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JAPANESE ECONOMY IN THE INTER-WAR PERIOD

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BUSINESS FLUCTUATIONS IN JAPANESE ECONOMY DURING THE INTER-WAR PERIOD

By

Hideo AOYAMA* and Toru NISHIKAWA**

I. General Features of Business Fluctuations in Japan.

If we attempt to plot the development of Japanese economy since the Meiji Restoration on a chart, it looks, broadly speaking, like a straight line showing a high rate of growth. The real national income and industrial production has always increased except during a few periods. Therefore, it has often been said that it is quite difficult to detect business cycles in the sense of fluctuations in aggregate real output in Japanese economy. Also, some Japanese economists say that business fluctuations cannot be distinctly observed in Japanese economy because of the strong trend towards rapid growth.¹⁾ In spite of these opinions, we can still find in Japanese economy that there clearly existed business fluctuations in a different sense from those mentioned above. That is, when we lay emphasis on repercussion mechanism rather than on individual impulses to economic progress, we will be able to detect business fluctuations in the alternations of two kinds of phases, "the phase of accumulation" and "the phase of advance", which will be explained below.^{1a)}

The first kind of phase is so-called period of prosperity or "the phase of advance" which is usually caused by the increase in export. In this phase, we have a favorable balance of payments and a large increase in industrial production. The second kind of phase, "the phase of accumulation"

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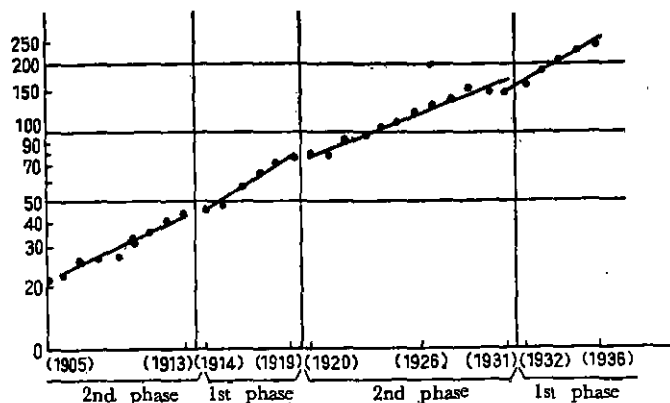
1) See discussion in K. Okawa; "The Rate of Growth in Japanese Economy", in S. Tsuru and K. Okawa (edited); *Analysis of Japanese Economy (Nippon Keizai no Bunseki)* 1953, p. 43, and M. Shinohara, "The Rate of Growth in Industrial Production", *Op. Cit.*, pp. 67-69.

1a) Each country has its own pattern of impulses to business cycle which gives some characteristic features to the course of business cycle in that country, on the one hand, and is subject to change in the course of history, on the other hand. The pattern of impulses to business cycles in Japan is a topic to be studied through the history of business cycles there. But we will not enter into this problem in this article.

is so-called period of depression. In this period, the balance of payments is unfavorable and the rate of increase in industrial production is less than in the first kind of phase and apparently business conditions seem inactive.

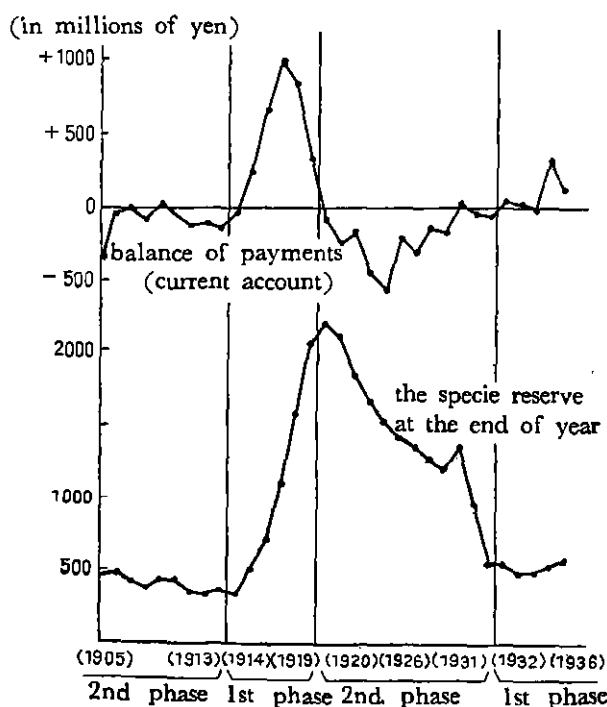
But, in spite of the decline in the rate of increase in industrial production in the second kind of phase, the amount of capital formation seldom decreases as a whole compared with the first kind of phase, but increases in some industries. The second kind of phase is "the phase of accumulation" where the energy or motive power for the next advance is stored by capital formation.

Chart 1. The Volume Index of Industrial Production



Source; Research Center of Industries in The Commercial College of Nagoya, The Volume Index of Japanese Production, *Syōgyō Keizai Ronsō*, Vol. 16, No. 3, 1938.

Chart 2. The Balance of Payments and Specie Reserve

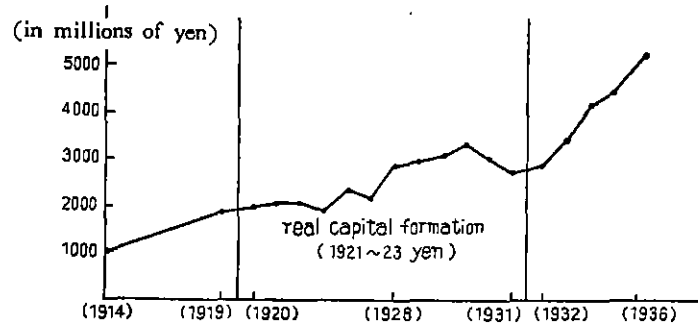


Source; The balance of payments—The Ministry of Finance, Monthly Report of Financial and Monetary Statistics (*Zaisei Kinyū Tōkei Geppō*) No. 5, The Special Volume for the Balance of Payments, 1950.

Tōyō Keizai Shinpōsha, A Survey of Japanese Foreign Trade (*Nippon Bōeki Seiran*)

The specie reserve—The Ministry of Finance, Monthly Report of Financial and Monetary Statistics (*Zaisei Kinyū Tōkei Geppō*), No. 5, the Special Volume for the Balance of Payments, 1950.

Chart 3. Real Capital Formation



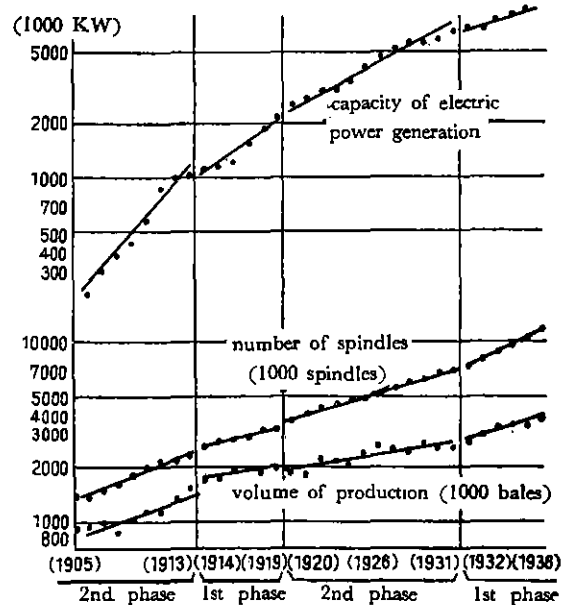
Source; M. Shinohara; The Estimates of Capital Formation by the Commodity-Flow Method, Structural Analysis of Japanese Economy (*Nippon Keizai no Kōzō Bunseki*), Vol. 1, 1954, p. 280.

