China and Mexico jointly requested the United States to assess the world’s silver situation and coordinate major nations to stabilize silver prices, in order to prevent a further slump.² The U.S., as it then wished to expand trade with China, complied with this request through an Act of Congress on 3 March 1903. The position of the U.S. was, as Secretary of State John Hay put it, that the manufacturers and exporters in the U.S. and other countries would profit if China would adopt a stable exchange rate to replace the fluctuating silver standard.

“Hay’s interest in the gold standard for China, then, was part of his broader strategy to

¹ Information about Jenks is abundant on Internet (e.g. Google). Brown (2004:70-2, 88-9) provides details on Jenks’s life, activities, and publications. Koo (2005) is a useful survey on the origins and rejections of Jenks’s ideas in China.

² A memorandum from the Chinese chargé d’affaires (Shen Tung) to John Hay (U.S. Secretary of State) was reproduced in Kann (1927:362-6) and Hanna et al. (1903:45-6).

prevent European encroachment there and to support the 'open door'. ...An Americanized gold-exchange standard would simplify international transactions and create a gold dollar bloc, centered in New York, to rival the *de facto* sterling standard that had prevailed in most of the world since the late nineteenth century. Often viewing Britain as an obstacle to U.S. influence, these experts cast relations with Britain in a general competitive, rather than cooperative, framework. In addition, they considered U.S. imperialism to be a benevolent carrier of science and civilization that would uplift backward economies and peoples." (Rosenberg 1999:22, 24)

Why did China and Mexico jointly request the U.S. to do this? The reason was that China had been for a long time an important open market for Mexico's coinage. Monetary conditions in China at that time were in the worst state of confusion. Mexico and China concurrently addressed the United States in January 1903, seeking her support "to bring about a fixed relationship between the moneys of the gold-standard countries and the present silver-using countries." (John Hay "Letter of submittal", Hanna et al. 1903:9, 12)³

The Governments of Great Britain, France, the Netherlands, Germany, and Russia each in turn appointed commissioners to meet the American and Mexican representatives in their capitals. Public treasuries, national banks, those banks having large business scopes in the Orient, and specialists in monetary problems of these Western Powers were actively engaged.

The Chinese legations were presented at the conferences and took notes of the proceedings. These powers, who were interested in the Chinese indemnity, wanted to initiate a gold standard system into China: "to bring the monetary system of the Chinese Empire into harmony with that of other advanced commercial states." (Hanna et al. 1903:14) Putting China upon the gold basis promised so much for the extension of their future trade and opportunities for safe investment in railways and equipment for factories throughout China.⁴

A Commission on International Exchange (see Hanna et al. 1903) was appointed by the U.S. government in 1903. Three key members of this commission were Charles Conant, Hugh Hanna, and Jeremiah Jenks.⁵ Members were requested to confer with the governments of China and Mexico, as well as with major European countries, to formulate a feasible monetary policy. Their task was to gradually introduce a GES in China, with which European governments had agreed in principle, although expressing some reservations regarding operational procedures.

After traveling widely in Europe and Japan, Jenks arrived in China in January 1904. He traveled extensively, conducted field studies, and proposed the *Memoranda on a New Monetary System for China* (1904, reprinted in Hanna et al. 1904:75-113). Among other things, the core was the 17 articles, printed as a pamphlet in Chinese and English, distributed in China and

³ "[T]he War Department found a way to finance Jenks's trip without congressional appropriation. After direct urging from President Roosevelt himself, the U.S. colonial government in the Philippines agreed to pay Jenks's expenses to China." (Rosenberg 1999:22)

⁴ "That would unquestionably stimulate the importation into China of the products of European and American mills and factories. Such imports would rise within ten year from 50 cents to \$1.50 per capita and a market would be opened for \$400,000,000 worth in American gold of the products of Europe and America in addition to the present value of their trade with China. ... There can be no doubt that the opportunity for large trade and safe investment offered by the adoption of a uniform currency in China based upon the gold standard would afford benefits to the manufacturing and exporting nations." (Hanna et al. 1903, pp. 14-5)

