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"Population and Development" Series No.15

Regional Development and Population in Japan

— Trends and Prospects in the 1990s —

MARCH 1992

The Asian Population and Development Association

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THE ASIAN POPULATION AND DEVELOPMENT ASSOCIATION, 1992
Nagatacho TBR Building, Rm. 710
10–2, Nagatacho 2-chome, Chiyoda-ku, Tokyo 100
Telephone : (03) 3581–7770
Printed in Tokyo, Japan

Preface

The economic development of a country is to a certain extent dependent on the regional economic disparities. The different regions in a country are not all at the same economic level and do not all develop at the same speed. The development of individual regions is not only regulated by their climatic, economic, and social characteristics, but also greatly affected by investments and financial assistance policies of the central government.

In this report we have studied the relationship between regional development and population, focussing particularly on regional population. In Japan we can observe a close relationship between regional development and population migration. The economic development trend is particularly conspicuous in and around large urban areas, and as a result there has been a heavy migration of the population from rural prefectures to large cities. This has resulted in a remarkable imbalance in the regional distribution of the population. What is important from a demographic point of view is that there have been irregular changes in the vital rates of regional populations and an imbalance in the age composition of population. I am referring to the problems of so-called overpopulation and depopulation, and the enormous concentration of the population in a certain pole. These irregular regional changes in the population greatly influence development. Theoretically, this presents a new issue, the regional version of demographic transition.

In this report, we have studied such specific topics as labor, family, life, and women in the regional population. For the very fact that regional changes in population are intense in Japan, we would be happy if Japan's experience concerning the relationship between development and such regional changes of population could contribute to a certain extent to the study of regional development and population policies in other Asian countries.

Finally, we would like to express our sincere thanks to the Japan Shipbuilding Industry Foundation (Chairman Ryoichi Sasakawa) and the United Nations Population Fund (Executive Director Dr. Nafis Sadik) for their immense support on the preparation of this report.

March, 1992
Fukusaburo Maeda
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Chapter One

Demographic Transition, Industrial Transition and Regional Development

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Introduction

Demographic phenomena, and in particular such vital phenomena as births and deaths, are closely related to economic development. This relationship, however, is by no means uniform in different periods in history and in different countries. The so-called demographic transition theory is a systematization of generalized views adopted through the analysis of the historical experiences of European countries. Some criticize this theory, saying it did nothing more than to explain the process of the transition from a high fertility, high mortality to a new order characterized by low fertility and low mortality, and that it is by no means a "theory" or "law" (*1). As there is no general theory on socioeconomic phenomena which applies universally to all periods of history and all countries, the demographic transition studies of C.P. Blacker, W.S. Thompson and F.W. Notestein (*2) are significant in that they attempted to generalize the many experiences concerning the structure of the relationship between population and economy in modern Western European societies.

However, experiences similar to these model processes of demographic transition in Western European societies have emerged in succession since World War II, even in non-Western European cultures.

After World War II, in Japan, which does not belong to the Western European cultural sphere, the demographic transition which Western European cultures achieved over extended periods of time was completed at a quite rapid speed. Despite a completely different soil from that of Western Europe in all fields, economic, social, political and cultural, the flowers of demographic transition bore stunning fruits. This experience then spread rapidly to countries with geographic proximity, historic and cultural affinity, such as Singapore, Taiwan, Hong Kong, Korea and China. The cultural pattern of fertility reduction and mortality decline is now extending to such ASEAN countries as Thailand, Malaysia, Indonesia.

If we consider this demographic transition theory (though today it would be more appropriate to call this a "hypothesis" rather than a "theory"), which is based on the experiences of Western European cultures, as a classical theory of demographic transition, with what hypotheses should we explain the demographic transition taking place today in countries not belonging to the Western European cultural sphere?

The most prominent characteristic of the classical theory of demographic transition is the argument that the demographic transition of Western Europe, and in particular the changes in fertility, are dependent on the level of economic development. In other words, the decrease in fertility is a byproduct resulting from economic growth. In addition, in many cases, the de-

crease in mortality becomes possible with economic development, and fertility begins to decrease later with a certain time lag. Thus, we can say that the fundamental characteristic of the classical model of demographic transition is that it considers demographic transition to be a result which is brought about by economic development.

However, as stated previously, in some developing countries strikingly rapid demographic transition, that is a marked drop in fertility, is being produced with no remarkable economic development or improvement of living standards. This fact gives rise to the doubt of whether it is valid to apply this so-called classical demographic transition theory to non-Western European environments (*3). To state this in another way, the issue is whether demographic policies, and in particular policies for restricting births, can achieve reductions in fertility without marked economic development.

The above issues raise questions on the relationship between demographic transition and development. Japan is a country with a non-Western European culture. From this standpoint, since the demographic transition in Japan is the experience of an Asian culture, we can think of an analysis of the Japanese demographic transition as contributing to a partial answer to the aforementioned problems.

In this chapter, we will discuss the distinguishing features of Japan's pioneering experiences in demographic transition and industrial transition (economic development) as the basic conditions for modernization in many Asian countries, and also consider the relationship between demographic transition and regional development within Japan.

1 Demographic Transition and Industrial Transition in Asia

The idea of demographic transition brought about primarily through economic development and in particular the drop in fertility (the foundation of the classical demographic transition theory) is now losing support. The shortest road to reducing fertility is the policy of improving health and education supported by family planning programs, and pure economic indices are of little meaning in explaining changes or disparities in fertility. The view that social rather than economic factors are the fundamental factors behind the declining fertility is gaining strength (*4).

Concerning the relationship between population and development, the classical demographic transition theory places development at its central argument, namely, development and demographic transition being assumed to be causality, but it is not possible to adequately explain demographic transition in the third world countries today.

Today, it is a generally accepted idea that the population and development chain is not a one-way road leading from development to population, but that population also influences

development (*5). It goes without saying that policies for reducing fertility mainly through family planning are effective regardless of the stage of development. The important point is whether or not family planning policies function efficiently even when there is a lack of sufficient development. In third world countries, we are now beginning to see a mutual relationship between development and demographic transition, with the progress of development fostering demographic transition, and inversely the progress in demographic transition helping to facilitate development. Advances in development, in other words economic growth, promote the spread of family planning, while the control of birth through family planning and the reduction of high rates of population growth reinforce economic growth. Singapore is one example of a country which has reaped the fruits of the mutual complementary effects between population and development through the simultaneous implementation of strong fertility control policies and high economic growth policies.

As for the possibilities of reductions in fertility through family planning programs in cases where the level of development is low, the effects are gradually increasing, though this is still in the stage of analysis as case studies (*6).

One point worth noting in relationship to demographic transition is that the experience of a certain country may spread in chain-reaction fashion. The remarkable precedent-setting experience of Japan, an Asian country which does not fall into the Western European cultural sphere, proved that this is not a phenomenon limited to developed Western countries, and the present writer has in the past referred to this process as the "demographic spreading effect", in contrast to the "economic spreading effect" (*7). Such spreading effects may appear fastest in regions with closely similar cultures, which are geographically near and have profound historical links. For example, the spread of demographic transition was marked in Korea, Taiwan, Singapore and Hong Kong, which all have Confucian cultures. However, demographic transition began later in mainland China than in the above neighboring regions because this country had adopted the so-called "bamboo curtain" policy of isolationism.

Table 1 shows the spread of demographic transition in succession which started from Japan as seen by the demographic transition index (*8).

Here, fertility is indicated by the total fertility rate (TFR), while the mortality is shown by the average expectancy of life at birth. For fertility, the extent to which the distance of 5.5 between the maximum (in Asia, 7.6 in 1990 for Yemen) and minimum (here the replacement level of 2.1) fertility was achieved was calculated, while for the average expectancy of life at birth, Afghanistan's minimum of 43 years (the Asian minimum in 1990) and Japan's maximum of 79 years (1990) were taken, and the extent to which the distance of 36 years between the maximum and minimum was achieved for the various countries was calculated. Both the TFR and average expectancy of life at birth are taken as 0.5 respectively with respect to the point at which demographic transition is completed, so if both are 0.5, the total is 1.0, signifying that

demographic transition is completed. In addition to the TFR and average expectancy of life at birth, Table 1 also shows the per capita GNP as an index reflecting the level of development.

The countries are listed in order starting from the one with highest demographic transition index down, with Japan's 1.00 at the top. We can consider that Hong Kong and Singapore have basically completed their demographic transition process. Korea and China have a demographic transition index of near 90%, and as such are close to completion of their demographic transition. Among ASEAN countries, Thailand has the highest index at 83%, followed by Malaysia, while Indonesia and the Philippines are a little behind. The countries which can be considered as belonging to the Confucian cultural sphere have achieved a high level of demographic transition, while demographic transition is proceeding in an orderly fashion in countries in the ASEAN region which have close geographical and historical ties with these Confucian countries. We can see this as a near perfect quarter line formation.

Here, special attention should be given to the relationship between demographic transition and development, one of our major issues. The per capita GNP is shown here as an economic index expressing the stage or level of development. The TFR, a fertility index, increases regularly starting from the values of 1.5 and 1.4 at the top for Japan and Hong Kong, respectively, while the average expectancy of life at birth decreases fairly regularly from Japan's 79 years at the top. In correspondence with these trends in births and deaths, the per capita GNP, an index of development, decreases from the maximum of US$ 21,020 for Japan. This tiered structure of demographic transition seen cross-sectionally conforms to the model of so-called classical demographic transition. The idea that higher levels of development are advantageous for demographic transition still applies to the third world countries today. However, if we take a look at the example of the level of development and demographic transition in China, we can see that despite the per capita GNP of only US$ 330, the TFR, a fertility index, is already 2.2, and the average expectancy of life at birth is 71 years, the same as Korea. As a result, the demographic transition index has reached a level of near 90%. China's per capita GNP is only half of the figure of US$ 630 of the Philippines, the country with the lowest demographic transition index (65%) on this table. This suggests that it is possible to reduce the fertility and improve mortality, in other words to achieve demographic transition even if the level of development (or economic growth) is low and behind. This implies that in the case of China, the cause for the decline in the fertility is not development but population control, in other words family planning programs with outstanding efficiency. In the Chinese example, not only are the effects of policies indicated by comparison with other countries, but it is also possible to discover more accurate possibilities if we study the matter in units of Chinese provinces. In the case of China, the size of provincial populations is extremely great, so comparisons by provinces is just as significant as comparisons in units of countries. Freedman and his coauthors have demonstrated that fertility in Sichuan province (population of 107,000,000 in 1990),

which is economically extremely underdeveloped, is far lower than the fertility of Liaoning province (population of approximately 40,000,000 in 1990), which has a much higher degree of economic development (*9). In addition, concerning the relationship between the fertility and such economic and social indices as industrialization, urbanization and literacy rates, the present writer has compared two groups, one including the provinces of Sichuan and Jiangsu which are economically and socially extremely underdeveloped, the other consisting of the provinces of Liaoning and Jilin in which economic and social development is marked, and has pointed out that the fertility in these underdeveloped regions is by no means high, in fact it tends to be low (*10). This suggests that the excellent family planning program of Sichuan could reduce the fertility despite the adverse conditions of low economic and social development.

Next we should examine the speed of and conditions for the spread or successive emergence of demographic transition. The levels of demographic transition shown in Table 1 are remarkably different from one country to another. This reflects different factors related to demographic transition, and in particular to fertility behavior, such as cultural values for childbearing, family systems, infant mortality and other social and cultural factors, the extent of maturity of the governments' family planning programs, and such economic factors as the stage of development, industrial structure, standard of living, and so on. Another point worthy of attention is that in the case of the propagation of demographic transition starting from Japan, this spreading is strongly influenced by geographical, historical and cultural similarity and the density and frequency of the conveyance of communication and information. If rapid economic growth and aggressive family planning programs are in place in addition to social and cultural affinity, the decline in fertility accelerates notably. Singapore, Taiwan and Korea are excellent examples of how the interacting forces of culture, economy and policies have resulted in sudden decreases in fertility.

However, what is most important is that the process of completing demographic transition and its speed is dependent on the unique socioeconomic and cultural factors of the individual countries, and on the implementation of the most appropriate family planning programs for that country.

2 Demographic Transition and Regional Development

In section 1 we observed issues concerning demographic transition and development (in the sense of industrial transition or economic growth) in Asia in units of countries. Our conclusions were that the development-oriented theory arguing that demographic transition is induced by economic development (the basic hypothesis of the classical demographic transition

theory), is not a universal theory with decisive significance (*12), that demographic transition can be incited through appropriate family planning programs even if development in the form of so-called "Westernization" has not yet attained maturity (*12), and that if economic growth is realized through appropriate development policies simultaneously with such policies to curb the growth of the population, rapid demographic transition is possible through the synergistic effect of the complementary forces of population and economy (*13).

In this section we will study the relationship between regional development and demographic transition within a country, taking the case of Japan as an example. The character of demographic transition as seen by region is fundamentally different from that of country-based demographic transition. Firstly, changes in the demographic dynamics of a region are affected by inter-regional migration of population. It is rather rare for population migration to affect the demographic dynamics of a country as a whole, and as such population migration is generally not taken into account in demographic transition theories. However, population migration may grow more intense as regional economic differences develop, and may bring about great change of regional demographic dynamics as a result. Regional development program cannot ignore these changes in demographic dynamics generated by population migration. Therefore, the changes in the dynamics of a regional population are brought about by population migration, and this should no doubt be called "regional" demographic transition as distinguished from what we normally call demographic transition. Secondly, such changes in demographic dynamics for regional populations are not dealt with in demographic transition theories. Thirdly, the process of such regional demographic transition is generated as a result of population migration, so this process is fundamentally different from the stages of change in the so-called demographic transition theories. Fourth, the study of this "regional" demographic transition may offer a new perspective on so-called demographic transition theories.

Now let us try to simply typify the process of "regional" demographic transition in Japan.

The first stage was the initial period of modernization. This was the stage in which industrialization and urbanization began. In cities, both fertility and mortality exhibited downward trends, so the natural increase rate was low. In rural areas, on the other hand, both fertility and mortality were high and the natural increase rate was low. At this period, development progressed centered around the cities, and consequently population migration from rural to urban areas began to gradually increase. In this way, demographic dynamics became low in the cities and remained high in rural areas due to the effect of this development and population migration.

In the second stage, rapid economic growth and massive population migration advanced. The greatest portion of the population migration consisted of young people of the marriageable age, and since this is also the age group in which mortality is the lowest, the result was an increase in birth rate and decrease in death rate in urban areas, while in rural areas birth rate

decreased and death rate rose due to the outflow of these young people. This generated a rise of the population growth rate of cities, and a decrease in the population growth rate or even a population decrease in rural areas. This pattern of demographic dynamics in cities corresponds to the second stage of rapid population increase in classical demographic transition, while the pattern in rural areas corresponds to the third stage of stationary population. However, this correspondence is formal but not actual. It is necessary to pay attention to the fact that this formal change in demographic dynamics due to population migration exerts a major influence on regional population and development, notably through changes in the age composition and their direct effects. While in urban areas the major influx of youthful population results in a "juvenescence" of the age composition, in rural areas the loss of this youthful population results in an aging of the population. Furthermore, in urban areas this generates the evils of overcrowding due to the concentration of the population and industry as well as the disappearance of the benefits of scale economies, while in urban areas it results in a loss of economic vitality due to serious shortages of youthful labor.

This second stage is characterized by the "regional" demographic transition resulting from the mass movement of population due to the increased economic disparity between regions. However, though this second stage is a result of marked gaps whether viewed from the standpoint of developmental or the standpoint of the regional distribution of the population, we can assume that these imbalances of development and population will not continue infinitely.

The third stage is characterized by the rectification of this extreme imbalance. From the viewpoint of the population, this consists in a redispersing of the population from the urban areas to rural areas so-called "U" turn. From the viewpoint of development, this corresponds to the advancement of regional development. The economic, social and cultural contradictions arising from overcrowding and depopulation promote the spontaneous movement of the private sector, whether individuals and companies, and also spurs the adoption of governmental policies such as measures to rectify the excessive concentration in specific areas. In other words, this third stage is characterized by a trend towards the balancing of "regional" demographic transition through the inverse flow of the population back to rural areas and the redispersing of the population distribution. This is the process of the balancing of regional differences in fertility, mortality and the natural increase rate.

If for the "regional" demographic transition in the second stage, the trend continues in which the natural increase decreases due to a reduction of the birth rate and increase in the death rate in rural prefectures, a reversal to negative natural increase arises. This phenomenon of reversal is not apparent when seen in terms of prefectures, but when seen in terms of cities, towns and villages, there are many places which display such a reversal of vital rates. As the basic factor causing this negative natural increase of the population is the outflow of the population, this excess of deaths over births and excess of out-migrants over in-migrants overlap to

spur on the reduction in the regional population, seriously affecting regional development.

It was from 1987 on that this natural increase rate became negative in the depopulated localities as a whole designated by law, increasing from 0.04‰ in 1987 to 0.70‰ in 1988 and 1.53‰ in 1989.

Next, concerning "regional" demographic transition in Japan, let us observe some typical examples of prefectures in which urbanization is strong on the one hand and rural prefectures on the other. Table 2 shows four urban prefectures, Tokyo, Kanagawa, Saitama and Chiba, and four rural prefectures, Shimane, Tottori, Kochi and Kagoshima. This table shows the changes in birth, death and natural increase rates for the 45-year period from 1955 to 1990, in five-year intervals.

First let us look at the birth rates. Whereas in the urban prefectures the birth rate increased remarkably from 1955 to 1970, it decreased noticeably in the same period in the agricultural prefectures. This indicates the effect on the vital rates in both areas due to the intense migration of the population from rural to urban prefectures which occurred from the 1950s through the 1960s and into the first half of the 1970s. The high birth rates in the prefectures of Saitama and Chiba in 1955 are due to the fact that the rural character of these prefectures was still pronounced at that time. Compared to such prefectures as Kagoshima, the birth rate in Tokyo, the only prefecture in which urbanization was conspicuous at that time, was markedly low.

From the latter half of the 1970s on, the birth rate in urban prefectures began to drop. In rural prefectures as well, this downward trend did stop temporarily around 1975, but afterwards began to decrease once again at a rapid pace. However, as the speed with which the birth rate decreased in urban prefectures from 1975 on was faster than in agricultural prefectures, by the latter half of the 1980s the birth rates in the urban and rural prefectures had balanced off at approximately the same level.

On the other hand, if we examine the death rate, in 1955 the death rate in urban prefectures, and in particular in Tokyo and Kanagawa where the urbanization trend was strong, was already far lower than in the rural prefectures. With the sudden acceleration of population migration, the percentage of the youthful population within the population of urban prefectures increased, while the percentage of the aged population in rural prefectures rose, and as such the death rate in rural prefectures continued to rise through the first half of the 1970s. In the urban prefectures the downward trend continued through the second half of the 1970s. In the 1980s, the death rate was stable both in the urban and rural prefectures, but there was still a noticeable gap in the actual levels of the death rate between the two. The death rate was 5‰ in the urban prefectures, but a high 8‰ in the rural prefectures. This indicates the influence of the fact that the percentage of the aged population among the total population remains high in the rural prefectures, while it the remains low in the urban prefectures (*13).

Now let us take a look at the natural increase rate, which indicates the difference between

the birth and death rate trends. First we can see that the strong increase in the natural increase rate in the urban prefectures continued through the first half of the 1970s. In 1970 the natural increase rate reached 1.5‰ in Tokyo, 1.8‰ in Kanagawa and Saitama. At the same period, however, the rural prefectures displayed an extremely strong downward trend, with the natural increase rate in 1970 about one half the level as compared to 1955, and less than one third in Kagoshima. From 1970 ~ 1975 on, we can see that the natural increase rate once again began to drop conspicuously in both the urban and rural prefectures. In 1990, in the urban prefectures the natural increase rate was lowest in Tokyo at 2.9‰, highest in Kanagawa and Saitama at 5.0‰. In the rural prefectures, it was lowest in Shimane at 0.5‰, highest in Kagoshima at 1.7‰. Thus, even though the natural increase rate is low in both the rural and urban prefectures, it is still higher in the urban prefectures than in the rural prefectures. As compared to the national average, the natural increase rate is slightly higher in urban prefectures, but lower in rural prefectures, where it can be thought to be approaching the zero growth level.

Regional development within a country is heavily influenced by changes in demographic dynamics caused by population migration, in other words by "regional" demographic transition. In addition, a reversal in the direction of population migration can be possible through the recovery of the regional balance in regional development, and we can expect this to foster an adjustment of the demographic transition.

Japan's experience, not only of the demographic transition of the population on the macro level but also of "regional" demographic transition and development, can be an interesting precedent for the policies of other Asian countries, even though the demographic transition in these countries may be at a different stage.

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2) Toshio Kuroda: Analysis of the Japanese Population, edited by the Japan Statistics Association, New Statistics Volume 5, Ichiryu-sha, first printing 1968, second printing 1970, Chapter 2, Reexamination of the demographic transition theory pp.13 - 33.

3) Socio-economic Development and Fertility Decline: An Application of the Easterlin Synthesis Approach to Data from the World Fertility Survey Colombia, Costa Rica, Sri Lanka and Tunisia, United Nations, New York, 1991, p. 1.

4) United Nations Secretariat: Correlates of Fertility in Selected Developing Countries,

Population Bulletin of the United Nations, No. 28, 1989, New York, 1990, pp. 95 - 106.

5) Tabah, Léon: ibid. 1), p. 30.

6) R. Freedman has conducted an excellent study on the remarkable fact that family planning programs in China are lowering fertility even at low stages of development. The present writer has also analyzed this matter to a certain extent.
Ronald Freedman, Xiao Zhen Yu, Li Bohua and William R. Lavely: "Education and Fertility in Two Chinese Provinces: 1967 - 1970 to 1979 - 1982", Asia-Pacific Population Journal, Vol. 3, No. 1, March 1983, pp. 3 - 30.
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Kuroda, Toshio: Demographic Transition and Development in Northeast Asia, paper presented at the 2nd International Conference on Economic & Technological Development in Northeast Asia, August 29 - 31, 1991, Changchun, China.

7) Kuroda, Toshio: Analysis of the Japanese Population, Ichiryu-sha, 1968, 1970 (second printing), pp. 31 - 33. Gunnar Myrdal calls a "spreading effect" a sort of centrifugal effect in which central regions of development in which economic development is high provide inertia for the development of other regions as well. (G. Myrdal: Economic Theory and Under-Developed Regions, 1957).

8) The demographic transition index is based on a concept proposed by Bogue. It began with the measurement of the extent of completion of demographic transition (%) with respect to the fertility rate (the average of the total fertility rate (TFR) and the general fertility rate) (Donald J. Bogue: Principles of Demography, Jon Wiley and Sons, Inc., New York, 1969, pp. 671 - 677). Next, Lee-Jey Cho and Janis Y. Togashi calculated the demographic transition index adding the factors of average expectancy of life at birth and rate of urbanization to fertility (Cho, Lee-Jey and Janis Y. Togashi: Industrial Transition and Demographic Dynamics of the Asia-Pacific Region, Proceedings of the International Symposium on the Role of the Asia-Pacific Region in World Economic Development, in Commemoration of the 80th Anniversary: College of Economics, Nihon University, 1984, and Cho, Ley-Jey: Economic Development and Demographic Transition in the Asia-Pacific Region, Jicho-sha, 1989, p. 263.) The demographic transition index of all Asian countries has been calculated using the Cho-Togashi method (Collection of Statistics on Demographic Transition and Development in Asia, Asian Population and Development Association (APDA), 1989.) The demographic transition index used in this report employs two variables, the TFR and the average expectancy of life at birth, and thus differs from both the Cho-Togashi and Bogue methods.

9) ibid. 6), Freedman et. al.

10) ibid. 6), Kuroda Toshio.

11) It is necessary to consider population migration factor in the structural change of the demographic transition. In particular, when the numbers of international migrants are quite large and affects demographic dynamics, it is preferable to construct a demographic transition theory which takes into account the influence of population migration on demographic dynamics. For the relationship between demographic transition and demographic migration transition, refer to the following:
Kuroda, Toshio: The Transitional Structure of the Japanese Population, Kokon Shoin, 1982, Part 6, The Transition of Population Migration, pp. 191 - 209.

12) Current Situation of Depopulated Areas, 1990 version, National Land Agency, Regional Development Bureau, Depopulation Policy Division, 1991, p. 25. According to the New Depopulation Act (Shin-Kaso-ho, Special Act for the Development of Depopulated Regions), the number of depopulated municipalities as of April 1, 1990 was 1,143, with a population of approximately 7,420,000 or 6.0% of the national population. However, when seen by the total national land they occupy, these depopulated municipalities cover an area of 170,000 km^2, or 45.0% of the national land. When we consider negative natural increase rate by municipality, the first municipality to display negative growth was Yachio-cho in Hiroshima Prefecture in 1962, after which this trend spread rapidly to municipalities in the Chugoku (mainly Hiroshima Prefecture), Kyushu and Shikoku regions. For details on this process, refer to the study by Kuroda (note 7 above, Part 4, Regional Population Migration Patterns and the Reversal of Demographic Dynamics, (pp. 107 - 242).

13) For the relationship between demographic dynamics and the age composition in urban and rural prefectures, refer to: Kuroda, Toshio, Urbanization and Population Distribution Policies in Japan, Regional Development Dialogue, Vol. 11, No. 1, Spring 1990, United Nations Centre for Regional Development, Nagoya, Japan, pp. 112 - 129.

Table 1 Spread of Demographic Transition - by the Demographic Transition Index -

Country	Total fertility rate (TFR) (1990)	Average expectancy of life at birth (1990)	Demographic transition index (%)	Per capita GNP (US$) (1988)
Japan	1.5	79	1.00	21,020
Hong Kong	1.4	78	0.99	9,220
Singapore	1.6	74	0.95	9,070
Korea	1.6	71	0.89	3,600
China	2.2	71	0.88	330
Thailand	2.2	67	0.83	1,000
Malaysia	3.6	71	0.76	1,940
Indonesia	3.1	63	0.69	440
Philippines	3.9	65	0.65	630

Source: TFR, average expectancy of life at birth and per capita GNP figures from the UNFPA (United Nations Population Fund): The State of World Population 1991.

Remarks: Demographic transition index calculated with the following formula:

$$\text{Index} = 0.5\,|(7.6 - \text{TFR})/5.5| + 0.5\,|1 - (79 - e_0)/36|$$

For the birth rate, the percentage of the decrease for the various countries with respect to 5.5, the distance from the maximum in Asia of 7.6 for Yemen to the replacement level of 2.1 is calculated, while for the death rate, with respect to the Asian maximum average expectancy of life at birth of 79 years in Japan, the number of years greater than the minimum average expectancy of life at birth of 43 years in Afghanistan is calculated, and the extent of the contribution of these two with respect to the 36 years from 43 to 79 years is computed. The extent of contribution of the birth rate and average expectancy of life is taken as equal at 0.5, and the demographic transition is considered complete if the total is 1.0. If the TFR is lower than 2.1, the decrease is considered to be completed.

