

# ***Aging of the Population of Japan and Its Policy Implications***

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## A B S T R A C T

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This paper examines the aging of the Japanese population and its implications for policy decision-making by heavily drawing upon the future population projection prepared by Nihon University for the period of 1980-2025. The meaning of the extension of life, the problems generated by the aging, the role of the young in an aging society and the effects of the labor force are the topics focused on. Because there will be an unusually large increase in the number of the aging from the year 2000, it is very important for the government, the private sector, and the general public to made effective preparations for this phenomenon.

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## I. Introduction

The aging of a population is a relatively recent phenomenon in human experience. Aging is measured in several ways by demographers: as increase in average (median) age; as increase in the proportion of older persons in a population--with the cutting point being generally taken at 65 years of age; an increase in the aged dependency ratio (the number of persons 65 years old and older per 100 persons of intermediate age--working age--15 to 64); or as the ratio of the aged dependency ratio to the youth dependency ratio (persons under 15 per 100 persons of working age).

The aging of a population is more the product of declining fertility than decrease in mortality--a fact documented in demographic research. Decreases in fertility have generally followed decreases in mortality and are a product of forces of modernization. That is, declines in birth rates have been concomitants of increasing urbanization and industrialization and the changes in values, attitudes, behavior and social and economic conditions in general which they have generated. Thus, widespread declines in fertility accompanying industrialization and urbanization were first observed in the nineteenth century in Western nations and did not occur in Japan until after World War II.

The impact of fertility decreases on population aging may be illustrated by statistics derived from model populations constructed by Professor Ansley J. Coale and Dr. Paul Demeny as shown in Table 1.

It is to be observed that as the birth rate declines, especially after the "transitional stage", all three indices of aging shown sharply increase. It is also to be noted that the increase in birth rate in the transitional period of population dynamics is accompanied by declines in the aging indices.

It is also apparent that as zero population growth is reached in the "modern stationary" population, a state already observable among some European nations, the indices of aging given can be anticipated to assume unprecedented high levels.

Although it is declines in fertility which are more important than declines in mortality in the aging of a population, declines in the death rate have an important impact on the extension of life. That is, declines in mortality are accompanied by increases in longev-

Table 1. Impact of Decreases in the Birth Rate on the Average Age, the Proportion of Persons 65 and Over and on the Aged Dependency Ratio, Model Populations

Population Characteristic	Primitive Stationary	Pre-Modern	Transitional	Modern	Modern Stationary
Birth Rate	50.0	43.7	45.7	20.4	12.9
Death Rate	50.0	33.7	15.7	10.4	12.9
Annual Growth Rate Percent	0.0	1.0	3.0	1.0	0
Percent 65 & Over	2.9	3.4	2.6	10.3	18.5
Average Age	25.5	25.1	21.8	32.8	40.0
Aged Dependency Ratio	5	6	5	16	30
Expectation of Life at Birth	20.0	30.0	50.0	70.0	77.5

Source: Binstock and Shanias (1976)

ity--expectation of life at birth and at older ages. Thus, as may be observed in Table 1 declines in the death rate are accompanied by substantial increases in expectation of life at birth. This occurs despite the fact that initial declines in mortality are much greater for infants and children than for older persons. Initial declines in mortality operate to increase the proportion of young in a population which, of course, depresses the proportion of old even while it enables a larger proportion of infants born to live to older ages. As death rates decline at the older as well as the younger ages, more persons, over time, experience an extension of life--live to riper old age. In the meantime, however, a decline in fertility has the immediate effect of decreasing the proportion of young and, therefore, increasing the proportion of older persons.

The United Nations has defined national populations as "aged" "mature" and "young" on the basis of their proportions of persons 65 and over. The "young" nations are taken to be those with persons

65 and older constituting less than 4 percent of the total; the "mature" those with such elders constituting between 4 and 7 percent; and the "aged" those nations with persons 65 and over constituting over 7 percent of the total. On the basis of the available 1970 data for 81 nations, 34 are young, 13 mature and 34 were aged. Circa 1970, although Asia had about 57 percent of the world's population, it possessed only 40 percent of the world's older people. Africa had 9.5 percent of the world's population but only 5.5 percent of its elders. Latin America had 7.8 percent of the world's population but only 5.5 percent of its elders. In contrast, Europe had only 12.7 percent of the people in the world but 27 percent of its senior citizens; Northern America had only 6.3 percent of the world's population but about 12 percent of its older people; and the USSR had only 6.7 percent of the world's population, but almost 10 percent of the world's elders.

Using the above data for purposes of perspective it may be noted that Japan by 1970 had barely become an aged nation with 7.1 percent of her population 65 years of age and older; and that although she possessed 2.9 percent of the world's peoples, she already had 3.9 percent of the world's elders.

