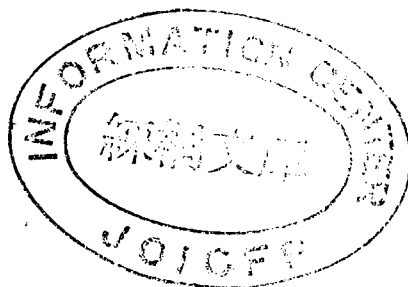


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THE ROLE OF THE POPULATION INCREASE IN
THE ECONOMIC DEVELOPMENT OF JAPAN



by

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FOREWORD

This paper is originally presented to Professor Lockwood as a term paper of Public Affairs 531, Princeton University, Woodrow Wilson School of Public and International Affairs, 1962-63 Fall Term. I am delighted to be given an opportunity to publish as one of the population study series of the Institute of Population Problems, Ministry of Health and Welfare.

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I. INTRODUCTION.

The rate of growth of the Japanese economy is the highest among all countries in the world; this is evident during the post-war as well as the pre-war period.

The reason why the Japanese economy could grow with such remarkable speed over the long period since the beginning of its modernization is the main subject of analysis for all students interested in the problems of the Japanese economy.

There are several kinds of factors, that is, economic, sociological and others, on which the growth of an economy depends; and among them is the demographic factor. In some cases the demographic factor exerts the most important influence upon the path of economic development.

The purpose of this paper is to analyse the influence which the population increase exerted on economic development during the period of the industrialization of Japan. However, the direct motive for this paper is to criticise Professor Lockwood's opinion about the role of the population increase in this period.

The population of Japan was about thirty-six million at the beginning of the Meiji era.⁽¹⁾ It expanded up to about seventy million by 1940. The average rate of increase per

annum was 1.2%.

Professor Lockwood concluded that this population increase, as just indicated, was the obstacle to the economic development of Japan in every respect. He wrote;⁽²⁾

"From almost every standpoint this appears to have been a drag on economic progress, even though it did not prevent a slow rise in living standards.

(a) Population growth added more consumers, reduced per capita savings and efficiency, magnified import needs, and absorbed huge sums of capital merely in supporting more people.

(b) It was also a force for social inequality, maldistribution of wealth, and political unrest.

(c) In particular it made impossible any reduction of the farm population until as late as 1955, despite headlong industrialization."

(1) By the estimation of the Bureau of the Census, the Population at the beginning of the Meiji era was thirty-five million. However, by my estimation it was thirty-six million. Yoichi Okazaki, Population estimates by sex and age from 1870's to 1920. Institute of Population Problems Research Series, No. 145 February 1, 1962.

(2) A distributed material: What lessons may be learned from Japan's economic growth over the past century-lessons that are relevant to the problems of developing nations today? p.4. Similar views can be found in Lockwood, The economic development of Japan, 1954, passim.

The three points which Professor Lockwood pointed out as the consequences of the population growth in Japan can be generally applied not only to the case of Japan, but also to all the under-developed countries where the population growth is rapid relative to the economic development. In this sense, Professor Lockwood might be right. But there was a special circumstance in the case of Japan. Under the special circumstance there, the population increase could play a different role from that under general circumstances. Therefore it is necessary, for the analysis of the population problems in Japan, to understand the special structure of Japanese society which formed and reproduced itself in the process of the industrialization.

II. THE ECONOMIC DEVELOPMENT AND POPULATION GROWTH IN JAPAN.

(a) The economic development in Japan.

The process of the economic development is usually the process of industrialization. The case of Japan was not an exception. The statistics (Table 1) of the national income produced by three industries shows that generally, except during the depression periods after the Shino-Japanese War, the Russo-Japanese War and the World War I, the rate of growth of the secondary industry was superior to those of the primary industry and the tertiary industry. As the consequence of industrialization, the composition of the national income produced by industries changed remarkably. That is, in the early Meiji era the secondary industry was weighed down by the primary industry, on the contrary in 1938-42, the secondary industry became to weigh definitely the primary industry, although the largest proportion was still in the tertiary industry.

If we may use the special term "leading industry" - a most popular term in the theory of economic development - the secondary industry should be called the leading industry.

