

# The Aging of the Population and Japan's Social Security System

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## Introduction

The major purpose of this paper is to analyze the macroeconomic and fiscal impacts of Japan's population aging, and the possible policy alternatives to alleviate the pressures of an increasing fiscal burden with the cooperation of social partners between government, business and family. While the aging of the population is a major problem in many OECD countries, a particular characteristic of Japan is the high speed at which the process is occurring. This is closely related to the rapid economic development in the post-war period, resulting in a substantial fall in fertility ratios and the rapid rise in the life-expectancy of the elderly. In this sense, the experience of Japan will be applicable to many East Asian Economies, including Korea, which has also achieved a rapid economic growth. It will be particularly so for China, where the fertility rate was suppressed by the "single child policy" of the government.

The rapid aging of the population has important transitory as well as long-term effects in the labor market as well as macroeconomic activities. In its initial stage, the fall in the overall dependency ratio due to the declining share of the young in the total population will bring about a favorable effect to the society. Eventually though, a declining fertility ratio is followed by a reduction in the growth of the labor supply and the share of elderly workers in the labor force increases. The reduction of the labor force as well as the deterioration of its quality should have negative impacts on national savings and investment, and thereby economic growth. Also, an increasing share of the elderly in the labor force will have a strong pressure on the labor market institutions, particularly for the seniority-based employment practices in Japan. In addition, fiscal implications of the

demographic changes are significant in the social security system which was established in the period of abundant labor force and a high rate of economic growth.

Section 1 summarizes the major factors underlying the rapidly proceeding population aging in Japan. Section 2 investigates the macroeconomic effects of population aging. Section 3 discusses fiscal impacts of the population aging, focusing on public pension and medical insurance. Section 4 examines major policies aimed at reducing the excessive burden of the working generation arising from the population aging.

## 1. Major characteristics of Japan's population aging

### 1.1 Increasing dependency ratio

Japan's fertility ratio fell sharply from 4.5 in 1947 -- the postwar baby boom -- to 2.1, which is the ratio required to maintain a steady population, in the 1960s, and it declined further since 1973 to 1.5 in 1994. This decline in the fertility ratio in the first period was mainly due to a fall in the average number of children per family, reflecting the continuous shift of the industrial structure away from the agricultural to the service sector, and the migration of the population from rural to urban areas. Whereas, the drop in the second period was mainly due to a later average age for first marriages for women, which is now 26 years, the second highest in the world after Sweden. The rising enrollment of women in colleges and the expansion of their employment opportunities are the major factors behind this. Although the falling fertility ratios in several other OECD countries, notably United States and Sweden, have recovered, there is no indication that Japan's fertility ratio will stop falling.

Average life-expectancy greatly increased from 50.1 years in 1947 to 76.3 years in 1993 for males and from 54.0 years to

82.5 years for females, the highest level among major industrialized countries. Initially, this was due to a sharp fall in the mortality rate among children less than one year old, thanks to improvements in nutrition and sanitary standards. Gradually, the better health care services for the elderly has also significantly increased life expectancy at retirement age and beyond; the average life expectancies at age of 65 years for males and females in 1993 were 16.4 and 20.6 respectively. Both reflect a rapid increase in the average per capita income and improved medical services as well as their more equal distribution in the postwar period.

#### 1.2. Declining labor force growth

In the early phase of the population aging process, the population share of the young declines at a faster rate than the elderly population ratio rises, lowering the total dependency ratio, defined as the ratio of the sum of the population below 15 years and 65 years and above to the working-age population. While Japan currently has the lowest total dependency ratio among major OECD countries, the ratio is projected to rise continuously towards the 21st century with the young dependency ratio bottoming out and the aged dependency ratio more than doubling (Diagram 1).

Falling fertility rates have resulted in a declining growth in the population, and the effect comes first to the younger age population. The population of those aged below 30 years decreased since the 1960s and the working-age population (those aged between 15 and 64) is projected to decline beyond 1995. This is partly offset by a rising female labor force participation, which is still low by international standards, and the total labor force will continue to grow in the latter half of the 1990s, though at much lower rate than the previous

decades. However, even accounting for a trend increase in the female labor force participation, particularly in the child-bearing period (25-40 years of age) of the current 60 percent to 66 percent in 2010, the projected labor force is likely to decline beyond 2000.

## 2. Macroeconomic and fiscal consequences of population aging

### 2.1. Macroeconomic impacts

The fiscal burden associated with population aging will largely depend upon its macroeconomic effects; the higher the per capita income growth becomes, the less burden of the working-age population for sacrificing their living standards. Both the decrease in the labor force beyond 2000 and the increasing ratio of the elderly population in the total are likely to have negative impacts on macroeconomic developments.