⁵ On October 24, 1903, Secretary of State John Hay wrote to Jenks: "Having been selected for this work by the Commission on International Exchange, with the approval of the President, you are, therefore, instructed to proceed to China to carry out this purpose of bringing about the establishment in China of a gold-exchange monetary system; that

abroad for discussion by governments and the public. Reactions were strong, including misunderstandings and objections (see Section 3 for details). To clarify his points, Jenks issued another bilingual pamphlet shortly before he left China on August 27, 1904.⁶

II. *Designing a New Monetary System for China*

1. **Basic Principle**

By this time a key problem in China was that there was no such a thing as a “national monetary system”. Foreign currencies, such as British trade dollars, Mexico dollars, the old Mexico dollars, and Japanese yen, were circulated altogether. Chinese currencies, such as silver tael and silver coins, were used for large transactions while the common people used only copper coins. In some remote areas the system of barter was still in place. In short, an entire new monetary system was needed.

The central government was unable to initiate such an important enterprise due to: (1) financial difficulties; (2) the right of minting was under the control of viceroys and local officials in different provinces, but none of them were able to initiate a national scale monetary system. In this case, it appeared to be better to solicit proposals from foreign experts. Why was the U.S. an appropriate candidate? “The Government of the United States, as was frankly admitted at several European capitals, is in a favorable position to take the lead in such a matter, both on account of China’s invitation and because it is not suspected of seeking territorial extension or special privileges in China.” (Hanna et al. 1903:13)

The overall opinion of European powers and experts was that the system should be placed on a gold basis, in order to avert present difficulties in dealing with gold standard countries. The suggested new monetary system consisted mainly of silver and copper coins, to be maintained at parity with gold, and gold itself would be used only in payments to foreign creditors.

The most difficult question of this new system was the maintenance of the parity of silver coins with gold. The plan proposed for China was based upon what is commonly called the GES, similar to the plan that had recently adopted by the congress of the U.S. for the Philippines and to the Dutch plan which had been in the Dutch East Indies for 28 years. The Chinese government was also to provide a gold reserve to meet any demand for gold in order to maintain substantially the parity with gold. For that purpose, it was suggested that the Chinese government should keep a gold credit in Europe.

is, a system in which the coins shall be from the beginning and maintained at a parity with gold.” (Hanna et al. 1903: 96) For another instruction to Jenks et al. by John Hay, see Hanna et al. 1903:46-7.

⁶ As stated in Jenks (1904:7): “Several months ago the Commission on International Exchange published at Shanghai a pamphlet *Memoranda on a New Monetary System for China*, prepared by Mr. Jenks. ...It has been found that, owing to the brevity of the pamphlet, several parts of it were misunderstood, especially by Chinese officials and business men, and very many inquiries have been made for a more detailed discussion of many of the points therein raised. ...It is the purpose of this (new) pamphlet to elucidate many of the points touched upon in the first pamphlet...” The result is another pamphlet *Considerations on a New Monetary System for China* by Jenks (1904). In addition to detailed plans, this 87-page pamphlet explains how to implement the monetary reform designed by Jenks and his colleagues. Jenks also provided answers to objections and offered some final suggestions (p. 83).

TABLE 1. BULLION VALUE OF COINS AT VARIOUS RATIOS (ca. 1903)

(1) Gold/silver ratios of various currencies	(2) Price of silver per ounce, London standard, 0.925 fine (exchange \$4.8665)	(3) Price of silver per ounce, New York standard, 0.999 fine	(4) Value of silver bullion in US standard silver dollar, 0.900 fine	(5) Value of silver bullion in the Mexican peso, 0.902 fine
16:1 (U.S.)	Pence 58.979+	\$1.2929+	\$1.000+	\$1.015+
20:1	47.145+	1.0335+	.799+	.812+
24:1 (Russia and India)	39.496+	.8613+	.666+	.676+
28:1	33.675+	.7382+	.570+	.580+
30:1	31.410+	.6890+	.532+	.541+
32:1 (China)	29.646+	.6459+	.499+	.507+
34:1	27.735+	.6080+	.470+	.477+
36:1 (Straits Settlements)	26.193+	.5742+	.444+	.451+
40:1 (Straits Settlements)	23.375+	.5168+	.399+	.406+

Source: Hanna et al. (1903:27).

