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6 The Cost of Aging: Public Finance Perspectives for Japan

Seiritsu Ogura

During the next forty years, the Japanese population is expected to go through a period of rapid aging. The share of those age 65 or older in our population is about 11 percent now, and the government expects it to double by the year 2010. Since most of these people will be retired, their living costs will have to be financed either by liquidating their private wealth or by private or public income transfers from the working generation.

In the early 1960s, Japan constructed a comprehensive network of public annuity and health insurance plans. Ever since the hyperinflation following the Second World War, however, the national government had to operate under a balanced-budget constraint. Under these circumstances, the fiscal authority was always wary of expanding the benefits of these plans, for they naturally meant more uncontrollable fiscal commitment. As a result, by and large, the benefits of these plans had been kept fairly modest.

Toward the end of the high economic growth era around 1970, however, the general public and politicians discovered the annuities and insurance plans as attractive political instruments. They wanted to redistribute more income to the elderly, who had not received the full benefits of economic growth, by transforming the plans into intergenerational income-transfer mechanisms. Finally, under intense political pressure, in 1973 the government made these plans pay very generous benefits to the retired without demanding commitment for the increased burden from the working generation.

In retrospect, the aging of the population had already begun in the 1970s,

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and the number of those over 65 years old was increasing at the rate of 600,000 every year, an increase of 50 percent over the preceding decade. It was only a matter of time before the inconsistencies between the benefits and the premiums of these plans began to surface. After the first oil shock, the economy no longer grew 10 percent every year, and, almost instantly, the autonomous expansion of these expenditures helped send the national budget into huge deficits (figs. 6.1, 6.2). In the lower-house election of 1979, however, voters decisively rejected a major tax increase in the form of a European-style value-added tax, which might have restored the budget balance. During this time, the national debt was accumulating, and, by the early 1980s, the deficit started to feed on itself.

Finally, in the midst of an unprecedented fiscal crisis, the government was forced to announce a state of fiscal emergency and to begin to curtail its expenditures, including these programs. Since 1983, several major reforms were carried out, which I regard as the first-round adjustments in these programs. In the first half of this paper, I will follow the developments that led to them and describe their outlines. Mainly as a result of these reforms, the expansion of government expenditure was brought under control, and the renewed strength of economic growth during the last few years is finally restoring the balance in the national budget for now.

Nevertheless, it is not clear how much these reforms have accomplished in the long run. While some reforms were fundamental reforms that reduced the costs of the plans themselves, others simply shifted the national government's burden to the private sector. Moreover, the long-run outlook for the costs of these transfer programs is still an open question. According to the latest government estimates, the cost of public annuity benefits will go up to 7.5 percent of national income in 1986 and to 15.5 percent of national income in 2010. In the same period, the cost of public medical insurance benefits will go up from 7.5 percent of national income to between 9 and 11.5 percent.

In the past, however, the government's cost projection had a very pronounced downward bias, and one must worry whether these figures are biased as well. I will provide some insight into the problem by focusing on changes in the costs of these programs as a result of the changes in the demographic composition over time. The idea is very similar to Laspeyres quantity index, with 1986 costs as fixed weights, or the notion of a "current service" budget under constraint prices.

The design of the rest of the paper is as follows. In the first section, I present the basic structure of the Japanese public health insurance system and follow what took place during the fiscal crisis. In the second section, I repeat the same process for the public annuity insurance system. In the third section, I explain my population allocation model, which I used to generate demographic variables. In the fourth section, I present the results of the simulation.

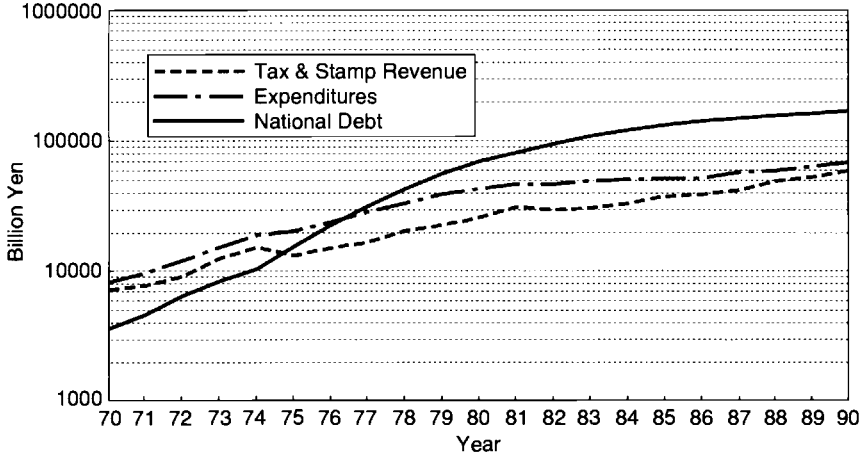


Fig. 6.1 Budget of national government and national debt

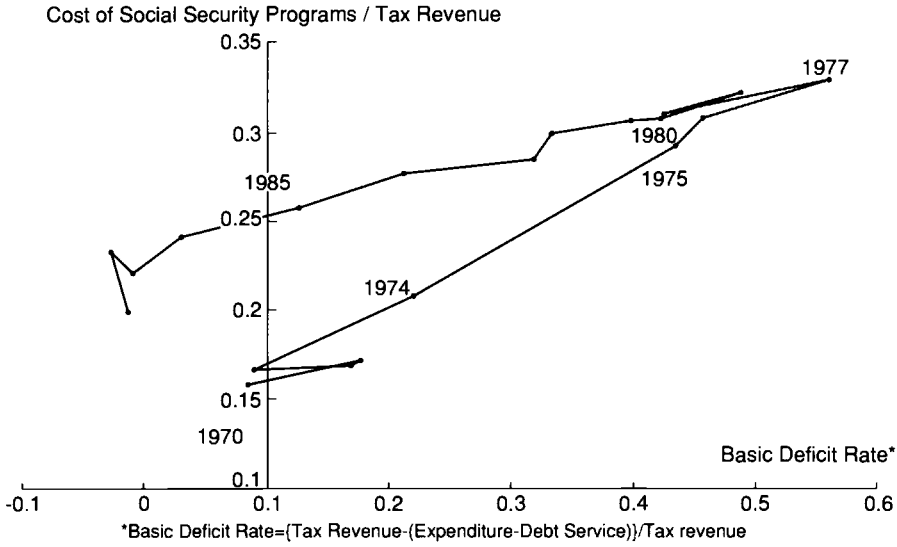


Fig. 6.2 Budget deficit and the cost of Social Security programs for the Japanese national government

6.1 The Public Health Insurance System

Every Japanese must carry a public insurance plan. When an individual gets ill, a doctor will provide medical care as an agent of the insurance plan, following the standard treatment procedure. The procedure is common to all public insurance plans and gives detailed instructions on the range of permissible

treatments for each ailment and their costs. A patient must pay a part of the costs at the doctor's office and the pharmacy. The proportion varies from one plan to another in a range from 0 to 30 percent, but the total cost of insurance copayments to a household can be no more than ¥60,000 (¥33,600 for poor households) during any given month (in 1991). The rest of the cost will be billed to the insurance plan once a month, together with the other patients' bills. To maintain the public health insurance system, the national government reimburses administrative expenses and gives subsidies to weaker plans through many channels.

In this section, I outline the coverage of four major public health insurance plans: (1) Health Insurance Managed by Associations (HIMA), (2) Health Insurance Managed by Government (HIMG), (3) Mutual Aid Association Insurance (MAAI), and (4) National Health Insurance (NHI). While these terms are rather awkward, they are nevertheless used in the *Statistical Yearbook of Japan,* and for this reason I use them also. I should point out that, except for HIMG, these are decentralized systems where authorized insurers individually set and collect insurance taxes and pay out insurance benefits under the supervision of the Ministry of Health and Welfare. Naturally, uniform rules govern this process, but they do permit plans to provide extra benefits when they can afford them, including smaller insurance copayment ratios.

6.1.1 Employee's Health Insurance Plans

A majority of employed workers and their family members are covered by plans belonging to HIMA, HIMG, and MAAI; for them, the present coverage has probably begun with their employment and will end with their retirement. Collectively, all such plans are referred to as *employee's health insurance* plans. At most, their insurance copayment ratio is 10 percent for the workers, but, for their dependents, it is 20 percent for inpatient care and 30 percent for outpatient care. Roughly speaking, insurance taxes are collected as fixed proportions of employees' wages and salaries, and the employer must pay at least half the tax, but may choose to contribute more.[1]

Health Insurance Managed by Associations (HIMA)

An employee's health insurance plan can be independently managed by an insurance association of a corporation. Under such a plan, membership is limited to the corporation's employees, and insurance coverage is usually limited to the members and their dependents. Legally, it is a (public) entity independent from the corporation, but in reality its day-to-day operation relies heavily on corporate resources, even though the national government reimburses administrative expenses. For a corporation to qualify for this plan, called a Kumiai-Kenko-Hoken, it must have at least 700 employees. As of March 1991, there were 1,777 such associations, covering more than 14.7 million member-

1. The health insurance tax base is referred to as the *standard monthly wage,* and each worker is classified into one of thirty-nine classes, ranging from ¥68,000 to ¥710,000 per month (in 1987).

workers as well as their 17 million dependents. More than 60 percent of these workers belong to associations with more than 20,000 members.

Each association can set its own tax rate within the range between 30/1,000 and 95/1,000, of which the employer is required to contribute at least half. In 1988, the average tax rate of all the plans in HIMA was 8.248 percent, 57 percent of which was contributed by employers. Since the members of these associations are the employees of large corporations, they tend to be healthier and receive higher pay than the average worker of the same age and sex. As a result, these associations usually offer better benefits at lower tax rates. In many large corporations, for example, surplus funds are used to establish facilities in resort areas that accommodate employees and their dependents for a small cost. Most regard these facilities as effective means for recruiting and keeping good workers.

Health Insurance Managed by the Government (HIMG)

Smaller corporations, or most businesses employing more than five workers, must join Seifu-Kansho-Kenko-Hoken, Health Insurance Managed by the Government. As of March 1991, this huge insurance plan covered close to 1 million businesses, with almost 18 million workers and their 19 million dependents.

The tax rate is currently set at 8.2 percent, which is shared equally between employer and employee. The average HIMG tax base is more than 20 percent smaller than HIMA's. Since it is such a gigantic plan, a change in its tax rate used to become a hot political issue when the cost of benefits exceeded the tax revenue. Several times in the past, the government had to reach into its own pocket to solve HIMG's financial crises, which explains why it contributes 16.4 percent of the cost of insurance benefit payments to HIMG, or ¥879 billion in 1990.