First, the impact of the population aging on labor productivity growth and investment is the results of the following two counteracting forces. The declining labor force growth, other things being equal, would discourage business investment through the falling profitability of capital. However, this negative impact on investment would be partly offset with the improvement of labor quality i.e., through labor-augmenting technical progress. While it is not easy to measure the quantitative effect of a decline in labor supply on stimulating the labor-augmenting technical progress, the past experiences in major OECD countries imply that the labor shortage itself is an important impetus for more efficient utilization of the existing labor force.

Second, the household savings are likely to fall with an increasing ratio of the elderly in the total population, as the share of dissavers gradually increases while that of savers decreases. This life-cycle hypothesis on household

savings may not apply to Japan as the Japanese elderly (defined as those who are 65 years of age and above) do save significantly. However, this is a statistical oversight due to the fact that there are two types of elderly: those who are economically independent and is likely to save, and those who are more dependent on their children. The latter type of the dissaving elderly are taken care of by their children's families, thus dropping out from the statistics<sup>1</sup>. Thus, we cannot simply analyze the behavior of the elderly without paying sufficient attention to different types of the elderly. Accounting for this "sample selection bias", the Japanese elderly do indeed dissave as the life-cycle theory predicts (Yashiro 1993). According to our projections, the aggregate saving ratio will gradually fall as the population ages (diagram 2).

Thus, population aging will lower both the propensities to invest and to save out of national income, and the effect on the current external account will depend upon their relative sizes of decline. While empirical results are scant, there is the possibility that the decline in investment would be slower than that in savings, mainly due to the labor-augmenting technical progress, reducing the current external surplus with the population aging (Yoshitomi and Yashiro 1992, Yashiro and Oishi 1993). The economic growth may well decelerate from the 4 percent on average of the 1970-90 period to 1 percent level beyond the 2000, while per capita income will grow slightly higher with the decreasing population.

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<sup>1</sup> This sample selection bias by excluding those elderly being taken care of by their children, who are the ones that actually dissave, tends to cause a downward bias on the trend of household savings by a continuously decreasing share of the family in which elderly persons are taken care of by their children.

## 2.2. Fiscal Impact of the Population Aging

Two major fiscal impacts of population aging are the substantial increases in public pension benefits for the retired and medical expenditures for the "very elderly" it would incur. Both savings and investment are affected by population aging with the associated increases in tax and social security burden on the working-age population. There is a tendency in the OECD countries for those with a relatively high proportion of elderly have larger government sectors measured either by the ratio of social transfers or the tax and social burden to GDP. This is evident in both cross-section and historical data (Diagram 3). While Japan is known to have a relatively "small government" in terms of the lower ratio of government consumption to GDP, this may well be the result of smaller proportion of the elderly in the total population than many European countries.

However, there is still room for policies to work to restrain the expansion of social transfers. There are various explanations for the dichotomy in the trends in social security transfers and burdens between Pacific region and European countries above. Obviously, the differences in historical and cultural background of "Welfare State" is one explanation. An alternative hypothesis is that there is the "threshold elderly ratio" below which constraining the government social security benefits is possible with the private sector providing the similar service, but it becomes more difficult to do so beyond the threshold due to the crowding out of private sector activities by the public sector; also, perhaps a growing political resistance against the curtailment of welfare services with the increasing share of the elderly is another explanation. In the following

segment, we will mainly discuss the content of social security benefits.

### 3. Social security reform

#### 3.1. Public pensions

Various projections indicate that the aging of the population and the resulting higher ratio of pension beneficiaries to contributors will lead to a higher ratio of pension expenditures to GNP. Based on our projection the Social security benefits as a percent of National Income would rise from 15.0 percent in 1992 to 24.0 percent in 2020, accounting for various reforms; the share of public pension expenses of the total social security benefits will rise from 51 percent to 55 percent. This rapid rise in pension has been due to the increasing "maturity" of the public pension. (see below) accounting for roughly half of the projected pension expenditure increase, proceeding at the same time with population aging.

Japan's public pension scheme was initially designed to be a funded scheme, i.e., contributors accumulate their own savings which they withdraw after retirement. Both accumulated contributions and benefits per person are relatively low in the beginning. The average benefit per beneficiary increases with time as the average period of contribution becomes longer or the public pension scheme becomes more "mature"<sup>2</sup>. Under such a scheme, variations in the age structure of the population lead to corresponding variations in the fund's net

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<sup>2</sup> While the employees' average public pension benefit for a couple in Japan was 151,000 yen per month in 1992 (about 20 per cent lower than that in Sweden), the full pension granted to those who have contributed for 35 years would be 43 per cent larger, well-exceeding the current level of Sweden.



assets, thus smoothing the burdens associated with population aging.