However the "secondary industry" is an aggregate concept which includes various kinds of subindustries, for example, textile, iron and steel, chemical and so on. Therefore, if

Table I. The growth rate of income by industries.
(annual rate by per cent)

<u>Period</u>	<u>Total</u>	<u>Primary</u>	<u>Secondary</u>	<u>Tertiary</u>
1878-87/1883-92	4.3	2.4	8.6	5.6
1883-92/1888-97	4.9	4.3	7.4	4.7
1888-97/1893-02	5.5	4.3	8.4	5.9
1893-02/1898-07	3.0	1.9	3.9	4.1
1898-07/1903-12	2.9	1.6	2.9	4.6
1903-12/1908-17	3.6	1.2	6.5	4.6
1908-17/1913-22	4.0	1.8	5.6	5.2
1913-22/1918-27	5.2	2.3	4.3	7.9
1918-27/1923-32	5.6	0.6	6.6	7.9
1923-32/1928-37	4.8	1.3	7.5	4.8
1928-37/1933-42	4.3	2.2	7.8	2.8

Okawa, K., The growth rate of the Japanese economy since 1878, p.21

we intend to interpret the term "leading industry" as the industry which performs the decisive role in the economic development and to identify concretely the specific industry as the leading industry, we have to classify the industries into small groups.

As I mentioned above, I want to interpret the "leading industry" not only in the meaning that the rate of growth of that industry is the highest among industries, but also- this is much more important- in the meaning that the growth of that industry is indispensable for the development of the Japan's economy.

Now which industry or industries were the leading

industries in case of Japan during the period just considered?

I believe that the export industry should be reckoned one of the leading industries. Because Japan did not have enough resources necessary for industrialization, she imported those resources from abroad; and thus in order to meet these necessary imports she had to expand her exports.

The trend of the foreign trade of Japan since the beginning of the Meiji era is presented in Table II. The importance of foreign trade in Japan's economy, presented by the import-national income ratio, was about 5 per cent in the early Meiji era. It increased gradually up to about 15 per cent thereafter. That the import-national income ratio rose gradually with the economic development of Japan means that the import and export had to grow much faster than the national income.

However the influence of the economic development on the foreign trade was found not only in the expansion of the size of trade, but also in the change of the structure of trade.

Table II. The trend of the foreign trade of Japan.
(current price in million yen)

<u>Period</u>	<u>Imports</u>	<u>Exports</u>	<u>National Income</u>	<u>%</u>
1868-1872	23	16	-	-
1873-1877	27	22	-	-
1878-1882	33	30	667	4.9
1883-1887	33	42	606	5.4
1888-1893	73	77	830	8.8
1894-1898	223	139	1,436	15.7
1900-1903	270	244	2,016	13.4
1904-1908	442	377	2,695	16.4
1909-1913	544	496	3,589	15.1
1914-1920	1,300	1,434	7,636	17.0
1921-1925	2,102	1,690	12,131	17.3
1926-1930	2,103	1,926	12,907	16.3
1931-1935	1,868	1,818	13,153	14.2

Allen, G.C., *A short history of modern Japan*, p. 179.

Okawa, K., *The growth rate of the Japanese economy since 1878*, p. 247

The structure of the Japan's import changed remarkably.

As showed in Table III, at the early Meiji era the chief items of import were "Finished Goods" (44.5%) and "Food and Drink" (29.0%). The weight of "Raw Materials" was small. After that the importance of "Finished Goods" and "Food and Drinks" was definitely reduced, and in place of it the share of "Raw Materials" increased.

That the weight in the items of import shifted from "Finished Goods" to "Raw Materials" was a natural course of industrialization.

Table III. The structure of Japan's import trade.
 (The value of each group shown as
 percentage of total imports)

<u>Period</u>	<u>Food & Drink</u>	<u>Raw Materials</u>	<u>Semi-Manu. Goods</u>	<u>Finish. Goods</u>	<u>Others</u>
1868-1872	29.0	4.1	20.2	44.5	2.2
1878-1882	14.8	3.5	29.9	48.6	3.2
1893-1897	20.8	22.7	19.1	35.1	2.3
1903-1907	23.5	33.0	16.7	25.5	1.3
1908-1912	12.0	44.3	18.9	24.1	0.7
1918-1922	12.9	49.2	22.2	15.0	0.7
1923-1927	14.3	53.5	16.1	15.5	0.6
1928-1932	12.7	55.3	15.5	15.7	0.8
1933-1936	8.2	61.8	17.8	11.3	0.9

Allen, G.C., A short history of modern Japan, p. 179.

The point to be noted here is that the weight of "Food and Drink" did not increase; rather it definitely decreased during this period. This is important because it means that the expansion of imports was not due to the increase of population, but to the industrialization.

(b) The expansion of the export.

The increase of the import was indispensable to the development of the Japan's economy. Therefore the expansion of the export which covers the import cost was necessary and it was the key factor for the economic development of Japan.

The composition of the export trade and the changing pattern

of it can be observed in Table IV. As in the case of imports, the composition of exports changed gradually but distinctly over the period considered. That is, at the beginning of the period, the main items were raw silk, tea and rice; after that, by about 1894, the weight of raw silk increased, and in turn the weight of rice and tea decreased. Since then the weight of textile goods, especially the weight of silk goods and cotton goods increased. In short, the composition of exports shifted from raw materials to manufactured goods. And the leading position in the export industries over the Japan's industrialization was occupied by the textile industry.