If we view business cycles in Japanese economy from the beginning of this century to the outbreak of World War II, as the alternations of the two phases "advance" and "accumulation," we may divide that period into the following:

- 1906-1913 The second kind of phase (accumulation)
- 1914-1919 The first kind of phase (advance)
- 1920-1931 The second kind of phase (accumulation)
- 1932-1939 The first kind of phase (advance)

An important point to be noted here is that these two phases are closely inter-related and affect each other. Prosperity accompanied with the increase in export in the first kind of phase, yields new investment opportunities and new investment funds. Moreover, it increases the foreign exchange reserves. It is needless to say that investments considerably increase when there are large opportunities for investment, large

Chart 4. The Increase in Capacity of Electric Power Generation and Increase in the Number of Spindles and Cotton Yarn Production in Cotton Spinning Industry.



Source; The capacity of electric power generation—A Survey of Electric Power Industry (*Denki Shigyō Yōran*).

The number of spindles and the volume of production—K. Seki; *The Cotton Industry of Japan*, Japan Society for Promotion of Science.

funds for investment and accumulated foreign exchange reserves. This is a characteristic point in the first kind of phase. But it is especially important that investment opportunities in the first phase do not disappear even after the business conditions have moved into the second phase. If we study it in detail, there are differences in content and character of investment opportunities between the two phases. But in any event, investment opportunities continue in the second phase and those investments are financed with abundant funds accumulated within firms and available in the money market. The real capital formation in the second phase is characterized by these facts. Particularly, at the beginning of the second phase, when investment funds and foreign exchange reserves are quite abundant, sometimes the government is positively inclined to take an easy money policy and supplies money abundantly. In this case, capital formation will be expanded to a considerable extent.

As shown in Chart 4,²⁾ the increases in capacity of electric power plants in the period from 1920 to 1931 was not less than in periods before and after that period. And in the same period as seen in Chart 4, although the production of cotton yarn hardly increased due to output restrictions, on the other hand the number of spindles installed steadily increased. We cannot neglect the fact that financial conditions which were brought about in the first phase (during World War I) preceding this second phase, such as undistributed profit accumulated during World War I and the monetary policy in the period after the war, contributed to the investment in the cotton spinning industry during this period, though there existed factors to increase the capital coefficient in that industry (for instance, the legislation prohibiting mid-

2) To show the amount of capital formation, changes in the number of spindles in cotton spinning industry and in the capacity of electric power generation are shown in the Chart 4 to complement the estimates by Prof. Shinohara which is shown in Chart 3, ("The Estimates of Capital Formation by the Commodity Flow Method," in I. Nakayama (edited); Structural Analysis of Japanese Economy (*Nippon Keizai no Kōzō Bunseki*), 1954, pp. 265-287). These two industries are representatives of two different kinds of industry, and fairly reliable data are available for these industries. Therefore, these industries are selected. As for Prof. Shinohara's estimates, there seem to be two reasons for the underestimation of figures in the twenties. One is the assumption in his analysis that the ratio of freight charge of a commodity to its total production cost is always constant. As he himself points out, the ratio is actually larger in a price falling period like the twenties, because of the rigidity of freight charge rate compared with the general price level. Another reason is the larger fall in prices of investment goods than consumption goods in the twenties as well as other price falling periods, though the values of investment for fixed equipment are deflated by the general wholesale price index in his estimates.

Besides Prof. Shinohara's estimates, the following estimates of capital formation are available; the estimates from statistical data of finance, for example, Y. Yamada (edited); Japanese National Income Statistics (*Nippon Kokumin Shotoku Suikei Shiryō*), 1951; the estimates from national wealth statistics, for example, K. Okawa (edited); The Rate of Growth in Japanese Economy (*Nippon Keizai no Seichōritsu*), 1955, Chap. 8.

night labor for women and the increase in fine yarn production instead of coarse yarns.) Therefore, we can say that the amount of investment in Japan is determined by the availability of investment funds and the amount of foreign exchange reserve rather than the rate of increase in production as explained by the acceleration principle. In this way, the first phase affects the second phase. Conversely, capital formation in the second kind of phase expand and improve the productive capacity in order to prepare the next prosperity and expansion of exports. As examples of this point, we shall show below in detail, how much of the capital formation in the cotton spinning industry and the electric power industry, as shown in Chart 4, in the period from the end of World War I to the beginning of the thirties contributed to the economic development after 1932.

Considering the alternation of the two phases mentioned above, of advance and accumulation, from the viewpoint of industrial structure, it may be said that Japanese economy has developed quite well as a whole, but on the other hand, the development pattern of particular industries is not always the same. We can observe considerable differences in the speed and pattern of development among various industries. On the one hand, there are steadily developing industries, and on the other hand, industries which are susceptible to fluctuations, and also those in intermediate positions between them. From such a point of view, we can divide whole industries into the following four groups.³⁾

1) Industries depending mainly on foreign demand. These are the most fluctuating industries. For example, raw silk, ship building, cotton yarn and cotton fabric.

2) Industries depending mainly on the demand from the private sector of the domestic market. (These depend merely on the scale of private domestic market, not as group 3). Fluctuating pattern of this group is intermediate between 1 and 3, 4. Examples of industries belonging to this group are food, textile products and miscellaneous goods for domestic consumption.

3) Industries depending mainly on the demand from the private sector of the domestic market, and depending on the growth of economy or the change in fundamental conditions of economic structure. (For example, the emergence of new industries caused by the adoption of new technology or the concentration of population in cities in those days.) These industries develop always very rapidly and fluctuations are hardly detected. For example, chemical goods, electric power, printing and gas.

3) In this grouping, manufacturing industries are considered alone. If we add agriculture to this grouping, it may be better to let it belong to group I, this seems to be natural, since the fluctuation in agriculture quite severe and it was brought by the inflow of rice from colonies and by the decline in export of raw silk in the inter-war period.

4) Industries depending mainly on governmental expenditure. These industries has a fast and steady rate of growth almost without fluctuations. For example, transportation, communication and a part of metal and machine industries.

Regarding "the alternation of the two kinds of phase, of advance and accumulation" as the characteristic of business cycles in Japan, we can observe this feature in the inter-war period distinctly and apparantly.⁴⁾ It is also true that such characteristic existed in the period before World War I or after World War II. But we cannot clearly discern it in these periods, because of the immaturity of Japanese capitalism as for the period before World War I and because of the special conditions due to the reconstruction and confusion as for the period from the end of the World War II up to recent time.

