The Household Savings Rate Paradox — The Population is Aging, but Workers' Households are Saving More

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1. Introduction

Japan's population is aging at an accelerating pace. In 2000, the 65-and-over age segment comprised 17.3 percent of the population, up from 12 percent in 1990. This represents an increase of 5.3 percentage-points in the 1990s, compared to the more modest increases of 3.0 percentage-points in the 1980s and 2.0 percentage-points in the 1970s. Normally, such accelerated aging is accompanied by a decline in the savings rate. But in Japan's case, the savings rate among workers' households has actually climbed from 22.1 percent in 1980, to 24.7 percent in 1990, and 27.9 percent in 2000.

This paper examines savings rate trends amid the accelerated aging by distinguishing two contributing factors: changes in the age composition of the population, and changes in savings rates in each age segment. First, we show that while the proportion of non-working households has risen, the weighted-average savings rate for workers' households and non-working households has remained steady. Next, we confirm that the savings rate of workers' households has risen even after adjusting for changes in the home ownership ratio. Finally, we examine the rapid growth in precautionary savings among younger persons and their mounting anxieties about employment and retirement.

2. Disparity Between Microeconomic and Macroeconomic Savings Rate Data

(1) The Workers' Household Savings Rate and the Macroeconomic Savings Rate

On a household basis, the most widely used statistical indicator for household savings rate is that of workers' households in the *Family Income and Expenditure Survey* (Ministry of Public Management, Home Affairs, Posts and Telecommunications).[1] Although self-employed and non-working households are also included, workers' households comprise the core of the survey (all characterizations of households here refer to the employment status and age of the householder). In addition, disposable income and savings rate data is available going back to the first survey in 1953 for workers' households. This data shows that even as aging has progressed, workers' households have continued to increase their savings rate from 22.1 percent in 1980 to 24.7 percent in 1990, and 27.9 percent in 2000.

"NLI RESEARCH" NLI Research Instiute 2001. No.153   1

Another savings rate — the macroeconomic savings rate for the nationwide household sector, as compiled in the national accounts by the Cabinet Office[2] — stood at only 11.1 percent in 1999, far below the savings rate for workers' households. Moreover, it has been declining since the mid 1990s.[3]

The apparent contradiction between these two indicators calls for an explanation. While the direct cause is attributable to differences in the concept and scope of disposable income and savings, we think that more subtle changes occurring at the level of both society and the individual also contribute to the disparity.

Figure 1 Household Savings Rates
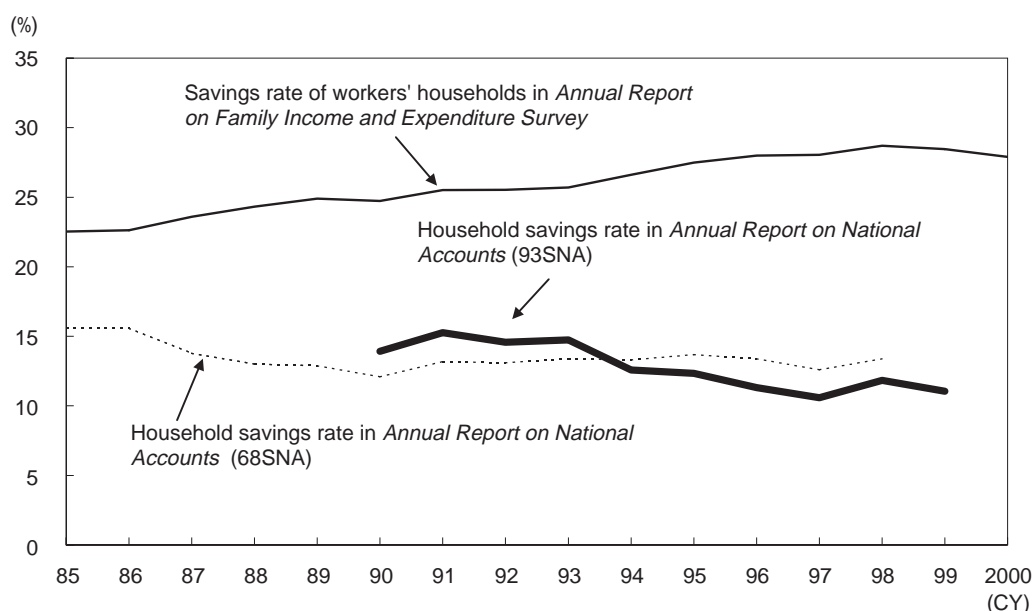
Source: Economic and Social Research Institute (Cabinet Office), *Annual Report on National Accounts*; Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey*.