2. The Gold/Silver Ratio (32:1)

The first thing to be determined was the gold/silver ratio of the new currency. At that time, various countries adopted different ratios as Table 1 shows.

Table 1 is “furnished by the Bureau of the Mint, showing the gold price at which silver bullion stands at different ratios and the value of bullion contained in standard dollars of the United States and Mexican pesos at such prices.” (Hanna et al. 1903:27)

How does one interpret Table 1? An example will suffice. In Column (4) we see that the silver US dollar worth US\$1.000 has a gold/silver ratio of 16:1 (see Column 1). The newly-designed Chinese currency was supposed to have a gold/silver ratio of 32:1; its value will be US\$.499 (or about 50 US cents). In other words, 32:1 is 50% of 16:1, and so the new Chinese currency is 50% of the US gold dollar (about 50 cents). Currencies of other countries can be read in a similar way.

The next question is: Why was 32:1 an appropriate ratio when the silver price was unstable? There is one empirical reason and one theoretical consideration.

(1) “The ratio about 32 to 1 was adopted in the Philippines and has been recommended for other countries because it seems to conform to the requirements of existing conditions. ...The ratio of 32 to 1 does not depart widely from the present and recent gold value of the silver currency in circulation in the Orient.”

(2) The ratio of 32:1 “gives to the proposed silver coins a face value higher by about 10 per cent than their value as bullion. This margin has been suggested in order to permit a certain increase in the price of silver bullion without deranging the monetary systems of the countries where this ratio may be adopted. ...It can not have any tendency to send the coins to the melting pot.” (Hanna et al. 1903:25, 28)⁷

⁷ There are some further explanations. “The issue of coins upon a gold-exchange basis at the ratio of 32 to 1 would ... afford a margin of about 15 per cent between the gold-exchange value of the coin and the bullion value of the metal which it would contain.” “A ratio of 32 to 1 is preferable to the existing ratio of the gold-standard countries or to any

TABLE 2. THE CASE WHEN \$4 PER CAPITA IS ISSUED IN FOUR CHIEF PROVINCES (CHILI, KIANGSU, HUPEH, AND KWANGTUNG, WITH ABOUT 100 MILLION IN POPULATION), IN MILLION NEW CHINESE DOLLARS

Year	Amount coined	Coinage profit	Amount in circulation	Percentage of circulation in reserve fund (%)	Reserve	Amount to be supplied from loans or taxes
1st	\$80	\$16	\$80	75.00	\$60	\$44
2nd	80	16	160	50.00	80	4
3rd	80	16	240	42.92	103	7
4th	80	16	320	37.19	119	---
5th	80	16	400	33.75	135	---
Total	\$400	\$80	\$400	---	\$135	\$55

Source: Jenks (1904:45), reprinted in Hanna, H., C. Conant and J. Jenks (1904:143). Jenks also made estimation when \$2 per capita was to be issued in four chief provinces (Jenks 1904:46; Hanna, H., C. Conant and J. Jenks 1904:144). In the \$2 case, everything in Table 2 is reduced by half.

TABLE 3. COINAGE SPECIFICATIONS FOR THE NEW CHINESE CURRENCY

New silver dollar	Gross weight in decigrams	Kind of alloy	Amount of alloy
One dollar	268.0	Copper	.1
Fifty cents	134.0	Copper	.2
Twenty cents	53.6	Copper	.2
Ten cents	26.8	Copper	.2

	Gross weight in decigrams	Percentage composition			
		Copper	Nickel	Tin	Zinc
Five cents	50.0	75	25	---	---
One cent	70.0	95	---	1	4
Half cent	35.0	95	---	1	4
Two mills	25.0	50	---	---	50
One mill	12.5	50	---	---	50

Source: Jenks (1904:67), reprinted in Hanna, H., C. Conant and J. Jenks (1904:159).

3. Coinage Specifications

Table 2 answers the questions of: How many new currencies will be issued, and what will be the estimated profit from coinage?