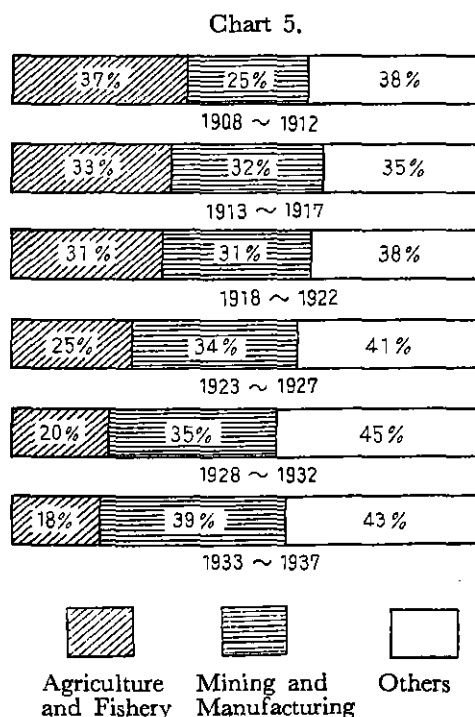
Therefore the inter-war period is appropriate for a case study of the business cycles in Japan. This study will be naturally helpful in understanding the periods prior to World War I and also the period after World War II.

II. Characteristics of Japanese Economy in The Inter-War Period

The following six points are the most outstanding characteristics of this period.

1) **Industrialization.** In the period before World War I, the primary industries (agriculture and fishing) occupied a larger place in the national income than the secondary industries (manufacturing, mining, construction and public utilities). In the secondary industries such as the light industries in which the textile industry is the most important, were domiant. (See Chart 5 and 6.)

World War I had a fairly strong influence upon the industrial structure

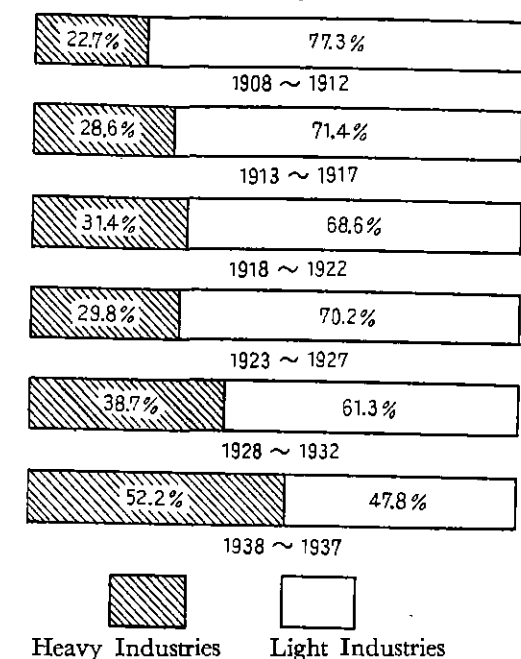


Source; Y. Yamada; Japanese National Income Statistics (*Nihpon Kokumin Shotoku Shukei Shiryō*), 1951.

4) In Japan, war-conditions began to exist in 1937 with the outbreak of the war with China. Therefore, it must be noted that the years which are illustrated with statistical data in this article do not always include the entire inter-war period.

of Japan. As the war deprived European countries of the power to produce export goods, Japan was forced to promote and strengthen the production

Chart 6.



Heavy Industries—Metal, Machinery, Chemicals, Clay and Glass, Gas, and Electricity.

Light Industries—Textiles, Lumbering, Printing, Food and others.

Source; the same as Chart 5.

of metals, machines and chemicals which had been imported from European countries up to that time. Japanese products began to have a chance to replace European products not only in the domestic market, but also in foreign market too, because of the decrease in European exports to the area.⁵⁾ The case of textile industry is a representative instance of such an expansion. This increase in Japanese export to the Asian market brought about the rapid growth of the Japanese textile industry. In association with this expansion of textile production, Japan had to develop the spinning machinery manufacturing industry within the country, for it became impossible to import machines. Besides spinning machinery manufacturing industry, there were not a few industries which developed in Japan because of the cessation of imports.⁶⁾

2) **Improvements in external economy.** Modernization of industrial structure is possible only if it is prepared by and accompanied with the sufficient progress in electric power generation, in ferrous metal production, in facilities for railway transportation and communication, as well as in highway construction and educational facilities. Capital formation in the field concerned in external economy developed steadily and remarkably during the period

5) Before the outbreak of War I, European countries showed a strong desire to command the Asian market, particularly the Chinese market. After the Chino-Japanese War, Russia, Britain, France, Germany, and United States had tried often to export capital for the construction of railways and the exploitation of mines in China. But the outbreak of war kept them from continuing their capital export. Then Japan got a good chance to export her capital to China which was accumulated during the war. The sum of capital export from Japan to China in the two years, 1917 and 1918, amounted to 250 million yen. This amount is nearly two times the sum of Japanese capital export to China up to World War I. Moreover, in 1915, China was made to accept the twenty one demands which contained the extension of the leasing period of the Kwantung Province, and the extension of the field of Japanese economic activity in Manchuria. Thus, Japanese political influence and economic activity in China, particularly in Manchuria, were rapidly strengthened.

from the end of World War I to the beginning of the thirties. This fact is the most important factor to explain the rapid industrialization and modernization of Japanese economy during this period and the thirties.

Developments in facilities for transportation and communication, such as the railway, telephone, highway and so on, are basic for modernization of economic society. And, as Adam Smith and Alfred Marshall pointed out, extensions in higher education in order to train engineers, office workers for management, government official and medical doctors with modern training are the primary requirement for economic development. It is very important to understand the meaning of rapid increase in investments for school establishment in this period which was effective and successful by favor of historical backgrounds of our country.

In those public utilities, capital formation in this period was so active and on a very large scale. We can say that this investment enabled Japanese

6) Following industries are important among them ;

Steel—With the rapid increase in demand due to the war, both the number of factories and the amount of production considerably increased. The level of production was raised from 280 thousand tons in 1914 to 540 thousand tons in 1919. During the war, steel manufacturing factories were constructed in Korea and Manchuria, and the steel production in these two areas amounted to 190 thousand tons in 1919. The increasing trend in steel production in Japan Proper and colonies continued in the period after the war. We can not neglect the effect of governmental protection of the steel industry by the law promoting iron and steel production, in order to understand the increase in steel production.

Pulp—With the cessation of imports, this industry developed in Sakhalin. At least eight factories were constructed by 1926, by Oji Paper Manufacturing Company and Sakhalin Industrial Company.

Wool product—Sixteen companies were established during the war and after the war.

Dyes—The dye manufacturing industry developed with the cessation of import from Europe. In 1914, Mitsui Mining Company began to produce it for the first time. Since then the development of this industry was rapid, supported by the protective policy for military need by government.

Cement—This developed during the war too. This industry was favorably effected by the increase in demand for reconstruction after the earthquake in 1923.

Glass—Asahi Glass Manufacturing Company was established in 1907, and Japan Glass Manufacturing Company was established in 1918. Both developed rapidly after the War.

