

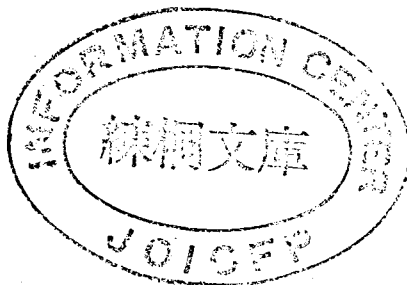
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POPULATION TREND AND ECONOMIC GROWTH IN JAPAN

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With the Restoration in 1868, the Restoration Government determined a modernization policy to introduce the Western industrial revolution which took approximately 20 years to formulate. It was actually from around 1890 that the industrial revolution started.

In 1872, the new Government undertook population count throughout Japan to prepare modern family registration system for the purpose to serve as a basis for administration and politics. As a result, the population of Japan was found to be 35 million, after necessary adjustments were made. According to the results of regular count during about 140 years before the Restoration, Japan's population was stagnant at the level of 32 million. The result of the population count in 1872 revealed that about 77 per cent of the gainfully occupied population was of agricultural and only 4 per cent was of manufactural. Population density in 1872 was 91 per km², and this density was considered to be very high for an agricultural country with much small cultivable land. Namely, Japan's population seems to have reached the saturation point in that closed feudalistic economy prior to the

Restoration. In other words, it is considered that when the Restoration Government began its modernization policy, Japan was already over-populated. From the age of the Restoration to the 1890's when the industrial revolution started, population increase rate of Japan was very low, the annual average increase rate being around 0.7 per cent.

Rapid progress in industrial revolution which began in the 1890's was finally promoted by World War I. In 1920, the industrial revolution came to an end with a crisis. The establishment of the modern population census system in Japan had been delayed, and the first census was taken in 1920. This revealed that the population of Japan at that time was 55.4 million which meant an increase of 1.6 times during 48 years since 1872. Since 1890's with the rapid progress in the industrial revolution, the population increase rate gradually went up and the annual average increase rate between 1890 and 1920 was 1.1 per cent (Table 1.). During this period on the one hand, birth rate increased a little due to the decrease in still-birth rate and on the other hand, decrease in general mortality rate was not so much because infant mortality rate sharply decreased while tuberculosis death rate, especially among the youth went up. Also the result of the

1920 census showed that the secondary industry population had increased 8 times compared with that of 1872 and the tertiary industry population increased twice, while the primary industry population remained the same. The primary industry population did not decrease up to World War II. Namely, in Japan the industrial revolution progressed without decrease in the primary industry population. In other words, the natural increase of population in the rural districts was absorbed into commerce and manufacturing industry in urban districts. The proportion of the population in every industrial sector to the total employed showed considerable changes between 1872 and 1920. The proportion of the primary industry population was 54 per cent, that of the secondary was 21 per cent, and that of tertiary was 26 per cent in 1920 (Table 9). However, the proportion of the primary industry population exceeded one half of the total employed. In Japan, it is well known that the size of agricultural management is very small, and even in the secondary and tertiary industrial sectors, medium and small establishments increased along with big modern industries which the industrial revolution brought about.

Table 1. Total Population of Japan, 1872-1959.

Year	Population (in, 000's)	Annual average increase rate	Population density per km ²
1)		%	
1872, Jan. 29	34,806	0.8	91
1900, Jan. 1	43,847	1.1	115
1920, Oct. 1	55,391	1.3	146
1925, Oct. 1	59,179	1.5	156
1930, Oct. 1	63,872	1.4	168
1935, Oct. 1	68,662	0.8	181
1940, Oct. 1	71,400	0.2	188
1945, Nov. 1	72,200	2.9	196
1950, Oct. 1	83,200	1.4	226
1955, Oct. 1	89,276		241
2)		1.0	
1959, Oct. 1	92,970		252

Source: Reports of the Bureau of Statistics, Prime Minister's Office.

1) Lunar Calendar.

2) Current population estimates.

1872 - 1940, Okinawa Prefecture is excluded.

Since 1920, the rapid growth of industrial revolution went into a clearing period. After 1930, economic growth shrank due to the world crisis, and rationalization of industry was vigorously carried out. Before completing this attempt, Japan was carried into a stage of preparing for the last war.

