The Choice of Japan toward the Construction of a Sustainable Social Security System[*]

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Abstract

This paper discusses how future population aging will affect the finances of health and LTC (long-term care) insurance sectors by using an updated version of the HLI (Health and Long-term Care Insurance) model, which was first developed by Fukui and Iwamoto (2007). Since the burden of social contributions will significantly increase under the current scheme, the younger generation will bear a heavier lifetime burden. One possible option to moderate the disparity in the financial burden faced by the different generations is by creating a shift to a prefunding scheme, which raises the premium rate immediately and then accumulates a fund that will pay for future benefits. One serious barrier in implementing the prefunding scheme is the "double burden;" when shifting to a prefunding scheme, the working generation should contribute the premium that finances not only their social costs but also those of the older generations.

Our policy simulation finds that even the generations that suffer from the double financial burden will be better off under the prefunding scheme. Maintaining the status quo does not apparently create a double burden, but the rising financial burden under the current system will impose a heavier burden on future generations. Therefore, the double financial burden cannot be the reason for which the prefunding scheme is rejected as an alternative to the current system.

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Keywords: social insurance; pre-funding; health insurance; long-term care; long-term care insurance

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1. Introduction

The latest annual estimation reports that the total population of Japan in 2007 was 127.8 million. Post-World War II, Japan's population was growing at a rate of more than 1% up until the 1970s. Population growth has slowed down recently, and is expected to decline steadily in the future due to the low fertility rate. According to official projections, in 2055 the population of Japan will be less than 90 million. Moreover, 40.5% of the total population would fall under the age group of 65 and above.

The impending change in the population structure will have a critical impact on the social security programs that pay benefits mainly to the elderly and collect social contributions mainly from the working generation. In particular, health insurance and LTC (long-term care) insurance benefits are expected to grow faster than the national income. Financing those costs is a very difficult challenge for policy makers.

The purpose of this paper is to analyze how future population aging will affect the finances of the health and LTC insurance sectors. This paper uses an updated version of the HLI (Health and Long-term Care Insurance) model, which was first developed by Fukui and Iwamoto (2007).[1]

This model estimates the future health care and LTC service costs, and simulates the financial situations of social insurance and the burden faced by different generations under different policy scenarios. Since the financial burden of social contributions will significantly increase under the current scheme, the younger generation will bear a heavier lifetime burden.

One possible option to moderate the disparity in the financial burden faced by the different generations is to establish a shift to a prefunding scheme, which raises the premium rate immediately and then accumulates a fund that will pay for future benefits. The prefunding scheme has been proposed by Suzuki (2000) for the health insurance sector and by our previous studies (Fukui and Iwamoto, 2007; Iwamoto and Fukui, 2007) for the health insurance and LTC insurance sectors. However, one serious barrier in implementing the prefunding scheme is the "double burden;" when shifting to a

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[1] Iwamoto and Fukui (2007) and Iwamoto (2008) use several versions of this model. The details are explained by Iwamoto and Fukui (2008).

prefunding scheme, the working generation should contribute the premium that finances not only their social costs but also those of the older generations, who will not be participating in the prefunding scheme and thus will not be contributing.