However, this "funded principle" in Japan has gradually been eroded, and the system has shifted to a de facto "pay-as-you-go" scheme i.e., the present beneficiaries are directly supported by the present contributors through taxes. This is mainly because of the generous increase in pension benefits by political pressures, which were not matched with sufficiently higher premiums in the 1970s. Also, unforeseen increases in life-expectancies of the elderly took place, based on the low by international standards eligibility age for employees' pension scheme, which is 60 for males and 55 for females.<sup>3</sup> This naturally results in a "potential deficit" (i.e., unmatched with future entitlement) in the public pension balance, even though an actual surplus has been accumulated. According to estimates, the accumulated "potential debt" amounts to 110 per cent of GNP in 1990 compared with the actual assets of the Social Security Fund of 20 per cent (Hatta and Oguchi 1993). Thus, demographic changes require adjustments of benefits and contributions to income ratio, implying an increasing burden of the working generation as the share of the elderly population rises.

### 3.2. Health care and medical services

In Japan, health care is also an important social expenditure item next to public pensions, accounting for over one-third of total social security and welfare expenditures. While Japan's total social transfer payments are relatively small, 6.5 percent of National Income, medical expenditures

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<sup>3</sup> The majority of OECD countries, except France, Italy, and New Zealand, set the eligibility age for males and females for 65 years and 60 years or above respectively (OECD 1988).

are of a comparable size vis-a-vis other countries. The concentration of public health care services on the elderly is particularly prominent in Japan. Increasing costs of the medical care program for the elderly (aged 70 years and above), accounting for nearly one-fourth of the total, put a potential pressure on expanding aggregate medical expenses. The incidence of sickness tends to rise sharply with the age; those patients aged 65 years and above as well as 70 years and above consume 3.2 times and 3.8 times the medical services as the average, one of the largest differences of the seven major OECD countries. This is, in part, due to the generous health insurance scheme providing closed to unlimited free health care service, particularly to the elderly above the age of 70 years<sup>4</sup>.

This lack of a price mechanism for discouraging the demand for medical services is even aggravated by an insufficient information on prices of medical services as they are directly supplied in kind from doctors to patients as opposed to reimbursements by the health insurance schemes. In addition, the relatively large share of drug costs in total medical expenditures is another particular characteristic of Japan<sup>5</sup>. This occurs because drug dispensing is encouraged through discounted prices granted to doctors by pharmaceutical companies.

While the ratio of total medical expenses (both public and private) to National income seems to have stabilized

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<sup>4</sup> Recently, the nominal user charges of 1000 yen monthly and 700 yen per day for the hospitalization were introduced.

<sup>5</sup> The share drug costs in total medical expenditures in Japan was 18 per cent in 1986, compared with 7 per cent in the United States (Schieber and Poullier (1989)).

during the 1980s at the level of 6 percent, the share of the elderly medical expenses has continuously risen to close to 30 percent in 1991. Thus, it is likely that medical expenditure for the elderly will expand more rapidly in the future with the increase in the elderly ratio, and will account for nearly half of the total medical expenditures in Japan<sup>6</sup>.

#### 4. Alternatives to a Large Government

If an excessive expansion of the government sector has unfavorable effects on the economy, what are the alternatives? To what extent the government has to increase social transfers to the elderly depends upon the support within the family members as well as the ability of the elderly to help themselves. In traditional societies such as pre-War Japan, the family was the major entity supporting the life of the elderly. This function of the family is still important in present-day Japan as reflected in the high proportion of the Japanese elderly being taken care of by their children's family. For example, 57 per cent of elderly Japanese male live with their relatives, compared with only 7 per cent in the United States (Yashiro 1993). This has been one of the major factors for preventing the incidence of poverty among the elderly.

However, we cannot expect too much from family altruism

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<sup>6</sup> The projection is based on the following equation:

$$M = -2.99 + 2.34 \ln \text{POP} \quad R^2 = 0.98, \text{ estimation period } 1973-91$$

(43.2) (26.8)                      Figures in Parenthesis are T-value.

where M: Ratio of the elderly medical services to National Income is POP: ratio of the population aged 70 years old and above to the total.

in the future, as the Japanese family structure has been changing rapidly, with the persistently falling tendency of elderly people living together with their children. The changing industrial structure and the associated concentration of the population in urban areas have geographically separated parents and their children's families. In addition, the share of self-employed families, where an "implicit contracts" that children will inherit the household assets in return for providing care for the elderly are most prominent, has declined <sup>7</sup>.