According to the studies of Professor K. Okawa and other economists, the economy of modern Japan showed very high growth rate from 1880 to 1935 and the real national income was increased approximately ten times. Due to the severe limitation of the foreign investment in Japan, she had to keep high level of saving rate (15 - 20 per cent) and rise in level of consumption was suppressed. "Austerity life" has continued, but the level of consumption always gradually went up.

Corresponding with the above mentioned facts, the population movement in Japan has become modernized since around 1920. The decrease in the death rate continued while the number of births remained constant. In spite of the population growth, the birth rate has shown a slow decrease. This was due to the delayed marriage, and start of the modern fertility control which was limited to metropolitan areas. The natural increase rate rose to 1.3 - 1.4 per cent per year in spite

of the declining in birth rate that was made up by the decrease of death rate.

The rapid progress of the industrial revolution brought about "the poor" and the destitution of the lower class which some learned people noted, but this fact was not realized in general as a population problem until around 1910. Population increase rate in Japan grew since the Restoration and the industrial revolution promoted it, but the population problems were not brought into light in general. In 1894 Dr. Hiroyuki Kato, from the Malthusian view-point, warned the dangers of coming over-population and threatening legalization of induced abortion, but, at that time, little attention was given to what he meant. High population increase rate brought by the industrial revolution seemed to be one of the favorable factors in promoting the industrial revolution itself. However, such an optimistic view-point could not last long. During the prosperity by World War I, a sharp rise in the price of rice which is the staple food for Japanese, brought about a riot in 1918. It was this "rice-riot" that kindled general consciousness on modern population problems for the first time. And at that time, the broken balance between population growth and increase of food production was

understood as a population problem. This was followed by a severe controversy between Malthusian and Marxian theories on population. It was the first time that the population problems in modern sense were discussed generally in Japan. In 1925, the government established the "Population and Food Problems Research Council" for discussing this situation.

The World crisis of the 1930's caused an increase of unemployed and the non-employment of productive age population, especially among the big modern enterprises. Many of these unemployed and never-employed persons were absorbed, in the form of the under-employed, into agricultural households and small scale industries which survived in great number. And therefore, destitution of the agricultural households and medium and small scale industries was intensified. Under these circumstances, the population problems of Japan turned into the problems of unbalance between population growth and increase in chances of employment, that is employment problems.

Since the end of the 1930's, Japanese economy gradually moved into a specific situation for preparing war, and population or employment problems turned into the problems on shortage of man power.

Table 2 Vital Rates
(per 1,000 population)

Year	Birth rate	Death rate	Natural increase rate
1900 - 04	32.1	20.4	11.7
1905 - 09	32.2	21.0	11.2
1910 - 14	33.7	20.3	13.4
1915 - 19	32.5	22.6	9.9
1920 - 24	35.0	23.0	12.0
1925 - 29	34.0	19.8	14.3
1930 - 34	31.8	18.1	13.6
1935 - 39	29.2	17.4	11.9
1940 - 43	30.7	16.3	14.4
1947	34.3	14.6	19.7
1948	33.5	11.9	21.6
1949	33.0	11.6	21.4
1950	28.1	10.9	17.2
1951	25.3	9.9	15.4
1952	23.4	8.9	14.4
1953	21.5	8.9	12.6
1954	20.0	8.2	11.9
1955	19.4	7.8	11.6
1956	18.4	8.0	10.4
1957	17.2	8.3	8.9
1958 1)	17.9	7.4	10.5
1959 2)	17.6	7.3	10.2

Source: Vital Statistics Reports.

1) Preliminary

2) Estimates based on Jan. - Sept. preliminary report by the Institute of Population Problems, Ministry of Health and Welfare

As the result of this War, Japan lost 46 per cent of her area and her economy was entirely broken down. As shown on Table 3, index numbers of production in mining and manufacturing industries dropped to one third of the prewar level and the real national income per capita to one half of the prewar level. In spite of this fact, Japan experienced a marked increase in population for a few years after the War that was never experienced before. Right after the War, the population of Japan was 72.2 million, and in 1950, it was 83.2 million which meant an increase of 11 million within a 5 years period. The current population for 1959 is estimated at 93.0 million which means that in a 9 years period there was a 10 million increase (Table 1). The sharp increase in the first 5 years immediately after the War was attributed to the following three reasons: first is the repatriation of overseas Japanese, second is the death rate decline, while third is a "baby boom".

Table 3. Index Numbers of Population, Production
(in Manufacture and Mining) and Real
National Income per Capita.