Mutual Aid Association Insurance (MAAI)

Most public-sector employees are covered by the health insurance plan managed by the Kyosai-Kumiai, or Mutual Aid Association (MAA), of the particular agencies for which they work. There are 118 MAAs for national and local government agencies, covering 11.2 million individuals, including dependents. Reflecting a wide variance in the employees' age structure, tax rates also vary widely among MAAs—that for the national government is from 6.4 to 11.46 percent, and that for local governments is 8.868 percent. These costs are split equally between employees and the employer.

6.1.2 National Health Insurance System (NHI)

Since 1961, the rest of the population has been covered by plans under Kokumin-Kenko-Hoken, or the National Health Insurance System. Altogether the NHI system covers 43 million individuals, but it is divided into 3,424 separate plans managed independently by municipal governments. More than half

of them are relatively small plans that cover no more than 5,000 individuals each. In addition, there are 166 professional association plans.

Currently, among the covered households of the NHI system, about 30 percent are self-employed workers, while another 30 percent are those employed either in very small businesses or only on a part-time basis. About 25 percent are households headed by the unemployed or the retired. In the past, the government has regarded NHI as an insurance system for the poor and has reserved for it the highest subsidy rates among public health plans.

Since 1968, the standard copayment rate for all care has been set at 30 percent for all members. The government contributes 40 percent of the cost of the benefit payments to each NHI plan, and an extra 10 percent of it is committed to grants to weaker plans. Each municipal government sets its tax schedule, but usually it consists of proportional taxes on (*a*) a household's taxable income, (*b*) its real assetholdings, and (*c*) the number of individuals in it, in addition to (*d*) a flat household charge. In 1990, an average household in the NHI system had 1.7 members and paid ¥150,000 for the coverage. Out of this amount, 71.5 percent represented taxes on the household's income, 6.6 percent taxes on real assetholdings, 15.4 percent the tax on the number of individuals, and 6.6 percent the flat household charge.[2]

6.1.3 Aging and the NHI Problem

Japan's public health insurance plans are "risk blind"; a person's insurance tax is based only on his ability to pay. A seventy-year-old person may consume several times as much medical care as a thirty-year-old person but does not pay higher taxes because of it. If each insurance plan must pay for itself, the others in the plan must subsidize the elderly person by paying higher taxes. But if the old and/or the poor are concentrated in a particular plan, that plan may never be able to collect enough tax revenue to cover the standard insurance benefits.

Such was the case for the NHI plans. From the very start, since it was a system without many younger and healthier people who were in employees' plans, it was a relatively "old" system. It lost more young people during the high economic growth period to employee plans as agriculture shrank. Had NHI been left alone, it would have been bound for serious financial problems as the NHI population kept on aging. The last straw, however, came from the influx of a large number of retired workers from employee insurance plans. When an employed worker retires, he and his family usually must withdraw from an employee health insurance plan and join an NHI plan. The influx of retired employees from HIMA and HIMG is estimated to have doubled between 1970 and 1980, from 150,000 to 300,000 persons annually. (Currently, it is close to 1 million a year.)

2. Until the reform of 1984, the national government had been contributing 45 percent of the total medical costs of the NHI participants. After the reform of 1984, the rate has been set at 50 percent of the insurance payments, which is said to be equivalent to 38.5 percent of the total medical cost.

This also meant that the national government had to start paying 45 percent of these retirees' medical bills, the rate it used to subsidize NHI plans. This was the long-run cause for the increased costs of the NHI subsidy, but, in 1973, the government helped the costs skyrocket by eliminating insurance copayments for anyone over 70 years old. Zero coinsurance did not simply mean that the national and other governments now had to pay the extra 30 percent of the medical bills of these people. It also meant that their bills would become much more expensive.

While there has been no firm quantitative analysis yet on the effects of the zero copayment policy, apparently this induced the aged to seek medical care more often (see Ogura and Futagami 1992), and, more significantly, it induced doctors to give them more expensive care, including longer hospitalization. As a result, in ten years, the share of national medical expenditures for patients over 70 years old has almost doubled, from 11 percent in 1973 to 20 percent in 1982. Considering the 50 percent increase in their number, from 4.2 to 6.5 million, their medical costs have increased 50 percent faster than those for the rest of the population during this period. The national government had to increase its subsidy to the NHI from ¥489 billion in 1972 to ¥2,203 billion in 1982, in addition to paying ¥517 billion for its share of the insurance copayment scheme in 1982.[3]

6.1.4 The Fiscal Crisis and 1983 and 1984 Reforms

In 1973, the Japanese economy was shaken by the first oil shock, and, for more than a decade following the shock, economic growth remained sluggish. While tax revenues stagnated in real terms from the slowdown, government expenditures kept on growing. The national debt continued to increase, and soon interest payments became the single largest item in the national budget. During the unprecedented fiscal crisis of the early 1980s, there was a national consensus that substantial cuts had to be made in social welfare expenditures.

It was clear that neither the NHI system nor the national government was any longer able to cope with the influx of retired workers from the employee plans. In order to offset the fiscal burdens that accompanied the influx, the government introduced Rojin-Hoken, or the Health Maintenance System for the Aged (HMSA), in 1983, and Taishokusha-Iryou-Seido, or the Retired Workers' Medical System (RWMS), in 1984.

The Health Maintenance System for the Aged (HMSA)

This system introduced new user fees for the medical care of those over 70 years old, but so far they are mostly symbolic; the current rates are ¥900 per month for outpatient care and ¥600 per day for inpatient care. With the intro-

3. Actually, after the Ministry of Finance rejected the measure proposed by the Ministry of Health and Welfare in 1969, paying the copayments for the aged became very common among municipal and prefectural governments by the early 1970s. In 1973, finally, the national government decided to take over two-thirds of these costs (i.e., 20 percent of the medical bill), leaving the municipal and prefectural governments paying one-sixth each (i.e., 5 percent).

duction of HMSA, municipal governments must provide medical care for any resident who is 70 years old or older, regardless of membership in an NHI plan. The national government contributes 20 percent of this cost, and prefectural and municipal governments are each expected to contribute 5 percent, as under the old insurance copayment scheme.

The remaining 70 percent of the cost is reimbursed by a special fund set up to collect the money from every public health insurance plan. Instead of billing each plan for the actual costs incurred for caring for its member patients, from 1990 on the fund will raise the necessary amount by charging each plan in proportion to the total number of individuals in the plan (as well as the average medical cost of its aged patients).

Since the NHI system has a population share of 37 percent, it will have to pay only 37 percent of this amount, even though 67 percent of those over 70 belong to NHI plans. Currently, HMSA costs about ¥6 trillion per year, and NHI will pay about ¥1.4 trillion, instead of the ¥3 trillion that it paid prior to HMSA. The government subsidy to NHI will be ¥0.7 trillion ($= 0.5 \times 1.4$) instead of ¥1.8 trillion ($= 0.45 \times 0.67 \times 6$).

The Retired Workers' Medical System (RWMS)

In this system, the NHI offers reduced copayment rates (20 percent for the insured person and for his family's inpatient care) to an "old boy" retired from an employee plan who is too young to qualify for HMSA. Retired workers are defined as those who receive Welfare Annuity Plan (WAP) benefits or MAA retirement benefits.

Benefit claims will be paid out of pooled premiums, and the resulting shortage will be charged to all employee insurance plans in proportion to payroll size. For 1990, HIMA paid ¥234 billion and HIMG ¥232 billion to RWMS. Equivalent amounts were saved by NHI plans, half of which was saved by the national government.

These reforms together shifted ¥2 trillion from government budgets to employee health insurance taxes in 1990. The amount will easily double in later years.

6.2 Japanese Public Annuity Insurance Plans

Prior to the 1986 reform, by and large, the coverage of public annuity insurance plans overlapped with those of public health insurance systems. Kosei-Nenkin, or Welfare Annuity Insurance, was the public annuity insurance plan for the workers covered by HIMA and HIMG. Kyosai-Kumiai, or mutual aid associations, offered their own annuity insurance plans in addition to health insurance plans. Kokumin-Nenkin, or the National Pension Plan (NPP), was the public annuity insurance plan for self-employed workers and their spouses. In contrast to the public health insurance plans, however, public annuity plans

are centralized and managed by the national government (with MAAs as curious exceptions). All benefits are indexed against any inflation greater than 5 percent annually.

6.2.1 Public Annuity Insurance Plans under the 1973 Regime

The Welfare Annuity Plan (WAP)

The Welfare Annuity Plan was created in 1942 as the Worker's Annuity Insurace to provide annuity insurance for employed workers and families against the loss of their earning capacity due to old age, disability, or death. It was the public annuity insurance plan for the households of 27 million workers covered by HIMA and HIMG until the 1986 reform (fig. 6.3). In 1990, WAP paid ¥11.4 trillion in benefits to 10.8 million individuals. Retirement benefits accounted for ¥8.4 trillion, or 73 percent of the total cost of WAP benefits. Less important are survivor's benefits, which accounted for 15 percent, partial credit benefits, which accounted for 8 percent, and disability annuities, which accounted for 3 percent (fig. 6.4).

Roughly speaking, a worker's WAP contribution is determined as a fixed percentage, currently set at 14.5 percent for male workers, of his or her monthly paycheck, half of which should be paid by the employer (table 6.1). Participation is mandatory at any site of business with more than five employees.[4]

Retirement benefits started at age 60 for males and age 56 for female workers, with the condition that the worker be in the system for twenty years or more, or for fifteen years or more after the age of 40/35 for males/females.

The basic formula for computing the WAP benefit (in yen) was given by

$$y = a \times n + b \times z \times n,$$

where a and b are constants, n is the number of months the individual had paid the WAP tax, and z is the individual's revaluated average monthly pay. The last value of a was 2,050 (before the 1986 reform took effect), and the value of b had been 0.01. The first term ($a \times n$) was referred to as the *flat benefit,* and the second term ($b \times z \times n$) was referred to as the *proportional benefit.* The survivor's benefit was three-quarters of the original benefit. The average full retirement WAP benefit for those under the old system was ¥1,680,000 in 1990.

The National Pension Plan (NPP)

This plan was created in 1961 to provide annuity insurance for self-employed workers and their spouses against old age, disability, or death. Self-employed workers and their spouses between the ages of 20 and 60 were re-

4. WAP's tax base is also referred to as the *standard monthly wage,* and a worker is classified into one of thirty classes ranging from ¥80,000 to ¥570,000 (in 1989). Unlike the public health insurance tax, there is no exemption in the WAP tax, since anyone earning less than ¥80,000 is classified as earning ¥80,000.