#### 4.1. Increasing employment of older workers

While the tendency towards early-retirement seems to still be prominent in the United States and many European countries, this would incur large costs on the economy and discourage employment, even after accounting for the favorable effect on reducing unemployment. As already discussed in section 2, the labor force participation rates of Japanese males aged 65-69 was 55.3 percent in 1993, which is twice as high as the U.S. males's 25.9 percent. The labor force behavior of the Japanese older workers is different from those in France and Germany in the sense that there is a minor drop in the participation ratio at age 60, which is the normal mandatory retirement age<sup>8</sup>, and after that age the ratio

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<sup>7</sup> The ratio of "three generation families" in which parents and children's family live together and share the family budget accounted for close to 50 per cent in agricultural households in 1990. The equivalent ratios for non-agricultural households and employee households were 16 per cent and 11 per cent, respectively (Administrative and Coordination Agency 1990).

<sup>8</sup> Care must be taken because in Japan "retirement" in many cases does not mean retirement from the labor market, but simply from the firm where an employee worked for many years.

declines only gradually. Moreover, there have recently been a sign that the elderly are increasing the labor force participation at every age group (Diagram 4)<sup>9</sup>. With that of a labor productivity being constant, the decline in the labor force would lead to the lower economic growth.

Major factors behind the high labor market attachment of the Japanese elderly are low social security benefits, which was 40 percent of the average wage, stronger bequest motives, greater satisfaction with work, and the importance of the self-employed sector, particularly for higher age groups<sup>10</sup>. There is a possibility that this rising trend of labor force participation of the Japanese older workers will continue in near future because of the following factors:

First, the life expectancies at age 65 years, which increased from 11.6 years to 16.4 years for males and from 14.1 years to 20.6 years for females between 1960 and 1993, are likely to extend further<sup>11</sup>. The expected longer life-

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Most employees shift to smaller firms with less favorable working conditions. Indeed, the Japanese male labor force participation ratio of those aged 65 years and above were 35 per cent, compared with 15 per cent in USA and 5 per cent in Germany.

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<sup>9</sup> According to official labor statistics in Japan, the male participation ratio of the elderly (65 years and above) fell continuously from 58 per cent in the 1960s to 36 per cent in 1987, and rebounded to 38 per cent in 1993. This continuous decline, however, is due mainly to the falling ratio of the self-employed whose participation ratio is particularly high, and that of the employee rose from 13 per cent to 17 per cent.

<sup>10</sup> The self-employed accounted for 53 percent of the total workers in the age group of 65-69.

<sup>11</sup> According to official projections, the life expectancy of males at birth (at age 65) is to increase further from 76.1 (16.3) years in 1991 to 78.3 (17.8) years in 2025; for females

expectancy normally implies better health conditions at age 65, and stimulates employees to work for accumulating additional savings for retirement. Second, financial pressure on public pension scheme will require an extension of pensionable age and other cost-saving policy reforms. Third, the share of those who have higher education (including junior colleges) in the total labor force will rise from 20 per cent in 1990 to 40 per cent in 2010, reflecting the higher college enrollment in the past, and the better educated generally have better job opportunities even at higher ages. Finally, the upcoming labor shortage due mainly to the declining labor force will also make for a favorable environment for working conditions of the elderly.

With more older workers continuing in the labor market, they are supporting the retired population themselves, rather than being supported, reducing the social security burden substantially. In fact, the definition of the "elderly" i.e. those who are retired, need not be fixed at age 65 in a society where a further extension of life expectancy is expected. Thus, we can set an alternative definition of the elderly by shifting the boundary vis-a-vis non-elderly with the extension of the life-expectancy at age 65<sup>12</sup>. This new definition of the "elderly", which indicates an economic capability of what 65 years of age meant in 1955 in other periods, was 67 years in 1990, and is to be 70 years in 2025.

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it is from 82.1 (20.2) years to 85.1 (22.7) years in the same period.

<sup>12</sup> If we assume the probability of survival for 65 years of age and over were unchanged since 1955, we can calculate the "would have been" old age dependency ratio. The discrepancy between the conventional old age dependency ratio and the one we calculated indicates the impact of the extension of life expectancy.

Then, the ratio of the "elderly" in this definition to total population in the year 2025 would be 20.6 percent rather than the 25.8 percent conventionally used.