Most of the reduction in fertility in the world which has thus far occurred has been restricted to the more advanced countries (MDCs) --in Europe, the USSR, Northern America, Oceania and Japan. The birth rates of the less developed countries (LDCs), in Asia (excluding Japan), Latin America and Africa have resisted decline until relatively recently. Only since 1965 have significant decreases in fertility been achieved in the LDCs. Some 90 percent of the world's population, however, is now living in countries which have policies or measures favoring fertility decline. Great efforts are underway in the less developed nations to reduce their birth rates so as to hasten economic development. Furthermore, the MDCs directly through bilateral and multi-lateral arrangements and through the United Nations and the Specialized Agencies, especially the United Nations Fund for Population Activities (UNFPA), are assisting in this effort to reduce the birth rate. It may be anticipated, therefore, that world fertility will continue to decline. Certainly it has become clear that the world growth rate must be dampened to improve the lot of humankind or even to assure its survival--a goal that can be achieved only

through the reduction of fertility--assuming, of course, that increased mortality is ruled out as a means of decreasing population growth.

Since the prospect is for continued world wide fertility decline, it is clear that the future will witness continued aging of the population in both the LDCs and MDCs.

## II. Population Aging in Japan

The aging of population in Japan seems to differ in a number of ways from the experiences in Western countries. One way is to be found in the recency of the aging of Japan's population. From the pre-war period until the end of World War II, the age structure of the Japanese population remained relatively stable. To be sure, aging did not begin with the initial decline of fertility between 1920 and 1935 when the birth rate declined slowly (see Table 2). The effect of the decline in the birth rate during that period was offset by the more rapid decline in mortality so that the age structure showed an increase in the proportion of young, as illustrated in the model population profiles shown above in the "pre-modern" and "transitional" populations.

It was only after 1955 that the aging process of the Japanese population was initiated with the drastic decline in fertility which occurred after the baby-boom period, 1947-1949 (see Table 3). Japan, it is evident, was a late-comer in experiencing aging compared with Western countries.

As a second difference from the Western experience, the aging process, once begun, proceeded more rapidly. The aging process took about a full century for Western countries to increase their proportion of older people from around 5 percent to about 14 or 15 percent and much longer in the case of France. However, Japan will increase her proportion of older persons to the same extent in less than half that time--in only 45 years from 1955 to 2000, according to all available population projections. The rapidity of population aging in Japan will necessarily have a serious impact on social-economic development, on the labor force, on institutions, and on attitudes, values and behavior.

The percentage of the Japanese population aged 65 years and over rose sharply within two decades, from 5.3 percent in 1955 to 7.9

Table 2. Crude Birth and Death Rates for Selected Years  
in Post-war Japan

Year	Birth Rate	Death Rate	Natural Increase Rate
1947	34.5	14.7	19.9
1948	33.5	11.9	21.6
1949	33.0	11.6	21.4
1950	28.5	10.9	17.3
1955	19.5	7.8	11.7
1960	17.3	7.6	9.7
1965	18.7	7.2	11.5
1966	13.8	6.8	7.0
1967	19.4	6.8	12.7
1970	18.8	6.9	11.8
1971	19.2	6.6	12.6
1973	19.4	6.6	12.8
1974	18.6	6.5	12.1
1975	17.1	6.3	10.8
1976	16.3	6.3	10.0
1977	15.5	6.1	9.4
1978	14.9	6.1	8.8
1979	14.2	6.0	8.3

Source: Vital Statistics, Ministry of Health and Welfare

percent in 1975. It is projected to reach around 15 percent in the year 2000, with slight variations in this percentage in different projections.

The third point of difference in aging between the Japanese and Western populations is related to the newly emerging trends in fer-

Table 3. Distributional Change of Population by Three Broad Age Groups and Dependency Ratio (Japan)

