In the case of the EPI, a plausible way is to construct a mean earnings history for the 1926 cohort and calculate the benefit based on it with the benefit formula. Due to lack of lack of individual histories of wage earnings in the past, however, we cannot directly apply this method. Instead, we use the following approach, which is indirect and but probably most plausible given limited information available from the published data:

(1) First, we collect the mean value of the initially claimed EPI benefit at each age from each year's Annual Report of the Social Insurance Agency. It reflects both the benefit formula which was effective in each year and the mean earnings histories of the new beneficiaries.

(2) Second, we get the mean value of the career average monthly income (CAMI) of the EPI beneficiaries who initially claim the benefit from the Annual Report. It is reasonable to assume that the mean CAMI reflects the mean earnings histories of the initial beneficiaries. Unfortunately, the Report reports only the average value of the CAMI across initially claiming ages in each year. We suppose for simplicity that the reported mean CAMI roughly corresponds to the mean earnings history of the cohort which was aged 60 in the survey year, since the timing of initially claimed benefits heavily concentrates on that age in the EPI.[5]

(3) Third, for each cohort we calculate the ratio of the initially claimed benefit at each age to the average CAMI (which is obtained in (2)), and interpret a set of these ratios as the EPI benefit "law" which was applied to that cohort.[6]

(4) Finally, we put the 1926 cohort in each single cohort and compute its simulated benefit at each age by multiplying the average CAMI of the 1926 cohort by the benefit/CAMI ratio of each single cohort. We can roughly interpret this procedure as applying the EPI benefit law

[5] For example, if the average CAMI was 3,200 euros across ages of initial benefit claim in 1990, we interpret this amount as the average CAMI for the 1930 cohort, which was aged 60 in that year. Of course, the CAMI differs at a different age of initial benefit claim even for the same cohort. But we ignore it for simplicity and because of limited information about wage profiles.

[6] For example, suppose that we find that the average CAMI was 3,000 euros in 1990 and that the average benefit initially claimed was 1,500 euro at 60 in 1990 and 1,530 euro at 61 in 1991 (in 2002 price). Then, we assume that the average CAMI for the 1930 cohort was 3,000 euro (as explained in (2)), and we take as 0.5 (=1,500/3,000) and 0.51 (=1,530/3,000) as the ratios to convert the CAMI to the benefits at age 60 and age 61, respectively, applied to the 1930 cohort by the EPI benefit law which was effective at that time.

which was actually applied to each cohort to the 1926 cohort.

In the case of the NPI, we can apply a simpler methodology, since the NPI benefit is flat and not related to the earnings history. Hence, when we put the 1926 cohort in each single cohort, we roughly suppose that that cohort would get the actual benefit (in 2002 price) which was reported by each single cohort. We believe that this is the most reliable method given limited information available from the Annual Report, even though it ignores differences in the period of contributions across cohorts.

3. Additional sources of variation

Our basic equations (1)-(3) for Model I aim to identify the impact of the social security programs on well-being solely from variation across cohorts, by controlling for both age and year effects. This "age-year cell" approach, however, is likely to fail to exploit some of important variations in benefits across groups within age-year cells. These within age-year cell variations can help identify the effect of benefit changes, and there are at least two candidates for the sources of variation: that is, the "sector" and "gender".

As discussed in the previous sections, benefit laws and retirement patterns are quite different between the EPI and NPI beneficiaries. An EPI beneficiary used to be an employed worker, whereas an NPI beneficiary used to be a self-employed worker in most cases[7]. Since the SIR asks the elderly about the type of public pension benefits, we can identify the sector to which each household head belongs. It should be noted, however, that since the SIR only distinguishes the beneficiaries of the NPI and of the pension programs for employees, it cannot distinguish EPI (for retired employees in the private sector) and MAI beneficiaries (for retired employees in the public sector). We treat all beneficiaries of the public pension programs for employees as EPI beneficiaries for simplicity, since EPI and MAI benefits have many things in

[7] Some elderly receive both the EPI and MPI benefits in our SIR dataset. We categorize them into EPI beneficiaries for simplicity.

common.

Another source of variation to be considered is gender. There several factors to make the difference between the benefits of men and women. In the case of the EPI, females tend to receive substantially smaller benefits than males due to a shorter period of coverage and lower wage earnings; in fact, the average benefit and CAMI was 44% and 45% lower, respectively, for women than for men in 2001. In addition, the eligibility age for female employees, which had been 55 (compared to 60 for male workers) until 1988, was gradually raised to 60 until 2001, so the younger females started to receive EPI at a later age. Moreover, the share of female beneficiaries is much higher in the NPI than in the EPI (73% versus 31% in 2001), largely because of women's limited chances to work as a full-time employee. Reflecting to a long-term uptrend of women's labor participation, however, there has been a shift of female beneficiaries from the NPI to the EPI over the past two decades[8].

4. Models with variations

In addition to estimating the basic models (1)-(3), we collapse all the micro data on well-being and benefits into age-by-year-by-sector-by-gender cells taking their mean values in each cell, and then estimate models with sector and gender variations. In our dummy regression models, we would include sets of dummies to control for the two variations and estimate three versions of these models.

The first model, referred to as Model II hereafter, controls just for "first level" fixed effects using age, year, sector, and gender dummies, we estimate models of the form:

$$W_{atsg} = \alpha B_{atsg} + \sum_a \beta_{1a} AGE_a + \sum_t \beta_{2t} YEAR_t + \beta_3 SECTOR + \beta_4 GENDER + u_{atsg},$$

where the outcome of well being, W, and social security benefit, B, are collapsed into the age

[8] There seem to be other potential sources of variation, such as marital status and education, but the SIR has limited information about them. The survey tells whether the household head has a spouse or not, but it cannot distinguish widowed, divorced, or unmarried when he/she has no spouse. Nor does the Survey does distinguish usual and survivor pension benefits. No information about educational background is available at all.