(2) Change in Savings Rate and Proportion of Non-Working Households

As described above, the savings rate most commonly cited from the *Family Income and Expenditure Survey* is for workers' households. Significantly, however, the proportion of *non-working* households — which consists primarily of retired households — has risen at least threefold in the past two decades, from 6.3 percent in 1980 to 12.6 percent in 1990 and 20.3 percent in 2000.

Recognizing this trend, in 1986 the government began releasing data on disposable income and savings rates for non-working households aged 60 and above, and expanded coverage to all non-working households in 1989. This data shows that non-working households have had a persistent and significantly negative savings rate.

Since most households under age 60 are still working, their savings trend over the past two decades is fairly straightforward. However, for households aged 60 and over, the savings trend is complicated by the fact that over half (56.2 percent)[4] of them have become non-working households with a savings rate of -16.2 percent, compared to a savings rate of 18.4 percent for their working counterparts.

Using disposable income and savings data for workers' households and non-working households aged 60 and above, we calculate that the weighted-average savings rate of this age group is only about 5 percent.

Reflecting the continued growth in the proportion of elderly persons in the general population, the proportion of non-working households has also risen across all age groups. While workers' households still prevail in most age groups, non-working households are by no means insignificant in the overall picture.

Although savings rates are not available for other working households such as self-employed households, the weighted-average savings rate for non-working households and workers' households should give a close approximation of the savings rate for all households.[5]

Figure 2 Proportion of Non-Working Households (*Family Income and Expenditure Survey*)
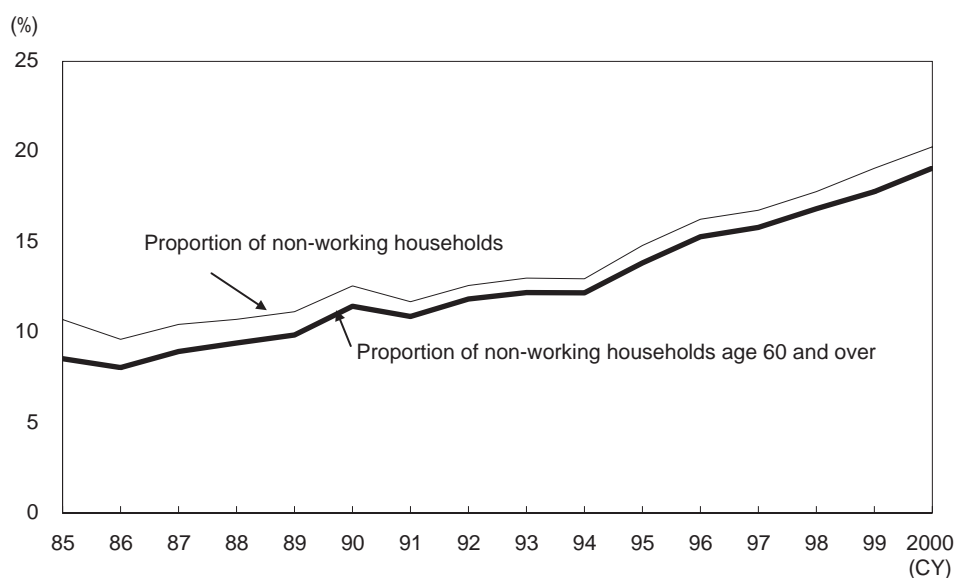
Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey.*

