

# 2010 lakkyara

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The importance of quantitative analysis in  
designing post-retirement income security programs

Data-based estimates of changes in retirees' public pension and employer-sponsored retirement benefits, the main sources of postretirement income, reveal that income inequality between low- and high-income retirees is likely to worsen over the next 30 years. Such quantitative analysis must be applied to formulation of postretirement income security policies.

Japanese retirees generally derive income from three sources: (1) public pensions, (2) employer-sponsored retirement benefits, including corporate pensions and lump-sum payouts, and (3) personal savings accumulated before retirement. All three of these postretirement income sources are strongly correlated with preretirement income. With wages and salaries decreasing in recent years, the currently employed will likely have less postretirement income than today's newly retired.

Although the recent decline in wages and salaries could substantially detract from the currently employed's postretirement income, this prospective reduction has yet to be quantified. Below I present estimates of future changes in public pension and employer-sponsored retirement benefits, the two most easily estimable sources of postretirement income, based on data from the National Survey of Family Income and Expenditures<sup>1</sup> ("National Survey"). I also discuss the importance of quantitative data analysis and its application to the debate on postretirement income security.

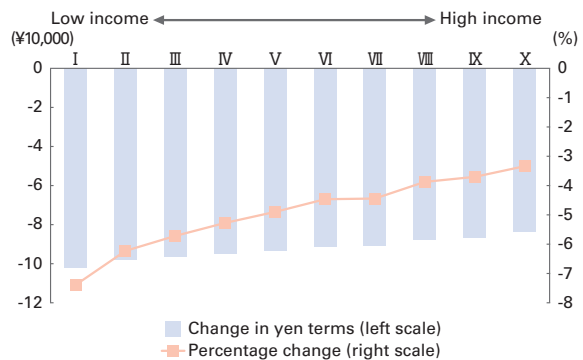
Public pension benefits comprise a basic pension, which pays annually determined flat-sum pension benefits to eligible beneficiaries, and an earnings-related pension, which pays benefits as a function of the recipient's preretirement income. I estimated future pension benefits based on the Ministry of Health, Labor and Welfare's forecast of basic pension benefits and an assumed average annual wage growth rate of 1.5%<sup>4</sup> for earnings-related pension benefits. According to the past two National Surveys, however, actual wage growth rates differed among income strata, with the wage growth rate increasing as income rose. To realistically model future pension benefits, I used an income growth rate of 1.1% for income strata I-III, 1.4% for strata IV-VII, and 2.0% for strata VIII-X. Finally, I discounted future pension benefits to present value using the consumer price inflation rate<sup>5</sup>.

According to Exhibit 1, annual public pension benefits will be lower in 30 years than today across all income strata, but low-income households will experience the largest decrease. Differences in pension benefits' rates

### Magnitude of decrease in public pension benefits by income stratum

First, to gauge future changes in public pension benefits, I compared differences in public pension benefits per household between two cohorts of households with two or more occupants: (1) households headed by recent retirees born in 1949 and (2) households headed by persons born in 1979 who will hypothetically retire in 30 years. The estimation results are plotted by income stratum<sup>2</sup> in Exhibit 1, which shows inter-cohort differences in annual public pension benefits receivable at age 67, the age at which the typical married couple is entitled to begin receiving public pension benefits<sup>3</sup>.

Exhibit 1. Estimated change in public pension benefits per household between 1949 and 1979 birth cohorts in value and percentage terms



Source: Nomura Pension Management Research Group, based on data from the General Survey on Working Conditions and Survey of Retirement Benefit Plans and Actual Benefits

of decrease are even more pronounced when expressed in percentage terms. For low-income households, the estimated decrease in pension benefits is 6–8%, double the corresponding estimate of 3–4% for high-income households. This gap reflects that the lower a household's income, the larger the basic pension's share of its total public pension benefits. Annual basic pension benefits are projected to decrease ¥110,000 across all income strata, while earnings-related pension benefits are projected to increase by an annual amount ranging from ¥7,000 in the bottom income stratum to roughly ¥30,000 in the top stratum.

In sum, even assuming an optimistic economic growth scenario in the form of an average wage growth rate of 1.5%, my estimation model projects a decrease in total public pension benefits per household, the impact of which is inversely proportional to household income level.