A notable finding in this paper is that even generations who suffer from the double burden will be better off under the prefunding scheme. Maintaining the status quo does not apparently create a double burden, but the rising financial burden under the current system will impose a heavier burden on future generations. Therefore, the double financial burden cannot be the reason why the prefunding scheme is rejected as an alternative to the current system.
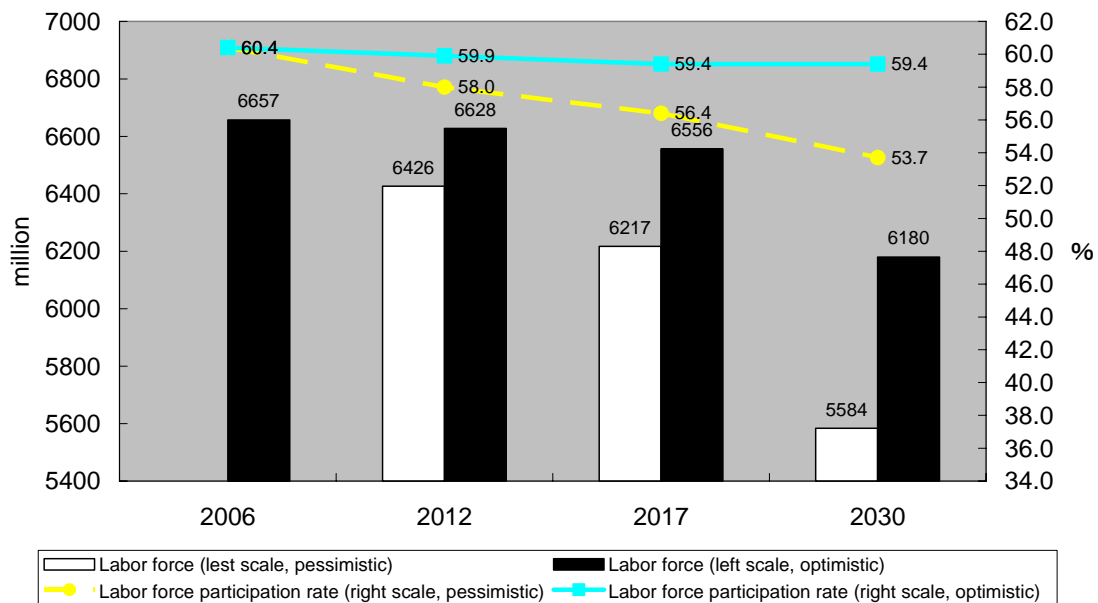
This paper is organized as follows: Section 2 discusses the effects of the change in the population structure on economic growth and on the financial status of the social security system. Section 3 presents the simulation results. Section 4 presents the concluding remarks.

2. Challenges of Population Aging

2.1 The Effects on the Economy and Social Security Programs

Many people worry that population aging and the impending decline of the total population will adversely affect the Japanese society and economy. Since the Japanese labor force will decline in the future, future economic growth rate will be inevitably lower than the current level. As shown in Figure 1, the Ministry of Health, Labor and Welfare projects that if the labor force participation rates of each age group remain constant, the labor force will decrease by 10.7 million between 2006 and 2030. The labor force will decline by 4.8 million even if future labor force participation rates increase substantially.

Figure 1 Projections of Future Labor Force

Source: The Report of Employment Policy Workshop at the Ministry of Health, Labor and Welfare (December 2008).

However, the per capita income will grow if the Japanese economy does not suffer from a sizable decline in the technological growth. Although the Japanese economy was stagnant in the 1990s, the yearly technological growth rate during that period was

more than 1%. Thus, a conservative estimate of the future yearly technological growth would be 1–2%. This growth rate is enough to offset the negative effects of labor force decline. The total size of the economy is therefore likely to grow. Population aging is not a crucial problem for the economy.

The biggest challenge for the Japanese economy is the fiscal impact of increasing social costs. The figures in Table 1 are taken from "the Projection of Social Security Benefits and Burdens," which was complied by the Ministry of Health, Labor and Welfare in May 2002. The social security benefits in the Fiscal Year 2025 will be 33.5% of the National Income at factor cost; this proportion is 10 percentage points larger than that in FY2002. Among the various categories under benefits, public pension, health care, and LTC will increase.

Table 1 Projection of Future Social Security Benefits and Burdens
(May 2002)

	2002	2005	2010	2025
Social security benefits	22.5	22.0	24.6	33.5
Public pension	12.1	11.6	12.9	16.0
Health care	7.1	6.8	7.8	11.4
Welfare	3.3	3.4	3.8	6.1
of which: Long-term care	1.4	1.4	1.8	3.8
Social security burdens	22.5	21.0	23.2	34.3
Social security contributions	15.9	13.8	15.0	22.1
Government subsidies	6.6	7.2	8.3	12.2

Note: Percent of National Income at factor cost.
Source: Projection of Future Social Security Benefits and Burdens,
Ministry of Health, Labor and Welfare, May 2002.

The last two rows show the two types of financial sources for social security programs. Both social security contributions and government subsidies financed with taxes will increase. The growth rate of government subsidies is greater than that of social security contributions. This is caused by the fact that subsidies concentrate on the health care costs for the elderly and the LTC costs that, in turn, concentrate on the elderly, as

well. In the future, the proportion of the elderly in the total population will increase dramatically. Therefore, government subsidies will grow dramatically.