Table 2 "Regional" Demographic Transition in Typical Urban and Rural Prefectures

Demographic dynamics	Urban prefectures				Rural prefectures			
	Tokyo	Kanagawa	Saitama	Chiba	Shimane	Tottori	Kochi	Kagoshima
Birth rate								
1955	15.9	17.7	21.1	19.8	18.5	19.4	18.2	24.5
1960	17.0	17.6	17.9	17.2	15.9	16.0	14.8	19.3
1965	20.7	22.0	22.1	20.0	14.4	14.8	14.8	15.8
1970	20.3	22.7	23.6	21.6	13.7	14.1	15.1	14.1
1975	16.1	18.7	20.0	18.7	14.3	15.1	14.6	14.3
1980	12.2	13.7	13.9	13.9	12.7	13.6	11.3	13.8
1985	10.7	11.7	11.5	11.7	11.3	12.1	11.1	12.7
1990	8.8	10.0	9.9	9.6	9.6	10.4	8.7	10.5
Death rate								
1955	5.6	6.4	8.5	8.7	9.0	8.3	9.0	8.5
1960	5.2	6.0	7.9	8.3	9.5	9.1	9.7	8.6
1965	4.8	5.1	6.7	7.3	10.0	9.2	9.8	8.8
1970	5.0	4.7	5.7	6.3	10.1	9.2	10.8	9.4
1975	4.8	4.3	4.7	5.3	9.4	8.5	9.7	8.9
1980	5.1	4.3	4.5	4.9	9.1	8.3	9.0	8.7
1985	5.3	4.6	4.5	4.8	8.3	7.8	8.7	8.5
1990	5.9	5.0	4.9	5.2	9.1	8.5	9.3	8.8
Natural increase rate								
1955	10.3	11.3	12.6	11.1	9.5	11.1	9.2	16.0
1960	11.8	11.6	10.0	8.9	6.4	6.9	5.1	10.7
1965	16.0	16.9	15.4	12.7	4.4	5.6	5.0	7.0
1970	15.9	18.0	17.9	15.3	3.6	4.9	4.2	4.7
1975	11.3	14.4	15.3	13.4	4.9	6.6	4.3	5.4
1980	7.1	9.4	9.4	9.0	3.6	5.3	2.3	5.1
1985	5.4	7.1	7.0	6.9	3.0	4.3	2.4	4.2
1990	2.8	5.0	5.0	4.4	0.6	1.9	△0.6	1.7

Source: Vital statistics of the Ministry of Health and Welfare.

Chapter Two

Supply and Demand of Labor Population and Economic Development

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Introduction

Since before World War II, the Japanese economy had been burdened with the problems of excess population and excess labor force. The surplus labor force continued to be a major problem in post-war reconstruction plans. Considering the inadequate capital, resources and technologies of the times, it may appear at first glance that an excess labor force is a contradiction in terms. However, the existence of this excessive labor force was a major problem for Japan, which was attempting to improve its industrial structure and productivity for the betterment of the nation's living situation.

Naturally, the population or labor force must be accepted as a specific postulate, in both the short term and for a relatively long term as well. Therefore, advanced economic development became an indispensable condition for the solution to the excess labor force problem.

It goes without saying that many factors were at work behind the period of advanced economic growth which Japan experienced after the War, beginning in the mid 1950s. However, those responsible for economic policies at the time were no doubt aware that a high level of economic growth was the only possible means of solving the problems of excess population and excess labor force which had been present since before the War.

The high level of economic growth contributed directly to solving the labor problem by stimulating the demand for labor force, but it also exerted the effect of suppressing the supply of labor by influencing population dynamics and the labor rate. In addition, by encouraging the migration of labor from the countryside to the cities, it caused great changes in the regional distribution of population and labor force. As a result, this created new problems in the utilization of land in Japan, and led to a renewed need for regional development.

These are the types of problems which will be examined within this chapter.

1 Changes in Labor Population in the Post-War Period

One example of a projection for the increase in the labor force population and the way this projection was approached after World War II and before the beginning of Japan's rapid economic growth can be seen in the "White Paper on Population" of 1959 (compiled by the Council on Population Problems). According to this document, "The labor force expanded by approximately 35% over the 30 year period from 1920 to 1950, and will expand at the same rate

for the 15 year period from 1955 to 1970. The increase in the labor force over the previous year was 300,000 before the war, but more than twice this amount, over 700,000, for the period from 1950 to 1955, and has now swelled to 2.7 times this number, or 850,000 annually, for the current 1955 to 1960 period. However, for the 1960 to 1965 period, the average annual increase will continue to grow, exceeding 1 million, a level three times greater than before the war" (page 30). This shows how great the increase in the labor force was in the post-war period. Based on these findings, the "White Paper" draws the pessimistic conclusion that "During the 1960 to 1965 period, which will be the most difficult period in terms of employment, the labor force will increase at an annual rate of 2.2%, exactly twice the rate as in the pre-war period. We can speculate that a major portion of the growth rate of the national economy which can normally be expected will be allocated to support this increased labor force at customary living standard levels. Actually, it is more likely that the result will be a reduction in the living standards of the nation and an increase in the gap between rich and poor" (page 32).

Next, let us look at the actual changes in the post-war labor population, shown in Table 1.

The post-war labor population did indeed show an irregular increase due to the high number of births in the pre-war days. As shown in the table, the population of 15 years of age and above, which forms the core of the labor population, increased greatly from 1955 through the end of the 1960s, as is natural considering the great number of births 15 years before. As the mortality rate was already low, it goes without saying that an increase in the number of births leads directly to a future increase in the labor population. With the great number of births before the war in mind, it may have been natural for the compilers of the "White Paper on Population Problems" to predict an abnormal increase in the labor population in the future which would seriously affect the Japanese economy.

Actually, however, things did not transpire as was predicted. The most important reason for this was the unexpectedly rapid growth of the economy, as will be described later. Another important factor was that the labor force participation rate, the point of contact between population and labor population, decreased, thereby offsetting to a great extent the increase in the population of 15 and above, the core of the labor population. As we can see in Table 1, the population of 15 and above for the 1960 to 1965 period increased at the high rate of 2.3%, but the rate of increase of the labor population was a fairly low 1.8%. This reflects the fact that the labor force participation rate decreased substantially in this period.

In 1955, the percentage of the labor population among the population of 15 and over (the overall labor rate) was 85.3% for males, 50.6% for females. The statistics for 1960 were virtually unchanged, 85.0% and 50.9% respectively. In 1965, however, the labor force participation rate had clearly declined to 83.3% for males, 49.8% for females. By age, the decrease was most noticeable for the 15 to 19 age group. For males in this age group, the labor force participation rate dropped from 51.6% in 1960 to 38.6% in 1965, and for females from 49.6% to

37.6% for the same years.

The effect of the high number of births in the pre-war period was at first greatest in the young labor force, but since after the war compulsory education was extended from the six years of elementary school to the nine years through middle school, and the percentage of students continuing on to high school also increased, the labor force participation rate among young people, both male and female, decreased, thus resulting in a lower increase in the labor population than anticipated.

In other age groups as well, the labor force participation rate showed various changes in the post-war period. For females in particular, the rate oscillated keenly in response to short-term fluctuations in the labor market. For example, on Table 1, the rate of increase in the labor population was relatively small with respect to the rate of increase of the population for the period from 1970 to 1975. This reflects the fact that many women withdrew from the labor market at the period in which the economy was depressed due to the "oil shocks". Furthermore, the labor force participation rate among the older population declined as the weight of agriculture and other independent occupations which had previously offered employment to the elder labor force decreased with the growth of the economy.

The labor force participation rate is an important variable affecting the labor supply and the two cannot be considered separately, but one problem which arises when doing so is that they are strongly influenced by economic conditions, and the labor force participation rate is not a postulate variable in the way that population is. We shall therefore discuss this issue later on.

To return to Table 1, if we look at the change in the labor population after this period, from 1955 to 1970, the labor population increased annually by a rate of 2% or nearly. The supply of labor was considerable in this period. After 1970, however, the annual rate of increase of the labor population was 1% at the most, and we could say that the supply of labor was restricted. As is clear from this table, the fundamental reason for this is that the post-war birth rate dropped and the source of supply of labor shrunk for demographic reasons.

2 Changes in Demand for Labor Due to Economic Development

The decade extending from the end of the war in 1945 to 1955 was spent in rebuilding the economy, but the ensuing period of rapid economic growth brought changes to the Japanese economy in level and structure, transforming it into an economy completely different from the pre-war period.

This transformation was due most of all to the high rate of economic growth and the fact that this rate was sustained for an extended period of time. The average annual growth rate of the real gross national product was 8.8% for the period from 1955 to 1960, 9.0% from 1960 to 1965, and 11.0% from 1965 to 1970. This prolonged period of rapid growth had never been experienced prior to the war, and was not anticipated for the post-war period either, as mentioned above.

This is not the place to discuss the causes for this rapid economic growth, but it is important to note that this growth triggered off a vast demand for labor, altogether changing the relationship of supply and demand for labor, and radically affecting the industrial and regional structure of the labor force.

If we consider the increase in the number of people employed as one method of indicating the increase in the demand for labor after the fact, as seen in Table 2, the number of people employed increased from 39.59 million in 1955 to 44.04 million in 1960, for an annual rate of 2.15%. This number increased at a rate of 1.72% from 1960 to 1965, 1.86% from 1965 to 1970.

The rates of increase for the number of employed in these periods are ex post facto figures in which the supply and demand for labor are finally balanced, so it is natural that they be essentially equal to the increase in the labor population for the same periods, as discussed previously. However, in this case the fact that the demand for labor was high and its effect was tremendous is clear from the differences in the rates of increase of employment for the different industrial sectors, shown in Table 2. The rate of increase of people employed in the secondary and tertiary industrial sectors was far greater than the rate of increase of the labor population (or the total number of people employed), and this gap was closed by the primary industries, in which the number of people employed continued to decrease notably throughout the post-war period of rapid growth.

The problem of excess labor, the greatest issue facing the pre-war Japanese economy, was resolved by the truly abnormal state of the economy in which the economy continued to grow yearly at a rate of 9 or 10%, and what is more the transformation of the industrial structure was forwarded through the process of the growing industries forcibly absorbing the labor from those industries which were stagnating. We could also say that the growing industries achieved their own growth by absorbing the latently superfluous labor which had accumulated in the stagnating industries.

As is clear from Table 2, the situation is slightly different between the period from 1955 to 1970 and the period from 1970 to 1985. In the earlier period, the rate of increase of the labor force overall was quite high, and the weight carried by the primary industries was great, a vestige from pre-war days. In other words, this was the stage at which rapid economic growth was achieved while at the same time absorbing the excess labor force. In the later period,

however, the rate of increase of the labor force decreased due to the effect of the low post-war birth rate, and the accumulation of latently superfluous labor was dwindling. As a result, the rate of increase in the number of people employed also decreased, but at this stage as well the reduction in the labor force of primary industries continued at essentially the same rate as in the previous period. However, the rate of increase of the number of people employed was markedly lower than in the earlier period in the secondary industries, and somewhat lower than before in the tertiary industries. This suggests the fact that efforts at improving labor productivity were increasing in the secondary industries in particular, and the same trend was starting in the tertiary industries.

3 Inter-regional Migration of Population and Labor

Rapid economic growth progressed, centered around the transformation of the industrial structure, but at the nucleus of this economic development was a group of industries called the heavy chemical industries. These industries were at first based in the "Keihin" (Tokyo/Yokohama), the "Hanshin" (Osaka/Kobe) and "Chukyo" (Nagoya) regions, which had developed as large industrial regions since before the war, but as the economy grew, new industrial zones were gradually developed. These industrial zones were all in littoral regions, far from traditionally agricultural regions.

Accordingly, the expansion in the demand for labor brought about by economic development naturally generated inter-regional migration of the labor force. This migration began with those portions of the labor force which had the greatest mobility. People who were newly entering the work force after graduating from middle or high school migrated in great numbers in block from agricultural areas to the industrial areas of cities. Such groups of people born during the baby boom which lasted from 1947 to 1949 entered the work force throughout in the 1960s. It is no coincidence that the peak in regional population migration was also reached during this period. Of course, the population involved in this migration was not limited to these new workers, but also included people already in the work force and the incidental migration of families, so the actual number of migrants is several times larger than the number of those forming the core of these migrant groups.

While on the one hand the economy was experiencing the transformation of the industrial structure engendered by the rapid economic growth, on the other hand great change in the regional distribution also came about. In simplified terms, this consisted of the concentration of the population in large city areas. Table 3 demonstrates how the population became increas-

ingly concentrated at each census taken from 1955 on in the three major urban areas, that is the Tokyo area (including Tokyo Kanagawa, Saitama and Chiba), the "Hanshin" area (including Osaka, Kyoto and Hyogo), and the "Chukyo" area (including Aichi, Gifu and Mie).

In 1955, the population of these three major metropolitan areas accounted for 36.0% of the national population. This percentage increased, to the high level of 47.8% according to the latest census taken in 1990. And among these three major urban areas, concentration of the population is particularly strong in the Tokyo area, which currently holds over 1/4 of the entire population of Japan. Whereas in recent years the percentage of the total population living in the Hanshin and Chukyo areas has remained stable, the Tokyo area is continuing to grow as before.

While the population congregates in the large metropolitan areas, there are regions which are losing their populations. A great commotion arose when it was discovered that between the 1955 and 1960 censuses the population of 26 of the 47 administrative areas making up Japan had decreased. The same decrease was seen between 1960 and 1965. From that time, much has been debated about the opposing regional problems of overcrowding in the large urban areas with depopulation in the areas from which this increased population was coming. The problems of overcrowding include those related to housing, traffic and the living environment caused by the excessively sudden increase in population of large urban areas, while the problems of depopulation stem from the fact that the large losses of young people make it difficult for the region to support the regional population, economy and society.

4 Regional Development Plans

The concept of regional development existed in Japan even before the war, but post-war development plans were greatly advanced by the Multiple Purpose Development of the Land Act issued in 1950. According to this act, multiple purpose development plans were to consist of four types: a National Multiple Purpose Development Plan, a Metropolis and Prefecture Multiple Purpose Development Plan, a Regional Multiple Purpose Development Plan and a Special Region Multiple Purpose Development Plan. The Hokkaido Multiple Purpose Development Plan Act was also enacted. At this time, however, the plans elaborated mostly had the objectives of developing underdeveloped regions and providing for the preservation of the land, the development of sources of electricity, increased food production and conditions for industrial sites. ("The Economics of Land Development", Zenichi Ito, Shunshusha, 1961.)

The first National Multiple Purpose Development Plan was one elaborated in response to

the "National Income Doubling Plan" in 1961. The objectives of this Plan were "to clarify a desirable regional relationship of shared responsibilities, in order to ensure stable and rapid long-term growth of the country's economy, preventing the excess growth of the cities and attempting to reduce regional differences, for the effective and appropriate use not only of natural resources but also of capital, labor and technology." The concept of the "key point development method" was adopted as a method to achieve these goals. This method consisted of "selecting zones offering the greatest developmental effects other than already existing industrial zones, developing these zones, and thereby promoting the development zones or regions in a deep relationship of dependency on said zones."

The New National Multiple Purpose Development Plan established in 1969 was designed to expand and deepen the key point development method expounded in the previous National Multiple Purpose Development Plan. It called for the formation of traffic and communications systems linking key cities and established a new living zone concept. Certain areas to become the foundations for regional development were to be established as living zones, and in consideration of the expansion of these zones in the future, the regions within a radius of 30 to 50 kilometers for large urban areas, of 20 to 30 kilometers for regional urban areas, and of 20 kilometers for agricultural areas were set a primary zones for the reorganization of land, and autonomous regional development plans based on the particularities of each of these primary living zones were to be established.

The objective of this New National Multiple Purpose Development Plan was therefore the formation of traffic and communications systems, and in accordance with this policy such things as the Tohoku and Joetsu Shinkansen, highways, large airports, and so on, were constructed. As a result, the destruction of the environment and the depopulation of those areas which had been experiencing loss of population grew even more acute. In 1977 the Third National Multiple Purpose Development Plan was established. This plan called for adopting a "method to restrain the concentration of the population and industries in large cities, while also promoting the development of regional areas, dealing with the problems of overcrowding and depopulation, aiming at an overall balance in the use of the national land as a whole and creating a multi-faceted environment for people to live in." This method was called the "settlement concept".

The Third National Multiple Purpose Development Plan can be seen as an advanced form of the New National Multiple Purpose Development Plan. In reality, the settlement concept of the Third National Multiple Purpose Development Plan displayed signs of fruition, as the concentration of the population in the three large urban areas did subside after 1975 and the settlement of the population in regional areas did progress. On the other hand, the decline of the population in regional zones once again intensified, and this issue came to be seen as a major problem. Recently, however, it has become clear that this problem is closely related to

such new trends as the evolution of reforms in technology, the increasing importance of informational and internationalization, and people have come to the recognize the need for devising new ways of coping with such issues. The "Fourth National Multiple Purpose Development Plan" of 1987 takes such matters into account, and aims at not only the development of industry to revitalize regions, but also the development of diversified measures to promote industry, the completion of nationwide networks linking the major regional cities, and the advancement of the ideas of the settlement concept. With the 21st century in view, there are great hopes that this plan will bear fruit.

Table 1 Increases in Post-war Labor Population and Background

Period	Annual rate of increase of labor population	Annual rate of increase of population aged 15 and over	Number of births over 5-year period 15 years previous (in units of 1000)
1955 - 1960	2.0%	2.0%	11,030
1960 - 1965	1.8	2.3	11,660
1965 - 1970	1.9	1.5	10,120
1970 - 1975	0.4	1.3	8,240
1975 - 1980	1.0	1.1	8,190
1980 - 1985	1.0	1.2	8,880

Sources: Population Censuses, Vital Statistics

Table 2 Changes in Number of People Employed

Units : 1,000 persons, %

Year	Total	In primary industries	In secondary industries	In tertiary industries
1955	39,590	16,291	9,247	14,051
1960	44,042	14,389	12,804	16,841
1965	47,960	11,857	15,115	20,969
1970	52,593	10,146	17,897	24,511
1975	53,141	7,347	18,106	27,521
1980	55,811	6,102	18,737	30,911
1985	58,218	5,419	19,206	33,488
Periods				
1955 - 1960	2.15	-2.45	6.73	3.69
1960 - 1965	1.72	-3.80	3.37	4.48
1965 - 1970	1.86	-3.07	3.44	3.17
1970 - 1975	0.21	-6.25	0.23	2.34
1975 - 1980	0.99	-3.65	0.69	2.35
1980 - 1985	0.85	-2.35	0.50	1.61

Source: Population Censuses

Table 3 Concentration of Population in the Three Large Metropolitan Areas

Year	Tokyo area	Hanshin	Chukyo	Total
1955	1,542	1,017	684	3,243
1960	1,786	1,141	733	3,660
1965	2,102	1,307	801	4,210
1970	2,411	1,454	869	4,734
1975	2,704	1,570	942	5,216
1980	2,870	1,615	987	5,472
1985	3,018	1,649	1,025	5,692
1990	3,180	1,674	1,055	5,909
1955	17.1	11.3	7.6	36.0
1960	18.9	12.1	7.8	38.8
1965	21.2	13.2	8.1	42.5
1970	23.0	13.9	8.3	45.2
1975	24.2	14.0	8.4	46.6
1980	24.5	13.8	8.4	46.7
1985	24.9	13.6	8.5	47.0
1990	25.7	13.5	8.5	47.8

Source: Population Censuses

Chapter Three

Regional Development and the Family

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1 Limiting the Issues

If we look at the documents "Outline of Measures for the Society of Longevity" of June, 1986, "Basic Approaches and Goals of Policies for Attaining a Society of Longevity and Welfare" ("Welfare Vision") of October 1987, and "10-year Strategy for Promoting the Health and Welfare of the Elderly" ("Gold Plan") of December, 1989, we can see that they all deal with home welfare measures taking into account the particularities of the region.

In this connection, Prof. Yuichi Nakamura states, "The various measures indicated in the "Welfare Vision" and "Gold Plan" are not measures through which welfare is attained simply by quantitative increases. Health and welfare services in the regions where the elderly live must above all be carried out in a general, systematic fashion in consideration of the particularities of the region in question and satisfying the region's needs. In addition, in order to promote the various types of welfare services for the elderly, such as the issue of health care, from a realistic and human standpoint, the observation and understanding based on an accurate comprehension of the structure, modes, and perception of life of the elderly themselves as well as their families, in addition to the particularities of the region in which such services are being carried out, are necessary (*1)."

If so, it seems realistic to limit the issues concerning regional development and the family to those issues involving the promotion of home welfare (*2).

In this chapter, we shall examine the various problems involved in the promotion of home welfare by clarifying the regional character of family structure as it concerns the aging of the population and the elderly based on such an awareness.

2 The Aging of the Population and Regional Character of Family Structure

According to the 1985 National Census, the elderly accounted for 10.3% of the population of Japan.

Next, if we consider the family structure of Japan using the rate of the different types of households in which advanced elderly persons (people aged 75 or greater) live as an index, the rate of advanced elderly persons living in nuclear family type households is 33.0%.

If we combine the two indices based on the national average of the rate of the elderly

population and the national average of the rate of advanced elderly persons living in nuclear family type households, we can say that four types of regions coexist in Japan, as follows:

[1] **"Kagoshima/Kochi type"** - regions in which the rate of the elderly population is higher than the national average and in which the rate of advanced elderly persons living in nuclear family type households is also higher than the national average;

[2] **"Yamagata/Toyama type"** - regions in which the rate of the elderly population is higher than the national average but the rate of advanced elderly persons living in nuclear family type households is lower than the national average;

[3] **"Tokyo/Osaka type"** - regions in which the rate of the elderly population is lower than the national average but the rate of advanced elderly persons living in nuclear family type households is higher than the national average;

[4] **"Miyagi/Ibaragi type"** - regions in which the rate of the elderly population is lower than the national average and the rate of advanced elderly persons living in nuclear family type households is also lower than the national average.

(Refer to Figure 1.)

If we further classify this regional character of family structure which exists within Japan into "regions of families centered around parents and children" for those areas in which the rate of those living in nuclear family type households is 50% or under and "regions of families centered around the couple" areas in which the rate of those living in nuclear family type households is over 50% (*3), there are 45 "To-Do-Fu-Ken" [administrative regions], including Yamagata-ken, falling into the category of "regions of families centered around parents and children", and only Tokyo-to and Kagoshima-ken in the category "regions of families centered around the couple".

Now, we will take Yamagata-ken as a typical example of a "region of families centered around parents and children" and Kagoshima-ken as a typical example of a "region of families centered around the couple" and study the problems of support and care observing the trends in the percentage of the types of households females belong to by age in these two regions (in both of which the percentage of the elderly population is over the national average). This is because females live longer than males, so the problems of the aging society are said to be by far the problems of women.

(1) "Families centered around parents and children" - Trends in Yamagata-ken

If we observe the trends for females, females up to the age at which compulsory education ends live mostly in "other family type households". The rate decreases as females reach the young adult period, approaching the rate of females living in "nuclear family households", but the rates of those living in "other family type households" once again increases in the "25 to 29" age bracket, and continues to show an increase into the "30 to 34" age bracket. Afterwards,

however, those living in "other family type households" decrease, and in the "45 to 49" age bracket, the rate of those living in "nuclear family households" surpasses those living in "other family type households". However, in the "50 to 54" age bracket, the rate of those living in "other family type households" once again increases, and in the "75 and older" age bracket, as many as 34,051 females (88.4%) live in "other family type households". This shows that in this region elderly people are supported and cared for in "'dokyo' type households" [together with their children] and are most likely supported and cared for by females (in come cases the son's wife). If this is the case, it would seem that there is a need for policies for the welfare of the elderly to be established in consideration of reducing the burden of support and care on the generation supporting the elderly, focusing on care in "'dokyo' type households". (Refer to Figure 2.)

(2) **"Families centered around the couple" - Trends in Kagoshima-ken**

f we observe the trends for females, females up to the age at which compulsory education ends live mostly in "nuclear family households" (mainly households consisting of the couple and their children). However, in the young adult period, the rate of females living in "one-person households" increases, and the rate of those living in "nuclear family households" decreases. In the "25 to 29" age bracket, the rate of those living in "nuclear family households" once again increases. This continues until approximately the "60 to 64" age bracket, and from the "65 to 69" age bracket the rate of those living in "nuclear family households" decreases, while the rate of those living in "one-person households" and "other family type households" increases. However, even in the "75 and older" age bracket, rate of those living in "other family type households" is only 45.2%. Thus, the number of those living in "other family type households" does not surpass the number of those living in "nuclear family type households". Of those living in "nuclear family type households", 13,192 (23.5%) live in "nuclear family households", while 17,543 (31.2%) live in "one-person households".

Considering these findings, the elderly in Kagoshima-ken live in "'bekkyo' type households" [separately from their children] (79,112 or 54.6%) or in "nuclear family type households" (97,753 or 67.4%). This indicates that support for the elderly in Kagoshima-ken is mostly of the "bekkyo" type. If so, Kagoshima-ken requires the establishment of policies for the welfare of the elderly in consideration of "bekkyo" type support (coexistence with "institutional" support and care). (Refer to Figure 3.)

3 Regional Development and the Family

We have now studied the regional character of the family structure in Japan from the point

of view that a firm understanding of regional characteristics and family structure characteristics are necessary for promoting home welfare. As a result, it is clear that in Japan "families centered around parents and children" are the dominant type, but that "families centered around the couple" also exist. In addition, if we look at this from the point of view of life courses, it is clear that the rate of "dokyo" [living with the son or daughter] for the advanced elderly is high among "families centered around parents and children", while the rate of "bekkyo" [living apart from the son or daughter] is relatively high among "families centered around the couple".

If this is the case, then in order to promote home welfare, there is a need for the establishment of regional welfare policies for the elderly reflecting the regional character of the family structure and the differences in problems which are emerged among the advanced elderly (*4).

In any case, establishing regional welfare policies for the elderly from this point of view will result in the "happiness of the inhabitants of the region as a whole" (*5), and the realization of this "happiness of the inhabitants of the region as a whole" will also no doubt lead to the fulfillment of the government's plans for the health and welfare the elderly.

Notes

1) Yuichi Nakamura, "Introduction - Issues Involved in this Survey and Research Project", "Report on the General Survey and Research Project Concerning the Family Structure Involving the Elderly and its Process of Transformation", Sumitomo Life Insurance Health Foundation, March, 1991, pp. 1 - 2.

2) That is, according to "Outline of Measures for the Society of Longevity", "The following points must be considered in the promotion of measures for the society of longevity: ... (2) To stress the role of individual self-help efforts, the family and regional society, as well as endeavor to use the energies of the private sector. (3) To consider the particularities of the region, and respect the autonomy of the region." This, however, is not the only issue facing regional development and the family.

3) On this point, refer to Hiroaki Shimizu, "The Japanese Family As Seen from the Structure of Households", "Statistics", Volume 42, Issue 5, Japan Statistics Association, May, 1991, pp. 20 to 26.

4) This is because the cases in which women lose their spouses increases above the age of 75 and the probability that they require care therefore also increases. If so, problems peculiar to the elderly exist. However, these problems differ according to whether or the elderly person lives with ("dokyo") or apart from ("bekkyo") his or her children. (Refer to Reference Diagram.)

On this point, refer to Hiroaki Shimizu, "Life of the Elderly Today and Problem Points", Economic Planning Agency, Planning Bureau, "The Elderly and Regional Welfare Systems in the 21st Century According to Macro Analyses for Three Spheres", Gyosei, 1989, pp. 53 - 57.

5) For ideas on regional development, refer to Hiroaki Shimizu, "Changes in Population and Development in Agricultural Villages" and Toshio Kurota, "Transformations in Population and the Development of Agricultural Villages in Japan", Asian Population and Development Association, February 1985, pp. 88 - 91.