Table 1.

	spinning machines and tools production	paper production	soda production	woolen cloth production	steel production
1914	0.8	25.1	11.5	58.5	282
1919	21.9	116.6	23.8	61.3	540
1923	16.9	103.6	43.2	144.4	752
1925	19.4	119.7	56.0	134.1	1018
1927	21.3	116.2	53.1	198.2	1400

unit; spinning machines and tools }a million yen
 paper }
 sodaa million pounds
 woolen clotha million yards
 steela thousand tons

Source ; Asahi Press, Japan Economic Statistics (*Nippon Keizai Tōkei Sōkan*).

economy to grow rapidly after this period as a modern industrial country in whose industrial structure heavy and chemical industries are dominant.⁷⁾

Another important point is the increase in imports which was necessary for the expansion of production facilities and which was paid for from the foreign exchange reserves gained by the enormous excess export during the war. In short, the capital formation in this period was supported by foreign money reserves gained during the war. We can see here the great contribution of World War I to the economic development of Japan.

3) **Efforts to improve banking system.** Contrary to the tendency towards industrialization and the expansion in production, there remained backward factors in Japanese economy. Those factors were disturbing elements in the economy. One of the most conspicuous scene of this backwardness was shown in the sphere of money and banking. Those were of the

Table 2.
Change in Number of Bank
(the number of head offices;
not including branch offices)

1920	2,062
1921	2,037
1923	2,002
1924	1,893
1925	1,817
1926	1,721
1927	1,595
1928	1,445
1928	1,178
1929	1,023
1930	913
1931	811
1932	663
1933	637
1934	597

Source; The Reference Book
of Monetary Matters.
(*Kinyūjikō Sankōsho*)

important causes for panics which occurred quite often for ten years from the end of World War I. Japanese economy in the early half of the inter-war period, i. e. from 1920 to 1931, if we express them rather schematically and boldly, were the rapid progress and modernization on the real side and confusion caused by friction or maladjustment between the real side to be modernized and the non-modernized monetary side. Causes and situations in this confusion will be explained below, summarizing and following K. Takahashi's "The history of business fluctuations in Taishō and Shōwa periods". (*Taisho Showa Zaikai Hendoshi*). One of the important causes for the confusion in Japanese economy was that it was deficient in modernized business organization and in competent managers, which were necessary in modernizing economy to overcome the prevailing old-fashioned traditionalism of those days. Another important point relating to this were the drawbacks in the banking system.

In this period, there existed quite a number of small banks which were basically unstable and unsound in their organization and management. (See Table 2.) Moreover, there were not a few among the small banks which were actually under single-proprietorship and were connected personally with

7) About the investments for development in external economy we shall explain in detail in the next section.

a small number of particular companies. The existence of those old-fashioned small banks hindered the modernization of the industrial structure and was one of the important reasons for financial panics. It must be added at this point that governmental policies to improve the banking conditions were often not adequate. For example, at the time of the panic of 1920, the government patched up the crisis temporarily by lending money to companies in trouble as they please. As a result of such a policy, companies which were going bankrupt from bad management, could survive by borrowing and banks in bad financial conditions were still in business because they were able to borrow from the central bank easily. Thus, inadequate monetary policies prolonged financial confusion and worsened economic conditions.

The financial panic in 1927 provided the turning point in monetary policy. After that, the influence of small banks was weakened by the concentration of deposits in big banks and they decreased in number by the amalgamation of banks. Government began the inspection of banks according to the bank regulation laws enforced from 1928. With these policies financial confusion was over and gradually the banking system in Japan was improved to become adequate for the needs of industrial activity in modern economic society.

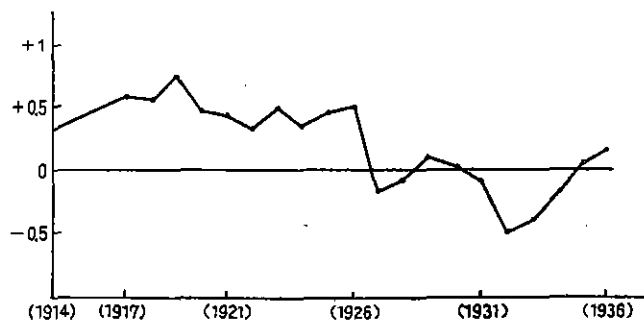
Table 3.

	(A) The Increase of Loans from All Banks (in millions of yen)	(B) New Issue of Stocks + Net Increase of Bonds + Undistributed Profit (in million of yen)	(A)/(B)
1914	79	262	+0.30
1917	614	1095	+0.56
1918	942	1673	+0.56
1919	1112	1337	+0.83
1920	1012	2360	+0.43
1921	550	1456	+0.38
1922	348	1232	+0.28
1923	405	919	+0.44
1924	304	1183	+0.26
1925	671	1590	+0.42
1926	584	1157	+0.50
1927	- 294	1230	-0.24
1928	- 90	1532	-0.06
1929	92	1228	+0.07
1930	17	803	+0.02
1931	- 34	680	-0.05

Note; Overdrafts and discounts are not included in figures of loan from banks in the above table.

Source; The Reference Book of Monetary Matters (*Kinyūjikō Sankōsho*)

Chart 7. *The increase of loans from all banks (not including overdrafts and discounts) ÷ new issue of stocks + net increase of bonds + undistributed profit)*



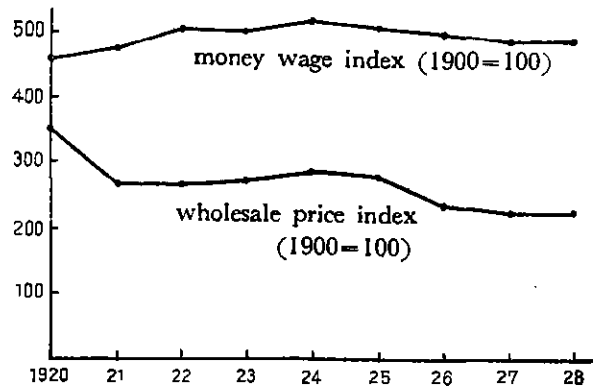
Source; The Reference Book of Monetary Matters
(*Kinyūjiko Sankōsho*)

* The value of denominator of above expression is always positive in the years we are concerned in this article, as you see in Table 3.

Now, what differences can we see on the monetary side between the two kinds of phases, those of "accumulation" and "advance", looking from the view point of capital formation? Chart 7. and Table 3, show ratios in each year of the supply of loanable funds from banks for industrial use to the supply from other sources (bonds, stocks and undistributed profit). (Sudden falls on this ratio in 1920 and 1927 were due to financial panics). We can see from this table that, in the period of prosperity, supply of loanable funds to industries come from banks much more than from other sources and in the depression period, it comes from other than banks. In other words, when the rate of increase in production is high, the larger part of necessary funds for firms comes from banks, and when the rate of increase in production declines, the amount of lending from banks to companies declines also.

4) **Organization of laborers.** An interesting fact in the twenties is the rise in money wage rate contrary to the declining trend of price levels after the peak in 1920 and the considerable improvement in real wages (Chart 8.). It is certain that the rise in labor productivity raised real wages but the active labor movement which prospered after the end of world War I, together with the historical change in social climate which was going on at that time, might have contributed to it. As shown in Table 4, the number of factories and factory laborers greatly increased, particularly there occurred a influx of laborers into large factories and the ratio of the number of man-workers among all workers increased after War I. Those facts favored the organization of laborers.

