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THE ASIAN POPULATION AND DEVELOPMENT ASSOCIATION, 1987

Nagatacho TBR Building, Rm. 710
10-2, Nagatacho 2-chome, Chiyoda-ku, Tokyo 100
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Foreword

Japan experienced a truly remarkable transition in population and a rapid economic growth after the second world war. The fact that a country outside the Western cultural sphere achieving demographic and industrial transition in a shorter period of time than those experienced by any countries in the West, gives us many significant topics for study.

Countries in Asia, particulary ASEAN and East Asian nations, are experiencing their own process of demographic transition and economic growth, unique from the experiences of the regions of the other parts of the world. This greatly stimulates their interest in the experience of Japan, their front runner. The question of whether the Japanese experience can be adapted as lessons to developing countries in Asia remains controversial.

If the essence of modernization lies in economic development, social progress, innovation in science and technology, abundant and healthy life of its people, then modernization would be naturally envisaged by any societies as eventual national goal. In reality, the modernization process might be represented by dimensions: demographic transition and industrial transition. Among the non-Western cultures, Japan was a pioneer in this field. In this sense, I believe that Japan can make some contributions to countries in Asia and Pacific region, which are closely associated with Japan in culture, geography and history, if careful comparative studies are conducted by experts of both sides.

With such significant Japanese experiences in mind, this book aims to treat the developments in population and industry, particularly agriculture, in the light of 100 year modernization history since Meiji. While it is evident that what the Japanese have gone through cannot be applied directly in the Asian countries, I hope it would provide some references in the performance of policy making. I would like to give my special thanks to all the researchers for their cooperation in preparing this report.

Finally, I wish to express my sincere appreciation to the Japan Shipbuilding Industry Foundation (President: Ryoichi Sasakawa) for their great support in producing this book, and also to United Nations Fund for Population Activities (Exective Director: Nafis Sadik).

December 1987

Tatsuo Tanaka
Chairman
The Asian Population
and Development Association

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– JAPANESE EXPERIENCE AND ASIA –

By Toshio Kuroda
Director Emeritus
Population Research Institute
Nihon University

Japan's Experience with a 100-year History of Modernization and Its Implications for Other Asian Countries

Japan, a defeated nation after World War II, completed demographic transition in a span of ten years following the war. This unprecedented phenomenon caused a sensation among experts in the field of demographic study. Japan's fertility rate was 34.3 per 1,000 population in 1984 and in 1957, only 10 years later, it declined by almost half to 17.2. Similarly, the crude death rate was 14.6 in 1947 and decreased by half to 7.4 in 1958. With the exception of Western nations, no country had ever experienced such low fertility and mortality, which were commonly observed in the final stage of demographic transition in the modern society. Even Western societies had not experienced such a rapid decline in fertility and mortality. Moreover, Japan's population growth rate has also swiftly dropped to less than the 1% level.

On the other hand, Japanese industries, which were destroyed by war, started reconstruction along with the demographic transition. War-devastated Japan successfully achieved astonishingly high economic growth: 8.9% in the late 1950's, 10.3% in the early 1960's, and 12.3% in the late 1960's.

It was even mentioned by some Western researchers that Japan's demographic transition and economic growth were both exceptional, just short of miraculous. This unprecedented (demographic) experience attracted keen attention of not only academia but also policymakers all over the World. The most amazing fact was that such demographic and economic transitions, which had been observed only in Western cultures, were achieved for the first time by an Asian nation, at a fast pace and to a remarkable degree. So what implications does this unique Japanese experience have for other Asian countries outside modern Western civilization? Can other Asian countries replicate this Japanese experience? Or is there anything that other Asian countries can learn from it? These questions have been enthusiastically discussed by experts in various fields in Japan and many other countries. However, this is a very difficult question to answer.

The role of the Asia-Pacific region including East and Southeast Asian countries in the international economy is currently being emphasized. At the same time, it is imperative that Japan fulfill its important responsibilities and duties in the international society. We believe that under such circumstances, our persistent efforts to analyze Japan's experience in demographic and economic transition and its implications for other Asian countries will serve in some way to benefit future development in Asia and in the international community as a whole.

In Chapter 1, the author, Yoichi Okazaki, deals with demographic changes in Japan in the modernization process after the Meiji Era from

the viewpoint of long-term demographic transition concerning fertility, mortality, and population growth. The population structure as a result of demographic transition is also discussed and Japan's population policies analyzed. Finally, based on Japan's experience, implications for other Asian nations are outlined.

Chapter 2 focuses on the Japanese economy, especially the agricultural sector. The development of Japanese agriculture since the Meiji Era and changes in its role are analyzed in relation to the overall development of Japanese industry. In particular, the author, Yonosuke Hara, presents a detailed analysis of Japan's experience from the viewpoint of simultaneous achievement of growth and equality in agricultural development, and clearly identifies the difference between conditions which prevailed in Japan and those of other Asian countries. It should be noted that in order to accurately compare Japan's experience with the current situations in other Asian nations, the author targets three points for analysis: categorization of resources, initial conditions of agricultural development as a historical factor, and growth in non-agricultural sectors as a factor related to agricultural development.

The fundamental feature of the analyses of Japanese population and agriculture in Chapters 1 and 2 lies in the fact that both deal with long-term changes of more than 100 years, at the very early stages of modernization. In other words, these analyses include the actual development process in Japan which possibly corresponds to the early stages of economic development which many countries are now experiencing.

Spread Effects of Demographic Transition

It was thought in the 1960's that the completion of demographic transition in Japan after the war was an exceptional phenomenon, or even a miracle, achieved outside the sphere of Western culture. However, such an interpretation is no longer commonly accepted. This is because, in as early as the late 1950's, or at least early 1960's, the populations of Chinese or Chinese-related cultures in the Western Pacific started evidencing a rapid and eminent decline in fertility. The Ryukyus, before reversion to Japan, first indicated signs of a fertility decline and by 1955, the Ryukyus' fertility rate dropped to less than 30 per thousand population. In Taiwan, Singapore, Hong Kong, and Malaysia, birthrates started declining rapidly in the 1960's, and except for Malaysia, dropped to less than 30 in the mid-1960's. The birthrate in South Korea followed dropping to less than 30 in the late 1970's.

The author believes that demographic transition, which first started in Japan among Asian countries, is not a phenomenon peculiar to

Western societies, but rather it can spread to other nations. Thus, the author coined this phenomenon "demographic spread effects." *1

If a certain phenomenon or event has spreading characteristics, it suggests feasibility of replication. It is further assumed that even under different circumstances, a similar phenomenon or event can take place. *2 The unique characteristics of demographic transition Japan experienced were covered in detail by Taeuber in the 1960's. Summing up his arguments, Japan's experience was not a mere repetition of the experience of Western countries. Needless to say, Japan's demographic transition was different from that of Western nations in terms of starting time, speed, and accomplishments. Moreoever, the social, economic, cultural and historical, as well as technological, climate was totally different. Taeuber pointed out that demographic transition had already started in some countries with different economic, social, and political backgrounds in different cultural areas, emphasizing the fact that changes were not mere repetitions of past changes. *3 This verifies that in the modernization process, demographic transition can be attained even under different cultural conditions and socioeconomic systems. Borrowing Taeuber's terminology, there is no complete "replication" of demographic transition in a strict sense, but since demographic transition has a universal quality, replication in the modernizing process can be effected anytime, anywhere.

The demographic transition which Japan first achieved among non-Western countries, has already had spread effects in the Asian cultural area. Social and cultural similarities, degree of historical and geographical proximity, and density and frequency of international exchange associated with developments in transportation and communications technology will greatly influence the speed and degree of demographic transition in other Asian nations. The fact that the decline in birthrate in the Ryukyus instantly followed the decline in mainland Japan's suggests that the association of the above factors has a remarkable effect on demographic spread effects. Such a strong effect is not only pointed out in the example of the Ryukyus. It is well known that demographic transition has been making rapid progress in Singapore, Hong Kong, Taiwan, and Korea, which are all in the Chinese culture-oriented area and in Malaysia, which has a large Chinese population. China itself has achieved a remarkable fertility decline in recent years, and its declining rate even tends to exceed those of peripheral nations of the Mainland China.

It is thought that spread effects have significance in the initiation of demographic transition. On the other hand, once demographic transition begins, advancement will be greatly influenced by the strength of the respective country's population policies and other economic and social conditions including economic growth and cultural level. It is obvious, for instance, that the strong population policy stance taken by Chinese Government regarding organization, as well as

thoroughly effective education and campaign, has had significant effect on the rapid decline in China's fertility.

Unique Features of Japan's Demographic Transition

Admitting that demographic transition is a consequential and universal phenomenon led by modernization, Japan's demographic transition has some special features as a poineer in Asia. It is necessary to clarify such uniqueness or distinguish special background factors when considering the valuable lessons Japan can provide to other Asian nations.

First, there are differences in population growth rates. The population growth rate in Japan has been changing over the 100-year history of modernization after the Meiji restoration but, on average, annual population growth rate has remained around 1%. Let's compare the economic take-off period in the Meiji Era with current conditions in developing nations. Assuming that the take-off period of the Japanese economy was the 20-year period between 1880 and 1900, it is estimated that population growth rate per year during this period remained at a 0.8-1.1% level, *5 It can be said that this level of population growth is extremely low, considering the fact that annual growth rates of many Asian developing nations are currently 2-3%. An annual population growth at the 1% level was also seen in the modernization process of Western nations, and it seems that this rate of growth served as a favorable condition for economic development. In this regard, Japan's population growth during the economic take-off period was equal to Western in the sense that it contributed to economic growth. Contrarily, in many developing nations high population growth rates are viewed as a deterrent to modernization.

It is theoretically difficult to judge whether a certain population growth rate is favorable or unfavorable for modernization. However, it can be empirically estimated to some extent from the correlation between economic growth and population growth. Tachi Minoru introduced this conceptual index as a "demographic elasticity coefficient." *6 According to this concept, the demographic elasticity coefficient in the economic take-off period in Japan was 4.15. (The economic growth rate between 1880 and 1890 [3.53] divided by the population growth rate in the same period [0.85].) In the 1970's, ASEAN nations experienced concurrent high economic growth and decline in population growth. In the 1960's, however, economic growth rates were generally low, at most 5% on an annual basis, while annual population growth rates were still as high as 3%. Even assuming that the average economic growth rate was 6%, the demographic elasticity coefficient was only 2, which is obtained by dividing the figure of economic growth by the population growth rate of 3%. The demographic elasticity coefficient for ASEAN nations was less than half the Japanese figure. If we were to assume that 4 is just

about an favorable level of coefficient based on the Japanese experience, the coefficient of 2 for ASEAN nations could be said to be too low. There are three ways to raise the coefficient: (1) to decrease population growth rate; (2) to increase economic growth rate; or (3) to simultaneously promote the contraction of population growth rate and expansion of economic growth rate. These seem to be simplistic countermeasures, but it is interesting that this coefficient suggests, to some extent, to what degree the correlation between population and economic growth of a given country is unfavorable or unbeneficial. In any event, it is clearly suggested that population growth and its relationship to economic growth during the take-off period of the economy were at an advantageous level in Japan, and this is a big difference between Japanese circumstances and those of developing nations.

Second, there is a special feature of decline in birthrate during the demographic transition in Japan. In all developing nations, especially in East Asian and ASEAN countries, strong governmental policies to control fertility have been adopted. On the contrary, there were no government policies in Japan adopted after the war which could have possibly contributed to the decline in the birthrate. The fertility decline in Japan was rather attributable to a spontaneous birth control reaction on the part of the people to protect their living against such social and economic conditions as having a large repatriated population and the war-devastated economy. In addition, active involvement in a population control campaign by the mass media coupled with the high educational level of the people effectively encouraged family planning. Finally, administrative guidance to promote family planning for the purpose of protecting child and maternal health had an additional favorable effect. The higher living standards accelerated by high economic growth further induced the change of value system which puts emphasis on a small family norm. The strong public interest in maintaining higher living standards and affording children opportunities for higher education was the main factor supporting the trend toward having fewer children.

In other words, the birthrate decline in Japan was not due to government policies but on voluntary action by the Japanese to control the number of children, although it is true that there was a special strained situation after the war. In this sense, the decline in birthrate in Japan was fundamentally different from fertility control mainly carried out through government policies, which is currently seen in developing nations. Instead, it was more similar to that of Western countries.

As such, due attention must be paid to the fact that the Japanese experience differs greatly from that of developing nations in the level of population growth rate as well as the absence of fertility control policies set by the government. On the other hand, demographic

transition achieved in Japan, which has different cultural characteristics from Western countries, suggests that demographic transition can still be accomplished in developing countries in Asia, which are in far different conditions. This has already been verified in some East Asian and ASEAN nations.

Japan's Leading Role in the Development of Demographic Transition in the Asia-Pacific Region

Japanese demographic transition has tremendous spread effects. The countries in the Asia-Pacific region, which have close cultural and historical, as well as geographical ties with Japan, have been experiencing demographic transition. However, the process of demographic transition is not at all consistent from one country to another. It should be noted that each country is in a different stage of demographic transition. Based on the latest data of the three major indices (fertility rates, natural population growth rate [difference between fertility rate and mortality rate], and total fertility rate), each developing nation is in a different stage of demographic transition as shown in Table 1 below.

In Table 1, countries are arranged according to the level of their birth rates. As shown in this table, the order of natural growth rates are essentially equal to that of birth rates, and this fact suggests there is little differential among mortality rates. Total fertility rates are almost equal to those of mortality.

These simple demographic statistics suggest that demographic transition in each country in the Asia-Pacific region is at a different level, starting with Japan at the most advanced level.

The classification of demographic transition level of the above countries are summarized in Table 2.

As described above, there are countries at various stages of demographic transition in the Asia-Pacific region, including Japan. It is obvious that the demographic transition first achieved in Japan has rapidly penetrated into other Asia nations, which have close historical, geographical, and cultural relationships with Japan. Due attention must be paid to the different levels of demographic transition observed in different countries. Such differences seem to suggest the following two points. The first key point is the correlation between the degree of demographic transition and economic growth. The high economic growth and income levels achieved in Hong Kong and Singapore approximate the level of advanced nations while South Korea and Taiwan have also been making rapid economic progress. This implies that there is a close relationship between demographic transition and economic growth. The second key point is that the coexistence of countries at different

levels of demographic transition will be of great advantage in the mutual exchange of experience and information so as to further promote demographic transition. By the same token, differences in economic development levels have the same advantage.

In this respect, Japan's experience in demographic transition and economic development can be effectively applied to the unique environments of the different nations in the Asia-Pacific region. Until very recently, Japan's contribution has been limited to an intangible one of spreading the effect. From now on, however, we can utilize Japan's experience and strengthen its role in more apparent and practical ways such as through joint researches.