#### 4.2. Intra-generational income transfers

There is, of course, a certain limit to which one can expect the elderly to continue working. The growing number of the very elderly (i.e., those who are aged 75 years old and above) would expand the demand for medical, welfare and other public services, while the traditional role of a family in taking care of the elderly has declined over time. However, this role of the family can be partly replaced by the increased role of the market mechanism for supplying welfare services. Most elderly people in Japan are not necessarily poor with the average per capita income equivalent to that of the average. Also, the average value of household assets of the elderly, including the single elderly, is twice as large as that of the non-elderly, reflecting their ratio of the home ownership exceeding 80 per cent, and thanks to high land prices, particularly in urban areas.

Thus, with a system of annuitization of household assets, for example through "reverse-mortgage"<sup>13</sup>, the annual incomes of the elderly would rise substantially, allowing the purchase of welfare services in the market (Noguchi 1993). This reverse-mortgage will be more effective in Japan where the value of land is much larger than that in the United States. Also, this is the method of intra-generational income

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<sup>13</sup> This is an opposite of housing loans, and the owner of a house can borrow from financial institutions annually until the accumulated amounts reaches the value of the housing. One can also purchase an insurance against the risk of living after the housing values are exhausted.

transfers in the sense that those who died earlier leave assets to those who survive. This is contrary to the inter-generational transfer of assets in the Japanese family, based on an implicit contract that the children receive bequests in exchange for taking care of their elderly. Re-distribution of incomes through intra-generational transfers become more important when there is an excessive inter-generational transfers dealing with a more aged population.

#### Conclusion

The aging of the population does not create new issues, but simply aggravates the current economic dilemma concerning efficiency and equity. First, policies to alleviate the negative impacts on macroeconomic activities arising from the higher social security premiums are either to reduce the pension benefits or raise the statutory age of pension eligibility. Second, reforming the social security scheme is not necessarily a sufficient condition, and the tax base must be broadened in order to maintain the scheme. The tax base can be broadened by increasing increase in the consumption tax rate, which is currently 3 per cent, and in capital gain tax to finance social transfers, and to distribute the burden between the working generation and the elderly whose incomes are mainly based on wealth and other non-wage incomes. Third, a reform of the current health care system is also required. While government health expenditures as a proportion to GNP has recently stabilized, the health care expenditures for the elderly has continued to expand, now accounting for 30 per cent of the total. Japan's health care expenditures, in which drug costs account for the lion's share, still has room for improvement in efficiency by increasing the share of the patient's burden, and/or introducing a pre-paid system for



medical expenditures.

The increasing demand for welfare services for the very elderly will require better coordination between the pension, health, and welfare services in order to reduce the large imbalance in social benefits between those who are in hospitals and those at home. As the very elderly are major consumers of medical resources, the improvement in the welfare services combined with medical services for the elderly would contribute to reduce total medical costs by shifting their demand from hospitals to welfare institutions.

There is a virtuous circle between stimulating economic activities and increasing working opportunities for older workers. It could be better to encourage them to work rather than to promote the early retirement, and reducing the burden of the firms and working generations. Also, deregulation of various laws and official guidance (Gyoseisido) and domestic market-opening policies are necessary for improving human resource allocation, an increasingly scarce commodity with the population aging. Fortunately, many inefficiencies remain in the Japanese labor market, and the average labor productivity in Japan is lower than in the United States and major European countries by 20 per cent and 30 per cent respectively. Thus, there is substantial room for improvement and stimulating labor-augmenting technical progress with the tightening of the labor market in the coming decades.

Rapid population aging is a major challenge to Japan's economy and society which has long enjoyed an abundant labor force supply and a low old-age dependency ratio. However, the increasing burden of the coming aged society may well be overcome by providing better employment opportunities for the elderly will increase the number of contributors while it reduces the beneficiaries, preventing the negative impacts on

the economy and society. Various political and economic issues concerning the aging of the Japanese population have many things in common with Korea and other East Asian economies, as a basic factor for the population aging in the region is a high rate of economic development.