Chart 8.



Source ; Wholesale price index—
 The Reference Book of Monetary Matters (*Kinyūjikō Sankōsho*)
 Money wage index—Wage statistics by Ministry of Commerce
 and Industry. (*Syōkōshō Chingin Tōkeihyō*)

Table 4.

	1914	1919	The Rate of Increase
The Total Number of Factories	31,717	43,949	138%
500-1000 workers	124	202	163%
more than 1000 workers	85	160	188%
The Total Number of Workers	thousands 948	thousands 1520	160%
500-1000	83	139	167%
more than 1000	161	342	212%
Proportion of men-workers	40.5%	46.5	—

Source ; Statistics of Factories (*Kōjyō Tōkaihyō*)

5) **Differences in income level between agricultural and non-agricultural sectors.** The four points, shown above as characteristics of this period were indicators of the modernization of economy.

But, in spite of modernization of economy, the agricultural sector remained still as underdeveloped sector and the

income level of agricultural sector has risen less than the non-agricultural sector since this period. As seen in Table 5, the growth rate of real income per capita in agriculture (and forestry) greatly diminished in this period compared with the preceding periods. This was because the increase in productivity in agriculture had gradually become stagnant since this period and because the price ratio of agricultural products to non-agricultural products hardly rose (0.2%, as seen in the table). The reasons for the fact that the relative price between agricultural and non-agricultural products hardly changed in spite of the divergence in productivity between the two sectors are as follows.

Table 5.

	1885-1897	1897-1918	1918-1937
Real Income of Agriculture (Forestry)	4.4%	1.9%	0.3%
Real Income Per Capita	4.0	2.6	0.2
Agricultural Product Price Index ÷ General Price Index	2.5	-0.4	0.2
Hectares of Cultivated Land	0.6	0.5	0.1
Agricultural (and Forestry) Population	0.4	-0.7	0.1

* Figures in this table show the average rate of increase per year.

Source; Y. Yamada; Japanese National Income Statistics

(*Nippon Kokumin Shotoku Suikei Shiryo*)

K. Okawa; Dynamic Analysis of Agriculture

(*Nogyo no Dotai Bunseki*)

First, the agricultural sector in the thirties was beginning to lose its foreign market for raw silk and, in addition, was depressed by the inflow of rice from the colonies. (Rice was and still is a main product of Japanese farmers and its price is the most crucial determinant of their income level.)¹⁾ On the other hand, non-agricultural sector was expanding the foreign market for its products. Secondly, perfect competition was predominant in the agricultural sector though there were some manufactured products which were supplied by monopolistic firms to the agricultural sector.

Thus, it became easy to get laborers to work for cheap wages in industry because of the divergence in income level between the two sectors. The agricultural sector in this period acted, so to speak, as a buffer for business cycles. It supplied laborers and absorbed the unemployed adapting faithfully to the fluctuating demand for laborers in the non-agricultural sector, without requiring any big care from government and the non-agricultural sector. Thus troubles of the manufacturing sector due to business fluctuations was mitigated at the cost of the agricultural sector.

6) **Decline in free international trade.** Exports greatly increased since the latter half of 1932. It is convenient to divide countries trading with Japan into two regions: the regions dominated by Japanese political power (Formosa, Korea, and Manchuria) and others. We can see that the

1) Professor Seiichi Tobata's "The Development of Japanese Agriculture" (*Nippon Nogyo no Tenkai Katei*), 1936 Iwanami Publishing Co. gives the most brilliant analysis of this process.

proportion of export to the dominated areas among the total exports increased as time went by (See table 6.).

Table 6. (in millions of yen)

	(A) Total Exports of Japan Proper	(B) Exports to Colonies and Manchuria	(A)-(B)	(B)/(A)
1930	1903	557	1346	0,29
1931	1508	439	1069	0,29
1932	1829	566	1263	0,31
1933	2382	824	1557	0,34
1934	2827	1058	1769	0,37
1935	3312	1239	2071	0,37
1936	3636	1441	2195	0,39

Source; The Cabinet Bureau of Statistical Statistical, Year Book of Japan (*Nippon Teikoku Tōkei Nenkan*)

This was brought about, as known well, by import restrictions, the raising of tariff walls and the increasing tendency towards the division of world trade into blocs as seen typically in the Ottawa Agreement of 1932. The volume of export to those regions which were not influenced by Japanese political power, could not increase because of restrictive trade policies there. On the other hand, the volume of trade between our country and those within our sphere of influence increased very much, just in contrast with that tendency, and this was one of the important reasons for the prosperity in the thirties.

We have thus far explained the main characteristics of Japanese economy in the inter-war period. Now, how were these characteristics related to business cycles which we called "alternations of two phases, the phase of accumulation and the phase of advance"? Our next problem is to answer this question. At first, in the next section, we shall consider the capital formation in the period from the end of World War I to the beginning of the thirties (1920-1931) as a representative of the phase of accumulation. Then, in section 4, we shall consider how the capital formation in this period contributed to the "phase of advance" after 1937.

III. "The Phase of Accumulation" after World War I.

We can enumerate the following five items as the most remarkable among investment activities in the phase of accumulation from the end of World War I to 1931.

1) Investment in public utilities (railways, communication, public works, electric power, and gas.)

- 2) Investment in industries competing with import goods
- 3) Investment in colonies
- 4) Investment in housing construction
- 5) "Bubble" investments in the period after World War I

1) **Investment in public utilities.** As explained in the last section, investment in this field was one of the main characteristics of this period. In the period from the end of the Meiji era to the beginning of the Taisho era (from the period after the end of Russo-Japanese War to the outbreak of World War I), we had an extremely unfavorable balance of payments on account of active investments within the country and the specie reserve was almost exhausted. In order to protect the specie reserve, the government was forced to take a deflationary policy. But the crisis was averted fortunately by the outbreak of the World War. The prosperity and the accumulation of a large amount of foreign reserves during the war gave the government possibilities to take a positive fiscal policy since 1918 or 1919. The principle of non-deficit budget in fiscal policy which had been held since the end of the Meiji era was now abolished and government bonds were raised in order to get means for military purposes and investments in public utilities. This issue of government bonds amounted to large sums as seen in Table 7.

