JAPANESE FOREIGN TRADE AND ECONOMIC GROWTH: WITH SPECIAL REFERENCE TO THE TERMS OF TRADE*

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I. *Problem*

With respect to the role of foreign trade in the economic growth of Japan, there is a stereotyped vicious circle theory, which is recurrently reproduced without apparent consideration of its origin and development. Most Marxian economists in Japan, consciously or unconsciously, take this stereotyped point of view. Professor Shinohara, who is not a Marxian economist, recently presented an interesting modern version of the stereotype in an effort to explain the process of Japanese economic development prior to World War II.[1] The substance of this stereotyped vicious circle theory of Japanese economic development may be summarised as follows:

(a) On the supply or cost-price structure side, the inflow of cheap rice (particularly from the former colonies, Korea and Formosa) permitted a lower cost of living and general wage level; the inflow of cheap rice forced primary industry to shrink relative to other sectors and to provide secondary industry with a reservoir of cheap labor; the abundant supply of cheap labor from the agricultural sector reduced the cost of manufactures, particularly those with high labor content, resulting in a relatively small labor share and fairly high capital share; the low cost of manufactures with high labor content made exports expand rapidly; the high capital share sustained capital accumulation and industrialization at a rapid rate which was far above that in foreign countries.

(b) On the demand side, the low wage level and low labor share made domestic demand for the quickly expanding output of manufactured goods so small that an outlet for them had to be sought abroad; in order to force exports to in-

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[1] Professor Miyohei Shinohara has written several articles on this topic. A good summary of his own is presented in his essay, "The Contribution of Foreign Trade to the Long-Run Development of Japanese Economy," *Kokusai Keizai* (in Japanese), ed. by the Japan Society of International Economics, No. 6, May 1955, pp. 60–78.

crease at a rapid rate, the terms of trade had to be deteriorated through strategic lowering of export prices; a greater rate of industrial growth than that of foreign countries tended to create a latent deficit in the balance of trade, which in turn necessitated a further deterioration in the terms of trade[2]; the burden of the deterioration in the terms of trade was wholly shifted to laborers and farmers, for whom there remained little possibility of raising their real income and level of living.

Thus the vicious circle may be summarised as a set of causal relations between cheap labor, the narrowness of the domestic market in the face of a rapid rate of capital accumulation, and the need for an export drive, which required in turn cheap labor. According to the stereotype view, the Japanese economy, over the long run, grew rapidly merely in quantity of population, capital, production and foreign trade and this quantitative expansion did not contribute very much to improving the real income and welfare of farmers and laborers.[3] It is understood that foreign trade was necessary for the rapid quantitative expansion, but it was regarded as the very cause of the vicious circle because of an inherent tendency toward deterioration in the terms of trade.

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[2] In a two country model, the change in country 1's trade balance is shown by the following formula:

$$\frac{dB_1}{dt}=(\eta_1+\eta_2-1)(r_2-r_1)+\epsilon_2R_2-\epsilon_1R_1$$

where B_1 stands for the balance of trade of country 1, η_1 and η_2 for the price elasticity of the import-demands of countries 1 and 2, ϵ_1 and ϵ_2 for the income elasticity of their import-demands, r_1 and r_2 for the rates of change through time in the price levels of the exports of the two countries, and R_1 and R_2 for the rate of change through time in the national income of the respective countries.

This formula was expounded by Harry Johnson, but Shinohara also independently presented essentially the same one. See, H. G. Johnson, "Increasing Productivity, Income and Price Trends, and the Trade Balance," *Economic Journal*, Sept. 1954, pp. 466–467. Miyohei Shinohara, *op. cit.*, pp. 61–62.

According to the formula, supposing that ϵ_1 equals ϵ_2 and that $\eta_1+\eta_2$ is larger than unity, then if R_1 is larger than R_2, the trade balance of country 1 tends to be a deficit balance. In order to maintain an equality between exports and imports, (r_2-r_1) should be positive, or, in other words, the terms of trade should change against country 1. The degree of the deterioration in the terms of trade depends upon the amount of potential deficit and the value of $\eta_1+\eta_2$. Such reasoning as the above is the basis on which Professor Shinohara contends that the Japanese terms of trade had a long-run tendency toward deterioration.

However, the facts of historical development make Professor Shinohara's use of the formula in this case highly doubtful. The country 2 mentioned in the formula represents a group of countries with which Japan (country 1) trades. The formula is applicable only if the group of trading countries remains unchanged. Actually Japan's trading area has expanded rapidly through time. Consequently, even if the rate of economic growth of each trading country is lower than that of Japan, the multiplication of trading countries may result in an increase in their aggregate import-demands for Japanese exports sufficient to meet an increase in Japanese import-demands for their exports.

[3] It must be taken into account that a huge increase of material output was needed merely to maintain the same real income per capita for the rapidly growing population.

I seriously doubt,[4] however, the truth of the contention of Professor Shinohara and others that the terms of trade of Japan showed a long-run tendency to deteriorate, and that the vicious circle had persistently occurred since our industrialization around 1890. It seems to me that their generalization is too sweeping. In this paper, I shall try to show first that the deterioration in the terms of trade occurred only in the two periods of rapid transformation or of structural change in 1905–13 and in 1932–37. Secondly, an attempt will be made to show through analysis of the unique features of various key indices and of the balance of payments, that the vicious circle, as described above, was confined to the period of 1932–37. Thirdly, it will be shown by an analysis of the gains from trade that, except for the vicious circle period, our foreign trade has contributed much toward raising the real wage level. My investigation will be confined mainly to the analysis of the terms of trade[5] and related matters during the period from 1890 to 1937.

II. *Commodity Terms of Trade*

Chart 1 depicts an index of the Japanese commodity terms of trade (1913 =100), in which the Oriental Economist series, 1873–1928, is connected with the Yokohama Specie Bank series, 1928–1938. Recalculation and some revisions may be needed,[6] but in this paper those series are used for the time being without any modification.

What trend one may interpret from the chart is a problem. Some may

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[4] Lockwood's view has led to alarm and repercussions in Japan particularly among the stereotype theorists. In comparing the indices of manufacturing production and exports of manufactures to foreign countries, he states that "About all one can say is that their [the two indices'] behavior also fails to bear out the notion that Japanese industry developed mainly to serve a foreign market, or that it found its major stimulus in export opportunities." "The home demand for Japanese manufactures thus absorbed continuously most of the output of industry, as well as primary products and services. It developed *pari passu* with the expansion of overseas trade." William W. Lockwood, *The Economic Development of Japan, Growth and Structural Change 1868–1938*, Oxford University Press, 1955, p. 369.

At another place (p. 309) he says, "the idea that the drive for foreign markets was *the* motor force of Japanese industrialization is nothing but a literary invention. It has little relationship to the facts."

[5] The several kinds of terms of trade referred to in this paper are defined as follows:

Let eP and iP stand for the price of export and import respectively, and let suffix 0 and 1 represent the base and current years. The (net) commodity terms of trade will be

$$\frac{eP_1}{eP_0} \Big/ \frac{iP_1}{iP_0}.$$

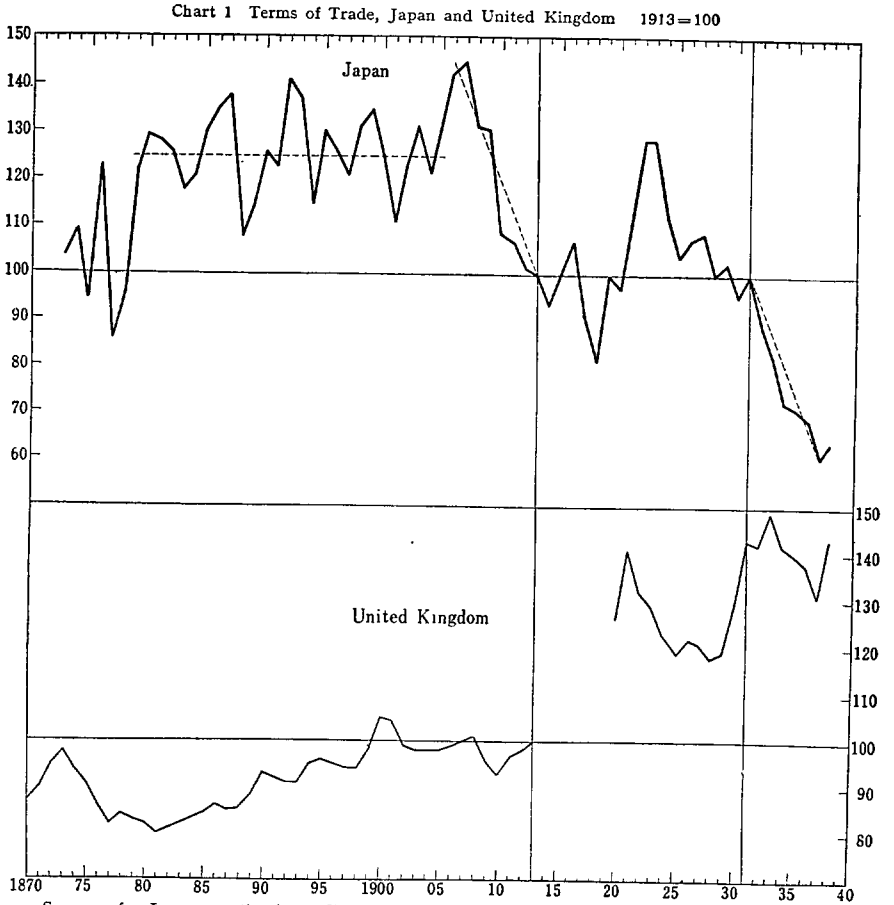
Let eQ stand for the export volume, then the income terms of trade will be

$$\left(\frac{eP_1}{eP_0} \cdot \frac{eQ_1}{eQ_0}\right) \Big/ \frac{iP_1}{iP_0}.$$

Let eF stand for the unit cost of export in terms of labor input, then the single factoral terms of trade will be $\frac{eP_1}{eP_0} \Big/ \left(\frac{iP_1}{iP_0} \cdot \frac{eF_1}{eF_0}\right)$, and the factoral income terms of trade will be $\left(\frac{eP_1}{eP_0} \cdot \frac{eQ_1}{eQ_0}\right) \Big/ \left(\frac{iP_1}{iP_0} \cdot \frac{eF_1}{eF_0}\right)$.