The government has recently implemented several measures to cut the current and future social security expenditures in the 2004 public pension reforms, 2005 LTC insurance reform, and the 2006 health system reforms. As a result of these reforms, future social security benefits will be cut substantially. A newer projection, which was compiled in May 2006, takes account of these reforms. As shown in Table 2, social security benefits in FY2025 are projected to be 26.1% of the national income, an absolute decrease of 7.4 percentage points (more than 20%, proportionally) vis-à-vis the 2002 projection. The social security burden for FY2025 is not very high as compared to the current levels of this burden in some advanced countries with generous social security systems. In light of this fact, it may appear that the social cost problem in Japan becomes manageable. However, the government intends to further reduce social security costs; the Integrated Reform of Expenditures and Revenues plans to cut the social security costs between FY2007 and FY2011 by 1.1 trillion yen in the national budget and by 0.5 trillion yen in the local budget. The national budget for the FY2008 plans to cut 220 billion yen

Table 2 Projection of Future Social Security Benefits and Burdens
(May 2006)

(Percent of National Income)	2006	2011	2015	2025
Social security benefits	23.9	24.2	25.3	26.1
Public pension	12.6	12.5	12.8	12.0
Health care	7.3	7.5	8.0	8.8
Welfare	4.0	4.2	4.5	5.3
of which: Long-term care	1.8	2.0	2.3	3.1
Social security burdens	22.0	23.3	24.8	26.5
Social security contributions	14.4	14.9	15.9	
Government subsidies	7.7	8.4	8.9	

Note: Percent of National Income at factor cost.
Source: Projection of Future Social Security Benefits and Burdens,
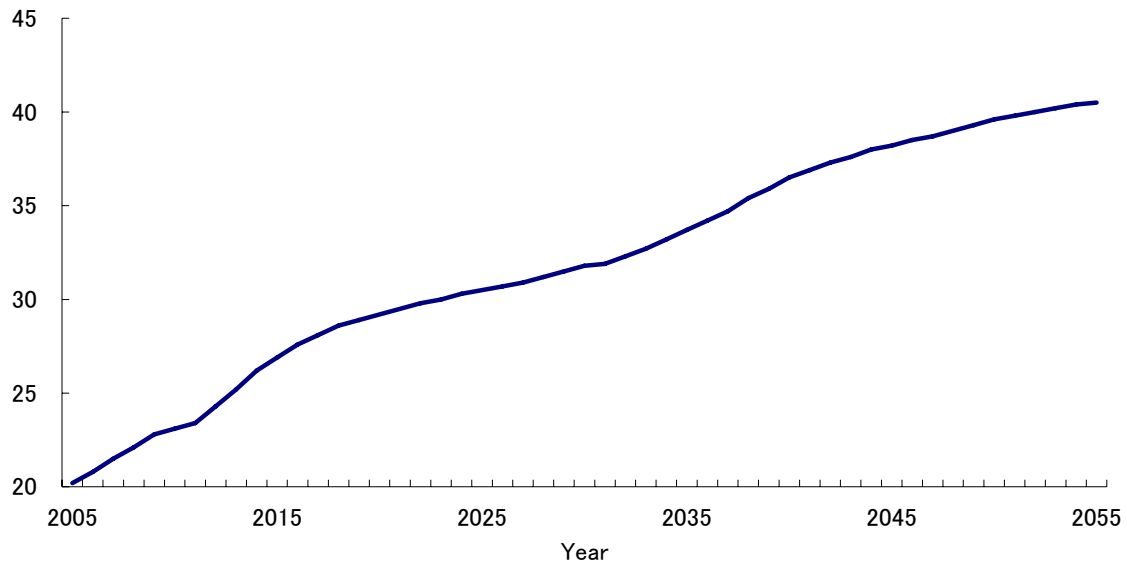Ministry of Health, Labor and Welfare, May 2006.

through downward revisions of the officially determined medical service price schedule and a reduction of government subsidies toward health insurance for employees in small- and medium-sized businesses. The Ministry of Finance proposes a further cut through the introduction of a deduction, an increase in the coinsurance rate of LTC insurance, and other measures.

The government plan may give rise to three issues.

First is the feasibility of cutting the future benefits. The government plan may face strong objection just before implementation. Since the plan shrinks the coverage of social security, people will be exposed to risks that are no longer covered by social security programs. A low-income earner may have difficulty bearing those risks. The government places emphasis on preventing diseases and disability, and expects a decline in health and LTC expenditure. However, there is no firm, scientific evidence to support that preventive measures indeed reduce these costs.