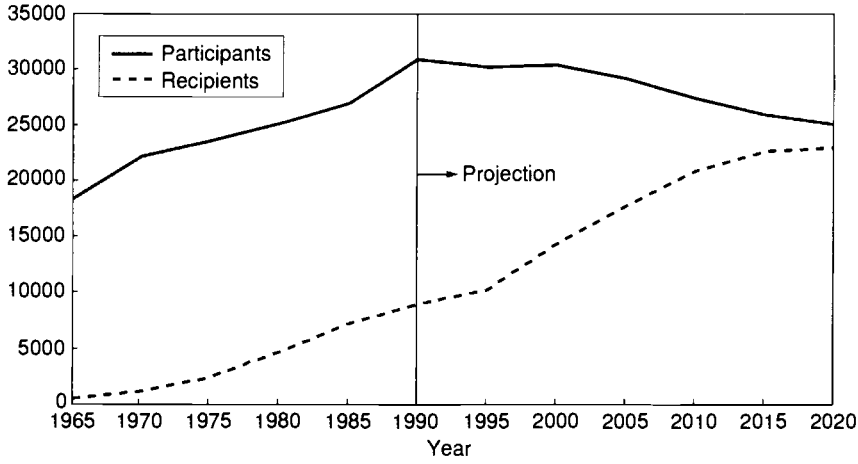


Fig. 6.3 JCER projection of participants and recipients of Japanese Welfare Annuity Pension plan (1,000 persons)

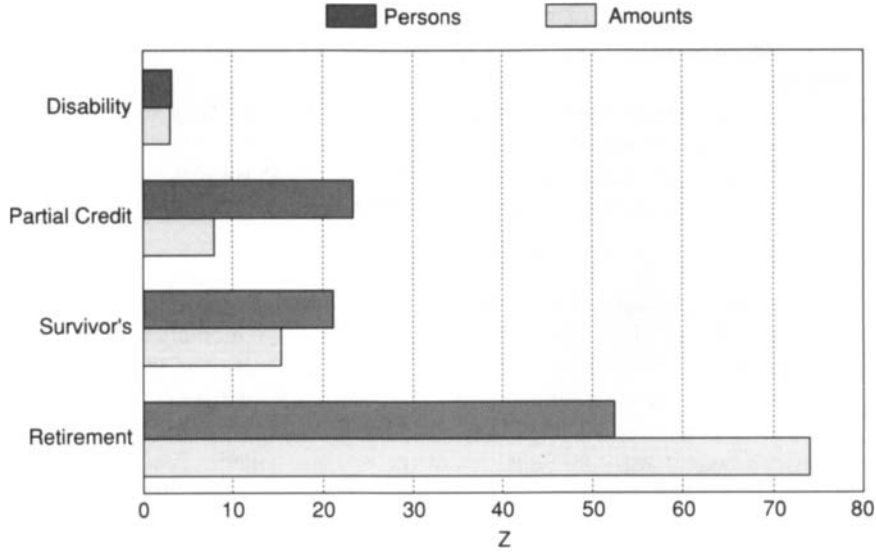


Fig. 6.4 Compositions (%) of WAP benefits (1990)

quired to join the plan, but the dependent spouses of employed workers (who are covered by WAP) were encouraged to join the plan voluntarily (fig. 6.5). In 1990, NPP paid ¥5 trillion in benefits to 10 million individuals. Eighty percent of the amount was for the old-age pension, while the partial credit pension accounted for 10 percent and the disability pension for 7 percent (fig. 6.6).

Table 6.1 **WAP Tax Rate**

Date	Male (%)	Female (%)	Date	Male (%)	Female (%)
1942, June	6.4	6.4	1971, Nov.	6.4	4.8
1944, Oct.	11	11	1963, Nov.	7.6	5.8
1947, Sep.	9.4	6.8	1966, Aug.	9.1	7.3
1948, Aug.	3	3	1980, Oct.	10.6	8.9
1960, May	3.5	3	1985, Oct.	12.4	11.3
1965, May	5.5	3.9	1990, Jan.	14.3	13.8
1969, Nov.	6.2	4.6	1991, Jan.	14.5	14.3

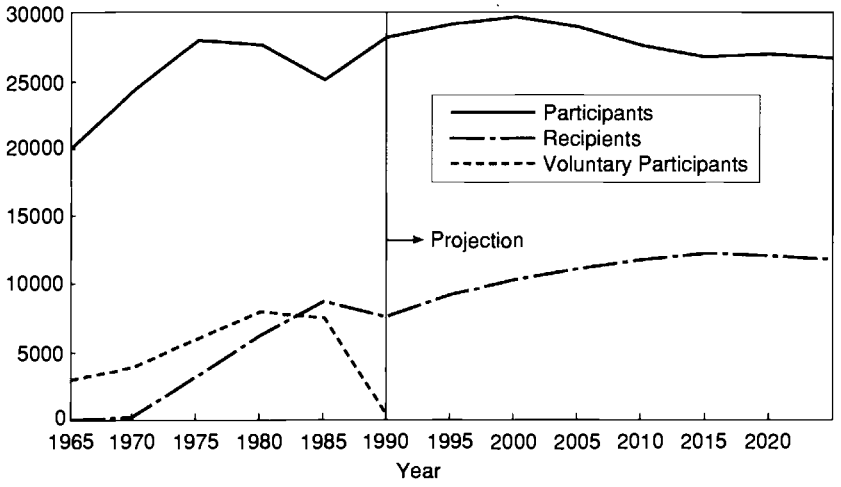


Fig. 6.5 JCER projection of participants and recipients of Japanese National Pension Plan (1,000 persons)

Survivor's benefits are limited to those with dependent children and hence accounted for less than 2 percent.[5]

Unlike the WAP tax, the NPP tax is a fixed-sum, monthly tax, and both husband and wife must join NPP, even if only one member of the household is working (table 6.2). The NPP retirement benefits started at age 65, compared with WAP's age 60, and to qualify for NPP benefits one must pay the NPP monthly tax for at least twenty-five years, compared with WAP's twenty years.

The formula for computing NPP's old-age benefits (in yen) was given by

$$y = c \times n,$$

where c is a constant (whose last value was 800 before the 1986 reform), and

5. At the end of 1985, altogether, there were 25.1 million individuals in NPP, out of which 17.6 million were mandatory and 7.5 million voluntary participants. Since the number of dependent spouses of WAP workers is given at 10.9 million, three out of four housewives of WAP workers were participating in NPP on their own.

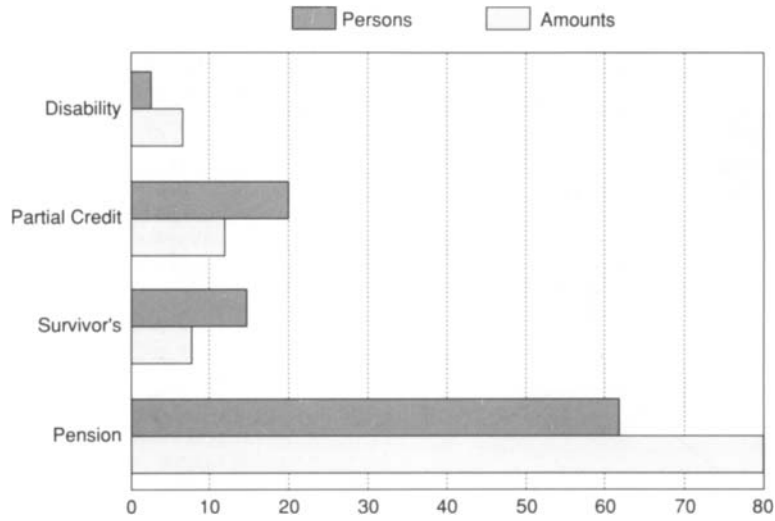


Fig. 6.6 Compositions (%) of NPP benefits (1990)

n is the number of months the individual had paid the NPP tax. In 1985, the average size of the existing NPP full old-age pension was ¥336,000.[6]

Retirement Benefits after the 1973 Welfare Reform

All these plans started as fully funded plans, for they were never intended to be tools for transferring income between generations until 1973, when a revolutionary change was brought into WAP in computing the benefits. Prior to the change, a worker's retirement benefit had been based on the mathematical average of his actual monthly payments during the insured period.

Since 1973, however, a worker's past wages are reevaluated once every five years by a set of multipliers that reflect the increases in the market wage that have occurred since the last evaluation. The government adopted this change to let a "model WAP retirement benefit" pay 60 percent of a worker's current monthly earnings. For NPP, in 1973, the government increased the constant c from ¥320 to ¥800 to provide a pension income of ¥50,000 per month for a couple who had been in the plan for twenty-five years.

Since the changes were retroactive, they affected all the existing claims as well as future ones. In just two years, the cost of WAP benefit payments tripled, while that of NPP quintupled. Later, because of all its revolutionary measures, 1973 came to be known as the first year of the welfare era. These were measures that would require higher rates of subsidization, but the government never followed through with sufficient quantities of new funds. It is possible that the

6. For those who were already 50 years old or older in 1961 and could not join NPP, the national government provides an old-age welfare pension (which should not be confused with the Welfare Annuity Plan below) when they reach 70. The sum is about ¥329,000 per year, and there are 2 million recipients.

Table 6.2 **NPP Tax (in yen)**

Date	Aged 20–34	Date	Uniform
1961, Apr.	100	1979, Apr.	3,300
1967, Jan.	200	1980, Apr.	3,770
1969, Jan.	250	1981, Apr.	4,500
		1982, Apr.	5,220
	Aged 35–49	1983, Apr.	5,830
1961, Apr.	150	1984, Apr.	6,220
1967, Jan.	250	1985, Apr.	6,740
1969, Jan.	300	1986, Apr.	7,100
		1987, Apr.	7,400
	Uniform	1988, Apr.	7,700
		1989, Apr.	8,000
1970, July	450	1990, Apr.	8,400
1972, July	550	1991, Apr.	9,000
1974, Jan.	900	1992, Apr.	9,700
1975, Jan.	1,100		
1976, Apr.	1,400		
1977, Apr.	2,200		
1978, Apr.	2,730		

fiscal crunch after the first oil shock prevented the government from doing so. But it is more likely that the government never had a clear idea of what it was getting into. The ideas were politically very popular, and the ruling party had to grab them to stay in power.

6.2.2 The NPP Crisis and the National Fiscal Crisis

The first program to feel the pinch was the NPP, which had two to three times as many recipients for each taxpayer as WAP did (fig. 6.7). Unlike WAP, NPP did not have much time to accumulate substantial financial assets, and, as a result, NPP taxes had to be raised ten times between 1975 and 1983, to more than tenfold the original level, or from ¥450 to ¥5,220 per month (table 6.2). The government subsidy had also grown from ¥213 billion in 1975 to ¥790 billion in 1982, but it was still too little. Moreover, in 1983, in view of its own fiscal crisis, the government declared that it must postpone its NPP subsidy payments for the following six years.[7]

It was also clear that rapid increases in insurance fees were eroding the NPP's revenue base very fast and that, before too long, the government would have to start contributing substantially more to keep the plan solvent. But, at that time, it did not even have enough money to pay for the current commitment.

7. One can see how things were getting out of hand in the following episode: in 1976, in an attempt to increase NPP's cash flow, the government changed the subsidy scheme from half the NPP tax revenue to one-third of the cost of NPP benefit payments. In this year, the cost of NPP benefits increased by more than 50 percent, owing to inflation.