It has been rightly suggested by the author of Chapter 2, Hara, that it is especially important to pass the Japanese experience to experts of other Asian-Pacific nations with Japanese specialists' full understanding of fellow Asian nations. I also completely agree with Okazaki, the writer of Chapter 1, who points out that quick implementation of countermeasures based on the Japanese experience is necessary because the later demographic transition begins, the faster transition advances.

As long as modernization is deemed desirable and set as a major political goal, mortality rates will rapidly decline based on developments in scientific technology. Delays in fertility declines, as currently observed in developing countries, will cause an unbalanced demographic structure as well as a rapid increase in population. However, a balanced demographic trend through a decline in fertility is the ultimate goal and a required biological condition for a population group as well as all mankind. Historically, demographic trends have been balanced by natural conditions and/or artificial measures. If you suppose that equilibrium between fertility and mortality is a biological precondition for mankind, it can be highly expected that the demographic transition process will be repeated under different conditions. The demographic transition in Japan was one that was adopted from the Western experience and uniquely developed on Japanese soil. Therefore, demographic transition techniques can be transferred to other Asian nations. It can be said that Japan will be able to be the bridge between the two regions in the area of demographic transition.

CHAPTER 1

POPULATION AND POPULATION POLICY

Yoichi Okazaki
Professor
Faculty of Law
Nihon University

1. Long-Term Trend in the Japanese Population

The major theme of this report is to explain how the Japanese population has changed in the century following the Meiji Restoration in 1868 and what problems emerged. Needless to say, population trends are inseparably related to economic and social development. Therefore, it is impossible to explain population trends without regard to this relationship. Among others, the relationship to agricultural development, which has supplied the population with food, is significant. In this report, however, emphasis is placed upon the transition of population in order to explain the population trend since the Meiji era, referring to the relationship with the economic and cultural society as needed.

This report is roughly divided into three periods: the Meiji Era, the Taisho and prewar period of the Showa Era, and the post-World War period.

(1) Trend in the Meiji Era

The Meiji regime promulgated the "Family Registration Act" in the 4th year of Meiji (1871) which stipulated that the number of family members would be determined and totaled as of January 29 of the 5th year of Meiji (March 8, 1872 of the solar calendar) in order to form a "census register." This can be regarded as the first statistical survey of the population in the beginning of the Meiji Era. Since then, the family register has been updated based on notifications of changes in family members such as births or deaths. By this method, individual family registers were formulated. Later, the Family Registration Act was revised and responsibility for offices of family registration was shifted from the Ministry of Domestic Affairs to the Ministry of Justice. Moreover, tasks of compiling population statistics were taken over by the Statistics Bureau of the Prime Minister's Office. There was, however, no change in regard to statistics of population statics compiled not based on an actual survey but rather "population on a family register."

The first population census was conducted in the 9th year of Taisho (1920) as the national census. Since that time population statistics have become more accurate based upon full-coverage survey. The population census conducted in that year revealed that the Japanese population was 55,963,000. To the contrary, the population based upon family registers, which had been modified based on changes such as birth or death since the first population census in the 5th year of Meiji, was 57,230,000 as of the end of the 8th year of Taisho (1919). Although this figure should have been lower than results of the population census conducted on October 1, the 9th year of Taisho (1920), it surpassed it by about 1,300,000, indicating there were some omissions in reporting

deaths or deletions from a family census register which resulted in inaccurate numbers.

It is necessary for us to correctly grasp the population trend in the whole process of Japan's modernization. Unfortunately, however, it was not possible to obtain accurate statistics due to the delay in implementing the population census, as well as accumulated errors in population numbers entered on family registers. In the 5th year of Showa (1930), the Statistics Bureau of the Prime Minister's Office estimated the population based on the population census back to the 5th year of Meiji (1872) and then announced it as the "population of Japan since the 5th Year of Meiji." This estimation was calculated based on the population in the 32nd year of Meiji (1899), midway between the 5th year of Meiji (1872) and the 9th year of Taisho (1920), then adding or subtracting the number of changes in family registers due to births, deaths, entries in or deletions from the famility register on or from the population of the previous year starting from both ends, the population registered in family registers examined in the 5th year of Meiji (1872) and the results of population census conducted in the 9th (1920) and 14th years of Taisho (1925). Then differences in the 32nd year of Meiji (1899) were supplemented and revised. As a result, the estimation was completed.

The transition of population from the 5th year of Meiji to the 9th year of Taisho (from 1872 to 1920) shown in Table 1 was estimated by the above method. As for the transition of population during the Meiji Era, Table 1 reveals that the population in the 5th year of Meiji (1872) was 34,806,000, exceeded 40 million in the 25th year (1892) and reached 50,577,000 in the 45th year of Meiji (1912), thus an increase of 15,770,000 or 45%.

The population of our nation steadily increased during the Meiji Era, which can be regarded as remarkable when compared to the fact that the population had scarcely increased during the Edo Era, especially in the latter half, for 260 years preceding the Meiji era. There is conflicting opinion among historians on the population stagnation in the latter half of the Edo Era. It is evident, however, that stable population growth in the Meiji Era is closely related to economic and social development. Consequently, it is worthy of being termed modern population growth.

On close examination of Table 1, however, we notice that population growth in the first half of the Meiji Era, 10s and 20s (1877-1896), was relatively slow, with a growth rate of less than 1% annually. In the early days of modernization, the period of "pre-take-off," population growth was also low, less than 1%, this is in striking contrast to a population jump of 2-3% yearly in developing nations, observed today.

A. J. Coale and E. M. Hoover explained in their study, "Population

Growth and Economic Development in Low-Income Countries; a Case Study of India's Prospects" (1958), how strongly the population growth rate impacted on success or failure in development of a nation in the early stages of modernization by using a econo-demographic model. The above mentioned experience of Japan, as well as Western nations, proves that slow population growth is advantageous to economic and cultural development.

Table 1 also shows that the annual rate of population growth in Japan surpassed 1% after the industrial revolution around the 10th year of Meiji (1877).

(2) Trends in the Taisho Era and the Prewar Period of Showa

During the Meiji Era, various systems were introduced in political, economic and social fields with the strong support of the Government, and policies to promote industry and higher productivity as well as to enrich and strengthen the country and its military were carried out. These policies gradually produced positive results and the nation's capability to support the population increased. As a result, Japan grew in population which, on the other hand, accelerated economic development in terms of a labor supply and expansion of the domestic market. Under such circumstances, population problems never surfaced during the Meiji Era.

When, however, Japan's economy reached the stage of high growth in the late Meiji and Taisho Eras, population problems began to emerge in the economic field. The population of our nation exceeded 50 million in the last year of the Meiji Era (1912) and the first population census conducted in the 9th year of Taisho (1920) revealed that the population had reached 55,960,000. In the 7th year of Taisho (1918) the well-known "Kome Sodo" (rice riot) broke out. The rice riot was caused not by a shortage of rice but by a sudden rise in rice prices due to speculation. This incident ignited controversies on population problems all over Japan. Moreover, there was heated argument on population issues in the academic world in the last years of Taisho and early in the Showa Era, which stirred public opinion. This argument was between those who stood for Malthus and those who advocated Marxism. For that reason, it was more heated.

The Government was forced to implement measures and hastened to establish a "Research Committee on Population and Food" in the 2nd year of Showa (1972). Population problems were submitted to the committee for deliberation, noting that:

"Japan has grown in population every year and population density has increased even more. It is true that population growth contributes to reinforcement of national power and provides a basis for national

prosperity. With our limited land and natural resources, as well as insufficiently developed industry and economy, however, Japan will run the risk of failing to secure people's lives due to imbalances in supply and demand of labor force as population density increases. In view of the situation, we believe that it is an urgent necessity of the moment to form fundamental measures to cope with population growth. Consequently, we submit this case and call for opinions on it."

Based on that request, the research committee deliberated and submitted findings on the population issue, of which I select here key points as follows: (1) measures for migration within and outside of Japan, (2) measures to control supply and demand of the labor force, (3) population policies of various nations other than Japan, (4) various measures for population control, (5) measures to reinforce productivity, (6) measures for distribution and consumption, (7) establishment of a standing research organization regarding population problems, (8) establishment of the Social Ministry.

The above findings were characterized by varied opinions on population trends and problems of those days covering a wide range of fields such as promotion of industry, migration within and outside of Japan, population control and investigation and research.

In the midst of governmental and public-sector efforts to solve population problems, the situation gradually became more critical. The stock market situation in New York in the 4th year of Showa (1929) caused a worldwide depression. In Japan, greatly affected by it, small-to-medium-sized enterprises, as well as rural communities, suffered a severe blow, which made people realize the weight of population pressure.

At that time, American demographer W. S. Thompson published "Danger Spots in World Population" in 1929, indicating that the balance between population and resources was destroyed in three areas: the South Pacific, Indian Ocean and Central Europe, which was apt to give rise to war. Thompson, being a demographer, predicted the danger of Japan's provoking war from the standpoint of population problems, and unfortunately his prophecy came true.

(3) Population Trend Post-World War II

After World War II, Japan's population sharply increased due to two reasons: military personnel and army civilian employees as well as civilians were repatriated from abroad and the population naturally swelled due to the postwar baby boom. In each case, five million people were added and, as a result, there was an increase of 10 million for five years from the 20th to the 25th years of Showa. On the contrary, Japan's economy was totally destroyed and people were destitute. Under

such circumstances, everyone realized the severity of population pressure, which made them again realize the importance of population issues thus providing basic cause for a later decline in the birthrate.

After World War II, the population of Japan changed drastically and especially noteworthy is the sharp decline in the birthrate. Among the various reasons which can be cited heavy population pressure and the poverty people experienced just after the war certainly played an important part.

Fortunately, the Japanese economy reconstructed smoothly and in the 30th year of Showa (1955), within 10 years after the war, it reached the level of the prewar period and then entered a new stage of development. National life improved and heavy population pressure had gradually eased. However, the population started to swell and problems of population growth and employment once again became the center of debates.

A Council on Population Problems, established under the auspices of the Ministry of Health and Welfare after the war to deliberate on population problems and policies, submitted the "Resolution on Quantitative Control over Population" in the 29th year of Showa (1954), the "Resolution on Population Capacity" in the 30th (1955), and the "Resolution on Measures for Potential Unemployment" in the 33rd year (1958) to the Minister. Those documents reflect the nature of the population problems in those days.

The nature of population problems begun to change in the mid 30s of Showa (1960) when high economic growth proceeded along the right lines. Continuity of high economic growth at more than 10% annually drastically changed future population problems. Since economic growth required a massive committment to production factors as a matter of course, demand for a working force remarkably expanded. Many growing industries were located in existing industrial areas. Accordingly, migration from rural areas to cities took place. According to the "Annual Report on Migration Based on the Basic Resident Register," the migration rate was 5.8% in the 30th year of Showa (1955) and increased to 6.2% in the 35th year of Showa (1960), 7.6% in the 40th year (1965) and 8% in the 45th year (1970), as mentioned in Table 2. Especially immigration to three metropolitan regions, Tokyo (Tokyo, Kanagawa, Saitama and Chiba), Hanshin (Osaka, Kyoto and Kobe) and Chukyo (Aichi, Mie and Gifu), was markedly heavy. An excess of immigration over emigration was 353,000 in the 30th year of Showa (1955), 594,000 in the 40th year (1965) and 393,000 in the 45th year (1970).

As mentioned above, rapid economic growth provoked concentration of the population in big cities and caused overpopulation problems. In order to abolish regional population differentials, the necessity for local development was emphasized. Reflecting those circumstances, the

Council on Population Problems submitted resolutions and opinions such as the "Resolution on Measures to Improve Population Characteristics" (the 37th year of Showa (1962), and "Opinions on Matters Regarding Local Development on which Special Consideration Should be Given from the Standpoint of Population Problems" (the 38th year (1963). This indicates that in the years of the prewar period quantitative population problems which continued to be argued since the prewar period gradually turned to qualitative population problems.

As Table 1 shows, the Japanese population continued to swell by around 1% annually after the 30th year of Showa (1955). Although fertility declined, the death rate also remarkably decreased. Accordingly, natural growth rate did not drop very much. The return of Okinawa, which had a population of one million in the 47th year of Showa (1972), raised the growth rate from the 45th year to the 50th year of Showa (1970-75) to 1.5%. In the 50s of Showa, however, the growth rate began to fall since fertility decline started to expand gradually.

On the other hand, population dynamics took root in a trend of a low birth and death rate after World War II, which started to influence the age structure. According to Table 3 which shows the results of the population census conducted regularly since the first one in the 9th year of Taisho (1920), there was little change in the age structure until the 30th year of Showa (1955). For instance, the ratio of age 65 years and up maintained a level around 5%. Since the 30th year of Showa (1955), however, that ratio gradually increased and it was 7.1% in the 45th year (1970), 9.1% in the 55th year (1980) and reached 10.3% in the 60th year (1980). It is evident, in theory and by experience, that a decline in fertility and death rate is attendant to an aging population. It confirms that the aging of the Japanese population started around the 30th year of Showa and got into full swing in the mid 40s of Showa (around 1970).

Aging problems also started to attract public attention in those years. I think this was due to the fact that people had increasing interest in the reinforcement of welfare conditions after extensive growth in the Japanese economy had come to the end of a chapter. This enabled expending part of the fruits of economic growth on the welfare of the aged. Designating the 48th year of Showa (1973) as "the First Year of Welfare" was one indication. At the end of that year, however, the world experienced an "oil crisis" and the future of the Japanese economy suddenly turned dismal. Today looking back we know that effects of the oil crisis were relieved by flexibility in the economy. In the midst of the crisis, however, it was impossible to view the financial aspects of welfare policies in any but the most severe way.

In addition, an unexpectedly smooth decline in the death and fertility rates compounded the bleakness of a future aging population. Therefore, increasing allocations in various fields such as living,

medical care and welfare for the increasing number of the aged became inevitable. According to estimated population statistics compiled by the Institute of Population Problems of the Ministry of Health and Welfare in December of the 61st year of Showa (1986) (Table 4). The number of the aged 65 or older was 12,470,000 in the 60th year (1985), but is expected to increase to 21,340,000 in the 75th year (2000), 30,640,000 in the 90th year (2015) and 31,470,000 in the 100th year (2025). This age group accounted for 10.3% of the entire population in the 60th year of Showa (1985) and is expected to rise to 16.3% in the 75th year (2000), 22.5% in the 90th year (2015) and 23.4% in the 100th year (2025).

Aging of the Japanese population started later than in Western nations, but has been advancing at a speed several times faster than other nations. It is expected to equal them at the end of this century. It is an unprecedented fact that a super-aging society with the aged accounting for more than 20% of the entire population will emerge at the beginning of the next century. If aging of the Japanese population remains at a level equal to Western countries, we can hastily employ measures, following the precedent of those nations. Facing the prediction of more rapid progress in the aging population, however, we cannot help but to recognize and address the importance of the matter.