Table IV. The structure of Japan's export trade.
(The value of each group shown as percentage of total exports)

<u>Period</u>	<u>Food & Drink</u>	<u>Raw Materials</u>	<u>Semi-Manu. Goods</u>	<u>Finish Goods</u>	<u>Others</u>
1868-1872	25.4	23.1	40.8	1.9	8.8
1878-1882	37.1	11.6	40.4	7.2	3.7
1893-1897	16.8	10.3	43.3	26.2	3.4
1903-1907	11.9	9.1	45.3	31.1	2.6
1908-1912	11.1	9.2	48.1	30.5	1.1
1918-1922	7.6	5.8	42.4	42.6	1.6
1923-1927	6.7	6.5	45.9	39.8	1.1
1928-1932	8.3	4.2	39.0	46.8	1.7
1933-1936	8.0	4.4	26.4	58.4	2.8

Allen, G.C., A short history of modern Japan, p. 180.

The distinctive feature of the export trend is that the rate of growth of exports was extraordinarily high when compared with those of western countries. The figures in Table V illustrate this. It is evident that this remarkably high rate of growth of exports was one of the main causes of the high rate of the economic growth of Japan.

What, then, is the reason which made the rate of growth of exports so rapid? Two reasons can be pointed out. One is the income-effect which induced the expansion of exports from Japan by the rising trend of income of the countries which purchased Japanese products. The other is the price-effect which made expansion of the Japanese export possible through the price competition.

Table V. Comparison of the growth rates of exports trade of selected countries.
(presented by the magnification of value of exports during each ten years)

<u>Period</u>	<u>Japan</u>	<u>U.K</u>	<u>Germany</u>	<u>U.S.A.</u>
1870-1880	2.0	1.2	-	1.1
1880-1890	2.0	1.1	1.1	1.6
1890-1900	3.6	1.1	1.4	1.6
1900-1910	2.2	1.6	1.6	2.9
1910-1920	4.2	3.0	0.4	0.7
1920-1930	0.7	0.4	2.5	1.6
1930-1940	1.5	0.7	1.1	-

Calculated from the data in Woytinsky, W.S. and Woytinsky, E.S. World Commerce and Governments, 1955.

The income-effect is not enough to explain why the rate of growth of the export was so rapid, because the rate of growth of the export was much higher than 3 per cent which can be calculated from the income-elasticity coefficient (1.0 - 1.5) for the textile products and the rate of growth of income (2 per cent) in the main export market (United States, China, India and others). In addition to it, it is well-known that the exports of Japan expanded by eating away the market of the rival countries. Therefore the main cause of the remarkable expansion of Japanese exports must be found in the fact that the prices of the Japanese products were distinctly lower than the prices of other countries's products.

Table VI. Wage rate, productivity and wage cost in the cotton industry.

<u>Country</u>	<u>Wage rate</u> per week yen	<u>1/produc-</u> <u>tivity</u> person	<u>Labour</u> <u>cost per</u> <u>unit</u> yen	<u>Index</u> <u>of labour</u> <u>cost</u>
Japan	5.8	6.1	13.2	100
Germany	13.0	4.5	25.4	192
U.K.	18.0	4.0	31.4	238
U.S.A.	35.0	3.4	49.6	376

Shinohara, M., "The relation between economic development and foreign trade," in Structure Analysis of Japanese Economy. p. 115

The statistical figures of the wage rate, the productivity and the wage cost of cotton products of various countries are cited in Table VI. In this table we can observe that the wage rate in Japan was definitely lower than those of the other countries, and that in spite of the lower productivity, the low wage rate made the wage cost of the cotton products relatively lower than that of the other countries.

Thus we can conclude that the low wage rate should be recognized as the principal factor which made possible the remarkable expansion of Japan's exports and the conspicuous development of the Japan's economy.

(c) The overpopulation and the low wage rate.

What was the factor which maintained the wage rate in Japan so low? The fundamental factor was the existence of excess population. The idea that there was overpopulation at the beginning of the Meiji era and after that is so popular that it would not be necessary to present any statistical data to prove this. But it should be noted that the significance of the overpopulation is not in the sense of the population density in terms of the ratio of population to land, but in the sense of the excess supply of the labor force. Because the population density is not so important a factor for a country which decided to go

forward in industrialization.⁽³⁾

The supply or reserve of the labor force for the industrial sector was much more abundant in Japan than in other European countries. That is,

(1) The proportion of the labour force engaged in the primary industry, just at the starting point of industrialization, was 80 per cent in Japan (1880), 45 per cent in England (1785) and 60 per cent in Germany (1850). Because the agricultural sector should be considered as the pool of the excess labour force, the fact that the proportion of the labour force engaged in the primary industry (mainly in agriculture) was relatively large means an abundance of labour supply for the industrial sector.