[6] Professor J. Richard Huber is trying to revise the Japanese terms of trade figures.

Chart 1 Terms of Trade, Japan and United Kingdom 1913=100



Source: for Japan, see the Appendix of this paper; for the United Kingdom, C. P. Kindleberger, *The Terms of Trade*, 1956, pp. 12—13.

conclude that there is a long-run tendency toward deterioration in the Japanese terms of trade[7] by drawing a straight line from 1907 down to 1937. I prefer,[8] however, to infer the following step-like changes shown by dotted lines on the chart.

In Period I, 1880–1905, the terms of trade were constant at about the 125 level, although cyclical fluctuations were experienced.

In Period II, 1906–13, the terms of trade deteriorated rapidly from 142 in 1906, the second year of the Russo-Japanese War, or 145 in 1907 to 100 in 1913, the average annual rate of deterioration being 3.75%.

In Period III, 1913–31, the terms of trade were again kept fairly constant

[7] Professor Shinohara takes a view that the terms of trade deteriorated to one third of 1903 to 1937 and the deterioration prevented a deficit in the balance of payments and supported the rapid expansion of exports. Miyohei Shinohara, *op. cit.*, p. 64.

[8] Cf. William W. Lockwood, *op. cit.*, pp. 317–318.

at the 100 level, although big cyclical fluctuations, particularly an unfavorable change in 1918 and quite a favorable change in 1922 and 1923, took place.

In Period IV, 1931–1937, the terms of trade again deteriorated rapidly from 100 to 60.8, the average annual rate of deterioration being 5.8%.

Thus, we can distinguish the two periods of decline from the two periods of level trend.

The tendency of Japan's terms of trade may be compared, as shown in Chart 1, with that of the United Kingdom's, which is presented by Professor Kindleberger.[9] The comparison is obscured by the facts that, from 1870 to 1900, Japan was a primary-good exporting country while England was a highly industrialized nation, and that World War I gave rise to quite different effects on each country. It is, however, clear that no deterioration corresponding to that of the two periods of decline in Japan can be seen in England, and that, moreover, there is a sharp contrast between the two countries in the tendency of the terms of trade during 1929–38. It may be better to infer, as Professor Kindleberger shows,[1] that the English terms of trade, especially the current-account terms of trade, were kept fairly constant throughout 1870–1937. England experienced, however, a great deterioration in the terms of trade from about 1800 to 1870.[2] This is the period of decline in England, which may correspond to Japan's two successive periods of decline.

The decline in the terms of trade appears, in Japan as well as in England, in the period of rapid transformation in the composition of industries and foreign trade from agriculture to light industries and then to heavy and chemical industries. It is usual for every industry to experience three phases of growth: (i) a rising rate of growth of output, (ii) a slower rate of growth of output, and (iii) an absolute decline in output.[3] In a period of transformation, one group of industries grows up rapidly and the other group declines gradually. The growing industries reduce costs of production and prices owing to advanced equipment, the economies of scale, etc., while the declining industries experience overproduction and sell their products at very low prices, just covering their variable capital expenses. Thus, both the growing and declining industries in combination make the terms of trade deteriorate greatly. Moreover, the growing new industries usually need additional imports of capital goods and raw materials, but they are not yet able to

[9] Charles P. Kindleberger, *The Terms of Trade, A European Case Study*, The Massachusetts Institute of Technology, 1956, pp. 12–13.

[1] Charles P. Kindleberger, *ibid.*, p. 27. He refers there to the terms of trade of industrial Europe as a whole.

[2] According to Imlah, the English export price index (1880=100) fell from 414.1 in 1800 to 109.6 in 1860 and 118.7 in 1870, while the import price index fell from 202.0 to 114.3 and 115.5, and therefore the terms of trade deteriorated during the period by 50% or more. See, Albert H. Imlah, "The Terms of Trade of the United Kingdom, 1798–1913," *Journal of Economic History*, Nov. 1950, pp. 177–182. W.W. Rostow, *The Process of Economic Growth*, Norton, 1952, Chap. 9, and Appendix III.

[3] See, for example, Walther G. Hoffmann, *British Industry, 1700–1950*, translated by W. O. Henderson and W. H. Chaloner, Oxford, 1955, especially pp. 180–186. A similar idea was independently developed and verified in Japan by Professor Kaname Akamatsu, "Types in the Development of Our Imported Industries," *Shogyo Keizai Ronso*, Vol. 15, 1932, pp. 179–210, and *The Hitotsubashi Review*, Nov. 1956, pp. 68–80

cover the additional imports by their own exports. In order to accomplish the transformation of industrial structure, the additional imports should be covered either by foreign borrowing or by an export drive of the old declining industries. If an industry declines mainly because of a decreasing and inelastic demand abroad, then the export drive of the declining industry results in a heavy deterioration in the terms of trade.

Once the growing industries reach the second phase and some balance between various industries is established, each industry expands steadily with accompanying cyclical fluctuations of output and prices due to changes in domestic and foreign demands. This is the period of balanced growth of industries, in which the terms of trade are also kept fairly stable as a trend though involving cyclical fluctuations. The fluctuation in the terms of trade during this period is governed mainly by business cycles and changes in incomes and prices abroad, while the deterioration tendency in the period of transformation stems mainly from domestic causes such as cost-saving improvements in the growing industries and the cut-throat drive toward exports in the declining industries.

It is not easy to show a clear picture of structural change in industries and foreign trade. The change in the proportion of gainful workers employed in secondary industry (shown in Table 1) reflects a rapid industrialization, firstly, in the period from 1893–97 to 1908–12 and, secondly, in the period from 1928–32

Table 1 *The Percentage of Total Gainful Workers Employed in Secondary Industry*

Period	%	Period	%
1893–97	10.4	1918–22	17.1
1898–1902	11.8	1923–27	17.1
1903–07	13.2	1928–32	16.8
1908–12	14.8	1933–37	19.5
1913–17	16.4	1938–42	23.7

Source: Kazushi Ohkawa et al., *The Growth Rate of the Japanese Economy Since 1878*, Kinokuniya, Tokyo, 1957, p. 28.

to 1938–42, and shows a fairly stable percentage in the case of secondary industry during the inter-transformation period. Table 2 shows that during the inter-transformation period, i.e. from 1919 to 1931, the percentages employed in the textile and the heavy and chemical industries relative to all manufacturing remained fairly stable, and that after 1932, the heavy and chemical industries expanded rapidly while the textile industries contracted.

It is more difficult to show a clear picture of the structural change in foreign trade, for exports or imports are so diversified and multiplied year by year that each item, particularly if recently introduced, does not amount to a large enough sum to be dealt with separately. The composition of exports in Table 3 represents a shift, first, from food and crude materials to semi-manufactures during the period

Table 2 *Gainful Workers in Textile and Heavy and Chemical Industries as a Per Cent of Total Gainful Workers in all Manufacturing Industries*

Year	Textile Industries %	Heavy and Chemical Industries %	Year	Textile Industries %	Heavy and Chemical Industries %
1909	63.4	12.2	1934	45.7	34.4
1914	62.1	15.6	1935	43.6	36.7
1919	55.0	24.8	1936	40.9	40.2
1925	53.7	25.1	1937	36.6	44.4
1928	52.2	27.9	1938	32.2	51.0
1930	53.7	24.9	1939	27.1	55.5
1931	54.6	24.6	1940	24.8	58.3
1932	52.1	27.1	1941	22.0	59.7
1933	49.8	29.2	1942	17.2	66.6

Heavy and chemical industries consist of metals, machines and chemicals.
Source: Economic Planning Board, *Data Paper on the Employment Problem*, Series No. 7, 1957.

Table 3 *Composition of Exports* (Per Cent of Total Value)

Year	Food Drink Tabacco	Crude Materials	Semi-Manufactures	Finished Manufactures	Miscellaneous
1893	20.49	10.45	40.77	24.52	3.77
1903	11.94	10.53	47.24	27.92	2.37
1913	9.83	8.12	51.87	29.22	0.96
1923	6.29	5.60	48.40	38.52	1.18
1929	7.61	4.22	42.01	44.55	1.61
1931	9.12	3.99	37.70	47.52	1.67
1937	7.8	4.2	25.7	59.8	2.5

Source: The Oriental Economist, *The Foreign Trade of Japan, A Statistical Review*, 1935, p. 450.
Ministry of Finance, *Foreign Trade Return of Japan*, 1938.

1893–1913 and, secondly, from semi-manufactures to finished manufactures during the period 1923–1937. As Table 4 may partially suggest, the expansion of exports from 1893 to 1913 took place mainly in raw silk and cotton yarns, both being classified as semi-manufactures. From 1923 to 1931 exports expanded in the line of raw silk and cotton fabrics, the latter of which accounts for the increased proportion of finished manufactures. The increased proportion of finished manufactures in 1937 as compared with 1931 is due to the expansion of cotton fabrics on the one hand, and on the other to the addition of new exportable commodities such as artificial silk, steel, medicine, chemicals, iron-manufactures, machines, shipbuilding, etc.