(a)–year (y)-sector (s)-gender (g) cells, *SECTOR* dummy takes the value of one (zero) if the cell corresponds to the EPI (NPI) beneficiaries, and *GENDER* dummy takes one (zero) if the cell corresponds to the female (male) elderly. We estimate this equation by putting the actual benefit (B^A), the partly-simulated benefit (B^{PS}), and fully-simulated benefit (B^{FS}) alternatively into B.

The second model (Model III) controls also for "second level" fixed effects except for the cross term of age and year dummies, so we estimate:

$$\begin{aligned} W_{atsg} = \alpha B_{stsg} &+ \sum_a \beta_{1a} AGE_a + \sum_t \beta_{2t} YEAR_t + \beta_3 SECTOR + \beta_4 GENDER \\ &+ \sum_a \beta_{5a} AGE_a * SECTOR + \sum_a \beta_{6a} AGE_a * GENDER \\ &+ \sum_t \beta_{7t} YEAR_t * SECTOR + \sum_a \beta_{8t} YEAR_t * GENDER \\ &+ \beta_9 SECTOR * GENDER + u_{atsg}. \end{aligned}$$

The second level fixed effects are likely relevant in several ways. For example, the eligibility age for full benefits differs between the EPI and NPI; female employees tend to start receiving benefits earlier than male employees; and the EPI eligibility age for female employees has been gradually raised in recent years; and so on.

The third model (Model IV) controls for all "second level" fixed effect including cross terms of age and year dummies, so we estimate:

$$\begin{aligned} W_{atsg} = \alpha B_{atsg} &+ \sum_a \beta_{1a} AGE_a + \sum_t \beta_{2t} YEAR_t + \beta_3 SECTOR + \beta_4 GENDER \\ &+ \sum_a \beta_{5a} AGE_a * SECTOR + \sum_a \beta_{6a} AGE_a * GENDER \\ &+ \sum_t \beta_{7t} YEAR_a * SECTOR + \sum_a \beta_{8t} YEAR_a * GENDER \\ &+ \beta_9 SECTOR * GENDER + \sum_a \beta_{10at} AGE_a * YEAR_t + u_{atsg}, \end{aligned}$$

where there is no more pure cohort variation. It is interesting to see how the impact of the social security benefit differs among the three specifications.

V. Evidence

1. Time series evidence

Figures 1-4 show the time series evolution of well-being measures which we assess in this paper: that is, household income, poverty rates, and health care spending. In each figure, we compare the data for the young and the elderly so as to distinguish the economy-wide trend and the impact of the social security benefits. Also, we index the data setting the starting value as 100 to assess the relative performance of well-being of the elderly. The following are key facts observed from the figures.

(1) Figure 1 shows the evolution of after-tax, equivalized household income during 1980 and 1998. Average income rose steadily until the mid 1990s for both the young and the elderly, followed by a small fall thereafter reflecting the stagnant economy. More importantly, income of the elderly did not increase as much as that of the young over the 1990s. A long-term downtrend of labor force participation of the elderly[9] more than offset the impact of an increase in social security benefits to the elderly, at least partly leading to the underperformance of the elderly's income growth. Moreover, growth of social security benefits have been decelerating over the past two decades as discussed later.

(2) Figures 2 and 3 show the time series movements in poverty rates based on equivalized, after-tax household income. Figure 2 measures relative poverty, which is defined as the share of the elderly and young living below the 40% of the mean income of the young in each survey year. Relative poverty shows a remarkable uptrend for both the elderly and young (except for a temporary drop in the late 1980s).[10] The parallel movements suggest that widening inequality can be attributable to some economy-wide factors and that the social security benefits fail to redistribute income among the elderly sufficiently to reduce inequality. On the other hand, Figure 3 indicates the evolution of absolute poverty, which is

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9 According to the Labor Force Survey, the labor force participation rate for those aged 60 and above declined to 32.9% in 1998 from 35.0% in 1980.

10 This is consistent with a rise in the Gini coefficient for the economy as a whole, as reported by the MHLW based on the SIRs. The Gini coefficient for (not equivalized) after-tax income rose from 0.332 in 1980 to 0.381 in 1998.

defied as the share of the elderly and young living below the 40% of the mean income of the young in 1980. This figure reflects the combination of the results shown in Figures 1 and 2, and indicates that an uptrend of household income has more than offset an upward momentum of income inequality for both the elderly and young.

(3) Figure 4 examines the time series evolution of the average health care benefit. There is a widening gap between rising benefits by the elderly and relatively stable ones by the young. This does not necessarily evidence a relative deterioration in health status of the elderly. An increasing share of the very old (aged 70 and above), probably adds to average health care benefit among the elderly.

2. Simulated benefits

Next, we present our simulated benefits. Figure 5 depicts the partially- and fully-simulated social security benefits measures, along with the actual benefit in each survey year. For the simulated benefits, we first calculate those values (in 2001 euro terms) for the EPI and NPI, and the males and females at each age, based on the earnings history of the 1926 cohort, and then get their weighted average in each calendar year. As seen from this chart, they showed a steady increase during the 1980s and leveled off thereafter. This probably reflects a slowdown of a rise in "generosity" of the benefit formula in the EPI; In fact, along with a rise in the average period of contributions, the MHLW lowered the actuarial rate for the earnings-related benefit to hold down growth of total benefits. In addition, both of two types of simulated benefits have been moving in almost parallel fashion to the actual benefit, while they have been higher than the latter probably because our base cohort is relatively young among the cohorts that appear in the survey and its higher wage profile makes the simulated benefits relatively high.

Figure 6 shows the time series evolution of the social security benefit initially claimed at ages 60, 62, and 65 by year of birth for the 1926 cohort median make earnings history[11]. The top three curves are for the EPI, while the bottom three are for the NPI. In the case of the EPI, the benefit growth has been decelerating and even turned negative for the younger generations reflecting less generosity incorporated in recent pension reforms. In comparison, there were some small jumps in the NPI benefit, which were caused by increases in the flat benefit in recent pension reforms. In addition, this figure demonstrates a wide gap in benefit levels between the EPI and NPI, making the sector one of key sources of variation.