Year	Percentage (%)			Dependency Ratio (%)			Aging Index* (%)	Median Age
	0-14	15-64	65-	Total	Young	Old		
1920	36.5	58.3	5.3	71.7	62.6	9.1	14.5	22.2
1925	36.7	58.2	5.1	71.8	63.0	8.8	13.9	22.0
1930	36.6	58.7	4.8	70.5	62.3	8.2	13.1	21.8
1935	36.9	58.5	4.7	71.1	63.1	8.0	12.7	22.0
1940	36.1	59.2	4.7	68.9	61.0	7.9	13.0	22.1
1950	35.4	59.6	4.9	67.8	59.5	8.3	13.9	22.2
1955	33.4	61.2	5.3	63.6	54.9	8.7	15.8	23.6
1960	30.2	64.1	5.7	56.1	47.2	9.0	19.0	25.6
1965	25.7	68.0	6.3	47.5	38.2	9.2	24.1	27.4
1970	24.0	68.9	7.1	45.1	34.9	10.3	29.4	29.0
1975	24.3	67.7	7.9	47.7	36.0	11.7	32.5	30.6
1980	23.5	67.4	9.0	48.1	34.8	13.3	38.3	32.5
1985	21.6	68.6	9.8	45.8	31.5	14.3	45.4	34.0
1990	18.8	70.2	11.0	42.5	26.8	15.7	58.5	36.0
1995	17.5	69.6	12.9	43.7	25.1	18.6	73.7	37.2
2000	17.5	67.6	14.9	47.9	25.9	22.0	85.1	38.0
2005	17.7	65.8	16.5	52.0	26.9	25.1	93.2	38.9
2010	17.1	64.6	18.3	54.8	26.5	28.3	107.0	40.1
2015	15.8	63.5	20.7	57.5	24.9	32.6	131.0	41.6
2020	14.9	63.6	21.5	57.2	23.4	33.8	144.4	42.9
2025	14.8	63.9	21.3	56.5	23.2	33.3	143.5	43.4

Sources: Census results before 1975; population projection made by Nihon University for 1980-2025

Remarks: \*  $\frac{65 \text{ and over}}{0-14} \times 100$

tility. The crude birth rate had been almost constant at a level around 18 per thousand population between 1956 and 1975, although a slight upswing occurred between 1966 and 1973 by reason of the echo effect of the baby-boom population. However, the birth rate began to decline precipitously in 1973 after peaking in that year at the level of 19.4. Beginning with 1975 a new low record in the crude birth rate has been set every year (see Table 2). It stood at 17.1 in 1975, 15.5 in 1977, and 14.2 in 1979. It is expected that the birth rate in 1980 will go down again to a level around 13 according to available estimates.

The acceleration in the decline of the birth rate portends, of course, acceleration in the future aging of the population. It is to be emphasized that the decline in fertility is evident not only in the crude birth rate but also in the Total Fertility Rate (TFR), Gross Reproduction Rate (GRR), and Net Reproduction Rate (NRR).

Between 1947 and 1970 the crude birth rate plummeted from 34.5 to 18.8, a decline of 45.5 percent. During the same period the Total Fertility Rate fell from 4.54 (the number of children per woman if age specific birth rates were to continue) to 2.13, a drop of 53.1 percent. Similarly, the Gross Reproduction Rate (the number of daughters born to mothers assuming no mortality if the age specific birth rate producing daughters were to continue) decreased from 2.21 to 1.03, a decrease of 53.4 percent; and the Net Reproduction Rate (the same as the Gross Reproduction Rate but allowing for mortality of mothers fell from 1.72 to 1.00, a drop of 41.9 percent (see Table 4).

The decline in these rates has continued since 1970. The crude birth rate in 1979 was 14.2, the TFR 1.77, the GRR 0.86 and the NRR 0.84. The Gross and Net Reproduction Rates have fallen below 100 since 1973, indicating that with the continuation of the birth and death rates experienced in Japan since that date Japan would fail to replace her population. That is, the continuation of birth and death rates at each age as experienced in 1979 would, in time, produce a decline in the population of Japan of 16 percent per generation.

As has been noted the aging process can be measured in a number of ways. Four measures of aging are presented in the materials which follow--changes in the median age, broad age structure including the age group 65 and over; the dependency ratio including the aged depen-

Table 4. Trends in Reproduction Rates

Year	TFR	GRR	NRR
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
1971	2.16	1.04	1.02
1972	2.14	1.04	1.01
1973	2.14	1.14	1.01
1974	2.05	0.99	0.97
1975	1.91	0.93	0.91
1976	1.85	0.90	0.88
1977	1.80	0.87	0.86
1978	1.79	0.87	0.86
1979	1.77	0.86	0.84

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

dependency ratio; and the "index of aging."

#### Median Age

The Median Age was considerably stable at about 22 years for a long time until 1950. Then it started to rise after 1950 to 25.6 years in 1960, 30.6 years in 1975 and reached 32.5 years in 1980. The Median Age increased by more than 10 years in 30 years! It will be expected to continue to rise and reach 38 years by the end of this century (Nihon University Projection, 1978).

## Broad Age Structure

Changes in the broad age structure of Japan are given in Table 2. In 1920 36.5 percent of the Japanese population was under 15 years of age, 5.3 percent were 65 and over, and 58.3 percent were of working age, intermediate age, 15 to 65. By 1950 the proportion of young was relatively high at 35.4 percent, the proportion of old was still relatively low at 4.9 percent and those of working age stood at 59.6 percent. It is thus apparent that the percentage distribution of population by the three broad age groups was relatively stable for a long time in the past. The proportion in each age group over this period was around 36, 58, and 5 percent, respectively (see Table 3).