Table 7.
(in millions of yen)

	Net Increase of Government Bonds
1915	-39
1916	-22
1917	82
1918	29
1919	305
1920	376
1921	439
1922	476
1923	294
1924	523
1925	966
1926	381
1927	530

Source; Annual Reports
of Ministry of Finance.
(*Okurasyō Nenbō*)

Nearly half the amount of government bonds issued in this period was to finance the increase in military expenditure and the other half was to finance the investments in public utilities. Government expenditure for investment in the latter field was obviously necessitated in order to develop the facilities for external economy accompanying the speeding up of the expansion in industrial production and the structural progress of industries. In the amount of government bonds issued for public utilities, the largest percentage was for railway construction and improvement. (It was bigger than the expenditure for industrial development in the colonies.) Other uses were for investment in telephone and telegraph equipment, school construction and highway construction. A large percentage of public bonds issued by local governments was used for public works like road construction. Table 8 shows the amount of money invested in these public utilities. It must be

emphasized that the large amounts of investments paved the way for the

transition to a new industrial structure and that it contributed to expansions in the next period, that is, the phase of advance after 1932.⁸⁾

Table 8. (in millions of yen)

	1914	1919	1923	1925	1927
Construction and Improvement of Railways	79.4	208.1	299.0	309.1	368.9
Construction of Telephone System	2.9	19.4	22.5	32.4	46.3
Construction and Improvement of Telegraph System	—	4.1	5.2	1.7	2.3
Public Works (by Local Government)	63.0	96.8	224.6	243.5	276.6
Construction of Public Schools and Research Institutes	1.8	7.6	20.7	14.0	10.8

	1920-1923	1924-1927
Construction and Improvement of Railways	1115	1311
Construction of Telephone System	123	142
Construction and Improvement of Telegraph System	27	11
Public Works (by Local Government)	735	1033
Public Works (by Central Government)	157	118

* Expenditures for construction and improvement of private railways and municipal tramways as well as national railways are included in figures of these tables.

* Figures in the upper table show the amount of expenditure per year. Figures in the lower table show the total amount of expenditure in years indicated.

Source; Annual Report of Ministry of Finance (*Okurasyō Nenpō*) Asahi Press, Japan Economic Statistics (*Nippon Keizai Tōkei Sōkan*)

Besides investments in public utilities by government, private investments

8) The investments in railways and communication facilities greatly increased after rapid government expenditure began in 1918 or 1919. The investment in private railways also increased in about 1920, which was stimulated by the boom at that time. Most of the public works was financed by local governments, as seen in Table 8. Nearly half of local government expenditure for public works was used for road construction, and among other expenditure items, river works, bridge construction and construction of water-supply systems and drain systems were the most important items.

were made in electric power and gas. It was in this period that the electric power industry grew to one of big industries of our country. The production of electric power increased year by year and the construction of power transmission lines greatly advanced (See Table 9, and Chart 4.) The development in the electric power industry was stimulated by the requirement for

Table 9.

	The Total Capacity of Electric Power (1000 KW)	Power Transmission Lines (in miles)	Index of Miles of Power Transmission Lines	The Amount of Investment of each year in Electric Power Industry (in millions of yen)
1914	716	4739	—	82.9
1919	1134	6863	100	154.3
1921	1526	9745	142	—
1923	2058	11661	167	376.8
1925	2768	14890	217	—
1927	3468	18106	264	540.2

Source ; Asahi Press; Japan Economic Statistics (*Nippon keizai Tōkei Sōkan*)

the exploitation of energy sources which came with the progress in industrialization from the end of the Meiji era. Particularly, as a result of the facts that the development in hydro-electric power generation made it possible to reduce the cost of electric power at the beginning of the Taisho era (in the period after 1910) and that the tungsten bulb began to be used at nearly the same time, the demand for electric power for both power use and lighting increased and this increase in its demand encouraged investments in the electric industry. The development in this industry will take a significant role in the economic development in succeeding periods, since it will support the development of chemical industry and of small scale firms in various industries, as will be explained below.

2) **Investment in industries competing with import goods.** As explained above, in (1) of the last section, the cessation of imports from Western countries during World War I forced our country to produce by herself what had been imported until World War I. Thus new industries were established to produce goods competing with import goods and the capital formation was advanced in those industries. As mentioned above, those industries consisted of steel, spinning machines, wool products, pulp, soda, dyes, cement and glass industries. But it was in the period after 1932 that the increase in production in these new industries became outstanding. We cannot neglect the effect of the raising of our tariff after the end of the war for the protection of new industries.

3) **Investment in colonies.** Thirdly, investments in the colonies seemed to be quite a large amount. Development in agricultural production and construction of railways, roads and port facilities in Korea and Formosa were greatly advanced in this period. Moreover, investment in iron production in Korea and Manchuria and the construction of Japanese spinning factories in China, though it was not a Japanese colony, were advanced too.

4) **Investment in housing construction.** With the progress of manufacturing industries, opportunities for jobs in cities increased and the real wage rate of factory workers was raised. So the influx of population into cities was very marked in this period.

It will not be difficult to imagine that it brought about active investments in housing construction. We can see how strong the demand for dwelling houses was and how great the shortage of dwelling houses was in those days from the high rent, high price of lumber (general price index was declining since 1920 as shown in Chart 8. while, on the contrary, the rate of rent and the price of lumber was still rising as shown in Table 10) and repeated suits over rented houses.

Table 10.

	Index of House-Rent	Lumber Price Index
1914	100	100
1919	168	257
1922	247	304

The Ratio of House-Rent to Total Revenue (in Osaka city in 1921)		
Monthly Revenue	30~ 40(yen)	15~25%
	60~ 70	8~18
	90~100	6~14
	120~130	5~12

Source; The Department of Social Research of Osaka Municipal Office, Annual Reports of Housing in Osaka City. (*Osakashi Jūtaku Nenpō*)

5) **“Bubble” investments in the period just after World War I.**

There seems to have been a fairly large amount of “bubble” investment for speculative purpose. In 1919 and 1920, small companies mushroomed one after the other, and most of them stimulated by the deceptive boom at that time which disappeared within a few years (particularly in spinning and

food industries). We can see this fluctuation in Table 11 clearly. (Dissolutions and decrease in capital of joint stock companies increased rapidly after 1921.) These “bubble” investments for speculative purposes was a feature showing the unsound side of our economy in those days, with movements in the stock markets and commodity market were disturbed by speculation. Drawbacks in the monetary system as explained in the last section, aggravated the speculative tendency in the economy.

Table 11. (in millions of yen)

	New Establishment and Increase of Capital of Joint-Stock Companies	Dissolution and Decrease of Capital of Joint-Stock Companies
1917	727	56
1918	1413	59
1919	1236	75
1920	2183	89
1921	1661	321
1922	973	371
1923	720	421
1924	637	389

* Figures in the table are the amount of paid-up capital,
Source ; Asahi Press, Japanese Economic Statistics
(*Nihpon Keizai Tōkei Sōkan*)

These developments in capital formation increased the import of investment goods in the form of imports of machines and raw materials to produce investment goods. Unfavorable balance of payments in this period was caused by the increase in imports rather than the decrease in export and though the increase in consumption goods import was not so small, the increase in investment goods import was remarkable in the total increase of import. This increased import was used in laying the foundation for an amazing advance in Japanese economy during the next phase. It is needless to say that most of the excess import was paid for by accumulated foreign exchange accumulated during the war. In this sense, the building up of Japanese economy in this period was supported by accumulated foreign exchange during World War I.