2. Demographic Transition of Japan

In every country, population dynamics, that is fertility and mortality, change as modern development progresses, from high birth and death to low birth and death rates. Since it is recognized by the experiences of advanced nations that such change has a regular pattern, I view it as a concept of "demographic transition." In this chapter, I present a general overview of Japan's demographic transition and explain its features.

(1) Outline of Demographic Transition in Japan

Statistics of population dynamics in Japan have a long history, originating in the family registration system based upon the "Family Registration Act" proclaimed in the 4th year of Meiji (1871). It is acknowledged that there are various problems with the statistics recorded prior to the 32nd year of Meiji (1899) when the act was revised. For example, the fertility and death rates since the 1st year of Meiji (1868) depict a fairly remarkable upward tendency, which experts doubted even before the war, in view of the fact that it reflects different movement than Western nations. They opine that it reflects the fact that omissions in notification decreased as the status of the registration system improved. They also reported on results of efforts to estimate the standard of fertility and mortality. Methods

used for population analysis and compilation of population statistics were reinforced after the war and reattempts to estimate population during the Meiji Era were implemented.

Based upon my recent estimation, Table 5 indicates demographic transition of the whole process from the 1st year of Meiji (1868) through the 7th year of Taisho (1918), without details. Although there were minor changes, the birthrate generally maintained a high level during the Meiji Era and, contrarily, the death rate slowly declined. This trend is consistent with that of Western nations.

It is generally recognized that fertility started to decline around the 9th year of Taisho (1920). Table 5 indicates, however, that it started its descent a little bit earlier, peaking at the end of the Meiji Ear and then starting its descent. Fertility, on the other hand, maintained a high level before the war since the population in rural areas was large and birth control methods had not yet been widely diffused.

The fertility rate temporarily dropped below the 30 0/00 level in the 15th year of Showa (1940) due to measures promoting childbirth and then renewed its previous level. During World War II, it again declined because of the absence of men in their productive years and instability of national life. Some estimates show that the fertility rate dropped to 29.2 0/00 in the 19th year of Showa (1944), 23.2 0/00 in the 20th year (1945) and 25.3 0/00 in the 21st year (1946).

The mortality rate has continuously decreased since the Meiji Era and it was estimated at 17.4 0/00 in the 19th year of Showa (1944), 29.2 0/00 in the 20th year (1945) and 17.6 0/00 in the 21st year (1946).

After World War II, the fertility rate temporarily reached a high level due to the postwar baby boom from the 22nd year to 24th year of Showa (1947-49), and then it sharply dropped and leveled off in the 30s and 40s (from 1955 to 1974). However, it again started a downward tendency which continues today. The mortality rate declined progressively after the war and is now at a very low level, one of the lowest among advanced nations.

The fertility and mortality rates in Japan are already very comparable to conditions of low birth and death. Since, however, the population structure by age is still young, there is a slight gap in comparison of crude fertility and mortality as shown in Table 5. The population growth rate indicates a positive number, although very small. According to the ratio of stable population dynamics, however, Japan had already entered the full stage of low birth and death around the 30th year of Showa (1955) and the actual population growth rate is zero.

As mentioned above, the population trend of Japan for over 100

years from the beginning of the Meiji Era to this day corresponds with the pattern of demographic transition of Western countries. Consequently, it draws attention to the first stage of demographic transition while Japan was experiencing high birth and death on which account the rate of population growth was relatively low. The ever-increasing growth rate from the end of the Meiji Era to the Taisho and Showa Eras resulted from an expanded capability to support population due to social and economic development.

The major characteristic of Japan's demographic transition is that the fertility rate dropped sharply after World War II. For that reason, demographic transition occurred completely within a relatively short period of time. Not only the fertility but also the mortality rate rapidly decreased after the war, for which further explanation should be given.

(2) Decline in Fertility

The postwar baby boom occurred in a three-year period from the 22nd to 24th year of Showa (1947-1949) in Japan, setting a high level of annual live births, 2.6 - 2.7 million. Crude fertility regained the level of the prewar period, 33-34 0/00, since a large number of couples who had postponed getting married or childbirth during the war accomplished it in those years coupled with a marriage boom which broke out simultaneously. Calculating details, I found that the total number of live births during the baby boom not only balanced the decrease during the war but also included those babies who were born though not planned. Below the surface and according to rumor abortion, which was illegal in those days, was quite common. This fact spurred action to legitimize abortion within the framework of the "Eugenic Protection Act" enacted in the 24th year of Showa (1949).

The severe living conditions after the war and the sudden increase in population due to the baby boom and repatriation from abroad made people realize the significance of overpopulation and firmly implanted in people's minds strong incentives for birth control. Accordingly, the baby boom in Japan lasted for only three years, and the number of childbirths decreased at extraordinarily rapid speed from the end of the 20s to the beginning of the 30s of Showa (around 1955). In the 32nd year of Showa (1957) when the decline in childbirth completed the first cycle, the number of childbirths was 1.57 million, which means a decrease of one million compared with the baby boom period. The crude birth rate was also reduced by half to 17.2 0/00.

Since the 30th year of Showa (1955), the Japanese economy has recovered and achieved high growth. Living standards have risen far above those of the prewar period. The birthrate, however, has shifted to a lower level.

It is not unusual for fertility to rise during economic prosperity. In fact, there were extraordinary baby booms in Europe, America and Australia after World War II and moreover they lasted for about 20 years until the mid 1960s. In Japan, on the contrary, economic prosperity acted to keep fertility at a low level. As reasons, I point out several factors as follows.

First of all, public consciousness drastically changed. People developed independence and rational views on individuality, as well as individual homes. In this regard, the Government proposed nothing on birth control measures and only made efforts to provide information, which seemed to stimulate and aid enhancement of independence.

Secondly, as the living standards rose year after year owing to increasing prosperity, people began to require a rational life plan in order to ride on such an upward trend. They weighed the pros and cons of having a child and tended to feel concern on the birth of the third or fourth child. In other words, a variety of luxurious material possessions emerged to compete with having a child. As a result on the menu of choice an additional child was left out of the selection.

Thirdly, the cost of giving birth and child raising increased. The direct reason is that the period of compulsory education was extended from six years in the prewar period to nine years. Furthermore, giving one's child higher education became a common trend in society. The ratio of students who go on to high school gradually increased and that of both sexes has surpassed 90% while the ratio of students who go on to junior colleges or universities hit the 30% mark. The cost of education is a heavy burden for parents. In the midst of a rise in the living standards and consequent increases in living costs, the expense of raising children has skyrocketed in all areas -- food, clothing and shelter. Moreover, enhancement of women's role in society has expanded their opportunities. Consequently, cost in terms of time and remuneration which mothers lose during the period of childbirth and child care has been rising.

These are the major causes of the decline in the number of children amid changes in the economy and society after the war. In addition, there are other minor factors such as that children offer little contribution to production at home in an urban and industrial society as compared to an agricultural society and, in this age of nuclear families, parents are less expectant that their children will look after them in their declining years. In any case, it is quite evident that motivation for couples to limit the number of children to two or three has been strengthened since the end of the war.

Means to achieve limitation, that is birth control methods, are widespread, which is another important feature of postwar Japan. I have already explained the legalization of abortion by the "Eugenic

Protection Act" in this chapter. The Government, however, took greater interest in disseminating methods of birth control and has concentrated energy on family planning through a nationwide organization of health centers since the 27th year of Showa (1952). According to the opinion poll on family planning regularly conducted throughout Japan by a research committee of the Mainichi Shimbun since the 25th year of Showa (19520, the ratio of women practicing contraception in their fertile years steadily increases. Now birth control and family planning is an integral part of the society.

Another important feature of Japan is that the birthrate rapidly declined and stabilized at a low level uniformly in all aspects whether in the urban or rural area and regardless of academic background or occupation.

Table 6 shows the changes in fertility after the war indicated by the index of population regeneration. Figures have remained almost at the same levels as the population transition in the 30s and 40s of Showa (from 1955 to 1974), then gradually fell below since the 50th year of Showa (1975). Since standards of fertility have more than a little influence on the aging of the population, much attention will be focused on its future trends.

(3) Mortality Decline

Having gradually descended before the war, the death rate declined more rapidly after the war. Firstly because national life improved as the economy grew. As a result, physique and physical strength have been elevated and resistance to disease has been strengthened due to improvements in nutritive conditions. The second reason is that medicine being especially efficacious for infectious diseases including antibiotic substances were developed and used after the war. Consequently, the number of deaths caused by infectious diseases such as tuberculosis, pneumonia, bronchitis and gastroenteritis, which were the major causes of death before the war, sharply dropped. Thirdly, as the medical security system evolved, the entire nation became able to easily receive excellent medical service as needed. This medical security system, greatly contributed to the decline in the death rate.

Due to the above reasons, mortality drastically declined in general after the war, which is marked by the fact that mortality decline took place regardless of age or sex. Examining the details of the death rate by age, I found that mortality in the lower age bracket, especially infants, as well as that in the younger generation shows sharp declines. On the contrary, mortality decline in the middle and upper age brackets lagged until lately. It is related to the fact mentioned above that death, caused by infectious diseases in particular, have been effectively controlled. Control over death from geriatric diseases such

as cancer, heart trouble and cerebral apoplexy, however, has not fully progressed. Nevertheless, as aging of the population advances the importance of prevention and treatment of geriatric diseases has received more acknowledgement in the form of various researches and measures. Recently, good results are being noted and are leading to mortality decline in the middle and upper age groups. According to statistics compiled in the 60th year of Showa (1985), among the total number of deaths, death from cancer accounts for 25%, that from heart diseases 18.8%, and cerebral apoplexy 17.9%, which means 61.7% of the total number of deaths result from the three major geriatric diseases.

The decline in the death rate, naturally, leads to an increase in average life expectancy. Table 7 shows that the average life expectancy of both sexes did not reach the 50 year mark in the 10th and 11th year of Showa (1935-1936). After the war, in the 22nd year of Showa (1947), that of both males and females surpassed 50 years for the first time. Since then, average life expectancy has steadily increased, and that of the female reached the 70 year level in the 35th year of Showa (1960) and the 80 year level in the 60th year (1985). The average life expectancy of the male reached 70 years in the 50th (1975) but has not yet reached the level of 80 years.

As the average life expectancy has increased, the number of survivors has also risen. The number of survivors under 15 years of age, the first age of the productive age population, was already considerably high in the 10th-11th year of Showa (1935-1936), that is 79.1 for males and 80.1 for females out of 100. After the war, it surpassed 90% and now is almost 100%. This is, needless to say, due to the infant mortality decline, and the results of a lower death rate. The number of survivors 65 years old and up has also increased. Those who survived age 65 or above accounted for 36.2% of the total number of males and 43.6% of females in the 10th-11th year of Showa (1935-1936), which means many were not able to live to an advanced age. That ratio, however, has rapidly increased and recently reached 81.2% for males and 90.1% for females. In short, with the current low mortality rate, almost everybody can live to 65. Moreover, the average life expectancy at the age of 65 is 16 years for males and 19 years for females. Therefore, the twilight hours of life is not a short period of time.

3. Changes in Composition of Population

As population transition advances, the composition by age changes. This change is firstly caused by the fertility decline and then by the mortality decline. In either case, changes in composition by age with advances in modernization result in an aging population in the long run. In the midst of it, it passes through a stage of an increase in the population of middle or advanced age.

(1) Changes in Composition of Population by Age

The composition of population by age started changing around the 30th year of Showa (1955) in Japan. Table 8 indicates those changes to date. Fertility and mortality had already dropped, which caused the decline in the ratio of population of the younger generation. On the other hand, there was no big change in the ratio of the population of middle and advanced age. The lower column of Table 8 shows changes in composition of the population classified into five age groups and clearly indicates the nature of those changes. It shows that on top of the decline in the rate of population of children aged 0-14, the ratio of the younger generation population aged 15-34 has already started decreasing, while the population in the prime of life, aged 35-54, attained a remarkable increase and the older generation aged 55-64 has gradually risen. The increase in population 65 years and up often attracts attention as an aging population. In Japan, however, it does not yet account for a large percentage.

Significant changes in composition which took place in the course of high birth and death to low birth and death imply aging in the productive age population (15-64 years old). It is a phenomenon resulting from two factors: the number of people who enter the productive age population decreases due to a fertility decline, and a great number of those who were born during the age of fecundity accumulate in the productive age population owing to the mortality decline and grow older in years.

Such a phenomenon of aging of the productive age population was predicted and the center of debate among some specialists, before the 30s of Showa (1955) when high economic growth got its start. This was because if the economy did not improve smoothly, unemployment of middle and advanced age people was apt to become a severe problem. In reality, due to high economic growth since the latter half of the 30s of Showa (1960), no major problem arose. When, however, the economy turned to low growth after the oil crisis at the end of 40s (1973), the issue of employment generally intensified and the problem of a middle and advanced aged labor force came to the front again.

Since the composition of population by age is a long-term change accompanied by population transition, its effects should be estimated and handled based upon a long-range viewpoint. Especially in Japan where employment systems and practices are peculiar and very Japanese, it is particularly necessary to cope with the problem, taking demographic information into account. Recently, deliberations have been made on such measures as raising the retirement age, reemployment, and prolongation of the employment period. In principle, the establishment of an employment system which rationally considers the relationship of wage and employee's age and capability is expected.

(2) Changes in Industrial Structure and Labor Force

Economic growth inevitably leads to transformation of the industrial structure. Workers engaged in primary industries accounted for 41.1% of the total, those in secondary industries 23.4% and in tertiary industries 35.5% in the 30th year of Showa (1955), which changed to 19.3%, 34% and 46.6% respectively in the 45th year (1970) and 9.3%, 33% and 57.5% in the 60th year (1985).

Labor demand in each industry is fixed according to two factors: labor output and productivity. Generally speaking, the demand for labor is great in growing industries and slight in declining industries.

Workers in primary industries drastically declined in composition rate as mentioned above. Moreover, they decreased in number, from 16,290,000 in the 30th year of Showa (1955) to 10,150,000 in the 45th year (1970) and 5,420,000 in the 60th year (1985). Workers in secondary industries increased from 9,250,000 to 17,900,000 and 19,210,000, and those in tertiary industries also rose from 14,050,000 to 24,510,000 and 33,490,000. Total workers increased from 39,590,000 to 52,590,000 and 58,220,000 during the said period.

Changes in the industrial structure of the labor force are caused by three factors: inflow of new labor force, workers inflow to other industries and retirement. In regard to the relation to the population structure, inflow of new labor force is especially important. The employment structure changes in accordance with which industry the people of the younger generation choose as their first job.