Figure 3 Comparison of Working and Non-Working Households Aged 60 and Above

<div align="right">(%)</div>

	1986	1990	1995	2000
Composition				
①Workers' households	21.8	20.8	21.5	20.8
②Non-working households	42.4	48.8	49.8	56.2
③Self-employed households	35.8	30.4	28.7	23.0
④=①+③	57.6	51.2	50.2	43.8
Savings rate				
⑤Workers' households	18.3	19.0	22.5	18.4
⑥Non-working households	−29.5	−12.6	−11.5	−16.2
⑦Weighted average of ⑤ and ⑥	6.1	4.5	8.1	3.8

Note: The weighted-average savings rate was calculated by first calculating weighted averages for disposable income and savings. The weights used for calculation are ② and ④.
Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, Annual Report on the Family Income and Expenditure Survey.

(3) Comparing the Revised Macroeconomic and Weighted-Average Savings Rates

Based on the discussion above, it would seem reasonable to compare the savings rate obtained from the national accounts with that obtained from the weighted average of workers' households and non-working households.

However, to do so we must first consider the differences in concepts and definitions between the *Annual Report on National Accounts*, and the *Family Income and Expenditure Survey*. In the national accounts, if payments and receipts for the provision of goods and services or transfer of ownership are imputed to households, such transactions are included in household income or expenditure even if households are not immediately involved and transactions are not in the form of cash or bank transfers. On the other hand, the *Family Survey* includes only payments and receipts in which households are directly involved.

In both cases, detailed descriptions are released that enable us to see numerous such differences, as well as clear-cut classification differences, in the derivation of disposable income, consumption and savings.[6] The new 93SNA standard, which distinguishes items that had previously been lumped together in the national accounts, makes it is possible to recombine items and alter definitions. As a result, the 93SNA based household savings rate can be revised to closely conform with the conceptual framework of the *Family Survey* going back to 1990.[7]

Below we compare the revised macroeconomic household savings rate with the weighted-average savings rate of workers' households and non-working households.

First, we note that the macroeconomic savings rate increases after revision from 11.1 percent to 17.5 percent. On the other hand, the weighted-average savings rate of 22.8 percent is lower than the workers' household savings rate of 27.9 percent, and what is more, it no longer rises during the 1990s but instead levels off. Although the disparity between the two savings rates does not completely disappear, it has decreased to one-third the original size.

Thus differences that at first appeared to be derived from differing macroeconomic and microeconomic approaches can be largely attributed to changes in the composition of households — that is, to the growing proportion of non-working and primarily elderly households.

However, the fact clearly remains that the savings rate of workers' households is rising.

Had the composition of households remained unchanged since 1989, we estimate that the weighted-average savings rate of workers' households and non-working households today would be 2 percent higher than it is.

In reality, what happened was that the proportion of non-working households rose significantly and brought down the overall savings rate, but at the same time the savings rate of workers' households rose to offset this decline. As a result, the weighted-average savings rate, which represents the overall household savings rate, has remained level.

Figure 4 Revised Household Savings Rates
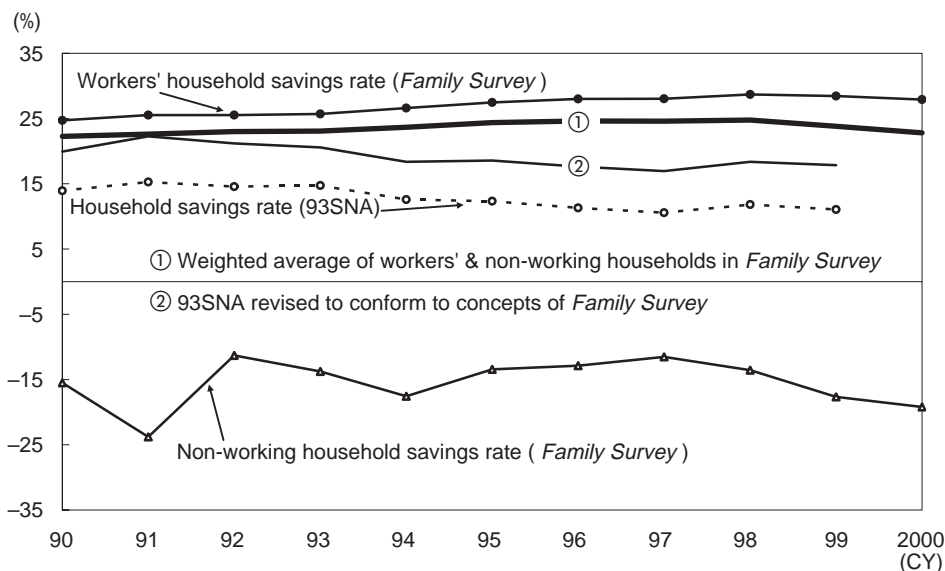
Sources: ESRI, *Annual Report on National Accounts*; Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey.*