IV. "The Phase of Advance" after 1932.

After Britain's suspension of the gold standard in September of 1931, there was a capital outflow from our country in anticipation of a gold embargo in our country. Moreover, we had unstable situations within and outside the country, i. e. the Manchurian Incident breaking out in the same month as above and the May 15th incident in May of 1932 about half a year after the gold embargo. These incidents made the exchange rate for Japanese currency fall. (See Table 12.) This fall in exchange rate enabled us to increase exports and therefore to increase the production of textiles and miscellaneous goods. Also, it enabled us to reduce a part of our imports and then to stimulate the development of new industries. In addition, an increase in military demands played a role for prosperity from domestic

side, with increasing importance. Owing to these conditions, our country alone could enjoy prosperity, though other countries were suffering from depression. As shown in Table 12, the rise in prices during the prosperous period was very small. We can say that we enjoyed prosperity without inflation.

Table 12.

	Wholesale Price Index in Tokyo (Oct. of 1900=100)	Wage per Day per Capita for Laborers in manufacturing Industries	The Rate of Foreign Exchange (for 100 yen)	Price Index of Import Goods (1913=100)
1930	181.0	2,002 ^{yen}	49.367 ^{dollar}	121.8
1931	153.0	1,870	49.375	86.7
1932	161.1	1,909	26.454	105.1
1933	179.5	1,879	25.227	135.6
1934	177.6	1,891	29.511	149.2
1935	185.5	1,877	28.571	—
1936	197.5	1,901	28.951	—

Source; Price Index—Index by Bank of Japan, The Reference Book of Monetary Matters. (*Kinyūjikō Sankōshyō*)
 Wage—The Cabinet Bureau of Statistics.
 The Rate of Foreign Exchange—Economic Year Book (*Keizai Nenkan*) by Tōyō Keizai Shinpō Sha.
 The Price of Import Goods—A Survey of Japanese Foreign Trade. (*Nippon Bōeki Seiran*).

We shall consider how the phase of accumulation after the end of World War I contributed to this phase of advance in which we had an increase in exports and prosperity without a price rise.

1. **Rapid increase of exports.** First of all, let us investigate the export situation. After the gold embargo in December 1931, export from our country rapidly increased, because of the fall in exchange rate after the latter half of 1932, in spite of the decline in the total amount of world trade. We shall explain the following three characteristics of our export trade in this period.

(a) Items of export changed compared with preceding periods. In a word, Japan became able to export commodities in competition with more advanced countries. Until this period, most Japanese exports were limited to special products of our country or products of inferior quality. As for such products, there were no competition in price with products of more advanced countries and the foreign demand for those products depended mainly on the purchasing power of the importing country. But as a result of the development of industries competing with import goods, competitive

products in prices with foreign products came to be exported (for instance, fine cotton yarn, rayon yarn and so on). On the other hand, the percentage of exports depending on the purchasing power of importing countries, (for instance, raw silk) diminished among total exports. In other words, main items of export goods changed from income-elastic goods to price-elastic goods.⁹⁾ With this change, the fall in exchange rate was quite effective in the increase of exports from our country. In this sense, we can say that both capital formation in industries competing in import goods after World War I and investment in public utilities which supported the development of those industries greatly contributed to the increase of exports in this phase.

Table 13.
The Rate of Increase of Export and Import in the Period from
1931 to 1934, classified by Regions.

Regions	The Rate of Increase of Export from Japan	The Rate of Increase of Import of Japan
Manchuria and Kwantung	5.24	1.45
China	0.81	1.15
Other Asian Countries	2.29	1.95
Europe	2.19	1.48
North America	1.02	8.21
South America	6.03	3.37
Africa	3.09	4.37
Oceania	3.01	1.83

$$\text{The rate of increase of export} = \frac{\text{Export in 1934 (to the region)}}{\text{Export in 1931 (to the region)}}$$

$$\text{The rate of increase of import} = \frac{\text{Import in 1934 (from the region)}}{\text{Import in 1931 (from the region)}}$$

Source; The Cabinet Bureau of Statistics, Statistical Year Book of Japan (*Nippon Teikoku Tōkei Nenkan*)

(b) It is quite true that export from our country increased by driving away foreign products through competition. But we cannot neglect the fact that export from our country in this period increased by creating new markets for manufactured products.

Regions to which Japanese exports greatly increased during this period were underdeveloped regions like Asia except China, Central and South

9) According to T. C. Chang's estimates, the elasticity of substitution between exported cotton cloths from Japan and those from Britain in the Asian market, (-1.94, in India, and -2.31 in China), See T. C. Chang, *Cyclical Movements in the Balance of Payments*, Cambridge, 1951, p. 74.

America and Africa.¹⁰⁾ We can see this fact from Table 13. As elasticity of demand for import in these underdeveloped agricultural countries or raw material producing countries is generally larger than¹¹⁾ that of industrial countries, the appearance of cheap Japanese products increased the demand so much for manufactured products in the underdeveloped countries and thus Japanese export rapidly increased.

(c) As already explained in the second section, the percentage of Japanese exports to regions in which Japanese political power was dominant (such as Manchuria, Korea and Formosa) increased as barriers to free international trade were made stronger. (See Table 6.) We would like to add that capital export to Manchuria after this period amounted to an enormous sum, so that export of investment goods from our country greatly increased and that this was one of the important factors which promoted the development of heavy industries as well as chemical industries of our country in that period.

Table 14.
Japanese Investment in Manchuria (in millions of yen)

	(1) Data published by Bank of Japan	(2) Data by Minis- try of Finance	(3) The sum of paid-up capital of Japanese companies in Manchuria (Data by Kwantung Government)
1930	—	—	635
1931	—	—	628
1932	73	119	616
1933	137	118	810
1934	278	244	839
1935	387	247	944
1936	229	—	—

* The figure for 1935 in the column (2) is not the amount of the whole a year, but for the nine months from Jan. to Sept.

2. **Continuance of prosperity without inflation.** Next, we shall look at the domestic situation at that time. In this period, there was a large increase in demand which was helped by the increase of exports and government expenditure, and there was the rise in imported raw material prices caused by the fall in the rate of foreign exchange. Nevertheless the rise in the general price level was still very small. (Table 12 above)

10) As clearly seen in Table 13, the amount of export to China declined. But we have to take into account the facts that Japanese cotton spinning factories operated in Chinese territory and cotton textiles produced in China were sold there in those days. Therefore the actual amount of supply of Japanese goods to China might be larger than the published figure of export to China.

11) T. C. Chang, *Op. Cit.*, p. 42.

We had such a favorable situation that both production level and income level steadily increased. We shall consider what brought about the good situation and how the capital formation in the period after World War I contributed to give rise to prosperity without inflation.

We can see from the movement of price index shown in Table 12 that prices were stable until about 1935. The price rise after 1935 seems to have been caused by the fact that we were about to arrive at nearly a full utilization of capital equipment at that time. Government expenditure rapidly increased in those days, particularly in military expenditure, and it came to be financed by selling national bonds to the central bank—an increased issue of paper money. Though the expansion of government expenditure in this way has usually inflationary effects, the effects were not clearly revealed by about 1935, because the public demand for loanable funds was not so large and because the national bonds sold to the central bank could be resold to the public. But the expansion in government expenditure, particularly in military expenditure mainly increased government demand for investment industries, and therefore capital equipment of investment industries (of consumption goods industries, also by the repercussions from investment goods industries) gradually came to be fully utilized. Such change appeared and prices began to rise as the result of continuous increase of effective demand in 1935. Moreover, the tendency towards a price rise was strengthened by the increased issue of bank notes which was encouraged by the new situation, that is the difficulties for the central bank to resell national bonds to the public caused by the increase in demand for investment funds. As known well, usually at the beginning of a business expansion, the elasticity of supply is so large that prices hardly rise and prices begin to rise when bottle-necks begin to appear at a high level of economic activity. In the period of prosperity beginning in 1932, bottle-necks are supposed to have appeared in capital equipment in about 1935.