VI. Regression results

1. Impact on household income

In this section we discuss regression results, the core of our empirical analysis. Tables 1-4 contain the results of Models I-IV for each well-being measure. First, we assess the impact of the social security benefit on household income, which is summarized in Table 1. The top part of the table shows the estimated coefficients on the actual, partially-simulated, and fully-simulated benefits, controlling for age and year, based on Model I. In all of three equations, we find a significant, positive effect of the benefit on household income. However, one euro of extra benefits adds to household income by only 29-38 eurocents, suggesting that an increase in benefits substantially "crowds out" other income. This result is consistent with the results of preceding empirical studies that show a negative impact of the public pension benefit on working incentives of the elderly.

The second part of the table presents the results of Model II, in which we control for first level fixed effects of sector and gender. We do not observe any significant effect of benefits on household income: instead, sector and gender dummies have substantially significant, negative

[11] We can also present a women's version of Figure 1, which shows almost the same pattern of evolution as seen in the case of men.

effects on it, meaning that the females as well as NPI beneficiaries tend to get lower income. One possible reason for no significant effect of the benefit in the equations of Model II is that there is some multicolinearity between at least two of the benefit, sector and gender dummies. In fact, we find a high correlation between the benefit and the sector dummy (0.785), compared to that between the benefit and the gender dummy (0.105) and between the two dummies (-0.01) (not reported in the table). This makes sense, since the EPI has both the flat and earning-related components whereas the NPI has only the flat component, making the levels of the two benefits quite different. As a result, the variation in benefits is reflected largely in the coefficient on the sector dummies. We also estimate Model I', which exclude the sector dummy, and obtain significant coefficients on the benefits.

In the bottom two parts of the table, we show the results of Models III and IV, in which we control for both the first and second level fixed effects. Whether including the cross term of age and year dummies (in Model III) or not (in Model IV), we fail to find any significant effect of the benefit (except for a 10% significant effect of the actual benefit in Model IV). The multicolinearity between the benefit and the sector dummy seems to make the estimation results unstable here again. For these models, we also estimate the modified versions – Models III' and IV', respectively – which exclude the sector dummy, and observe a significant, positive effect of the benefit but no significant coefficient on the gender dummy.

All in all, we can confirm the social security benefit significantly adds to household income of the elderly (using some types of equations) but that the benefit crowds out other forms of income. While the extent of crowding out depends on model specifications, it is in the range of 20% and 52%.

2. Impact on other well-being outcomes

Tables 2 and 3 explore the impact on income poverty of the elderly. We present the results of Models I-IV and Models II'-IV' as in Table 1, taking into account of the possible multicolinearity between the benefit and the sector dummy. Table 2 examines the impact on relative poverty rates. Except for the simulated benefits in Models III and IV, we find that the benefit significantly lowers the poverty rates of the elderly. This is probably because pension benefits, which are mainly financed by income transfer from the young, raised average income of the elderly on an after-tax basis. In addition, based on the results of Model II, which includes the first-level fixed effects only, we find that the females as well as NPI beneficiaries face higher income poverty rates. It looks reasonable, since their incomes are relatively low. Meanwhile, Table 3 shows the results for the absolute income poverty. The overall pattern is almost the same as observed in Table 2, suggesting that the benefit lowers income poverty. The size of the impact of the benefit, however, is somewhat smaller than in the case of relative poverty.

Table 4 examines the result for the health care benefit, which we take as a proxy of health status due to limited information from the SIR. Unfortunately, we find little consistent pattern of the social security benefit on health care benefit. This implies that the health care benefit cannot tell precisely about health status of the elderly, since the health care benefit depends heavily on health care policies as well as demographic factors. Moreover, the social security benefit has two opposing effects on health care benefit; on the one hand, a higher benefit may improve the elderly's health status and thus reduce their dependence on health care, and on the other hand, the income effect may raise their spending on it.

VI. Conclusion

We have investigated the impact of the social security benefits on some well-being measures of the elderly in Japan during the past two decades, based on the cross-sectional data from the Surveys on Income Redistribution. We confirm that the social security programs have improved the welfare of the elderly at least in terms of household income and poverty. However, three things should be noted.

First, the social security benefit crowds out other sources of the elderly's income. This is consistent with the result of the preceding studies that shows a negative impact of the public pension eligibility and benefits on working incentives of the elderly. Accordingly, growth of equivalized income of the elderly has been lower than of the young despite a long-term increase in the benefit.

Second, our empirical results imply that additional sources of variation – gender and sector (public pension group) – significantly affect the evolution of well-being of the elderly. The female elderly as well as the beneficiaries of the National Pension Insurance program face significantly lower income and high poverty rates than other groups. We thus have to explicitly take into account these sources of variation to precisely identify the effect of benefit changes.

Third, to assess the impact of social security on well-being of the elderly more precisely, we need more evidence on the effects on well-being measures – consumption, consumption poverty, health status and subjective assessment of happiness – which are not available in our dataset. Our tentative results regarding the impact on health care spending, even if not an approximate proxy of health status, imply that the impact of social security programs is so complicated that it should be analyzed in as many aspects as possible.

References

Iwamoto, Y. & Fukui, T. (2001). "The impact of income on the choice of coresidence with parents," *JCER Economic Journal*, 42, 21-43 (in Japanese).

Ohtake, F. (1991), "Bequest motives of aged households in Japan," *Ricerche Economiche*, 45 (2-3), 283-306.

Oshio, T. and A.S. Oishi (2003), "Financial Implications of Social Security Reforms in Japan," *Quarterly of Social Security Research,* 39 (3), 216-233 (in Japanese).