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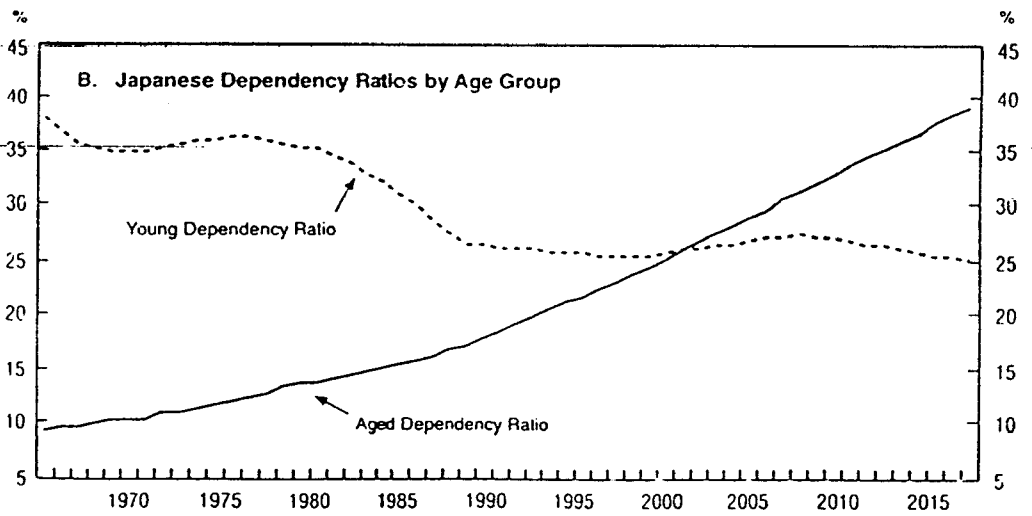
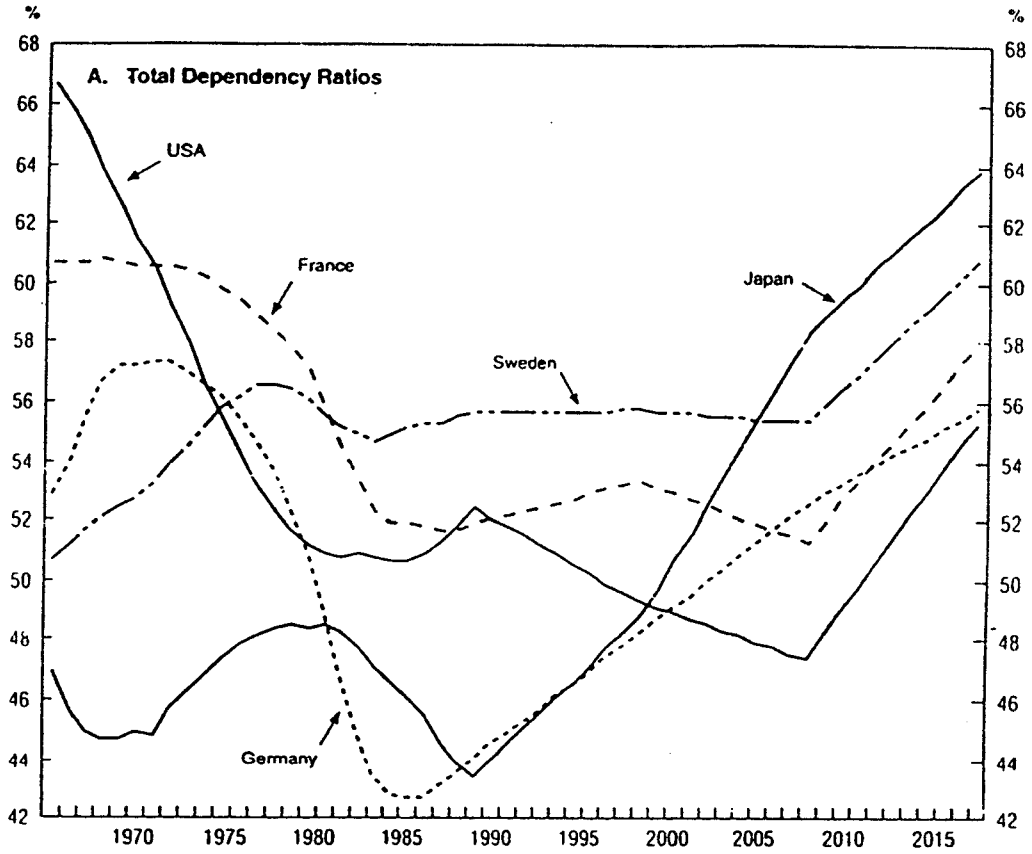
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Diagram / COMPARISON OF DEPENDENCY RATIOS  
1965 to 2020