Year	Population	Production	Real National Income per capita
1934-36 average	100.0	100.0	100.0
1946	110.4	30.7	52.0
1947	113.8	37.4	53.2
1948	116.6	54.6	60.6
1949	119.1	71.0	68.5
1950	121.2	83.6	80.1
1951	123.2	114.4	86.9
1952	125.0	126.4	94.0
1953	126.7	155.1	98.2
1954	128.6	166.9	99.4
1955	130.1	180.7	108.6
1956	131.5	220.5	118.2
1957	132.7	257.2	126.4

Source: Computed by the Economic Planning Agency.

For fiscal year (April 1 to end of March of the next year)

The number of the Japanese repatriated after the termination of the War amounted approximately to 6.3 million (about 75% of them repatriated by the end of 1946), and against this figure, only 1.2 million foreigners left Japan for their home. And therefore, a social increase of about 5 million resulted.

According to Table 2, the crude death rate of Japan has declined rapidly since 1947 in spite of the dropping level of living after the war, and has been continuing its declining tendency until now. The latest figure is roughly half as high as the prewar level. And the rate of Japan now compares favorably with the lowest rate shown by other developed countries. In this connection, however, it should be taken into consideration that the age distribution of Japan's population is still very young, compared with those of highly developed countries.

Table 4. Expectation of Life at Birth

Life Tables	Period	Male	Female
Bureau of Statistics' No. 6	1935-36	46.92	49.63
Welfare Ministry's No. 8	1947	50.06	53.96
Welfare Ministry's No. 9	1950-52	59.57	62.97
Institute of Population Problems' abridged No. 12	1958-59	64.98	69.52

As a result of "the baby boom" in the three postwar years, 1947-49, the crude birth rate has exceeded the prewar level, but the rate has been declining sharply since 1950. Faced with sudden drop in the level of living during several postwar years, a large number of married couples who lost all future hopes went all out to limit their family-size. Fertility control by contraception had been in practice since World War I, but was confined chiefly to the "white collar" class of metropolitan areas. Because of the insufficient popularization of contraception, many couples, out of eagerness to limit their family size, unfortunately resorted to induced abortion. Although the idea of family planning is gradually widespread today, the number of cases of induced abortion is still considerably high. One of the urgent problems here is how to modernize family life in the true sense of the word and how to incorporate the idea of family planning into daily life.

Attention should be paid to the fact that the birth rate has shown a sign of a little recovery in the years of 1958 and 59. Unfortunately, detailed materials to analyse this change are not yet available. But it is presumed that rise in marriage rate due to the preceding business prosperity is one of important factors and changing attitude for fertility of

the couples into "bunched birth" is also one of the factors.

During "the baby boom", the natural increase rate markedly rose because of the rise in the birth rate and a fall in the death rate. However, the natural increase rate has declined sharply since 1950 for the birth rate has fallen greatly, though the death rate has continued to decline.

Table 5. Proportion of Couples Practising Contraception Whose Wife's Age is under 50

Year	Whole country	6 Big cities	Other cities	Rural
	%	%	%	%
1950	19.5	23.7	23.6	17.4
1952	26.3	34.8	31.1	22.1
1955	33.6	37.7	34.0	31.9
1957	39.2	44.5	39.5	36.1
1959	42.5	47.0	43.0	39.9

Source: Public Opinion Survey Reports by the Population Problems Research Council, The Mainichi News Papers.

Table 6. Reproduction Rate of Woman

Year	Total Fertility	Gross Rep. Rate	Net Rep. Rate
1925	5.11	2.51	1.56
1930	4.71	2.30	1.52
1937	4.34	2.12	1.49
1947	4.52	2.20	1.71
1950	3.63	1.76	1.50
1955	2.36	1.15	1.05
1957	2.04	0.99	0.92

Computed by the Institute of Population Problems, Ministry of Health and Welfare.

It is noteworthy that the latest net reproduction rate of women fell down to 0.92 and Japan's population has become to have a declining potential.

The above mentioned rapid change in fertility and mortality rates after the war is resulting in a conspicuous change in the age distribution of Japan's population. Before the war, Japan's population showed "a juvenescent tendency" as the

proportion of children under 15 rose and that of the aged population of 65 years and over lowered. The tendency was also seen in the dropping of average and median ages of the population. After the War, especially since 1950, however, the decrease in birth rate caused the proportion of children to shrink and that of the productive age population and aged population to rise largely, resulting in the sharp aging of population.