Assuming that workers 15-19 years old accurately reflect the results of new graduates' entrance into jobs, 33% of them found employment in primary industries, 34% in secondary industries, and 33% in tertiary industries in the 30th year of Showa (1955), thus the three industries employees were equal. In the 40th year of Showa (1965), however, that composition changed to 8.4%, 49.1% and 42.4% respectively in the 40th year (1965), 3.8%, 42.3% and 53.9% in the 50th year (1975), and 1.4%, 38.1% and 60.5% in the 60th year (1985). It indicates changes far more drastic than those in the industrial composition of the total workers mentioned above.

There is, of course, instances where individuals change employment and its effect on the industrial composition of workers cannot be neglected. It is, however, evident that the choice of industry by new workers has quite a strong influence.

In the employment structure of Japan, the labor force of new graduates has an especially significant meaning. This is because the lifetime employment system is adopted by major enterprises. Companies employ new graduates having no occupational experience and give them

vocational training to bring up them to the level of experienced staff or workers in harmony with the ways of those companies. Accordingly, a bond between labor and management is formed and companies are quite efficiently managed. There are some changes noted in the above system recently and job switches often occur among small-to-medium sized enterprises. The labor force of new graduates, however, is still very important when discussing employment problems of our country.

The supply of working force of new graduates is tapering off due to a generalized low birthrate, while the labor force of middle and advanced aged workers is increasing. It is necessary for the future development of the Japanese economy that new growing industries take leadership in development of the economy as a whole. The decrease in the number of new workers who have been supporting the development of growing industries in terms of labor force poses a big problem. It is a problem not only for growing industries but for other industries which are now regarded as declining industries and are under heavy pressure to be restructured, such as agriculture. Table 9 shows the composition of farmers by age. It indicates that the rate of middle or advanced aged farmers is extremely high, that is an aging of the agricultural population. If workers who are capable of rational management cannot be secured, there is no alternative but a continuing declining.

4. Population Policy

(1) Before World War II

Carrying forward modernization policies covering the gamut of economy and society, the Meiji regime firstly issued a proclamation prohibiting abortion and infanticide which had widely spread into the society since the Edo Era. In this connection, they promoted census registration and ordered those without fixed residences to return to their hometowns. Those measures were carried out more from the standpoint of morality and had little bearing on solving population problems.

Modernization policies of the Meiji regime gradually produced results, and the population growth rate slowly increased. Consequently problems of imbalance between population and economy never came to the forefront. In Japan, however, with limited land resources and a large population, the problem of overpopulation had been latent. This problem gradually surfaced from the end of Taisho to the early years of Showa (around 1926). In the 2nd year of Showa (1927), the Government formed a Research Committee on Population and Food Problems to address population problems. The Great Depression which took place in the 4th year of Showa (1929) gravely impacted on Japan and caused severe unemployment problems. Unemployment policies were at the center of the Government's major policy issues.

In his book "Japanese Population Policies" published in the 12th year of Showa (1937), Professor Sadajiro Ueda discussed details on quantitative and qualitative problems of the Japanese population issue, including fluctuations, overpopulation, moderate population, and urban and rural population. He also mentioned future population issues as well. Concerned about a sudden increase in the future's labor population, Professor Ueda warned that mass unemployment would occur and lead the society to unstability unless appropriate measures to expand employment opportunities were undertaken. He suggested the promotion of industrialization and urbanization as well as generalization of birth control as requisite measures.

Nevertheless, in those years, a war structure had been established in Japan and increased population had been strongly advocated from the viewpoint of human resources. In the 16th year of Showa (1941), a policy on population increase on a nationwide scale was adopted. With a target that the population should be increased to 100 million by the 35th year of Showa (1960), utmost efforts to increase population were declared. It is questionable as to whether the above policy achieved its intended result, but it was the only literal population policy in the modern history of Japan.

(2) After World War II

After World War II, Japanese politics, the economy and society improved remarkably and the Government's, as well as the people's, attitude toward population and population policies changed completely. I have already explained the changes in Japanese population after the war in previous chapters. Here I would like to describe the policies advocated by the Government in the midst of such changes.

In the 24th year of Showa (1949), a Council on Population Problems was established in the Cabinet. The council submitted a recommendation that the Government should concentrate energy on the rehabilitation of domestic industries and reconstruction of foreign trade to improve the nation and support the population, as well as on a decline in population growth rate by birth control and emigration. The council was, however, abolished in the 25th year of Showa (1950) only one year after its establishment.

In the 28th year of Showa (1953), the Council on Population Problems was reestablished under the jurisdiction of the Ministry of Health and Welfare. It played an important role not only in formulating and implementing population policies but also in providing the Government and private sectors with information about population. The council, consisting of academicians experienced in the field of demography and representatives of private organizations continues to be active. Major resolutions and reports announced by the council follow:

"Resolution on Quantitative Adjustment of Population" (1954)

Based upon the standpoint of an increasing imbalance between population and resources, emphasis was placed upon the necessity of policies to control the population growth rate, as well as measures to promote contraception, taking into account not only maternal health but also limitation on family size as a constituent element of the overall population policies.

"Resolution on Population Capacity" (1955) and "Resolution on Measures for Potential Unemployment" (1958)

Regarding the sharp increase in the labor force as one of the population problems, the 1955 resolution declared that the employment issue was the most important population problem Japan was facing and adequate measures needed to be taken. The 1958 resolution called for the establishment of synthetic industrial policies and perpetual employment increase through stable economic growth.

"White Paper on Population" (1959)

Based upon the conditions of population in those days, the paper placed emphasis on employment problems caused by the rapid growth in the labor population, popularization of family planning for decreasing the number of abortions, and psychosomatic diseases plaguing those in financially weak positions. It requested the Government to take appropriate measures.

"Resolution on Policies to Improve Population Nature" (1962)

This resolution indicated that although Japan had succeeded in achieving high economic growth starting in the 30th year of Showa (1955), social aspects of development had been neglected and the resultant gap among areas and social classes had expanded. It strongly called for measures to improve the "population character".

"Opinions on the Matters Regarding Local Development to Which Special Consideration Should be Given from the Viewpoint of Population Problems" (1963)

High economic growth after the war caused the centralization of economic activities and population in Tokyo, Osaka, Nagoya and environs. On the other hand, rural areas experienced a drastic outflow of population of the younger generation and a subsequent aging population. In this respect, the Council on Population Problems pronounced its opinion on the following two points concerning local development. One, that in the final synopsis local development should be achieved through reinforcement of welfare on both the national and local levels. The other, that well-balanced development in both economic and social terms should be accomplished on the local level as well. Considering the above points, the council called for an appropriate redistribution of population by means of adjusting quantity and course of migration. In this connection, it also requested the Government to focus attention on the following points: changes in population structure by age resulting

from the growth rate decline in the productive age population and relative increase in the middle and advanced aged population, the necessity for modernization of agriculture and small- and medium-sized enterprises, development of urban areas with good living environments, and the promotion of health and welfare.

"Report on Current Population Trend and Problems Which Should be Considered" (1971)

Rapid economic growth brought unexpectedly affluent material life but, at the same time, it gave rise to pollution, environmental contamination and other deterimental aspects hindering the people's welfare. It also brought about a temporary transition from a high birth and death rate to a low birth and death rate. Based upon such changes, the report mentioned a great variety of measures including health in general, marriage counseling, sex education, health care for mothers and children, family planning, child welfare, programs for youth development, harmony between women entering the work force and responsibility for child care, health care of working women, financial security and medical service for the aged, review of the retirement system, participation of the aged in society, measures for the handicapped, local urban and housing development and economic and social development of depopulated areas.

"Population White Paper" (1974)

In the 49th year of Showa, the council announced a detailed report entitled "Trend of Japanese Population - Aiming at Stationary Population." Considering significant problems forecasted to arise in the future, this report placed special emphasis on the following points: to make further efforts to control the rate of population growth; to take adequate measures in order to improve the nature of population and implement local development compatible with social development, promote a better understanding of population problems by politicians and administrative officials and provide them with appropriate information regarding the relationship among various factors of population and development, promote a better understanding of population problems by the people and amplify measures to expedite population education and encourage study, improve the system to enable timely publication of population statistics and the results of population census conducted by public organizations, and to reinforce and expand international cooperation to enable resolving world population problems especially in developing nations.

"Special Committee's Report on Fertility Trend" (1980)

In view of the fact that the birthrate started to decline again in the early 50s of Showa (1975), the Council on Population Problems established a special committee to conduct a detailed study of the problems. The special committee analyzed fertility trends and submitted a report based upon the results pointing out three main factors evidencing a downward trend in fertility. Factors included the decline

in population reaching marriage and parturition age due to a marked fertility decrease following the postwar baby boom, decline in the rate of women having a spouse because of their higher academic achievement, and the lowering of fertility of couples due to prolonged intervals of childbirth. Consequently, the report concluded by saying that despite the marked decline in crude birthrate, there were no changes in end birthrate or basic fertility.

"Population White Paper" (1984)

Taking into account the fact that measures regarding an aging society had become the center of debates as an urgent task as aging of the Japanese population advanced, an "International Conference on Population" was held in Mexico City in the 59th year of Showa (1984), at which the council set up a special committee on population. The special committee submitted a report focusing on the problem of the aging of the Japanese population and the issue of international cooperation regarding world population problems. In the report, emphasis was placed upon taking measures to allow independence of the aged along with reinforcement of various measures in line with progress of an aging population, improving affluent living environments, elevating the standard of education of the population, and carrying forward continued international collaboration on population problems.

The Council on Population Problems accurately grasps and analyzes population problems as they change with the passage of time and recommends appropriate measures. The nature of the council, however, is limited to shouldering the responsibility for submitting necessary recommendations, resolutions and opinions in response to inquiries, and has no authority to execute measures. Nevertheless, recommendations, resolutions and opinions submitted by the council have had reasonable influence on the Government and apparently on public opinion, which has resulted in concrete measures being implemented either directly or indirectly.

(3) "The Eugenic Protection Act"

The Eugenic Protection Act proclaimed in the 23rd year of Showa (1953) attracted public attention all over the world since it legalized abortion which was taboo in many countries in those days. Unfortunately, it was announced in the midst of the postward baby boom and fertility declined sharply after that. Therefore, we tend to believe that it was extremely effective as a population policy. The Eugenic Protection Act was legislated, originally aimed at preservation of life and health of the mother. It stipulated that abortion could be legally conducted only in case the continuation of a pregnancy or delivery were likely to considerably impair the mother's health. The act was revised in the 24th year of Showa (1949) allowing for cases of financial insufficiency. In other words, it added those instances where

continuation of pregnancy or delivery would impair the mother's health because of financial reasons. In the 27th year of Showa (1952) it was revised again and restrictions were eased, that is abortion can be induced whenever a doctor deems to perform the operation. Prior to this revision, a written opinion of a doctor other than the one to actually conduct an operation, as well as a welfare commissioner, had to be submitted. As a result, abortions are now performed more freely and legally based on the desire of the woman and her spouse.

The number of abortions reported after the proclamation of the Eugenic Protection Act sharply increased, from less than 250,000 in the 24th year of Showa (1949) to more than one million in the 28th year (1953) and 1.17 million in the 30th of Showa (1955), then gradually declined. This is because the Government, observing the rapid increase in the number of abortions, strengthened measures diffusing information on birth control methods through activities of health centers with satisfactory results.

There is no doubt that the proclamation of the Eugenic Protection Act and the Government undertaking to popularlize birth control greatly contributed to fertility decline in Japan. Those measures, however, were originally implemented for protection of the mother. As mentioned earlier, people were already strongly motivated to limit births before the above measures were implemented. The prevalence of illegal abortions before the proclamation of the Eugenic Protection Act bears this out. Measures taken by the Government can be equated to ratification of actions taken by the people.

(4) Measures for Redistribution of Population

High economic growth caused considerable imbalance in the regional distribution of the population. As a result, it gave rise to the problem of overpopulation in cities, while it caused depopulation problems in farming or mountain regions. To solve these problems became the major task of central and local governments and the All Japan Comprehensive Development Project was formulated four times, in the 37th, 44th, 52nd and 62nd years of Showa (1962, 1969, 1977 and 1987).

Under this project, various measures based upon special acts were introduced, following the basic guidelines of implementing well balanced local development. For instance, the New Industrial City Promotion Act in the 37th year of Showa (1962) was adopted in order to change the course of migration from rural to metropolitan areas, and to create new industrial cities. The act of inviting industry to rural areas in the 46th year of Showa (1971) was aimed at providing rural areas with employment opportunities and checking population outflow. The Manufacturing Redisposition Promotion Act had an objective to stimulate decentralization of the accumulation of industries. The Act of

Emergency Measures for Depopulated Areas proclaimed in the 45th year of Showa (1970), and revised in the 56th year of Showa (1980) stipulated measures for saving those areas which suffered from extreme population decline. The core of the 3rd All Japan Comprehensive Development Project was the concept of settlement, aimed at controlling centralization of population and industry in big cities, proper utilization of all land, balanced with the promotion of local industry and coping with problems of overpopulation and depopulation, and making efforts to create suitable overall living environments. Environments here means living and productive environments in addition to natural environments. It attempted to harmonize these three factors. The 4th All Japan Comprehensive Development Project in the 62nd year of Showa (1987) aimed at building up multipolarized and dispersed land by the 75th year of Showa (2000), giving consideration to elements of a high order which have been centralized in the Tokyo area, as well as a population concentration there. The multipolared and dispersed land has its base unit of settlement area set out in the 3rd All Japan Comprehensive Development Project and is made up of extended area spreading beyond the settlement unit according to the size and function of the core city. The settlement areas all over Japan form a network in liaison with each other.

It should be noted that the above Government measure, apart from some exceptions, aims at achieving the expected results indirectly through reinforcement of the economic basis, not at directly controlling migration or industry location.

(5) Measures for the Aging

Economic and social effects of aging of the Japanese population are tremendous and Japan must implement wide and profound measures from now on.

Needless to say, an aging of the population is an inevitable consequence of fertility and mortality decline. It is impossible and necessary to change this course. Consequently, measures for an aging population have to be passive in terms of correctly evaluating aspects arising from an aging population and being able to adequately and fully deal with them.

For this reason, before measures for aging are worked out and implemented, it is necessary to accurately predict the future of the aging population and forecast its economic and social effects to the extent possible. The future population is forecast based upon results of estimates compiled by the Ministry of Health and Welfare every five years concurrent with the announcement of the population census results. As for economic and social effects, changes in the basic conditions such as working force, local population and the number of households are

estimated based upon the future population estimates.

Therefore, measures for aging span a wide range. Above all, the most important measure is to ensure more comfortable and secure lives for the ever-increasing population of advanced aged people from a social point of view. In Japan, since the mid 30s of Showa (around 1960), the social security system has been improved and pension and insurance systems covering the entire nation have been established. In principle, social support of the aged is provided within the framework of the social security system. Security of income by an old age pension, security of health and medical care and social welfare are its three pillars.