(2) In Japan, the proportion of the labour force engaged in the primary industry decreased from 80 per cent to 45 per cent during the take-off and maturity period (1880 - 1940). On the contrary, in England it decreased from 60 per cent to 20 per cent during the equivalent period (1785 - 1850). This fact should be interpreted as evidence that the pressure of the labour supply from the primary sector remained to be over the industrialization period in Japan than in England.

(3) The population density in terms of the ratio of population to land is the important factor in determining the degree of industrialization. Cf. Chenery, H. B., "Patterns of industrial growth," *The American Economic Review*. Vol. I, No.4, September 1960, pp. 624 - 654.

III. SOME COMMENTS ON PROFESSOR LOCKWOOD'S OPINION.

On the basis of the preceding analysis we can conclude that the low level of wages was the most powerful factor which made possible the rapid economic development of Japan definitely.

Professor Lockwood emphasizes that the low wage rate was the cause of the low level of technology and the inefficiency of production. According to the static theory of production which determines the optimum combination of the production factors under the given technology, it is true that the lower the wage rate is, the more labour-intensive method of production is chosen and the lower the efficiency of labour is. But when we observe the matter from the dynamic view point - this is a much more realistic viewpoint of economic history - the conclusions from the static theory are not necessarily valid.

The capitalists of Japan were very anxious to introduce advanced techniques from abroad, because they had to raise and maintain the quality of their products in order to export them. (4)

(4) "From 1858 onwards exports of raw silk had grown rapidly, but even so the development of this trade was handicapped by the lack of suitable equipment. For instance, the Japanese type of reeling machine, driven by manual or water power, was incapable of producing the standardized qualities of silk demanded abroad. So, in 1870 the Government established at Maebashi and Tomioka factories on French and Italian models, "Allen, G. C. A short economic history of modern Japan.

The technique which was introduced in Japan was originally devised in the western countries for two aims. One was to save the labour force which became tight in the western countries during the Industrial Revolution,⁽⁵⁾ and the other was to raise the quality of products.

In short, the introduction of advanced techniques was inevitable for the Japanese entrepreneurs, in spite of that under the low wage rate, the labour saving method of production was not necessary. And the combination of advanced techniques and cheap labour was the very key factor for maintaining the development of Japan's economy at a remarkably high level.

Generally speaking, capitalism in Japan did and could develop on the basis of the special socio-economic structure in the country. It is also true that the development of capitalism in Japan formed such a special structure in Japan's society. We might call this special structure the "dual

(5) "In the early years of the eighteenth century effort was directed mainly to the harnessing of forces external to man. From the 'thirties' and 'fourties', when capital was relatively abundant, and industrial workers still relatively scarce, attention was centered on labour-saving mechanisms, such as those of Kay and Paul in the textile industries. "Ashton, T.S., The industrial revolution. pp. 91 - 92.

structure". By the term "dual structure" I mean that co-existence of two kinds of systems prevailed in its society; that is, on the one hand there was the capitalistic system in the industrial sector where both the organization of production and the technology were modern, and on the other hand there was the pre-capitalistic system mainly in the agricultural sector where the source of abundant labour supply was secured.

Whoever intends to analyze the development process of the Japan's economy should pay attention to this "dual structure" which played a definitely important role.

From this point of view, the interpretation about the influence of the population growth to the economic development of Japan should be different from that of Professor Lockwood.

First, the population increase should be considered as the source of the cheap labour. The cheap labour did not induce the labour intensive method of production and the inefficiency of production in the leading industries of Japan.

Second, the population increase did not impede the saving of the nation as a whole, because the overpopulation made the wage rate of the labour force and the level of living of the masses. On the contrary it made it easy for the capitalists to accumulate capital.

Third, the pre-modern features of the Japanese society

which Professor Lockwood pointed out, that is, the large proportion of the farm population, the social inequality and the maldistribution of wealth and so on, should be regarded as the necessary evil for the process of modernization. It is true that the capitalism of Japan could develop on the mass-basis of these social features.

The final target of economic development is that the people of a nation can enjoy the high level of economic welfare. However, every economy must go through several stages until this final target is reached. On the intermediate stages some sacrifice at least in some part of the society is indispensable.

By common opinion, the population increase in the underdeveloped countries at present is one of the biggest obstacles to the economic development of those countries. This is true in general, but is not applicable to the case of Japan. Japan was a special case in which the population increase could be utilized for the economic development. But it should be noted that the population pressure could exert an advantageous role under the condition that the leading industries had been successfully established. Therefore, the population factor even in the case of Japan should be considered not as the motivating factor to the economic development, but as one of the subsidiary factors.