The second problem is that population aging will not stop in 2025. Figure 2

Figure 2 The Ratio of the Elderly (65 and Over) to the Total Population, 2005–2055
(Percent)

Source: Population Projections for Japan: 2006–2055, National Institute of Population and Social Security Research, December 2006.

depicts the ratio of the elderly (aged 65 and over) to the total population, indicating that 2025 is just at the midpoint of the aging process. Since the dominant part of social security benefits is financed by the burden of the working generation, the fiscal conditions of social security programs will be much worse after 2025.

Finally, there is a point of contention as to whether or not the future benefits should be cut. Since health care and LTC care are indispensable services to consumers, the welfare state is then responsible for providing the necessary level of these services. Quite ironically, however, the government tries hard to reduce the spending on these services.

2.2 How to Finance Social Costs?

Let us consider the ways in which social security costs can be financed in an aging society. At the outset, the following needs to be tackled: *The fiscal condition of social security programs deteriorates when the ratio of the elderly to the working age population grows.*

There are three ways to alleviate this problem. The first is to raise the denominator through a policy that raises the fertility rate. However, this has proved to be ineffective, and the fertility rate has been continuously declining. The second approach is to reduce the numerator by improving the health status of the elderly and reducing the demand for health and LTC services. As already mentioned, however, the effect of the above approach is uncertain. The third approach is to make social security independent of population structure. One way in which this is possible is the introduction of a funded scheme in the social insurance programs. This paper focuses on this policy option.

If individual savings can finance health care and LTC costs after retirement, these costs need not be cut. However, the idea of prefunding has garnered very little support, for several reasons. First, since the above costs are currently largely financed by social security programs, people do not recognize these as necessary expenses in their retirement plan. Second, the future costs cannot be projected accurately. Such a risk cannot be insured by individual savings. Third, since the political process tends to create a deficit, the government is not a good saver. The Japanese government currently runs a sizeable budget deficit.

Although the idea of funded social insurance faces several problems, it is a serious alternative. The other approaches by which we can make social insurance sustainable are not easy to implement. The next section will present some simulation results that examine how the shift to funded health and LTC insurances changes the financial burden of the present and future generations.

3. Policy Simulations

This section presents policy simulations of the introduction of a prefunding scheme in the health insurance and LTC insurance sectors. These simulations are a joint work with Professor Fukui of Kyoto Sangyo University. The model used here is an updated version (April 2008) of the HLI model, which was originally developed by Fukui and Iwamoto (2007). The details of this model are described in Fukui and Iwamoto (2008).

Our analysis treats both health care and LTC services. Since LTC costs concentrate heavily on the latter period of people's lives, prefunding these costs requires a large amount of savings. We have to take account of both health and LTC insurance, if we want to understand the future financial problem of the social insurance program. Our analysis of the financial burden faced by different generations is spiritually similar to generational accounting, a concept dealt with in the pioneering work by Auerbach, Gokhale and Kotlikoff (1991). However, our analytical framework is somewhat different from that of generational accounting. We specify the future policy variables and calculate the financial burden under the specified policy scenario. Our simulation has a longer time horizon than the government's official projection. The policy simulation is from FY2007 to FY2105. We calculate some variables beyond FY2105 because we need to calculate the lifetime burden of future generations.

We assume that people work from the age of 15. Our setting of labor supply replicates the labor force participation rate observed in the Population Census 2000. People pay taxes and, thus, contribute to health insurance and LTC insurance. We assume that social insurance premiums and taxes for social insurance benefits are paid from the same income base, which is the compensation of employees and the mixed income in terms of national accounts. For simplicity, we further assume that these incomes will grow at the same rate as GDP.

When health care and LTC services costs are financed with a current scheme, essentially, the pay-as-you-go system, a large increase in the future financial burden will be inevitable; this will create an imbalance in the financial burden faced by the different generations. One way in which the equity can be restored is that the social insurance