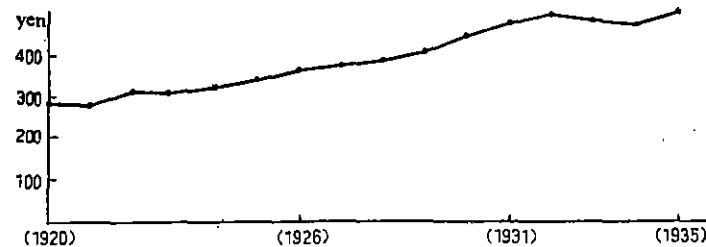
As for conditions of labor market, the underemployment continued still until later years and the money wage rate did not rise by the time of the outbreak of the war with China, as seen in Table 12. It is very natural that there are broad tendency to explain the stability of price level in this period from the low wage rate of this period. It is certain that the average money wage rate in all industries was almost unchanged and it even declined in some industries. Since the price level slightly rose, we can say the real wage rate fell a little. This was brought by the fact that it was easy to get low wage workers from farming families whose income levels were very low because of the drastic fall in raw silk export due to the depression in the U.S.A. and because of the low price of rice, which itself was

a cause of low wage rate¹⁾, due to the inflow from the colonies, as explained in the second section as one of the characteristics of this period. Thus, we can say that investment in agricultural projects, transportation and port facilities in colonies after World War I showed effects on economic conditions of the prosperous period after 1932 as explained above.

It is needless to say that raw materials are one of the important factors in production as well as capital equipment and labour force. In an economy, like our country, depending on the import of the important raw materials, elasticity of those materials in foreign supplying countries as well as the solvency of our country is one of the important factors to determine the price level. It is true that prices of import goods in terms of Japanese currency were raised by the fall of the foreign exchange rate in those days as shown in Table 12. But, if we discount the fall in the exchange rate, those prices had declined. This was because of low prices of industrial materials in the world market due to the great depression and because our country was able to import a sufficient amount of cheap materials by paying from abundant foreign exchange reserves which was gained by export of commodities and by the income from invisible trade.¹²⁾

Thus it is very difficult to find any factor to raise the price level in the conditions of factors of production such as capital equipment and labor force, until about 1935. But now that prices of import goods in terms of our currency were actually raised by the fall in foreign exchange rate, there must

Chart. 9. Change in Real Income per Capita in Manufacturing Industries



Source; K. Okawa; The Rate of Growth in Japanese Economy, Supplementary Tables. (*Nippon Keizai no Seichōritsu*)

- 1) We should add a similar as for those consumption goods which common Japanese people consumed in their daily life before World War II. Most of these daily consumption goods were of traditional kind and produced by very small firms in the traditional way of production, just like as rice, though some of raw materials which are necessary for their production might be produced by big firms, and imported from abroad. Thus, most of daily consumption goods in the market basket of common Japanese people were supplied with big elasticity. Although this pattern of consumption is now going to change very rapidly as a result of introduction of the American-typed "durable consumer goods" and so on, this tendency still remains in present-day Japan.
- 12) This point of view is seen in K. Takahashi, *Op. Cit.*, p. 1509.

have necessarily existed some factors which worked to lower the price levels and offset effects of this rise in prices of import goods so as to keep the price level from rising. We can say that this factor was the rise in labor productivity. The labor productivity was raised as shown in Chart 9.

Let us take some examples of particular industries. The increase in the number of new machines of better quality and the increase in the number of spindles per laborer in the cotton spinning industry is an example for this progress and the reduction in the amount of pulp to produce rayon and the rise in labor productivity in the cement industry by 60% in the period from 1930 to 1933 give other instances. The major contribution of capital formation in the preceding period after the end of World War I to the prosperous period was that it raised the labor productivity.

The capital formation in the period after the end of World War I contributed to the increase in exports and the continuance of prosperity without inflation in the period after 1932 as explained above. The progress in electric power generation is one of the essential conditions to make the progress in heavy industries and the chemical industries possible and the capital formation in the phase of accumulation after World War I, such as the progress in transportation and communication facilities, the progress in professional education and industrial development in colonies which brought about the low price of rice, supported the phase of advance after 1932.¹³⁾

13) Two effects of capital formation in the period after World War I on the prosperity in the period after 1932 have to be referred to, besides those explained above. One is the development of small scale firms. The table shows the proportion of the number of factories of from 5 to 39 employees among the total number of factories (of more than 5 employees), according to factory statistics. The development of small scale firms was stimulated by the expansion of home markets and foreign markets in this period, and also it was stimulated by the development in electric power generation which facilitated the supply of power at low cost for small scale firms. It must be added that small scale firms played the role of buffer for business cycles.

Secondly, with the concentration of population in cities, a change in the pattern of consumption in cities occurred. (In a word, it was "westernization of the pattern of consumption).

1920	82.9%
1926	83.0
1931	85.9
1936	85.1

There were so many industries whose development was stimulated by the change in the pattern of consumption. For example, the development of glass and cement production was stimulated by the construction of modern buildings in cities; and the development of deep sea fishery industry, the production of fruits and vegetables, glass production through the use of bottles, the production of beer and sugar refining were stimulated by changes in the contents of diet; and the development of paper manufacturing and printing industries by the improvement in cultural life, and the increase of electric bulb production by the increased use of electric lighting and so on. Moreover, the progress in finished goods production encouraged the progress in the production of materials. For example, the production of soda ash and caustic soda was stimulated by the development of glass and rayon production, and the production of pulp increased by the development of rayon and paper production. It may be needless to say that the progress in electric power generation in the preceding period greatly contributed to these development in many industries. In

V. Conclusion

“The phase of accumulation and the phase of advance” is the basis of the above study. Using a somewhat clumsy simile we may say that these phases may be comparable to the measuring worm which first draws in its body and then stretches it to its full length or it may be like the electric energy stored in the battery by charging and put to work when discharging and thus it seems to be possible to understand business cycles in Japanese economy as the alternation of the two phases. Moreover, the two phases are related to each other, that is to say, the phase of advance is prepared for in the phase of accumulation, and on the other hand, the phase of accumulation is made possible by the phase of advance. We can conclude that this close inter-relation between the two phases is the most important characteristic to be found in business cycles in Japanese economy.

addition, it is obvious that there are other contributing factors to these developments, such as the progress in railway transportation which facilitated the transportation of industrial materials (for example, the transportation of lime stone to produce glass). Thus, we can see that the “accumulation” in the preceding period (particularly in public utilities) greatly contributed to the “advance” in this period.