Oshio, T. (2005), "Income inequality and redistribution polices in Japan during the 1980s and 1990s," *mimeo.*

Oshio, T. and A.S. Oishi (2004), "Social security and retirement in Japan: an evaluation using micro-data," *Social Security Programs and Retirement around the World,* ed. by J Gruber and D. Wise, The University of Chicago Press, 399-460.

Shimizutani S. (2005), "Long-term Care Insurance and Precautionary Saving," *mimeo.*

Yashiro, N. and T. Oshio (1999), "Social Security and Retirement in Japan," *Social Security and Retirement around the World,* ed. by J. Gruber and D. Wise, The University of Chicago Press, 239-267.

Figure 1. After-tax household income

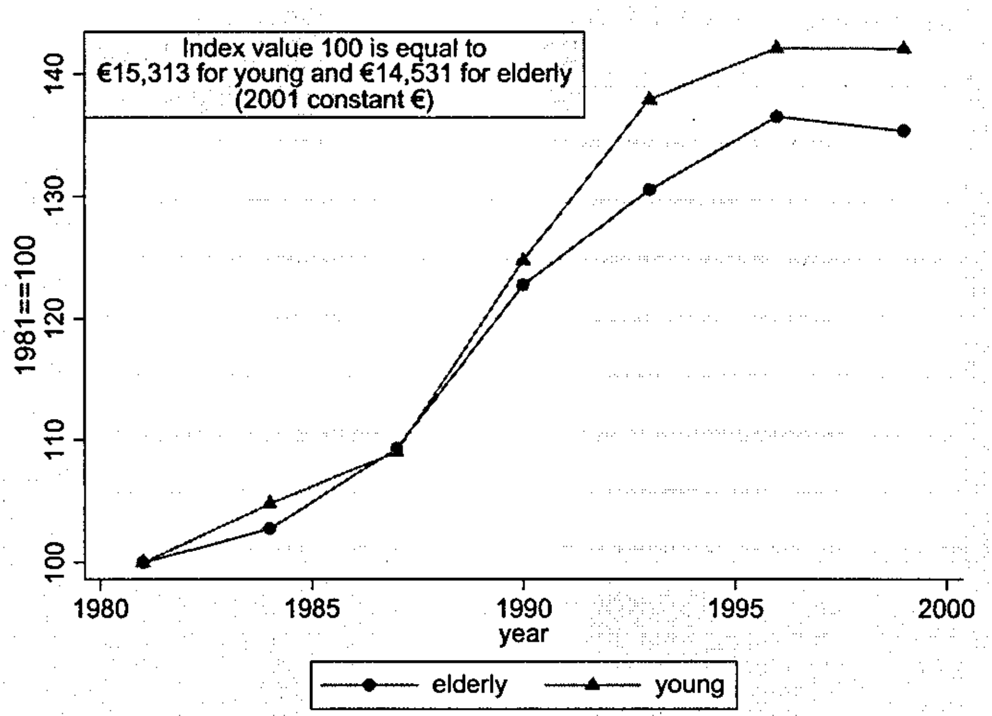

Figure 2. Relative income poverty

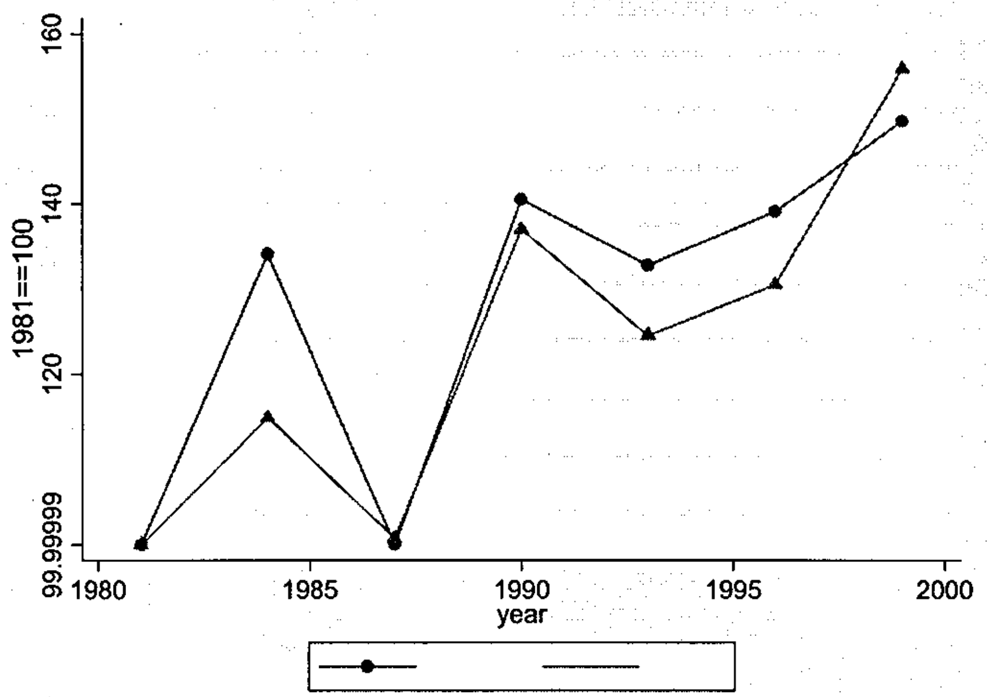

Figure 3. Absolute income poverty

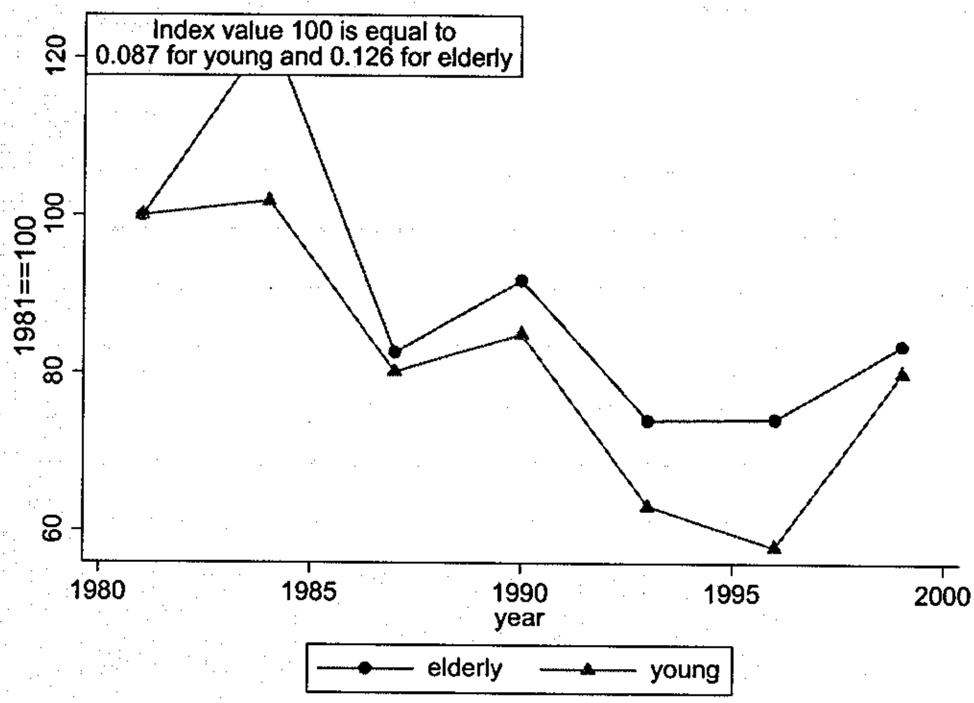

Figure 4. Health care benefit

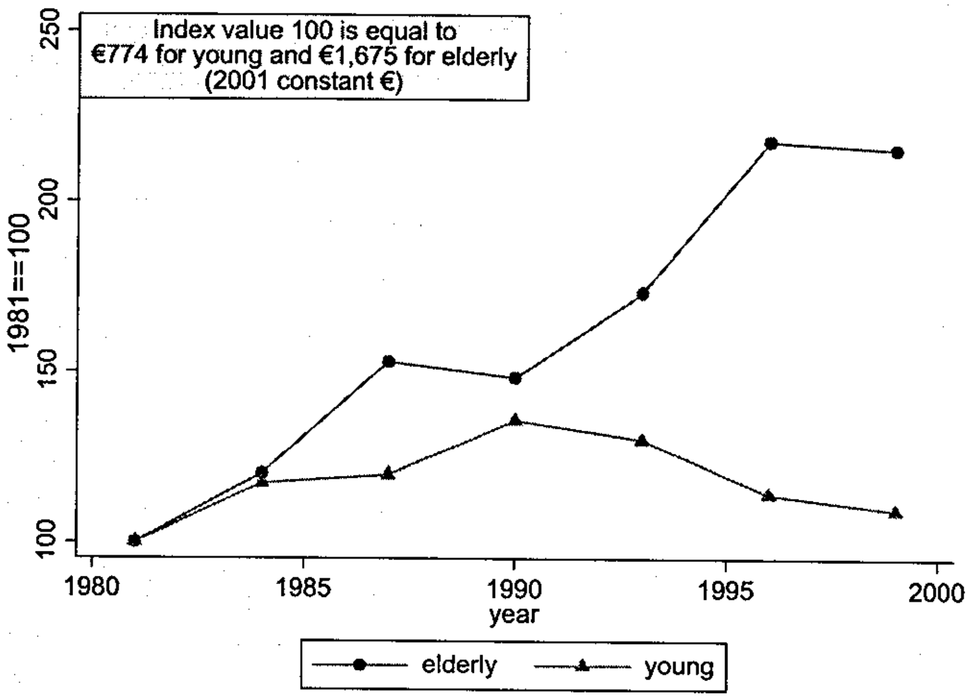

Figure 5. Average actual and simulated social security benefits

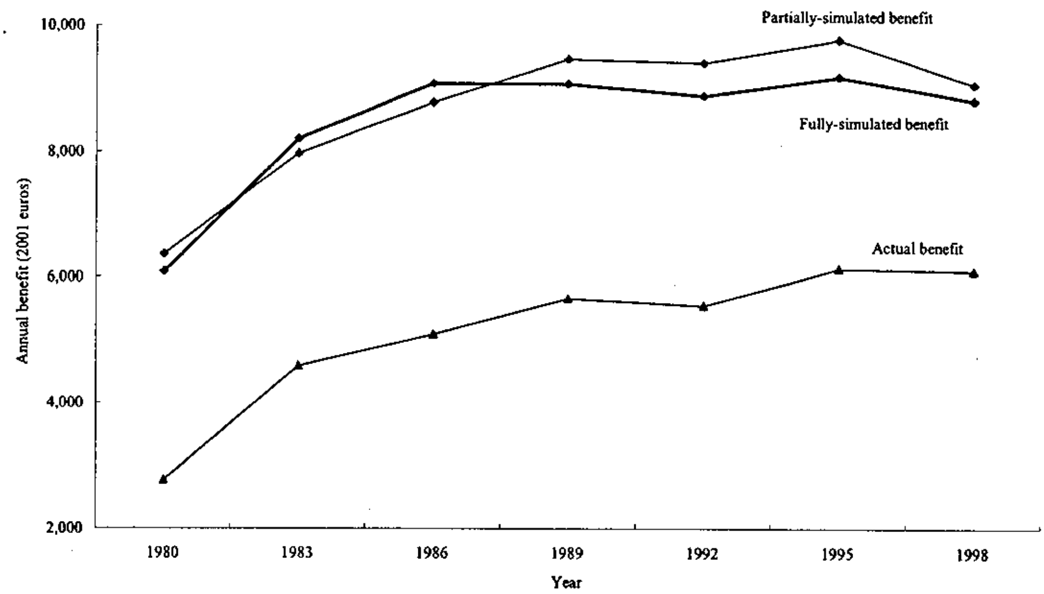

Figure 6. Average social security benefit initially claimed at different ages by year of birth for the 1926 cohort median male earnings history