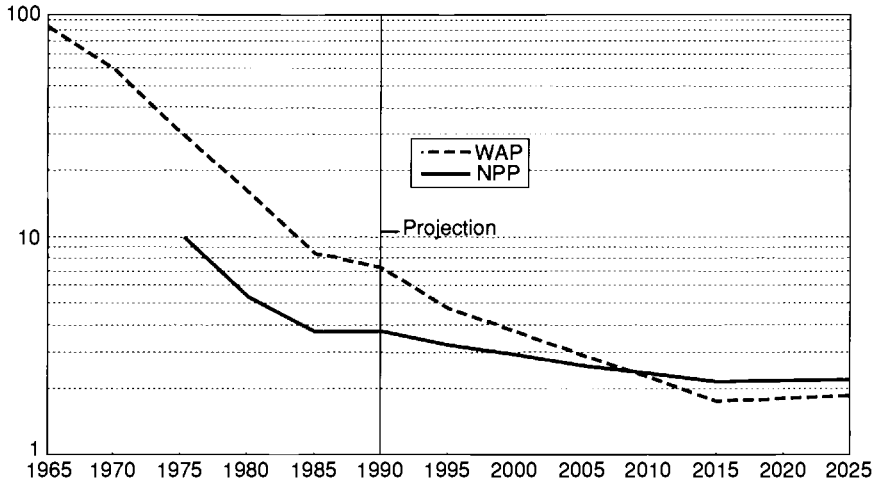


Fig. 6.7 JCER projections of the numbers of participants per full-benefit recipient

Compared with the situation at NPP, things were not nearly as critical at WAP, but just as serious. At the present moment, WAP does not have a cash-flow problem, and, in fact, it will be accumulating considerable surplus cash for at least another ten years. Yet, by the early 1980s, the government began to admit openly that the measures adopted in 1973 left a monstrous structure that may require a 40 percent payroll tax rate in the third decade of the twenty-first century. The government, which had to contribute 20 percent of the cost of WAP benefits, saw its subsidy payment jump from ¥38 billion in 1972 to ¥124 billion in 1974 and then to ¥595 billion in 1983. In 1986, it would have been ¥1.2 trillion had the government not postponed paying a quarter of it because of the fiscal crisis.

6.2.3 The 1986 Pension Reforms

NPP Reforms

The government solved the short-run problem in the NPP by infusing surplus funds from WAP. It replaced what used to be called WAP's *flat benefit* by NPP benefits. Formally, NPP's coverage was extended to those who had been covered by WAP (or MAA's annuity plans). In addition, housewives of employed workers are awarded automatic independent insurance coverage by NPP. With these changes, a new name was given to the NPP benefit, and it is now called the *basic old-age pension benefit.*

In exchange for this extended coverage, the WAP (and MAAs) is now asked to bear a part of the cost of the basic old-age pension benefits net of government subsidies equal to WAP's share of the number of all (employed and self-

employed) workers and their dependent spouses, under the new NPP scheme. Currently, this share is about 70 percent. The resulting net annual infusion of WAP funds into NPP is currently more than ¥1 trillion, about the size of total NPP tax revenues, or over 10 percent of WAP tax revenues. This will stabilize NPP taxes for the next decade or so, at the cost of depleting WAP's funds.

To curb the expansion of future basic old-age pension benefits taxes for the full 480 months, the annual benefit would be ¥626,500 instead of ¥950,000, as before. This change will be phased in gradually over the fifteen-year period beginning in 1992.[8]

WAP Reform

One of the most important ingredients of the 1986 reform was the cut in the "proportional part" of the WAP benefit. Namely, the value of the constant b in the benefit equation will decrease from 10/1,000 to 7.5/1,000 over twenty years, by approximately 0.125/1,000 for every birth year between 1927 and 1946.

On the other hand, the reform that transferred WAP's flat benefit to the NPP seemed to be neutral with respect to the value of the retirement benefit received by a married WAP worker. The reform converted one WAP flat benefit into two NPP pensions, that is, one for the WAP worker himself and the other for his dependent wife. Even in monetary terms, this seemed to be true; the flat part in the old WAP added ¥2,472 for every extra month, while the new basic pension will (in fifteen years) add only ¥1,298 for every extra month.

In many respects, however, this change implied very substantial cuts in the value of WAP benefits. Most affected are unmarried workers or female workers without dependent spouses, who will lose almost 50 percent of the original WAP flat benefit. For married workers, WAP's dependent allowances, which used to add ¥180,000 for a dependent wife, will be phased out after the wife reaches 65. Moreover, dependent wives of WAP workers who participated in the NPP voluntarily will not receive an extra benefit as they had expected, other than their own basic old-age pension, while those housewives who had not participated in the NPP voluntarily will not be given credit for their husbands' WAP coverage prior to 1986.

Reduction in Government Subsidies

After this reform, the government discontinued its subsidy to WAP of 20 percent of WAP benefits. Instead, it now contributes a third of the cost of the basic old-age pension benefits, as it did for NPP. This change in the subsidy

8. More precisely, the new NPP benefit formula after the 1986 reform is given by

$$y = 626{,}500 \times n/v,$$

where n is the number of months one had paid NPP taxes, and v is the policy parameter standing for the maximum number of covered months. For those born in 1926, v is set at 300; for every year after that 12 will be added, until it reaches 480 for those born in 1941 and after.

scheme will save the government a considerable amount of money since an average WAP benefit claim (¥1,436,000) was 4.5 times as large as an NPP claim (¥336,000). By converting one WAP subsidy into two NPP subsidies (namely, for a husband and wife), the government can save a quarter of an NPP claim, or about ¥80,000, since

$$0.2 \times 4.5 - 0.333 \times 2 \times 1 = 0.23.$$

The change also saves the government money because the new subsidy starts at age 65, which is five years later than the start of WAP benefits. In the 1986 reform, however, the government could not postpone the start of the WAP benefit itself from age 60 to age 65. For the moment, a retiree between the ages 60 and 65 is receiving essentially the same amount as a person receiving a basic pension benefit with dependent allowances and a WAP retirement benefit as a special WAP benefit entirely at the expense of WAP. The government wanted to phase this benefit out by the year 2022, but the WAP reform bill submitted to the Diet in 1989 met strong political opposition and was passed without this part.

6.3 What Our (Children's) Future Will Look Like

In general, it is difficult to predict what it will be like even ten years from now. Consider the case of medical costs as a good example. First of all, medical technology can change. So much medical research is carried out all over the world, and researchers may very well change the fundamental medical technologies and the cost structure of health care in the near future. Second, institutions can change. The medical industry is far from perfectly competitive. It has a very strong professional union and an equally determined government. Almost all its demand is derived from public health insurance plans. Its supply is rigidly regulated by government at all levels. Any substantial change in these institutional factors is bound to have its effect on future medical costs.

Rather than trying to make an uneducated guess regarding how these factors change over time, I assume that these factors remain constant. After all, what we want to find out is not so much the absolute size of the medical cost for the elderly in years to come as its size relative to what the working generation will be earning then.

6.3.1 The Population Allocation Model

As a first approximation to our future, I project it directly on the economic and sociological structure of our present society. Consider a world where, for example, a future 40-year-old man earns exactly the same amount of money as today's 40-year-old man. In that world, he marries at the same age and has just as many children. His family gets ill just as often, his doctor is just as expensive, and his wife even goes back to work just as often. When his children finish school, they will start working too, just as today's youngsters do. His mortality rate at each age is exactly the same as that of his present counterparts.

Demographic Disaggregation

Since our concern here is aging and its social costs, it is natural to disaggregate our population by biological ages. In many aspects, however, there seem to be substantial differences between the two sexes, and we have to differentiate our population by sex, too. Ideally, we would like to disaggregate our population both by age and by sex. I express this disaggregation by *sex/age.*

Unfortunately, most vital and social statistics are available only for age groups rather than for each age. For these variables, I use almost exclusively the following demographic groupings for each sex: 0–4, 5–9, 10–14, 15–19, 20–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, 65–69, 70–74, 75–79, 80–84, 85–89, 90+. To save space, I use *sex/age-group* to express this disaggregation.

The Demographic Structure

I start from the sex/age profile of the 1986 population. Each year, I take account of how many babies of each sex are born and how many men and women die at each age and then construct a new age profile for the next year.

The number of new births is obtained by multiplying the female population in each of the following reproductive age groups by its rate of reproduction, taken from the *1989 Vital Statistics.* According to it, an adult female gives birth to 1.52 children in her life at the rate of 0.047 per year between the ages of 20 and 24, 0.146 between 25 and 29, 0.091 between 30 and 34, and 0.019 between 35 and 39.

The number of deaths in each sex/age group is obtained by multiplying each sex/age-group population by its mortality rate, taken from the *1986 Vital Statistics* (fig. 6.8).

The Employment Structure

Every year, the Ministry of Welfare publishes the *State of Affairs of Workers Covered by Health Insurance,* which reports a number of sample statistics on the workers covered by HIMA and HIMG. Contained in this report are the number of workers and their average monthly pay in each sex/age group. From the 1988 sample figures for each system, I obtained estimates of the number of workers of each sex/age group in each system.

As for the workers in the public sector who are covered by MAAs, there is no consolidated report. I had to rely on the *Labor Force Survey* compiled by the Management and Coordination Agency for the 1986 sex/age-group decomposition of these workers.

Inflow. I compute the number of workers coming into the system each year for two entry-level age groups, namely, ages 15–19 and 20–24. I assume that the numbers of people entering the system are fixed proportions of the general population of these two sex/age groups given in table 6.3. As for the new workers in the public sector, I assume that the absolute numbers are fixed for each sex/age group rather than their shares of the population.