The demographic transition, particularly the fertility transition achieved shortly after World War II produced an appreciable change in the age structure--a drastic decline in the child population, a steady increase in the adult population of working age, and a continuous increase in the older population. The percentage distribution of the three broad age groups changed considerably from 1950 to 1975 --the child population plummeted from 35.4 to 24.3 percent, the population of working age rose from 59.7 to 67.7 percent, and the older population soared from 4.9 to 7.9 percent.

By the year 2000, according to Nihon University Projections, youth will make up 17.7 percent of the population; the aged, 14.9 percent; and persons of working age will constitute 67.6 percent of the total. By 2025, to demonstrate the acceleration in aging which may be anticipated, the aged would constitute 21.3 percent of the total population, while the young would fall to 14.8 percent and those of working age would decline some, to 63.9 percent.

## Population of working Age

Persons of intermediate age, 15 to 64, are generally taken as an approximation of persons of working age. It is apparent that the proportion of such persons has changed relatively little since 1955 and is destined for relatively little change in the decades ahead. However, if the more detailed age structure of this age group is examined, the drastic changes in store become evident. If the population of working age, ignoring these under 20, is divided into three groups, spanning 15 years each--(20-34, 35-49 and 50-64)--, significant changes are in prospect. Between 1970 and 1990 persons 20 to 34 will

Table 5. Changes of Productive Age Population  
by Three Broad Age Groups, 1970-1990

	Productive Age Population (in thousands)			Old Age Population (in thousands)
	20-34	35-49	50-64	
1970	29,110	24,010	14,738	8,911
1990	24,977	28,548	22,517	13,540
Change Between 1970 and 1990	Δ4,133	4,538	7,779	4,629
Percentage change	Δ14.2	18.9	52.8	51.9

Δ indicates Decrease

Source: 1970--Census Results  
1990--Future Population Projections by Nihon University,  
Japan, 1978

decrease by 14.2 percent and persons 35 to 49 by 18.9 percent. What is even more astonishing, having the impact on the labor force in mind, persons 50 to 64 will increase in these same 20 years by 52.8 percent while persons 65 and older will increase by 51.9 percent (see Table 5).

#### Dependency Ratios

Changes in the broad age structure of a population can also be analyzed in terms of changes in the dependency of a population. In the absence of adequate international labor force statistics, persons under 15 and those 65 and over are conventionally considered as potential dependents of persons of working age, 15 to 64. The number of both the young and the old can be expressed in relation to the number of persons of working age; and they can be combined to give the total number of dependents. Conventionally this is done by calculating dependency ratios, total, youth and aged. The youth dependency ratio is the number of persons under 15 per 100 persons of working age; the aged dependency ratio is the number of persons 65 and over per 100 persons of working age; and the sum of the two is the total de-

pendency ratio.

In 1930 in Japan there were 70.5 dependents, the young and the old combined, for each 100 persons of working age. Of these 62.4 were young dependents and 8.1 were old dependents (see Table 3). By 1980, well after fertility had greatly declined and the aging process had begun, there were 48.1 total dependents of whom 34.8 were young dependents and 13.3 were old. Between 1930 and 1980 youth dependency had decreased by 44.2 percent, aged dependency had increased by almost two-thirds (64 percent), and total dependency had decreased by almost one-third, (31 percent).

With the continuation of the aging process, according to the projections, total dependency by 2000 would be down to 47.9, with youth dependents down to 25.9 and aged dependents up to 22.0. By 2010, the number of aged dependents would be greater than the youth dependents, 28.3 as compared with 26.5. By 2025 aged dependents would number 33.3 per 100 persons of working age as compared with only 23.2 youth dependents.

#### Aging Index

Another measurement of aging is given by the "index of aging" which is the percentage persons 65 and over constitute of persons under 15 (persons 65 and over divided by persons under 15 multiplied by 100). This index is shown in Table 3.

In 1955, when the crude birth rate was down to 19.5, but the proportion of elders was only 4.9 percent while the proportion of the young was 35.4 percent, the aging index was 13.9. By 1980, the index had risen to 38.3, as the proportion of aged had risen to 9.0 percent while the proportion of young had declined to 23.5 percent. By the year 2000, according to the Nihon University Projections, the index will have soared to 85.1, as the proportion of aged reaches 14.9 percent and the proportion of young falls to 17.5 percent. By the year 2025 the aging index could reach the unprecedented height of 144 as the proportion of old make up over one-fifth of the population, (21.3 percent) and the proportion of young is only about one-seventh of the total population (14.8 percent).