Figure 5 Effect of Changes in Age Composition
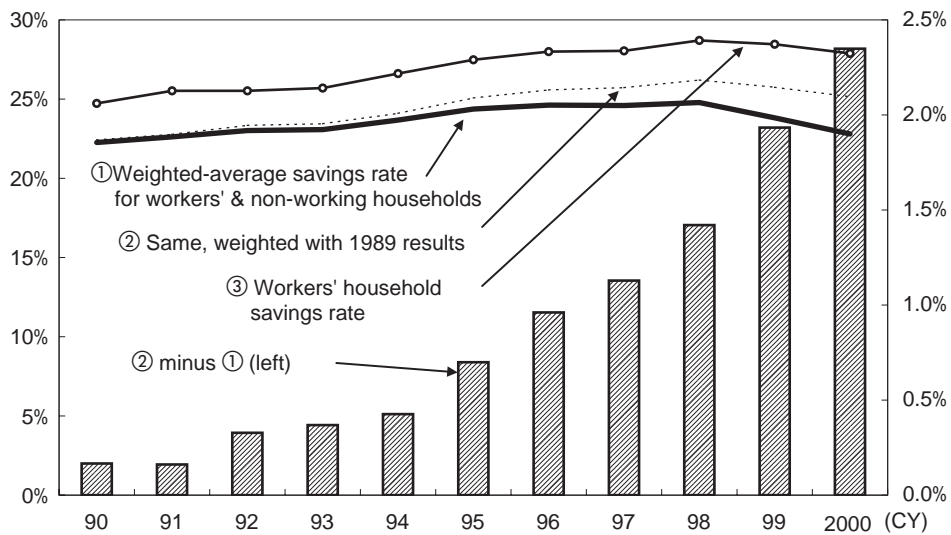
Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey*.

3. The Long-term Increase in the Savings Rate of Workers' Households

(1) The Long-term Savings Rate Increase Across All Age Groups

Thus far, we have explained how the growing proportion of non-working elderly households has pulled down the overall household savings rate, but that the decline has been offset by the rising savings rate of workers' households. Below we focus on workers' households under age 60, and analyze savings behavior by age group.

The rationale for looking at savings rates by age group is that even though the overall savings rate is affected by changes in age composition, the savings rate of each age group is believed to be independent of the overall change.

In other words, we seek to isolate changes in age composition from the overall change, and discuss the changes occurring in each age group.

In addition, we expect that changes in the economy and society are likely to have different effects on the savings behavior of workers' households in the 20s and 30s age groups compared to the 40s and 50s age groups.

Figure 6 shows savings rate trends by age group, as found in the *Family Survey*. Generally speaking,

savings rates tend to rise for all age groups. While differences exist between age groups, all age groups share a rising trend. However, since savings rates can be affected by imputed rents associated with changes in the home ownership ratio, we look into this aspect in more detail below.