The next related question is: What kinds of currency will be issued and what will be their metal contents? Table 3 illustrates Jenks's ideas, where some explanations are in order.

(1) Why did the new one dollar have 268 decigrams in gross weight? Jenks (1904:67)

ratio giving a higher value to silver than 32 to 1, because it diminished the profit in private and fraudulent coinage of coins of full weight, ..." "A ratio of 32 to 1 would have the merit of permitting the issue of silver coins by Mexico, China, the Philippines, the Straits Settlements, Hongkong, and the French possessions in India, conforming closely to those new in general use among their people, thereby facilitating the introduction of a stable system without serious disturbance to existing customs." (Hanna et al. 1903:65)

explains: “According to the treaty with Japan regarding the settlement of the [1894 Sino-Japanese] war indemnity in gold, it was decided for that special purpose that the Kuping tael was 575.82 grains. This gives the weight of seventy-two hundredths of a Kuping tael as 268.65 decigrams [of silver]. The silver standard, therefore, in the nearest divisible round numbers would be 268 grams. ...[but] there would be an easier division if the [new Chinese dollar] were to weight 270 decigrams.”

(2) What was the value of the new Chinese silver dollar? Jenks (1904:67) suggests: “In that case the dollar should be given a gold value presumably of some fifty-five cents American or two shillings three pence English. ...or it might be thought best to give the new dollar a value of exactly fifty cents American (gold) or two shillings English and make the coin slightly lighter than the Mexican dollar so that there would remain a coinage profit of 15 per cent or 20 per cent.” In other words, as we can see from Table 1 Column 4, Jenks suggests the new Chinese silver dollar to be equivalent to US\$ 0.499+ (or 50 cents), with 0.900 fine silver.

(3) As we can see from Table 1 Column 1, Jenks suggested the gold/silver price ratio of the new Chinese silver dollar to be 32:1, and this is exactly half of the American dollar 16:1. Thus, the new Chinese silver dollar must satisfy two essential conditions: (i) its value is US\$0.5; (ii) its gold/silver price ratio is 32:1. These two important conditions will be used in Section 4 for arbitrage activity analysis.

III. *Reactions and Criticisms*

Jenks’s proposal provoked some resistance, mainly because certain specifications may have hurt Chinese autonomy. They were specified in 17 Articles under the title “Suggestions regarding a new monetary system for China.” (See Hanna et al. 1904:80-1, Kann 1927:379-80 for these 17 articles) For instance, one of the foreign-intervention clauses is the final 17th article: “The controller and the representatives of the powers to be authorized to recommend economic reforms to the Imperial Government.”

Jenks saw things from a Western powers’ point of view, emphasizing the interests of “indemnity powers”, while neglecting the Imperial government’s feelings and needs. In 1903 there was also a competing monetary reform proposal from the UK. It was submitted by Sir Robert Hart (1835-1922). The Hart proposal was much more sympathetic, but why did the Chinese Court choose the American (Jenks’s) proposal? That was mainly because the Court expected future American loans to improve China’s troubles in state finance.

Monetary reform, though important, was not China’s first priority. The GES changeovers in India and the Philippines were backed by the Western powers. China’s acceptance of Jenks’s proposal (with endorsements from the western Powers) implied a colonial status. This was unacceptable in a period of high nationalism.

The strong objections (submitted to the Court in July 1904) by the famous Viceroy of Hubei province, Zhang Zhidong (1833-1909), were representative of China’s feelings. Zhang made his views clear: China should adopt a silver standard, as neither a GES nor a gold standard fit China’s needs. His arguments were plain, practical, and somewhat chauvinistic.

(1) In China’s poor economy, copper and silver were sufficient to meet the needs of daily life. China had insufficient gold mines and its economy was not strong enough to join the gold club.

(2) Slumping silver prices and high gold prices hurt the Chinese economy via reparations, foreign debts, and imports, but favored her exports. Thus, adopting a silver standard was useful in boycotting foreign products and to strengthen Chinese industries. As such, the silver standard was appropriate for China. China's urgent need was to have a uniform value for copper and silver currencies, not a new gold or GES standard.