Population of advanced age has remarkably increased due to the unexpected drastic decrease in the death rate, and the labor population in active service has decreased relatively because of the fertility decline. As a result, there was a risk of imbalance between the amount of benefits in the old age pension contributions and premiums paid, and the pension system was revised in April of the 61st year of Showa (1986). Moreover, the problem of increasing medical expenses for the aged is very critical and the system was revised recently in this regard. There is, however, a further serious problem, that is reinforcement of social welfare for the elderly. As the aged has increased in number, nuclear families have also increased and urbanization has advanced. As a result, the number of aged living alone or only with their spouses has gradually risen. Among the aged living with their families, the number of those who are bedridden or suffer from senile dementia has increased, which creates a heavy burden upon their families. In this respect, there is a demand to set up more facilities such as special nursing homes for the aged and to increase the strength of social-welfare-related staff including home helpers. Although efforts are gradually bearing fruit, this problem will intensify over the long-term.

In addition, reinforcement of social welfare directly focusing on the aged will require measures covering a wide range. For instance, employment problems of middle-or-advanced aged labor in line with aging of the labor population as well as problems of housing and living environments suitable for generation exchange in an aging society. Administrative matters of our nation are, in general, handled independently by concerned ministries or agencies, and recently they have been including measures in their policies covering an aging population.

(6) Suggestions to Asian Nations Based Upon Japan's Experience

In the process of modern development from the Meiji Restoration to date, the Japanese population has exhibited the same pattern of

transition as that of Western advanced nations. It seems that after the war, developing countries in Asia, including Japan, experienced different patterns from advanced nations. The most remarkable feature of population transition in those developing nations is that the death rates suddenly declined with fertility remaining at high levels. Consequently, unusually large population growth commenced. This is the reason population problems have become a major issue in those countries since the war.

In Japan, population growth in the first step of modernization was relatively slow and increased gradually as modernization progressed. Therefore, population growth and modernization were in accord. On the contrary, in other Asian nations, population growth has deterred modern development. Therefore, population policies play a very important role in modernization policies. For instance, in India a family planning program was included in a national development project in 1952, which was a reasonable scheme.

It is not an easy task to disseminate birth control information and methods in a society before modernization has been fully accomplished. This is because in every country people live their lives in the traditional society following its industrial structure, social customs, family system and values and their consciousness has been established in accordance with them. In many cases, it leads to a high birthrate and is not rapidly changed in response to population policies of the Government.

Although old traditions remain in Japan, as the production and living environment gradually changed due to economic and social modernization, changes occurred in people's way of thinking. Drastic change in values of the Japanese people, however, took place after World War II. Even taking lessons from the experience of Japan, it will take tens of years to reform the consciousness of people.

Nonetheless some developing countries, owing to earnest efforts of their governments implementing population policies and success in modernization measures, have achieved significant results in respect to fertility decline and control of overpopulation. On the other hand, there are nations where fertility increases and population controls have not been substantially improved. This is a consequence of differences in the conditions of each country. There are common factors in good results of population policies in some nations, that is the government is enthusiastic in implementing population policies, primary education is widely spread and political and economic stablity sustained.

The primary objective of population policies is not to control childbirth and population growth but to improve living standards and quality of life. Unless these points are fully understood by policy makers as well as the people, population policies cannot bear fruit.

Consequently, population policies need to be worked out and executed as a systematic development project forming a link in the chain of economic and social development programs. In developing nations, control of unusually high birthrates is an urgent task as a development strategy, while in the long run it is to obtain actual results from economic and social development. So there is a gap. In order to resolve this contradiction, measures should be taken to implement a program to control fertility, implement population policies, in connection with child and maternal health programs, and educate people to understand how beneficial fewer children in a family is for the health of mothers and their children. People will come to recognize the link between a reducted number of children and improvement in living conditions, education and good job opportunities.

Economic and social development is a long-term strategy. Population transition also progresses through stages. In the midst of it, population problems of various types have emerged. I have already given concrete examples.

In developing nations, it is necessary to forecast population problems in their early stages and implement measures without delay. In general, there is an experiential rule that the later a nation enters into the stage of demographic transition, the more rapidly it passes through each stage. Consequently, learning from the experience of Japan and other nations, it would be wise for developing countries to map out appropriate measures early. For instance, they may be looking at measures for an aging population casually but they should not procrastinate in addressing them before it is too late.

Table 1 Japan's Population Since the Meiji Era

Year	Population (1,000)	Rate of increase (annual rate %)
1872	34,806	0.6
1877	35,870	0.8
1882	37,259	0.8
1887	38,703	0.9
1892	40,508	0.9
1897	42,400	1.2
1902	44,964	1.1
1907	47,416	1.3
1912	50,577	1.1
1916	53,496	0.7
1920	55,473	---
1920	55,963	1.3
1925	59,737	1.5
1930	64,450	1.4
1935	69,254	0.8
1940	71,933	0.6
1945	72,147	2.9
1950	83,200	1.4
1955	89,276	0.9
1960	93,419	1.0
1965	98,275	1.1
1970	103,720	1.5
1975	111,940	0.9
1980	117,060	0.7
1985	121,049	---

Source: "Population of Japan Since the 5th Year of Meiji" by the Statistics Bureau of the Prime Minister's Office and "Population Census"

Table 2 Regional Migration

Year	Number of Migration (unit: 1,000)	Rate of Migration (%)	Excess Immigration to Three Metropolitan Regions (unit: 1,000)
1955	5,141	5.80	353
1960	5,653	6.09	594
1965	7,381	7.56	481
1970	8,273	8.02	393
1975	7,544	6.78	11
1980	7,067	6.07	-6
1985	6,482	5.39	102

Source: "Annual Report on Migration Based on the Basic Resident Register"

Note: Figures in the column of three metropolitan regions are the total sums of those of the Tokyo (Tokyo, Kanagawa, Saitama and Chiba), Hanshin (Osaka, Kyoto and Hyogo) and Chukyo (Aichi, Mie and Gifu) Regions.

Table 3 Population Structure by Age (%)

Year	Total Population	0-14 Years Old	15-64 Years Old	65 Years and Up
1920	100.0	36.5	58.3	5.3
1925	100.0	36.7	58.2	5.1
1930	100.0	36.6	58.7	4.8
1935	100.0	36.9	58.5	4.7
1940	100.0	36.1	59.2	4.7
1950	100.0	35.4	59.6	4.9
1955	100.0	33.4	61.2	5.3
1960	100.0	30.2	64.1	5.7
1965	100.0	25.7	68.0	6.3
1970	100.0	24.0	68.9	7.1
1975	100.0	24.3	67.7	7.9
1980	100.0	23.5	67.3	9.1
1985	100.0	21.5	68.2	10.3

Source: Population Census

Table 4 Future Estimates of Japanese Population

(unit: 1,000, %)

Year	Total Population	0-14 Years Old	15-64 Years Old	65 Years and Up
1985	121,049	26,042	82,534	12,472
1990	124,225	23,132	86,274	14,819
1995	127,565	22,387	87,168	18,009
2000	131,192	23,591	86,263	21,338
2005	134,247	25,164	84,888	24,195
2010	135,823	25,301	83,418	27,104
2015	135,938	23,876	81,419	30,643
2020	135,304	22,327	81,097	31,880
2025	134,642	22,075	81,102	31,465
2050	128,681	21,967	76,433	30,281
2075	124,890	22,466	73,739	28,685
2080	124,066	22,277	74,473	27,316

Year	0-14 Years Old	15-64 Years Old	65 Years and Up
1985	21.5	68.2	10.3
1990	18.6	69.4	11.9
1995	17.5	68.3	14.1
2000	18.0	65.8	16.3
2005	18.7	63.2	18.0
2010	18.6	61.4	20.0
2015	17.6	59.9	22.5
2020	16.5	59.9	23.6
2025	16.4	60.2	23.4
2050	17.1	59.4	23.5
2075	18.0	59.0	23.0
2080	18.0	60.0	22.0

Source: "Future Estimated Population of Japan" by the Institute of Population Problems, Ministry of Health and Welfare, December 1986, average estimation

Table 5 Fertility and Mortality Since the 1st Year of Meiji (1868)

Period	Fertility (0/00)	(0/00)
1868-1873	30.3	27.2
1873-1878	34.7	27.7
1878-1883	34.9	27.2
1883-1888	32.5	25.9
1888-1893	32.5	25.1
1893-1898	33.1	24.6
1898-1903	36.0	24.4
1903-1908	35.0	23.4
1908-1913	37.0	22.6
1913-1918	35.4	21.3
1920	36.2	25.4
1930	32.4	18.2
1940	29.4	16.5
1950	28.1	10.9
1955	19.4	7.8
1960	17.2	7.6
1965	18.6	7.1
1970	18.8	6.9
1975	17.1	6.3
1980	13.6	6.2
1985	11.9	6.3

Source: From 1st year - 6th year of Meiji (1868-1873) to 2nd year - 7th year of Taisho (1913-1918); estimation by Okazaki, from the 9th year of Taisho onward (1920-); Statistics of Population Dynamics

Table 6 Changes in Fertility after the War Indicated by the Index of Population Regeneration

Year	Total Special Fertility	Total Reproduction Ratio	Net Reproduction Rate
1947	4.54	2.21	1.72
1950	3.65	1.77	1.51
1955	2.37	1.15	1.06
1960	2.00	0.97	0.92
1965	2.14	1.04	1.01
1970	2.13	1.03	1.00
1975	1.91	0.93	0.91
1980	1.75	0.85	0.84
1981	1.74	0.85	0.83
1982	1.77	0.86	0.85
1983	1.80	0.88	0.86
1984	1.81	0.88	0.87
1985	1.76	0.86	0.85

Source: Institute of Population Problems, Ministry of Health and Welfare

Table 7 Changes in Average Life Expectancy and Number of Survivors

Year	Average Life Expectancy (year)		Number of Survivors 15 Years Old (%)		Number of Survivors 65 Years Old (%)	
	Male	Female	Male	Female	Male	Female
1935-1936	46.9	49.6	79.1	80.1	36.2	43.6
1947	50.1	54.0	82.9	84.0	39.8	49.1
1950-1952	59.6	63.0	90.0	90.8	55.1	62.8
1955	63.6	67.7	93.2	94.0	61.8	70.6
1960	65.3	70.2	94.9	95.8	64.8	75.2
1965	67.7	72.9	96.8	97.5	69.1	80.0
1970	69.3	74.7	97.6	98.2	72.1	82.6
1975	71.7	76.9	98.2	98.6	76.8	86.1
1980	73.3	78.8	98.6	98.9	79.4	88.5
1985	74.8	80.5	99.0	99.2	81.2	90.1

Source: Life Table of Statistics Bureau, Prime Minister's Office and Statistics and Information Department, Ministry of Health and Welfare

Table 8 Changes in Composition of Population by Age (%)

Age	The 35th Year of Showa (1955)	The 45th Year (1970)	The 60th Year (1985)
Total	100.0	100.0	100.0
0-4 years old	10.4	8.5	6.2
5-9	12.4	7.9	7.0
10-14	10.6	7.6	8.3
15-19	9.7	8.8	7.4
20-24	9.4	10.2	6.8
25-29	8.5	8.7	6.5
30-34	6.8	8.1	7.5
35-39	5.7	7.9	8.9
40-44	5.5	7.1	7.5
45-49	4.9	5.7	6.8
50-54	4.3	4.6	6.6
55-59	3.6	4.3	5.8
60-64	2.8	3.6	4.5
Over 65	5.3	7.1	10.3
0-14	33.4	24.0	21.5
15-34	34.4	35.8	28.2
35-54	20.4	25.3	29.8
55-64	6.4	7.9	10.3
65 and up	5.3	7.1	10.3

Source: Population Census

Table 9 Composition of Farmers by Age and Sex, 1985

(unit: 1,000, %)

Age	Total of Male and Female	Male	Female
15-19 years old	13	10	3
20-24	69	51	18
25-34	388	205	183
35-44	609	274	335
45-54	1115	487	628
55-64	1581	785	796
65 and up	1070	674	395
Total	4845	2486	2358

Age	Total of Male and Female	Male	Female
15-19 years old	0.3	0.4	0.1
20-24	1.4	2.1	0.8
25-34	8.0	8.2	7.8
35-44	12.6	11.0	14.2
45-54	23.0	19.6	26.6
55-64	32.6	31.6	33.7
65 and up	22.1	27.1	16.8
Total	100.0	100.0	100.0

Source: Population Census

CHAPTER 2

AGRICULTURAL DEVELOPMENT AND POLICY IN MODERN JAPAN: LESSONS FOR ASIAN DEVELOPING COUNTRIES

Yonosuke Hara
Institute of Oriental Culture
The University of Tokyo

1. Introduction

This paper is written to delineate the process of agricultural development and the evolution of agricultural policy in modern Japan since The Meiji Restoration to the present.

Needless to say, agriculture should play important roles in the process of national economic development, especially in supplying food, raw materials, economic surplus and labor to the growing nonagricultural sector. It should also play an important role in creating gainful employment opportunities for the growing population. In other words, agriculture should play crucial roles in realizing simultaneously "growth and equity."

Unfortunately, many Asian developing countries, especially South and Southeast Asian countries, seem not to have succeeded in simultaneous achievement of growth and equity. There are many examples, exemplified by Punjab in India, that success in agricultural growth has not been accompanied by reduction of rural poor. Remarkable agricultural growth based upon the so-called "Green Revolution" could not increase the employment opportunities sufficiently for the rather rapidly growing rural population. The most important task of development in these Asian countries is surely to find the appropriate strategy for simultaneous achievement of growth and equity.

In light of these Asian countries facing such difficulties, Japanese exprience regarding agricultural development seems to be a fortunate success story. Many people will think that it is very difficult to derive some meaningful lessons from such a "success story." Although the author can agree to some extend with this view, he still believes that the successful experience of modern Japan could imply some important lessons for Asian developing countries.

Bearing such an expectation in mind, the author will observe the process of agricultural development and the evolution of agricultural policy in modern Japan in this paper. In this effort, the author will utilize the many facts regarding Japanese agricultural development and policy, which have been already confirmed by many researchers. The would-be new point in this paper will be at most the focus of attention in observing agricultural developmment and policy in modern Japan.

2. Agricultural Development in Modern Japan

This section will describe rather briefly the basic trend of agricultural development since The Meiji Restoration until the present, based upon the many studies which are now the common asset among the agricultural economists in Japan. The first part will discuss the agricultural development in pre-war period since The Meiji Restoration

until the 1930s. Then, the second part will observe the agricultural development in the post-war period. It will be emphasized here that Japanese agriculture passed the turning point in the 1960s, when the Japanese national economy passed the turning point from labor-surplus to labor-shortage phase.

(1) Agricultural Development in Pre-War Period

As shown in Table 1, the growth rates of total output and gross value added during the entire pre-war period 1880-1935 were equally 1.6%.