Figure 6 Savings Rate by Age Group
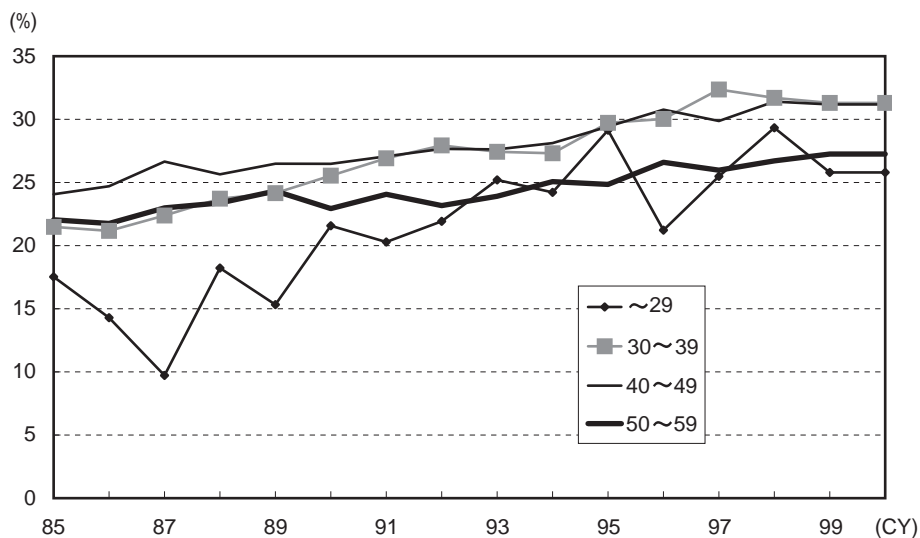
Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey.*

(2) How the Home Ownership Ratio Can Raise the Apparent Savings Rate

Compared to renter households, households who live in owner-occupied homes have fewer expenditures insofar as they pay no rent. Now suppose that the homeowner decides to convert the housing asset into financial assets and move into rented housing, thereby earning interest income but incurring offsetting rent expenses. Although the actual savings remain the same, the apparent income has increased due to interest income. Based on the the *Family Survey's* statistical definitions of income and expenditure, the homeowner thus has a higher savings rate. In other words, a rising homeownership ratio tends to increase the average household savings rate.

While age plays an important role in home purchases and hence the ownership ratio, home purchases are also affected by the relationship between present and future income, and housing prices.

All age groups share a similar pattern in which the ownership ratio falls in the late 1980s bubble period, and then rises again from the mid 1990s.[8] Since purchases were discouraged by rising land and home prices in the late 1980s, ownership ratios declined more among the young than the old.

In terms of the effect of the ownership ratio on savings rates, compared to the late 1980s when owner-

ship ratios were declining, savings rates may have been inflated across all age groups in the late 1990s as the ownership ratio recovered. This effect is likely to have been most pronounced among younger age groups, whose ownership ratio declined most in the late 1980s.

Figure 7 Home Ownership Ratio by Age Group
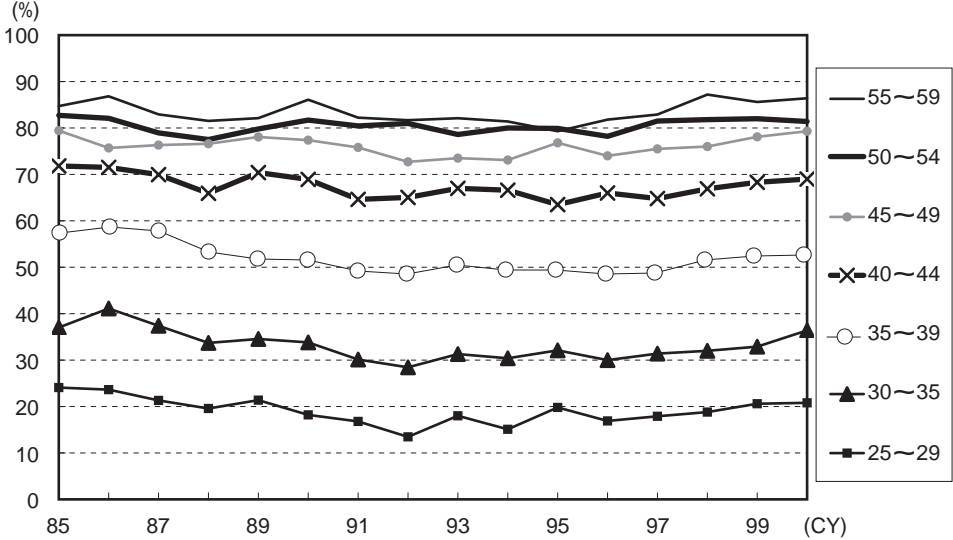
Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey.*