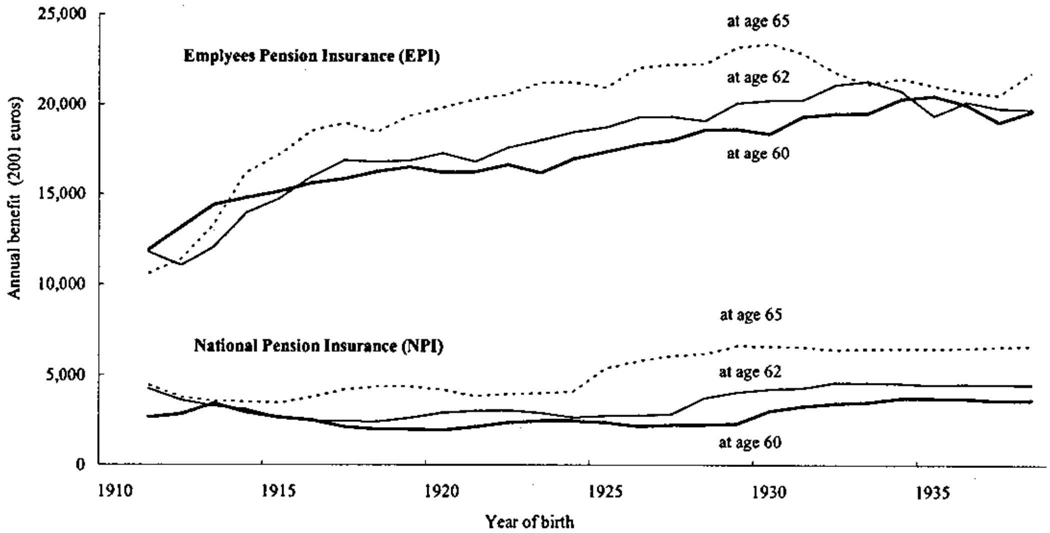

Table 1. Regression results: Total household income

Model I

	Benefit
Actual	0.382 ***
	(0.066)
Partially-simulated	0.293 ***
	(0.039)
Fully-simulated	0.295 ***
	(0.039)

Model II: controlling for first-level fixed effects

	Benefit	Gender	Sector
Actual	0.144	-4360.2 ***	-2553.3 ***
	(0.126)	(449.3)	(907.1)
Partially-simulated	-0.054	-4456.3 ***	-3946.6 ***
	(0.060)	(500.1)	(708.0)
Fully-simulated	-0.067	-4504.5 ***	-4050.3 ***
	(0.061)	(501.1)	(703.5)

Model II'

	Benefit	Gender
Actual	0.455 ***	-4645.8 ***
	(0.061)	(440.5)
Partially-simulated	0.205 ***	-3486.8 ***
	(0.039)	(482.0)
Fully-simulated	0.204 ***	-3496.2 ***
	(0.040)	(483.5)

Model III: controlling for firtst- and second-level fixed effects (except for age*year)

	Benefit	Gender	Sector
Actual	0.065	-3554.6	-2798.9
	(0.138)	(2364.3)	(2515.5)
Partially-simulated	0.018	-675.6	-4436.0
	(0.155)	(2646.1)	(2503.0)
Fully-simulated	-0.037	-2454.8	-4676.2
	(0.171)	(2658.9)	(2530.4)

Model III'

	Benefit	Gender
Actual	0.452 ***	-3826.4
	(0.061)	(2331.2)
Partially-simulated	0.238 ***	-1029.6
	(0.040)	(2617.2)
Fully-simulated	0.239 ***	617.4
	(0.041)	(2622.1)

Model IV: controlling for firtst- and second-level fixed effects (including age*year)

	Benefit	Gender	Sector
Actual	0.284 *	-2948.5	-1919.1
	(0.167)	(2351.1)	(2566.1)
Partially-simulated	-0.023	-827.6	-4550.2 *
	(0.162)	(2640.6)	(2540.6)
Fully-simulated	-0.049	-2533.1	-4671.1 *
	(0.176)	(2653.1)	(2567.6)

Model IV'

	Benefit	Gender
Actual	0.516 ***	-3376.5
	(0.062)	(2300.4)
Partially-simulated	0.237 ***	-1019.7
	(0.041)	(2623.5)
Fully-simulated	0.238 ***	635.6
	(0.041)	(2628.0)

(Note) The numbers in the parentheses are standard errors. * means
*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 2. Regression results: relative income poverty

Model I

	Benefit
Actual	-0.189 ***
	(0.014)
Partially-simulated	-0.125 ***
	(0.008)
Fully-simulated	-0.128 ***
	(0.008)

Model II: controlling for first-level fixed effects

	Benefit	Gender	Sector
Actual	-0.151 ***	1003.2 ***	454.0 **
	(0.027)	(95.2)	(192.2)
Partially-simulated	-0.054 ***	661.1 ***	918.1 ***
	(0.013)	(105.6)	(149.5)
Fully-simulated	-0.055 ***	657.0 ***	919.0 ***
	(0.013)	(105.8)	(148.6)

Model II'

	Benefit	Gender
Actual	-0.206 ***	1054.0 ***
	(0.013)	(93.2)
Partially-simulated	-0.114 ***	435.5 ***
	(0.008)	(102.4)
Fully-simulated	-0.117 ***	428.2 ***
	(0.008)	(102.6)

Model III: controlling for firtst- and second-level fixed effects (except for age*year)

	Benefit	Gender	Sector
Actual	-0.120 ***	741.1	538.6
	(0.028)	(479.4)	(510.1)
Partially-simulated	0.014	793.0	-245.9
	(0.032)	(538.0)	(508.9)
Fully-simulated	0.002	1196.9 **	-293.1
	(0.035)	(540.7)	(514.6)