The pre-war period can be demarcated into two phases. The first phase is the forty-year period from 1880 to 1920. During the former two decades 1880-1900, the growth rates of total output and gross value added were 1.6% and 1.8% respectively. During the latter two decades 1900-1920, they were 2.0% and 1.9% respectively. This forty-year period can be called the initial high growth phase.

Since 1920, the growth rate of agricultural production decreased. During the period 1920-1935, the growth rates of total output and gross value added were 0.9% and 0.8% respectively. The growth rate decreased from the earlier phase. This period can be called the inter-war stagnation period.

The relatively rapid growth in the initial phase was broadly parallel with nonagricultural growth. The Japanese economy realized a kind of balanced growth in this phase. This kind of balanced growth broke down in the 1920s and 30s. While the nonagricultural sector continued to expand, agriculture began to stagnate. This phase can be characterized as unbalanced growth between the non-agricultural and the agricultural sectors.

As regards the commodity composition of production, rice was the most important in spite of the rapid growth of sericulture. Throughout the pre-war period, the growth performance of rice production continued to be the major determinant of total agriculture.

The basic agrarian structure of the pre-war period was the small-scaled owner-cultivator system legally established by CHISO KAISEI (the land tax revision) in early Meiji, despite development of a landlord-tenant system. This farming system was family farming mainly dependent upon the family's own land and labor force. During the pre-war period, the labor and land-rental markets were still underdeveloped. Under the condition of underdeveloped factor market, the family farming system played an important function to utilize the land and labor efficiently.

It is now rather widely known that the basic source of agricultural

growth in the pre-war period, especially in the initial high growth phase, was the land-saving type of technological progress. Seed improvement and rapid increase in fertilizer use were the factors which had substituted for land. This type of technology is characterized as neutral to scale, and provided the technical condition for continuation of small-scaled farming in pre-war Japan. For the development of such biological-chemical (BC) technology, the relatively high level of land infrastructure in the initial stage was an important prerequisite. Initial progress in BC technology in the early Meiji period, primarily based on the initiatives veteran farmers exploiting indigenous potential, was facilitated by a relatively well-developed irrigation system, covering about 40% of total cultivated land area and more than 60% of lowland paddy. This irrigation system had been established during the Tokugawa era.

As better rice varieties were diffused and fertilizer input levels raised, land infrastructure became gradually a major bottleneck in productionn around the end of the 19th century. The return to investment in land infrastructure increased. Such increased return to land investment induced public investment as well as new institution KOCHI SEIRI HO (The Arable Land Replotment Law), designed to facilitate organization of farmers in the construction of land infrastructure, because improvement of land infrastracture was a community-wide project. The traditional community principle of Japanese village played an active role in making rural people participate in the project. Improvements in irrigation and drainage systems induced development of more fertilizer-responsive, higher-yielding varieties in the early 20th century.

The land productivity was raised by such land-saving technological progress. The growth rate of land productivity, defined by output per hectare, was 1.1% in the 1880-1900 period and it slightly accelerated to 1.3% in the following 1900-1920 period. It was reduced to the level of 0.8% in the inter-war stagnation 1920-1935 (Table 2).

This growth of land productivity raised the labor-productivity in agriculture. Growth rate of labor productivity was always higher than that of land productivity in the pre-war period (Table 2). This fact might be a rather unique characteristic of Japanese agricultural development. The expansion rate of arable land was rather small, but the absolute number of agricultural workers did decrease because of the increased outflow to the non-agricultural sector. The absolute number of agricultural workers was almost constant during the 19th century but it started to decline in the early 20th century. As a result, the land per worker always grew positively. Such rising trend of land per worker raised the growth rate of labor productivity above that of land productivity in the pre-war period.

Even though the labor productivity grew positively, its growth rate was rather lower than the growth rate of labor productivity in the

nonagricultural sector. Especially since the start of unbalanced growth in the 1920s, the labor productivity of the manufacturing sector grew rather rapidly, while that of agriculture stagnated. In this inter-war phase, the gap of growth rates in labor productivities between the manufacturing sector and agriculture widened as shown in Figure 1.

(2) Agricultural Development in Post-War Period

Total output grew at an annual rate of 2.4% while gross value added grew only at an average rate of 1.1% during 1945-1980 (Table 3). Such a gap in the growth rates between output and gross value added is a major characteristic of post-war agricultural growth. As shown in Table 1, total output and gross value added grew almost at the same rate in the pre-war period. Needless to say, the difference between total output and gross value added is the value of non-farm current inputs, and widening of the gap is caused by significant increases in non-farm current inputs.

The growth rates of agricultural production were not stable during the whole period. There can be found two major phases in growth performance of agriculture in the post-war period.

During the war, agricultural output declined sharply. For the 1945-1950 period, gross value added declined although total output increased somewhat. In the 1950-1953 period, Japanese agriculture started to grow once again at a rate of 4% per annum in output and about 3.5% per annum in value added terms. This period 1945-1953 can be characterized as the rehabilitation phase.

In the period 1953-1960, Japanese agriculture could achieve significant growth. Agricultural output grew at a high rate of 5% per annum respectively and value added at 4.5%. During the period 1960-68, however, the growth pace of Japanese agriculutre slowed down. The rate of growth of total output decreased to the level of 3% and the growth rate of gross value added decreased to 1.4%. This deceleration of agriculural growth rate does not imply stagnation of agriculture, but during this period Japanese agriculture passed a rather important turning point.

Japanese post-war high economic growth had started already in the mid 1950s but it speeded up in the 1960s. It is now rather commonly accepted by many economists that the turning point of the Japanese economy from a labor-surplus economy to a labor-shortage one occurred around 1960. This basic change in the national economy influenced Japanese agriculture strongly. Labor input in agriculture started to decrease drastically and agricultural mechanization proceeded remarkably in the 1960s. The use of non-farm current inputs expanded sharply and agricultural fixed capital accumulated considerably. The period from

1960 to 1968 can be characterized as the turning point.

In the period 1968-1980, dramatic changes emerged in the growth performance of agricultural growth. During the years 1968-1972, the growth rates of agricultural production became negative in terms of total output and gross value added. As will be described later, the Japanese Government attempted to restrict the rice production during this period, and this program influenced severely growth performance rates of agriculture. During the period 1972-1978, the growth rates became once again positive. This recovery of growth rates was mainly due to the changes in government policy after the world food crisis. This food crisis caused serious public concern about food security and forced the government to relax the paddy production restriction policy. Since 1978, however, the government restrengthened the paddy field diversification program in order to restrict rice production. The growth rates of agricultural production became once again negative. The whole period 1968-1980 can be characterized as the period of structural adjustment.

Based upon this review of agricultural growth performance, the whole post-war period can be basically divided into two major phases. The first phase covers the period 1945-1968, including the rehabilitation phase. This phase can be called an accelerated growth phase. The second phase covers the period, from 1968 to the present, of structural adjustment. During this phase, the growth rates of total output decreased to nearly 0% level and the growth rate of gross value added became negative. The share of agriculture in the total GDP decreased rather rapidly in this phase.

Needless to say, the growth rates of production were not equal among the major groups of agricultural commodities. Throughout the whole period, the growth rate of livestock was the highest. The growth rate of rice production during the accelerated growth phase was positive, but it turned to be negative in the structural adjustment phase. These differentiated growth rates of major commodity groups reflected the structural transformation of agricultural production in the post-war period.

In this process of structural transformation, the movement of international competitiveness of major commodities differed greatly. The international competitiveness of major commodities, defined as the ratio of domestic price to international price are shown in Table 4. From this table, it is quite clear that rice and beef have lost international competitiveness. Among other agricultural products, real progress in productivity has been realized. As the net export ratio in Figure 2 shows, Japanese agriculture did not have comparative advantage in the post-war period as a whole. Some commodities, however, have not lost international competitiveness in terms of the domestic-international price ratio. The typical examples are pork and poultry.

The major reason why these products could realize productivity growth is that these products do not utilize land intensively, the most scarce factor in Japanese agriculture. The reason why rice and beef have lost international competitiveness is surely that they are land-intensive commodities.

What has happened in the pattern of productivity growth during the post-war period? The growth rate of land productivity, defined by total output per area, was 2.7% in the rehabilitation phase, and subsequently accelerated to the level of 4.6% in the period 1953-1960 and then rather reduced to 3.4% in the 1960s (Table 5). These growth rates were surely higher than those of the pre-war period. Then they lowered to the level of 1.0% in the structural adjustment phase.

Just as in the pre-war period, the growth rate of labor productivity was always higher than that of land productivity. The reason why growth rate of labor productivity exceeded that of land productivity is the rising trend of land per worker ratio. It should be emphasized that, after the turning point of the Japanese economy from labor-surplus to labor-shortage, the growth rate of land per worker ratio showed a clear acceleration, because the absolute number of agricultural workers started to decrease more rapidly than before.

It is important to notice here that decreases of agricultural workers took the form of increasing part-time farmers. Since the Japanese economy passed the turning point, the labor market in front of farmers became a kind of competitive market with full-employment. Farmers could choose the best job opportunities among the alternatives. On the other hand, the development of rural land-rental market was severely restricted by Land Reform implemented just after the second World War. The result of development of labor market and underdevelopment of land-rental market was an increasing trend of part-time farmers.

The growth rate of labor-productivity accelerated from 1.3% in the rehabilitation period to 6.7% in the period 1953-1968. The fact that the growth rate of labor-productivity accelerated suggests that the basic pattern of agricultural technological change has shifted from that of land-saving, which prevailed in the pre-war period and also in the rehabilitation period, to that of labor-saving. More concretely, this change meant rapid mechanization of agricultural production. The basis of agricultural production shifted from BC technology to Mechanical technology (M technology).

Buying machines is the activity of fixed capital formation by the farmers. In this sense, the newly emerged pattern of labor-saving technological progress can be called a type of capital-using. One big problem involved in this type of technological progress is the low or negative growth rate of capital productivity. Even in the 1960s, it

started to decrease, and subsequently it dropped rather rapidly in the structural adjustment phase. Such movement of capital productivity is suggestive of the big problem of present Japanese agriculture such as overinvestment in machinery and other capital equipment. Invested capital goods have not been utilized economically because of limited farming size.

Even though the growth rate of labor productivity increased in the 1960s, it was rather behind that of the manufacturing sector as shown in Figure 1. During the post-war high economic growth in the 1960s, the differentials of labor productivities between the agriculture and manufacturing sectors widened. In this sense, the post-war high economic growth can be characterized as a continuation of unbalanced growth which started in the 1920s.

3. Evolution of Agricultural Policy

This section will describe the evolutionary process of agricultural policy, which has affected rather significantly agricultural development described in the previous section. As the reference for describing agricultural policy, the dichotomy of agricultural policies in the contemporary world proposed by the World Bank is adopted here.

Quite recently a clear dichotomy of agricultural policies was presented by the World Bank in its WORLD DEVELOPMENT REPORT 1986: the policy exploiting agriculture in the developing countries and the policy protecting agriculture in the developed countries.

In the developing countries, the policy framework aimed at industrialization through import-substitution strategy, such as trade barriers to manufacturing imports and low pricing policy on food, and overevaluation of currencies, has exploited potentiality of agricultural growth. The domestic farm prices of agricultural products are kept below their world prices at country borders. This policy of exploiting agricultural is the typical agricultural policy in contemporary developing countries.

In the developed countries, on the contrary, agriculture has been protected very heavily by various measures such as supporting farm prices and high tariffs on imports. The basic objective of this policy is to support the income of farmers who have strong political power in domestic politics of the developed countries. The domestic farm prices are kept above the world prices, and these protective policies have resulted so often in overproduction and heavy efficiency loss in national economies. This policy of protecting agriculture is the typical policy of the developed countries.

As will be described in the following, agricultural policy in Japan

has changed, during the century of modern econommic growth, from the type of the developing countries discriminating agriculture, to the typical type of the developed countries protecting agriculture.

What might be the most crucial reasons for this evolution of agricultural policy in Japan? As the following will make clear, the most crucial reason underlying the evolution of agricultural policy is the fact that differentials of labor productivities between agriculture and manufacturing sector have widened in the process of industrialization. The other important reason might be that agriculture has lost its comparative advantage in the course of modern economic growth. As will be explained later, the change from the type of the developing countries to that of the developed ones began in the early 1900s, when Japan's imports started to rise. As the net export ratio in Fig. 2 shows, Japanese agriculture lost its comparative advantage in those days. The movements toward protective policies were strengthened in the 1920s when the gap of labor productivities between the two sectors widened because of acceleration of industrialization. The strong drive to higher protection of agriculture in the post-war high growth of the Japanese economy is surely from widening differentials of labor productivities between agriculture and the manufacturing sector.

(1) Agricultural Policy in Pre-War Period

Agricultural Policy for Initial Economic Growth

Agricultural policy adopted in the initial phase of Japanese modern economic growth was the typical example of the developing countries. In this early phase, rice was the most important wage good. It was critical for industrial development of Japan, when labor-intensive manufacturing industries such as textile developed as leading exporting industry, to provide cheap rice to industrial workers to keep wages low. The agricultural policy in the early phase of modern economic growth served mainly to realize this policy target.

In 1873-1876, CHISO KAISEI (The Land Tax Revision) was carried out. In order to secure stable government revenue, this revision changed the feudal tax in kind into modern land tax in cash charged in proportion to the economic value of land. Farmers were given private property rights of farming land simultaneously with the duty to pay land tax. This revision established formally the basic agrarian structure in pre-war Japan. Farmers were forced to sell rice in the market to get cash in order to pay land tax. Tax burden was rather heavy. Even though the explicit objective of the Land Tax Revision was not to supply cheap rice to industrial workers, it clearly contributed to increasing the marketable surplus of rice.

Shortly after Meiji Restoration, the Japanese government tried to

develop agriculture by importing Western farming machinery and introducing Western farming techniques. This strategy of direct technology borrowing failed, because the technology introduced from the Western countries was not relevant to agro-climate and socio-economic conditions of Japan. Then in the 1880s, the Japanese government shifted its effort to the improvement of indigenous farming technology. Special emphasis was given to increasing yield of rice. Establishment of SHUKOKU SHIKENJO (the Experiment Station for Staple Cereals) in 1886 was the start of policy change. The government also encouraged farmers' organization for agricultural improvement such as NODANKAI (Society for Discussing Farming Matters) and SHUSHI KOKANKAI (Society for Exchanging Seeds) as the institutional instrument for propagating better techniques.

As a result of these efforts, rice production gradually increased but it failed to match the increasing demand during initial spurt of industrialization. In the late 1890s, Japan turned from a net exporter of rice into a net importer. In order to counteract the increase of rice import, the Government decided to adopt the more active measures to increase domestic rice production.

Firstly, the Government established institutions for research and development of higher yielding rice varieties. In 1896, KOKURITSU NOJISHIKENJO (the National Agricultural Experiment Stations) was establihsed. This was the actual start of public investments in the field of research and development in agriculture.