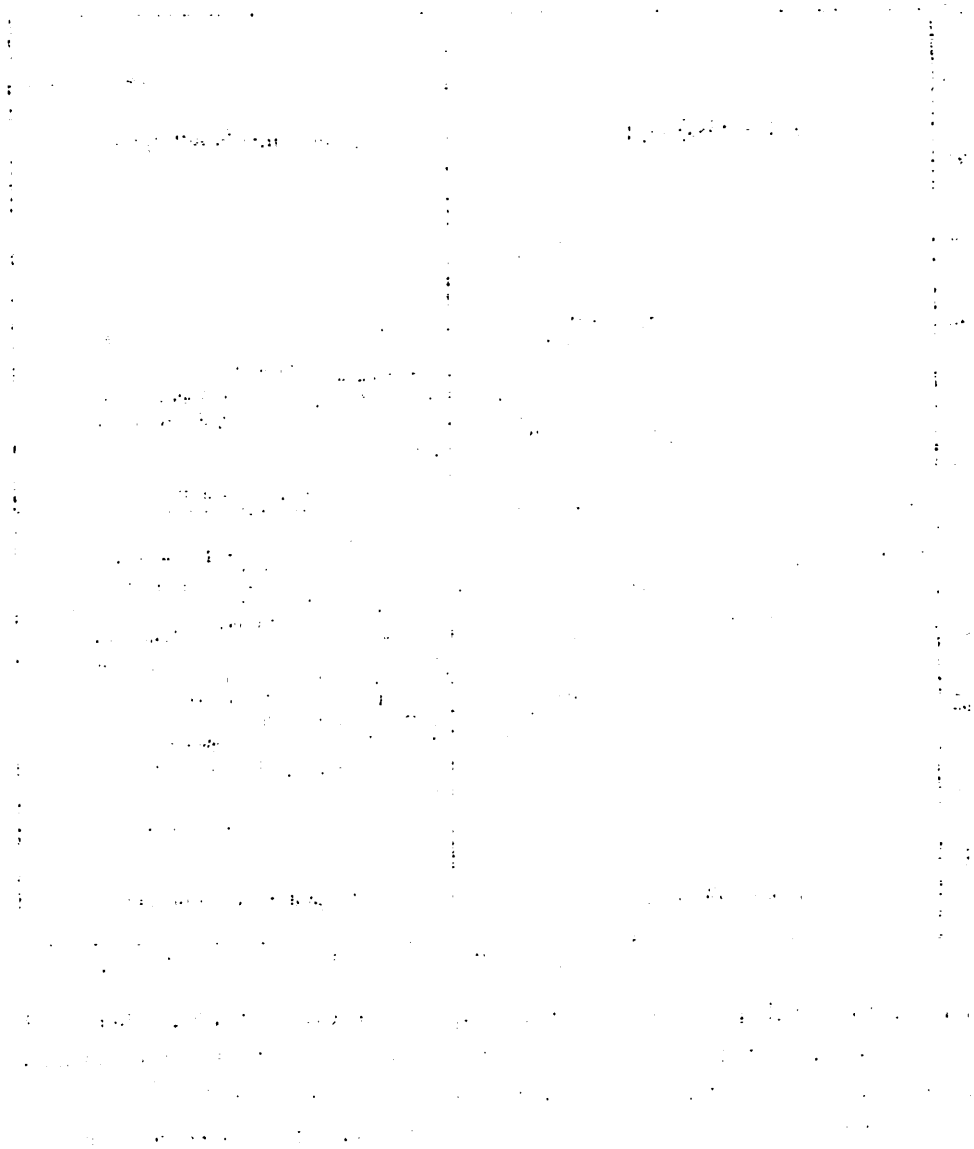
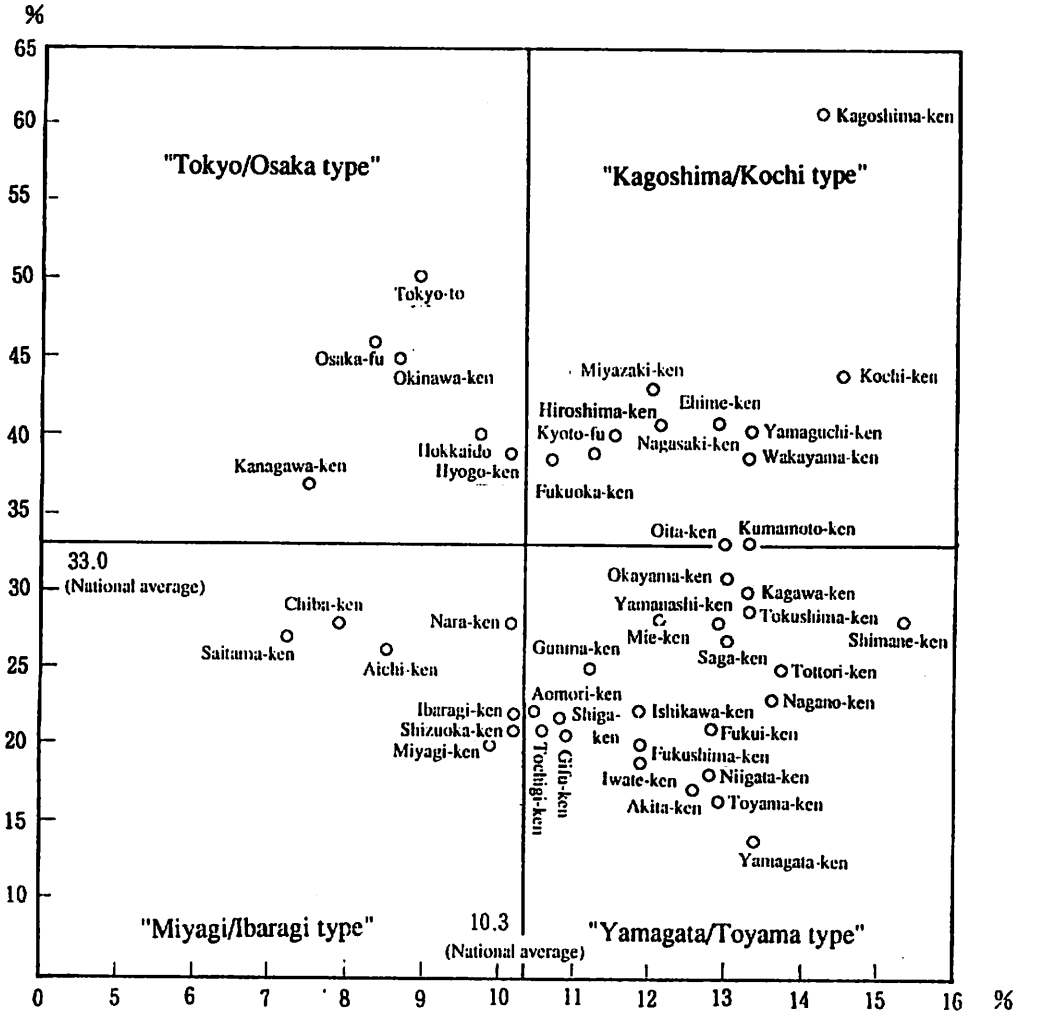
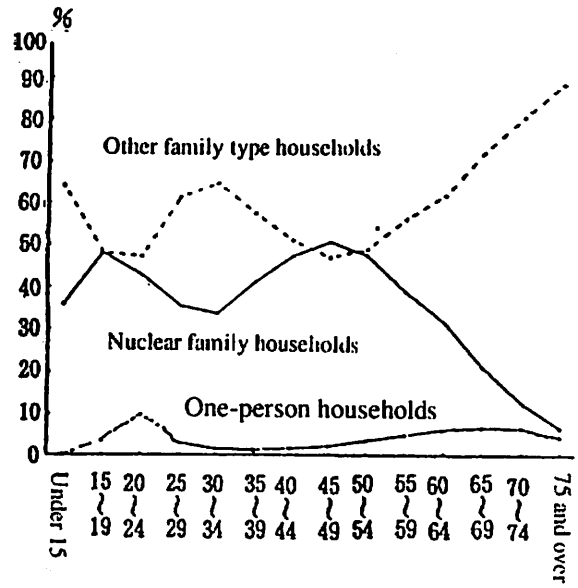


Figure 1 Rate of Elderly Population and Rate of Advanced Elderly Persons Living in Nuclear Family Type Households (1985)



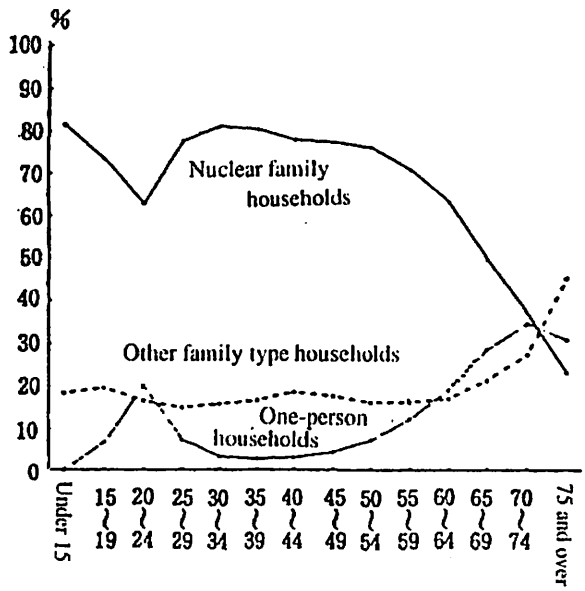
Note: Rate of elderly population = Population aged 65 and over / Total population x 100
Rate of advanced elderly persons living in nuclear family type households (rate of population aged 75 and over living in nuclear family households or one-person households.
Source: "Population Census", Statistics Bureau, Management and Coordination Agency

Figure 2 Types of Households in Which Females Live by Age Group (1985, Yamagata-ken)



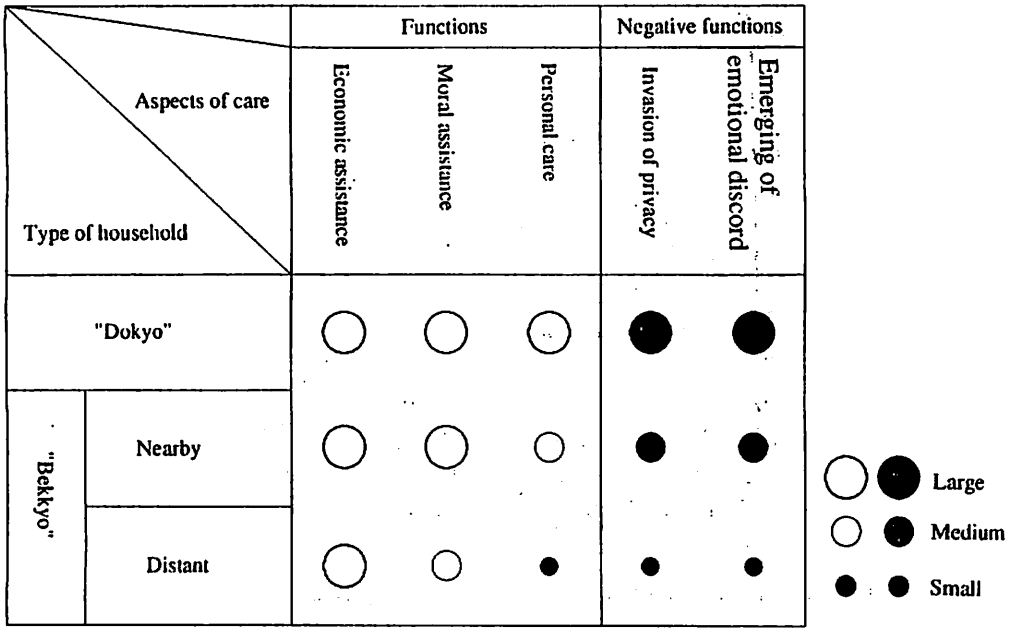
Source: "Population Census", Statistics Bureau, Management and Coordination Agency

Figure 3 Types of Households in Which Females Live by Age Group (1985, Kagoshima-ken)



Source: "Population Census", Statistics Bureau, Management and Coordination Agency

Reference Diagram Extent of Functions and Negative Functions of Care for Elderly by Household Type



Source: Kiyomi Morioka and Takashi Mochizuki, "New Family Sociology (Revised Version)", Baifukan, 1987, p. 125

Chapter Four

Regional Structure of Living and Health

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Introduction: Significance of Population Health

In general, the word "health" is used in the meaning of "the good physical and mental state" of individuals. In the United Nations definition of the word, "well-being-" in the societal sense is added to the physical and mental factors. Here, however, we would like to consider the health of a population group. Generally, whether a population group is "healthy" or not is indicated by expressing the state of the health of the individuals according to some sort of index for the population as a whole. For example, it is possible to establish certain indices for the physical and mental states of health, and to apply these to the entire population, and to measure the percentage of the population which is healthy. In this paper, however, as an index by which the health of a population group can be reflected indirectly or with some sort of significance, we will use the average life expectancy at birth as an accurate index of mortality of the population and age structure, and compare the health levels of the regional populations of Japan (in this case the population of the prefectures) using these indices. In addition, we will briefly analyze the dietary structure as a substantial reflection of health level.

1 "Health" of the Population Structure

There are many aspects of the population structure, but here we are concerned only with the age structure. Naturally, age itself is not an indicator of health. However, the older population generally has a high rate of morbidity, but young adult population show a very low morbidity. Distinct differences can be seen in the social vitality among population sub-groups. We can understand such differences in the age structure of population groups as in a way reflecting some sort of "health" state. Naturally, however, these differences in the age structure cannot be used to directly signify that a population group is in good or bad health. Furthermore, we cannot make the value judgment that the aging of a population group is desirable or undesirable.

In English, there is a term used to describe the health of a population group. The term "population health" is used at the "National Center for Epidemiology and Population Health," Australian National University.

Table 1 shows the percentage of the population over 65 and the aging index by prefecture for the 25-year period from 1960 to 1985.

As for "health" as seen from the aging of the population, it is consistently high in prefectures containing large cities where urbanization is conspicuous, inversely, in agricultural prefectures it is low where the aging index and proportion of elderly population is high.

For example, Tokyo, Kanagawa, Saitama and Osaka present the features of the former, while Kochi, Shimane, Tottori and other agricultural prefectures in western Japan show marked characteristics of the latter. Additionally, Tokyo and Okinawa show trends worth noting. The aging index of Tokyo was low, but increased greatly from 1970 on, and in 1985 reach above the national average. This is mainly due to the fact that young nuclear family households left Tokyo for outlying prefectures in the search for housing. In Okinawa, the outflow of the population to the "mainland" is notable, but the birth rate is high, and the aging index is hiked as a result of the high percentage of the young population. Though the causes are different, the age structure in Okinawa presents the same features as prefectures containing large cities where urbanization is conspicuous.

The most notable feature of the "health" of a population group as seen from the age structure can be seen in depopulating regions, as considered in units of minor civil divisions. There are some small towns and villages in which the percentage of the population of 65 and over is 30%, in which there are major obstacles to the economic activity of the regional society and the conservation activities in times of disasters, and in such regions we can say that the health in terms of the age structure is notably low.

In the age structure, the percentage of the population in the 15 to 34 age bracket with respect to the sum of the population in the 5 to 14 and 35 to 44 age groups on either side of this first age bracket can be used as a sort of vitality index, since this is the percentage of the population in their most active prime age. Both the denominator and numerator include 20 years worth of population, and this percentage should be 1 (or 100/100) if the birth and death rates are regionally equal and there is no population movement. In population statistics this is called the "bulge index", and can also be considered the "health level" in the sense of the vitality of the regional population group. This is shown in Table 2. Because of the changes in the birth rate and the death rate, nationally the bulge index was over 100 until 1975 for both males and females, but in 1980 and 1985 it was under 100 for both males and females. With this bulge rate for the national population in mind, now let us look at the change in the levels for the different prefectures.

First, Tokyo-to. Tokyo-to is the only region in which the bulge index has remained consistently over 100. Whereas in all other prefectures it was under 100 in 1985, in Tokyo it was 119 for males and 107 for females, indicating a high concentration of population in their peak working years. The aging index for Tokyo-to (49.7) is far higher than for Kanagawa-ken (34.9), Chiba (34.2) and Saitama (30.4), but the bulge index is far higher in Tokyo, suggesting a high vitality. Generally this bulge index is low, under 100, in the prefectures in western Japan

where the out-flow of population is great. For 1985, there were 7 prefectures in which the bulge index was over 90 for males, Miyagi, Kanagawa, Yamanashi, Kyoto, Fukuoka, Kumamoto and Okinawa. In particular, Okinawa had the highest bulge index among these, at 98.9.

2 Average Life Expectancy at Birth

The average life expectancy (life table) is the index which most accurately indicates the order of mortality. An increase in the life expectancy does not necessarily mean an improvement in the state of health, but can be considered a sort of health index as seen from the mortality level of the population group. Table 3 shows the change in the life expectancy by prefecture for the 20-year period from 1965 to 1985 taken from life tables computed every 5 years for males and females.

The gap in the life expectancy by prefecture appears to be shrinking. Let us point out certain trends deserving of attention.

The first is that the characteristics in this gap for the different regions remain present and virtually unchanged. For example, the average life expectancy in the northeast of Japan centered around the prefecture of Aomori is short, while it is long in such regions as Tokyo, Kanagawa, Nagano, Gifu, Shizuoka, Aichi and Kyoto.

The second is that in Okinawa, for which the life expectancy was calculated from 1975 on, the life expectancy for women was consistently the highest in Japan, for 1975, 1980, and 1985, for men it was also highest in Japan for 1980 and 1985, though it was 10th for 1975.

The third is that though Tokyo-to and Kanagawa-ken where urbanization is conspicuous are ranked among the highest after Okinawa-ken, the ranking has been decreasing dramatically for Osaka-fu. Though ranked 12th and 13th in 1965 and 1970 respectively, in 1975 it had dropped to 20th, in 1980 it had decreased further to 33rd, and in 1985 it was at the very bottom, 47th.

The causes for this regional gap in the life expectancy are not yet clear, but it does not seem so illogical to consider the increase in average life expectancy as an increase in the health level.

However, if we consider the rise in the prevalence rate of invalids of the elderly and the growth in the aged population, it may be difficult to consider the increment in average life expectancy as signifying an improvement in the state of health. One way of studying this is to calculate the average life span in which the population is in a state of normal health and compare this for different years. This method consists of using regular life tables, subtracting the prevalence rate to calculate the normal health state, and multiplying this rate of normal health state by the number of survivors for the different ages to compute the numbers of surviving

years in normal state of health. (Yoichi Okazaki: "Population of Japan Today", 1987, p. 204 - here only the results for 1985 are shown). By preparing "health life tables" for other years it should be possible to calculate increases or decreases in the number of years for which the population is in a state of health or ill-health.

A method similar to the "Okazaki method" is the calculation of the number of years for which activity is possible after the age of 65 on. According to research in Australia, in 1981 this figure was just over half of the remaining average life expectancy for the age of 65, but had dropped to 45% in 1988. Furthermore, the average life expectancy increased by 1 year in the 1980s, but the remaining active years is said to have decreased by almost 2 years (John McCallum: Role and Contributions of the Elderly in Economic and Social Development, 1991.) Here, the definition of "disability-free life expectancy" was used for old age, but the results of this Australian study find that the decrease in the number of active years is greater than the increase in life expectancy. However, there are problems in the usable data, and it is difficult to make a clear judgment.

In any case, increasing life expectancy, and extending for as long as possible the remaining healthy years among the remaining surviving years in old age, will no doubt become a method of measuring the health rate of regional population, and consequently a most effective countermeasure for aging.

3 Regional Patterns in Dietary Life

Eating is a behavior which is essential for the survival of human beings, and eating habits directly affect the maintenance and improvement of human health. Because of the extremely diverse possibilities for selection of foods which depend on the human intention, eating can sometimes be harmful to health and can also be effective for the maintenance and improvement of health. In addition, eating habits often differ remarkably from country to country and also according to the regional peculiarities within a single country.

As already mentioned, Okinawa has the longest average life expectancy among all prefectures in Japan for both men and women. Some reasons given for this are the climate and living environment, but the different food customs of Okinawans are also not to be ignored.

It is extremely difficult to discern the differences in eating habits for different regions or prefectures in Japan. Here we will consider eating habits and in particular the distributional structure of staple food patterns for 11 broad regions and also five classifications of areas distinguished by population size, taken from the results of a national sample survey conducted in 1985 by the Institute of Population Problems of the Ministry of Health and Welfare.

Table 4 classifies staple food patterns into five types: three meals of rice, bread at breakfast

and rice at lunch and dinner, rice at breakfast and dinner and bread or noodles at lunch, no breakfast and rice at lunch and dinner, and so on.

The traditional Japanese pattern of three meals of rice is particularly common in the Tohoku, Hokuriku and San'in regions, at over 70%. In the San'in region in particular this pattern accounts for 83% of the population. In western Japan, however, aside for Southern Kyushu at 74%, only 60% of the population follows this pattern. In the three large metropolitan areas, the percentage of the population following this pattern is lowest in the Tokyo metropolitan region at 38%, followed by the Hanshin (Osaka/Kobe) metropolitan region at 44% and the Chukyo (Nagoya) metropolitan region at 58%. The pattern of three meals of rice is less frequent in large metropolitan areas, where it is common to eat bread at breakfast. However, while 23% of the population eats bread for breakfast in the Tokyo and Chukyo metropolitan regions, the Hanshin metropolitan is distinguished by the fact that as much as 38% of the population do so.

In the Tohoku, Hokuriku and San'in regions where the pattern of three meals of rice is by far the most dominant, the percentage of the population eating bread at breakfast is only in the 10 to 20% range. If we look at the percentages of people eating bread or noodles at lunch - though it is more common to choose noodles - the Tokyo metropolitan region is the highest at 10%. The Tokyo metropolitan region is distinguished by the variety of patterns chosen, with the choice of three meals of rice the lowest in Japan, that of bread at breakfast high, and the 15.5% of the population choosing other patterns.

Table 5 shows the distributional structure of staple food patterns for the five classifications of areas by population: the 11 large cities with populations of 1,000,000 and over, cities with populations of 150,000 and over, cities with populations between 50,000 and 150,000, cities with populations under 50,000, and rural areas.

The smaller the population, the greater the percentage of those eating three meals of rice. Other staple food patterns, however, do not necessarily depend on the size of the population. For example, the pattern of eating bread at breakfast is the highest, 29%, in large cities, but second highest not in cities with populations of 150,000 and over but in cities with populations between 50,000 and 150,000. This classification of areas by population size inevitably includes many cities distributed in quite different regions in terms of dietary customs.

Naturally, it may be expected that the differences in eating habits in different regions can be used as one index of the health of regional populations, but it is necessary to make further studies on what effects and significance this has.

Conclusion: Approach to the "Health" Study of Population

The topic of this chapter is the "regional structure of living and health". This signifies the analysis of the living structure and health structure of a regional population and the analysis of the relationship between the two. However, while there is some significance to handling the issues of the living structure and the health structure separately, analyzing the relationship between the two is an extremely difficult task. Here we considered the approach of the "health" of a population. The age structure and average life expectancy were considered as indices reflecting in a way the health level. The former was considered as meaning the socioeconomic "health" of the regional population, the latter the biological "health" in the sense of the length of life. In addition, we analyzed the regional differences in eating patterns as an index reflecting the relationship between the two to a certain extent. However, it was not possible to conduct an analysis of this relationship. The morbidity rate and death rate by cause of death which reflect the level of ill-health will be examined in another chapter. The analyses in this chapter were nothing more than an attempt at one way of considering the health of a regional population.

Table 1 Comparison of the Aging of the Population by Prefecture

Prefecture	1960		1965		1970		1975		1980		1985	
	65+	Aging index	65+	Aging index	65+	Aging index	65+	Aging index	65+	Aging index	65+	Aging index
National	5.72	18.98	6.29	24.43	7.06	29.39	7.92	32.57	9.10	38.71	10.30	47.89
Hokkaido	4.21	12.61	4.82	17.05	5.77	22.84	6.87	27.93	8.10	34.79	9.68	45.12
Aomori	4.51	12.54	5.29	16.78	6.33	22.78	7.54	29.13	8.83	36.71	10.40	46.83
Iwate	5.26	15.19	6.10	20.03	7.33	27.75	8.55	34.99	10.08	43.99	11.89	55.36
Miyagi	5.45	16.25	6.14	21.37	6.91	28.00	7.67	32.64	8.68	37.60	9.90	44.80
Akita	4.61	13.45	5.77	19.80	7.29	29.86	8.86	39.87	10.51	50.17	12.61	63.13
Yamagata	5.79	18.10	6.92	25.09	8.53	36.31	10.09	46.30	11.71	55.80	13.44	66.26
Fukushima	5.92	16.85	6.81	22.19	7.95	30.45	9.15	38.06	10.45	45.56	11.92	53.81
Ibaragi	6.56	19.97	7.22	25.57	7.90	31.68	8.38	33.85	9.24	37.63	10.22	44.38
Tochigi	6.23	18.49	6.93	24.55	7.68	31.21	8.28	33.96	9.34	38.65	10.52	46.11
Gunma	6.13	19.35	6.87	26.02	7.88	32.94	8.79	36.10	9.96	41.70	11.18	50.58
Saitama	5.47	17.69	5.23	19.94	5.14	19.80	5.31	19.10	6.16	22.89	7.16	30.44
Chiba	6.38	21.01	6.36	24.48	6.27	24.95	6.30	23.75	6.97	26.96	7.91	34.16
Tokyo	3.80	16.35	4.31	21.15	5.18	24.61	6.27	28.54	7.70	37.39	8.93	49.68
Kanagawa	4.38	16.04	4.37	18.71	4.68	19.66	5.27	20.67	6.40	26.01	7.48	34.85
Niigata	6.26	19.13	6.86	24.85	8.06	33.18	9.56	41.05	11.15	49.53	12.80	60.59
Toyama	6.07	20.35	6.77	28.21	8.08	36.23	9.46	41.10	11.18	49.38	12.84	61.40
Ishikawa	6.73	22.29	7.17	28.83	8.15	34.73	9.14	37.90	10.50	44.21	11.87	53.82
Fukui	7.23	23.58	7.83	29.84	9.01	37.65	10.13	42.89	11.53	50.47	12.82	59.50
Yamanashi	6.94	22.01	7.80	28.39	8.97	36.27	10.20	42.70	11.61	51.24	12.93	62.29
Nagano	7.20	24.94	8.07	32.59	9.39	40.87	10.67	46.36	12.15	54.01	13.65	65.30
Gifu	6.64	22.30	7.04	27.45	7.86	32.40	8.57	34.59	9.69	40.34	10.86	49.12
Shizuoka	5.91	19.11	6.38	23.95	7.06	28.51	7.88	31.57	9.07	37.53	10.27	46.16
Aichi	5.21	19.11	5.29	22.07	5.71	23.49	6.34	24.44	7.43	29.72	8.48	37.82
Mie	7.20	25.03	7.87	31.78	8.96	38.34	9.85	41.54	11.09	48.45	12.07	56.69
Shiga	7.55	26.27	8.11	32.77	8.91	38.58	9.33	38.58	10.02	40.73	10.78	46.11
Kyoto	6.34	24.77	7.03	32.78	7.91	36.77	8.95	38.78	10.20	44.77	11.20	53.77
Osaka	4.25	16.62	4.56	19.88	5.17	21.63	6.05	23.61	7.24	29.67	8.27	38.73
Hyogo	5.70	20.44	6.16	25.60	6.94	29.54	7.93	32.32	9.23	38.66	10.33	47.46
Nara	6.72	24.60	7.34	30.77	7.97	34.84	8.54	35.24	9.32	38.68	10.12	45.79
Wakayama	7.26	25.60	8.03	32.71	9.23	39.54	10.40	44.32	11.77	52.44	13.20	63.73
Tottori	7.67	24.66	8.75	32.82	9.94	42.93	11.13	50.42	12.33	57.01	13.73	64.75
Shimane	8.41	26.44	9.73	36.60	11.24	48.72	12.46	57.02	13.70	64.24	15.32	74.77
Okayama	7.54	26.24	8.72	36.17	9.74	43.19	10.65	46.36	11.93	52.63	13.02	60.98
Hiroshima	7.09	24.57	7.71	31.84	8.24	35.93	8.88	37.11	10.19	43.13	11.47	52.58
Yamaguchi	6.79	22.18	7.88	30.87	9.08	39.40	10.16	44.44	11.60	51.96	13.25	63.56
Tokushima	7.47	22.98	8.37	31.11	9.61	41.37	10.74	48.72	11.98	56.42	13.29	65.22
Kagawa	7.48	24.73	8.50	34.87	9.55	43.10	10.55	47.40	11.90	53.56	13.27	63.20
Ehime	7.17	21.92	8.22	30.14	9.39	38.87	10.40	44.30	11.60	51.20	12.94	60.76
Kochi	8.50	28.70	10.07	40.90	11.43	52.31	12.22	57.08	13.13	62.84	14.50	72.23
Fukuoka	5.19	16.53	6.19	23.57	7.26	31.01	8.27	35.41	9.37	40.63	10.58	48.55
Saga	6.35	18.43	7.82	26.20	9.27	36.21	10.75	44.54	11.83	51.03	12.99	58.31
Nagasaki	5.80	15.97	7.00	21.78	8.19	29.26	9.46	36.82	10.67	44.07	12.15	53.51
Kumamoto	6.85	20.19	8.11	27.55	9.41	37.26	10.66	46.01	11.73	53.17	13.16	62.16
Oita	7.12	21.79	8.28	29.82	9.51	39.31	10.56	45.76	11.74	52.19	13.10	61.44
Miyazaki	5.96	16.66	7.12	22.98	8.45	31.90	9.49	38.69	10.48	44.07	11.97	52.11
Kagoshima	7.19	19.65	8.48	26.44	10.09	37.20	11.53	48.45	12.71	56.78	14.16	65.53
Okinawa	5.45	13.11	5.86	15.09	6.59	18.92	6.96	22.21	7.76	26.37	8.65	31.61
Mean value	6.29	20.31	7.06	26.67	8.06	33.45	9.04	38.13	10.25	44.60	38.79	53.72
Standard deviation	1.09	4.05	1.31	5.71	1.55	7.48	1.71	8.89	1.79	9.74	1.93	10.53
Coefficient of variation	17.39	19.97	18.63	21.42	19.21	22.36	18.97	23.32	17.50	21.85	16.77	19.60

Source: Calculated from a compilation of population statistics materials, Institute of Population Problems of the Ministry of Health and Welfare.