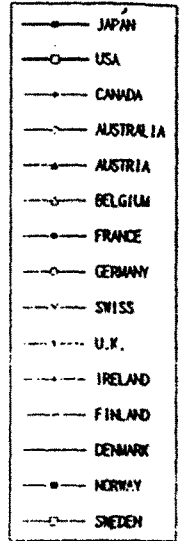
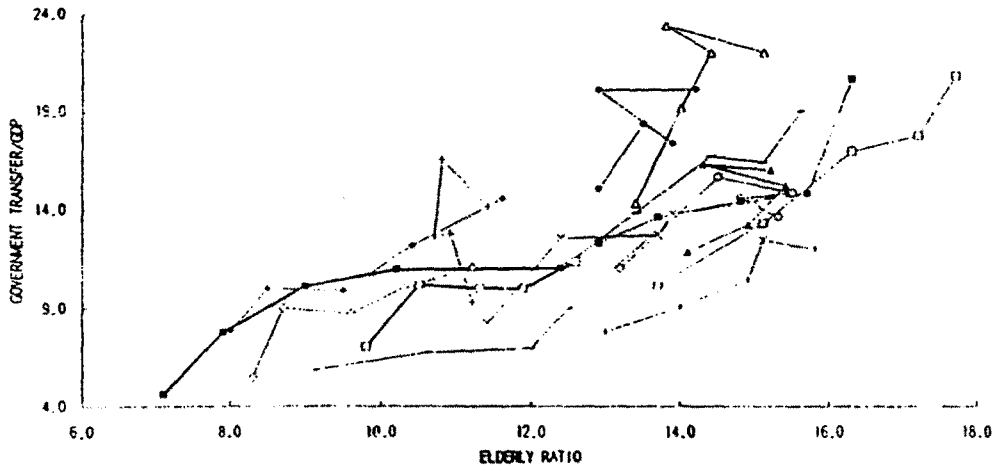


Sources: OECD: Economic Survey of Japan 1992

Diagram 2

Panel A

ELDERLY RATIO AND GOVERNMENT TRANSFER (OECD)



Panel B

TAXES AND SOCIAL SECURITY (OECD)

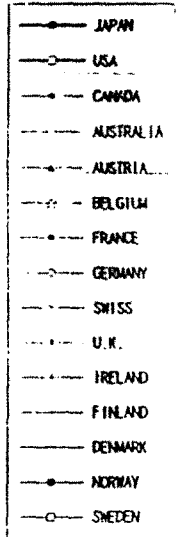
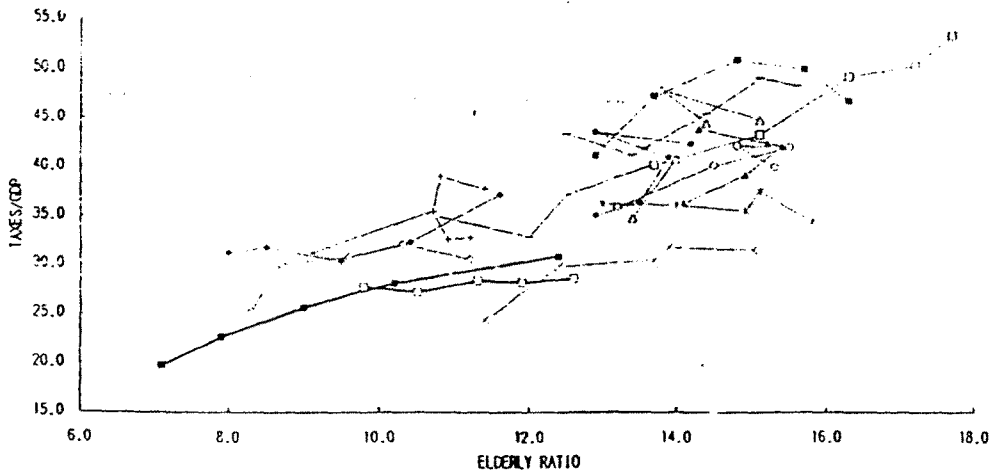
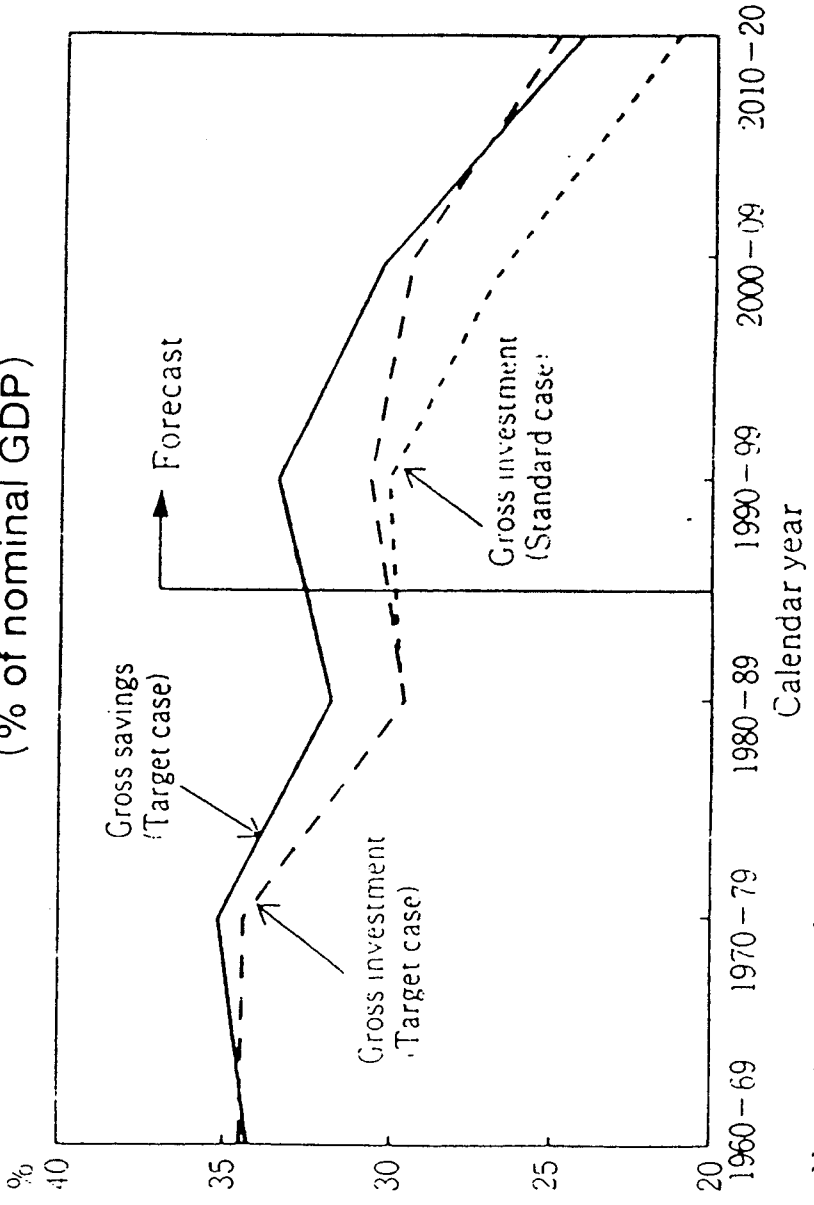