Secondly, the Government started to improve land infrastructure through public investment and establishement of institutions for land improvement. As mentioned previously, the Arable Land Replotment Law was passed in 1899. This law aimed at facilitating organizing farmers in constructing land infrastructure.

These governmental efforts were successful in raising yield per land. By the beginning of the 20th century, a rather unique farming technology MEIJI NOHO (Meiji Style of Farming Technology) had been established. This farming technology was primarily based upon seed improvement and higher fertilizer application, as well as with labor-intensive land preparation, weed and pest control, and water management. This was the basis of land-saving technological progress in the pre-war period. With wider diffusion of MEIJI NOHO, Japan increased domestic rice supply. Growth rate of rice production accelerated in the 1900-1920 period. Further decline of rice self-sufficiency was prevented during the first two decades of the 20th century when extremely rapid industrialization was experienced. The price of rice relative to general price levels could be stabilized during this period of rapid industrialization. It can be said that tha agricultural policy of keeping price of wage goods low was successful in initial high growth phase.

It can be concluded that the agricultural policy in the initial high growth phase was similar to that of the developing countries dichotomized by the World Bank. It was a kind of policy exploiting agriculture because of the heavy tax burden on agricultural sector. It should not be ignored, however, that Meiji government tried to develop appropriate farming technology within the basic framework of exploiting agriculture.

Changes of Agricultural Policy in Inter-War Stagnation Phase

When Japan started to import rice in the late 1890s, voices for tariff protection of rice was raised from the farmers and landlords class. Against these voices, voices for securing cheap rice for cheap labor were equally strong from the urban entrepreneurs class.

When Russo-Japanese War began, the government imposed the 15% at valorem tariff on rice import, in order to secure revenue for financing the war. It was planned to be temporarily and to be terminated at the end of war. After the war, farmers insisted preserving this tariff. There emerged a big controversy in the National Diet between TEIKOKU NOKAI (The Imperial Agricultural Society) representing the farmers' interests and TOKYO SHOKOKAIGISHO (The Tokyo Chamber of Commerce) representing the manufacturers. The former group insisted necessity of self-sufficiency of rice. In 1906, the tariff of rice was made permanent in the form of a specific duty of 0.64 yen per 60kg. In 1913 after the severe debate in the Diet, the rate of rice tariff was raised, and also import of rice from overseas territories, Taiwan and Korea, was made free of duty. This decision "the Self-Sufficiency in the Imperial Territory" was based on a compromise between conflicting two goals, self-sufficiency of rice from farmers' viewpoint and supply of cheap rice from manufacturers' viewpoint.

This series of events since the late 1890s is important, because it meant the beginning of rent-seeking activities by farmers in Japan. This rent-seeking activity started to act against import of rice. As shown in Fig. 2, Japanese agriculture lost its comparative advantage in those days. It can be said that the farmers' rent-seeking activities for protection began since agriculture lost its comparative advantage.

During this course of changing agricultural policy, there emerged an important trend of stagnation of domestic rice production. Increase in rice yield and production began to stagnate in the mid 1910s, technological potential in MEIJI NOHO was exhausted. In order to counteract this trend, the agricultural experiment stations moved towards conducting more basic research to create new potential. The typical example was crop breeding projects. At the Kinki Branch crossbreeding started in 1904 and at the Ryukuu Branch pure line selection started in 1905. Even through the policy's aim was not

realized during the pre-war period, it should not be ignored that government strengthened public investment for improving agricultural technology.

After KOME SODO (rice riot) in 1918, Japanese government tried to increase rice production in the overseas colonies, Taiwan and Korea. Under SANMAI ZOSHOKU KEIKAKU (Rice Production Development Program) Japanese government invested in irrigation and water control and tried to diffuse high-yielding rice varieties adaptable to the ecologial conditions of Taiwan and Korea. This program succeeded, especially in Taiwan, and the huge amount of rice flew into the Japanese market.

In the 1920s competition from colonial rice depressed rice price and agricultural income. Based upon strong pressures from the Imperial Agricultural Society, the Government adopted BEIKOKU HO (The Rice Law) in 1921. This law gave the Government the power to adjust rice supply in the market by managing purchase, sale, and storage, by changing import duty, and by restricting imports from foreign countries. In 1933, because of surplus of rice, the Rice Law was replaced by BEIKOKU TOSEI HO (The Rice Control Law) which authorized the Government to buy and sell unlimited quantities of rice at the floor and ceiling prices. Subsequently, as the war progressed, the Government strengthened direct control of rice distribution and, in 1939 BEIKOKU HAIKYU HO (The Rice Distribution Act) was adopted. The number of food items added to the list of direct control and rationing increased, and finally in 1942 SHOKURYO KANRI HO (The Food Control Act) was proclaimed.

During the inter-war stagnation phase, the basic emphasis of agricultural policy clearly changed from keeping rice price low to raising rice price. In terms of the World Bank's definition, it can be said that the basic stance from the policy of developing countries to that of developed countries. Such a change materialized through positive rent-seeking activities by farmers in the process of decision making on economic policy.

During this period, there existed the worsening tendency of the conditions of agricultural trade because of increasing import of rice. At the same time, there emerged a widening gap of labor-productivity between agriculture and nonagriculture, as already mentioned. These two trends resulted in widening income gap between farmers and urban workers. In order to narrow such a widening income gap, farmers activated in collaboration with landlords a political movement pressuring the Government into raising price of rice. This was the reason why the basic stance of agricultural policy changed during this inter-war stagnation phase.

(2) Agricultural Policy in Post-War Period

Establishment of Protective Policy in High Economic Growth

The most important task of agricultural policy in the rehabilitation period is how to procure and distribute basic food for hungry mass, especially for urban population. Compulsory delivery of rice from producers at the price lower than market prices was reinforced. In 1946, SHOKURYO KINKYU SHOCHI HO (The Food Emergency Measure Act) was promulgated in order to secure delivery of rice. The Government also introduced the parity price formula to determine producers' price of rice, with the aim to give more economic incentives to farmers.

Besides these policies to secure food to hungry mass, two important institutional reforms were carried out during the rehabilitation period. The first and most important one is the Land Reform. This reform supplemented by NOCHI HO (The Agricultural Land Act), established the fundamental structure of post-war agriculture such as small-scale family farms. This institutional change had positive impact because farming incentives became stronger than under the pre-war landlordism, but also negative inpact because it established a rigid pattern of small-scale fragmented holding of arable land, which became later to be not compatible with technological progress. The other is the establishment of farmers' cooperative associations. Since NOGYO KYODO KUMIAI HO (The Agricultural Cooperative Law) promulgated in 1947, many cooperatives were esablished in various parts of Japan. This establishment of cooperatives increased farmers' rent-seeking power in the context of decision making on agricultureal policy in the post-war period.

At the end of rehabilitation phase, the Government started to actively strive to increase agricultural production. Especially the Government invested a large amount of money in the land imporvement such as reclamation, irrigation ad drainage.

In 1953, NORINGYOGYO KINYUKOKO (Agriculture, Forestry and Fishery Finance Corporartion) was established as an institution of providing the Government's money at lower interest rates for promoting investment in agriculture. In the pre-war period, wealthy farmers as well as landlords provided funds for capital formation in agriculture, but such class of farmers disappeared as a result of Land Reform. Small scale family farmers were considered not to have enough fund to invest.

In the process of acceleration of economic growth in the 1950s, disparity in income and wages between agriculture and urban industries started to increase. This led to reappearance of the trend already noticed in the inter-war stagnation phase. In 1952, when the first national meeting of farmers' cooperatives was held, the parity index for rice was modified to account for a lag in the living standards of rural

households when compared to those of urban households, and also for changes in the level of material input to rice production. This meant resurgence of protectionism already existed in the inter-war stagnation phase.

In spite of this repurgence of protectionism, price of rice was surprisingly stable in the 1950s. During this period, when major exporting goods of Japan were still products of labor-intensive light industries, keeping low price of wage goods such as rice was very important. The agricultural policy aimed to increase rice production through the Governments' investment in the 1950s was successful in keeping price of wage goods from rising without causing drains on foreign exchange. The basic stance of agricultural policy in the rehabilitation period and the early accelerated growth phase was, in this sense, rather similar to that for initial economic growth, even though some degree of protective policy reappeared.

In the 1960s especially after Japanese economy passed the turning point, the economic conditions surrounding agriculture drastically changed. Real wages of industrial workers began to rise rapidly. Because of this secular rise of real wages of urban workers, the importance of rice as wage goods decreased. Rice no longer was the basic wage good critical for industrial development.

In response to these changes surrounding Japanese agriculture, the Government adopted NOGYO KIHON HO (The Agricultural Basic Law) in 1961 which aimed at establishing viable farming by reforming the structure of agricultural production. The main target of this Basic Law was increasing productivity to provide farming households the income equal to the urban household. The main strategy suggested was diversification of agricultural production by including commodities with higher income elasticy such as beef and vegetables.

Just before the adoption of the Basic Law, the Government started to liberalize import of agricultural commodities. The first one is import liberalization of 12 agricultural commodities such as soybeans in 1960. The international competitiveness of many agricultural commodities was not very low when Japan started import liberalization and adopted the Basic Law, as shown in the domestic-international price ratios in Table 4. Therefore, the target of increasing productivity to the level compatible with international competition, implied in the Basic Law, was reasonably realistic when the law was adopted.

The actual process of agricultural growth since early 1960s was, however, quite different from what the Basic Law intended. Even though productivity growth was realized in some agricultural products, the major direction of direction agricultural policy was to increase protection of agricultual products, such as rice, which could not realize significant productivity growth.

Until the end of 1950s, disparities in labor productivity between agriculture and industry and in income between rural and urban households were widened. There emerged strong demand for "fair" return for labor from farmers. This demand manifested itself in the strong voice through activation of cooperative movements. Pressured by the voice from farmers, the Government adopted a rice price determination formula called SEISANHI SHOTOKU HOSHO HOSHIKI (The Production Cost and Income Compensation Formula) in 1960. In this formula, the wages for family labor are calculated in the same way as non-farm wages in order to guarantee fair returns for the labor in rice production. Due to the adoption of this formula, the producer price of rice rose rapidly reflecting rapid rise of industrial wages in the 1960s. The adoption of this formula was surely the result of rent-seeking activities by farmers.

The major target of the Basic Law was to reduce the gap between farm and non-farm household incomes. This policy target was achieved through raising prices of rice within this formula. Income per agricultural worker, as compared to a manufacturing worker's income, improved since 1960 due to the rapid rise in agricultural prices relative to manufacturing prices. One major target of the Basic Law was thus achieved, but it should be emphasized that such policy targets could be realized not by improving productivity but by raising agricultural prices. Besides these increased agricultural prices, increase in non-farm job opportunities for the household members of rural families also significantly contributed to reducing the gap between farm and non-farm family incomes.

Anyhow, it is very clear that agricultural policy has assumed distinctive characteristics of protectionism policy in the accelerated growth phase. The stance of protective policy, first appeared in the inter-war stagnation phase and once again reappeared in the 1950s, has reached its peak during the process of high economic growth in the 1960s. The share of price support, distribution and income policies in the agricultural-related budget increased, while the share of land improvement declined. The basic reason underlying this change was, as mentioned earlier, widening of labor productivity differentials between agriculture and industry. At the same time, it should not be forgotten that farmers could strengthen their political power of rent-seeking through activating cooperative movements based upon the Agricultural Cooperative Law enacted in 1947.

Even though the major trend of agricultural policy in the accelerated growth phase was strengthening protective policy, it should not be ignored that some agricultural policies made positive contribution to improving agricultural productivity. As described earlier, pork and poultry did not lose international competitiveness. These products do not utilize the land intensively which is the most scarce element in Japanese agriculture, and are called SHISETSU RIYOGATA

NOGYO (facility-using type products). In order to increase productivity with these products, it was necessary to construct the facilities for breeding small animals. Supplying to farmers with necessary funds at lower rate of interest through the Agriculture, Forestry and Fishery Finance Corporation could contribute to increasing fixed capital formation in this farming sector.

Structural Adjustment Policy

While protective policy was strengthened in the 1960s, the surplus of rice started to be accumulated in the Government's storage and also the deficits in SHOKURYO KANRI TOKUBETSU KAIKEI (The Food Control Special Account) became larger. These two facts were natural consequences of the policy of protecting rice growers through raising the producer price.

In order to solve the rice surplus problem, the Government decided to force farmers to curtail rice production. In 1969 the Government started a program for rice field retirement and diversion. The Government compensated the rice producers for their possible income loss caused by restriction in rice production through acreage reduction. The Government also provided some subsidy for promoting diversification of farm products. As a result of such policy, growth rate of rice production turned to be negative.

But the situation changed in the early 1970s. After the world food crisis in 1973-74, the Government relaxed the rice production restriction policy. This policy change was justified as food security. Growth rate of rice production once again turned positive. Within the subsequent few years, surplus of rice started once again to accumulate. Then in 1978, the Government implemented again the rice field diversion program.

It is clear that these government policies have had strong impact on Japanese agricultural growth. Growth rate of agricultural production clearly showed a tendency of negative growth in this structural adjustment phase.

It should be emphasized that this structural adjustment policy was a modification of the policy of protecting agriculture. This rice field diversion program intended only to solve the rice surplus problem. The basic stance of protecting agriculture has still been maintained during this structural adjustment phase.

The policy protecting agriculture involved substantial loss of economic welfare and efficiency. Higher price of rice has reduced consumer surplus not only by curtailing demand for rice itself but also by obstructing the shift of resources from rice to other high-demand

agricultural products such as livestock and vegetables.

The basic factor which now restricts further growth of Japanese agriculture is, needless to say, limited farm size established by the Land Reform. As mentioned in the previous section, the rural land-rental market has not yet developed as a result of the Land Reform. This underdevelopment of land-rental market restricts enlargement of operation size. In terms of technology, Japan has already developed a basis of realizing the scale economy, that is, mechanization of agricultural production. The biggest problem is that this technological basis cannot be realized because of limitation of farming size. This point is cleary revealed in the phenomenon such as overinvestment in machinery by farmers mentioned previously. At present, Japanese agriculture seems to be in disequilibrium between technological potential developed in high economic growth and institutional conditions established by the Land Reform. The most important task of agricultural policy today is to develop the land-rental market, even within the basic framework of protective policy.

4. Lessons from Japanese Experience

The previous two sections described the process of agricultural development and the evolution of agricultural policy in modern Japan. These two sections made clear, the author hopes, the process that agricultural policy in Japan has changed from the type of the developing countries defined by World Bank discriminating agriculture, to the typical type of the developed countries protecting agriculture.