Table 2 Bulge Index by Prefecture - 1955, 1960, 1965, 1970, 1975, 1980, 1985 -

Prefecture	1955		1960		1965		1970		1975		1980		1985	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
National	100.09	100.81	108.36	104.97	120.71	118.97	116.06	118.90	108.72	110.16	98.16	98.54	88.72	88.45
Hokkaido	102.74	89.56	102.77	99.56	110.08	115.26	106.02	118.79	102.87	111.44	101.69	104.19	89.47	90.92
Aomori	93.31	99.20	88.87	94.20	91.27	98.12	91.26	99.33	94.10	98.39	99.58	100.28	88.20	90.79
Iwate	93.76	99.43	87.07	92.63	85.21	92.60	86.34	93.28	90.85	92.34	97.16	94.07	86.96	87.09
Miyagi	98.61	102.36	91.99	95.47	97.44	98.41	106.30	107.51	112.66	110.23	109.41	107.75	95.70	95.53
Akita	91.97	98.12	84.07	91.58	85.45	92.68	88.32	95.73	94.93	96.10	102.70	101.00	85.55	88.59
Yamagata	90.81	101.75	86.09	94.54	86.58	90.35	91.41	94.58	97.63	96.83	103.76	101.37	87.65	90.79
Fukushima	89.88	96.63	79.95	87.28	81.24	86.19	87.32	92.51	97.76	98.96	102.23	102.06	87.62	91.46
Ibaragi	89.92	93.57	90.16	87.42	96.97	94.17	105.44	107.50	105.63	108.90	93.81	97.03	83.28	84.17
Tochigi	85.98	93.04	82.33	87.33	93.15	97.15	107.07	109.51	109.72	112.16	98.33	101.20	83.03	86.11
Gunma	89.26	96.52	89.71	95.32	103.76	108.10	108.49	114.85	104.55	108.94	92.98	96.35	81.35	83.29
Saitama	94.16	97.58	106.51	103.71	136.82	132.26	130.12	134.65	105.21	111.76	84.48	87.47	80.63	78.97
Chiba	93.16	74.32	102.44	98.23	125.41	118.98	122.01	123.75	105.86	108.55	88.53	89.94	81.69	79.68
Tokyo	140.08	121.77	184.77	149.19	200.98	171.00	169.35	152.21	142.81	127.73	125.37	111.40	119.46	107.24
Kanagawa	111.12	105.71	136.10	121.29	163.78	148.01	147.05	137.30	119.20	112.81	98.97	92.87	96.83	86.60
Niigata	89.99	93.14	86.49	88.56	94.20	96.17	96.90	101.60	97.62	99.42	97.01	96.86	84.22	85.41
Toyama	84.56	90.75	94.44	98.63	110.21	118.33	105.44	116.05	101.69	108.21	89.59	94.65	74.60	79.06
Ishikawa	83.23	90.78	90.32	98.32	108.89	116.44	108.42	115.35	110.21	110.36	97.10	98.46	80.25	82.51
Fukui	89.21	93.92	90.29	95.12	104.82	104.30	93.12	102.62	99.27	102.75	95.99	97.49	83.29	85.96
Yamanashi	89.13	95.59	88.37	92.13	91.13	99.27	93.36	104.70	95.55	102.67	94.59	97.33	90.84	91.08
Nagano	90.74	93.88	93.43	96.74	102.52	103.15	93.84	103.04	94.11	99.95	88.06	92.51	79.97	83.17
Gifu	94.13	99.34	101.92	107.17	109.62	121.68	102.22	117.82	97.57	107.82	89.14	96.65	78.96	86.37
Shizuoka	100.46	126.38	107.07	104.67	114.89	116.98	110.09	117.50	103.06	108.94	91.43	95.41	81.93	84.38
Aichi	104.52	112.42	134.02	131.98	155.22	151.32	135.48	137.32	113.76	116.28	95.61	97.93	88.73	88.11
Mie	96.54	100.07	105.28	104.04	110.43	115.99	100.16	111.94	97.54	104.48	90.09	94.85	80.87	84.90
Shiga	95.11	99.26	100.29	101.91	107.41	114.02	107.42	106.08	108.26	112.74	93.68	98.69	80.10	83.58
Kyoto	108.41	103.90	130.22	117.37	152.20	141.03	137.51	134.92	122.63	119.76	105.21	102.45	92.18	88.97
Osaka	117.59	112.98	153.26	134.80	171.87	157.70	142.48	141.85	113.16	115.64	93.77	95.69	89.92	89.19
Hyogo	100.96	102.36	117.47	113.23	131.35	100.00	120.14	123.99	107.73	111.69	91.65	96.73	82.50	86.47
Nara	107.92	104.45	114.39	107.05	121.16	123.57	115.92	128.27	102.35	115.19	87.82	97.28	80.55	85.28
Wakayama	98.44	97.87	100.60	99.94	106.89	109.36	98.08	106.45	93.96	100.96	87.94	93.92	78.77	84.13
Tottori	92.66	96.00	84.93	88.48	85.89	91.76	88.21	95.26	97.80	100.29	99.55	100.55	83.03	85.75
Shimane	89.19	87.44	81.65	81.55	83.68	87.11	80.83	87.32	89.27	91.05	94.28	92.02	78.87	80.27
Okayama	90.23	97.44	96.28	103.84	101.85	114.11	99.73	112.16	102.06	109.34	91.34	96.95	78.96	83.98
Hiroshima	91.45	96.70	97.77	101.82	112.89	115.58	114.30	116.90	109.52	111.59	92.89	95.31	80.42	82.87
Yamaguchi	93.48	94.55	93.17	94.72	99.38	106.48	95.56	107.13	97.56	103.18	90.51	93.92	76.86	80.82
Tokushima	89.12	91.98	82.78	87.72	89.43	95.75	89.43	99.29	97.18	104.55	99.28	103.81	81.91	89.59
Kagawa	89.61	92.96	88.54	93.95	98.22	107.82	96.09	107.55	102.55	108.46	94.21	99.62	76.59	82.22
Ehime	88.28	93.89	83.37	90.14	90.65	99.34	90.92	102.56	96.47	103.14	93.23	98.73	79.16	85.67
Kochi	91.28	93.69	86.14	88.78	90.24	95.62	89.98	96.65	97.43	101.72	95.24	97.30	78.05	82.31
Fukuoka	99.93	102.76	100.52	101.66	108.99	114.75	111.59	119.79	111.37	114.40	104.99	105.13	90.25	91.10
Saga	92.68	96.35	79.52	88.36	80.08	91.55	87.37	100.39	93.11	102.68	99.88	103.92	86.33	93.25
Nagasaki	94.09	94.32	81.38	82.15	79.08	84.46	83.20	91.52	93.34	97.34	97.51	98.96	85.82	90.34
Kumamoto	93.03	89.28	82.45	87.68	82.65	90.20	85.36	96.56	95.44	99.95	104.15	104.12	90.41	94.14
Oita	89.45	96.16	82.91	90.65	85.01	96.26	84.69	100.09	93.91	102.97	94.10	98.80	80.67	85.60
Miyazaki	91.78	91.73	81.64	81.68	80.56	85.16	82.93	91.42	92.80	98.52	97.88	101.16	80.53	87.12
Kagoshima	86.65	87.18	70.43	72.12	70.01	72.91	73.21	79.98	86.58	91.04	98.64	101.29	87.67	94.83
Okinawa	—	—	—	—	—	—	—	—	96.29	95.50	101.03	99.77	98.88	100.53
Mean value	95.18	98.02	97.69	98.36	106.29	108.29	103.48	110.12	102.11	105.69	96.51	98.40	84.88	87.23
Standard deviation	9.66	7.80	20.95	14.22	26.59	20.26	19.40	15.55	9.92	7.69	6.83	4.46	7.43	5.41
Coefficient of variation	10.15	7.96	21.45	14.45	25.01	18.70	18.75	14.12	9.72	7.27	7.08	4.54	8.76	6.20

Remarks: Bulge index - percentage of population from 15 to 34 with respect to sum of population from 5 to 14 and 35 to 44

(Population from 15 to 34) (Population from 5 to 14) + (Population from 35 to 44) x 100

Sources: Calculated from results of national censuses.

Table 3 Trends in Average Life Expectancy at Birth by Prefecture

Prefecture	Men					Women				
	1965	1970	1975	1980	1985	1965	1970	1975	1980	1985
National	67.74	69.84	71.79	73.57	74.95	72.92	75.23	77.01	79.00	80.75
Hokkaido	67.46	69.26	71.46	72.96	74.50	72.82	74.73	76.74	78.58	80.42
Aomori	65.32	67.82	69.69	71.41	73.05	71.77	74.68	76.50	78.39	79.90
Iwate	65.87	68.03	70.27	72.72	74.27	71.58	74.13	76.20	78.59	80.69
Miyagi	67.29	69.49	71.50	73.40	75.11	73.19	75.30	77.00	78.85	80.69
Akita	65.39	67.56	70.17	72.48	74.12	71.24	74.14	75.86	78.64	80.29
Yamagata	66.49	68.71	70.96	73.12	74.99	71.94	74.46	76.35	78.58	80.86
Fukushima	66.46	68.52	70.71	72.90	74.38	72.04	74.46	76.35	78.46	80.25
Ibaragi	66.99	68.32	70.58	72.78	74.35	72.52	74.43	76.12	78.35	79.97
Tochigi	66.47	68.30	70.61	72.86	74.36	72.44	74.27	76.31	78.13	79.98
Gunma	67.34	69.22	71.23	73.72	75.11	72.38	74.50	76.42	78.46	80.39
Saitama	67.26	69.38	71.88	73.79	75.20	72.45	74.62	76.61	78.68	80.65
Chiba	67.71	69.61	71.99	73.85	75.27	73.29	75.33	77.07	79.07	80.88
Tokyo	69.84	71.30	73.19	74.46	75.60	74.70	75.96	77.89	79.49	81.09
Kanagawa	69.05	70.85	72.95	74.52	75.59	74.08	75.97	77.85	79.55	81.22
Niigata	67.18	69.07	71.14	73.29	74.83	72.19	74.65	76.76	78.97	80.86
Toyama	66.70	69.18	71.11	73.27	74.81	72.04	74.78	76.56	78.93	80.80
Ishikawa	67.14	69.77	71.63	73.48	75.28	72.40	75.04	76.58	78.88	80.89
Fukui	67.96	70.18	72.21	74.24	75.64	72.87	75.04	76.81	79.18	81.01
Yamanashi	67.56	69.42	71.66	73.26	75.02	73.29	75.38	77.43	79.21	80.94
Nagano	68.45	70.46	72.40	74.50	75.91	72.81	75.22	77.00	79.44	81.13
Gifu	68.90	70.69	72.18	74.13	75.53	73.03	74.96	76.41	78.47	80.31
Shizuoka	68.21	70.31	72.32	74.10	75.48	74.07	75.88	77.64	79.62	81.37
Aichi	69.00	70.74	72.39	74.08	75.44	73.67	75.28	76.63	78.73	80.51
Mie	68.61	70.23	71.75	73.83	74.87	73.32	75.29	76.84	79.07	80.61
Shiga	67.26	69.66	71.51	73.61	75.34	72.48	74.75	76.47	78.64	80.63
Kyoto	69.18	71.08	72.63	74.20	75.39	73.75	75.66	77.30	79.19	80.68
Osaka	68.02	70.16	71.60	72.96	74.01	73.30	75.21	76.57	78.36	79.84
Hyogo	68.29	70.32	71.82	73.31	74.47	73.48	75.63	77.13	78.84	80.40
Nara	67.97	70.29	72.00	73.43	74.87	72.89	75.16	76.76	78.65	80.27
Wakayama	67.75	69.48	71.25	72.79	74.19	73.57	75.19	76.81	78.47	80.13
Tottori	67.18	69.29	71.42	73.02	74.40	73.39	75.44	77.45	79.45	81.11
Shimane	67.77	69.54	71.55	73.38	75.30	73.01	75.37	77.53	79.42	81.60
Okayama	68.68	70.69	72.25	74.21	75.28	74.03	76.37	77.76	79.78	81.31
Hiroshima	68.61	70.15	72.04	73.69	75.19	73.93	75.80	77.48	79.51	80.94
Yamaguchi	67.30	69.16	71.20	72.96	74.45	72.98	75.33	77.27	79.14	81.16
Tokushima	66.69	68.56	70.71	72.54	74.35	72.14	74.30	76.00	78.48	80.56
Kagawa	67.67	69.95	71.91	74.28	75.61	73.16	75.44	77.12	79.64	81.28
Ehime	67.81	69.26	71.25	73.16	74.75	73.30	75.41	76.91	79.43	81.01
Kochi	66.94	68.02	70.20	72.20	74.04	73.32	74.99	76.50	78.98	80.97
Fukuoka	67.32	69.32	71.41	72.99	74.19	73.11	75.44	77.44	79.21	80.91
Saga	66.69	68.83	71.10	73.09	74.32	72.65	74.85	76.83	79.02	80.94
Nagasaki	66.29	68.17	70.74	72.41	74.09	72.06	74.37	76.46	78.67	80.81
Kumamoto	67.18	69.06	71.36	73.61	75.24	72.60	74.97	76.89	79.37	81.47
Oita	66.83	68.99	71.03	73.21	74.82	72.07	74.66	76.73	78.54	80.58
Miyazaki	66.93	68.40	70.75	72.77	74.39	72.45	74.62	76.77	78.84	80.84
Kagoshima	67.36	68.14	70.54	72.53	74.09	72.71	74.62	76.53	78.44	80.34
Okinawa	--	--	72.15	74.52	76.34	--	--	78.96	81.72	83.70
Mean value	67.27	69.42	71.46	73.36	74.85	72.88	75.05	76.89	78.97	80.79
Standard deviation	1.72	0.92	0.75	0.68	0.62	0.73	0.52	0.57	0.60	0.60
Coefficient of variation	2.56	1.33	1.04	0.93	0.83	0.99	0.70	0.74	0.76	0.74

Sources: Calculated from "Kosei-no-Shihyo" (Public Welfare Indices), Special Edition, Volume 34, No. 16, 1987, pp. 14 - 15

Table 4 Distributional Structure of Staple Food Patterns by Major Regions

(Total of men and women)

Regions	Total	Rice + rice + rice	Rice + noodles + rice	Rice + bread + rice	Bread + rice + rice	None + rice + rice	Other
Total	100.0%	54.8%	6.6%	3.4%	21.6%	5.8%	7.6%
Hokkaido/Tohoku	100.0	70.9	9.7	6.6	5.2	3.6	4.0
Hokuriku	100.0	73.9	1.8	2.5	14.3	3.9	3.2
Tosan	100.0	71.3	4.6	3.1	10.1	4.3	6.7
San'in	100.0	83.0	1.9	—	13.2	1.9	—
San'yo	100.0	60.4	3.5	1.6	23.8	4.4	6.1
Shikoku	100.0	67.1	5.6	0.7	17.5	7.0	2.1
North Kyushu	100.0	64.7	5.4	2.1	18.5	5.6	3.8
South Kyushu	100.0	73.9	2.7	4.5	11.9	6.0	1.0
Tokyo region	100.0	38.0	10.4	4.4	23.5	7.8	15.5
Hanshin region	100.0	43.8	3.8	2.0	37.9	5.9	6.6
Chukyo region	100.0	57.8	4.4	2.5	23.4	5.7	6.1

Source: 1985 survey of the Institute of Population Problems of the Ministry of Health and Welfare (national sample survey of 7,708 persons)

Table 5 Distributional Structure of Staple Food Patterns by Areas of Population Size

(Total of men and women)

Regions	Total	Rice + rice + rice	Rice + noodles + rice	Rice + bread + rice	Bread + rice + rice	None + rice + rice	Other
11 large cities (population over 1 million)	100.0%	39.7%	7.7%	4.1%	29.0%	7.8%	11.2%
Cities with population over 150,000	100.0	49.5	9.4	4.1	22.3	5.7	8.9
Cities with population between 50,000 and 150,000	100.0	51.5	4.7	2.9	26.6	6.4	7.7
Cities with population under 50,000	100.0	64.7	6.0	4.3	15.4	4.8	4.8
Rural areas	100.0	76.1	3.6	1.9	11.2	3.8	3.2

Source: Same as Table 4.

Chapter Five

Regional Population

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Introduction

In developing regions recently, urban populations are growing and the percentage of city dwellers among the entire population has been increasing. Japan also experienced a rapid concentration of the population in urban areas in the 20-year period spanning 1955 to 1975. Since 1975, however, the flow of the population from rural to urban areas has decreased and the growth of urban populations has become more constant, being due now simply to natural growth. The major factor behind changes in the distribution of regional populations and the urbanization of populations is population migration. Various complexly intertwined factors are involved in population migration. In this paper, however, we will be studying the relationship between population movement and the change in the age structure due to the transition of the population from one of high birth and death rates to one of low birth and death rates.

This is because we can imagine the following population transition process. First, in the initial stages of economic development, the majority of the population lives in rural areas. Since the decrease in the death rate begins with the decrease in infant mortality, the decrease in the death rate manifests itself as an increase in the child population in rural areas. These children can live in rural areas as long as they are children. When they become adults, however, the demographic pressure in rural areas increases, and many of these adults begin migrating to large cities in search of employment. In this way, after the death rate begins to decrease, the migration of the population from rural areas to cities increases quantitatively and urbanization begins. So, when does the migration from rural to urban areas abate? Most likely when the rural areas experience an economic development generating a high employment absorption ability, or when the birth and death rates become low in rural areas as well and migration to cities results in a decrease in the population in rural areas.

1 Transition in Regional Population Distribution

(1) 20-year period of concentration of the population in large urban areas

In Japan, the transition in the regional population distribution from 1920 on was distinguished by an abrupt urbanization of the population over the 20-year period extending from 1955 to 1975. The total population of Japan increased 2.2 times in 70 years, from 56 million 1920 to 124 million in 1990. Over this period, the urban population multiplied by 9.6 times,

from 10 million to 96 million. The average annual increase in the population of Japan over this 70-year period was 1.1%, while the annual growth rate of the urban population was 3.2%.

In 1920, the urban population numbered 10 million, 18% of the total population, but began to grow in the 1930s. Though the urban population decreased temporarily during World War II, it began to increase again in 1955. In 1960 it had reached 60 million (63% of the total population), and in the following 20 years grew by 29 million, more than the total population, and reached 89.8 million in 1980, 96 million in 1990 (77.4% of the total population).

The growth of the population in large city areas, centering around mainly Tokyo, Osaka and Nagoya, was slower than the growth of the urban population as a whole, but from 1920 to 1980 the growth of the population in these large urban areas accounted for 82% of the increase of the total population, and the percentage of the total population living in these areas also increased from 36 to 50%.

(2) From social growth to natural growth

The five-year growth rate of the national population was between 10 and 20% before World War II, but dropped to approximately 5% from the second half of the 1950s on. The urban population increased pointedly during the period of rapid economic growth. This growth of the urban population was due in part to the influx of population from rural areas, but also to the enlargement of city areas through the urbanization of suburban regions and the consolidation of municipalities. For this reason, we will now study the demographic factors in the post-war urbanization of the population, taking metropolitan areas consisting of prefectures in which area limits did not change as an example.

The five-year population growth rate of metropolitan areas was only several percentage points above the national population growth rate before the War, but increased by three times to 12 to 14% in the period of rapid economic growth. From 1970 on, however, the population growth rate of metropolitan areas gradually decreased, to the point that in recent years there is essentially no difference between the population growth rate in the metropolitan areas and the national growth rate.

Why did the population growth rate of metropolitan areas increase from 1955 to 1975, then decrease from 1975 on? If we consider the trends in the natural growth rate of metropolitan areas, it increased gradually from 5.3% in the 1955-1960 period to 7.9% in the 1970-1975 period. However, this was only 1 to 2% above the national population growth rate, and the rise and fall of the population growth rate was due to the transfer of the surplus population from non-metropolitan areas (social growth). In other words, the social growth rate in the 1955-1960 and 1960-1965 periods was approximately 7%, above the natural growth rate. From 1965 on, however, this rate began to decrease, reaching 2.0% in the 1970-1975 period. Because of this, it is necessary to analyze the quantitative change in population migration between non-

metropolitan and metropolitan areas in order to consider the trends in the sudden concentration of the population in large urban areas over this 20-year period.

2 Trends in Transfer of Residence

(1) Changes in population movement in different periods

According to the "Internal Migration in Japan Derived from the Basic Resident Registers", which summarizes the changes in registers of permanent residence, in 1989 the number of people throughout Japan who changed their residence into a different municipality was 6,5 million, equivalent to 5.3% of the national population. If this rate of movement were protracted over an extended period of time, it would mean that people would move approximately once every 20 years, that is approximately 4 times in a life if we take the average life span as 80.

Table 1 shows the numbers of people transferring their residence over municipality boundaries from 1954 on. The reasons and motives for each individual's move are varied, but by totaling these numbers, we can see that a certain number of people move each year, and we can see broad yearly trends in movement reflecting different periods of history. From the trends in the numbers of people who moved from 1954 to 1989, we can distinguish five general periods.

The 1st period was in the 1950s, in which the number of people moving was stable at approximately 5 million. The 2nd period, the 1960s, was one of abrupt increase in the movement of the population. While the number of people who moved in 1960 was 5,7 million, this number was 8,1 million in 1969, a 1.4-fold increase.

In the 3rd period, corresponding to the first half of the 1970s, the population movement was above 8 million each year. In the 4th period, the number of people changing their residence decreased annually from 1974 on, dropping once again to the 6 million level from 1981 on. This decreasing trend continued until roughly 1985. Finally, in the 5th period, the second half of the 1980s, the population movement was stable at approximately 6.5 million each year.

(2) From migration to metropolitan areas to movement within metropolitan areas

When we examine the changes in the number of people moving separately for those moving between municipalities within the same prefecture (in-prefecture movement) and those moving between prefectures (inter-prefecture movement), we see that these numbers are essentially equal. If we examine the numbers more closely, annual changes are slightly greater for inter-prefecture movement than for in-prefecture movement.

If we divide the prefectures into metropolitan areas and non-metropolitan areas, we can

classify regional movement into four patterns, as shown on Table 1 (*1). Figure 1 shows the trends in the number of people who moved by these four different patterns of regional movement. From this figure, we can make several conclusions.

First, the annual change in inter-prefecture movement in non-metropolitan areas is low, in the same way as for in-prefecture movement. Consequently, this means that changes in inter-prefecture movement are due mainly to changes in the number of people moving according to the three other regional movement patterns.

Secondly, the mainstream of population movement has changed from migration from rural to urban areas, to movement within metropolitan areas, mainly the transfer of residence to the suburbs. From 1954 to 1965, the population movement was greatest from non-metropolitan to metropolitan areas, that is from rural to urban areas, and from 1961 to 1973 over 1 million people moved according to this pattern each year. From 1966 on, however, the mainstream of the movement of the population in numbers changed to movement within metropolitan areas, mainly through the transfer of residence to the suburbs, with over 1 million people registering such moves each year.

Thirdly, movement of the population between metropolitan and non-metropolitan areas has started to balance off. Migration from non-metropolitan to metropolitan areas formed the core of population movement until the middle of the 1960s, but from 1974 on, this pattern began to decrease along with the decrease in other regional movement patterns, becoming balanced with the number of people migrating from metropolitan to non-metropolitan areas.

This state of equilibrium continued for approximately 10 years. In the past five years, however, there is once again a transfer of surplus population to metropolitan areas. Approximately 100,000 more people are moving each year to metropolitan areas than to non-metropolitan areas, about 1/6 to 1/4 of the numbers in the 1950s and 1960s.

In short, the core of population movement in Japan in the post-war period consisted of migration from non-metropolitan to metropolitan areas, in other words from rural to urban areas, from 1955 to 1973, but from 1970 on began to change to movement within metropolitan areas, mainly through the transfer of residence to the suburbs. Furthermore, beginning in the latter half of the 1970s, population movement between metropolitan and non-metropolitan began to balance off, so we can say that the recent increases in the population of metropolitan areas is due not to social growth but to natural growth.

3 Change in Age Composition as a Factor in Population Movement

Population movement thus displayed great changes according to the different periods of history. So why did the movement of the population increase in the first half of the 1960s and

then shift to a decrease from 1974 on? And why did the migration of the population from the rural to the urban area change to a decreasing trend and the movement between metropolitan and non-metropolitan areas start to balance off in the 1970s?

The yearly trends in the movement of the population in Japan have often been explained in relationship to economic changes. Honda (1950, 1952), however, observed the fact that under the modernization of the industrial structure starting from the middle of the Meiji Period (1866 to 1912), the number of agricultural households and the agricultural workers remained essentially constant from 1871 to the time of World War II at approximately 5.5 million households and 14 million, respectively. Honda therefore pointed out that a number of people exactly corresponding to the natural increase of the agricultural population, being in excess, left agriculture and the majority of these people also left agricultural areas, and he estimated the average annual outflow of population at 350,000 to 400,000 persons and the outflow of labor population at 300,000 persons (*2). In other words, Honda demonstrated the fact that the outflow of population from agricultural families or towns corresponded to the portion of the agricultural population which increased due to natural growth, that is the "surplus population" over the number needed for replacing generations, and that this number was extremely stable from the beginning of the Meiji Period until 1955.

If we consider this, we perceive that the post-war changes in population movement cannot be explained simply by economic changes, that it is also necessary to study the changes in the population in the age bracket in which mobility is high, changes which in turn lead to a change in the age composition due to demographic transition. Now we will explore the relationship between major changes in population movement and changes in the age structure.

(1) Changes in age structure and generations

The aging of the population is a change in the population structure, consisting of an increase in the percentage of older people in the population. Though in many cases it brings about an increase in the number of elderly, the aging of the population can also be generated through the outflow of young people to other regions without an increase in the number of elderly.

It is often said that the population of Japan is aging faster than any where else in the world. Let us take a look at the change in Japan's population pyramid. Population pyramids generally indicate age on the vertical axis, population or constituent percentage of the age bracket on the horizontal axis, with the male population on the left, the female population on the right. Population pyramids for societies in which birth and death rates are high ideally have perfect high pyramid shapes, while for societies in which birth and death rates are low they have bell or onion head shapes. Actual population pyramids, however, do not have such clear-cut shapes, as the effects of wars and natural disasters are carved into them.

Figure 2 shows population pyramids for Japan from 1925 to 2000 in 25-year intervals,

superimposed one on another. The national population pyramid for 1925 was of the high pyramid shape typical of high birth, and death rates societies, while that for the year 2000 as a shape near that of a bell, though it does have some crags. Thus, in approximately 75 years Japan's population pyramid has changed qualitatively from one typical of a society with high birth and death rates to that of a society with low birth and death rates.

When we compare the changes over this 75-year period in 25-year intervals, the population pyramid for 1950 has a wider base than the population pyramid for 1925. In other words, the growth of the population from 1925 to 1950 was mainly due to the growth of the child population. This is the population under 20 at the end of the World War II and the post-war baby boom generation. From 1950 to 1975, the change in the population was distinguished by an increase in the population between 25 and 49 years of age, which doubled in this 25-year period. The population under 25, however, was virtually the same as 25 years before. The change in the population from 1975 to 2000 shows an increase in the middle age and elderly population, while the population under 50 remains the same or slightly lower.