Figure 8 Change in Home Ownership Ratio (Change Since 1985)
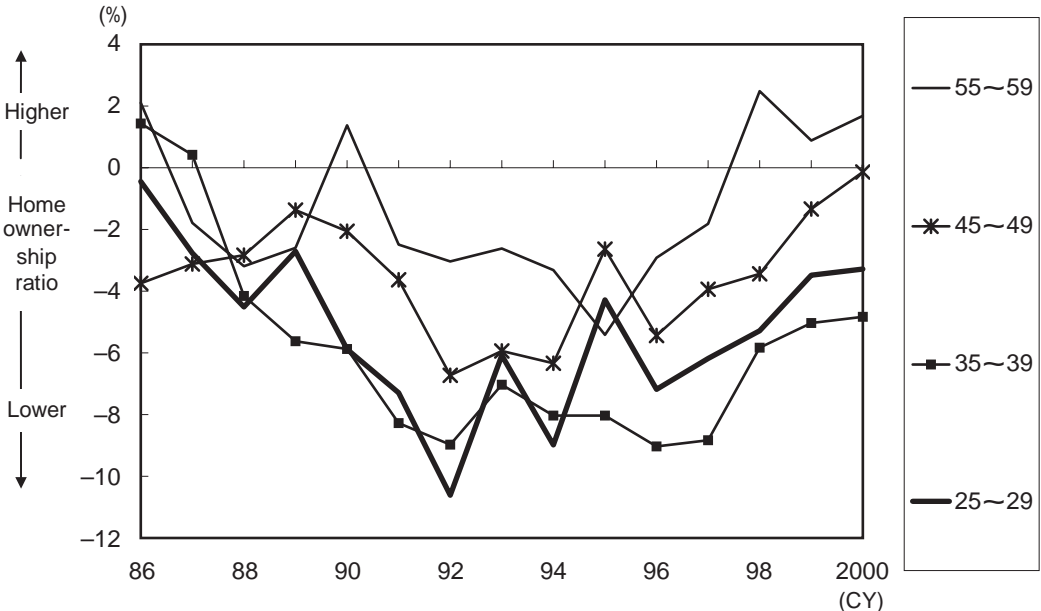
Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey.*
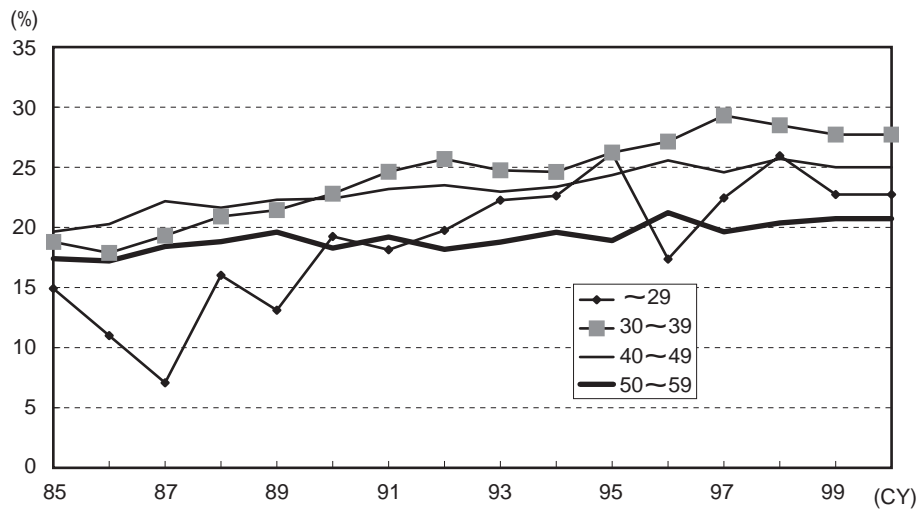
(3) Savings Rate Adjusted for Imputed Rent

In the national accounts, while home ownership does not involve actual rent payments, a rent is imputed at market rates on the assumption that the same service is produced and consumed as in rental housing.