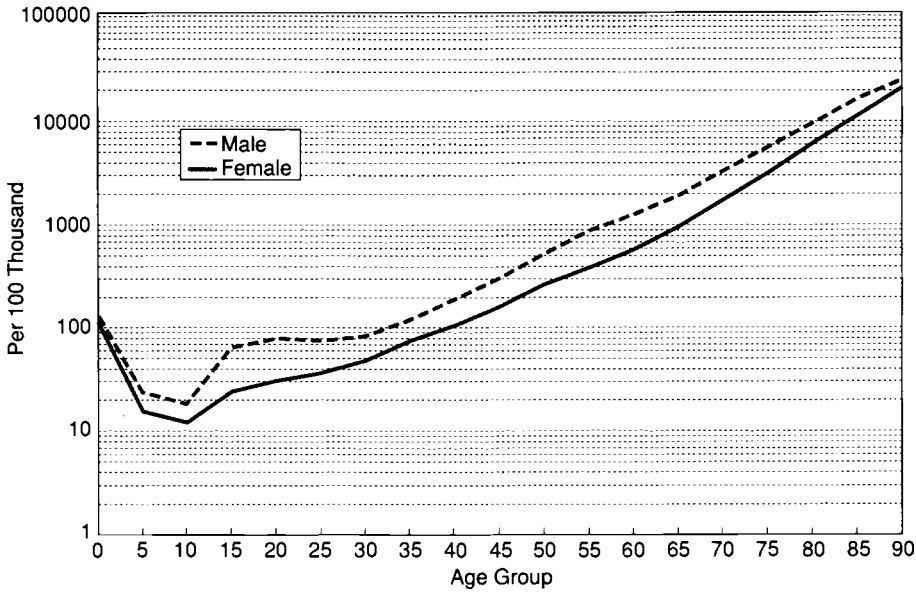


Fig. 6.8 Mortality rates for Japanese population (1989)

Table 6.3 Fraction of the Population Working in HIMA and HIMG and the Number of Workers in MAA

Age Group and Sex	HIMA (%)	HIMG (%)	MAA (No.)
15–19:			
Male	4	5	59,000
Female	5	5	3,000
20–24:			
Male	23	22	317,000
Female	26	25	180,000

Outflow. I then subtract the number of workers leaving the system by multiplying the "net dropout rate" of each sex/age group by the stock of workers in that group. This rate can be loosely interpreted as the probability of a worker of a given sex/age dropping out of the system during the next year. To obtain these rates, first I observe the proportional rate of change in the number of workers moving up from one age group to the next older one in five years, adjusted for the change in the system's overall employment level during the period.

I have computed two such sets over two consecutive five-year periods, one from 1975 to 1980, and another from 1980 to 1985, and averaged them. Such important behaviors as changing jobs, temporarily retiring for family reasons, or permanently retiring due to old age are presumably reflected in these figures. I reproduce the rates that I used for HIMA in figure 6.9.

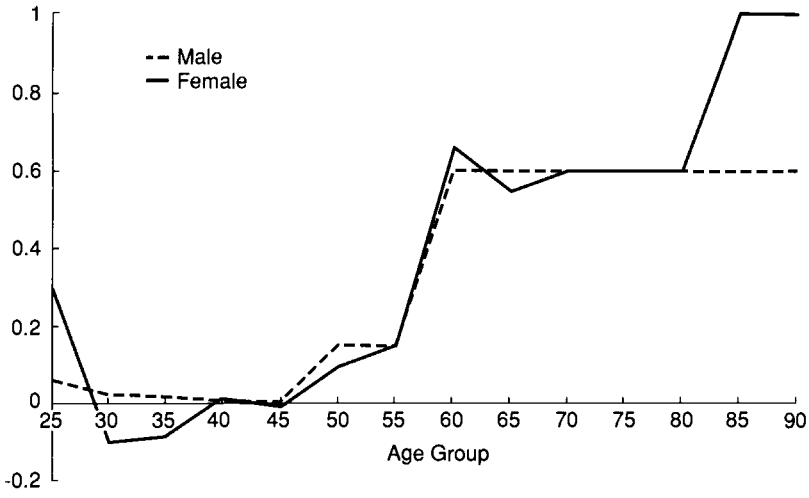


Fig. 6.9 Net dropout rates (HIMA)

Dependents in Each System

The Ministry of Welfare reports cited above also contain the sex/age-group relations between workers and their dependents, which can be transformed into the following matrix: the (i, j)th element of this matrix shows what percentage of dependents in the jth age group are supported by 1 percent of the workers in the ith age group who are in a particular program. Multiplying the ith row by the share of this program in the number of workers in the ith age group of any year and summing over the rows will give the age-group profile of the dependents supported by the workers of the system.

Since there is a matrix for each of the four possible combinations of workers' and dependents' sexes (i.e., male/female supported by male/female), this procedure must be repeated four times each year. I then add male dependents supported by male workers to those supported by female workers and obtain the age-group profile of male dependents. Likewise, by adding female dependents supported by male workers to those supported by female workers, I obtain the age-group profile of female dependents.

For public-sector employees, I adjusted the matrices of HIMA by a common factor to obtain the same total number of dependents for 1986. The same procedure as above is then followed for each year.

6.3.2 Medical Costs

Medical Costs of Each Sex/Age Group

Since our population allocation model differentiates male/female and worker/dependent for each age group, ideally one would like to have medical information on these four different groups, as is the case for HIMA. For the rest, however, I had to do with the available cost figures; for example, for

HIMG cost computations, I use a common set of costs for male and female workers in the same age group and another set for male and female dependents in the same age group.

Since no consolidated benefit report is published for MAAI, I averaged HIMA and HIMG rates for each sex/age group and adjusted them by a common factor until I obtained the total medical expenditure on MAAI individuals for 1989.

Medical Cost Allocation Models

According to the structure of each health insurance plan outlined at the beginning of this paper, the medical cost allocation model divides the (estimated future) medical costs of the covered individuals of a given system into four parts: the part that patients pay, the part that governments pay, the part that other systems pay, and the part that the system itself pays. Each system then adds all the costs charged to it and subtracts the government subsidies to it. The difference between the two will have to be raised by insurance taxes. The model also computes the payroll of the covered workers, and the tax rate will be determined. For the NHI system, the per capita premium is computed.

6.3.3 The Cost of Public Retirement Benefits

The Welfare Annuity Plan (WAP) Model

Existing benefits. The Social Insurance Agency's 1989 *Annual Report* provides a sex/age breakdown of the retired workers who are receiving WAP benefits as well as the distribution of the number of covered years among old-age annuity recipients of each sex. From these two sets of statistics, I estimated the average size of existing old-age annuities for each sex/age group.

The number of recipients is then reduced each year by the expected number of deaths in each sex/age group. Each deceased male recipient is replaced by five-sevenths of a female spouse, who then receives three-quarters of the original annuity as a survivor's benefit until her death. I ignored the possibility of a male spouse claiming a survivor's benefit. The *Annual Report* cited above, however, does not allow one to construct an age-group profile of survivor's benefit recipients, and I simply depreciate the total cost of the existing survivor's benefit at the rate of 14.3 percent per year.

New benefits. One-fifth of the HIMA/HIMG workers who were in the 55–59 and 60–64 age groups during the previous period and who drop out of HIMA/HIMG employment in the current period are counted as recipients of the WAP special benefit during that period. In the next period, they will move to regular WAP benefits with basic old-age pensions. Older workers who drop out of employment during the period are added directly to the group receiving regular WAP benefits with basic old-age pensions.

To estimate the future WAP benefits for the new recipients, it is necessary to estimate their average number of years covered by WAP and their lifetime average wages. As to the number of covered years, I projected that it will increase from 32.5 years in 1989 to 34.9 years in 2019 for new male recipients and from 26.5 years in 1989 to 30.3 years in 2019 for new female recipients. After 2019, the length of coverage will increase only very slightly for both sexes. At this moment, however, this projection is based on an ad hoc computation carried outside the simulation model, using the cross-distribution tables of number of covered months and age/sex of WAP workers (contained in Department of Public Pensions [1986]) and their assumed differential entry/quit probabilities. The lifetime wage profile is approximated by starting from the average wage for 55–59 age group and going down the age structure until a sufficient number of years are obtained to match the number of covered years.

The NPP Model

NPP participants' sex/age-group structure. The relationship between NPP and NHI is far weaker than the relation between WAP and HIMA/HIMG because monthly NPP tax payments are handled by individual passbooks independently whereas WAP and HIMA/HIMG taxes are automatically withheld from workers' paychecks at the same time. Nevertheless, information about the NPP participants' sex/age structure is very scarce, and I have to rely on the NHI sex/age-group data.

According to my estimation of each sex, there are approximately 11 million individuals between the ages 20 and 59 who should be participating in NHI *and* NPP. Out of these individuals, from each sex, about 10 million participate in NHI and 9 million in NPP. Since the coverage of NPP is essentially identical to that of NHI, and in the absence of direct information, in order to estimate the NPP sex/age-group structure one must rely on NHI sex/age-group data. But the NHI data contain workers who are "old boys" or "old girls" of HIMA/HIMG or their dependents who are in the RWMS. Since these people are unlikely to join NPP, I subtracted them from the NHI participants and multiplied the NHI data by the factor 0.9 to obtain the NPP sex/age structure for 1989.

NPP benefits: Existing NPP benefits. The 1989 *Annual Report* cited above gives the sex/age-group profile of NPP recipients and the size distribution of NPP benefits separately. I assume that all NPP benefits are identical regardless of age group in each sex and that the male recipient's benefit is fixed at ¥385,700 and the female recipient's benefit at ¥368,300. In each sex/age group, I then depreciate the total of these benefits each year by the mortality rate. The average size of current benefits suggests that the current NPP recipients had paid NPP taxes for only 55 percent of the months that they had been presumably covered, or for about twenty-two years of a forty-year base, which is not yet long enough to qualify for the pension without special provisions.

NPP benefits: Future NPP benefits. The surviving participants of the 1989 NPP sex/age-group structure who enter the 65–69 age group are counted as new recipients of the old-age benefit in this period. According to my projection, the fraction of the months that the new retirees will have paid the taxes will increase steadily over the next thirty years, but only to around 0.7, or to twenty-eight years, which will barely exceed the minimum twenty-five years required.

Compared with private annuity contracts, the NPP no longer looks attractive. Its annual costs now exceed ¥100,000, and, for each "paid" year, its annuity will increase by less than ¥16,000. Younger people can do far better in the private capital market. In fact, for the last two years, registered NPP participants have paid only a little more than 80 percent of the taxes due. In addition, as a result of repeated increases in NPP taxes, now there is a significant number of "poor" individuals who are exempt from NPP taxes. Their share of the population is about 15 percent.[9]

6.4 Simulation Results

6.4.1 Demographic Changes

In order to give an idea of the speed and the degree of aging in the Japanese economy, three sets of figures are produced. One set of figures (fig. 6.10) shows the 1986 distribution of population across sex/age groups and insurance systems. Another set (fig. 6.11) shows the situation early in the next century, just before the baby boomers begin to retire. The third set (fig. 6.12) shows the population in 2019 at its most aged state, when there will be almost as many women older than 60 as younger than 20. The distribution of the population over more aggregated groups is given in table 6.4 for these three years.

6.4.2 Medical Costs

Absorption of Medical Care

No less dramatic is the change in the absorption of medical care. Figure 6.13 shows the shares of the medical care resources absorbed by each age group (both sexes combined) in 1989, regardless of who paid the costs. The top of the hill appears to be around the 60–64 age group, but it is a low hill. The baby boom generation is in the 40–44 age group and causes no alarm at this stage. Things look a little serious in 2004, but still manageable (fig. 6.14). The baby boomers are in the 55–59 age group, and their costs are just starting to show. Things look extremely serious in 2024 (fig. 6.15), when the baby boomers

9. I assumed that the ratio of n to v in t years will be given by

$$p = 0.55 \times (30 - t)/30 + 0.7 \times t/30,$$

which I multiply by 625,000 by p to obtain the average NPP value.