Thus, the key component which has influenced the age composition of the Japanese population from 1925 on is the population under 25 in 1950, that is the generation born between 1925 and 1950. In other words, we can easily see that the aging of the population in Japan will continue until 2015 when those born in 1950 reach the age of 65, after which the percentage of the elderly in the population will remain stable until the second baby boom generation reaches old age.

In addition, the fact that the population ratio by generation for each 25-year period is 1:2:2 implies three notions. First, couples of the generation born before 1925 averaged four adult children or two couples of the following generation born between 1925-1950, so it was extremely easy for them to live in the same house with their children's family. Secondly, the size of the generation born between 1925 and 1950 is twice the size of their parent's generation. For this generation, therefore, the number of those forming couples living with their parents after marriage and carrying on their parents' economic position and assets is virtually equal to the number of those who were forced to look for a new profession. Thirdly, the generation born after 1950 numbered approximately the same as their parents' generation, so this is a "one son, one daughter" generation.

(2) Changes in age composition in non-metropolitan and metropolitan areas

Now let us examine this abrupt change in age structure separately for metropolitan and non-metropolitan areas. Figure 3 shows the population pyramids for 1925, 1950 and 1975 in non-metropolitan areas, superimposed one on another. From this figure we can see that the population growth in Japan as a whole from 1925 to 1950, centered around the child population, was due to the growth of the child population in non-metropolitan areas.

Next, when we examine the change from 1950 to 1975, the growth of the population from 25 to 49 years of age was marked, but of course the entire population under the age of 25 in 1950 could not be harbored in non-metropolitan areas, and during this period many young people relocated to large cities.

We can see this when we look at the change in the population pyramid for metropolitan areas, shown in Figure 4. In metropolitan areas, the growth in the population under the age of 25 was extremely small from 1925 to 1950, but the population between 25 and 49 years of age more than doubled from 1950 to 1975.

In other words, the movement of the population from non-metropolitan to metropolitan areas during the period of rapid economic growth was due to the migration to metropolitan areas in search of employment and education of those young people under the age of 25 in 1950 who could not succeed their parents.

However, when we examine the population pyramid in non-metropolitan areas for 1975, the size of the population under 50 is approximately the same as their parents' generation, so any more outflow of population to large cities would result in a decrease in the population in non-metropolitan areas.

We may suggest that this change in the age structure was a factor in the massive population migration from non-metropolitan to metropolitan areas after 1950 and the balancing of the movement of population between metropolitan and non-metropolitan areas during the latter half of the 1970s.

4 Regional Differences in the Aging of the Population and the Increase of the Number of Elderly People

(1) Regional differences in the aging of the population

Large scale movements of the population affect the areas of outflow and areas of influx of population in many ways. Let us take a look at the influence of the movement of the population on the age composition, by examining the percentage of the population aged 65 and over. This is because in metropolitan areas to which young people move the age composition of the population becomes younger, while inversely in non-metropolitan areas from which young people leave in numbers corresponding to the natural growth of the region the population ages.

In 1985, the percentage of people aged 65 and over in the national population was 10.3%. According to Figure 6 which shows the percentage of aged population by prefecture, the aging of the population progressed most in Shimane Prefecture. The aging of the population was distributed widely in western Japanese regions such as San'yo, Shikoku, and Kyushu, as well as

in the Japan Sea areas of the Tohoku region. These are all regions which experienced intense outflows of population in the 1960s and 1970s.

On the other hand, the percentage of aged was the lowest in Saitama Prefecture, at 7%. This percentage was under 10% in such large metropolitan areas as South Kanto, Aichi, Osaka, and in Miyagi Prefecture as well.

These regional differences can be considered as closely related to past population movement rates. This is because the bulk of the population which moves consists of young people between the ages of 15 and 34. As a result, in metropolitan areas which experience an influx of young people, the composition of the population by age becomes younger, while the aging of the population progresses in the non-metropolitan areas from which the young people left.

Figure 5 shows the relationship between the percentage of the population aged 65 and over in 1985 and the population growth rate over the 30-year period from 1955 to 1985 by prefecture. We can see that the higher the population growth rate in the prefecture, the lower the percentage of aged, and that in prefectures where the population growth rate was near zero, that is prefectures from which a number of people corresponding to the natural growth of the region moved to another prefecture, the percentage of aged is near 16%.

(2) Regional differences in growth of the numbers of elderly people

At the present, several decades after the migration of young people from rural areas to large cities, some of these young people are reaching the age of 65. Therefore, we will now look at regional differences in the growth rate of the population aged 65 and over.

Figure 7 shows the correlation between the growth rate of the elderly from 1980 to 1985 and the percentage of aged population in 1985, and indicates that the rate of increase in the numbers of the elderly is growing rapidly in regions where the percentage of aged population is low. The rate of growth in the number of elderly persons from 1980 to 1985 was 17% nationally. In Saitama Prefecture the increase was as high as 26% in this five-year period. Prefectures with an increase of 20% and greater include, in addition to Saitama, Kanagawa Prefecture and Chiba Prefecture, both outlying areas of Tokyo. On the other hand, the prefecture with the lowest rate of growth in the number of elderly persons was Kochi at 12%, while in Shimane Prefecture which has the highest percentage of aged population, the growth in the number of elderly persons was only 13%.

(3) Regional population issues for in the future

We can reason that the people of the generation born between 1925 and 1950 are the ones who brought about the changes in the age composition of the Japanese population and the transition in population distribution, that is the urbanization of the population. The reason is that, what with the decrease in the death rate, many of these people were born and bred in rural

areas, but upon reaching adulthood left agricultural towns and migrated to large cities. They formed the core of the migration from rural to urban in the 1960s and 1970s.

However, with the sudden decrease in the birth rate after World War II, the size of the generation born after 1950 was the same as their parent's generation. As a result the demographic pressure pushing this generation from the rural to urban is extremely weak. This no doubt led to the balancing of the population movement between non-metropolitan areas and metropolitan areas in the 1980s. If the population continues to move from rural to urban areas in the future, the population of rural areas will decrease.

The abrupt increase in the number of elderly persons in large cities which can be seen recently is due to the fact that the generation born between 1925 and 1950, which migrated from rural areas to large city regions, is now joining the ranks of the elderly. As a result, it is necessary to pay heed to the fact that the increase in the number of elderly persons accompanied by the aging of the population will be rapid in metropolitan areas, in particular in Tokyo and its surrounding areas.

Note 1: Yoichi Okazaki and Tomi Suda, "Postwar Trends in Population Migration", "*Jinko Mondai Kenkyu*", No. 109, 1969, pp. 53 - 64. This paper was the first to separate prefectures into metropolitan and non-metropolitan areas, thereby classifying inter-prefecture movement into regional movement patterns. "Metropolitan areas" are the larger Tokyo metropolitan area including Tokyo-to, Kanagawa Prefecture, Chiba Prefecture and Saitama Prefecture, the Chukyo metropolitan area including Aichi, Mie and Gifu Prefectures, and the Hanshin metropolitan area including Osaka-fu, Kyoto-fu and Hyogo Prefecture, with all other prefectures counted as "non-metropolitan areas".

Note 2: If we consider the average number of children born in agricultural families as 5, the number of children surviving to the age of 20 as 4, and the number of children succeeding their parent's occupation as 2 (one male and one female), the number of children which must leave the agricultural family per generation is 2. If the number of agricultural households is 5.5 million and one generation is postulated as 30 years, then the average annual outflow of population can be calculated as follows: 5,500,000 households x 2 persons / 30 yrs. = 367,000 persons per year.

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Table 1 Trends in Population Movement

(1,000 persons)

Year	Total number persons who moved	Total number persons who moved within the same prefecture	Total number persons who moved between prefectures	Movement within metropolitan areas (*1) (*2)	Movement from metropolitan to non-metropolitan areas	Movement from non-metropolitan to metropolitan areas	Movement between non-metropolitan areas
1954	5,498	3,146	2,353	588	403	788	573
1955	5,141	2,914	2,227	563	385	738	540
1956	4,860	2,738	2,122	539	342	743	499
1957	5,268	2,888	2,380	593	359	866	562
1958	5,294	2,914	2,381	618	393	815	556
1959	5,358	2,915	2,443	649	389	880	524
1960	5,653	2,973	2,680	706	406	999	568
1961	6,012	3,060	2,952	794	449	1,104	606
1962	6,580	3,277	3,303	919	536	1,184	664
1963	6,937	3,464	3,473	995	589	1,209	679
1964	7,257	3,622	3,634	1,089	639	1,217	688
1965	7,381	3,688	3,692	1,116	705	1,186	685
1966	7,432	3,748	3,684	1,144	732	1,138	670
1967	7,479	3,718	3,761	1,180	750	1,154	677
1968	7,775	3,838	3,937	1,241	784	1,202	710
1969	8,126	4,010	4,116	1,301	827	1,252	735
1970	8,273	4,038	4,235	1,346	870	1,263	757
1971	8,360	4,103	4,257	1,352	926	1,214	764
1972	8,350	4,193	4,157	1,361	921	1,127	748
1973	8,539	4,304	4,234	1,378	985	1,099	773
1974	8,027	4,094	3,932	1,259	949	987	738
1975	7,544	3,846	3,698	1,174	901	912	711
1976	7,392	3,827	3,565	1,150	873	850	692
1977	7,395	3,828	3,568	1,136	867	858	706
1978	7,292	3,804	3,487	1,123	829	837	699
1979	7,295	3,826	3,469	1,129	827	812	701
1980	7,067	3,711	3,356	1,084	795	789	688
1981	6,902	3,584	3,318	1,050	768	799	701
1982	6,852	3,564	3,288	1,032	751	806	700
1983	6,674	3,478	3,196	1,006	711	794	685
1984	6,559	3,422	3,137	986	692	782	678
1985	6,482	3,365	3,117	983	679	782	673
1986	6,468	3,339	3,129	1,000	658	808	663
1987	6,537	3,366	3,171	1,052	656	803	659
1988	6,465	3,328	3,137	1,052	668	772	645
1989	6,518	3,359	3,159	1,058	682	774	644

Sources: Statistics Bureau, "Internal Migration in Japan Derived from the Basic Resident Registers" and Institute of Population Problems, Ministry of Health and Welfare "Latest Demographic Statistics".

Note 1: "Metropolitan areas" include to the Tokyo area (Saitama, Chiba, Tokyo and Kanagawa), Chukyo area (Gifu, Aichi and Mie) and Hanshin area (Kyoto, Osaka and Hyogo).

Note 2: Movement within metropolitan areas refers to the number of people who moved between the 10 prefectures composing "metropolitan areas".

Figure 1 Trends in Population Movement in Metropolitan and Non-metropolitan Areas

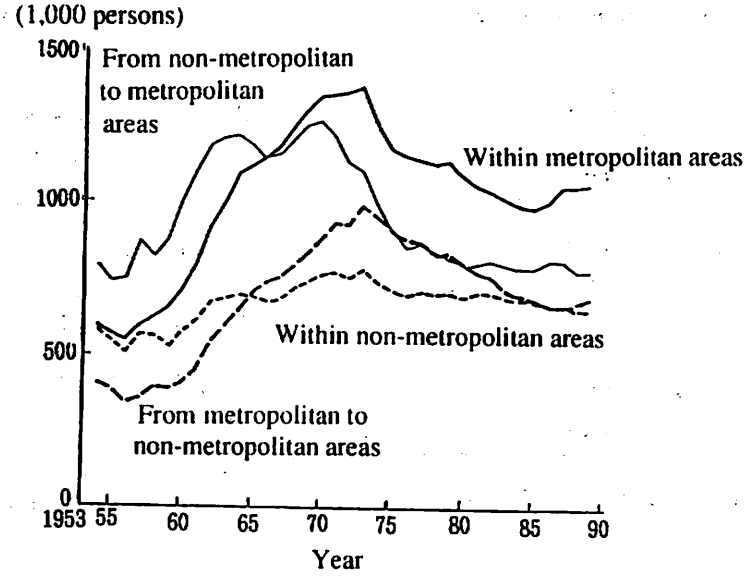
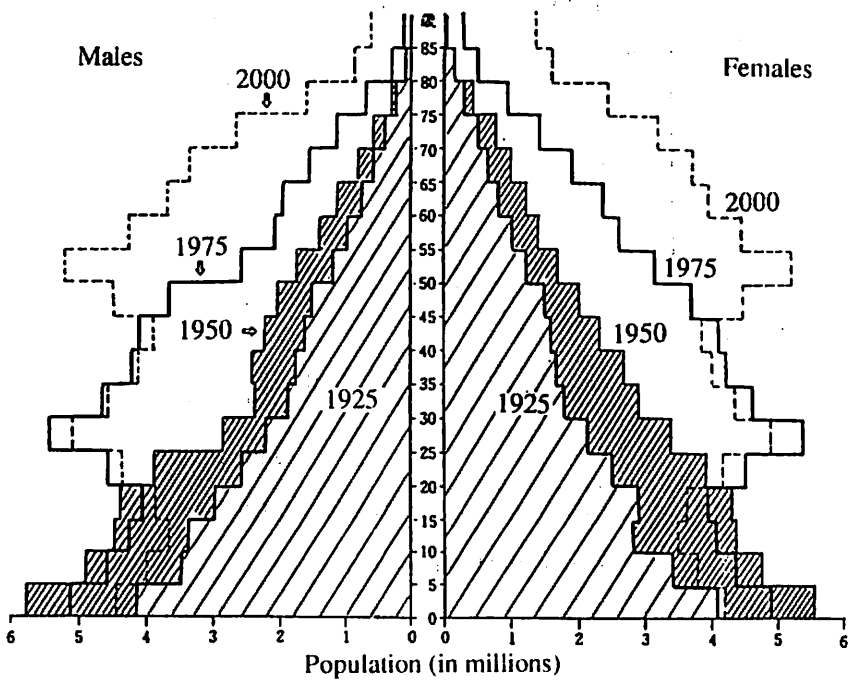


Figure 2 Population Trends by Sex and Age: Japan, 1925 to 2000



Sources: Statistics Bureau, "Population Census of Japan" and Institute of Population Problems, "Population Projections for Japanese Population" (Assessed in December, 1986).

Figure 3 Changes in Population Pyramids for Non-metropolitan Areas: Japan

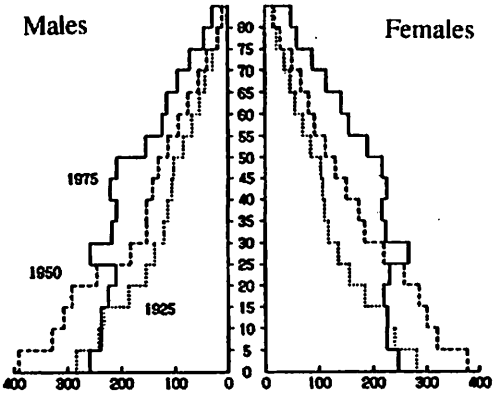


Figure 4 Changes in Population Pyramids for Metropolitan Areas

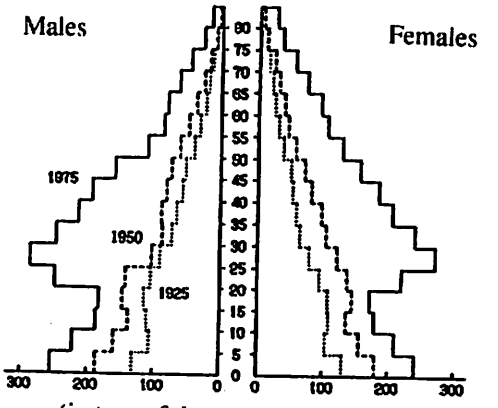


Figure 5 Population Growth Rates from 1955 to 1985 and Percentage of Aged Population in 1985

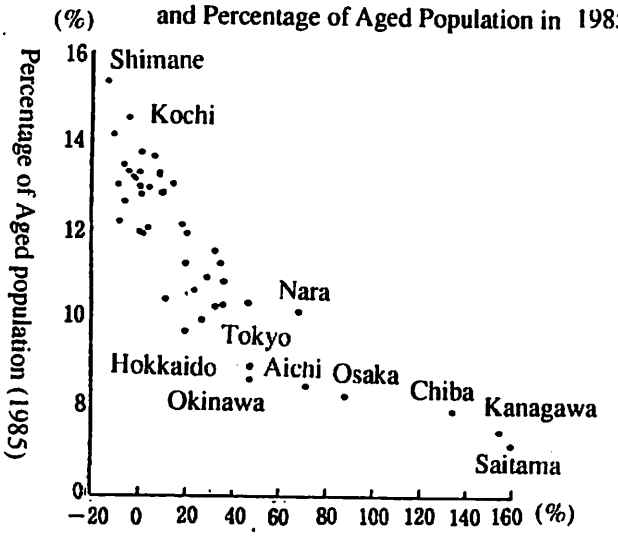


Figure 6 Percentage of Aged Population by Prefecture (1985)

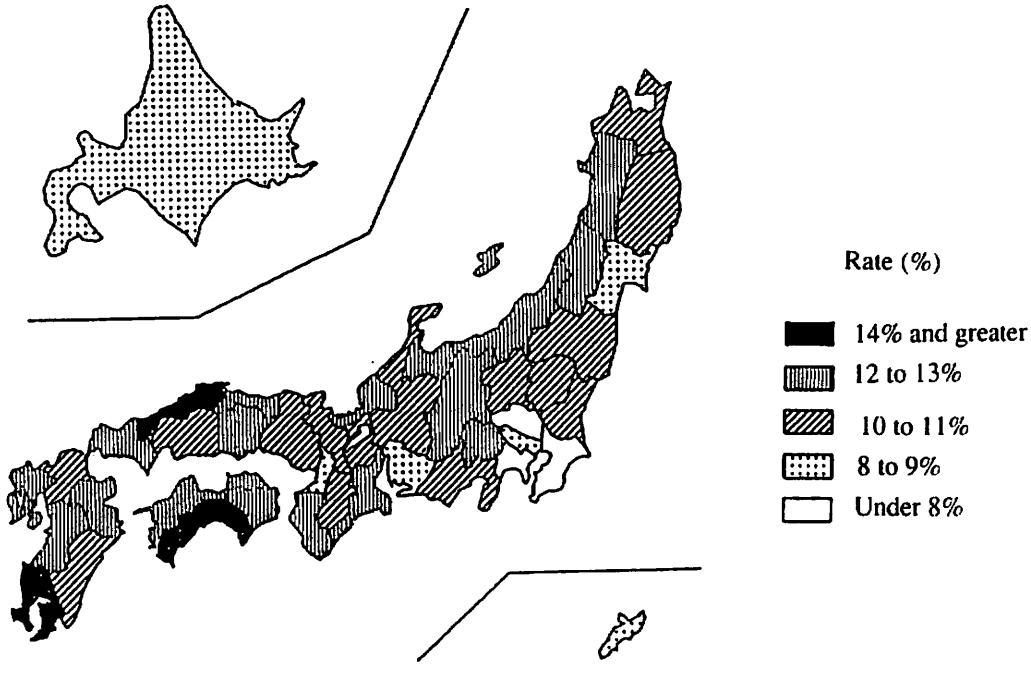
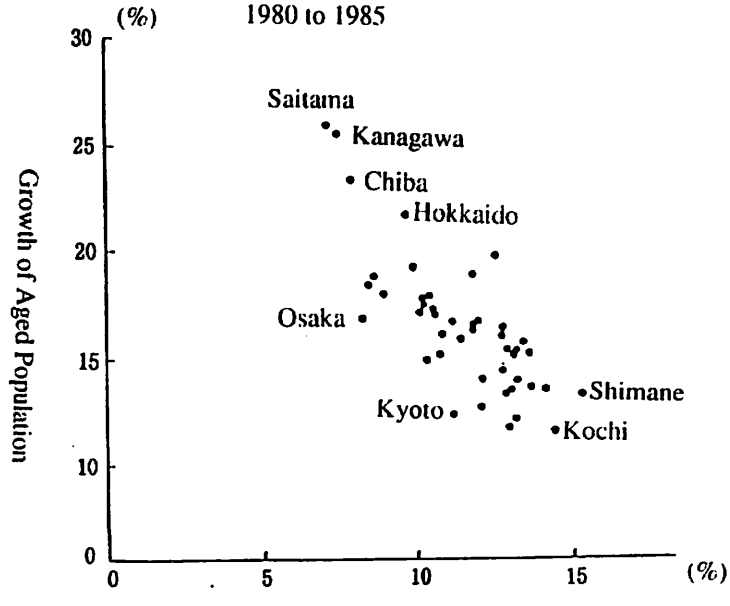


Figure 7 Percentage of Aged Population in 1985 and Growth Rate of Aged Population from 1980 to 1985



Chapter Six

The Status of Japanese Women: A Comparative View

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Introduction

The status of women has been recognized as an important subject for studies on socioeconomic development and demographic transition in recent years. However, this recognition that women's status is a variable central to mainstream theories of development and demographic change is relatively new, arising widespread interest among students of social change only in the mid-1970s to the early 1980s (Blake, 1974; Mason, 1986). Nevertheless, in many societies, including the United States in which "women's studies" have been established as an academic field that merits scientific attention and endeavor, women's status still tends to be viewed as a "special" topic with strong political and ideological connotation (Blake, 1974; Kano, 1989).

In spite of increased attention to the subject of women's status, the meaning and definition of the concept remain unclear, owing largely to the multidimensionality as well as the cultural and temporal specificities associated with female status. The status of women is an umbrella concept that covers many different aspects of women's social position, and what constitutes women's status varies across cultural boundaries and time. This conceptual complexity in turn produces difficulty in measuring and analyzing this variable. Moreover, earlier studies focused mainly on the status of women in developed countries, whereas relatively little attention was paid to the status of women in developing countries (Kano, 1989: 140-141).[1] In this sense, it is important and interesting to compare Japan, the only non-Western developed country, with developed countries in the West as well as with developing countries in Asia.

In this study, we seek to examine the status of Japanese women in recent years by comparing Japan with other Asian countries as well as with Western developed countries. Specifically, we first define the meaning of the status of women, taking its multidimensionality into account. Focusing on three major dimensions of female status -- demographic, socioeconomic, and family-cultural -- we then empirically analyze each of these three dimensions in turn by choosing relevant indicators that are commonly used, and comparable data of which are available. The chapter concludes with a discussion of implications of the findings.

1 Definitions of the Status of Women

Despite increasing focus on the status of women as a variable influencing development and demographic change, the meaning of the concept has remained somewhat ill-defined, and alternative definitions and terminologies have proliferated. While many recent studies used

"status of women" (e. g., Blake, 1974; Dixon, 1978; Mason, 1986; Sathar et al., 1988), others used, for example, "female autonomy" (Dyson and Moore, 1983), "women's rights" (Dixon, 1975), "men's situational advantage" (Caldwell, 1981), "rigidity of the sex stratification system" (Safilios-Rothschild, 1980), and "sexual asymmetry" (Oppong and Haavio-Mannila, 1979).

Despite this wide variety of definitions and specific terms used to define the status of women, certain common elements can be seen. All these terms and definitions refer, directly or indirectly, to some aspect of gender inequality, and this gender inequality seems to cover both material and nonmaterial aspects. In other words, the status of women refers to women's position relative to men in terms of: (1) power or autonomy in decision-making, both within the family/household and in public arena such as one's place of work, and (2) control of material resources, especially income, property, and other forms of wealth. These material and nonmaterial aspects of gender inequality consist of multiple dimensions, and each dimension can, in turn, be measured by multiple indicators. Furthermore, many of these indicators cover both material and nonmaterial aspects of inequality between the sexes. For example, women's education, one of the most commonly used indicator of female status, can be an indicator of women's autonomy in conjugal relations or women's control in domestic decision-making, but it can also be a proxy for women's earning ability in the labor market.

Keeping in mind these complexities arising from the multidimensionality of women's status, we examine the status of Japanese women empirically by analyzing changes in three major dimensions of female status, and also by comparing them with those of other Asian countries and Western developed countries.[2] The dimensions examined here are demographic, socioeconomic, and family-cultural. Indicators constituting the demographic dimension are: (1) sex differentials in life expectancy, (2) the men age at first marriage among females, (3) sex differentials in marriage timing, and (4) the proportion ever-married among women by age 50. The socioeconomic dimension of female status is measured by: (1) sex differentials in the proportions going onto higher-level schools, (2) sex differentials in school enrollment ratios, (3) sex differentials in the rate of obtaining an employment upon graduation, (4) age-specific female labor force participation rates, and (5) the proportions of female workers by occupation. The first two socioeconomic indicators measure educational attainment of women, relative to that of men, whereas the remaining three indicators measure women's status as workers in the labor market. Finally, the family-cultural dimension is operationalized by: (1) normative imperatives of women's marriage, (2) types of marriage, and (3) division of labor between the sexes. These indicators are selected because they are all frequently used in the social-demographic literature on women's status, and also because time-series or comparative data about them are available.

2 Demographic Dimension

Sex differential in life expectancy (mortality) is an important summary indicator of health status of women, relative to that of men. Moreover, because life expectancy is closely correlated with overall development of a society, and females tend to live longer than males in most developed societies (World Bank, 1989: 246), sex differences in life expectancy also indicate the existence of sex-selective discriminatory treatment of females, or non-existence thereof, in a society.

Table 1 shows changes in life expectancy at birth by sex in Japan and recent life expectancy by sex in selected Asian countries as well as in Western developed countries. From the table, we can see that Japan's life expectancy grew rapidly as the society developed socially and economically: in the early 1920s life expectancy for males was only about 42 years and that for females was 43 years; the corresponding figures in 1989 were 76 years and 82 years, respectively, making Japan the world longest-living population (Institute of Population Problems, 1991: 61). More importantly, as life expectancy increased, its sex differentials became larger from a little more than one year in the early 1920s to almost six years in 1989, indicating substantial improvements over years in the health status of Japanese women.

Comparing recent Japanese life expectancy with those of other countries (Table 1), similarly high life expectancy and large sex differentials are seen in Western developed countries and also in the NICs such as Korea, Taiwan, and Singapore. Although not as much as those in developed countries or in the NICs, sex differences in life expectancy are also quite large (3 to 4 years) in Southeast Asian countries such as Thailand, the Philippines, and Indonesia. In contrast, countries in South Asia have either lower female life expectancy (e. g., Bangladesh), or life expectancy with no or very small sex differentials (e. g., Pakistan and India). This contrast becomes even clearer when we compare these South Asian countries with Indonesia that has a similar overall life expectancy. This lower-than-expected life expectancy for women in South Asia is thought to be due in part to high maternal mortality, mortality associated with pregnancy and childbirth (World Bank, 1989: 226-227)[3], but probably more to high infant and child mortality of females due to strong son preference (Williamson, 1976; D'Souza and Chen, 1980; Ramanamma and Bambawale, 1980; United Nations, 1982: 60-63). Unfavorable treatment of female infants and children arising from strong son preference, combined with high maternal mortality, are thought to be responsible for this clear deviation of South Asian countries from the general pattern of longer female life expectancy. Therefore, comparatively speaking, the health status of Japanese women are considered as high as those of their Western

counterparts, and probably better than many of their Asian neighbors.

Turning to another aspect of demographic dimension of women's status, we examine women's marriage patterns in terms of: (1) the singluate mean age at marriage (SMAM), (2) differences between men and women in SMAM, and (3) the proportion ever-married among women by age 50.[4] Table 2 shows that the mean age at first marriage for Japanese women started increasing substantially in the 1980s: the SMAM for Japanese women was 25.1 in 1980 and it increased to 26.7 in 1989. This clearly indicates the postponement of marriage among Japanese women in recent years. A cross-national comparison also shows that the marriage timing of Japanese women in recent years is generally later than those of other Asian countries and other developed countries, with the possible exception of Singapore and Scandinavian countries such as Sweden.

By and large, women in the countries shown in Table 2 marry mostly in their early- to mid-twenties, with the exception of South Asian countries such as India, Pakistan, and Bangladesh in which teenage marriage prevails. Although women's marriage is not necessarily associated with their higher social status, the prevalence of young marriage, particularly teenage marriage, is thought to mean that females are likely to marry before they become old enough to assert themselves and to establish a certain extent of autonomy in decision-making for their own life course. It is therefore likely that women in South Asian countries have considerably less autonomy in their families and societies, compared not only with women in Japan and other developed countries, but also with their counterparts in the developing Asia.