program prefunds the rising future costs. We then consider two policies to finance these costs through social contributions and taxes.
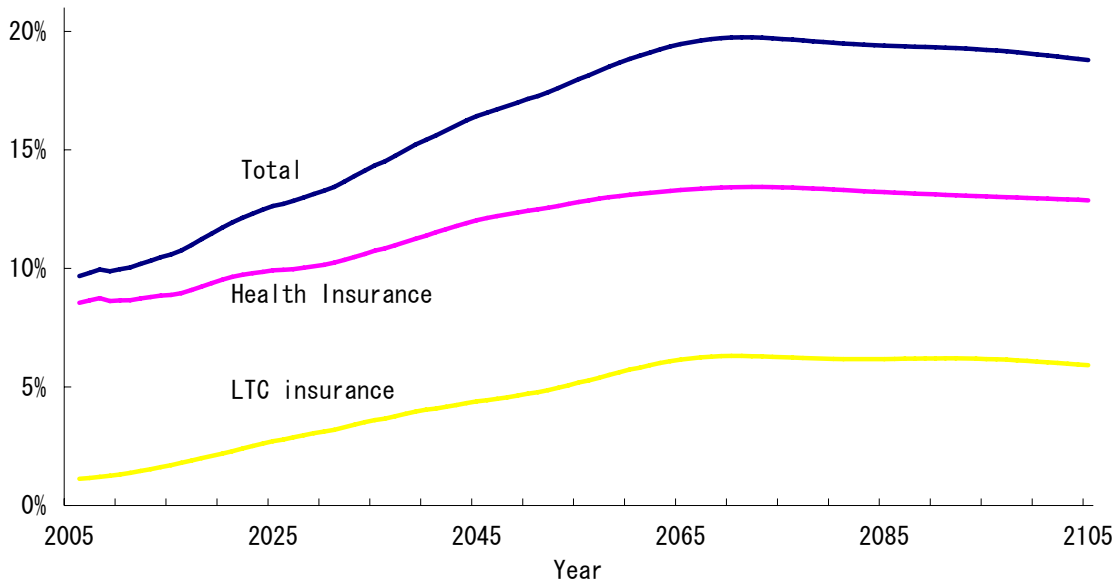
Policy A: A balanced budget operation in which the benefits during each year are financed by the taxes and insurance premiums of the corresponding year

Policy B: An attempt to reduce the inequity in the financial burden faced by the different generations by prefunding future social insurance payments for the elderly. This policy will ultimately create a fully funded system in FY2105, because the population projection carried out by the National Institute of Population and Social Security Research is available until then. This policy sets smooth premiums till FY2105.

For Policy A, we calculate the annual burden rate, which is defined as insurance benefits including government subsidies divided by 90% of the compensation for employees plus the mixed income. In FY2007, the annual burden rate was 8.65% for health insurance and 1.16% for LTC insurance.

Figure 3 shows the annual rate of social insurance premiums. The government's projection ends in FY2025; on the other hand, our projected costs are expected to
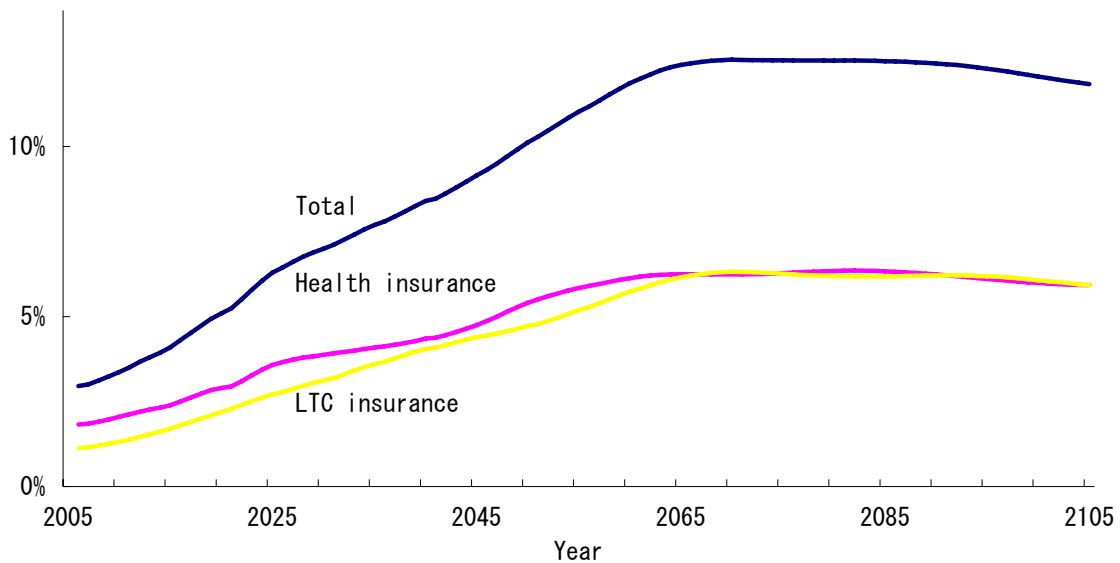
Figure 3 Social Insurance Contributions under the Pay-as-you-go Scheme
(Percent of Lifetime Earnings)

increase further after FY2025. The peak is projected at 32.29% (or 15.92% of the GDP) in FY2064. The growth rate of LTC insurance premium is much higher than that of health insurance.