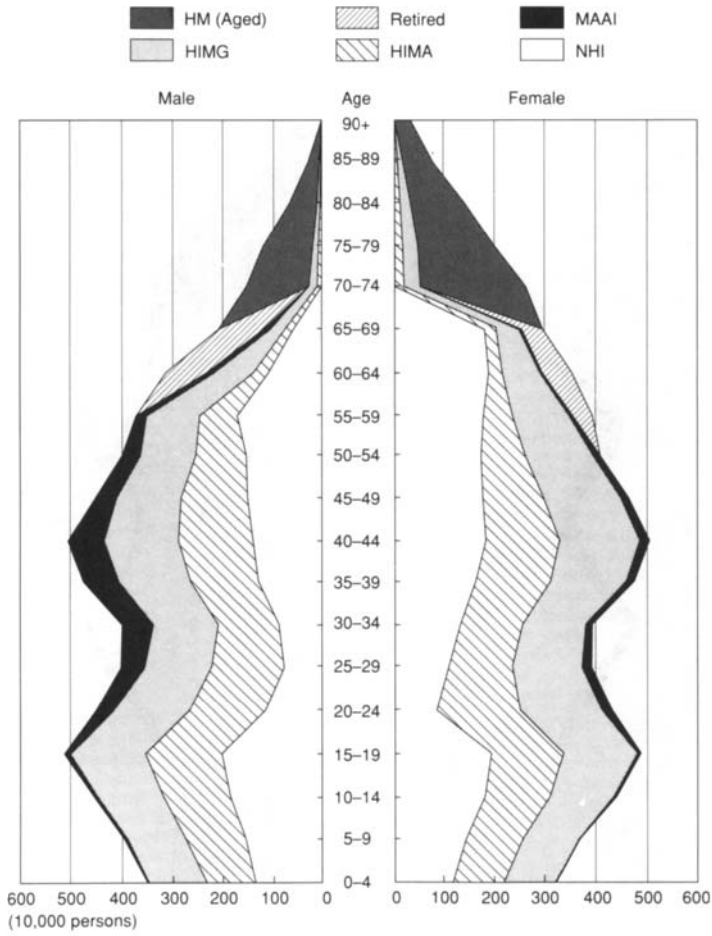


Fig. 6.10 Population pyramid and its distribution to health insurance programs (1989)

appear as a steep mountain in the 70–74 age group. In 2024, in fact, the retired collectively consume more medical care than the working generation and their children, compared to 43 percent in 1986.

Table 6.5 gives the medical costs for each super age group in these three years (age groupings here are more aggregated than the standard one.) Needless to say, they are expressed in 1989 prices. According to this table, in 2004, the national medical expenditure will be about 30 percent higher than in 1989, and, in 2024, it will be about 1.5 times the 1989 size.

Allocation of Medical Costs

Given the bulging medical costs of the aged in coming years, how are they going to be paid if we maintain the present system of public medical insur-

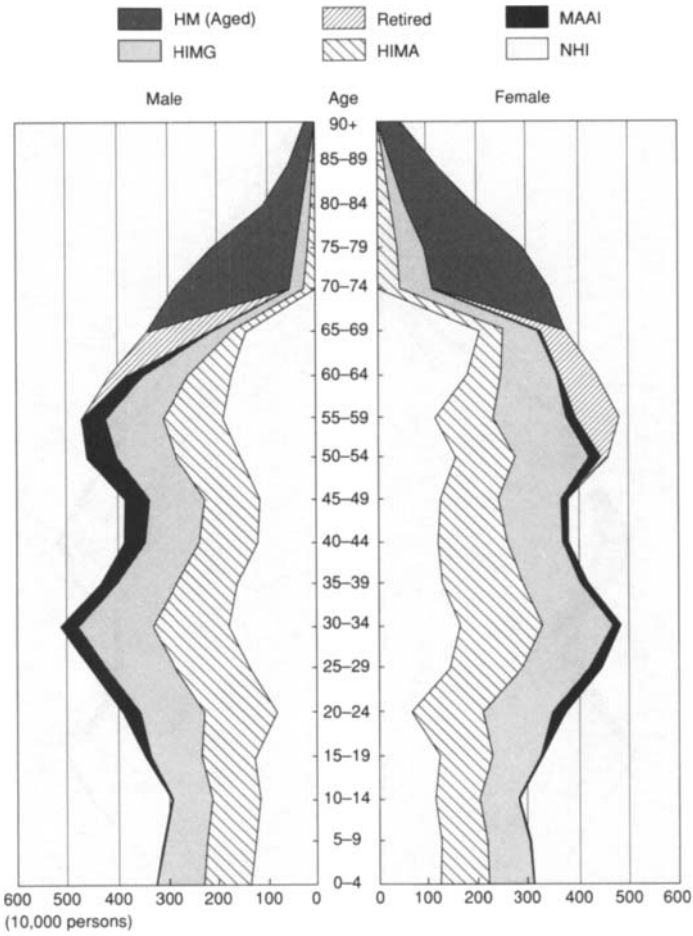


Fig. 6.11 Population pyramid and its distribution to health insurance programs (2004)

ance? I distinguish three different sources of payment: (i) government subsidies, (ii) patients' direct payments, and (iii) insurance taxes. Figure 6.16 shows the allocation of the national medical costs to these three sources under the present system. In 1989, about 25 percent of all medical costs are paid by governments from general tax revenue funds, and the share will increase by about 5 percentage points by 2024.

Insurance taxes paid slightly less than 60 percent in 1989, and the share will decrease by about 5 percentage points by 2024. Nevertheless, because the increase in the national medical expenditure will be accompanied by a decline in employment, employee insurance tax rates will have to be about 1.5 times the current levels by 2024. Close to 50 percent of the taxes imposed on the

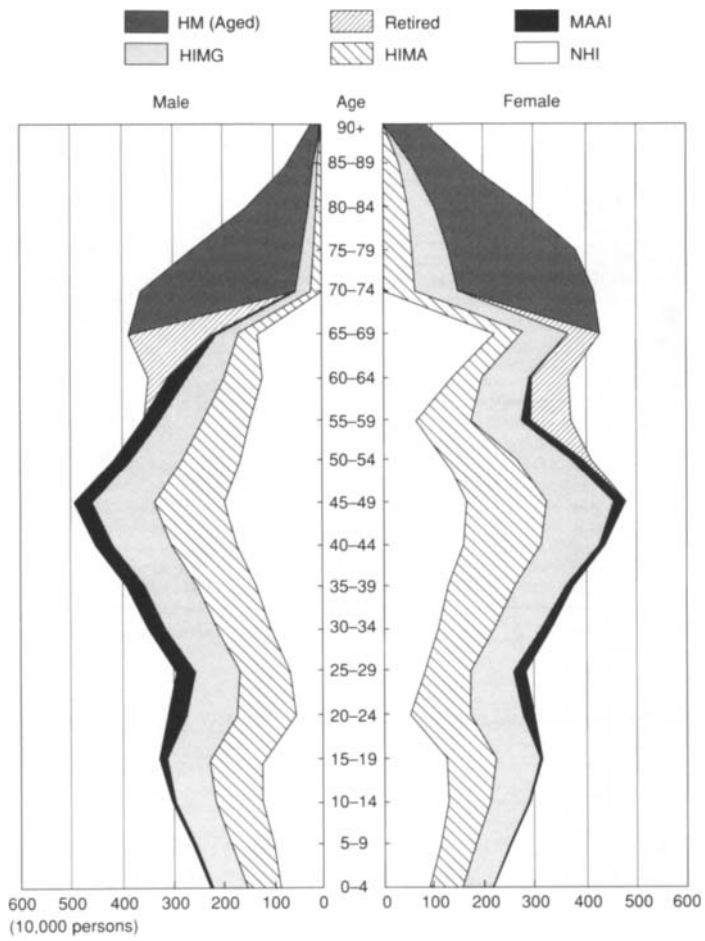


Fig. 6.12 Population pyramid and its distribution to health insurance programs (2019)

working generation will go to support HMSA and RWMS as a part of financing the medical costs of the aged.

The Effects of the 1983–84 Reforms

The effects of HMSA (and RWMS to a lesser degree) can be clearly seen by comparing figure 6.16 with figure 6.17, which represents the cost allocation under the old system. Without the reform, in 1986, government subsidies would have paid about ¥2.5 trillion more, or almost 15 percentage points more in terms of relative share. In 2024, the amount of money charged to the government would have been 60 percent more than under the present system, or close to 50 percent of all medical costs of that year. The cost charged to insurance

Table 6.4 **JCER Population Projection, 1991 (in thousands of persons)**

	Age					
Year	0–19	20–39	40–59	60–79	80+	Total
Male:						
1989	16,964	17,326	17,341	7,891	966	60,488
	(0.138)	(0.141)	(0.141)	(0.064)	(0.008)	(0.491)
2004	13,621	17,902	17,184	12,378	1,502	62,587
	(0.107)	(0.141)	(0.135)	(0.097)	(0.012)	(0.491)
2019	12,399	13,772	17,358	13,701	2,552	59,782
	(0.102)	(0.113)	(0.142)	(0.112)	(0.021)	(0.49)
	Age					
Female:						
1989	16,130	16,914	17,601	10,207	1,764	62,616
	(0.131)	(0.137)	(0.143)	(0.083)	(0.014)	(0.509)
2004	12,904	17,165	17,254	14,337	3,127	64,787
	(0.101)	(0.135)	(0.135)	(0.113)	(0.025)	(0.509)
2019	11,742	13,159	17,021	15,787	4,456	62,165
	(0.096)	(0.108)	(0.14)	(0.129)	(0.037)	(0.51)

Note: Numbers in parentheses are the proportion of each age group/sex in total national population.

taxes, on the other hand, would have been relatively stable under the old system.

6.4.3 Public Pension Costs

Using simulation models as described in Ogura (1993), I have computed the costs of NPP benefits and WAP benefits as well as MAA retirement benefits. NPP participants are computed as a fixed proportion of NHI participants, while participants in HIMA and HIMG are collectively regarded as WAP participants, even though some may not qualify for the pension benefits in both programs owing to the extraordinarily long vesting period of twenty-five years. MAAs provide both health insurance and retirement benefits for all public-sector employees and hence are treated as identical in terms of participants.

Cost of NPP

In 1989, the total cost of NPP benefits was ¥3.1 trillion, of which the old-age pension benefits accounted for ¥2.5 trillion. According to the simulation results, the total cost of NPP benefits will go up to ¥5.7 trillion in 2019 and will come down slowly thereafter. During the same period, the number of NPP pension benefit recipients will increase from 7.6 to 11.4 million. These numbers do not include the WAP workers and their dependent spouses, to whom the 1986 reform extended mandatory coverage. The voluntary participants prior to 1989 are assumed to receive their basic old-age pension benefits from WAP.