Sex differentials in the SMAM can also be considered as an indirect measure of female status to the extent that women are more likely to have higher personal autonomy if they are closer in age to the husband. We can see from Table 2 that in contrast to many other countries in Asia and the Pacific, sex differences in the SMAM in Japan increased in accordance with the postponement of marriage among women.[5] In addition, we also notice relatively large sex differences in age at first marriage in South Asian countries. These substantial gender differences in marriage timing are, again, thought to imply the deprived status of South Asian women.

The proportion of women ever-married by age 50 measures the prevalence of marriage among the female population. Similar to other East Asian countries, Japan has the tradition of "universal marriage": the proportion of women ever-married had been less than 2 percent from the time of the first population census in 1920 to 1960 (Taeuber, 1958: 207-209; Institute of Population Problems, 1991; 75). However, the trend of departure from the traditional pattern became distinctive after 1960. Although the lower prevalence of marriage per se does not indicate the higher status of women, if departure from this traditional pattern of "universal marriage" happens along with socioeconomic development of a society, it can be considered to imply an increasing possibility for women to make a living by themselves without marrying.

In this sense, the decreased prevalence of marriage among Japanese women during the past few decades seems to indicate possible increases in their economic status. We will further examine this in the next section by looking at changes in women's educational attainment and labor force participation. In summary, the increasing postponement of marriage in recent years, together with the decreased prevalence of marriage, among Japanese women indicate some improvements in the status of Japanese women. Comparatively, in terms of autonomy within the family, as revealed by marriage patterns, the status of Japanese women is almost as favorable as those of other developed countries, and is probably better-off than those of many other Asian countries, especially those in South Asia.

3 Socioeconomic Dimension

In the previous section, we found that the demographic status of Japanese women improved considerably in the postwar years, and that it is now almost as good as those of other developed countries in the West. We next examine the socioeconomic dimension of female status in Japan by focusing on the two most commonly used indicators of women's socioeconomic status: education and labor force participation. Women's higher educational status is known to be generally associated with higher personal autonomy, and also to facilitate higher status jobs associated with higher earning possibilities.

Table 3 presents changes in the percentage of graduates going on to higher-level schools by sex in Japan for the period of 1950-1989. We can see from the table that high school education spread very rapidly in Japan during the 1950s to the 1970s, making high school education almost universal by the mid-1970s. Moreover, whereas males had shown a higher propensity to go on to a high school than females before 1970, the situation was reversed thereafter, with the higher proportion of females, than males, going on to a high school.

Subsequent to this rapid spread of high school education, college education began to be disseminated in Japan during the 1960s and 1970s. Although there had been a wide gender difference in the proportion of high school graduates going to a junior college/university until the mid-1970s, the proportion of female high-school graduates going to a college increased extremely rapidly during the fifteen years from 1960 to 1975: it was only 6 percent in 1960, but increased to 32 percent in 1975. Finally, the proportion of female high-school graduates going to higher education surpassed that of males for the first time in the Japanese history in 1989.[6] These steady and substantial increases in women's educational attainment, especially at the level of higher education, is thought to be responsible, at least partly, for the increasing postponement of marriage among Japanese women since the mid-1970s.

How these impressive educational gains that Japanese women have made in the postwar

years are compared with those of other countries in Asia and the West? Table 4 presents primary- and secondary-school enrollment ratios by sex in 1965 and in 1986 for Japan as well as for selected Asian and Western countries. From Table 4, we can first notice that in most countries shown here, primary-school education had already been universal in 1965, or became universal during the 20-year period under consideration, with the exception of Pakistan and Bangladesh, in both of which the primary-school enrollment ratio in 1986 was only about 50 percent or less. More importantly, in the countries with almost universal primary education, there have been very small, or almost no gender differentials in the degree of prevalence. In contrast, considerable gender differences still prevailed in South Asian countries in the mid-1980s.

Table 4 also shows that Japan already had one of the world highest secondary-school enrollment ratio in 1965, with little gender differences. We can also see that secondary school education was disseminated rapidly in developed countries, and especially in the NICs. The secondary-school enrollment ratio also increased considerably in Southeast Asian countries during 1965-1986, but it remained low in South Asian countries, especially in Pakistan and Bangladesh. More importantly, whereas considerable gender differences were seen in most countries in 1965, those differentials disappeared, or the rate of females even surpassed that of males, under the rapid spread of secondary education. Again, the exceptions are South Asian countries and Indonesia which is the least economically developed Southeast Asian country, in which substantial gender differentials still remained in the mid-1980s.

In summary, Japanese women made impressive gains in their education, especially in higher education, since the 1960s, quickly overtaking that of men. Comparatively speaking, the educational status of Japanese women is also thought to be one of the highest in the world, although their Western and NICs' counterparts are swiftly catching up with Japan during the past few decades. In contrast, compared with their male counterparts, women in South Asian countries still suffer from considerable deprivation in their educational status.

It is commonly assumed that increased schooling encourages greater labor force participation, especially non-agricultural work participation, and that as female education levels begin to catch up with those of men, female labor force participation will increase. However, this straightforward positive relationship does not always hold because educated women's access to jobs predominantly occupied by men is often restricted by various forms of discrimination that are often institutionalized (Standing, 1976; United Nations, 1982: 197-198; Brinton, 1988). Moreover, because of discrimination and other (especially domestic) constraints, educated women are often forced to accept work below their qualification and preferences, thus resulting in occupational segregation and employment-status differences by gender.

Table 5 presents the percentage of graduates obtaining some form of employment upon graduation at different school levels by sex in Japan for the period of 1950-1989. We can see

from the table that the proportion obtaining an employment decreased dramatically among junior-high school graduates of both sexes, owing largely to the rapid increases in the rate of going on to high school during the 1950s to the 1970s. The rate of obtaining an employment among high school graduates had increased for both sexes during the 1950s and the early 1960s, and then started decreasing in the mid-1960s. This is thought to be due primarily to the prevalence of college education in Japan since the mid-1960s.

An interesting contrast between the sexes can be observed in the changing pattern of job obtainment among junior-college or four-year university graduates. While the proportion of male college graduates obtaining an employment has been relatively stable since the 1960s with some fluctuations, the corresponding proportion for female junior-college graduates has steadily and substantially increased since the mid-1950s and that for female university graduates began to increase in the 1970s, thus diminishing gender differences in the rate of obtaining a job upon college/university graduation.

However, these impressive increases in the job obtainment rate among college graduates in the recent decades do not straightforwardly mean improvements in the status of Japanese women in the labor market because they bear only on the initial stage of women's career, and also because the employment status (types) as well as occupational distributions of women's work have to be considered. Table 6 shows changes in age-specific female labor force participation rates in Japan, the NICs, and the United States. Despite recent flattening, we can still see the "M-shaped" age pattern of female labor force participation in Japan, indicating the persistent tendency for women to exit the labor force upon marriage or the first childbirth and then to reenter once the last child enters school. Japan being a country with the employment system that are characterized by on-the job training, seniority-based wage and promotion, and "lifetime commitment" (Dore, 1973; Koike, 1983), the tendency for women to exit from the labor force, even if temporarily, at the early stage of their career are thought to cause women obvious disadvantages in the labor market.

Comparing Japan's age pattern of female labor force participation with those of the NICs and the United States (Table 6), we notice that the "double peak" age pattern is either disappearing or have never existed in those countries, with the exception of Korea in which a clear "M-shaped" pattern still persists. Therefore, from a comparative perspective, the labor-force status of Japanese women can also be considered as not too high. In fact, according to Brinton (1988), Japan has one of the most pronounced "double peak" age pattern of female labor force participation among the industrialized countries, and it is also the only developed country where never-married women have a higher wage rate than their married counterparts. Moreover, "paato" (part-time employment with almost no fringe benefit) is still dominant in Japan among the employed female workers in their late thirties and forties. For example, in 1987 almost half of the married female employees aged 35-49 were "paato" (Statistics Office, Japan

Management and Coordination Agency, 1990: 101), again indicating the relatively low status of (married) Japanese women in the labor market.

Turning to women's occupational status, Table 7 shows changes in the percentage of female in the total employed workers by occupational categories in Japan from 1975 to 1985. Although the proportions of female workers increased in most occupational categories in recent years, women still engage mainly in such "female" occupations as service, clerical, and sales jobs. The relatively high proportions of females in professional jobs are due mostly to high concentration of female workers on medical professions (mostly nurses) and teaching jobs, these two occupational categories constituting more than 70 percent of women in the "professional" category during 1975-1985. In contrast, though increasing, the proportions of female workers are still very low in managerial occupations and also among engineers, lawyers and accountants. Therefore, despite recent narrowing, the gap between males and females remain large in occupations with relatively high autonomy and financial rewards.

In summary, the job obtainment rates of highly educated young women have increased rapidly and steadily in Japan in the recent decades, diminishing the once-large gender differences. However, the tendency for Japanese women to temporarily exit the labor force upon marriage or the birth of the first child persists, thus depriving Japanese women of their earning and career-advancement potentials. Furthermore, the dominant type of employment for married women is "paato", and the dominant types of occupation for female workers are still service or clerical jobs. On the other hand, although the proportions of females in professional occupations have increased, such percentages are still very low in occupations that are associated with high levels of autonomy, prestige, and earnings. In all, though implications of these findings are not conclusive, the overall labor force status of Japanese women seems to be still relatively low.

4 Family-Cultural Dimension

In the previous section, we found that the status of Japanese women in the labor force is still not too high. This relatively low labor-force status of Japanese women is thought to be due primarily to the fact that Japanese women are still likely to stop working, even though temporarily, upon marriage or the first childbearing. This persistent tendency of women's temporary exit from the labor force seems to be facilitated in part by situations in the family, especially in conjugal relations, that make the wife shoulder the responsibilities of housework and childcare with little help from the husband, and also by the traditional cultural values such as the importance of marriage for women and gender division of labor within the family.[7] In this section, we look at indicators of the familial and cultural dimension of female status in Japan which is

thought to tap gender (especially conjugal) relations and women's autonomy: the normative imperative of marriage for women, changes in marriage types, attitudes toward the division of labor between the sexes in the home, and actual sharing between the sexes in household chores and childcare.

Table 8 shows changes in the proportion of the Japanese of both sexes who agree with the traditional cultural notion that "women should marry because their happiness lies in marriage." The data are drawn from a series of national opinion surveys on women by the Japanese government. From Table 8, we can see that the normative orientation toward the necessity of marriage for women's happiness was, though lessening, relatively persistent in Japan until the late 1980s. Comparing females with males, we also notice that changes in women's attitudes (toward a less traditional direction) is quicker than those of men. Nevertheless, the tempo of weakening of this normative orientation suddenly accelerated during the past few years, affecting both sexes and all age groups.

Turning to mate selection and marriage types, Table 9 presents changes in the percent distribution of marriage types by women's marriage cohort in Japan and Korea. In the traditional Japanese (and Korean) societies which were characterized by the patrilineal, patrilocal and patriarchal family system, parents (especially the father, who was usually the family head) dictated the marriage decision, leaving little room for preferences of young men and women in mate selection, and almost all marriages were arranged through go-betweens who were chosen and delegated authority by the family or head (Lee, 1978: 86-90; Cho et al., 1982: 96-97; Tsuya and Choe, 1991). Nowadays, however, an arranged marriage commonly means a marriage in which the first formal introduction is arranged by parents, senior relatives, or one's superior in office. Nevertheless, the arranged marriage is a traditional form of mate selection in Japan and other East Asian countries.

We can see from Table 9 that the proportion of arranged marriages have been declining rapidly in both countries, and that the proportion has been substantially lower in Japan than in Korea. These findings therefore indicate that parental influences on marriage decisions has been weakening in both countries and the degree of weakening is more advanced in Japan than in Korea. We can also notice increases in the proportion of nonarranged marriages, especially "love matches" through a friend's introduction or those starting at the couple's work place or school. This indicates increasing autonomy of women (and men) in mate selection that is thought to be facilitated, at least in part, by women's increasing educational attainment and labor force participation prior to marriage.

We also examine both attitudinal and behavioral aspects of the division of labor between the sexes in the home. In traditional Japan and Korea, familial roles were strictly segregated along gender lines and normative expectations of the husband as a bread-winner and the wife as a homemaker responsible for household chores and childcare were strong and pervasive. From

Table 10 which shows changes in the proportion of Japanese agreeing with the notion that "the external world is for the husband and the domestic world is for the wife," we can see that the value orientation toward the gender division of labor was still strong in the early 1970s with 83 percent of the respondents agreeing with the idea. However, this normative orientation weakened rapidly during the 1970s and 1980s; and by 1990 only less than 30 percent of the respondents agreed with the notion. Furthermore, whereas gender and age differentials were very small in 1972, they became distinctive in the 1980s. Women are now less supportive than men of the traditional views of the sex roles within the family, and younger women are the least supportive. In addition, whereas in 1972 and even in 1987 fulltime housewives and female family workers were more supportive of the traditional view than were women employed outside the home, by 1990 their attitudes toward traditional sex roles have become similar to, or even less positive than those of women employed outside the home. The international comparative data presented in Table 11 also show that the normative orientations toward the traditional sex roles have weakened not only in Japan, but also in other Asian and Western countries. However, though lessened, the level of support of the traditional view is substantially higher in Japan and Korea than in Western developed countries.

Our analysis has found the on-going weakening of normative orientations toward the traditional sex roles in Japan as well as in other Asian and Western countries. How are these attitudinal changes reflected in the actual division of labor in the home? With regard to Japan, empirical evidence does not seem encouraging. According to the 1981 national survey on time use and leisure activities in Japan, males of age 15 and above spent, on the average, only eight minutes per day on housework and childcare, whereas women spent three hours and 23 minutes per day on these activities (Statistics Office, Prime Minister's Office, Japan, 1983). Although men spent a little more time on housework and childcare on weekends, especially on Sundays (16 minutes), women still shouldered the vast majority of household and childcare responsibilities.

Those who carried an especially heavy burden of housework and childcare were women aged 25-29 who did not have a job: they spent, on the average, five and half to seven hours per day on these activities. It is likely that those women were unable to work outside the home because of their extremely heavy household/family responsibilities. Moreover, comparing these findings with data from the 1986 national survey on time use and leisure activities (Statistics Office, Japan Management and Coordination Agency, 1988), it is also found that the situation in Japan did not improve much between 1981 and 1986. In 1986 males aged 15 and above spent, on the average, 11 minutes per day on housework and childcare whereas women still spent three hours and 28 minutes on these household activities.

Although no comparable data are available for other Asian countries, I believe the situation in those countries to be no better. For example, a cross-tabulational analysis of the 1986 Ko-

rean Family Life Cycle Survey data shows that, regardless of their work status, most of the housework and childcare were done by women themselves, and that fewer than 2 percent of married women aged 15-64 indicated that their husbands helped them in those household activities (Kong et al., 1990).

However, compared with Japan and Korea in which men's participation in housework and childcare remain minimal, women in Western developed countries seem to be better off, although they still perform the majority of household chores and childcare. For example, a study found that men in the United States spent, on the average, one hour and 45 minutes per day on those household activities in 1975-76, and that men's share of housework and childcare time increased significantly during 1965-75 owing to changes in women's labor force participation patterns (Coverman and Sheley, 1986). However, another study also found that women in the United States still performed around 80 percent of all the housework and childcare in the mid-1970s (Berardo et al., 1987).

In summary, our findings show that in many ways traditional attitudes toward women's subordinate status and roles have been attenuated in Japan, as reflected in declining normative orientations toward the imperative of marriage for women, the proportion of arranged marriages, and the division of labor in the home. However, despite the weakening of the value orientation in favor of a strict division of labor along gender lines, women in Japan today still perform the vast majority of housework and childcare even though an increasing proportion of them work outside the home.

5 Summary and Discussions

The status of Japanese women has improved significantly in many ways. Their health status has improved dramatically over years, making Japan the world longest living population in the late 1980s. In terms of marriage patterns, the increasing postponement of marriage among Japanese women in recent years seem to indicate increases in their autonomy and economic power. Comparatively speaking, the status of Japanese women appears to be as favorable as those of Western developed countries, and probably better off than many other Asian countries, especially those in South Asia. Japanese women have also made impressive advances in their educational attainment, especially in higher education, making them one of the most highly educated population in world. Moreover, the job obtainment rates of educated young women have increased rapidly and steadily in Japan in recent decades, diminishing the once large gender differentials.

However, despite these impressive gains made by Japanese women in demographic dimension as well as in education and entry to the labor force, the major types of occupations for

female workers are still service or clerical jobs, although increases of female workers in professional occupations are also observed in recent years. Though weakening, the tendency for Japanese women to temporarily exit the labor force upon marriage or the first childbirth also persist, thus depriving them of career opportunities and future earning potentials. Moreover, when married women reenter the labor force, the dominant type of their employment tends to be "paato" which is associated with low levels of autonomy, prestige, and earnings.

However, according to the educational gains and the increasing postponement of marriage among Japanese women, leniency toward late marriage or nonmarriage seems to be increasing in recent years. Parental influences over marriage decisions appear to be also weakening, and the traditional views of gender division of labor in the home began to attenuate quickly in recent years. Nevertheless, evidence also shows that the actual division of labor in the home is still far from reality, with women doing the vast majority of household chores and childcare.

These situations in the family and the labor force are thought to have altogether perpetuated the secondary status of Japanese women not only in the labor force but also in the society as a whole. However, at the same time, the deprived status of Japanese women seem to stand to benefit from the opening up of alternative life styles in recent years. In particular, if increases in educational attainment of young women come to be accompanied by greater job/career opportunities for women, as seems to be the case in Japan in recent years, more women may start moving into jobs with higher autonomy, prestige and earnings, which have traditionally been regarded as "male" occupations. It remains to be seen how these changes in economic status of women will affect actual conjugal relations, especially the sharing of household and family responsibilities between men and women.

Notes

1 Although studies on fertility decline in developing countries examine women's education and labor force participation as major factors that motivate couples to limit their family size (Caldwell, 1976; Cochrane, 1979; Mauldin and Berelson, 1978; United Nations, 1987), this effect seems to be based primarily on the implications of women's education and employment for the "costs" of children and for the family's budget, rather than on women's autonomy and freedom from the control of the male family members.

2 Whyte (1978) conducted one of the most exhaustive studies on female status in preindustrial societies. In this study, he proposed several dozen possible indicators of women's status, and selected the 52 most "promising" indicators after a careful empirical analysis. Mason (1986) also showed a sample of 34 indicators of women's status commonly used or mentioned in the social demographic literature. For more details on indicators of women's status, see their studies.

3 Specifically, maternal mortality (per 100,000 live births) in 1980 is estimated to be around 600 in Bangladesh and Pakistan, and around 500 in India. The corresponding rates for Thailand and the Philippines are estimated to be 270 and 80, respectively. Maternal mortality in 1980 was 15 per 1000,000 live births in Japan, 13 in France, and 9 in the United States. For more details, see World Bank (1989: 226-227).

4 The SMAM is the average age at first marriage calculated on the basis of a hypothetical cohort of women. For details, see Hajnal (1953).

5 The postponement of marriage (increase in the age at marriage) among women in Asia and the Pacific was found to be generally associated with decreasing gender differences in age at marriage. For details, see Tsuya (1991).

6 Among those going on to higher education schools, significantly more men go on to four-year universities than do women. Therefore, if we concentrate on the proportion going on to four-year universities, males still have considerably higher rates than females. However, the proportion of female students among the total four-year university students has been increasing steadily since the mid-1950s: it increased from 12 percent in 1955 to 26 percent in 1989. For details, see Japan Ministry of Education (1990).

7 For details of traditional values on, and changes in, intrafamilial relations and the roles of women in Japan, see Tsuya and Choe (1991).

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Table 1 Life Expectancy at Birth by Sex in Japan and Selected Countries

Country	Year or period	Life expectancy at birth		
		Male (1)	Female (2)	Difference (3)=(1)-(2)
Japan	1921−25	42.1	43.2	−1.1
	1935−36	46.9	49.6	−2.7
	1950−52	59.6	63.0	−3.4
	1960	65.3	70.2	−4.9
	1970	69.3	74.7	−5.4
	1975	71.7	76.9	−5.2
	1980	73.4	78.8	−5.4
	1985	74.8	80.5	−5.7
	1989	75.9	81.8	−5.9
Korea	1987	68.7	77.5	−8.8
Taiwan	1987	71.1	76.3	−5.2
Singapore	1987	71.3	76.5	−5.2
Thailand	1985−90	63.0	67.1	−4.1
Philippines	1985−90	61.6	65.4	−3.8
Indonesia	1985−90	54.6	57.4	−2.8
India	1985−90	57.8	57.9	−0.1
Pakistan	1985−90	56.5	56.5	0.0
Bangladesh	1985−90	51.1	50.4	0.7
U. S. A.	1987	71.6	78.6	−7.0
France	1987	72.6	81.1	−8.5
Sweden	1987	74.2	80.4	−6.2

Sources: WHO (1990) World Health Statistics 1988-89; United Nations (1989) World Population Prospects 1988; Directorate-General of Budget, Accounting and Statistics, Executive Yuan (1990) Statistical Yearbook of the Republic of China 1990; Institute of Population Problems, Japan Ministry of Health and Welfare (1991) Latest Demographic Statistics 1990-91.

Table 2 Singulate Mean Age at Marriage (SMAM) for Women, Difference in SMAM between Men and Women, and Percentage of Women Ever-Married by Age 50: Japan and Selected Countries

Country	Year	SMAM	Difference in SMAM bet. men and women	Percentage ever-married by age 50
Japan	1950	23.6	2.6	98.5
	1960	25.0	2.4	98.1
	1970	24.6	2.9	96.0
	1980	25.1	3.5	95.6
	1985	25.8	3.7	95.7
	1989	26.7	–	96.5
Korea	1985	24.7	3.2	99.6
Taiwan	1980	23.8	–	99.0
Singapore	1980	26.2	2.2	96.5
Thailand	1980	22.7	2.0	96.2
Philippines	1980	22.4	2.9	93.1
Indonesia	1980	20.0	4.1	98.7
India	1981	18.7	4.7	99.6
Pakistan	1981	19.8	5.1	97.9
Bangladesh	1981	16.7	7.2	99.1
U. S. A.	1980	22.7	2.4	95.3
France	1980	23.6	2.3	–
Sweden	1981	26.8	2.6	–

Sources: United Nations (1985) World Population Trends and Policies: 1983 Monitoring Report. Volume 1; _____ (1988) World Population Trends and Policies: 1987 Monitoring Report. Volume 1; National Bureau of Statistics, Republic of Korea (1989) Outline and Major Results of the 1985 Population & Housing Census in the Republic of Korea; Institute of Population Problems, Japan Ministry of Health and Welfare (1991) Latest Demographic Statistics 1990-91; Tsuya, Noriko O. (1991) "Trends and Correlates of Fertility Decline in the NIES." The Journal of Population Studies (Jinkogaku Kenkyu) 14: 49-66.

Table 3 Proportions of Graduates Going On to Higher-Level Schools by Sex: Japan, 1950-1989

Year	Junior-high school graduates going on to high school			High school graduates going on to junior college/university		
	Total	Female	Male	Total	Female	Male
1950	42.5	36.7	48.0	—	—	—
1955	51.5	47.4	55.5	10.1	5.0	15.0
1960	57.7	55.9	59.6	10.3	5.5	14.9
1965	70.7	69.6	71.7	17.0	11.3	22.4
1970	82.1	82.7	81.6	23.6	17.7	29.2
1975	91.9	93.0	91.0	37.8	32.4	43.0
1980	94.2	95.4	93.1	37.4	33.3	41.3
1985	93.8	94.9	92.8	37.6	34.5	40.6
1989	94.1	95.3	93.0	36.3	36.8	35.8

Notes: Figures for junior-high school students going on to high school include those who are working while enrolled in high school, but do not include those who are "ronin" (those who has failed in a matriculation and is waiting for another chance to enter a higher-level school), or those enrolled in correspondence courses of high-school education. Figures for high school graduates going on to higher education include those who were "ronin".

Source: Japan Ministry of Education, Basic Survey on Schools, various years.

Table 4 Primary and Secondary School Enrollment Ratios by Sex in Japan and Selected Countries, 1965 and 1986

Country	Total		Female		Male	
	1965	1986	1965	1986	1965	1986
Primary School Enrollment Ratio:						
Japan	100	102	100	102	100	101
Korea	101	94	99	94	103	94
Singapore	105	115	100	113	110	118
Thailand	78	99	74	–	82	–
Philippines	113	106	111	106	115	107
Indonesia	72	118	65	116	79	121
India	74	92	57	76	89	107
Pakistan	40	44	20	32	59	55
Bangladesh	49	60	31	50	67	69
U. S. A.	—	112	—	101	—	103
France	134	112	133	111	135	113
Sweden	95	99	96	99	94	97
Secondary School Enrollment Ratio:						
Japan	82	96	81	97	82	95
Korea	35	95	25	93	44	98
Taiwan	38	92	–	94	–	91
Singapore	45	71	41	73	49	70
Thailand	14	29	11	–	16	–
Philippines	41	68	40	69	42	66
Indonesia	12	41	7	34	18	45
India	27	35	13	24	41	45
Pakistan	12	18	5	10	18	25
Bangladesh	13	18	3	11	23	24
U. S. A.	—	100	—	100	—	100
France	56	95	59	99	53	92
Sweden	62	83	60	88	63	79

Sources: World Bank (1989) World Development Report 1989. New York: Oxford University Press; Directorate-General of Budget, Accounting and Statistics, Executive Yuan (1990) Statistical Yearbook of the Republic of China 1990.

Table 5 Percentages of Graduates Obtaining an Employment upon Graduation at Different Educational Levels by Sex: Japan, 1950-1989

	Junior high	High school	Junior college	University
FEMALES:				
1950	44.1	35.7	–	45.2
1955	40.9	38.6	42.5	67.5
1960	37.5	58.6	49.8	64.1
1965	26.0	62.9	57.4	66.7
1970	16.1	61.2	68.8	59.9
1975	5.9	48.0	73.0	62.8
1980	3.2	45.6	76.4	65.7
1985	2.9	43.4	81.3	72.4
1989	1.9	37.0	86.1	78.5
MALES:				
1950	46.2	47.9	–	64.1
1955	43.0	54.1	66.7	75.0
1960	39.7	63.7	79.5	86.3
1965	26.9	57.9	84.1	86.6
1970	16.5	55.4	80.5	82.8
1975	5.9	41.1	75.6	77.5
1980	4.5	40.2	71.8	78.5
1985	4.5	38.7	72.6	78.8
1989	3.8	34.2	71.6	80.1

Note: These rates are percentages of graduates who obtain some form of employment for each academic year.

Sources: Japan Ministry of Education, Basic Survey on Schools, various years.

Table 6 Female Labor Force Participation Rates by Age in Japan and Selected Countries

	Female labor force participation rate by age group							
	15+*	15−19	20−24	25−29	30−34	35−39	40−44	45−49
Japan								
1960	54.5	49.0	70.8	54.5	56.5	59.0	—59.0#	—
1965	49.8	35.8	70.2	49.0	51.1	59.6	—60.2#	—
1970	50.9	33.6	70.6	45.5	48.2	57.5	62.8	63.0
1975	46.1	21.7	66.2	42.6	43.9	54.0	59.9	61.5
1980	46.9	18.5	70.0	49.2	48.2	58.0	64.1	64.4
1985	47.7	16.6	71.9	54.1	50.6	60.0	67.9	68.1
Korea								
1970	37.6	43.7	42.0	30.9	38.6	44.8	49.8	50.2
1980	38.4	30.9	49.2	30.5	41.8	56.0	60.8	64.6
1984	33.9	19.1	49.0	31.8	38.7	50.4	59.2	60.4
Taiwan								
1970	35.5	45.0	41.4	27.6	28.0	30.6	30.5	27.0
1980	39.3	41.6	55.7	40.3	37.4	43.9	42.2	38.6
1984	43.3	34.6	59.3	47.4	47.1	49.0	51.4	44.6
Singapore								
1970	29.5	43.0	53.6	30.8	22.7	19.3	17.8	17.5
1980	44.3	48.1	79.0	59.5	45.0	37.7	35.3	27.0
1985	44.9	33.8	78.9	66.5	48.8	44.7	39.6	36.3
U. S. A.								
1970	40.5	29.2	56.1	45.4	—	48.3	—	53.0
1980	49.9	45.8	67.8	66.3	63.2	64.4	65.0	61.5
1987	54.0	42.8	72.3	72.8	71.1	73.8	74.3	70.6

* Rate for women aged 15+. # Rate for women aged 40-54.