Jenks's reform project was therefore suspended. On 23 October 1905, the Emperor proclaimed: "From now on all income and expenditure in the public and private domains should all use silver." A more detailed explanation by the same Emperor on 11 September 1907 reads: "The fiscal and financial situation in China is quite chaotic, monetary system requires unification. It would be difficult to raise sufficient funds to shift to the gold standard; some dangerous situations need to be considered if GES is to be adopted. It would be safer if we begin by having silver currency in a unified standard, and then raise the necessary funds gradually for the safe adoption of gold standard in the future." (Cho 1986:69-70)

The message was clear: China was not interested in joining the gold club; the silver standard was a better choice. This announcement ended Jenks's GES proposals. Observations made by Rosenberg (1999: 22-3) are quotable. "Jenks's China mission in 1904 was a total failure. It provided a classic example of the cultural problems that would often afflict future economic advising missions. ...Day after day, Jenks conducted lengthy sessions on the economics of currency; he made arduous journey to various provincial capitals; ...Yet he remained utterly ignorant of the cultural context in which he operated and made many miscalculations. ...Moreover, Chinese advisers saw Jenks's mission as just another Western plot to impoverish China by raising its indemnity payments, forcing foreign advisers into its Treasury, and debasing its currency. ...Jenks's failure in China terminated the official duties of the Commission on International Exchange and marked all but the end of using government-funded advisers to spread the gold standard abroad."

IV. *Counterfactual Arbitrage Analyses*

The next question is: What might have happened to China's economy had Jenks's proposal been implemented? Constrained by limited and reliable statistical data for the 1900s, it would be difficult to evaluate the possible impact of Jenks's proposal on China's exchange rate, foreign trade, price level, and GNP.

There is, however, a real question that needs to be answered: since the international silver price was quite unstable in the 1900s, the gold/silver price ratio may be well diverged from the designed 32:1. An unstable gold/silver price ratio would have encouraged arbitrage activity that could have defeated Jenks's project. Could Jenks's proposal be sustainable when international silver prices slump such that the gold/silver price ratio drops to, say, 42:1? What would have happened if international silver prices rose such that the gold/silver price ratio becomes 22:1? Hereunder, we explain how gold/silver arbitrage activity might have operated and test with historical statistics to see the sustainability of Jenks's project under arbitrage attack.

Some basic information for arbitrage activities are listed below.

(1) Silver owners can use 30.586 grams (or 0.82 tael)⁸ of silver to exchange for one new

⁸ As stated in Wikipedia: "The most common government measure was the *Kip'ing tael*, weighing 1.2 Troy ounces

Chinese dollar (Jenks 1904:29).

(2) The coin of a new Chinese dollar contains 0.72 tael (or 26.856 grams) of silver. This is exactly the same as Table 3 Column 2 indicates. The coinage profit by the government is 0.1 tael per dollar (= 0.82 tael - 0.72 tael), or 12.2% (= 0.1/0.82).

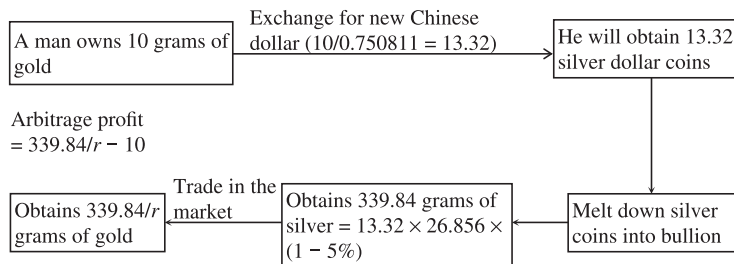
(3) If one melts down the new silver coins into silver, he will obtain 0.72 tael (or 26.856 grams) of silver, but one needs to pay the silversmith a melting charge, say 5%.

(4) One US dollar in 1903 contains 23.22 grains (or 1.504631 grams) of pure gold.⁹

(5) One New Chinese Dollar is equal to 0.499 US dollars (see Table 1 Column 4), and so the par value of a new Chinese Dollar would be 0.750811 grams (or 11.58678 grains) of gold, as Jenks (1904:18-9) suggests.