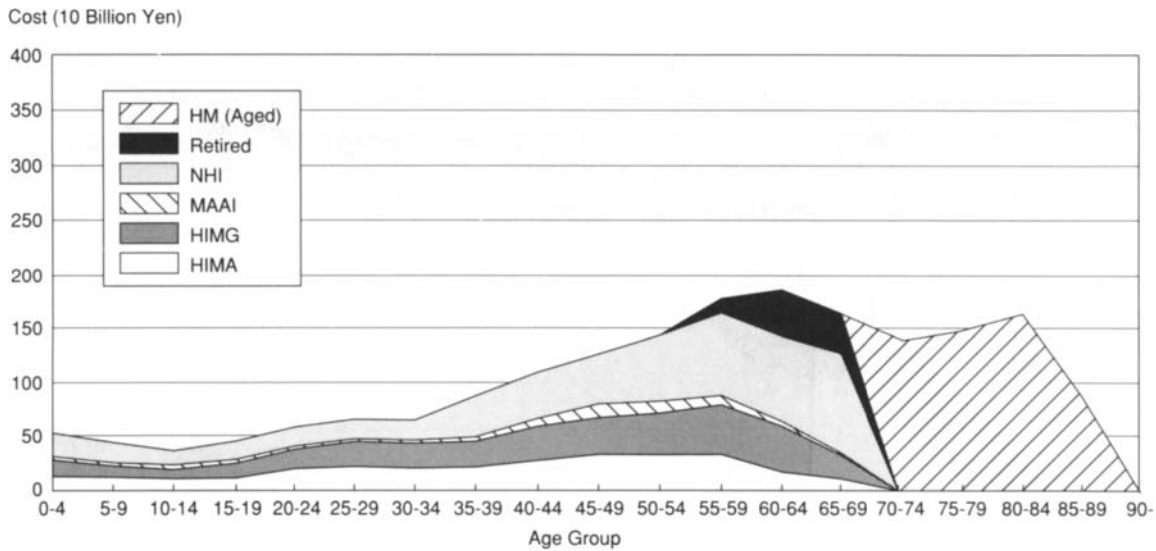


Fig. 6.13 Medical costs in 1989

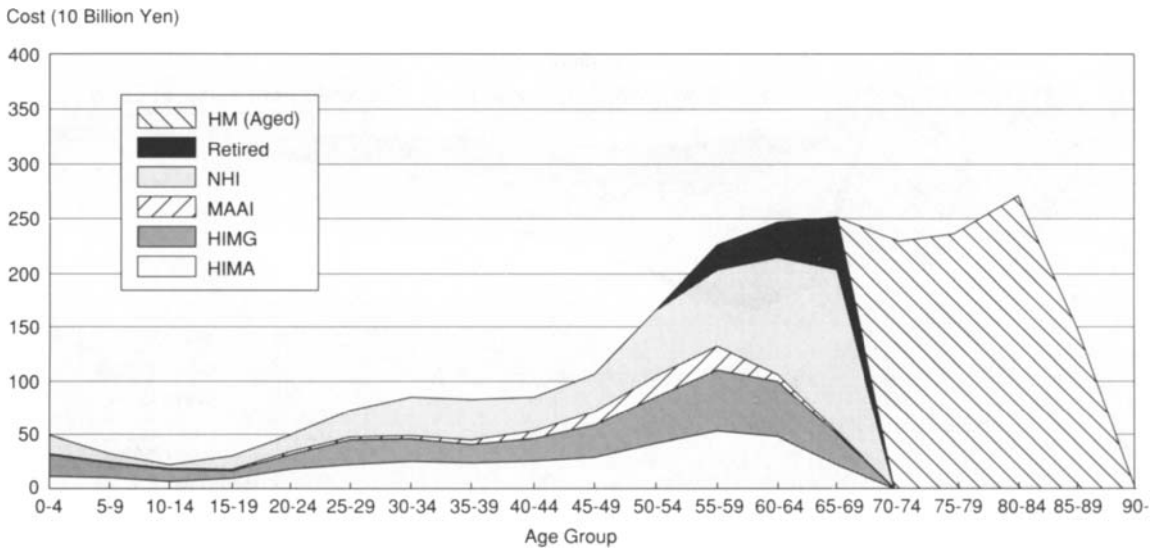


Fig. 6.14 Medical costs in 2004

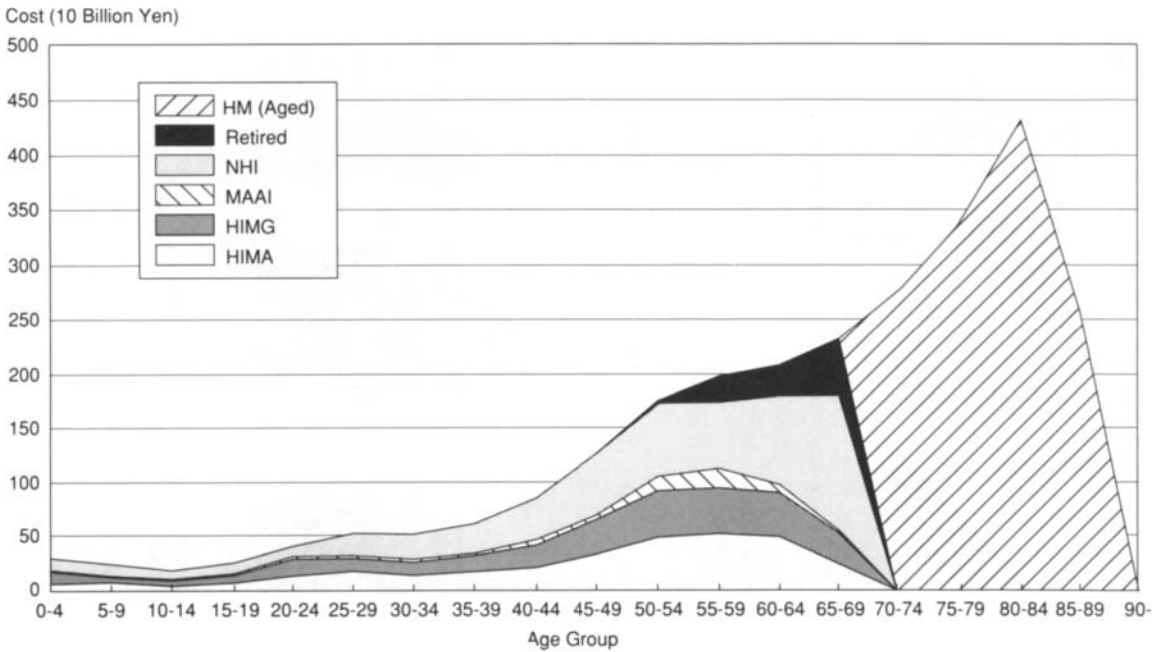


Fig. 6.15 Medical costs in 2024

Table 6.5 Annual Medical Cost Projection (in 1989 billion yen)

	Age					
Year	0–19	20–39	40–59	60–79	80+	Total
1989	145	234	489	623	257	1,749
	(0.08)	(0.13)	(0.28)	(0.36)	(0.15)	(1.00)
2004	111	252	508	956	450	2,277
	(0.05)	(0.11)	(0.22)	(0.42)	(0.20)	(1.00)
2024	83	175	506	1,051	726	2,541
	(0.03)	(0.07)	(0.20)	(0.41)	(0.29)	(1.00)

Note: Numbers in parentheses are the proportion of each age group in national health care costs.

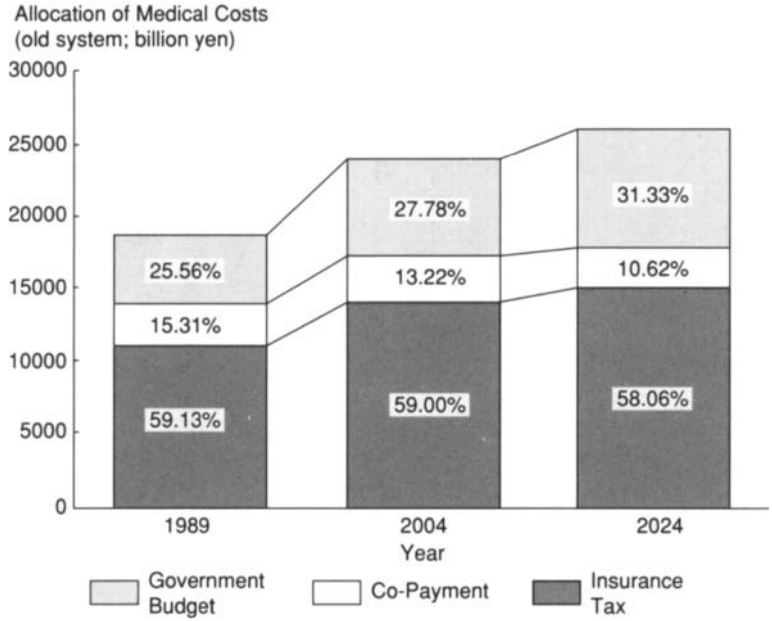


Fig. 6.16 Allocation of medical costs

Costs of the WAP and MAA

In 1989, the total cost of WAP benefits was ¥10 trillion, including the basic old-age annuity. It should go up to ¥21 trillion, or more than twice the present cost, in the second decade of the twenty-first century. Of this amount, about a third (¥7 trillion) will be for the basic old-age annuity. The increase in cost will be primarily due to the increase in the number of full benefit recipients from 7 million to over 14 million individuals during this period.