Figure 4 shows the tax burden that subsidizes social insurance. Like the social insurance premiums, these depict steady growth. Around FY2070, the subsidy for LTC insurance will be almost equal to that for health insurance, because the growth rate of subsidies for LTC insurance is higher than that of subsidies for health insurance.

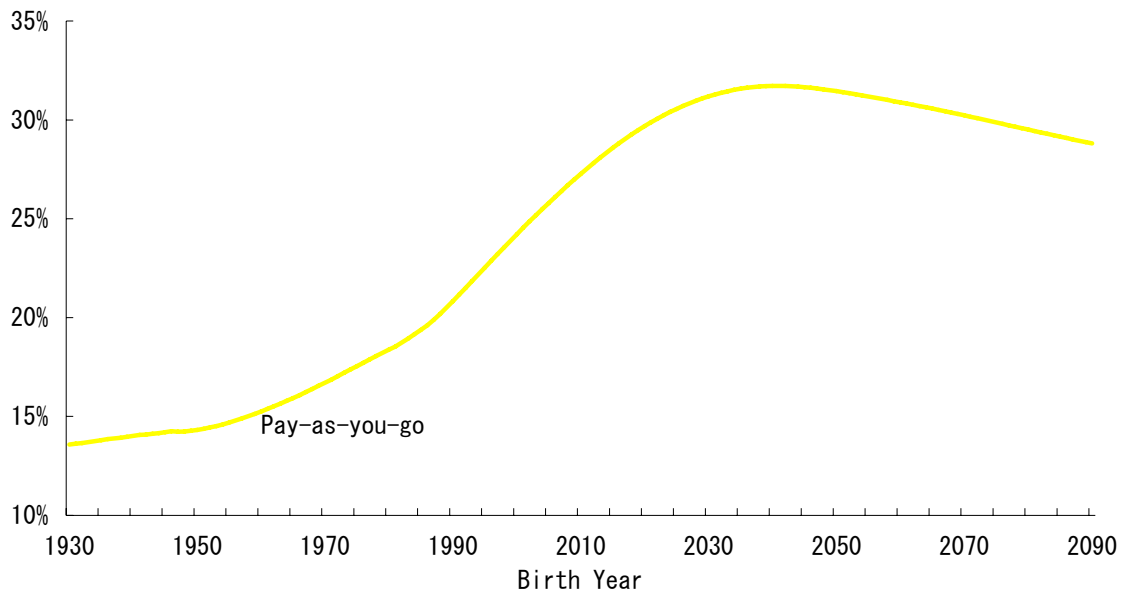Figure 4 Tax Burdens under the Pay-as-you-go Scheme (Percent of Lifetime Earnings)

We calculate the lifetime burden rate of generations, which is defined as the present discounted value of lifetime costs from FY2006 to FY2205 divided by the present discounted value of the lifetime compensation of employees plus mixed income. "Costs" implies contributions and taxes that are paid for the annual services, and not the services that a person receives.

The age-wage profile was taken from the published cross-tables of the 2006 Basic Survey on Wage Structure (Ministry of Health, Labor and Welfare). For each age group, labor income is calculated as a product of the total wage per worker and our projected labor force.

Figure 5 shows the lifetime burden among the generations. The horizontal axis represents the birth year of the cohort. The lifetime burden ratio is 14.2% for those who were born in 1945 and 24.52% for those who were born in 2001. The pay-as-you-go operation will create a huge difference in the financial burden faced by the different generations.

Figure 5 Lifetime Burdens under the Pay-as-you-go Scheme (Percent of Lifetime Earnings)

Policy B establishes a saving scheme in the health insurance and LTC insurance sectors. Although this approach appears similar to the "Medical Saving Account," our scheme actually prepares for insurance *premiums*. On the other hand, the MSA pays the account holder's health care expenditure. We then have to specify, in this simulation, the interest rate and the growth rate. In our simulation, only the difference matters. Our setting is that the interest rate minus the growth rate equals 1.6%. This number is obtained from the setting in the official financial projection of the public pension program.