Figure 1 illustrates the arbitrage process when silver becomes dearer.

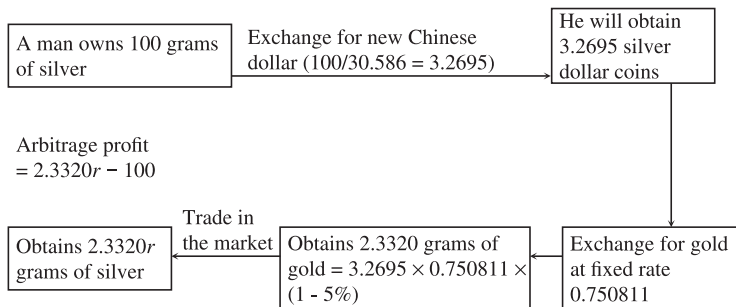
FIG 1. ARBITRAGE PROCESS BY GOLD OWNERS WHEN SILVER IS DEARER



After the arbitrage, the arbitrator obtains 339.84 grams of silver. If the gold/silver price ratio r is less than 33.98 (= 339.84/10), it would be profitable to arbitrage. In this case, the government would lose silver, but will have more gold.

When silver prices become cheaper in the market (that is, the gold/silver price ratio r becomes greater), the arbitrage process can be illustrated as follows.

FIG 2. ARBITRAGE PROCESS BY SILVER OWNERS WHEN GOLD IS DEARER

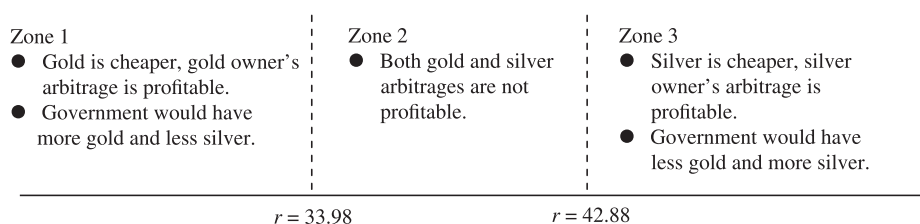


(37.3 grams).” So the new Chinese one dollar will contain 30.586 (= 37.3 × 0.82) grams of silver.

For silver owners, the initial 100 grams of silver can be exchanged for $2.3320r$ grams of silver after arbitrage. Hence, if the gold/silver price ratio r is greater than 42.88 ($= 100/2.3320$), it would be profitable to arbitrage. In this case, the government would collect more and more silver, but will lose gold in the reserve.

Figures 1 and 2 can be summarized as: (1) when the gold/silver price ratio $r < 33.98$, it is profitable for gold owners to exchange gold into New Chinese dollars. (2) When the gold/silver price ratio $r > 42.88$, it is profitable for silver owners to exchange the silver into new Chinese dollars. These two conditions are illustrated in Figure 3.

FIG 3. THRESHOLDS OF ARBITRAGE



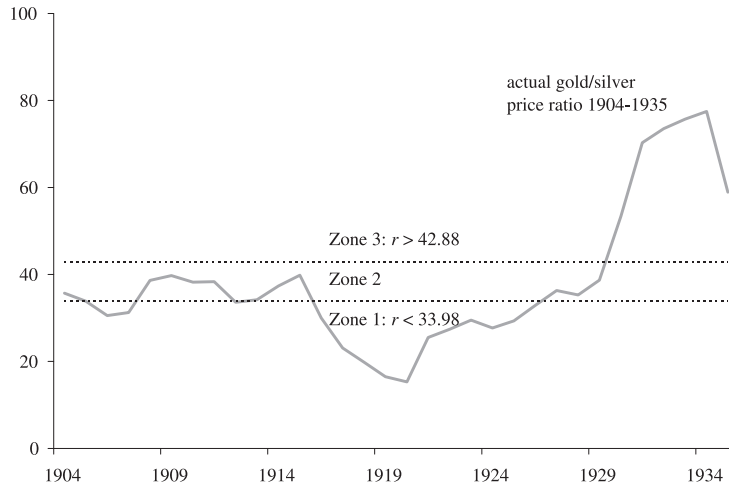
The next step is to plot Zones 1, 2, and 3 in Figure 4 together with the actual gold/silver price ratio between 1904 and 1935. Figure 4 shows that, broadly speaking, the actual gold/silver price ratios between 1904 and 1916 are within Zone 2. This means two things: (1) the room for gold/silver arbitrage was quite limited during 1904-16, and (2) Jenks's new currency system (32:1) would be sustainable in this period.