Following this logic, we calculated savings rates for each age group by adding in imputed income and expenditure associated with home ownership.[9] The results over time are shown in Figure 9.

After adjusting for imputed rent, savings rates for most age groups are lower than in Figure 6. However, for each age group, the adjusted savings rates still trend upward from the mid 1990s.

Figure 9 Savings Rate by Age Group (Adjusted for Imputed Rent)

Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey.*

Figure 10 Savings Rate by Age Group (Change Since 1985; Adjusted for Imputed Rent)
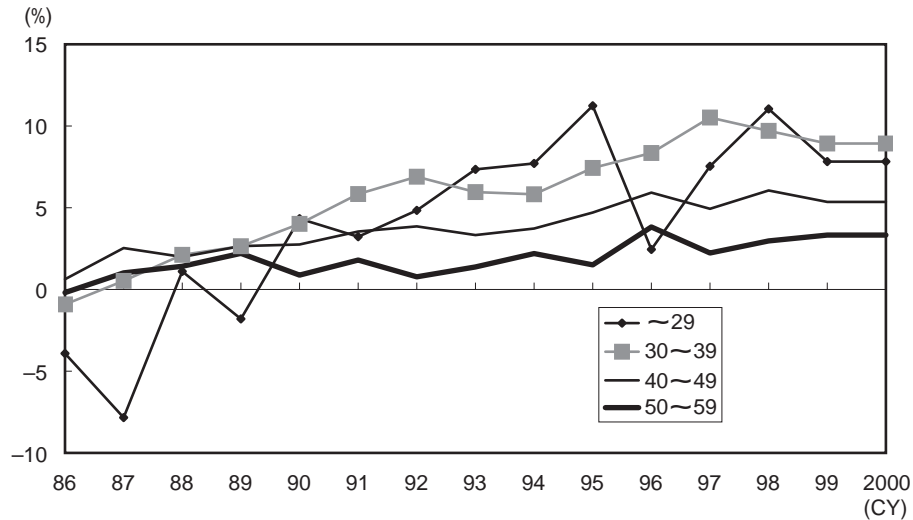
(%)

Legend:
- ◆ ～29
- ■ 30～39
- — 40～49
- ━ 50～59

Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey.*

But while savings rates tend to rise in each age group, the savings rate pattern by age is fairly stable over time. This indicates that life patterns conform with the life cycle hypothesis — high incomes earned during the working years are not completely consumed, but rather saved for future consumption during retirement when incomes are low.[10]

Figure 11 Savings Rate Pattern by Age at Different Points in Time (Adjusted for Imputed Rent)

Legend:
- — 1986
- ■ 1990
- ▲ 1995
- ━ 2000
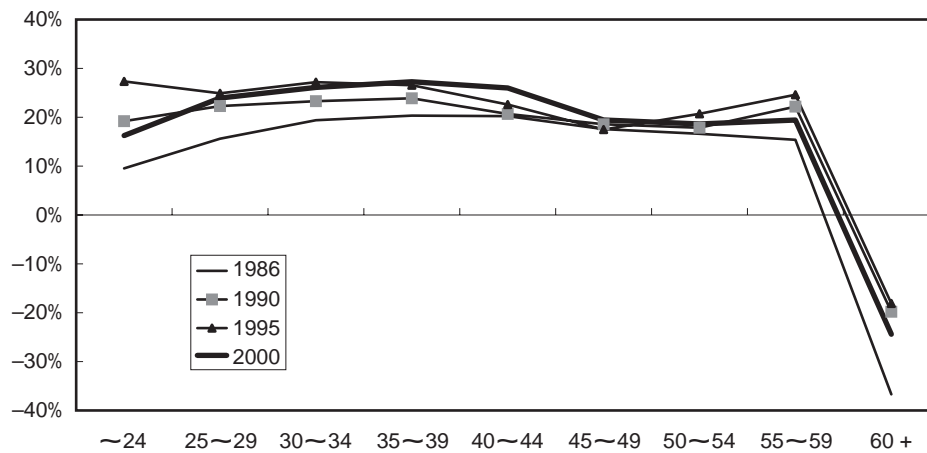
Note: Savings rate for 60-and-over age group is that of non-working households.
Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey.*