Sources: Office of Labor Affairs, Republic of Korea. Yearbook of Labour Statistics. various years; National Bureau of Statistics, Economic Planning Board, Republic of Korea. Population and Housing Census Report. various years; Directorate-General of Budget, Accounting and Statistics, Executive Yuan (1986) Statistical Yearbook of the Republic of China 1985; Population Census Office of the Executive Yuan (1982) An Extract Report on the 1980 Census of Population and Housing, Republic of China; Research and Statistics Department, Singapore Ministry of Labour, Singapore Yearbook of Labour Statistics. various years; Office of Women's Affairs, Japan Ministry of Labor (1989) Fujin Rodou no Jitsujo (Current Conditions of Female Labor); International Labour Office, Yearbook of Labor Statistics, various years.

Table 7 Percentage of Females in the Total Employed Persons by Occupational Category: Japan, 1975, 1980, 1985

Occupation	1975	1980	1985
Total	32.0	33.9	37.3
Professional/technical	41.9	45.2	41.9
Engineers/scientists	2.4	2.8	4.6
Legal professionals	11.5	11.8	14.5
Accountants/tax consultants	7.3	6.8	8.9
Medical professionals	77.1	77.5	78.2
Teachers	40.7	42.7	41.9
Artists/photographers/designers	31.7	33.0	37.1
Music- and theater-related workers	40.1	48.7	55.9
Others	52.6	56.6	59.6
Managerial/administrative	3.3	6.8	8.8
Clerical	48.2	51.5	54.3
Sales	30.9	32.3	32.3
Agriculture/forestry/fishery	17.9	19.7	22.6
Mining	4.1	3.0	2.6
Transportation/communication	7.6	6.1	5.6
Blue-collar	24.1	26.3	30.0
Security	2.4	2.2	2.6
Service	65.8	66.4	65.5

Note: Figures were calculated by using the data originally drawn from the 20 percent sample of each national census.

Source: Statistics Department, Japan Management and Coordination Agency (1990) Nihon Jyosei no Shakaiteki Chii. Showa 60-nen Kokusei Chosa Monograph Series No. 3. Tokyo: Nihon Tokei Kyokai. p. 111.

Table 8 Percentage of Persons Who Think that "Women Had Better Marry Because Women's Happiness Lies in Marriage" by Sex and Age: Japan, 1972, 1979, 1987, 1990

Respondent characteristic	1972	1979	1987	1990
Total	39	33	30	15
Men	36	33	33	16
20–29	–	–	25	7
30–39	–	–	26	9
40–49	–	–	27	11
50–59	–	–	37	22
60–69	–	–	44	27
70+	–	–	43	25
Women	40	32	28	14
18–19	29	–	–	–
20–24	36	–	25	5
25–29	38	–	21	4
30–34	39	–	18	9
35–39	38	–	22	6
40–44	38	–	24	9
45–49	43	–	29	14
50–54	42	–	33	14
55–59	43	–	36	24
60–69	48	–	38	28
70+	44	–	41	25

Sources: Prime Minister's Office of Japan (1973) Fujin ni kansuru Ishiki Chosa (National Opinion Survey on Women). Vol. 1; _____ (1987) Josei ni kansuru Yoron Chosa (National Opinion Survey on Women); _____ (1990) Josei ni kansuru Yoron Chosa.

Table 9 Percentage Distribution of Marriage Types by Year of Marriage: Japan and Korea

	Arranged marriage	Love match initiated by						
		Total	Friend's introduction	Meeting at work place	Meeting at school	Nextdoor neighbor	Meeting by chance	Other
Japan:								
1943–47	65	35	–	–	–	–	–	–
1948–57	57	43	–	–	–	–	–	–
1960–64	48	52	12	21	2	8	5	4
1965–69	44	56	13	26	3	5	5	3
1970–74	34	66	15	30	5	5	7	4
1975–79	31	69	20	27	5	3	7	6
1980–84	25	75	22	32	7	3	7	4
1985–87	23	77	21	34	7	1	7	7
Korea:								
–1939	93	3	–	–	–	–	–	–
1940–49	96	4	0	0	0	2	–	1
1950–59	89	11	5	1	1	3	–	2
1960–69	81	19	9	4	1	2	–	4
1970–79	55	42	20	11	2	5	–	7
1980–86	45	55	26	16	3	3	–	7

Note: Figures for Japan were reculculated from the published figure by excluding non-response category.

Sources: Institute of Population Problems, Japan Ministry of Health and Welfare (1978) Dai Nanaji Syussanryoku Chosa Hokoku (Report of the 7th Fertility Survey of 1977); _____ (1983) Dai Hachiji Syussanryoku Chosa: Daiichi Hokokusho (The 8th Fertility Survey of 1982: First Report); ____ (1988) Showa 62-nen Nihonjin no Kekkon to Syussan: Dai Kuji Syussanryoku Chosa (Marriage and Fertility of the Japanese: The 9th Fertility Survey of 1987); Kong, Sae Kwon, Inwha Park, Aejo Cho, Jinsook Kim, and Hyunsup Chang (1987) Hanguk Kajok Kujo ui Byonhwa (Changes in Family Structure in Korea). Seoul: Korea Institute for Population and Health.

Table 10 Percentage of Persons Agreeing with the Notion of "the External World for the Husband and the Domestic World for the Wife" by Selected Characteristics: Japan, 1972, 1984, 1987, and 1990

Characteristic	1972	1984	1987	1990
Total	83	55	43	29
Men	84	63	52	35
20–29	–	–	41	29
30–39	–	–	41	29
40–49	–	–	49	32
50–59	–	–	57	36
60–69	–	–	62	39
70+	–	–	73	54
Women	83	49	37	25
18–19	67	–	–	–
20–24	77	–	23	22
25–29	81	–	30	19
30–34	85	–	22	20
35–39	81	–	26	17
40–44	84	–	35	15
45–49	87	–	31	20
50–54	88	–	43	26
55–59	88	–	46	34
60–69	88	–	57	42
70+	82	–	61	48
Women's Occupation				
Employed	74	–	23	27
Professional	63	–	20	25
White-collar	72	–	–**	–**
Blue-collar	78	–	26	30
Agriculture*	85	–	–#	–#
Self-employed/ family worker	80	–	46	27
Fulltime housewife	88	–	41	28

Notes: * Including fishery and forestry.

** Included in the category of "professional."

Included in the category of "self-employed/family worker."

Sources: Prime Minister's Office, Management and Coordination Agency (1973) Fujin ni kansuru Ishiki Chosa (National Opinion Survey on Women). Vol. 1; ____ (1987) Josei ni kansuru Yoron Chosa (National Opinion Survey on Women); _____ (1990) Josei ni kansuru Yoron Chosa.

Table 11 Percentage of Persons Aged 18-24 Agreeing with the Notion of "the External World for Men and the Domestic World for Women": Results from International Comparative Surveys in 1977, 1983, and 1988: Japan and Selected Countries

Country	1977	1983	1988
Japan	50.4	44.5	30.6
Korea	–	41.8	35.9
Singapore	–	–	17.5
U. S. A.	27.3	18.6	18.5
France	29.3	22.6	18.7
Sweden	8.2	7.0	6.3

Source: Seishonen Taisaku Honbu, Management and Coordination Agency (1989) Dai Yonkai Seinen Ishiki Chosa Hokokusho: Sekai no Seinen tono Hikaku kara Mita Nihon no Seinen (Report of the 4th Opinion Survey of the Youth in the World: the Japanese Youth from a Global Perspective).

Chapter Seven

Materials

Area	Population			Sex ratio (Males per 100 females)	Population density (per km²) 1)
	Both sexes	Male	Female		
Japan	123,611,541	60,691,561	62,919,980	96.5	332
All shi	95,643,515	47,120,070	48,523,445	97.1	922
All gun	27,968,026	13,571,491	14,396,535	94.3	104
Hokkaidou	5,643,715	2,722,778	2,920,937	93.2	72
Aomori-ken	1,482,935	704,790	778,145	90.6	154
Iwate-ken	1,416,960	680,150	736,810	92.3	93
Miyagi-ken	2,248,521	1,104,952	1,143,569	96.6	309
Akita-ken	1,227,491	584,628	642,863	90.9	106
Yamagata-ken	1,258,404	607,041	651,363	93.2	135
Fukushima-ken	2,104,119	1,024,292	1,079,827	94.9	153
Ibaraki-ken	2,845,411	1,418,998	1,426,413	99.5	467
Tochigi-ken	1,935,186	962,534	972,652	99.0	302
Gumma-ken	1,966,287	971,658	994,629	97.7	309
Saitama-ken	6,405,319	3,245,585	3,159,734	102.7	1,687
Chiba-ken	5,555,467	2,802,712	2,752,755	101.8	1,078
Tokyo-to	11,854,987	5,968,723	5,886,264	101.4	5,430
Kanagawa-ken	7,980,421	4,097,709	3,882,712	105.5	3,310
Niigata-ken	2,474,602	1,200,293	1,274,309	94.2	197
Toyama-ken	1,120,182	538,628	581,554	92.6	264
Ishikawa-ken	1,164,627	562,662	601,965	93.5	278
Fukui-ken	823,595	400,353	423,242	94.6	197
Yamanashi-ken	852,980	418,644	434,336	96.4	191
Nagano-ken	2,156,656	1,048,031	1,108,575	94.5	159
Gifu-ken	2,066,579	1,003,888	1,062,691	94.5	195
Shizuoka-ken	3,670,891	1,808,912	1,861,979	97.1	472
Aichi-ken	6,690,440	3,354,459	3,335,981	100.6	1,300
Mie-ken	1,792,542	869,457	923,085	94.2	310
Shiga-ken	1,222,401	601,061	621,340	96.7	304
Kyoto-fu	2,602,520	1,267,522	1,334,998	94.9	564
Osaka-fu	8,734,670	4,308,050	4,426,620	97.3	4,640
Hyogo-ken	5,405,090	2,619,369	2,785,721	94.0	645
Nara-ken	1,375,478	663,535	711,943	93.2	373
Wakayama-ken	1,074,321	510,721	563,600	90.6	228
Tottori-ken	615,741	294,871	320,870	91.9	176
Shimane-ken	781,005	373,563	407,442	91.7	118
Okayama-ken	1,925,913	926,730	999,183	92.7	271
Hiroshima-ken	2,849,822	1,385,136	1,464,686	94.6	336
Yamaguchi-ken	1,572,645	744,793	827,852	90.0	257
Tokushima-ken	831,582	395,838	435,744	90.8	201
Kagawa-ken	1,023,434	491,593	531,841	92.4	546
Ehime-ken	1,515,027	716,817	798,210	89.8	267
Kochi-ken	825,063	388,955	436,108	89.2	116
Fukuoka-ken	4,811,179	2,303,294	2,507,885	91.8	969
Saga-ken	877,865	414,648	463,217	89.5	360
Nagasaki-ken	1,563,015	736,683	826,332	89.2	382
Kumamoto-ken	1,840,383	869,385	970,998	89.5	249
Oita-ken	1,236,924	584,614	652,310	89.6	195
Miyazaki-ken	1,168,922	551,491	617,431	89.3	151
Kagoshima-ken	1,797,766	842,362	955,404	88.2	196
Okinawa-ken	1,222,458	598,603	623,855	96.0	540

1) Population densities are calculated based on the land areas presented in the "Survey of the land Area for. Shi, Ku, Machi and Mnura of Japan, 1989" published by the Geographical Survey Institute, Ministry of Construction.

—Japn, All Shi, All Gun and Prefectures

Poulation in 1985 (readjusted)	Population change, 1985—1990 (▲decrease)		Percentage of total population	Households	
	Number	Rate		1990	1985 (readjusted)
121,048,923	2,562,618	2.1	100.0	41,016,255	38,133,297
93,255,444	2,388,071	2.6	77.4	33,000,070	30,490,020
27,793,479	174,547	0.6	22.6	8,016,185	7,643,277
5,679,439	△ 35,724	△ 0.6	4.6	2,030,947	1,930,078
1,524,448	△ 41,513	△ 2.7	1.2	455,133	443,995
1,433,611	△ 16,651	△ 1.2	1.1	427,622	412,880
2,176,295	72,226	3.3	1.8	699,615	641,669
1,254,032	△ 26,541	△ 2.1	1.0	358,644	350,976
1,261,662	△ 3,258	△ 0.3	1.0	341,685	331,303
2,080,304	23,815	1.1	1.7	606,776	574,968
2,725,005	120,406	4.4	2.3	833,284	758,085
1,866,066	69,120	3.7	1.6	573,343	521,556
1,921,259	45,028	2.3	1.6	602,996	556,268
5,863,678	541,641	9.2	5.2	2,043,806	1,751,372
5,148,163	407,304	7.9	4.5	1,813,157	1,572,575
11,829,363	25,624	0.2	9.6	4,778,400	4,511,423
7,431,974	548,447	7.4	6.5	2,846,591	2,491,849
2,478,470	△ 3,868	△ 0.2	2.0	707,714	680,756
1,118,369	1,813	0.2	0.9	314,560	300,526
1,152,325	12,302	1.1	0.9	361,094	338,066
817,633	5,962	0.7	0.7	234,151	224,295
832,832	20,148	2.4	0.7	263,362	244,804
2,136,927	19,729	0.9	1.7	657,229	621,880
2,028,536	38,043	1.9	1.7	603,045	567,946
3,574,692	96,199	2.7	3.0	1,117,151	1,033,037
6,455,172	235,268	3.6	5.4	2,173,114	1,985,108
1,747,311	45,231	2.6	1.5	545,834	508,085
1,155,844	66,557	5.8	1.0	352,235	320,354
2,586,574	15,946	0.6	2.1	901,453	860,309
8,668,095	66,575	0.8	7.1	3,090,354	2,904,717
5,278,050	127,040	2.4	4.4	1,791,019	1,666,482
1,304,866	70,612	5.4	1.1	413,114	375,311
1,087,206	△ 12,885	△ 1.2	0.9	345,172	333,839
616,024	△ 283	△ 0.0	0.5	179,778	173,211
794,629	△ 13,624	△ 1.7	0.6	236,074	233,161
1,916,906	9,007	0.5	1.6	609,489	583,470
2,819,200	30,622	1.1	2.3	980,921	922,244
1,601,627	△ 28,982	△ 1.8	1.3	536,835	518,938
834,889	△ 3,307	△ 0.4	0.7	259,546	248,498
1,022,569	865	0.1	0.8	322,807	306,996
1,529,983	△ 14,956	△ 1.0	1.2	512,715	492,583
839,784	△ 14,721	△ 1.8	0.7	291,728	283,424
4,719,259	91,920	1.9	3.9	1,638,794	1,522,528
880,013	△ 2,148	△ 0.2	0.7	251,188	242,619
1,593,968	△ 30,953	△ 1.9	1.3	503,328	489,492
1,837,747	2,636	0.1	1.5	578,471	553,963
1,250,214	△ 13,290	△ 1.1	1.0	411,680	395,855
1,175,543	△ 6,621	△ 0.6	0.9	392,586	376,071
1,819,270	△ 21,504	△ 1.2	1.5	659,393	640,954
1,179,097	43,361	3.7	1.0	368,322	334,778

Source : 1990 Population Census of Japan, Preliminary counts of the Population on the Basis of Summary Sheets, As of October 1, 1990 Statistical Bureau, Management and Coordination Agency

Vital Statistics by Prefecture, (1989)

Prefecture	Population (in thousands)			
	Birth Rate	Death Rate	Marriage Rate	Divorce Rate
Japan	10.2	6.4	5.8	1.29
Hokkaido	9.8	6.4	5.9	1.77
Aomori-ken	10.4	7.3	5.2	1.47
Iwate-ken	10.3	7.5	5.0	1.01
Miyagi-ken	10.8	6.0	5.4	1.08
Akita-ken	9.4	7.9	4.8	1.05
Yamagata-ken	10.3	8.0	4.9	1.86
Fukushima-ken	11.1	7.2	5.2	1.06
Ibaraki-ken	10.4	6.3	5.4	1.04
Tochigi-ken	10.6	6.6	5.6	1.14
Gumma-ken	10.3	6.7	5.5	1.20
Saitama-ken	10.1	4.7	6.1	1.20
Chiba-ken	9.9	5.0	5.8	1.28
Tokyo-to	9.1	5.8	6.9	1.51
Kanagawa-ken	10.1	4.7	6.8	1.36
Niigata-ken	10.2	7.5	4.8	1.83
Toyama-ken	9.2	7.5	4.9	0.91
Ishikawa-ken	10.1	7.0	5.2	1.10
Fukui-ken	11.0	7.5	5.3	1.01
Yamanashi-ken	10.4	7.5	5.6	1.07
Nagano-ken	10.2	7.5	5.2	0.97
Gifu-ken	10.1	6.6	5.1	0.95
Shizuoka-ken	10.5	6.2	5.6	1.18
Aichi-ken	10.9	5.6	6.2	1.19
Mie-ken	10.2	7.3	5.4	1.02
Shiga-ken	11.2	6.5	5.7	0.91
Kyoto-fu	9.7	6.8	5.5	1.18
Osaka-fu	10.3	5.9	6.5	1.61
Hyogo-ken	10.1	6.8	5.8	1.28
Nara-ken	9.8	6.2	5.5	1.10
Wakayama-ken	9.6	8.3	5.2	1.31
Tottori-ken	10.4	8.0	4.9	1.11
Shimane-ken	9.9	8.8	4.4	0.84
Okayama-ken	10.1	7.6	5.1	1.19
Hiroshima-ken	10.3	6.8	5.5	1.19
Yamaguchi-ken	9.2	8.0	4.9	1.22
Tokushima-ken	9.7	8.3	5.1	1.13
Kagawa-ken	6.6	7.9	5.0	1.14
Ehime-ken	10.0	7.7	5.2	1.33
Kochi-ken	9.2	8.6	4.9	1.64
Fukuoka-ken	10.5	6.8	5.7	1.58
Saga-ken	10.7	7.8	4.9	1.00
Nagasaki-ken	11.0	7.7	5.1	1.28
Kumamoto-ken	10.7	7.6	5.1	1.22
Oita-ken	9.8	7.9	4.9	1.33
Miyazaki-ken	11.0	7.3	5.3	1.52
Kagoshima-ken	10.9	8.4	5.0	1.27
Okinawa-ken	14.9	4.8	6.2	1.95

Source Statistics and Information Department, Minister's Secretariat, Ministry of Health and Welfare, Vital Statistics of Japan, 1989

Neonatal deaths (per 1,000 live births)	Perinatal deaths (per 1,000 live births)	Foetal deaths (per 1,000 births inclusive of foetal deaths)
4.6	6.0	42.4
4.5	6.0	62.4
6.8	8.7	45.9
3.8	6.5	49.9
4.5	6.1	50.8
4.5	5.2	42.8
3.5	5.0	43.1
6.0	7.2	46.7
5.0	6.3	38.2
4.3	5.6	41.7
4.7	7.1	37.0
4.4	6.1	35.4
4.0	5.9	36.3
4.5	5.7	41.1
4.4	6.0	36.2
4.1	5.4	34.1
6.1	6.4	36.7
2.9	4.0	37.6
4.4	5.5	38.1
3.6	4.9	39.6
4.5	5.9	34.3
4.3	5.3	35.3
3.8	5.3	38.0
4.7	5.7	38.4
5.3	5.8	38.0
5.3	5.8	33.3
4.0	6.1	39.3
4.6	5.7	46.7
4.8	6.1	39.2
4.8	5.9	38.1
5.3	7.4	40.5
4.7	6.1	41.8
3.9	6.7	37.3
4.3	5.8	43.2
4.3	5.2	38.7
4.8	7.5	46.6
5.4	6.6	38.5
5.2	5.8	37.9
4.6	6.6	44.9
6.3	7.6	49.2
4.7	5.5	50.7
5.3	7.3	46.3
4.2	5.6	57.1
4.9	6.0	52.5
4.0	5.8	54.1
5.3	7.0	57.9
4.8	6.7	54.2
5.6	6.2	35.8

Year	Live births	Deaths	Natural increase	Infant deaths	Neonatal deaths
Foetal deaths					
1920	2,026	1,422	603	336	140
1925	2,086	1,211	875	297	121
1930	2,085	1,171	914	259	104
1935	2,191	1,162	1,029	234	98
1940	2,116	1,187	929	191	82
1945	2,338	905	1,433	141	64
1950	1,731	694	1,037	69	39
1960	1,606	707	899	49	27
1965	1,824	700	1,123	34	21
1970	1,934	713	1,221	25	17
1975	1,901	702	1,199	19	13
1980	1,577	723	854	12	8
1985	1,432	752	679	8	5
1986	1,383	751	632	7	4
1987	1,347	751	595	7	4
1988	1,314	793	521	6	4
1989	1,246	788	458	6	3
Rates per 1,000 population Infant deaths (per 1,000 live births), Neonatal deaths (per 1,000 live births), Perinatal deaths (per 1,000 live births), Foetal deaths (per 1,000 births inclusive of foetal deaths)					
1920	36.2	25.4	10.8	165.7	69.0
1925	34.9	20.3	14.7	142.4	58.1
1930	32.4	18.2	14.2	124.1	49.9
1935	31.6	16.8	14.9	106.7	44.7
1940	29.4	16.5	12.9	90.0	38.7
1945	28.1	10.9	17.2	60.1	27.4
1950	19.4	7.8	11.6	39.8	22.3
1960	17.2	7.6	9.6	30.7	17.0
1965	18.6	7.1	11.4	18.5	11.7
1970	18.8	6.9	11.8	13.1	8.7
1975	17.1	6.3	10.8	10.0	6.8
1980	13.6	6.2	7.3	7.5	4.9
1985	11.9	6.3	5.6	5.5	3.4
1986	11.4	6.2	5.2	5.2	3.1
1987	11.1	6.2	4.9	5.0	2.9
1988	10.8	6.5	4.3	4.8	2.7
1989	10.2	6.4	3.7	4.8	2.6

Note Until 1966, the rates were calculated for the total population. After 1967, the rates were calculated for the Japanese population.
For 1947–1970, excluding Okinawa prefecture (Excluding Okinawa prefecture for 1947–1970)
Until 1940, neonatal deaths refer to those occurred within a month. After 1947, neonatal deaths refer to those occurred within twenty-eight days.

Source Statistics and Information Department, Minister's Secretariat, Ministry of Health and Welfare, Vital Statistics of Japan, 1989.

Foetal deaths	Perinatal deaths	Marriages	Divorces
144	···	546	56
124	···	521	52
118	···	507	51
116	···	557	49
102	···	667	49
217	109	715	84
183	76	715	75
179	67	866	69
162	55	955	77
135	42	1,029	96
102	31	942	119
77	18	775	142
69	11	736	167
66	10	711	166
64	9	696	158
60	9	708	154
55	7	708	159
66.4	—	9.8	0.99
56.3	—	8.7	0.87
53.4	—	7.9	0.80
50.1	—	8.0	0.70
46.0	—	9.3	0.68
84.9	46.6	8.6	1.01
95.8	43.9	8.0	0.84
00.4	41.4	9.3	0.74
81.4	30.1	9.7	0.79
65.3	21.7	10.0	0.93
50.8	16.0	8.5	1.07
46.8	11.7	6.7	1.22
46.0	8.0	6.1	1.39
45.3	7.3	5.9	1.37
45.3	6.9	5.7	1.30
43.4	6.5	5.8	1.26
42.4	6.0	5.8	1.29

City	Live births	Deaths	Natural increase	Infant deaths	Neonatal deaths
Number (In thousands)					
Tokyo	71,026	49,801	21,225	319	181
Saporo	17,479	8,103	9,376	75	40
Yokohama	32,824	14,728	18,096	142	75
Kawasaki	13,034	5,014	8,020	65	32
Nagoya	22,974	12,743	10,231	113	68
Kyoto	13,590	9,970	3,620	51	24
Osaka	26,077	18,610	7,467	138	81
Kobe	13,890	9,728	4,162	61	32
Hiroshima	12,031	5,421	6,610	51	22
Kitakyushu	10,023	7,077	2,946	51	28
Fukuoka	14,023	6,176	7,847	55	31
Rates	per 1,000 population Infant deaths (per 1,000 live births), Neonatal deaths (per 1,000 live births), Perinatal deaths (per 1,000 live births), Foetal deaths (per 1,000 births inclusive of foetal deaths)				
Tokyo	8.6	6.0	2.6	4.5	2.5
Saporo	10.6	4.9	5.7	4.3	2.3
Yokohama	10.3	4.6	5.7	4.3	2.3
Kawasaki	11.3	4.3	6.9	5.0	2.5
Nagoya	10.7	5.9	4.8	4.9	3.0
Kyoto	9.2	6.8	2.5	3.8	1.8
Osaka	9.9	7.1	2.8	5.3	3.1
Kobe	9.5	6.7	2.8	4.4	2.3
Hiroshima	11.1	5.0	6.1	4.2	1.8
Kitakyushu	9.7	6.8	2.8	5.1	2.8
Fukuoka	11.5	5.1	6.4	3.9	2.2

Source Statistics and Information Department, Minister's Secretariat, Ministry of Health and Welfare, Vital Statistics of Japan, 1989.