We formulate the three parts of the prefunding scheme.

The first part pertains to health care for the non-elderly. In this case, the pay-as-you-go scheme is assumed to be adopted. The contribution rate ranges between
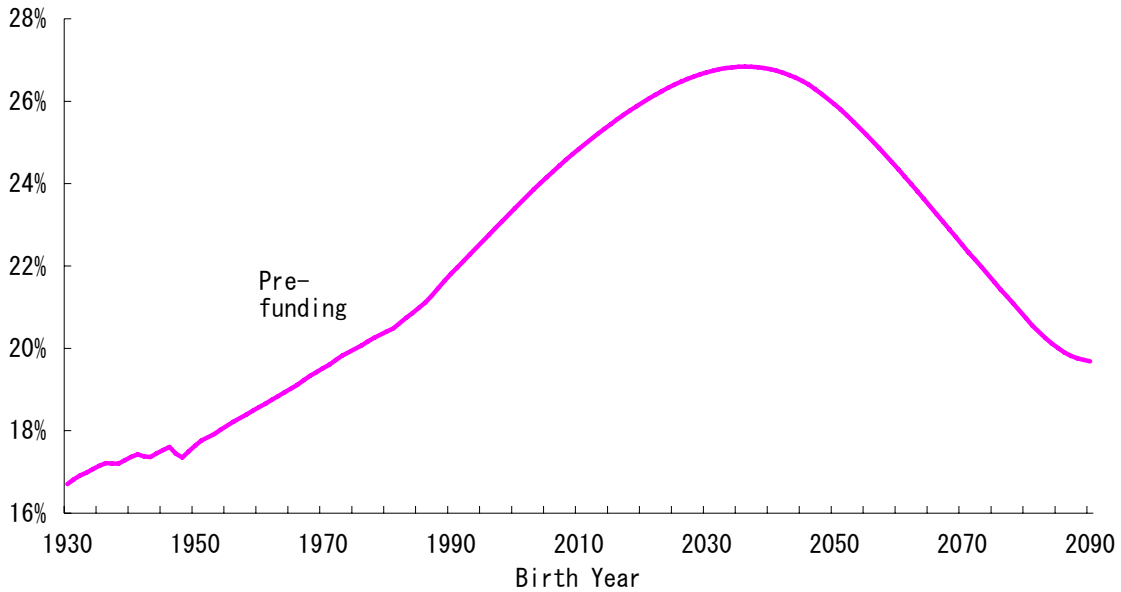
3.76% and 4.38%. Since the change in population structure does not have a major effect on this section of the social insurance sector, there is no serious need for prefunding.

The second part relates to the prefunding of health care, excluding government subsidies, for those aged 65 years and above. Prefunds are provided to all individuals between the ages of 15 and 105 years. For the cohort born in 2000, 3.27% of the insurance premium during their lifetime provides adequate prefunding. When this rate is applied to all new generations, the accumulated fund in FY2105 will be 94.76% of the then GDP. A premium rate of 7.17% from FY2008 to FY2105 will successfully accumulate this amount. The prefunding scheme sets the premium rate in the following manner: In FY2007, the premium rate is 4.25%; it jumps up to 7.17% during the period FY2008—FY2105. The rate will then decline to 3.27% after FY2106.