Table 4 *Exports of Selected Commodities as a Per Cent of the Value of Total Exports*

	Coal	Sugar Refined	Raw Silk	Silk Fabrics	Cotton Yarns	Cotton Fabrics	China Wares	Artificial Silk Fabrics	Steel	Medicine, Chemicals
1903	6.7		25.7	10.1	10.9	2.4				
1913	3.7	2.5	29.9	6.2	11.2	5.3				
1923	1.5	1.0	39.1	6.4	5.4	16.2	1.6		0.3	
1929	1.1	1.4	36.3	7.0	1.2	19.2	1.8		0.2	
1931	1.3	1.3	31.7	3.8	0.8	17.7	1.7	3.6	0.6	2.4
1936	0.4	0.8	15.8	3.1	1.5	20.2	1.5	5.2	2.8	3.2
1937	0.4	0.6	14.6	2.6	1.4	18.3	1.5	5.7		3.0

Source: The same as Table 3.

I cannot agree with the view that the terms of trade in Japan showed a persistent tendency to decline over the long run. The terms of trade in Japan show, as I have depicted above, clearly distinguishable periods of level trend and decline, and consequently they do not support the sweeping generalization of a steady long-run deterioration. Moreover, from the technical point of view of the calculation and statistical significance of the terms of trade,[4] a long-run trend might have no validity, particularly when an economy grows so quickly and both imports and exports change so greatly in character as was the case in Japan.[5]

I have endeavored to show that the two periods I have defined as periods of decline in the terms of trade were unique periods of rapid transformation in the structure of Japanese industry and trade. In addition, I have pointed out theoretical and historical relations between the structural transformation and the deterioration in the terms of trade. In order to know whether or not the deterioration in the terms of trade during the periods of transformation was the result of the vicious circle mechanism, it is necessary to examine further the extent to which export drives actually took place, the balance of payments difficulties, and changes in the cost-price structure of industries. These examinations will be made successively in the following sections.

III. *Were Japanese Exports Driven?*

The Japanese economists who adhere to the vicious circle stereotype claim that by deteriorating the terms of trade strategically, the Japanese economy has driven exports abroad because of the narrowness of the domestic market. Foreigners also condemn the rapid expansion of our exports, particularly in the

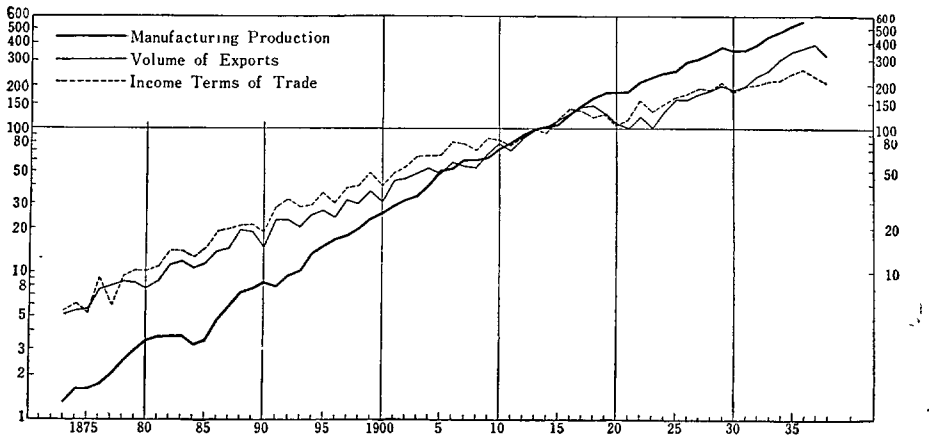
[4] Many cautions needed are suggested by Robert E. Baldwin, "Secular Movements in the Terms of Trade," *American Economic Review*, May 1955, pp. 259–267.

[5] See, William W. Lockwood, *op. cit.*, p. 317.

1930's, in the name of "exchange dumping" or "social dumping." It is of course not easy to prove whether Japanese exports were driven or not, but it will be shown that there was a clear difference between the period of level trend, 1913–31, and the period of decline in the terms of trade during the 1930's.

Firstly, Chart 2 depicts the manufacturing production (Nagoya series),[6] the volume of exports[7] and the income terms of trade. Since the manufacturing

Chart 2 Indices of Manufacturing Production and Volume of Exports, and Income Terms of Trade 1873—1938 (1913=100)



Source: Appendix

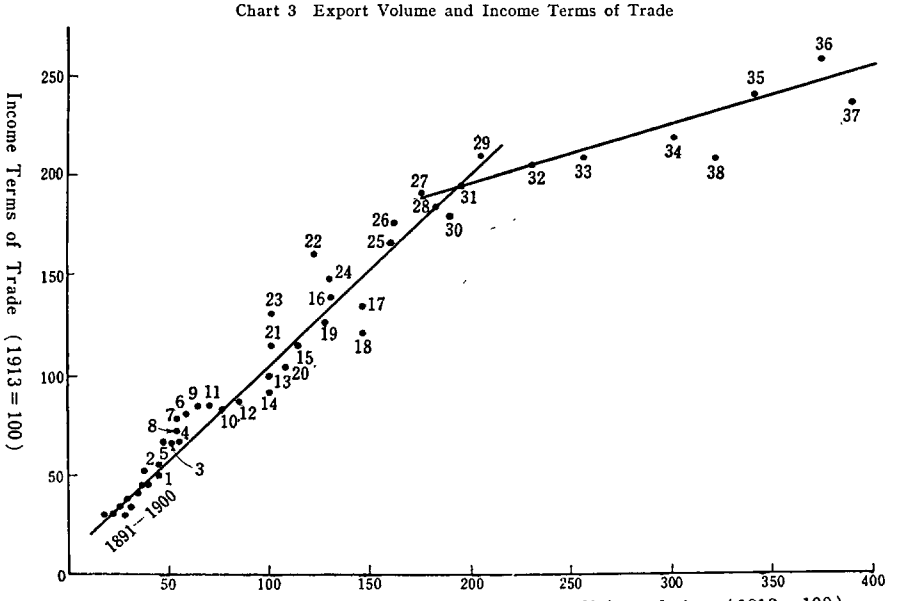
production index is considerably under-estimated for early periods, 1905 may be a good starting year for comparison purposes. In 1905–1917 or 1918, both the manufacturing production and the export volume indices rose steadily together at a rapid rate, although the latter oscillated a little more widely. In the post-war depression, 1919–21, and in 1923, the year of the great earthquake, the growth of manufacturing production was arrested, while exports declined, and a wide gap between the two indices appeared. Again from 1922 to 1929, except 1923, both indices rose rapidly in parallel fashion, a wider fluctuation being experienced in the latter. After a decline of both indices during the world economic crisis, both increased rapidly following 1931, but here exports expanded not in parallel fashion but faster than manufacturing production. This was a unique feature of the 1930's.

The difference between the volume of exports and the income terms of trade accounts for the change in the commodity terms of trade. Up to 1913 the income terms of trade were above the export volume index, for the commodity terms of trade were kept more favorable than in 1913, the base year. Between 1913 and 1931, the income terms of trade were occasionally above and sometimes

[6] "Honpo Seisan Suryo Shisu," *Shogyo Keizai Ronso*, Vol. 16, No. 3, Nov. 1938, pp. 478–479.
[7] This covers only the trade of Japan Proper with foreign countries, not including Japan's colonies.

below the export volume index due to cyclical fluctuations in the commodity terms of trade. From 1932 to 1937, the income terms of trade diverged widely below the export volume index, and this was obviously brought about by a big deterioration in the commodity terms of trade. Such a growing divergence is seen only in the 1930's. The difference between the degree of the correlation of the export volume and the income terms of trade for the period prior to 1930 and for the 1930's is more clearly shown by Chart 3.

Chart 3 Export Volume and Income Terms of Trade



Source: Appendix

It may be safely inferred that manufactures were not driven abroad during a period such as 1905–31 when the volume of exports, which consisted mainly of semi- and finished manufactures, grew in parallel fashion with or at a slower speed than manufacturing output. The export-drive was confined to the period of 1932–37, when exports expanded faster than manufacturing output and the commodity terms of trade deteriorated enormously. The period of 1905–13 was another period of rapid industrial transformation and of deterioration in the terms of trade, but it had many dissimilarities as compared with the 1930's. A further study is needed for the period of 1905–13.

Secondly, Table 5, which is calculated from Hilgerdt's *Industrialization and Foreign Trade*,[8] confirms our above conclusions as far as the comparison of changes in production and exports of manufactures by periods in Japan is concerned.[9]

[8] League of Nations, *Industrialization and Foreign Trade*, written by Folke Hilgerdt, 1945.
[9] In 1936–38, the manufacturing production increased by 79% relative to 1930, while manufacturing exports increased by 85%.