Table 6. Average Expectations of Life at Birth

Year	Male	Female
1947	50.1	54.0
1947-1952	59.6	63.0
1955	63.6	67.8
1960	65.3	70.2
1965	67.7	72.9
1970	69.3	74.7
1975	71.7	76.9
1976	72.1	77.3
1977	72.7	77.9
1978	73.0	78.3
1979	73.5	78.9

Source: Ministry of Health and Welfare

### III. Extension of Life in Japan

As has been noted above, the aging of a population and the extension of life are quite distinct phenomena. The latter refers to the increase in years of life. One measure of this increase is afforded by the expectation of life at birth and at various ages. Female longevity is greater than male, especially in modern populations.

The extension of life follows more the reduction in mortality than the decline in fertility. The crude death rate in Japan had already dropped to 14.7 (deaths per 1000 total population) by 1947, following World War II. Expectation of life at birth had reached 50.1 years for males and 54.0 years for females (see Table 6). By 1979 Japan's death rate had declined to an all time low of 6.0; and expectation of life at birth for males had risen to 73.5 years and that for females had soared to 78.9 years. Thus, between 1947 and 1979, life expectancy of males had increased by 23.4 years, or 46.7

percent; and that of females had risen by 24.9 years, or 46.1 percent. Note that the gap between male and female life expectancy had risen over the period from 3.9 years to 5.4 years or by 38.5 percent. Needless to say, the extension of life has important complications for the person and for society. These will be discussed along with the implications of aging in the section which follows.

#### IV. Implications of Aging and the Extension of Life

Both population aging and the extension of life are, as has been indicated, the consequents of modernization--basic changes in the economy and society associated with industrialization, urbanization and the emergence of the mass society. These developments have generated changes in values, attitudes, behaviorisms, institutions and technology which underly decreases in fertility and mortality and constitute the framework within which the implications of population aging and the extension of life must be considered. In the agrarian, pre-industrial and pre-urban order the role, the status and the problems of the aged were quite different than that in the contemporary urban setting.

First of all, in the pre-modern order, the number and proportion of elders was small and relatively few of the older persons had extended life spans of the magnitude now increasingly common. The pre-modern agrarian society was characterized by the extended family and a relatively stable social heritage subject to little social change. Furthermore, in such a milieu, members of the family enjoyed primary group relationships based on intimacy, holistic interaction, and sentiment and sympathy in interpersonal relationships. The family was both a production and consumption unit and served as the nucleus for meeting not only economic needs but also for meeting the other needs of family members--security, affection, religion, and recreation. Moreover, the family was the major instrumentality in the socialization of the child, the process by which the infant biological organism is transformed into a human being. In this process of socialization, roles are defined and acquired and values and attitudes are transmitted. In such a setting the role of the elder was one of great significance which conferred high status. Partly by reason of relative scarcity and the importance of being the bearer of the traditions

and knowledge of the past, as well as persons of social and economic power, pre-modern societies tended to be characterized by "age deference"--attitudes of deep respect towards the elders who served as a bridge between the present and the past. The older persons in the pre-modern social situation, in brief, played a significant role in the economy and society, enjoyed great prestige and experienced relatively few social problems.

#### V. Problems Generated by Aging

Population aging has generated many problems, personal and social, which were unprecedented in the agrarian pre-industrial, pre-urban order and which, therefore, defy traditional solutions. In consequence, modern societies, including Japan, confronted with the problems precipitated by population aging must formulate new policies and design new programs to ameliorate or eliminate aging problems. The characteristics of a modern society, in contrast with those of the agrarian small community type of society, tend to make policy formulation difficult and programmatic solutions complex and costly.

In the transition from the pre-industrial, pre-urban order to the modern order the reorganization of social institutions, of the economy, of the community, of the family and of the person is preceded by disorganization. This is manifest in number of ways--decreased religiosity, increased family disorganization and fragmentation, increased delinquency and crime, increased alcoholism and drug addiction, increased wage and salary workers subject to unemployment and underemployment, consumer exploitation, inflation, and increased government interventionism into many spheres of social and economic life. Older persons in such a transitional period are often bereft of close personal familial ties as they increasingly find themselves separated from other members of their families and obliged to support themselves in old age, economically and socially. The rapidity and ubiquity of social change is often bewildering to the older person faced with basic modifications of their roles, diminution in status and prestige and deprived of traditional forms of economic and social support. Increased longevity has been accompanied by increased crumbling of the world to which older persons were accustomed in their earlier years.

It is well at this point to consider the question of who in reality is an older person? As indicated, the conventional cutting point for defining old age is generally taken as age 65. But "old age" is obviously a cultural as well as a biological variable. When expectation of life at birth was 40 years, persons above age 40 were regarded as "old." It is significant that the age of retirement has been an indication of perceptions of old age. When life expectancy was relatively low, retirement age was often as low as age 50 or 55. In the United States, with increased life expectancy during the early part of this century, age at retirement tended to be age 65 until recently. By an act of the Congress of the United States the age for compulsory retirement in the private sector of the economy has been set at age 70; and no age limit has been specified for compulsory retirement in federal government service.