Table 7. Change in Ratio of Dependants to Productive Age Population

Year	Ratio of Dependants	Ratio of Children	Ratio of the Aged
1920	71.6%	62.6%	9.0
1935	71.0	63.0	7.9
1950	67.5	59.3	8.3
1955	63.6	55.0	8.7

Computed from the Census Reports.

After the war, the demographic burden of aged population on the productive age population became heavier due to the upward trend of aged population, in spite of the rapid growth of productive age population, but the burden of children

lightened so remarkably due to the drop in births that ratio of dependants to productive age population tended to decline sharply.

In 1957, the Institute of Population Problems, Ministry of Health and Welfare, made an estimate of the future population up to 1965 on the basis of the sex-age distribution for 1955, and extrapolated it up to 1975 on the assumption that the hypothetical age specific fertility rate of the reproductive age women and sex-age specific mortality rate for 1965 are constant. The results are shown in Table 8 by three major age groups:

Table 8. Future Population estimated by the Institute of Population Problems, Welfare Ministry

Year	Total	(in million)		
		By Age Group		
		0 - 14	15 - 64	65 and over
1955	89.3	30.0	54.6	4.7
1960	93.4	27.6	60.4	5.3
1965	96.4	22.9	67.4	6.1
1970	99.6	20.6	72.0	7.0
1975	102.7	20.6	74.3	7.8

Population predict for 1955 - 65, population project for 1970 - 75.

It should be noted that this future population estimate does not consider the birth recovery in 1958 and 1959, in its assumptions. And it is estimated that this birth recovery might have a considerable effect upon the future trend of population growth.

The hypothetical net reproduction rate for 1965 is about 0.7. In spite of that, it has been estimated that the total population will exceed the 100 million mark around 1971.

What is most noteworthy is the conspicuous change in the age distribution after 1955. In the ten years between 1955 and 1965, the total population will increase in average 0.7 million a year, but the productive age population of 15-64 years old will increase at the tremendous number of 1.3 million a year. In contrast, the population of children under 15 years of age will decrease in average 0.7 million a year as a result of severe decrease in births. The aged population of 65 years old and over will increase on average by 0.1 million a year. Therefore, one of the most important of the population problems and one of the most basic subjects in economic planning in present-day Japan is how to distribute employment to the rapidly increasing productive age

population and how to raise and maintain the economic growth rate for that purpose. Fortunately, Japan could maintain very high economic growth rate after the War until now. Considering the change in employment composition, however, it seems that even such high economic growth rate was not always sufficient for supporting conspicuously increasing labor force.

This rapid increase in productive age population is estimated to reach its peak during 1960 to 1965. And due to the severe "baby deflation" after 1950, annual increase in productive age population, especially that of younger age is expected to shrink very rapidly. For instance, annual average increase in the productive age population during 1970 to 1975 will be only under one third of that during 1960 to 1965. It should be noted that this great change in increase of productive age population which is expected in very near future might exert a great effect upon the labor market, the employment composition and therefore future evolution of industrial structure of Japan with various frictions.

As has been pointed out, aged population is expected to increase incessantly with increasing rapidity. Before the War, aged people were supported in the premodern family system

which survived for a very long time. After the War, the premodern family system, however, is dissolving quite rapidly into a modern one. Therefore, as social support for the aged people should be considered, the National Old Age Pension is going to start in 1960. The proportion of aged people employed to the total of them is considerably high in Japan, comparing with that of the highly developed countries, due to the fact that a large part of the aged are working on farm and in small scale industries. Accordingly, the future trend in the aged population increasing absolutely as well as relatively, is expected to have very confused effect upon the labor market and the change in industrial structure.

3

As shown in Table 9., the proportion of population employed in primary industry has decreased and that in tertiary industry has increased between 1920 and 1940, reflecting the high development of the Japanese industrial structure during that period. However, the proportion of the employed by industry in 1947 to the total employed population became similar to that in 1920 due to the War, and the proportion for 1950 greatly approached the level of 1930. Nevertheless, in 1955 the proportion of population employed in primary industry showed a

record low and that employed in tertiary industry a record high.

One of the important characteristics of the Japanese industrial structure is that, while large scale modern industries are growing steadily, there still remains a large number of premodern small scale industries managed by the family, and consequently the proportion of unpaid family workers is remarkably large, as is clear from Table 10.