As compared with more advanced countries, which are our competitors in manufacturing exports, and with the world as a whole, in the first period of 1906–10 / 1911–13, Japanese manufacturing production increased faster than that of foreign countries while Japanese manufacturing exports expanded as rapidly as those of the United States and a little faster than those of the world. In the second period of 1921–25 / 1926–29, Japanese manufacturing production increased a little faster than that of foreign competitors and of the world while the expan-

Table 5 *Production and Trade in Manufactured Articles*

Production

Period		Japan		World		United States		Germany		United Kingdom	
		(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
I	1906–10	64.4	100	79.9	100	78.7	100	80.8	100	83.1	100
	1911–13	93.1	145	94.3	118	91.6	116	97.4	121	93.1	112
II	1921–25	203.3	100	103.2	100	129.3	100	77.7	100	76.4	100
	1926–29	289.8	143	138.9	135	163.6	127	112.2	144	92.6	121
	1930	294.8	145	136.9	133	148.0	114	101.6	131	91.3	120
III	1926–29	289.8	100	138.9	100	163.6	100	112.2	100	92.6	100
	1931–35	365.8	126	128.2	92	117.8	72	90.6	81	92.3	100
	1936–38	528.9	183	185.0	133	166.6	102	138.3	123	121.5	131

Trade (exports)

Period		Japan		World		United States		Germany		United Kingdom	
		(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
I	1906–10	65.7	100	77.9	100	65.6	100	73.7	100	82.2	100
	1911–13	88.2	134	95.6	123	90.2	138	93.7	127	96.0	117
II	1921–25	191.2	100	76.6	100	108.7	100	61.2	100	68.4	100
	1926–29	276.5	145	104.3	136	175.7	162	77.5	127	82.7	121
	1930	254.9	133	99.7	130	160.2	147	91.3	149	68.2	100
III	1926–29	276.5	100	104.3	100	175.7	100	77.5	100	82.7	100
	1931–35	284.3	103	75.5	72	95.0	54	71.8	93	50.8	61
	1936–38	471.6	171	92.1	88	154.8	88	84.0	108	62.9	76

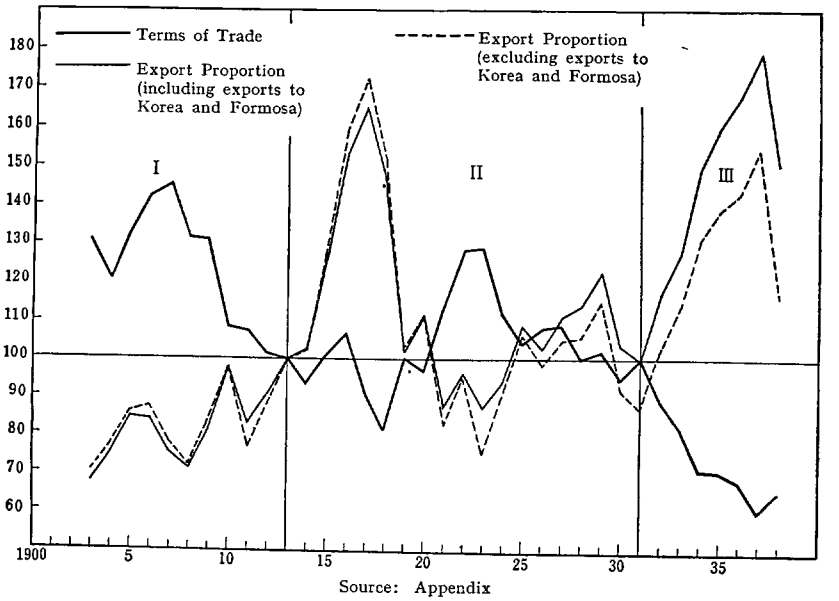
Column (a) is the original index, the base of which is 1913=100.
Column (b) shows each period in a given group as a per cent of the first period in that group.
Source: League of Nations, *Industrialization and Foreign Trade*, 1945, p. 130, p. 157, pp. 162–163.

sion of Japanese manufacturing exports lagged far behind that of the United States. The situation was, however, quite different in the third period of 1926-29 / 1936-38, in which not only manufacturing production increased faster in Japan than in other countries but Japanese manufacturing exports expanded enormously in contrast to other countries' contraction or slow recovery from the world crisis. It may be concluded that only in the third period did Japan engage in an export drive and intrude into competitor's markets.

Thirdly, it is said that the export proportion, i.e. the ratio of exports to national income, is more likely to increase in a period of depression than it is in the immediately preceding period of prosperity and that it is inversely correlated with the terms of trade which are said to deteriorate during depressions.[1] The phenomenon is called 'crisis exporting', in which the deterioration in the terms of trade plays the same role as in the vicious circle mechanism,[2] though the former results in an export drive of a short-run nature and the latter results in that of a secular nature.

Chart 4 shows the Japanese terms of trade index and export proportion index, the latter of which is calculated by first dividing the export volume index by the real national income index, and then taking as 100 the export proportion

Chart 4 Terms of Trade and Export Proportion Index 1903—1938 (1913=100)



Source: Appendix

[1] See, Werner Schlote, *British Overseas Trade, from 1700 to the 1930's*, translated by W. H. Chaloner and W. O. Henderson, Oxford, 1952, pp. 75-79.

[2] Professor Shinohara stressed the similarity of the role of the terms of trade played in crisis exporting and in his vicious circle mechanism. See, Miyohei Shinohara, "The Economic Development and Foreign Trade of Japan," *Nippon Keizai-no Kozobunseki*, ed. by Ichiro Nakayama, Vol. 2, 1954, p. 108.

thus obtained in 1913 (15.2% when exports to Korea and Formosa are excluded and 17.2% when they are included). The two indices apparently show a fairly good inverse correlation throughout the whole period from 1905 to 1937. Firstly, the export proportion decreased and the terms of trade improved in 1918–23 when the world business cycle was downward and the Japanese economy suffered the great earthquake. During the world economic crisis of 1929 to 1930, both indices decreased, and then the terms of trade improved while the export proportion decreased from 1930 to 1931. Secondly, the export proportion increased and the terms of trade deteriorated when the world economy was prosperous in such periods as 1905–13, 1913–18 (World War I), and 1923–29. Now, the first set of facts is quite contrary to the crisis exporting theory and also to the vicious circle theory. The second set of facts has no connection with the crisis exporting theory, and scarcely supports the vicious circle theory.

Concerning the period during 1932–37, there still remains a question. From the point of view of the short-run business cycle, it was a period of slow recovery of the world economy and of rapid expansion of our economy. However, from the point of view of secular trend, it was a period of secular stagnation of the world economy which might, as the vicious circle theory assumes, necessitate a deterioration in the terms of trade in order to increase the export proportion in Japan. It may be concluded that only in the period of 1932–37 were Japanese exports persistently driven abroad in the face of an unfavorable world economic situation.

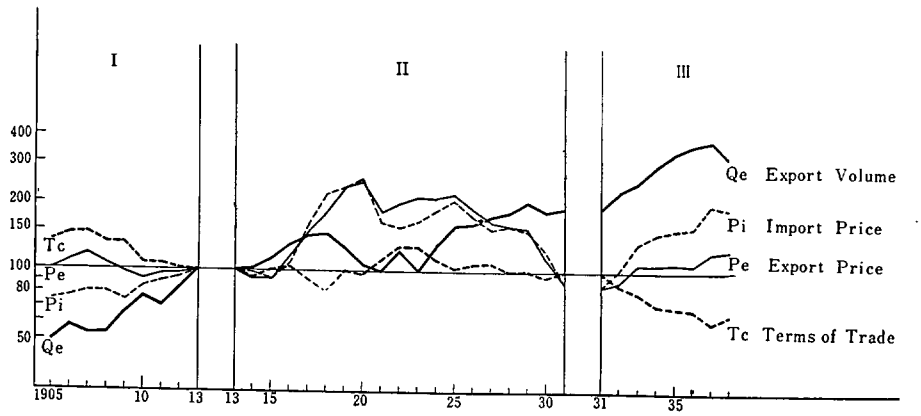
Fourthly, it is not enough to analyse only the terms of trade. The components of the terms of trade and the export volume also should be investigated. The indices of these variables are drawn in Chart 5. In period II, 1913–31, there was a fairly regular cyclical pattern of behavior evident in these indices, as Professors Morgan and Paish pointed out[3] with reference to the United Kingdom. Since the price fluctuation in primary commodities was wider than in manufactured goods, in the upward phase of the world business cycle Japan's import prices rose first; the increase of purchasing power among primary goods exporting countries resulted in the increase of Japanese export volume,[4] which was then followed by rise in our export prices; our terms of trade deteriorated, for the rise of import prices was faster and greater than that of export prices mainly due to the difference of price elasticities. In the downward phase of the world business cycle, import prices fell first at a greater rate than that of the succeeding fall in export prices, and as a consequence the terms of trade became favorable while the volume of export declined or grew at a slower rate than otherwise.

In period I, 1905–13, and in Period III, 1931–37, however, all indices showed not a cyclical pattern but a kind of trend. In period I, the import price index

[3] D. J. Morgan and P. W. Paish, "The Purchasing Power of British Exports Further Considered," *Economica*, Nov. 1955, pp. 329–335. See also, R. L. Marris, "The Purchasing Power of British Exports," *Economica*, Feb. 1955, pp. 13–28, and "The Purchasing Power of British Exports—A Rejoinder," *Economica*, Feb. 1956, pp. 67–70.

[4] The decline in the export volume in 1923 was irregular. since it was brought about by the great earthquake in that year.