In recent years social gerontologists have differentiated between "young" old age and "old" old age. The young old are those 65 to 74 and the old old those 75 and over. This distinction may well herald new conceptions ahead of what constitutes old age with important changes in policy impending.

In Japan the proportions of those 65 to 74 and those 75 and over were only 4.1 percent and 1.7 percent in 1960 respectively, but rose to 5.4 percent and 2.5 percent in 1975, becoming 5.9 percent and 3.1 percent in 1980. However, our projections indicate that they will increase considerably in the future to 9.7 percent and 5.1 percent respectively by the year 2000, a doubling in 25 years since 1975.

#### Changing Social Roles

In the urban mass society the role of the older person as a bearer of knowledge and source of wisdom is undermined. In the pre-industrial pre-urban order characterized by mass illiteracy and in which knowledge was transmitted largely from person to person by word of mouth, the elder was an important repository of knowledge who, with accumulative experience, was looked up to by younger persons. In the modern order knowledge is transmitted through formal institutions such as schools, libraries, encyclopedias, museums and the mass media including the electronic media. The older person is more apt to be regarded as possessed of outmoded knowledge no longer relevant and is likely to be regarded as old-fashioned or out-of-date. With

the dissolution of the extended family the older person no longer enjoys intimate day to day contacts with members of his family; and personal relationships are increasingly segmental and based on utility rather than tradition and sentiment. In such a situation the elder is apt to feel increasingly isolated and "on his own." With increasing longevity, although the older person retains friends as well as relatives into old age, there comes a time when many older persons become more and more lonely as relatives and friends predecease them.

In the modern urban setting earlier forms of social and moral support also disintegrate. Religiosity is diminished and although some elders tend to become more religious with advancing age, the evidence indicates that life in the hereafter becomes less and less a source of comfort and happiness.

Finally, at least in transition, the older person, less educated than the younger because education has increased over time, often finds little solace in reading, the arts, including the performing arts, and in activities earlier pursued such as athletics, travel, and extensive visiting. The diminishing importance of such activities in the life of the older person is, of course, also a function of diminished health and increasing infirmities and disabilities.

#### Changing Economic Roles

The traditional economic role of the older male, as enjoyed in an agrarian society, is undermined in the urban order where better educated young men, and now increasingly, better educated young women, tend to push him out of the work force. Increased provision for retirement pensions have also been both an antecedent and consequent of decreased labor force participation of the older male. The impact of the "emancipated" educated woman on the labor force participation of male elders can hardly be over-emphasized.

With the increase in female labor force participation the older woman, it may be anticipated, will also be faced with the competition of better educated younger persons.

By reason of advancing technology and industrial and occupational changes, the older person's skills may no longer be in demand and, with unemployment, income is disrupted. Younger family members with more education and new skills better adapted to changing technology may acquire greater and more dependable income than that available

to the older worker as a result of which the status of the elder may be diminished.

The loss of employment and greater underemployment of elders are by no means the only threat to their economic security. Inflation over time, and especially in the present economic situation, depreciate the older person's savings and pensions in addition to adversely affecting his decreased earnings.

#### Other Problems

In addition to the tensions induced by rapidly changing social and economic roles, the older person faces many other problems. The elder inevitably is subject to declining health and increasing disabilities and infirmities which adversely affect both his social and economic roles and his personal comfort and happiness. Chronic ailments such as arthritis plague the older persons and tend to immobilize them. Inadequate medical care and housing and unsatisfactory recreational and leisure time activities contribute to unhappiness. The loss of prestige and deference accompanying diminishing social and economic roles contribute to tensions and unrest; and the loss of intimate personal contacts with relatives and friends is especially distressing.

Much of what is discussed above is based on observations in Western societies in which aging occurred well before it became an important factor in Japan. But much of what has been described is already emergent in Japan and the problems of aging are likely to become exacerbated as the process of aging in Japan continues to accelerate.

#### VI. Policy and Program Issues

Not all aspects of modernization have had an adverse impact on older people. Those which have helped ameliorate or resolve problems of elders point to policies and programs which could be helpful.

Professor Ernest W. Burgess of the University of Chicago, one of the early social gerontologists, pointed to two aspects of adjustment to old age which have important policy implication--"personal" and "social." The "personal" involves the adjustments the person make; the "social" refers to the adjustments society must make.

The increasing volume of research on problems of old age have made clear the major factors involved in facilitating adjustment in old age. These factors are: the maintenance of adequate income flow, retention of earlier social status, good health, continued family and friendship relationships, effective use of leisure time, and continued concern with and planning for the future.