The most basic reason underlying change in agricultural policy was the fact that differential of labor productivities between agriculture and manufacturing sector widened in process of industrialization. The fact that agriculture lost its comparative advantage might be also another reason. The change from the type of the developing countries to that of the developed ones began when Japan started to import rice, and was strengthened in 1920s when gap of labor productivities between two sectors widened. Strong derive to higher degree of protection in the 1960s is clearly pushed by widening differentials of labor-productivities between agriculture and ma manufacturing sector. The often-insisted reason for protective policy is to secure domestic food production, the typical example of which is the food security concern in the mid-1970s. This fact implies that losing comparative advantage is also the reason for protective policy.

Along with such changes in agricultural policy, the role of agriculture in overall economy changed. Under the policy of exploiting agriculture in the initial high growth phase, agriculture contributed significantly to overall economic development mainly through three channels. Firstly, agriculture provided the huge amount of its economic

surplus through budgetary transfer (land tax) to the non-agricultural sector. Secondly, it contributed to industrialization by supplying cheap food. Finally, it supplied the necessary labor force to non-agricultural sector. However, the role of agriculture has changed under the policy of portecting agriculture especially in the post-war high economic growth. Firstly, the net resource flow in budget transfer changed from outflow from agriculture to inflow into agriculture. In the post-war protectonism, a huge amount of the Government's money flew into agriculture through public expenditures for land improvement, subsidy in the form of lower interest rates interest, and price support policies. Secondary, Japanese agriculture gradually lost its role of supplying food, as imports of agricultural commodities increased. Finally, the role of supplying labor force to non-agricultural sector was also weakened along with the decrease of agricultural population. It can be said that agriculture has lost now its historical roles in the national economy and also that it is now a heavy burden on economy consuming a large amount of the Government budget.

The Japanese experience regarding evolution of agricultural policy might have some important implications for some contemporary developing countries especially Asian NICs and ASEAN. Growth rate of labor productivity of manufacturing sector is higher than that of agricultural sector in almost all these countries. The same trend that Japan saw during the last century has now clearly emerged there.

Simultaneously, in these countries agriculture has been losing comparative advantage and the manufacturing sector has been gaining comparative advantage. The share of manufactured goods in total exports increased rapidly. This fact clearly tells us that agriculture is losing its comparative advantage in these countreis. This tendency is quite similar to that of modern Japan.

The author believes that these trends such as widening of labor productivity gap and structural change in exports are suggesting an important possibility that the agricultural policy of the developing countries which are now exploiting agriculture, will be changed in the direction of protecting agriculture in the near future. In Asian NICs such as Korea, the agricultural policy has already became more protective.

Making protective agricultural policy will cause serious problems, such as overproduction of protected products and large efficiency loss in terms of consumers' surplus, which Japan is now facing. As the Japanese experience of structural adjustment policy clearly shows, avoiding efficiency loss involved in protective policy is very difficult and a huge amount of transaction cost including political cost should be needed to remove the high degree of agricultural protection. This experience of contemporary Japan is a kind of "negative" lesson for Asian countries in the sense that, if possible, Asian countries should

avoid such problem.

Besides this "negative" lesson, are there any "positive" lessons in Japan's "success story" for Asian developing countries? Can some important lessons be found in Japanese experiences especially for South and Southeast Asian countries which have not yet succeeded in simultaneous realization of growth and equity?

Some people insist that the Japanese "success story" could not provide any meaningful lessons for the contemporary South and Southeast Asia, by emphasing the fact that the initial conditions and the international economic environment of the contemporary Asian countries are quite different from those of modern Japan. The author can understand, to some extent, this kind of argument, but still believes that there could be some lessons in Japanese experiences for the contemporary South and Southeast Asian countries.

The first lesson is the fact that modern Japan tried to develop the new agricultural technologies suitable for Japanese own natural and socio-economic conditions. The Japanese Government started striving to improve indigenous farming technology, just after the failure in direct technology transfer from the Western countries, in the early Meiji period. When considering the fact that some Asian countries are now developing their agricultural technologies incompatible with their natural and soci-economic conditions, such as premature tracterization under overpopulation, this Japanese experience should be a very important lesson for achieving growth and equity simultaneously.

A second lesson is the impact of land reform. As the result of the land reform implemented just after the second World War, the equity problem within rural areas was almost solved in Japan. Many Asian countreis now have land reform programs, but actual implementation of these programs is very unsatisfactory in almost all countries. Even though the author can understand that it is politically difficult to implement a land reform policy, he would like to stress the importance of land reform for equity as well as for growth based upon the Japanese experience.

The last but not the least important lesson might be the fact that the Japanese "success story" was realized through finding continuously the technologies institutions and policy framework suitable for the initial conditions and the changing domestic and international economic environments. Needless to say, continuous effort to find the appropriate technology and policy was the trial and error process. Neither the appropriate technology nor effective policy was provided at the beginning of the Japanese "success story." The most important lesson from the Japanese experience should be that every Asian country should search by itself for the strategy best suited for its own conditions.

Note:

The following are the sources upon which the description of agricultural development and policy in this paper is mainly based.

Hayami Yujiro in association with Akino, Shintani and Yamada, A Century of Agricultural Growth in Japan, University of Tokyo Press, 1975

Yamada Saburo, Country Study of Agricultural Productivity Measurement and Analysis 1945-1980, Japan, Paper presented at APO meeting held in Tokyo, Oct. 1984

Hayami, Yujiro, Nogyo Keizairon (On Agricultural Economy), Iwanami Shoten, 1986

Table 1 Growth Rates of Total Production, Total Output, and Gross Value Added in Agriculture in Pre-War Period: at 1934-36 Price

	Total production	Total output	Gross value added
1880-1900	1.5	1.6	1.8
1900-1920	1.8	2.0	1.9
1920-1935	0.9	0.9	0.8
1880-1935	1.5	1.6	1.6

S. Yamada and Y. Hayami, "Agriculture" K. Ohkawa and M. Shinohara, Patterns of Japanese Economic Development, Yale University Press, 1979

Table 2 Growth Rates of Labour and Productivities on Total Output at 1934-36 Prices and of Land/Labour Ratios

	Labour productivity	Land productivity	Land/labour ratio
1880-1900	1.5	1.1	0.4
1900-1920	2.6	1.3	1.3
1920-1935	1.0	0.8	0.2
1880-1935	1.8	1.1	0.7

S. Yamada and Y. Hayami, "Agriculture" K. Ohkawa and M. Shinohara, Patterns of Japanese Economic Development, Yale University Press, 1979

Table 3 Growth Rates of Total Production, Total Output, and Gross Value Added in Agriculture in Post-War Period: at 1975 Prices

	Total prpoduction	Total output	Gross value added
1945-53	2.8	2.8	1.2
1945-50	2.0	2.2	-0.2
1950-53	4.0	3.9	3.7
1953-68	3.8	3.9	2.9
1953-60	4.9	5.0	4.7
1960-68	2.9	3.0	1.4
1968-80	0.3	0.3	-1.2
1968-72	-0.8	-0.9	-4.4
1972-78	-2.0	-2.1	-1.8
1978-80	-2.2	-2.3	-3.4
1945-80	2.4	2.4	1.1

Saburo Yamada, Country Study on Agricultural Productivity Measurement and Analysis 1945-1980, Paper presented at APO meeting, October 1984

The data in Table 3 are not consistent to the data in Table 1 in terms of the following two points. Firstly, the base year of measuring the constant series is different. Secondly, the total production in Table 3 include capital formation such as growth of livestock and perennial plants. However, the estimated growth rates in Table 3 are almost same to the estimated growth rates based upon the same assumption in Table 1. Therefore the author judged the data in Table 1 and 4 are consistent.

Table 4 Ratio of Domestic Prices to Import Prices

	Rice	Beef	Pork	Chikcen	Egg
1955	1.24	1.39	1.01	0.49	0.81
1960	1.48	1.84	1.97	1.20	0.93
1965	1.99	2.46	1.22	1.23	0.98
1970	2.35	2.08	0.91	1.18	0.91
1975	2.24	2.73	1.16	1.30	0.94
1980	2.93	2.00	1.17	1.23	0.99

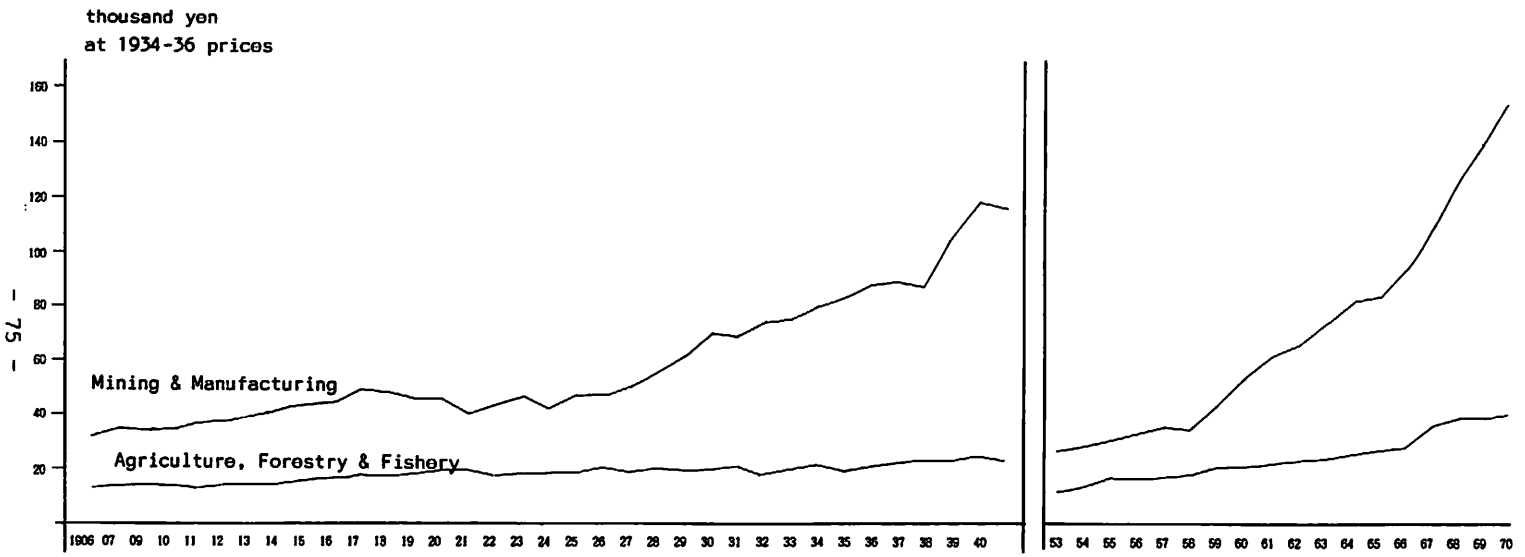
Source: Yonosuke Hara, 'Kihonho Nosei kano Nosanbutsuyunyu (Import Policy under Agricultural Basic Law) 'Hemmi and Kato eds. Kihonho Nosei no Keizaibunseki (Economic Analysis of Agricultural Basic Law Policy), 1985

Table 5 Growth Rate of Labour and Land Productivities on Total Output at 1975 Prices and of Land/Labour Ratios

	Labour productivity	Land productivity	Land/labour ratio
1945-53	1.3	2.7	-1.3
1945-50	-0.9	2.1	-2.9
1950-53	5.2	3.6	1.5
1953-68	6.7	3.9	2.7
1953-60	6.7	4.6	2.1
1960-68	6.7	3.4	3.1
1968-80	4.1	1.0	3.1
1968-72	3.1	-0.0	3.1
1972-78	6.5	2.6	3.8
1978-80	-0.9	-2.0	1.2
1945-80	4.6	2.6	1.9

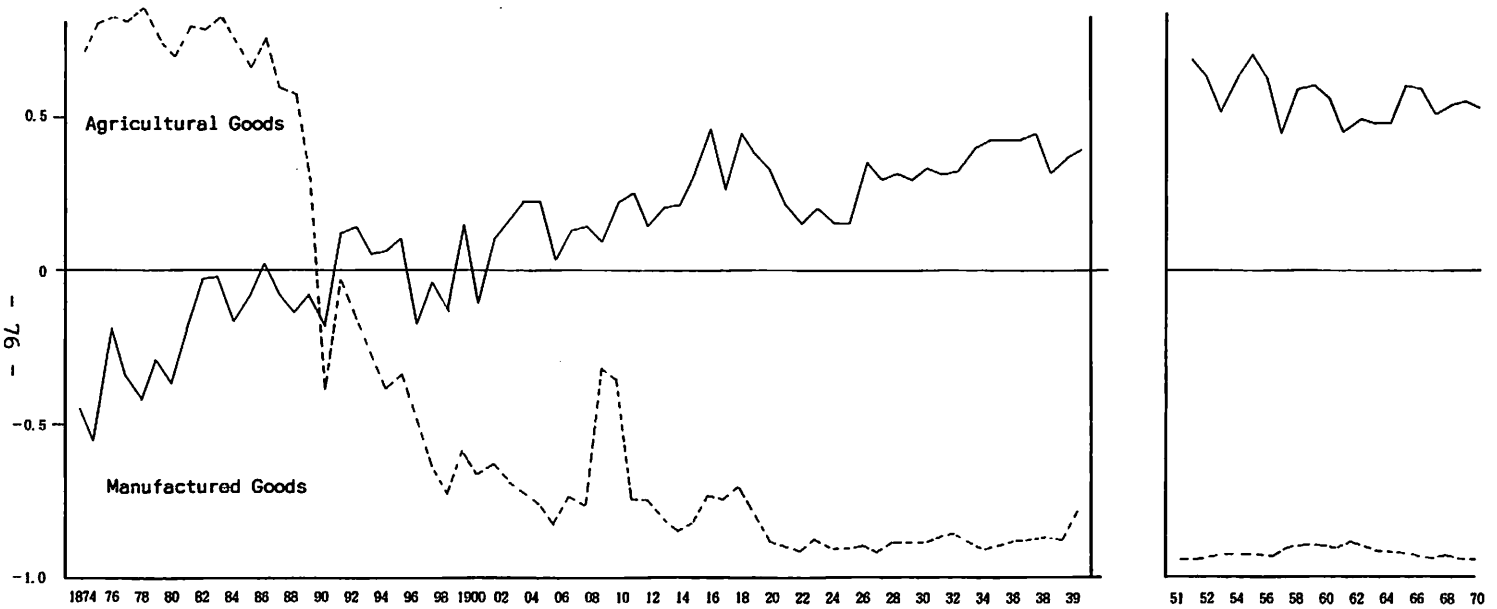
Saburo Yamada, Country Study on Agricultural Productivity Measurement and Analysis, 1945-1980, Paper presented at APO meeting, Oct. 1984

Fig.1 Labor Productivities in Japan



Source: Value added and labor force from K. Ohkawa and M. Shinohara, Patterns of Japanese Economic Development, Yale University Press, 1979

Fig.2 Net Export Ratio: Agricultural Goods and Manufactured Goods



Source: I. Yamazawa and Y. Yamamoto, International Trade and Balance of Payments, LTES14, Toyokeizaishinposha, 1981