Chart 5 Indices of Import Price, Export Price, Export Volume and Terms of Trade (1913=100)



Source: Appendix

rose substantially; the volume of exports increased at a rapid rate with the export price index fairly constant; consequently the terms of trade deteriorated enormously. In period III, the trend pattern was about the same as in period I, except for the rising trend of the export price index in the former period. It seems to me, however, that there was some fundamental difference between the two periods, although a thorough analysis has not yet been made of period I. In period I, the world economy was prosperous and expanding rapidly and, therefore, our import prices rose. In period III, the world economy was sluggish and in "Sturm und Drang," and import prices were deliberately pushed up as a result of our drastic exchange depreciation. Other differences will be noted presently. Thus, it may be concluded that only in period III did Japan try deliberately to expand her exports.[5]

Fifthly, according to Professor Tatemoto's calculation[6] there exists a conspicuous difference in income and price elasticities between 1924-29, on the one hand, and 1932–37, on the other hand. The income elasticity abroad for our exports decreased from 1.70 in the first period to 0.90 in the second period, while the price elasticity increased from 0.10 to 0.94, both elasticities being estimated by multiple correlation. The elasticity of substitution of world demand for Japanese and competitor's exports showed a fivefold increase from 0.45 to 2.20. These changes in elasticities tell us that our export price cuts worked effectively

[5] Professor Lockwood seems to be right in stating that "...periods of high incomes in Japan were apt to be periods of high incomes and high prices abroad. A notable exception was the Japanese economic recovery after 1931 in the midst of continuing world depression. Even then the yen prices of imports rose steeply as national income increased, owing to the depreciation of the currency." William W. Lockwood, *op. cit.*, p. 380.

[6] Masahiro Tatemoto and Hiroya Ueno, *Keizai-kozo no Keiryo-keizai-teki Bunseki*, Osaka University, 1957, pp. 105–108.

for expanding trade in 1932-37, while our exports were influenced predominantly by changes in the world incomes during 1924–29.

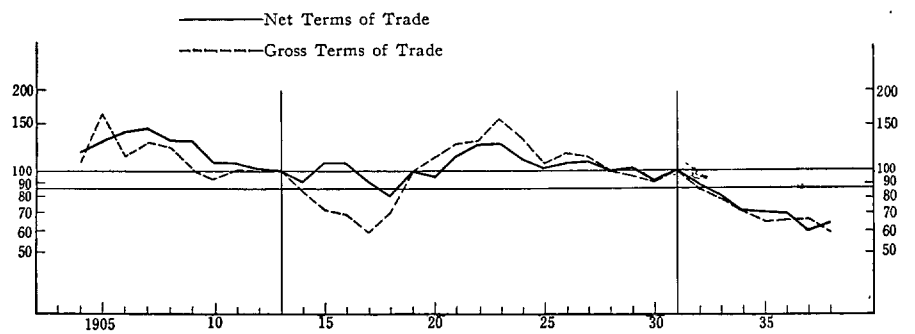
In short, all indices, which have been examined from five points of view, show that only the period of 1932–37 had the unique features of an export drive supported by a huge deterioration in the terms of trade. It may be safely inferred that those unique features were the causes and effects of the vicious circle mechanism which was peculiar to that period. Obviously, in the period of 1913–31, our exports varied not as a result of a deliberate export drive policy, but in accordance with the world business cycles.

IV. *The Balance of Payments*

It may be worth inquiring if a latent tendency toward a recurrent deficit in the balance of payments has really existed, as the vicious circle theorists argued, and, if so, what kind of deliberate policy has taken place in order to overcome the latent deficit. The task is not easy since the ex-post account of the balance of payments is always kept in balance and, in the aggregate, it indicates nothing about latent forces. However, a gold movement, which is apt to be an accommodating factor in the balance of payments, may suggest something important.

The relation between the net and gross terms of trade as shown in Chart 6 gives a good picture of changes in the balance of trade. In the base year, 1913, an import surplus amounted to 15.5% of the total import value. When the gross terms of trade were above a line marking 84.5, our balance of trade incurred

Chart 6 Net and Gross Terms of Trade (1913=100)



Source: Appendix

an import surplus, and when they were below our balance of trade enjoyed an export surplus. From the chart, it is clear that Japan experienced an export surplus in 1915–18 and in 1932–38, while an import surplus occurred in other periods. A clear co-variation between the two terms of trade is seen, except where large fluctuations of the gross terms of trade took place such as in 1905, the

year of the Russo-Japanese War, and in 1923, the year of the great earthquake. The co-variation shows, as would be theoretically expected, that a downward change in the gross terms of trade, i.e. an improvement in the balance of trade, tends to pull down the net terms of trade and *vice versa*. It is apparent, therefore, that the net terms of trade did not deteriorate because of the occurrence of an import surplus. Instead, they deteriorated while the balance of trade was improving, particularly in 1905–1914 and 1932–1937. In any case, there is no evidence in these facts of the operation of the vicious circle mechanism.

Table 6 *The Balance of Payments*, 1904—1936

(in million yen)

Period	(1) Balance of Merchandise Trade surplus (+),	(2) Balance of Invisible Trade deficit (—)	(3) Balance of Current Account (1)+(2)	(4) Gold net export (+) net import (—)
I. 1904–1914	−727.4	−260.5	−987.9	+ 78.6
Annual Average	(− 66.1)	(− 23.7)	(− 89.8)	(+ 7.2)
II. 1915–1919	+1,219.2	+1,843.9	+3,063.1	−622.8
Annual Average	(+243.8)	(+368.8)	(+612.6)	(−124.6)
III. 1920–1929	−4,214.9	+1,896.3	−2,318.6	−452.2
Annual Average	(−421.5)	(+189.6)	(−231.9)	(− 45.2)
IV. 1930–1931	−301.1	+216.6	− 84.5	+674.9
Annual Average	(−150.5)	(+108.3)	(− 42.2)	(+337.4)
V. 1932–1936	−237.5	+767.3	+529.8	+133.4
Annual Average	(− 47.5)	(+153.5)	(+106.0)	(+ 26.7)
Total	−4,261.7	+4,463.6	+ 201.9	− 188.1

Period	(5) Changes in Outside Gold net decrease(+) net increase(—)	(6) Payments in Gold (4)+(5) net payment(+) net receipt (—)	(7) Capital Movements net inflow (+) net outflow (—)	(8) Residuals (3)+(6)+(7)
I. 1904–1914	−198.8	−120.2	+1,370.4	+262.3
Annual Average	(− 18.1)	(− 10.9)	(+124.6)	(+ 23.9)
II. 1915–1919	−1,130.5	−1,753.3	−1,405.0	− 95.2
Annual Average	(−226.1)	(−350.7)	(−281.0)	(− 19.1)
III. 1920–1929	+1,088.1	+635.9	− 9.8	−1,692.5
Annual Average	(+108.8)	(+ 63.6)	(− 1.0)	(−169.3)
IV. 1930–1931	+167.3	+842.2	−380.6	+377.1
Annual Average	(+ 83.7)	(+421.1)	(−190.3)	(+188.6)
V. 1932–1936	− 78.7	+ 54.7	−945.3	−360.8
Annual Average	(− 15.8)	(+ 10.9)	(−189.1)	(− 72.2)
Total	−152.6	−340.7	−1,370.3	−1,509.1

Source: *Zaisei Kinyu Tokei Geppo*, ed. by the Ministry of Finance, No. 5, 1950.

Table 6 shows the balance of payments, according to Ministry of Finance estimates which are generally considered among the most reliable.[7] In this table, a shipment of silver is included in merchandise trade. It is assumed that gold shipments in column (4) and changes in outside gold in column (5) consist of payments in gold in column (6). Capital movements in column (7) are badly imperfect estimates and ambiguous. Throughout the whole period, 1904–1936, the import surplus of merchandise trade, 4,261 million yen, was covered by the net receipts of invisible trade, 4,463 million yen, maintaining a favorable balance in the current account. Consequently, regardless of the capital movements, which were really small in amount as compared with total exports and imports, our trade was kept well in balance during the whole period and resulted in a small amount of gold receipts, 340 million yen. The pattern of balancing the payments, however, differs in each sub-period.

In period I, 1904–1914, both merchandise and invisible trade incurred a deficit amounting to about 1,000 million yen, but the deficit was covered with no difficulty by the net inflow of capital, 1,370 million yen, leaving a net receipt of gold of 120 million yen. Following the establishment of the gold standard in 1897, which was made possible by the inflow of the Chinese war indemnity, a good amount of foreign capital flowed in. The Russo-Japanese war expenditure and the post-war industrialization were financed in substantial part by foreign capital amounting to 1,784 million yen[8] in 1904–1914. Thus, it may safely be said that in 1904–1914, because of the enormous inflow of foreign capital, Japan did not actually experience a balance of payments problem even though she engaged in rapid industrialization. Japan did not in this period take any deliberate measures for an export drive, for it is reported that, in 1914, "Japan had two alternatives: either to raise the specie holdings of the Bank of Japan or to adopt deflationist measures whereby to depress commodity prices and so accelerate the export trade... But just when the authorities were on the point of installing this new plan, the World War broke out, changing the financial situation entirely."[9]

In period II, 1915–1919, both merchandise and invisible trade earned enormous foreign exchange, amounting to 3,063 million yen, and consequently there was no worry about the balance of payments pressure. Japan acquired gold in the amount of 1,753 million yen and the remainder was used to pay off old foreign debts and to lend capital abroad in the estimated amounts of 245 and 830 million yen respectively.[1]

In period III, 1920–1929, Japan experienced a huge import surplus, 4,215 million yen, 45% of which was covered by the export surplus of invisible trade, and a net deficit of 2,319 million yen remained to be covered. The Government did not take any positive measures to foster exports but paid a part of the deficit, amounting to 636 million yen, in gold, which was acquired during World War

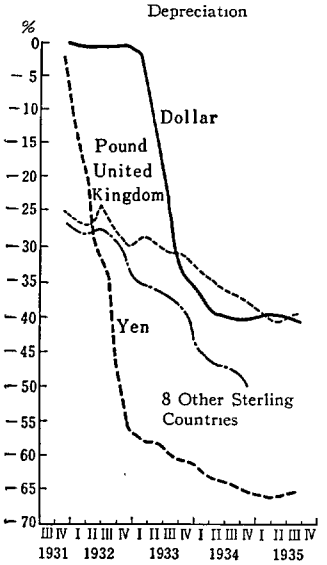
[7] *Zaisei Kinyu Tokei Geppo*, ed. by the Ministry of Finance, No. 5, Jan. 1950.
[8] The Oriental Economist, *The Foreign Trade of Japan, A Statistical Review*, 1935, p. 24.
[9] *The Foreign Trade of Japan, ibid.*, p. 24.
[1] *Zaisei Kinyu Tokei Geppo, ibid.*, p. 5.