#### Adequate Income Flow

Of all the factors essential to good adjustment in old age none is more important than the maintenance of adequate income flow. Most of older persons today in Japan and elsewhere were born into a pre-urban order in which it was taken for granted that economic security in old age would be provided by the family in accordance with long established traditional practices. It was not anticipated that during the course of the extended lifetimes of the present elders that basic cultural, social and economic changes would combine to threaten their economic security. Those persons fortunate or skilled enough to accumulate personal savings are able to manage their economic affairs in old age, but many who thought they had provided adequately are now threatened by mounting inflation. Such persons together with the mass older population can do little by themselves to achieve economic security. The maintenance of income flow for elders often requires societal rather than personal adjustment.

In the transition to the modern order a number of social adjustments have been made which contribute to the economic security of elders. In general, advancing technology has changed the character of many work activities so that brain rather than brawn is required --a change which enables the older worker to retain his job longer. The development of pensions, public and private, contributes to the economic security of the elder. The emergence of "seniority rights" both in union and non-union employment enables the older worker to retain employment with advancing age. Similarly shared work programs and growing provisions for part time work enable the older worker to continue income flow.

The adjustments society has made to ameliorate economic hardship in old age are by no means as yet adequate. Policies and programs are still to be devised to assure elders of economic security. Among the policies and programs which require consideration are: additional

provisions to enable older workers who wish to continue employment the opportunity to do so; provisions for adequate pensions, indexed against the ravages of inflation, in both the private and public sectors; equalization of employment opportunities and prerequisites for older female and male workers; synchronized procedures to diminish the frictions and tensions in the transition from employment to retirement; provisions for retooling and obtaining employment opportunities for workers experiencing "technological unemployment" and providing for maintenance of their income in the transition period. These and other measures are types of societal adjustments to assure that in old age economic security is not threatened and that the dignity, self-respect and status of the elder are not impaired.

Other societal adjustments must also be considered. As the data reported above indicate, the labor force in Japan will experience significant aging in the coming decades. Both industry and government in Japan must, therefore, be prepared for whatever adjustments may be necessary as a much larger proportion of Japanese workers in the next two decades than has been the case in the past or is at present, become over 50 years of age. Conceivably, policies and programs may have to be developed to assure no adverse effects are experienced that could adversely affect productivity or the welfare of the older workers.

Finally, it is clear that with increased population aging, workers must be prepared for larger numbers of dependents because aged dependents will more than offset the decrease in young dependents. Both public and private pension funds will undoubtedly require changes in coming years to assure that they remain solvent.

#### Retention of Earlier Social Status

Second in importance only to maintained income flow in satisfactory adjustment to old age is the retention of the social status earlier experienced by the person. Certainly economic independence would contribute greatly to the social status of the person. Policies and programs designed to maintain adequate income flow would, therefore, also contribute significantly to the maintenance of the social status of the elder. An older person mired in poverty, in inadequate housing, in shabby clothing, in a state of inadequate nutrition and, in consequence, in a depressed frame of mind could hardly main-

tain previously enjoyed high social status.

The maintenance of prior social status requires both personal and societal adjustment. Older persons' morale must be maintained in part by their own attitudes and activities as well as bolstered by societal adjustments designed to have younger persons keep in contact with elders and continue to participate in various types of activities with them. Government as well as private agencies and organizations can be utilized to help keep elders in the mainstream of community life.

#### Maintenance of Health

Despite sharply reduced mortality and morbidity rate, increased age is accompanied by failing health and increased infirmities and disabilities. Elders, therefore, require increased medical care with advancing age, as well as adequate amenities--housing, nutrition, recreation and the like.

Again, although adequate income flow would contribute to the maintenance of the health of older persons, both personal and societal adjustments could be helpful. Older persons themselves must be alert to attitudes and behaviors conducive to good health with the assistance of private and public health education. Public and private measures to provide adequate medical care for the aged are needed--such as national health insurance programs which provide not only the services of medical personnel but, also, provide for hospital care, nursing homes and other auxiliary health services.

#### Continued Family and Friendship Relationships

Studies have shown that the disruption of family and friendship relationships that leave the elder in relative isolation from other persons leads to unsatisfactory living in old age. Here also, societal, as well as personal, adjustments are required. Older persons must strive to maintain such relationships--an effort that, of course, is also facilitated by adequate income flow--especially when elders are not living with their families. Regular visiting arrangements by and with older persons and continued group activities in religious, educational, recreational and leisure home activities are much to be desired.

Public and private agencies can facilitate the maintenance of

such personal relationships by providing for joint programs of various sorts in the performing arts; in tours to museums and historical sites, in participation in community affairs, including political affairs, and in the wide variety of recreational and leisure time activities in which elders can still participate.