In 1989, MAA paid almost ¥7 trillion in retirement benefits. The cost will increase to ¥9 trillion at the end of this century, but it will start declining there-

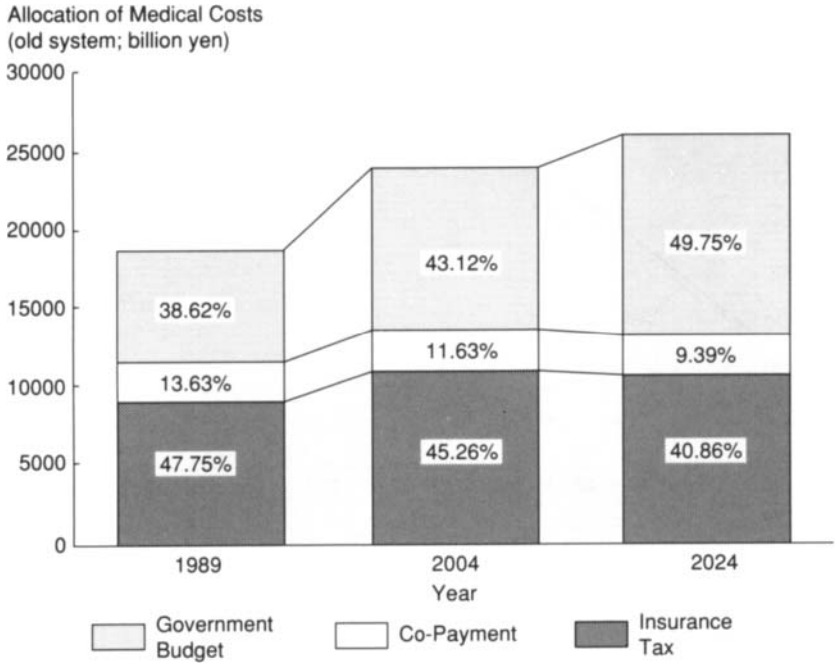


Fig. 6.17 Allocation of medical costs (old system)

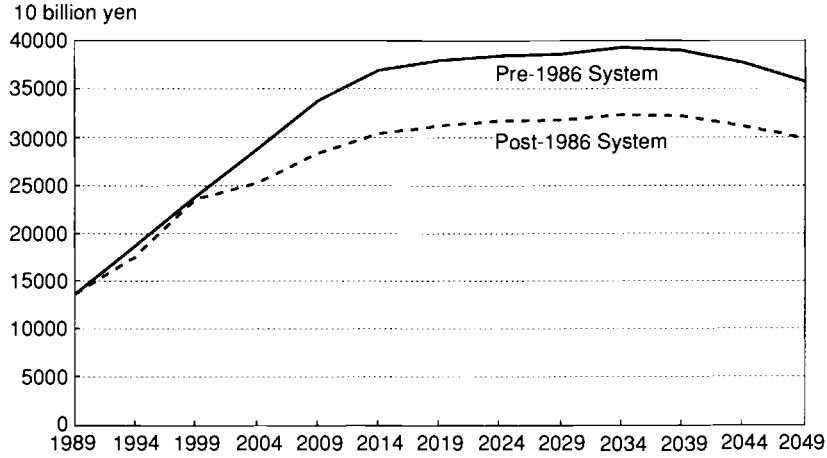
after to less than half the present level in the middle of the next century, if the current low level of hiring persists in the public sector. Currently, MAA is in the worst shape of all the public pension programs for employed workers. The present level of benefits is already more than 40 percent of the total payroll of the workers in the public sector.

Effects of the 1986 Reforms

I also computed how much the benefits would cost in 2021 had we kept the system prior to the 1986 reform. The combined costs of WAP and MAA benefits would reach ¥38 trillion instead of ¥31 trillion in 2034 (fig. 18*a*), and the cost of NPP benefits would reach ¥8.2 trillion instead of ¥5.7 trillion in 2019 (fig. 6.18*b*). Therefore, without the 1986 reform, in 2019, the total cost of NPP, WAP, and MAA would be ¥46 trillion instead of ¥36.7 trillion.

Thus, the 1986 reform will reduce the combined costs by more than 30 percent. As was pointed out earlier, the savings in NPP costs come from both the cut in the unit NPP benefit and the de facto cancellation of 7 million voluntary participants' claims that will be "paid" by WAP. The savings in the WAP cost come from the one-quarter cut in the "proportional" benefit and the implicit cuts in the "flat" benefits.

A



B

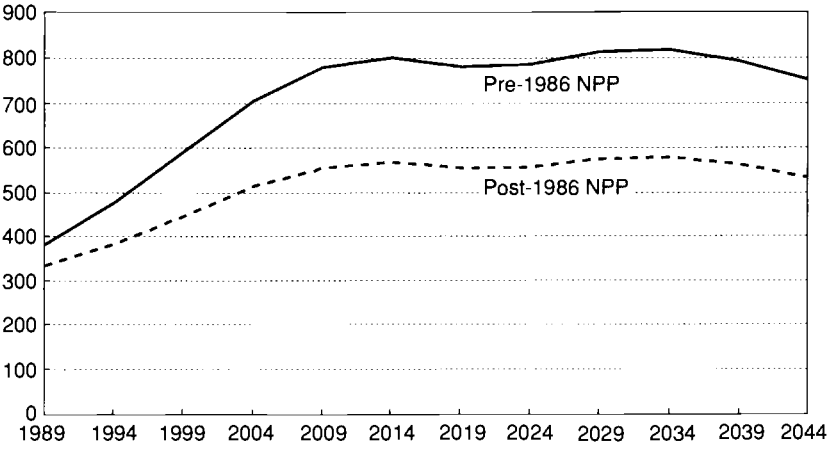


Fig. 6.18 (A) Comparison of pre-1986 and post-1986 systems: WAP and MAA integrated costs. (B) Comparison of pre-1986 and post-1986 systems: NPP costs

6.5 Concluding Remarks

6.5.1 Magnitude of the Costs

In fiscal year 1986, the Japanese national medical expenditure was estimated at ¥17 trillion, or 6.4 percent of the national income that year. Of this amount, only ¥2 trillion was paid directly out of patients' pockets, and the rest paid out of government budgets and by public medical insurance plans. In the same year, ¥16.6 trillion, or 6.3 percent of national income, was paid out as benefits of public annuity insurances, of which WAP and NPP together accounted for two-thirds.

Population aging will increase these costs over the next several decades. The peak will come around the year 2021, when the national medical expenditure will be close to 50 percent higher, at around ¥25 trillion. At the same time, the costs of the benefits of all public annuity plans may well exceed ¥35 trillion if we maintain the current system of starting the retirement benefits at age 60 for employees. Figure 6.19 shows estimates of future combined costs of all public pension costs and national medical costs, as well as the costs of all public pension costs alone, in the first half of the next century. According to this figure, the combined costs will increase from ¥40 trillion in 1994 to ¥60 trillion in the second decade of the next century (both figures are given in 1989 yen). While these costs increase, the size of our labor force will shrink, along with the tax base of our social insurance in real terms, as can be seen clearly from the estimates of the employees' payroll in the same figure. Thus, medical costs and retirement benefit costs will either absorb or transfer about one-quarter of national income, or twice their current share.

6.5.2 Reforms in the 1980s

If this simulation model is correct, the 1986 pension reform has reduced NPP's long-run cost by ¥2.5 trillion and WAP's long-run cost by ¥7 trillion. This amounts to a cut of 30 percent. It also reduced the government's subsidy to WAP. On the other hand, the 1984–85 medical insurance reforms simply redistributed the medical costs of the old from the government budgets to employee insurance plans.

These reforms have left us a fiscal structure that depends too heavily on social insurance taxes. In 1986, the revenue from social insurance taxes reached ¥28.7 trillion, compared with ¥42.1 trillion of national general tax revenue. The share of the social insurance taxes will keep on ballooning as the expanding costs of public annuity plans are scheduled to be financed mainly by annuity insurance taxes, and the combined social insurance tax rates of future working generations will easily be in excess of 50 percent. In figure 6.20, I computed the necessary payroll tax rate to maintain health insurance programs and keep all public pension programs on a pay-as-you-go basis for all employees including those in the public sector. By 2019, the combined tax

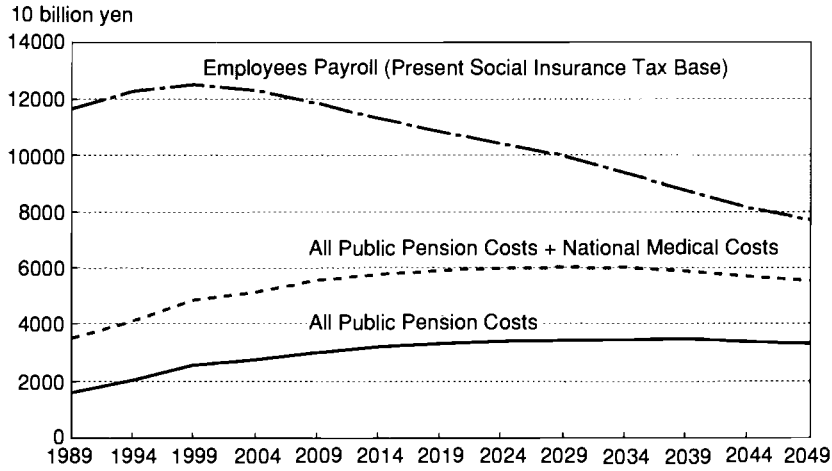


Fig. 6.19 Effects of aging on Japanese public pension costs and medical costs (JCER projection)

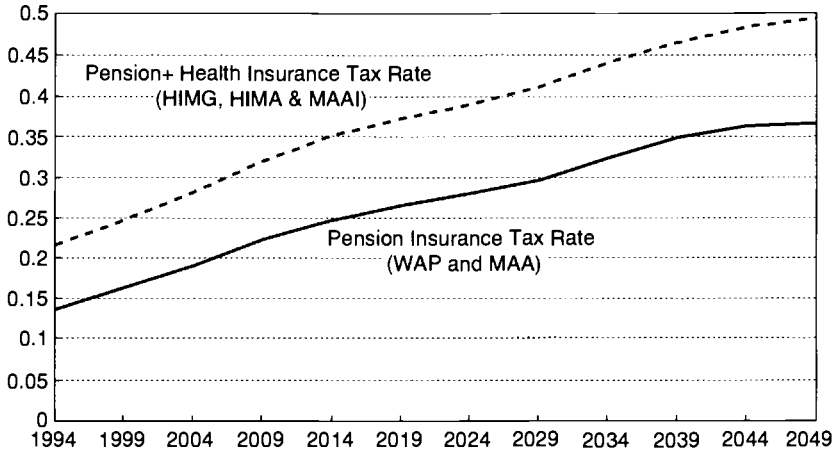


Fig. 6.20 JCER projection of combined health and pension insurance tax rates

rate will be close to 40 percent, or double the current rate, and still increasing for another twenty years.

6.5.3 Future Reforms

There are two problems that need to be resolved in these programs. One is the size of the burden of these programs itself. It still is too much for future working generations. In order to provide economic incentives for the supply of labor and capital, it would be wise to trim the costs of these programs further.

In fact, these programs still contain substantial fat. When being old was synonymous with being poor, providing free medical care and generous public annuity benefits might have been a desirable policy for achieving distributional justice. But now there are rich old people and poor old people. One can say that the present benefit structure of these programs does not try to direct benefits toward relatively needy old people. One may even say that the present public annuity provides very regressive benefits; rich old people receive more benefits because of longer coverage and better pay. An attempt must be made to relax the very stringent vesting period and make the benefit schedule a more progressive one, as is the case in the United States.

In the working generation, there are rich people and poor people, and, as a tax borne by them, a social insurance tax is far from ideal. Typically, it is a linear tax on labor income between the lower and the upper limits. Compared with the personal income tax, it is far less progressive, and its tax base is much narrower, as the projected future tax rate shows. For low-income households, it provides little or no exemption but imposes a fixed-sum tax. For high-income households, it becomes another fixed-sum tax. In these regions, it is regressive. Income transfer between generations has become an essential part of any of these social insurance programs. Financing them primarily by such imperfect taxes is a very questionable proposition.

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