I. A certain amount of capital, 990 million yen,[2] was borrowed from abroad. No satisfactory explanation seems to be available concerning why column (7) of Table 6 shows 9.8 million yen of outflow of capital in spite of a large amount of foreign borrowing. The total of the gold payment and the foreign borrowing is still short of the deficit in the current account. It seems to me that a large part of the shortage was covered by selling our foreign investment carried during World War I and a small part of it, particularly the deficit in 1929, was deferred to 1930–31.

On January 11, 1930, in spite of the fact that the World Crisis had already started, Japan lifted, at the old par, the gold ban, which had existed since World War I. Then, a substantial amount, 842 million yen, of gold was sent abroad in a short period, and consequently the gold ban was restored on December 13, 1931. A part of the drain of gold was accounted for by the deferred payments of the previous year, but a large part of it was due to a rapid capital flight. Thus, it may be concluded that, during 1920–1931 thanks to the gold reserve accumulated during World War I, Japan was able to meet trade deficits without resorting to any deliberate measures for an export drive.

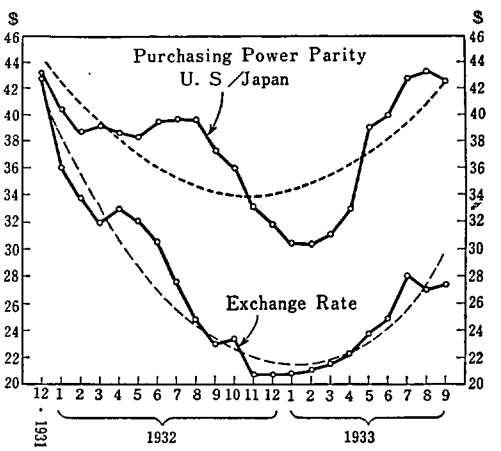
In period V, 1932–36, positive measures for a deliberate export drive started when the exchange rate was allowed to fluctuate freely at the end of 1931 and, internally, a reflationist policy was adopted. As Chart 7 shows, the deprecia-

Chart 7 Competitive Exchange Depreciation



S. E. Harris, *Exchange Depreciation*, Cambridge, Mass., 1936, p. 422.

Chart 8 Exchange Rate and Purchasing Power Parity between U. S. and Japan Immediately after Abandonment of the Gold Standard in Japan in Dec. 1931



Ginjiro Shibata, "Fluctuations of the Exchange Rate and Japan's International Balance of Payments," *Third Annual Report of the Japan Statistical Society*, 1934, p. 40.

[2] *Ibid.*, p. 5.

tion of the yen was far larger and faster than the depreciation of major foreign currencies, and, as Chart 8 shows, it went in advance of and at a greater rate than the fall in the purchasing power parity.[3] Needless to say, these changes stimulated greatly the expansion of our export volume, though the increase of export volume failed to create an export value surplus because of the great deterioration in the terms of trade. The current account, however, had a surplus of 530 million yen. This surplus was not enough to cover our foreign investment amounting to 945 million yen as shown in Table 6. According to other estimates, our investments in Manchuria amounted to 1,388 million yen[4] for the period 1932–36. Thus, we had a current account surplus, but we were required to ship gold.

In short, the first structural transformation in 1904–14 was made easy in its finance by the inflow of foreign capital and did not necessitate an export drive and the vicious circle. Only in the second structural transformation period of 1932 to 1936, did Japan experience a balance of payments difficulty not because of the pressure of an ordinary import surplus but in order to realise huge investments in Manchuria and to import a large amount of war materials. In the inter-transformation period, the balance of payments deficits in 1920–31 were covered by gold and foreign exchange earned during World War I and neither an export drive nor the vicious circle mechanism occurred.

V. *Gains from Trade*

It has been made clear that the terms of trade in Japan sharply deteriorated in the two periods of industrial transformation, 1905–13 and 1932–37, but that they remained constant with respect to trend in the inter-transformation period. Moreover, there were so many substantial differences between the two transformation periods that the vicious circle generated by an export drive may be said to have occurred only in 1932–37. In addition, it is expected that there may exist some differences in the gains from trade during 1932–37 as compared with the preceding period. Particularly, in order to judge if the vicious circle did occur or not, it is necessary to investigate the variations in the gains from trade which occurred as a result of different movements in labor productivity and the commodity terms of trade. We shall not be concerned here with wider effects of foreign trade on technological, cultural, social and political changes in Japan.[5] Instead, the analysis will be confined to evaluating gains from trade by means of several kinds of terms of trade. This method of evaluation is not adequate and encounters difficulties in the period of transformation arising from changes in the composition of industry and trade. It is hoped that a better technique of evaluation will be invented in the future.

[3] See, Ginjiro Shibata, "Fluctuations of the Exchange Rate and Japan's International Balance of Payments," *The Third Annual Report of the Japan Statistical Society*, 1934, pp. 35–46.

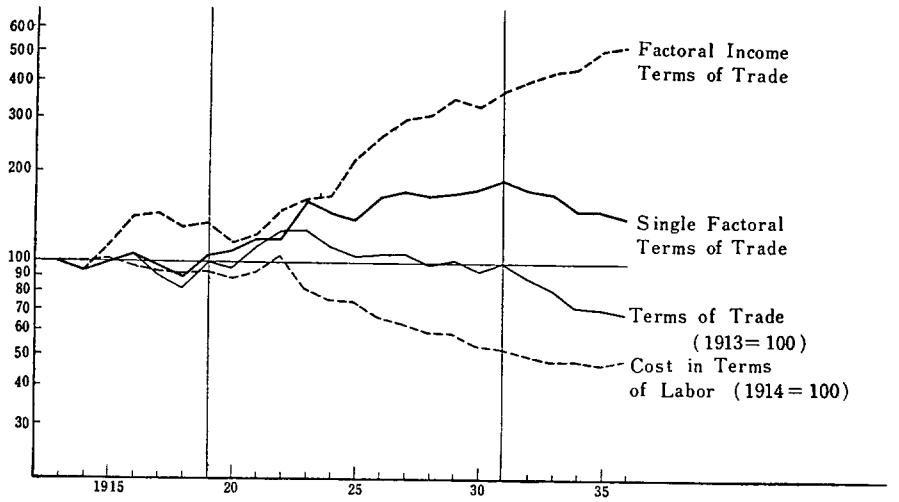
[4] *Zaisei Kinyu Tokei Geppo, ibid.*, p. 6.

[5] See, for example, Lockwood, *op. cit.*, pp. 318–346.

The net commodity terms of trade shown in Chart 1 and Chart 9 may not be a good index of the gains from trade except for short periods when other things such as the industrial structure, the trade pattern, the efficiency of production, etc. remain unchanged, although their changes have impacts upon and stimulate the re-orientation of the economy and trade as a whole.

The income terms of trade shown in Chart 2 are a better index of the gains from trade. The compound rate of growth of the income terms of trade is 5.6% per year in 1905–13, 7.1% in 1921–29, and 5.7% in 1931–36. This means that the contribution of foreign trade to economic development in terms of the capacity to import (i.e., the purchasing power of exports) increased more rapidly in the period of balanced growth, 1921–29, than in the two periods of transformation, 1905–13 and 1931–37.

Chart 9 Indices for Exports



Source: Appendix

When technical advances and the reduction in the unit cost of exports in labor and capital are rapid and great, the commodity terms of trade do not represent correctly the real gains from trade. If the commodity terms of trade deteriorate less than the reduction in the unit cost of exports, some surplus still grows, leaving room for raising the real wage level and / or the capitalist's profit. This kind of deterioration in the commodity terms of trade should be strictly distinguished from another kind of deterioration due to a true export drive which is necessitated by overproduction accompanying no technical advance. Thus the so-called single factoral terms of trade may be a better index than the commodity terms of trade.