#### Effective Use of Leisure Time

The effective use of leisure time, as has already been noted, can be helpful in a number of ways in contributing to satisfactory adjustment to old age. But with advancing age some types of leisure activities become difficult if not impossible. To be sure some older persons can and do continue strenuous physical activities such as jogging and running; but such physical activity is not possible for many elders. Leisure time activities that do not require great physical exertion must be developed and supported and made readily accessible to elders.

Older persons must themselves be prepared to take the initiative in making effective use of their leisure time. Both public and private agencies can assist in this regard in helping to educate the population both before and after reaching old age on the importance of managing leisure time activities. Especially effective in helping to create positive attitudes of elders in this matter as well as also constituting a desirable use of leisure, would be the development of adult educational programs. Such programs could update older persons' knowledge, create and maintain their interest in current affairs and help to fill in their life spaces in a useful and stimulating manner. Moreover, adult education programs which also provide opportunities for intermingling not only with other elders but, also, with younger people could be highly beneficial to all concerned. Educational programs, designed both by public and private agencies could represent ideal combinations of both personal and societal adjustments to aging.

In addition, policy and programs could be designed to provide for older persons in a wide variety of recreational activities including attendance at concerts, plays, exhibitions of various sorts, athletic events, and community affairs. Programs to develop hobbies and to provide group interaction in respect to hobbies could also be effective. It should be general policy to provide older persons

with the opportunity to remain active participants in the life of the community even if their participation in the labor force has come to an end.

#### Concern With the Future

Finally in dealing with the major factors found to facilitate adjustment in old age are policies and programs whose objectives are to continue elders concerns with, and planning for, the future. For some older people, but in a mass society a declining proportion, religiosity which includes belief in an afterlife, undoubtedly contributes to good old age adjustment. Church attendance and active participation in religious affairs for such persons may have the double benefit of providing a channel for effective use of leisure time and keeping alive interest in the future. For elders with diminished religiosity other means must be devised to maintain interest in the future.

Such other means could include the generation of interests in educational programs in local, national or world political affairs; in the frontiers of scientific developments; in the outcome of space exploration; in the trends in the arts including the performing arts; and, in general, in developing interest in the future of fields in which older persons already have established interests. In this realm, as others explored above, the combination of personal and societal adjustments may add to continuation of zest for life.

### VII. The Young in an Aging Society

The focus of this article is on population aging. But young persons remain important even if they are decreasing elements of the population.

In Japan persons under 15 years of age constituting some 34 percent of the population in 1955, made up only 24 percent in 1980, and according to Nihon University Projections, will decline to about 18 percent in 2000 and to 15 percent in 2025 (see Table 3). Children of school age in Japan, 5 to 14 years of age, will decline from 18.9 million in 1980 to 14.5 million in 1995, a drop of about 4.5 million over a 15 year period.

The decline in the number and proportion of children will, of

course, also have great impact on Japanese society. Adjustment of schools to the rapid change in prospect is but one of the many societal adjustments which will have to be made. Suffice it to say that adjustments will also inevitably be necessary in the wide spectrum of goods and services consumed by the young; as in the family, in the community, and in the nation at large children play a diminishing role in social, economic and political life.

#### VIII. Concluding Observations

With decreased fertility now underway in the less developed countries as well as the more developed nations, population aging has become a universal phenomenon. As a more developed country, Japan already has an "old" population by United Nations standard, even though compared with Western countries, Japan has only relatively recently experienced population aging. The problems of aging, manifest in the older Western population are emergent and becoming more visible in Japan. It is necessary, if the frictions and problems of aging are to be ameliorated, if not entirely resolved, to consider suitable policies and programs of the types discussed above.

Changes in the age structure of a nation have profound social, economic and political consequences, many of which are not yet fully understood. The age structure of a nation influences social contacts and social interaction which affect the process of socialization, the formation of attitudes, values and behaviorisms, the nature of family structure and functions and the roles of its members social stratification and social mobility, and, in general, fundamental aspects of the character of a society. The age structure of a nation has major impact on the goods and services provided, on the composition of the labor force, and on the allocation of resources and the functioning of the economy. Finally, the age structure of a nation may influence its political order in affecting the outlook and temperament of its people on a liberal to conservative continuum, in the extent to which population factors affect social and economic development and government policies related thereto, in the composition of its military establishment and international power relationships, and in the character of its political leadership. The tracing of the above and other influences of aging on the life of a nation

is still to be accomplished through not only demographic but also, inter-disciplinary reserach.

Modernization has added years to life. But in the transition from a pre-modern society to a modern society many problems have been precipitated including the personal and societal problems of population aging. It remains for public and private agencies acting in concert to formulate policies and programs to help to make the later years of life truly "golden years"--and, thus, having gained years of life, add zestful life to years.

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