Foetal deaths	Perinatal deaths	Marriages	Divorces
3,264	403	57,696	12,731
1,169	107	11,975	3,413
1,235	194	22,457	4,293
470	75	9,484	1,664
961	138	14,504	3,087
604	83	8,490	1,934
1,584	161	18,718	4,972
638	103	8,253	2,240
522	60	6,869	1,489
596	69	5,824	1,926
769	76	8,165	2,091
43.9	5.7	7.0	1.54
62.7	6.1	7.3	2.07
36.3	5.9	7.0	1.35
34.8	5.8	8.2	1.44
40.2	6.0	6.7	1.44
42.6	6.1	5.8	1.31
57.3	6.2	7.1	1.89
43.9	7.4	5.6	1.53
41.6	5.0	6.4	1.38
56.1	6.9	5.6	1.86
52.0	5.4	6.7	1.72

Prefecture life tables, 1985 : the expectation of life at specified ages

MALE

	0		20		40		65	
	expectations of life (life expectancy)	No.	expectations of life (life expectancy)	No.	expectations of life (life expectancy)	No.	expectations of life (life expectancy)	No.
Japan	74.95		55.92		36.81		15.71	
Hokkaido	74.50	29	55.56	30	36.60	31	15.66	25
Aomori-ken	73.05	47	54.15	47	35.29	47	14.89	47
Iwate-ken	74.27	39	55.31	39	36.36	40	15.51	35
Miyagi-ken	75.11	19	56.06	21	36.95	21	15.66	25
Akita-ken	74.12	42	55.13	44	36.18	42	15.22	45
Yamagata-ken	74.99	22	55.93	23	36.85	24	15.47	38
Fukushima-ken	74.38	34	55.49	33	36.53	34	15.51	35
Ibaraki-ken	74.35	36	55.59	29	36.62	30	15.51	35
Tochigi-ken	74.36	35	55.43	35	36.37	39	15.35	43
Gumma-ken	75.11	19	56.09	19	37.04	18	15.73	21
Saitama-ken	75.20	17	56.14	17	36.88	23	15.53	34
Chiba-ken	75.27	15	56.21	16	37.05	17	15.80	19
Tokyo-to	75.60	5	56.42	8	37.15	13	16.00	12
Kanagawa-ken	75.59	6	56.49	4	37.24	9	15.98	13
Niigata-ken	74.83	26	55.83	26	36.80	26	15.55	32
Toyama-ken	74.81	27	55.89	24	36.84	25	15.56	31
Ishikawa-ken	75.28	13	56.32	12	37.12	16	15.54	33
Hukui-ken	75.64	3	56.77	3	37.60	3	15.96	14
Yamanashi-ken	75.02	21	56.12	18	37.19	11	16.03	11
Nagano-ken	75.91	2	56.93	2	37.85	2	16.11	5
Gifu-ken	75.53	7	56.48	6	37.36	5	15.96	14
Shizuoka-ken	75.48	8	56.45	7	37.32	6	16.09	7
Aichi-ken	75.44	9	56.38	9	37.19	11	15.69	23
Mie-ken	74.87	23	55.99	22	37.01	19	15.65	27
Shiga-ken	75.34	11	56.35	11	37.15	13	15.41	40
Kyot-fu	75.39	10	56.36	10	37.15	13	15.75	20
Osaka-fu	74.01	46	54.91	46	35.70	46	14.96	46
Hyogo-ken	74.47	30	55.43	35	36.33	41	15.38	42
Nara-ken	74.87	23	55.84	25	36.66	29	15.44	39
Wakayama-ken	74.19	40	55.15	42	36.14	44	15.35	43
Tottori-ken	74.40	32	55.47	34	36.47	35	15.61	28
Shimane-ken	75.30	12	56.26	13	37.31	7	16.32	2
Okayama-ken	75.28	13	56.24	15	37.22	10	16.07	8
Hiroshima-ken	75.19	18	56.08	20	36.98	20	16.04	10
Yamaguchi-ken	74.45	31	55.50	31	36.67	28	15.89	16
Tokushima-ken	74.35	36	55.38	38	36.39	38	15.61	28
Kagawa-ken	75.61	4	56.49	4	37.56	4	16.31	3
Ehime-ken	74.75	28	55.80	27	36.94	22	16.10	6
Kochi-ken	74.04	45	55.29	40	36.56	32	16.06	9
Fukuoka-ken	74.19	40	55.14	43	36.16	43	15.70	22
Saga-ken	74.32	38	55.41	37	36.41	36	15.68	24
Nagasaki-ken	74.09	43	55.09	45	36.11	45	15.41	40
Kumamoto-ken	75.24	16	56.26	13	37.26	8	16.21	4
Oita-ken	74.82	26	55.70	28	36.80	26	15.86	17
Miyazaki-ken	74.39	33	55.50	31	36.56	32	15.84	18
Kagoshima-ken	74.09	43	55.24	41	36.41	36	15.58	30
Okinawa-ken	76.34	1	57.41	1	38.62	1	17.55	1
Tokyo	75.34		56.16		36.90		15.94	
Sapporo	75.33		56.22		37.11		16.03	
Yokohama	75.45		56.36		37.10		15.95	
Kawasaki	75.53		56.38		37.08		15.99	
Nagoya	75.00		55.91		36.70		15.48	
Kyoto	75.22		56.11		36.87		15.64	
Osaka	72.91		53.87		34.74		14.57	
Kobe	74.18		55.06		35.94		15.23	
Hiroshima	75.85		56.66		37.36		16.34	
Kitakyushu	73.94		54.86		35.81		15.45	
Fukuoka	74.75		55.66		36.54		15.87	

Source Prefecture life tables, 1985.Statistics and Information Department, Minister's Secretariat, Ministry of Health and Welfare, Vital Statistics of Japan, 1989

FEMALE

0		20		40		65		difference between male and female in the expectation of life
expectations of life (life expectancy)	No.	expectations of life (life expectancy)	No.	expectations of life (life expectancy)	No.	expectations of life (life expectancy)	No.	
80.75		61.47		41.99		19.21		5.80
80.42	35	61.24	34	41.79	34	19.08	29	5.92
79.90	46	60.68	46	41.29	45	18.63	43	6.85
80.69	26	61.40	26	41.99	26	19.10	27	6.42
80.69	26	61.39	27	41.90	29	18.95	34	5.58
80.29	40	61.07	41	41.60	41	18.60	44	6.17
80.86	21	61.57	21	42.02	24	19.02	31	5.87
80.25	42	61.09	38	41.73	36	18.83	39	5.87
79.97	45	60.81	44	41.35	44	18.58	45	5.62
79.98	44	60.69	45	41.25	46	18.54	46	5.62
80.39	37	61.09	38	41.62	39	18.87	37	5.28
80.65	29	61.32	32	41.76	35	19.01	32	5.45
80.88	20	61.55	22	42.06	22	19.21	22	5.61
81.09	11	61.76	14	42.23	18	19.48	16	5.49
81.22	7	61.85	10	42.33	12	19.51	13	5.63
80.86	21	61.63	19	42.15	20	19.06	30	6.03
80.80	25	61.50	24	42.07	21	19.17	23	5.99
80.89	19	61.54	23	42.04	23	19.10	27	5.61
81.01	12	61.81	13	42.26	15	19.31	21	5.37
80.94	15	61.59	20	42.29	14	19.42	18	5.92
81.13	9	61.90	9	42.47	8	19.50	15	5.22
80.31	39	61.10	37	41.64	38	18.86	38	4.78
81.37	4	62.05	5	42.56	6	19.67	7	5.89
80.51	34	61.19	36	41.67	37	18.91	36	5.07
80.61	31	61.34	30	41.86	32	19.01	32	5.74
80.63	30	61.34	30	41.80	33	18.81	41	5.29
80.68	28	61.36	29	41.88	31	19.12	25	5.29
79.84	47	60.55	47	41.05	47	18.47	47	5.83
80.40	36	61.09	38	41.62	39	18.93	35	5.93
80.27	41	60.96	42	41.47	43	18.71	42	5.40
80.13	43	60.95	43	41.62	42	18.82	40	5.94
81.11	10	61.91	8	42.42	9	19.47	17	6.71
81.60	2	62.38	2	43.00	2	19.97	3	6.30
81.31	5	62.05	5	42.58	5	19.65	8	6.03
80.94	15	61.73	16	42.26	15	19.56	12	5.75
81.16	8	61.93	7	42.49	7	19.73	6	6.71
80.56	33	61.27	33	41.92	28	19.11	26	6.21
81.28	6	62.07	4	42.62	4	19.77	5	5.67
81.01	12	61.82	12	42.41	10	19.61	10	6.26
80.97	14	61.85	10	42.41	10	19.79	4	6.93
80.91	18	61.66	18	42.17	19	19.62	9	6.72
80.94	15	61.75	15	42.30	13	19.51	13	6.62
80.81	24	61.47	25	42.02	24	19.38	19	6.72
81.47	3	62.26	3	42.84	3	20.04	2	6.23
80.58	32	61.38	28	41.95	27	19.14	24	5.76
80.84	23	61.68	17	42.24	17	19.61	10	6.45
80.34	38	61.22	35	41.89	30	19.32	20	6.25
83.70	1	64.58	1	45.19	1	22.31	1	7.36
80.93		61.63		42.12		19.38		5.54
80.87		61.55		42.05		19.31		5.59
81.06		61.70		42.16		19.40		5.61
81.24		61.92		42.38		19.55		5.71
80.42		61.15		41.65		19.00		5.42
80.62		61.32		41.82		19.10		5.40
79.38		60.11		40.69		18.26		6.47
80.26		60.84		41.40		18.80		6.08
81.39		62.01		42.45		19.77		5.54
80.66		61.40		41.87		19.29		6.72
81.33		61.97		42.44		19.93		6.58

Number of Migrants by Prefectures

Prefecture	Net-migration			
	1965	1975	1980	1985
Japan	0	0	0	0
Hokkaido	△ 74,591	△ 5,175	△ 4,729	△ 27,078
Aomori-ken	△ 16,910	△ 2,467	△ 5,152	△ 10,467
Iwate-ken	△ 21,239	△ 5,119	△ 4,679	△ 7,988
Miyagi-ken	△ 2,509	7,304	4,164	324
Akita-ken	△ 18,252	△ 3,847	△ 5,092	△ 6,932
Yamagata-ken	△ 15,236	△ 4,388	△ 3,016	△ 4,280
Fukushima-ken	△ 18,110	△ 7,578	△ 4,536	△ 4,903
Ibaraki-ken	14,042	15,469	24,106	8,091
Tochigi-ken	6,755	145	1,861	3,399
Gumma-ken	331	△ 862	1,765	1,628
Saitama-ken	135,775	84,090	51,734	39,763
Chiba-ken	111,187	77,600	66,091	32,064
Tokyo-to	△ 104,563	△ 128,589	△ 94,889	1,669
Kanagawa-ken	127,731	32,747	28,114	49,149
Niigat-ken	△ 25,084	△ 7,829	△ 4,213	△ 8,381
Toyama-ken	△ 4,464	△ 1,511	△ 1,495	△ 1,626
Ishikawa-ken	△ 2,405	454	325	△ 1,631
Fukui-ken	△ 4,344	△ 1,350	△ 1,333	△ 965
Yamanashi-ken	△ 5,082	△ 2,690	△ 224	2,028
Nagano-ken	△ 9,501	△ 4,122	△ 1,817	1,601
Gifu-ken	1,140	△ 66	2,045	△ 852
Shizuoka-ken	9,676	△ 2,876	△ 3,064	2,626
Aichi-ken	46,316	△ 9,991	△ 9,950	5,482
Mie-ken	△ 2,377	507	5,503	2,276
Shiga-ken	8,298	9,353	9,357	5,863
Kyoto-fu	3,155	593	△ 2,649	△ 4,341
Osaka-fu	56,700	△ 36,331	△ 40,286	△ 20,265
Hyogo-ken	17,980	△ 9,988	△ 11,532	△ 2,495
Nara-ken	16,906	10,506	20,057	8,191
Wakayama-ken	△ 6,295	△ 3,322	△ 3,388	△ 4,745
Tottori-ken	△ 3,830	△ 1,304	316	△ 1,326
Shimane-ken	△ 11,661	△ 2,268	△ 806	△ 2,099
Okayama-ken	6,026	1,354	△ 1,673	△ 2,370
Hiroshima-ken	8,885	△ 1,584	3,412	△ 3,396
Yamaguchi-ken	△ 12,102	△ 2,320	△ 3,468	△ 5,669
Tokushima-ken	△ 7,838	△ 3,041	△ 1,406	△ 2,522
Kagawa-ken	△ 1,567	293	552	△ 409
Ehime-ken	△ 13,055	△ 2,581	△ 3,166	△ 4,084
Kochi-ken	△ 7,535	323	△ 380	△ 2,333
Fukuoka-ten	△ 31,421	22,385	4,405	△ 5,033
Saga-ken	△ 12,961	△ 2,829	△ 1,259	△ 4,138
Nagasaki-ken	△ 39,303	△ 7,820	△ 6,722	△ 8,952
Kumamoto-ken	△ 33,111	△ 1,666	1,219	△ 3,663
Oita-ken	△ 7,950	△ 72	△ 1,998	△ 3,210
Miyazaki-ken	△ 17,932	961	1,406	△ 4,940
Kagoshima-ken	△ 38,814	△ 4,534	60	△ 3,775
Okinawa-ken	···	3,976	△ 3,570	714

Source Statistics Bureau Manegement and Coordination Agency, Annual Report on the Internal Migration in Japan Derived from the Basic Resident Registers

unit (persons)

1989			
Net-migration	In-migrants from other prefectures	Out-migrants to other prefectures	Intra-prefectural migrants
0	3,158,749	3,158,749	3,359,181
△ 21,795	67,768	89,563	318,709
△ 11,858	30,617	42,475	28,939
△ 8,209	26,015	34,224	32,354
4,031	60,683	56,652	64,858
△ 6,872	18,870	25,742	19,806
△ 4,694	18,360	23,054	17,783
△ 3,710	37,295	41,005	36,268
15,820	73,326	57,506	52,180
4,248	42,097	37,849	30,995
2,191	35,036	32,845	37,084
74,897	245,955	171,058	152,017
53,318	221,005	167,687	135,651
△ 61,759	454,815	516,574	403,754
50,829	300,590	249,761	246,204
△ 6,779	34,887	41,666	43,836
△ 1,854	17,032	18,886	14,758
△ 1,341	22,532	23,873	19,896
△ 1,787	13,032	14,819	11,070
1,516	19,600	18,084	19,316
△ 1,024	36,753	37,777	47,950
517	39,728	39,211	36,333
1,195	75,629	74,434	71,847
3,950	132,694	128,744	197,963
6,752	41,478	34,726	32,455
10,277	35,578	25,301	20,383
△ 6,378	67,242	73,620	71,558
△ 44,286	195,871	240,157	273,070
14,240	133,228	118,988	150,529
12,483	47,452	34,969	23,984
△ 857	20,431	21,288	16,520
△ 1,509	12,644	14,153	9,659
△ 3,645	15,251	18,896	15,190
△ 2,878	38,856	41,734	33,086
△ 4,505	68,622	73,127	94,909
△ 7,289	36,653	43,942	34,745
△ 2,361	14,367	16,728	17,292
△ 1,257	24,760	26,017	19,607
△ 4,668	27,674	32,342	34,127
△ 2,990	14,445	17,435	18,470
2,070	123,039	120,969	187,822
△ 3,502	21,102	24,604	15,723
△ 11,612	35,876	47,488	38,703
△ 5,370	39,600	44,970	45,760
△ 4,729	27,456	32,185	25,473
△ 4,970	27,983	32,953	32,388
△ 9,571	40,656	50,227	60,806
△ 4,275	24,166	28,441	47,350

Labour Mobility of Persons who Found Employment by Prefectures (F.Y. 1988)

Prefecture	Regular workers				
		Within the same prefecture	To other prefectures		From other prefectures
Japan	1,080,362	1,047,641	32,721	1,080,362	32,721
Hokkaido	47,237	46,294	943	46,362	68
Aomori-ken	29,433	28,619	814	28,693	74
Iwate-ken	23,630	23,081	549	23,172	91
Miyagi-ken	18,434	18,066	368	18,317	251
Akita-ken	21,470	20,903	567	20,920	17
Yamagata-ken	14,673	14,434	239	14,487	53
Fukushima-ken	24,343	23,611	732	23,722	111
Ibaraki-ken	20,597	19,688	909	20,334	646
Tochigi-ken	18,782	18,358	424	18,839	481
Gumma-ken	15,047	14,614	433	15,053	439
Saitama-ken	23,999	21,097	2,902	22,194	1,097
Chiba-ken	23,099	20,608	2,491	21,325	717
Tokyo-to	62,074	60,207	1,867	71,485	11,278
Kanagawa-ken	39,827	36,932	2,895	39,505	2,573
Niigata-ken	44,247	43,860	387	43,929	69
Toyama-ken	12,552	12,457	95	12,558	101
Ishikawa-ken	14,302	14,201	101	14,393	192
Fukui-ken	9,819	9,720	99	9,785	65
Yamanashi-ken	8,539	8,398	141	8,557	159
Nagano-ken	23,469	23,306	163	23,420	114
Gifu-ken	18,704	18,211	493	18,622	411
Shizuoka-ken	28,618	28,286	332	28,830	544
Aichi-ken	37,548	37,176	372	40,151	2,975
Mie-ken	12,795	12,489	306	12,850	361
Shiga-ken	9,345	8,950	395	9,423	473
Kyoto-fu	15,901	15,227	674	16,102	875
Osaka-fu	66,247	65,475	772	69,232	3,757
Hyogo-ken	37,942	36,315	1,627	37,003	688
Nara-ken	6,955	6,340	615	6,592	252
Wakayama-ken	8,898	8,600	298	8,680	80
Tottori-ken	9,365	9,140	225	9,235	95
Shimane-ken	11,656	11,216	440	11,372	156
Okayama-ken	22,606	22,089	517	22,370	281
Hiroshima-ken	31,673	31,167	506	32,086	919
Yamaguchi-ken	22,190	21,689	501	21,838	149
Tokushima-ken	8,160	7,970	190	7,985	15
Kagawa-ken	14,539	14,232	307	14,461	229
Ehime-ken	18,003	17,736	267	17,985	249
Kochi-ken	9,469	9,135	334	9,160	25
Fukuoka-ken	52,664	51,313	1,351	52,068	755
Saga-ken	11,223	10,735	488	10,946	211
Nagasaki-ken	24,645	23,869	776	23,987	118
Kumamoto-ken	24,669	24,216	453	24,407	191
Oita-ken	20,782	20,248	534	20,383	135
Miyazaki-ken	19,721	19,151	570	19,243	92
Kagoshima-ken	26,208	25,450	758	25,532	82
Okinawa-ken	14,263	12,762	1,501	12,769	7

Note Data are based on the records of the public Employment Security offices.
Excluding new school graduate and part-timers.
Source Employment Security Bureau, Ministry of Labor, Annual Report on Employment Service, 1988

unit : persons

Causual and seasonal laboures				
	Within the same prefecture	To other prefectures		From other prefectures
381,961	294,804	87,157	381,961	87,157
219,778	209,079	10,699	209,976	897
15,741	1,471	14,270	1,638	167
22,459	8,630	13,829	8,757	127
2,561	1,487	1,074	1,977	490
9,197	610	8,587	650	40
3,578	789	2,789	844	55
5,923	4,785	1,138	5,078	293
544	499	45	1,839	1,340
1,441	1,436	5	2,928	1,492
507	463	44	3,785	3,322
292	289	3	5,983	5,694
268	266	2	3,993	3,727
426	239	187	19,456	19,217
159	102	57	14,756	14,654
24,283	18,458	5,825	18,575	117
748	673	75	1,067	394
8,004	5,521	2,483	5,720	199
943	442	501	711	269
84	83	1	386	303
9,526	9,349	177	10,313	964
2,933	2,891	42	4,929	2,038
1,064	1,041	23	6,415	5,374
850	817	33	15,679	14,862
236	192	44	755	563
1,102	1,102	0	3,190	2,088
738	515	223	2,218	1,703
336	330	6	3,015	2,685
8,005	6,608	1,397	7,927	1,319
649	646	3	1,052	406
328	274	54	955	381
975	800	175	920	120
3,345	2,971	374	3,002	31
1,357	1,298	59	1,448	150
932	844	88	2,022	1,178
685	573	112	623	50
400	17	383	72	55
1,783	1,738	45	1,805	67
1,980	1,385	595	1,543	158
992	481	511	490	9
1,951	639	1,312	747	108
1,044	421	623	425	4
2,800	969	1,831	970	1
2,887	952	1,935	972	20
1,701	665	1,036	686	21
3,234	568	2,666	569	1
3,602	716	2,886	720	4
9,590	680	8,910	680	0

Population 15 Years Old and Over by Employment Status for Prefectures

Data conducted as of 1 October 1987

Prefectures	Population 15 Years Old and Over	Working persons			
		Total	Primary industry	Secondary industry	
				Total	Manufacturing
Japan	97,337	60,502	5,009	20,406	14,699
Hokkaido	4,494	2,655	335	652	299
Aomori-ken	1,187	724	156	174	90
Iwate-ken	1,131	741	173	205	129
Miyagi-ken	1,732	1,062	131	294	188
Akita-ken	1,003	623	114	200	124
Yamagata-ken	1,011	658	111	240	173
Fukushima-ken	1,640	1,059	165	381	271
Ibaraki-ken	2,161	1,406	208	481	360
Tochigi-ken	1,478	968	115	383	305
Gumma-ken	1,534	1,013	122	404	319
Saitama-ken	4,758	2,979	115	1,132	864
Chiba-ken	4,165	2,593	191	757	544
Tokyo-to	9,898	6,221	37	1,844	1,331
Kanagawa-ken	6,146	3,788	60	1,423	1,054
Niigata-ken	1,974	1,267	151	489	331
Toyama-ken	901	591	49	234	171
Ishikawa-ken	914	590	42	206	146
Fukui-ken	652	440	36	176	131
Yamanashi-ken	674	436	61	151	111
Nagano-ken	1,720	1,175	178	455	341
Gifu-ken	1,618	1,077	67	473	374
Skizuoka-ken	2,852	1,938	166	785	626
Aichi-ken	5,179	3,400	158	1,437	1,159
Mie-ken	1,409	894	78	342	262
Shiga-ken	914	583	38	243	192
Kyoto-fu	2,088	1,258	47	425	331
Osaka-fu	7,011	4,205	47	1,576	1,227
Hyogo-ken	4,233	2,500	97	890	691
Nara-ken	1,058	617	41	209	163
Wakayama-ken	870	519	83	142	102
Tottori-ken	489	322	55	100	70
Shimane-ken	635	411	72	127	78
Okayama-ken	1,535	972	104	357	255
Hiroshima-ken	2,247	1,375	96	478	345
Yamaguchi-ken	1,279	755	89	228	139
Tokushima-ken	672	410	63	123	85
Kagawa-ken	819	514	59	170	123
Ehime-ken	1,217	750	109	230	160
Kochi-ken	676	410	71	94	47
Fukuoka-ken	3,755	2,093	139	573	345
Saga-ken	689	422	68	123	80
Nagasaki-ken	1,235	700	107	177	102
Kumamoto-ken	1,463	865	169	205	119
Oita-ken	991	591	90	151	87
Miyazaki-ken	914	567	118	147	92
Kagoshima-ken	1,433	864	175	213	126
Okinawa-ken	882	501	54	108	36

Note Includes "Establishments not adequately described"

Source Statistic Bureau Management and Coordination Agency, Employment Status Suruey, Whole Japan, 1987

In thousand of persons

Tertiary industry			Persons not working
Total	Wholesale and retail trade	Services	
34,954	13,550	12,977	36,836
1,665	628	603	1,839
394	148	156	463
362	135	147	390
637	255	217	670
309	116	120	380
306	118	116	354
513	193	202	580
717	267	282	755
469	180	184	511
487	192	184	520
1,728	671	585	1,779
1,635	575	601	1,572
4,300	1,661	1,615	3,676
2,296	841	891	2,358
626	242	237	707
307	120	118	310
342	128	137	323
228	84	88	213
225	84	89	238
542	208	210	545
538	214	204	540
986	400	375	914
1,797	785	612	1,779
473	171	182	516
301	107	120	331
778	317	298	830
2,567	1,147	842	2,805
1,503	592	530	1,733
364	131	142	440
293	109	108	351
167	61	63	168
212	77	84	225
512	188	204	564
797	315	289	872
438	167	162	524
223	83	86	262
285	109	104	305
412	157	157	467
245	94	99	266
1,376	538	505	1,663
230	86	91	267
416	153	160	535
492	170	199	598
349	132	136	400
302	109	127	346
475	168	185	570
338	124	131	381

Prefectural Account

100 Million Yen

Prefecture	Prefectural Income (Distribution)	
	1976	1987
Japan	1,422,565	2,873,021
Hokkaido	64,689	117,937
Aomori-ken	14,110	25,972
Iwate-ken	13,259	25,540
Miyagi-ken	22,727	46,643
Akita-ken	12,978	22,858
Yamagata-ken	12,609	23,560
Fukushima-ken	20,635	40,757
Ibaraki-ken	26,538	61,940
Tochigi-ken	20,339	43,153
Gumma-ken	19,820	42,711
Saitama-ken	59,231	141,464
Chiba-ken	52,741	126,389
Tokyo-to	202,612	409,427
Kanagawa-ken	88,737	203,881
Niigata-ken	27,302	51,703
Toyama-ken	13,142	25,084
Ishikawa-ken	13,083	23,479
Fukui-ken	8,979	17,459
Yamanashi-ken	8,450	19,188
Nagano-ken	24,895	47,491
Gifu-ken	21,643	44,602
Shizuoka-ken	40,231	84,949
Aichi-ken	81,922	170,095
Mie-ken	19,379	39,130
Shiga-ken	12,166	29,050
Kyoto-fu	31,583	62,869
Osaka-fu	121,838	233,431
Hyogo-ken	65,420	119,876
Nara-ken	12,213	24,281
Wakayama-ken	11,148	19,189
Tottori-ken	6,204	11,478
Shimane-ken	7,874	14,989
Okayama-ken	22,238	42,040
Hiroshima-ken	35,677	64,852
Yamaguchi-ken	17,656	31,862
Tokushima-ken	8,455	15,933
Kagawa-ken	11,238	21,859
Ehime-ken	15,494	27,872
Kochi-ken	8,399	15,083
Fukuoka-ken	54,108	104,120
Saga-ken	8,855	16,762
Nagasaki-ken	15,614	27,647
Kumamoto-ken	18,233	36,207
Oita-ken	12,038	23,859
Miyazaki-ken	10,856	20,830
Kagoshima-ken	15,947	31,258
Okinawa-ken	9,256	280,969

Source : Economic Resarch Institute, Economic Planning Agency, Annual Report on Prefectural Accounts 1991

Prefectural Income per Person

1,000 yen

Prefecture	1978	1981	1984	1986	1988
Hokkaido	1,459	1,679	1,827	1,953	2,197
Aomori-ken	1,144	1,379	1,518	1,620	1,823
Iwate-ken	1,205	1,372	1,575	1,710	1,905
Miyagi-ken	1,391	1,654	1,848	2,004	2,206
Akita-ken	1,240	1,448	1,596	1,731	1,936
Yamagata-ken	1,211	1,458	1,652	1,777	1,974
Fukushima-ken	1,277	1,550	1,778	1,929	2,168
Fukushima-ken	1,329	1,628	1,834	2,001	2,201
Total	1,330	1,571	1,750	1,888	2,107
Ibaraki-ken	1,351	1,690	1,928	2,083	2,394
Tochigi-ken	1,422	1,753	2,015	2,194	2,479
Gumma-ken	1,356	1,698	1,965	2,082	2,405
Saitama-ken	1,412	1,795	2,032	2,204	2,525
Chiba-ken	1,446	1,787	2,016	2,198	2,574
Tokyo-to	2,054	2,509	2,906	3,233	3,743
Kanagawa-ken	1,566	1,998	2,293	2,444	2,804
Yamanashi-ken	1,307	1,642	1,950	2,112	2,388
Nagano-ken	1,444	1,760	1,995	2,091	2,387
Total	1,640	2,030	2,325	2,531	2,912
Shizuoka-ken	1,449	1,775	2,035	2,213	2,529
Toyama-ken	1,455	1,763	1,954	2,085	2,382
Ishikawa-ken	1,441	1,742	1,914	2,067	2,364
Gifu-ken	1,333	1,660	1,907	2,053	2,339
Aichi-ken	1,593	1,977	2,265	2,446	2,787
Mie-ken	1,368	1,693	1,948	2,109	2,418
Fukui-ken	1,371	1,660	1,875	2,039	2,200
Total	1,477	1,821	2,077	2,246	2,558
Shiga-ken	1,487	1,767	2,074	2,351	2,735
Kyoto-fu	1,551	1,936	2,182	2,318	2,568
Osaka-fu	1,690	2,066	2,365	2,563	2,861
Hyogo-ken	1,506	1,816	2,036	2,168	2,403
Nara-ken	1,297	1,490	1,625	1,746	1,959
Wakayama-ken	1,238	1,531	1,636	1,809	1,983
Total	1,564	1,901	2,151	2,321	2,589
Tottori-ken	1,237	1,489	1,661	1,774	1,990
Shimane-ken	1,195	1,434	1,615	1,756	1,949
Okayama-ken	1,396	1,693	1,977	2,093	2,364
Hiroshima-ken	1,579	1,833	2,032	2,211	2,459
Yamaguchi-ken	1,301	1,529	1,755	1,924	2,188
Total	1,408	1,667	1,889	2,041	2,291
Tokushima-ken	1,272	1,486	1,637	1,827	2,075
Kagawa-ken	1,399	1,671	1,814	1,966	2,299
Ehime-ken	1,212	1,472	1,666	1,745	1,938
Kochi-ken	1,252	1,495	1,623	1,716	1,856
Total	1,277	1,527	1,687	1,809	2,037
Fukuoka-ken	1,462	1,763	1,946	2,103	2,348
Saga-ken	1,269	1,523	1,715	1,809	2,011
Nagasaki-ken	1,143	1,386	1,570	1,666	1,856
Kumamoto-ken	1,264	1,523	1,741	1,899	2,088
Oita-ken	1,252	1,486	1,691	1,814	2,043
Miyazaki-ken	1,197	1,423	1,578	1,716	1,890
Kagoshima-ken	1,119	1,352	1,566	1,668	1,826
Okinawa-ken	1,062	1,278	1,480	1,607	1,743
Total	1,273	1,533	1,727	1,859	2,062
Total	1,486	1,809	2,054	2,225	2,522

Source : Annual Report on Prefectural Accounts 1991, Economic Research Institute, Economic Planning Agency