As shown in Chart 9, the unit cost of manufactured goods in terms of labor input[6] remained unchanged in 1914–22, but from 1922 to 1931 it decreased rapidly to 50% relative to 1914, and in 1932–36 it remained again unchanged. The dif-

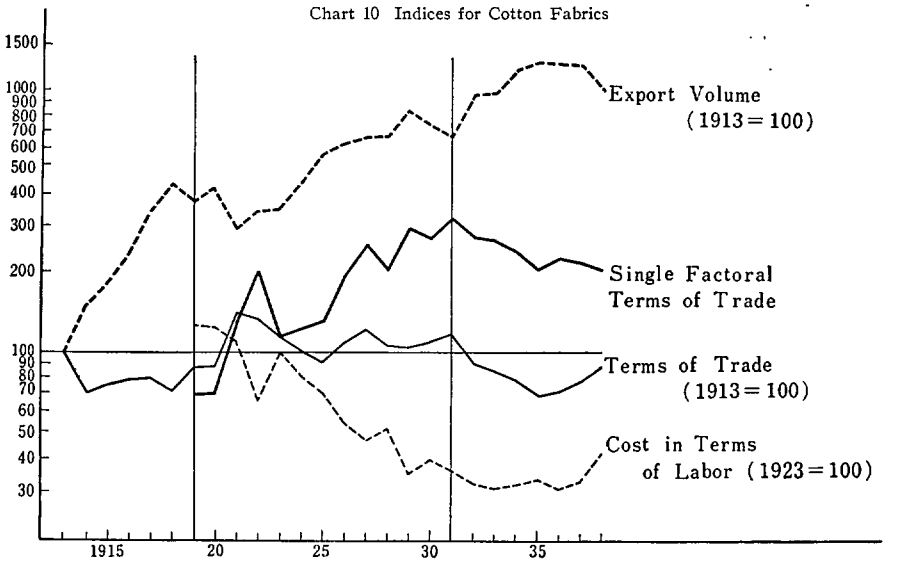
[6] Unfortunately there is no reliable series for years prior to 1914.

ference of movement between the cost index and the commodity terms of trade may be considered to represent the changes of surplus in our export industry. The surplus increased very much in 1922–31 since the commodity terms of trade declined far less than unit cost, while the surplus decreased rapidly in 1932–36 since the commodity terms of trade deteriorated enormously with unit labor cost fairly constant. The different tendencies noted above are reflected in the movement of the single factoral terms of trade. The factoral income terms of trade[7] shown in Chart 9 are the single factoral terms of trade modified by the index of export volume and may reflect a compound contribution of trade to the real wage level and to the volume of employment in export industries. They show how greatly the gains from trade increased in 1922–29, and that the rate of increase in the gains from trade was slowed down in 1932–36 despite the enormous increase in the export volume. Indices in Chart 9 also show the fact that only in 1932–36 was there an export drive under conditions of stable unit cost. Such a situation would tend to set in motion the vicious circle mechanism.

An investigation of similar indices for cotton fabrics and silk as representative export industries may help to clarify in which major industry and in what period the vicious circle occurred. The commodity terms of trade for the cotton fabrics are the ratio of the export price of cotton fabrics to the import price of raw cotton, and those for silk are the ratio of the export price of silk to the general price of wholesale commodities in Japan (no imported material is needed in the silk industry). By comparing Charts 10 and 11, it may be observed that the cotton fabrics exports were more successful than silk exports both in the expansion period, 1923–29, and in the export drive period, 1932–37, although both exports suffered equally severe set-backs in the world depression. Concerning the cotton fabrics exports, in 1923–31 the labor cost per unit was reduced to about a third, resulting in a huge increase of surplus, the rapid improvement of the single factoral terms of trade, and a big expansion of export volume. In 1932–37, the single factoral terms of trade became unfavorable because of the deterioration in the commodity terms of trade in the face of a fairly constant unit labor cost. The export drive of cotton fabrics was successful in the sense that the deterioration in the commodity terms of trade stimulated a rapid increase in export volume. Concerning the silk exports, however, in 1923–31 the commodity terms of trade deteriorated at the same rate as the reduction in cost (about 30%), leaving the trend of the single factoral terms of trade unchanged and providing no room for raising the real income level of farmers (earnings from work in the silk industry constitute an important part of farm income). Again in 1932–37, the commodity terms of trade deteriorated further at the same rate as the cost reduction, but the deterioration in the commodity terms of trade and the export drive did not bring about any expansion of the export volume because of the growing competition of synthetic fibers. Thus the vicious circle was more serious in the case of the silk industry and farmers than in the case of the cotton fabric industry and its laborers.

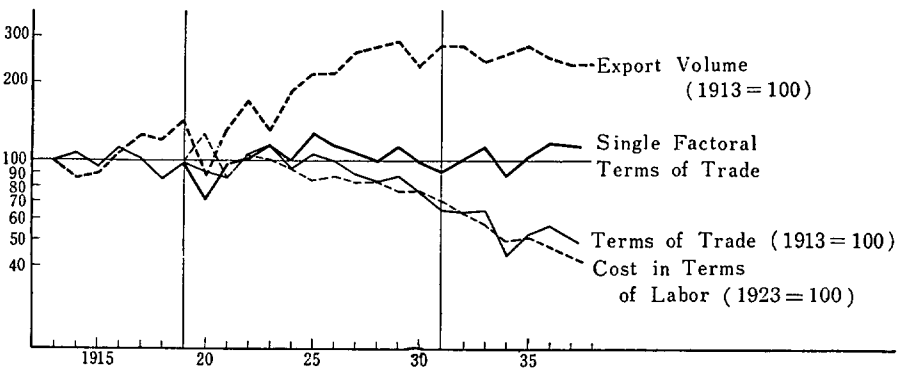
[7] See, Note 5 on page 145 above.

Chart 10 Indices for Cotton Fabrics



Source: Appendix

Chart 11 Indices for Silk

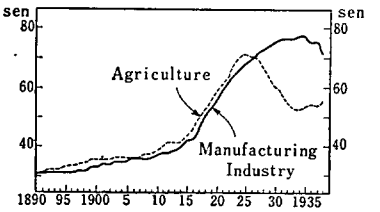


Source: Appendix

If similar indices for some of the new industries which were growing in 1932–37 were available, their comparison with the cotton fabric and silk industries, which were already stagnating, would be interesting. Unfortunately, reliable data are not available.

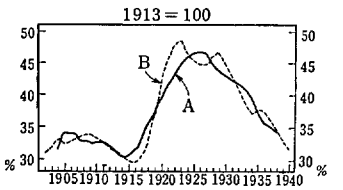
What were the results in each period of economic development as far as labor income was concerned? Although a further study is needed, Charts 12 and 13 may suggest something important. As shown in Chart 12, the real wage-income in manufacturing industry rose rapidly from 1914 to 1931 and then leveled off, while that in agriculture rose in parallel fashion up to 1925 and then fell. The gap between agriculture and manufacturing industry is partly explained by the difficulty in the silk industry. It is clear that the real wage-income increased

Chart 12 Real Wage-Income*at 1913 Prices



Mataji Umemura, "Trend of Wage in Agriculture and Manufacturing Industry," *Nihon-no Keizai-to Nogyo*, ed. by Seiichi Tohata and Kazushi Ohkawa, 1956, p. 198.

Chart 13 Labor's Share in Manufacturing Industry
Series A...9 year moving average
Series B...5 year moving average



Mataji Umemura, "Labor's Share in Manufacturing Industry," *Chingin Kihon Chosa*, ed. by Ichiro Nakayama, 1956, p. 133.

steadily in the period of balanced growth, 1914–31, while it increased slowly or decreased in the periods of industrial transformation and export drive, 1905–13 and 1932–37. These different features are more clearly seen in the trend of labor share shown in Chart 13. It may be concluded that only in the period 1932–37 did a rapid transformation of the economy and a deliberate export drive combine to give rise to the vicious circle and a serious pressure upon labor's real consumption level.

VI. *Concluding Remarks*

I have tried to prove the incorrectness of the hasty generalization of the stereotyped theory that the drive for foreign markets was the motor force of Japanese industrialization over the long run, resulting in a vicious circle between the deterioration in the terms of trade and cheap labor. The vicious circle was confined to 1932–37, the period of war preparation, rapid transformation to heavy industry, and an investment rush to Manchuria. In view of the powerful political and military factors behind the deterioration of the terms of trade and the export drive, it is even possible that the vicious circle played a relatively minor role in the situation. Prior to the 1930's, Japan experienced prosperous decades of balanced growth of industries and trade and steadily raised its real wage level. Since World War II, it seems to me, the Japanese economy and trade have recovered and are growing according to the pattern of the pre-1930's, a pattern which, it is hoped, will not revert to that of the 1930's.

Appendix: Statistical Data

Table A (1913=100)

	(1) Price of Exports	(2) Volume of Exports	(3) Price of Imports	(4) Volume of Imports	(5) Terms of Trade $\frac{(1)}{(3)}\times 100$	(6) Income Terms of Trade $(5)\times(2)\div 100$	(7) Production of Manufactured Goods	(8) Export Proportion Volume of Exports / Real National Income		(9) Cost of Mfg. Goods in Terms of Lafor Input
								(8a) Excluding Exports to Korea and Formosa	(8b) Including Exports to Korea and Formosa	
1873	64.2	5.3	61.9	6.3	103.7	5.5	1.3	%		
1874	56.4	5.5	51.6	6.2	109.3	6.0	1.6			
1875	52.7	5.5	55.4	7.4	95.1	5.2	1.6			
1876	58.7	7.5	47.8	6.9	122.8	9.2	1.7			
1877	46.8	7.9	54.3	7.0	86.2	6.9	2.0			
1878	47.1	8.7	48.9	9.2	96.3	9.4	2.5			
1879	53.6	8.4	44.1	10.2	121.5	10.2	3.0			
1880	57.7	7.8	44.6	11.2	129.4	10.1	3.4			
1881	56.3	8.7	43.9	9.8	128.2	11.2	3.6			
1882	53.1	11.3	42.1	9.5	126.1	14.2	3.6			
1883	47.9	11.9	40.6	9.6	118.0	14.0	3.6			
1884	50.5	10.7	41.8	9.8	120.8	12.9	3.2			
1885	51.8	11.4	39.6	10.1	130.8	14.9	3.4			
1886	54.6	14.1	40.4	10.9	135.1	19.0	4.7			
1887	56.8	14.6	41.2	14.8	137.9	20.1	5.8			
1888	51.5	20.2	47.6	18.9	108.2	21.9	7.2			
1889	56.6	19.6	49.2	18.5	115.0	22.5	7.7			
1890	59.3	15.0	47.1	23.8	125.9	18.9	8.5			
1891	54.8	23.0	44.6	19.3	122.9	28.3	8.0			
1892	62.6	23.0	44.5	22.0	140.7	32.4	9.5			
1893	68.9	20.6	50.2	24.1	137.3	28.3	10.1			
1894	71.0	25.2	61.5	26.2	115.4	29.1	13.2			
1895	79.0	27.2	60.6	29.2	130.4	35.5	14.9			
1896	76.9	24.2	61.2	38.4	125.7	30.4	17.3			
1897	80.9	31.9	66.9	45.0	120.9	38.6	17.8			
1898	86.8	30.2	65.9	57.7	131.7	39.8	20.4			
1899	90.9	37.4	67.3	44.9	135.1	50.5	23.5			
1900	101.3	31.9	81.4	48.4	124.4	39.7	25.7			
1901	90.1	44.3	80.9	43.4	111.4	49.4	28.6			
1902	90.7	45.0	73.9	50.5	122.7	55.2	32.1			
1903	94.3	49.4	71.7	56.6	131.3	64.9	34.2	10.7	11.6	
1904	95.7	53.2	78.7	60.2	121.6	64.7	40.5	11.8	12.9	