Table 11 shows the smallness of agriculture, which occupies the greatest part of primary industry in Japan. Thanks to the highly advanced agricultural techniques, the rate of utilization of arable land is extremely high in Japan, but the limited cultivable area constitutes a bottleneck in agriculture. Due to the land reform after the War, agricultural management is changing into modern one increasing productivity of labor, pushing surplus labor force, and small scale agricultural households are gradually getting out of agriculture.

Table 9. Change in Population Composition
by Industry

Year	Total	Primary	Secondary	Tertiary
A) Real Number (in million)				
1) 1920	27.0	14.4	5.6	6.9
1) 1930	29.3	14.5	6.0	8.9
1) 1940	32.2	14.2	8.4	9.6
2) 1947	33.3	17.8	7.4	8.1
3) 1950	35.6	17.2	7.8	10.6
4) 1955	39.3	16.1	9.2	13.9
B) Proportion				
1920	100	54	21	26
1930	100	49	20	30
1940	100	44	26	30
1947	100	53	22	24
1950	100	48	22	30
1955	100	41	24	35

Source: Population Census Reports. Adjusted by the Bureau of Statistics and the Institute of Population Problems.

- 1) For total employed
- 2) Employed 10 years old and over
- 3) Employed 14 years old and over
- 4) Employed 15 years old and over

Table 10. Proportion of the Employed
15 Years Old and Over by Class of Workers

Class of Workers	Proportion
Total of the Employed	
15 years old and over	100.0
Employers	2.8
Workers on Own Account	21.1
Unpaid Family Workers	30.6
Employees in Private Business	37.5
Government Employees	8.0

Source: 1955 Population Census Report, one per cent sample tabulation.

Table 11. Number of Farm Households
by Scale of Management (Feb. 1, 1955)

Farm Area (in cho*)	Number of Households	Proportion
Total	6,066	100.0
0.5 under	2,414	39.8
0.5 - 1.0	1,970	32.5
1.0 - 2.0	1,340	22.1
2.0 - 3.0	208	3.4
3.0 - 5.0	82	1.3
5.0 -10.0	40	0.7
10.0 and over	8	0.1
Exceptional Farm Households	4	0.1

Source: Report of Agricultural Census.

* 1 cho = 0.99174 hectare.

According to Table 12, about 93 per cent of the manufacturing establishments have less than 30 employees, and the employees of those small scale manufacturing establishments account for 44 per cent of the total number of employees of manufacturing industries. In tertiary industry, the proportion of small scale establishments and that of its employees is considered to be larger than in manufacturing industry. Therefore, the characteristics of the management scale of Japanese industry should be taken into consideration in viewing the tendency of the structural evolution as indicated in Table 9 on the population composition by industry.

Table 12. Proportion of Manufacturing Establishments and Their Workers by the Scale of Management (1957)

Number of Workers	Establishments	Workers
Total	100.0	100.0
1 - 9	75.7	20.2
10 - 29	17.4	20.5
30 - 99	5.4	19.4
100 - 199	1.1	13.5
200 and over	0.4	26.4

Source: Establishment Survey Report, 1957.

According to the 1950 census the complete unemployed population was only 0.72 million as against the employed population of 14 years old and over of 35.6 million, and in 1955, the unemployed were only 0.76 million while the employed numbered 39.2 million. However, among those employed by small scale industries there is presumably a large proportion of those who are under-paid, and who have short working hours and who have low productivity. Thus, one of the important characteristics of the economically active population in Japan is that there is very little complete unemployment while the "under-employment" rate is extremely high. Although it is exceedingly difficult to investigate the under-employment rate, some scholars estimate that it amounts to seven to ten times of the complete unemployment figure.

4.

In conclusion, according to the experience in Japan, the more modern economy developed, the more inter-relationships between economy and population movement intensified. The change in population movement, however, has a considerable time lag with the economic development. Therefore, contradictions between population change and economic development caused confusing population problems.

Development of industrial revolution before the War, rapid reconstruction and further development of modern economy after the War, were one of the most important factors to the modernization of population movement. In its first stage, the modernization of population movement in Japan was one of the factors to promote economic development, however, it gradually turned into a hindrance to the economic development causing difficult population problems in a modern sense.

Population movement has begun to show the sign of the last stage of modernization since the beginning of this century when the industrial revolution was over. Although this demographic transition was very gradual before World War II, after the War, it has been intensified with conspicuous rapidity and population increase rate has been gradually checked. But striking changes, especially in the age distribution, resulted from the rapid change in population movement, are exerting a great effect upon the change in employment structure and accordingly the evolution of the industrial structure in Japan.