Diagram 3 Long-term Prospects of Ratios of Gross Savings and Gross Investment (% of nominal GDP)

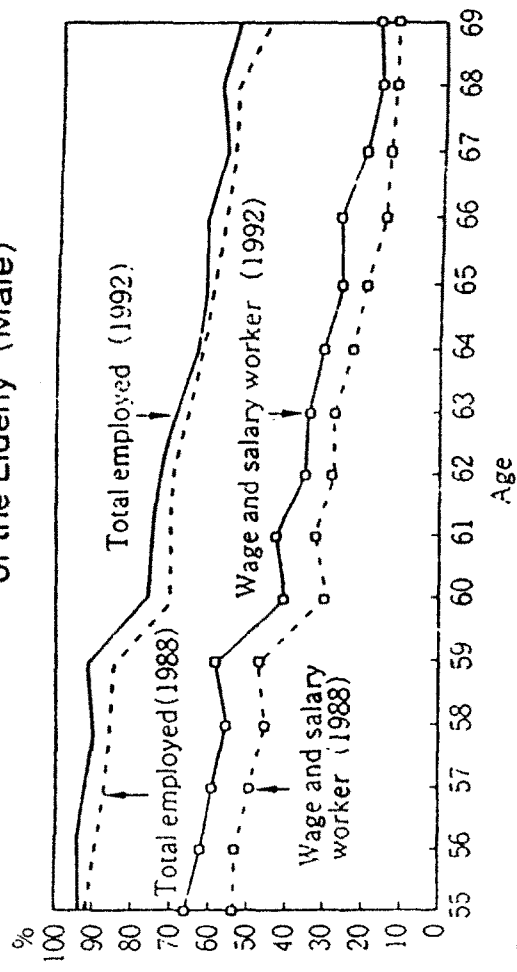


Note : Average of each period.

Data source : Economic Planning Agency, Annual Reports on National Accounts.

Source : Yashiro S JCIER(1995)

Figure 4 Labor Force Participation of the Elderly (Male)



Data source : Ministry of Labor , Survey of Employment Conditions Older Persons , 1992.