Between 1916 and 1927, the gold/silver price ratios were mainly located in Zone 1, which means the price of silver became dearer. As illustrated in Figure 3, gold owners will arbitrage for profit. In this case, Jenks's new currency (32:1, in Zone 1) may be under mild threat. The situation would reverse after 1930, when gold/silver price ratios are located in Zone 3. This means the price of silver slumped significantly enough to induce silver owners to arbitrage for profit. In this case, Jenks's new currency will be under serious threat, because silver prices spectacularly slumped.

In retrospect, Jenks's design of the new Chinese currency system (32:1) was quite reasonable: at least it would have been freed from a gold/silver arbitrage attack between 1904 and 1916 (13 years), and again from 1928 to 1930 (3 years). The periods 1916-27 (in Zone 1) and 1930-35 (Zone 3) are certainly unpredictable by Jenks in 1903. We conclude that: (1) Jenks's new system might have been stable in 1904-16 and 1928-30; (2) technically speaking, this is a remarkable design.

⁹ According to the Gold Standard Act (1900): "... That the dollar consisting of twenty-five and eight-tenths grains of gold nine-tenths fine,..." In other words, 1 US dollar contains 23.22 grains ($= 25.80 \times 0.9$) of pure gold. Since 1 grain = 0.06479891 gram, thus 1 US dollar contains 1.504631 grams ($= 23.22 \times 0.06479891$) of pure gold.

FIG 4. ACTUAL GOLD/SILVER PRICE RATIO AND THE THRESHOLDS OF ARBITRAGE ACTIVITIES



Data sources: for 1904-15, see *Silver and Prices in China*, by the Committee for the Study of Silver value and Commodity Prices (1935, p. 79). For 1916-30, see Cho et al. eds. (1987, pp. 473-6). For 1931-3, see Cho et al. eds. (1987, p. 139). Data for 1934-5 is calculated from London gold and silver prices, as reported in the *Statistics Monthly* (Tungji yuebao).

V. Concluding Remarks

In the context of American “financial missionaries to the world” or “dollar diplomacy”, Jenks’s GES proposal for China is one of the major “International Money Doctor” stories (see Flandreau 2003 for an overview).

In volume 15 (Activities, 1906-1914) of his *Collected Writings*, John Maynard Keynes wrote a “Memorandum on a currency system for China” (pp. 60-5), and some of his views were interestingly related to proposing a GES system for China. “To a system of this kind, which is called a gold exchange standard, the monetary history of recent times has been steadily tending, especially in Oriental countries. ...This system, the *Gold-Exchange Standard*, in which the medium is silver and the standard gold, is in my opinion the only feasible system for introduction into China. I am, therefore, in very general agreement with the proposals of the Commission appointed by the U.S. Government in 1903 to report on the introduction of the gold exchange standard into China and other silver using countries.”

It seems that Keynes was in full agreement with Jenks’s basic idea and thought that GES was a right way for developing countries such as China. As explained in Section 3, Jenks’s proposal had two enemies: (1) strong resistance from Chinese viceroys and “patriots”; (2) the unstable and fluctuating international silver prices: when silver prices rose, the Emperor became undetermined toward Jenks’s proposal and finally rejected it.

Rosenberg (1999 index p. 330) devotes some pages to Jenks, but neither in a Chinese

context nor in a systematic manner. For the case of China, there are many materials contained in Hanna et al. (1903, 1904) that can be used for further studies. Similarly, Jenks's missions to other silver-using countries (Philippine Islands, Panama, Mexico, and the Straits Settlements) are also a largely unexplored field. The material provided in Hanna et al. (1903, 1904) is a good point of departure.

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