Model III'

	Benefit	Gender
Actual	-0.205 ***	-45.5
	(0.013)	(489.2)
Partially-simulated	-0.120 ***	308.8
	0.008	(550.6)
Fully-simulated	-0.123 ***	-152.9
	(0.009)	(550.9)

Model IV: controlling for firtst- and second-level fixed effects (including age*year)

	Benefit	Gender	Sector
Actual	-0.178 ***	621.6	321.1
	(0.033)	(467.3)	(510.0)
Partially-simulated	0.014	804.8	-300.4
	(0.032)	(524.2)	(504.3)
Fully-simulated	0.007	1220.4 **	-328.7
	(0.035)	(526.8)	(509.8)

Model IV'

	Benefit	Gender
Actual	-0.211 ***	-171.1
	(0.013)	(479.1)
Partially-simulated	-0.120 ***	310.8
	(0.084)	(544.3)
Fully-simulated	-0.122 ***	-147.0
	(0.086)	(545.6)

(Note) The numbers in the parentheses are standard errors. * means
*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 3. Regression results: absolute income poverty

Model I

	Benefit
Actual	-0.148 ***
	(0.012)
Partially-simulated	-0.092 ***
	(0.007)
Fully-simulated	-0.094 ***
	(0.007)

Model II: controlling for first-level fixed effects

	Benefit	Gender	Sector
Actual	-0.107 ***	691.2 ***	436.9 ***
	(0.022)	(79.9)	(161.3)
Partially-simulated	-0.033 ***	450.6 ***	790.2 ***
	(0.010)	(87.2)	(123.4)
Fully-simulated	-0.036 ***	441.2 ***	774.6 ***
	(0.011)	(87.3)	(122.5)

Model II'

	Benefit	Gender
Actual	-0.160 ***	740.1 ***
	(0.011)	(78.3)
Partially-simulated	-0.085 ***	256.4 ***
	(0.007)	(84.7)
Fully-simulated	-0.088 ***	248.4 ***
	(0.007)	(84.7)

Model III: controlling for firtst- and second-level fixed effects (except for age*year)

	Benefit	Gender	Sector
Actual	-0.099 ***	937.9	581.2
	(0.024)	(403.3)	(429.0)
Partially-simulated	0.020	633.1	189.8
	(0.026)	(446.3)	(446.3)
Fully-simulated	0.008	1437.0 ***	139.6
	(0.029)	(448.7)	(427.0)

Model III'

	Benefit	Gender
Actual	-0.159 ***	18.5
	(0.011)	(414.8)
Partially-simulated	-0.089 ***	658.2
	0.007	(461.1)
Fully-simulated	-0.092 ***	-202.3
	(0.007)	(460.2)

Model IV: controlling for firtst- and second-level fixed effects (including age*year)

	Benefit	Gender	Sector
Actual	-0.118 ***	815.2 **	594.3
	(0.028)	(399.9)	(436.5)
Partially-simulated	0.022	641.3	143.5
	(0.027)	(432.1)	(415.7)
Fully-simulated	0.020	1472.9 ***	136.7
	(0.029)	(434.3)	(420.3)

Model IV'

	Benefit	Gender
Actual	-1.670 ***	-93.1
	(0.113)	(416.6)
Partially-simulated	-0.894 ***	652.9
	(0.070)	(454.5)
Fully-simulated	-0.914 ***	-202.9
	(0.072)	(454.5)

(Note) The numbers in the parentheses are standard errors. * means
*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.
Income poverty rates are multiplied by 10,000.

Table 4. Regression results: health care expenditure

Model I

	Benefit
Actual	0.066 ***
	(0.022)
Partially-simulated	-0.001
	(0.013)
Fully-simulated	-0.001
	(0.014)

Model II: controlling for first-level fixed effects

	Benefit	Gender	Sector
Actual	0.088 *	135.2	204.8
	(0.047)	(166.5)	(336.1)
Partially-simulated	-0.038 *	95.9	-655.4 **
	(0.022)	(183.3)	(259.5)
Fully-simulated	-0.037 *	100.9	-636.3 **
	(0.022)	(183.8)	(258.0)

Model II'

	Benefit	Gender
Actual	0.063 ***	158.1
	(0.022)	(162.1)
Partially-simulated	0.005	256.9
	(0.014)	(172.7)
Fully-simulated	0.006	259.3
	(0.014)	(173.0)

Model III: controlling for firtst- and second-level fixed effects (except for age*year)

	Benefit	Gender	Sector
Actual	0.114 **	1221.1	-2.3
	(0.052)	(881.8)	(938.2)
Partially-simulated	-0.119 **	2147.8 **	-1259.1
	(0.057)	(973.6)	(920.9)
Fully-simulated	-0.128 **	1107.5	-1315.3
	(0.063)	(978.6)	(931.3)

Model III'

	Benefit	Gender
Actual	0.064 ***	-473.8
	(0.023)	(859.0)
Partially-simulated	0.012	1350.1
	(0.014)	(944.6)
Fully-simulated	0.013	2353.6 **
	(0.015)	(944.8)

Model IV: controlling for firtst- and second-level fixed effects (including age*year)

	Benefit	Gender	Sector
Actual	0.037	1202.054	-503.746
	(0.063)	(871.406)	(951.070)
Partially-simulated	-0.117 **	2208.058 *	-1455.064
	(0.059)	(954.557)	(918.396)
Fully-simulated	-0.132 **	1149.587	-1543.542 *
	(0.064)	(958.752)	(927.877)

Model IV'

	Benefit	Gender
Actual	0.049 **	-447.6
	(0.023)	(845.7)
Partially-simulated	0.017	1425.3
	(0.014)	(927.3)
Fully-simulated	0.018	2427.1 ***
	(0.015)	(927.6)

(Note) The numbers in the parentheses are standard errors. * means
*, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.
Income poverty rates are multiplied by 10,000.