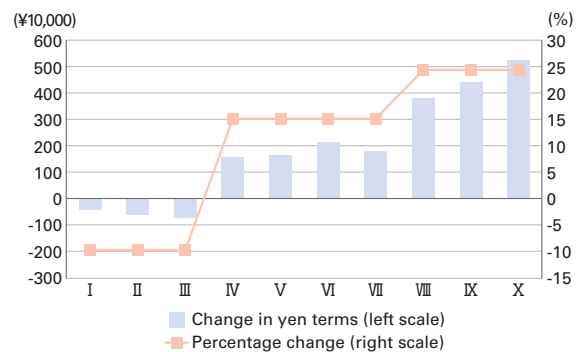
### Estimation of future employer-sponsored retirement benefits

If public pension benefits decrease, employer-sponsored retirement benefits will become increasingly important as an offset against the reduction in public pensions. In Japan, employer-sponsored retirement benefits are typically set at a multiple of the recipient's final preretirement salary<sup>6)</sup>. To project how they are likely to change in the future, I estimated employer-sponsored retirement benefits using estimates of wages by income stratum derived from National Survey data and a ratio of retirement benefits to final preretirement salary calculated based on the General Survey on Working Conditions and Survey of Retirement Benefit Plans and Actual Benefits.

Exhibit 2 plots estimated differences in retirement benefits between the 1949 and 1979 birth cohorts by income stratum in both value and percentage terms. The retirement benefits plotted in the graph include the present value of corporate pension benefits in addition to lump-sum payouts.

Exhibit 2 shows wide variation in inter-cohort differentials among income strata. Households in income strata IV and above are projected to receive future retirement benefits

**Exhibit 2. Estimated change in employer-sponsored retirement benefits between 1949 and 1979 birth cohorts in value and percentage terms**



Source: Nomura Pension Management Research Group, based on data from the General Survey on Working Conditions and Survey of Retirement Benefit Plans and Actual Benefits

in excess of current benefits. Additionally, the margin of projected increase in their future retirement benefits tends to grow as income level rises. In contrast, households in income strata III and below are projected to receive retirement benefits below the status quo.

### Quantitative analysis is needed in postretirement income security policymaking

According to my estimates, low-income households (income strata I–III) will see a decline in public pension benefits of some ¥100,000 per annum and a roughly ¥500,000 decrease in employer-sponsored retirement benefits. High-income households (income strata VIII–X), by contrast, are projected to see their employer-sponsored retirement benefits grow enough to more than offset the estimated decrease in their public pension benefits. These projections mean that income disparities among retirees will widen in the future relative to today. Moreover, the sample of two-or-more-occupant households used for this analysis includes few households headed by nonregular workers (i.e., workers other than permanent full-time employees)<sup>7)</sup>. Given the recent growth in the nonregular workforce, income disparities among income strata are likely to progressively widen, leading to a lower relative standard of living for low-income households.

The simplified analysis above is too crude to be useful in

policymaking debates regarding postretirement income security. Nonetheless, it yielded valuable insights regarding the magnitude of postretirement income disparities that cannot be gained from qualitative discussion alone.

Recent years have witnessed a number of policy debates regarding postretirement income security, but none of them progressed beyond the qualitative realm. Debate based on quantitative analysis is essential to formulate policies that better reflect reality.

### Note

1) The National Survey is a nationwide survey of 60,000 households conducted at five year intervals by the Ministry of Internal Affairs and Communications. It reports on the current status of household income, expenditures, and asset holdings by household attributes such as head-of-household age and income stratum.

2) The National Survey reports data broken down by head-of-household age bracket and, within each age bracket, by income deciles. Because income levels differ between age brackets, the income strata's income levels are left unspecified herein.

3) The age at which pensioners are eligible to begin receiving earnings-related public pension benefits is currently being raised stepwise to 65. The eligibility age for basic pension benefits is already set at 65. According to data published by the National Institute of Population and Social Security Research, spousal age difference has averaged roughly 2.5 years over the past 20 years, but I rounded this difference down to 2 years for the sake of simplicity.

4) Considering that current economic conditions are unlikely to improve immediately, I assumed that wages would grow at their most recent 5-year average growth rate for the next five years and at an average nominal rate of 1.5% per annum thereafter. Given that the wage growth rate has been negative in recent years, a 1.5% growth rate can be characterized as quite an optimistic growth scenario from the standpoint of current conditions.

5) I assumed that the consumer price inflation rate would remain constant at its most recent 5-year average for the next five years and at +1% per annum thereafter.

6) Based on data from the General Survey on Working Conditions and Survey of Retirement Benefit Plans and Actual Benefits, retirement benefits (total of lump-sum benefits and present value of corporate pension benefits) are strongly correlated with contractual salary at the time of retirement. The coefficient of correlation between the two over the past 20 years is approximately 0.8.

7) According to the 2007 Survey on Employment Structure, a mere 6% of working households are headed by nonregular workers. This figure is a reasonable estimate of nonregular workers' prevalence in our sample of households.

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