The third part involves LTC insurance excluding government subsidies for those aged 40 years and above. All enrollees between 40 and 105 years old pay the premium. The process of designing a prefunding scheme is the same as that for the health insurance for the elderly. For the cohort born in 2000, the premium rate of 1.6% during their lifetime provides adequate prefunding. When this rate is applied to all new generations, the accumulated fund in FY2105 will be 69.67% of the then GDP. The premium rate of 3.7% from FY2008 to FY2105 will successfully accumulate this amount of funding. The premium rate is 1.16% at the starting period, 3.7% during the transition, and 1.6% after the transition.
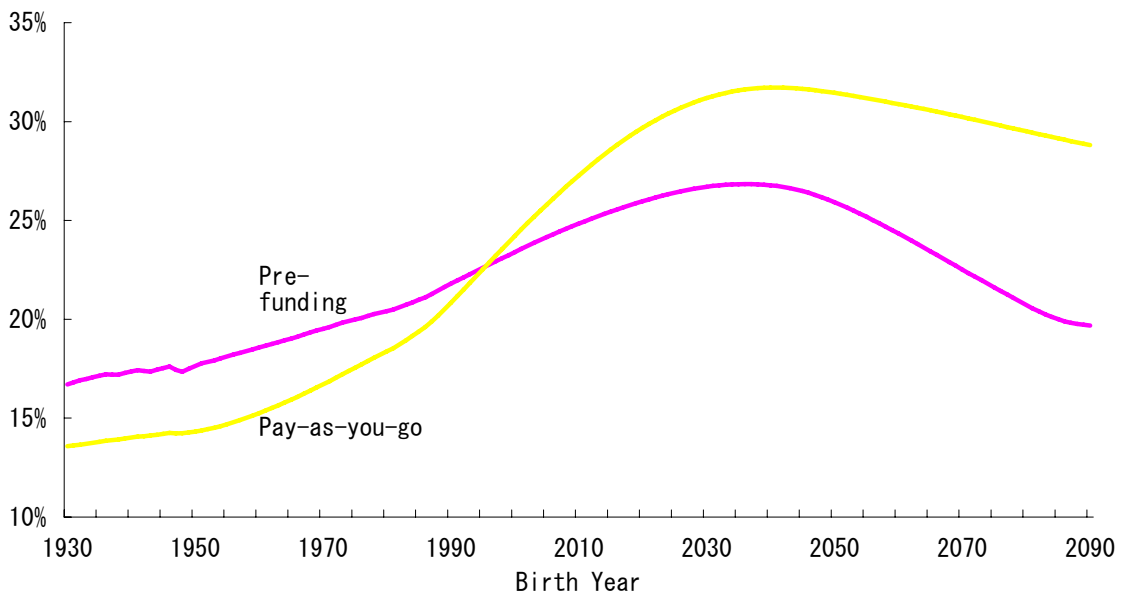
Figure 6 shows the financial burden faced by the different generations under the prefunding scheme. It presents some important observations. First, the older generations will bear a higher burden. This is because social contributions substantially increase in FY2008. Second, future generations will bear a lower burden, because the contribution rate becomes low after the transition period. Third, the future generations who are born around 2030 will suffer from the "double burden." These generations will not only pay their health costs and LTC costs but also contribute to the accumulation of the fund that finances the benefits of older generations. In our simulation, the cohort born in 2036 faces the highest lifetime burden.

Figure 6 Lifetime Burdens under the Prefunding Scheme (Percent of Lifetime Earnings)

Although this kind of double burden has been considered as a barrier to implementing a prefunding scheme in which the benefits are to be given to the elderly, Figure 7 leads to a very different implication. The figure compares the lifetime burden

Figure 7 Lifetime Burdens under the Pay-as-you-go Scheme and the Prefunding Scheme (Percent of Lifetime Burdens)

between the two policy options. Some future generations will suffer from the double burden. However, note that these are better off under the prefunding scheme, because their burden under the pay-as-you-go system is much higher. Under the prefunding scheme, social contributions are stabilized, and older generations bear a greater burden. A lower burden is enjoyed by younger generations, including those who bear the double burden.

4. Concluding Remarks

As the Japanese population structure changes, the current pay-as-you-go scheme will create a large increase in future social contributions and taxes that subsidize social security programs. We examined an alternative policy that prefunds the benefits meant for the elderly.

Under our baseline scenario, the rate of increase in the total burden including taxes devoted to subsidies is 43%. Implementing prefunding is a tough challenge because the initial increase in the financial burden is politically unpopular. However, the cost of not introducing this scheme is a heavier burden on future generations. Raising the contribution rate aggressively will help to reduce the imbalance in the levels of financial burden faced by the different generations. Furthermore, even those generations who suffer from the double burden will be better off under the prefunding scheme. The double burden cannot be the reason why the prefunding scheme is rejected as an alternative to the current system.

We cannot determine which of the two options is better in the absence of a certain value judgment. Our framework for comparing policy options is essentially a zero-sum game—allocating levels of burden to finance given social costs among the different generations. Figure 7 indicates that all current voters are worse off under prefunding. This means there is no conflict of interest among the current voters. A crucial issue, then, is whether or not voters care about future generations.

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