1905	99.4	48.7	75.1	81.6	132.4	64.5	49.5	13.1	14.6	
1906	109.4	57.4	76.9	66.8	142.3	81.7	52.0	13.3	14.5	
1907	118.4	53.7	81.6	75.5	145.1	77.9	60.1	11.7	13.0	
1908	105.2	53.6	79.8	66.2	131.8	70.6	60.0	11.0	12.3	
1909	98.1	64.6	74.7	67.1	131.3	84.8	62.4	12.7	14.1	
1910	92.2	76.8	84.6	73.6	108.7	83.5	72.4	14.9	16.8	
1911	96.5	71.1	89.9	73.5	107.3	76.3	81.0	11.7	14.3	
1912	96.1	85.3	94.3	87.6	101.9	86.9	82.9	13.4	15.6	
1913	100.0	100.0	100.0	100.0	100.0	100.0	100.0	15.2	17.2	(1914=100)
1914	93.1	100.5	99.5	83.8	93.6	94.1	101.5	15.6	17.7	100.0
1915	92.4	113.4	91.8	81.7	100.7	114.2	105.0	19.4	21.7	99.0
1916	117.6	130.5	110.4	90.7	106.5	139.0	128.1	24.2	26.3	102.1
1917	147.6	146.5	161.0	89.0	91.8	134.5	148.1	26.2	28.4	108.1
1918	181.0	146.5	221.1	105.2	81.9	120.0	166.4	23.2	25.4	109.3
1919	238.9	127.4	238.9	126.3	100.0	127.4	179.5	15.6	17.6	105.3
1920	250.1	108.0	256.7	123.9	97.4	105.2	182.9	17.0	19.3	111.2
1921	184.1	101.5	162.7	130.6	113.2	114.9	180.6	12.6	15.1	105.9
1922	201.5	123.6	156.6	162.1	128.7	159.1	210.6	14.5	16.7	94.1
1923	213.8	101.8	165.3	159.8	129.3	131.6	226.3	11.5	13.4	123.8
1924	211.1	131.0	187.7	175.9	112.5	147.4	244.8	13.9	16.2	131.8
1925	219.1	158.8	209.9	174.2	104.4	165.8	251.6	16.2	18.8	134.0
1926	189.8	161.3	175.2	189.8	108.3	174.7	289.4	15.0	17.7	149.3
1927	167.8	174.7	154.0	200.5	109.0	190.4	305.8	16.0	19.1	156.1
1928	159.9	184.2	159.2	190.1	100.4	184.9	334.9	16.1	19.6	167.5
1929	156.7	204.8	153.2	199.2	102.3	209.5	371.0	17.5	21.2	166.9
1930	116.2	188.9	121.8	175.1	95.4	180.2	348.4	14.0	17.8	185.6
1931	87.9	194.9	87.7	194.3	100.2	195.3	347.1	13.3	17.1	189.0
1932	91.5	230.2	102.8	191.8	89.0	204.9	381.0	15.7	20.1	197.6
1933	109.2	254.4	132.8	198.8	82.2	209.1	437.4	17.4	22.0	208.2
1934	107.7	300.9	148.2	212.2	72.7	218.8	484.6	20.0	25.7	204.9
1935	109.4	341.3	153.3	222.2	71.4	243.7	522.4	21.1	27.6	204.9
1936	107.9	373.0	156.0	244.1	69.2	258.1	557.4	21.7	28.9	
1937	122.2	388.1	200.9	259.5	60.8	236.0		23.5	31.0	
1938	125.0	321.2	193.7	189.5	64.5	207.2		17.7	25.9	

(1)—(4) The series of the Oriental Economist, *The Foreign Trade of Japan, A Statistical Review*, 1935, is connected in 1928 to the series of the Yokohama Specie Bank, *Weekly Circular*. These cover only the foreign trade of Japan Proper with foreign countries, excluding trade with the colonies.

(7) "Honpo Seisan Suryo Shisu," *Shogyo Keizai Ronso*, Vol. 16, No. 3, Nov. 1938, pp. 478–479.

(8) National income and its deflator are Ohkawa series. *The Growth Rate of the Japanese Economy*, ed. by Kazushi Ohkawa, Tokyo, 1957, p. 247, p. 130.

(9) Miyohei Shinohara, *Shotoku-Bunpai to Chingin-kozo*, Tokyo, 1955. p. 11.

Table B (1913=100)

	Indices for Cotton Fabrics					*Indices for Silk*				
	(1) Export Price of Cotton Fabrics	(2) Export Volume of Cotton Fabrics	(3) Import Price of Raw Cotton	(4) Terms of Trade for Cotton Fabrics $\frac{(1)}{(3)}\times 100$	(5) Cost of Cotton Fabrics in Terms of Labor Input	(6) Export Price of Silk	(7) Export Volume of Silk	(8) General Prices	(9) Terms of Trade for Silk $\frac{(6)}{(8)}\times 100$	(10) Cost of Silk in Terms of Labor Input
1913	100.0	100.0	100.0	100.0	(1923	100.0	100.0	100.0	100.0	(1923
1914	69.8	152.9	101.2	69.0	=100)	101.4	84.4	95.4	106.3	=100)
1915	63.7	184.2	85.5	74.5		91.8	88.1	96.6	95.0	
1916	73.9	235.2	94.7	78.0		131.7	107.8	116.7	112.9	
1917	106.4	346.3	134.7	79.0		148.9	125.7	146.9	101.4	
1918	155.5	438.2	216.4	71.9		164.0	119.7	192.5	85.2	
1919	211.3	376.5	241.9	87.4	127.3	233.7	142.0	235.7	99.2	101.4
1920	231.2	422.4	263.9	87.6	125.0	234.8	86.6	259.1	90.6	126.6
1921	203.2	295.7	143.5	141.6	109.6	170.5	130.1	200.3	85.1	87.1
1922	187.8	342.4	140.9	133.3	63.8	209.4	169.9	195.7	107.0	103.7
1923	193.3	348.2	166.4	116.2	100.0	231.0	130.1	198.3	116.5	100.0
1924	216.3	439.9	213.6	101.3	81.7	197.4	184.0	206.3	95.7	93.8
1925	222.9	567.2	242.1	92.1	70.3	215.5	216.7	201.5	106.9	84.5
1926	194.5	624.9	178.8	108.8	54.5	178.1	218.6	178.8	99.6	87.0
1927	170.5	654.6	140.0	121.8	46.9	152.5	258.4	169.8	89.8	82.4
1928	170.2	663.3	161.7	105.3	51.9	143.1	272.5	170.8	83.8	83.4
1929	159.2	830.7	152.4	104.5	35.5	145.3	285.9	166.0	87.5	76.9
1930	119.2	731.5	108.5	109.9	40.3	95.0	233.5	124.8	76.1	76.7
1931	89.9	657.6	76.3	117.8	36.5	68.4	276.2	105.5	64.8	70.5
1932	90.8	945.8	100.7	90.2	32.8	74.8	271.7	117.0	63.9	62.9
1933	117.2	972.9	138.9	84.4	31.6	86.6	240.1	134.0	64.6	56.8
1934	122.1	1,199.7	154.8	78.9	32.1	60.4	251.7	136.8	44.2	49.4
1935	116.4	1,268.4	166.8	69.8	33.5	74.9	273.4	140.2	53.4	51.1
1936	114.1	1,261.1	160.4	71.1	31.0	83.6	248.8	146.1	57.2	47.8
1937	138.6	1,230.4	177.4	78.1	32.7	92.1	234.0	177.5	51.9	44.2
1938	118.6	1,014.6	133.7	88.7	42.5	81.7	236.0			40.7

(1), (2), (3), (6), (7) The series of the Oriental Economist, *The Foreign Trade of Japan, A Statistical Review*, 1935, is connected in 1930 to the series of Kobe Shodai Shogyo Kenkyujo, *Juyo Keizai Tokei*, No. 11, 1938.
(5), (10) *Nihon Keizai no Bunseki*, ed. by Shigeto Tsuru and Kazushi Ohkawa, Vol. 2, 1955, p. 353.
(8) *Nihon no Keizai to Nogyo*, ed. by Seiichi Tohata and Kazushi Ohkawa, Vol. 1, 1956, pp. 190–191 The base of the original series is 1893–97=100