日本の所得税・住民税負担の実態[1]
－マイクロ・シミュレーションによる分析－

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1．分析の目的と結果の概要

本稿の目的は日本の所得税・住民税の負担の実態とその問題点を示すことである。後述のように日本の所得税の問題は所得控除が大きすぎ、その負担が一部の階層にかたよっていることであると考えられる。この点の是正の一環として 2004 年に控除が一部見直され、また現在定率減税の廃止が検討されている。本稿ではこうした税制の現状と、これらの税制改革が負担にあたえるインパクトについて検証する。また今後の人口高齢化に備え所得税の増税が不可避と考えられる中で、増税、特に所得控除の縮小が負担にどのような影響を与えうるかについても分析する。

税負担の実態や家計に及ぼす効果については、家計のさまざまな違いを考慮することができる個票を用いたマイクロ・シミュレーション分析が多くの国で行われており、それによって、税制改革や社会保障改革の効果が検証されてきた[4]。代表的な家族形態を用いた分析と異なり、この方法を用いると税負担の実態を経済全体や所得階級ごとに分析できるという利点がある。本稿でもこの手法を用いて分析をおこなう。用いるデータは平成１３年度の国民生活基礎調査の個票である。

マイクロ・シミュレーションによる日本の税負担の分析は、これまで田近・古谷（2003a）、（2003b）によってなされており、本稿でもこれに準じた方法を用いる。分析では個人ではなく、世帯の税負担に着目する。まず全世帯を 10 の所得階級に分類した上で、階級ごとに税負担の現状と、税制改革がそれに及ぼす影響について分析する。一方日本では給与所得控除や公的年金等控除のために、所得額が同じでも所得の形態によって税負担が大きく異なる。そこで分析では全世帯を給与世帯（世帯所得のうち給与収入が 50％以上を占める世帯）、年金世帯（世帯所得のうち公的年金収入が 50％以上を占める世帯）、その他世帯の３タイプに分類し、タイプによって税負担がどの程度違うかについても検証する。

次に分析結果を説明する。結果は以下の５点にまとめられる。まず第１点に、日本の税制の大きな問題点とされる所得控除の実態について調査した。分析によると日本では全所得のうち 60％以上が所得控除として課税ベースから除外されており、課税ベースが非常に

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[1] 本稿の内容はすべて著者個人の見解であり、著者が属する機関の見解を示すものではない。
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[4] たとえば Duncan & Weeks（1997）、Wagenhals（2000）、Gupta & Kapur（2000）など多数の先行研究がある。これまでの研究成果は田近・古谷（2003a）にまとめられている。

せまくなっている。控除のうち大きいのは給与に対する給与所得控除と、年金に対する公的年金等控除であり、特に年金世帯では公的年金等控除のために、10 階級のうち所得上位第３階級である第Ⅷ階級でも所得全体に占める課税所得の比率はわずか 20％しかない。

このように大きな控除の結果、所得階級間・（所得発生形態による）世帯タイプ間で税負担の大きなかたよりが発生している。まず所得階級間の税負担の違いをみると、所得最上位階級以外では、全般的に税負担は軽いことが示された。負担が重いのは税でなくむしろ社会保険料であると考えられる。これが分析結果の２点目のポイントである。こうした傾向は所得下位ほど顕著であり、たとえば給与世帯の第Ⅰ階級（所得最下位）では税負担はほとんどゼロであるのに対し、保険料負担は世帯所得全体の 13％にもなる。また中位階級である第Ⅳ階級では、給与世帯の半数以上で世帯所得に占める税負担比率は２％以下にとどまっており、税負担は重いとはいえない。一方累進的な税率構造を反映して、所得最上位階級（第Ⅹ階級）だけは税負担が保険料負担を上回っており、この階級に税負担が集中する結果となっている。

次に分析の３点目のポイントとして、税負担を（所得発生形態による）３つの世帯タイプ別にみると、年金世帯の税負担が非常に軽いことが示された。年金世帯の税負担が軽いのは公的年金等控除のためである。また年金世帯では社会保険料負担も少ない結果、税と保険料をあわせた負担は、大きく軽減されている。年金世帯はおもに高齢世帯であり、これは日本では税・保険料負担の世代間の格差が大きいことを意味する。

次に４点目として、2004 年の税制改正と、2006 年に予定されている定率減税廃止が税負担に及ぼす効果を分析した。先に述べたような、税・保険料負担の世代間アンバランスの是正の一環として 2004 年では老年者控除が廃止され、公的年金等控除が縮小された。分析によると改革によって所得中・上位の年金世帯で税負担がやや増大したが、それでも公的年金等控除は依然大きく、改革の効果は限定的であったと考えられる。一方定率減税廃止の影響をみると、減税廃止によって負担が増大するのはおもに所得上位階級であり、所得下位階級の税負担はあまり変化しないことがわかった。このようになるのは、この階級には所得控除のためにもともと税負担がゼロであるものが多く含まれるからである。この結果減税廃止による税負担の増加は全体で 1％程度にとどまることが示された。

今後高齢化社会を迎えるにあたって、日本では所得税の増税が不可避であると考えられる。しかし定率減税廃止が大きな負担をもたらさないことからもわかるように、課税ベースが大きく侵食されたまま税率変更のみによって増税をおこなうことには限界があると考えられる。そこで分析の第５点目に、所得控除の縮小、特に給与所得控除と公的年金等控除の縮小がもたらす効果について分析した。たとえば、２つの控除をそれぞれ、現状の控除最低額（給与所得控除は 65 万円、公的年金等控除は 70 万円）にまで大きく縮小した場合、税負担は給与世帯・年金世帯を中心に増大し、これらの世帯全体で２～３％程度の税負担増加となる。しかしこの場合でも所得下位２階級の税負担はほとんど増えず、負担が増大するのは所得上位 8 階級であった。給与所得控除と公的年金控除は単なる減税効果に