Nonetheless, minor changes do appear between age groups. Savings rates in the late 1980s were highest in the order of the 40s, 30s, 50s, and 20s age groups; in the late 1990s, the order had changed to the 30s, 40s, 20s, and 50s age groups. This is because the savings rates of the 20s and 30s age groups

increased by more than that of the 40s and 50s age groups.

Age-related savings rate patterns arise as a result of how savings and consumption are allocated over a lifetime. But while age-related factors basically determine savings rates as stated in the life cycle hypothesis, other factors that change in time are also thought to play a role. In addition to saving for retirement, motives include precautionary ones such as preparing for unexpected expenditures or loss of income. Since the nature of uncertainties varies in each historical period, so too does the need for precautionary savings.

Still, since the extent of uncertainties regarding future employment and income, the social security system, and expenditures (such as one's health condition) vary not only by historical period but by a person's age, the size of precautionary savings accumulated on top of life cycle savings varies by age group. This helps explain why age-related savings patterns are relatively stable at times but variable at other times.

4. Precautionary Savings and Anxiety About the Future

### (1) Rising Job and Income Anxiety in the 1990s

As explained above, precautionary savings and uncertainty about the future are important factors in understanding differences in savings behavior by age group.

The most widespread type of uncertainty in the late 1990s was probably job uncertainty. The surging jobless rate in the late 1990s was indicative of the deteriorating employment environment. As people became increasingly concerned about losing jobs and income, not only did growth expectations for real income decline, but their variance increased.

If the increased variance of expectations is interpreted as risk and measured using the Carlson-Perkin method, a sharp increase is seen in the 1990s for uncertainty regarding employment and income. This uncertainty was reflected in consumer confidence, causing the propensity to consume to decline and hence the savings rate to rise.

From 1997, risk declined as measured by the variance in expected real income growth rates. However, this is mainly due to the convergence of expected real income growth rates at a low or negative level; the employment and income environment has not improved.
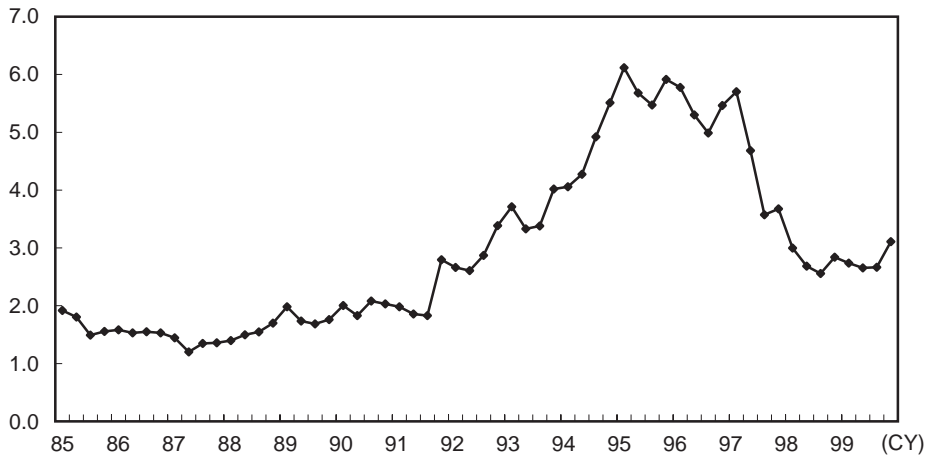
Figure 12 Consumer Confidence Index and the Household Savings Rate
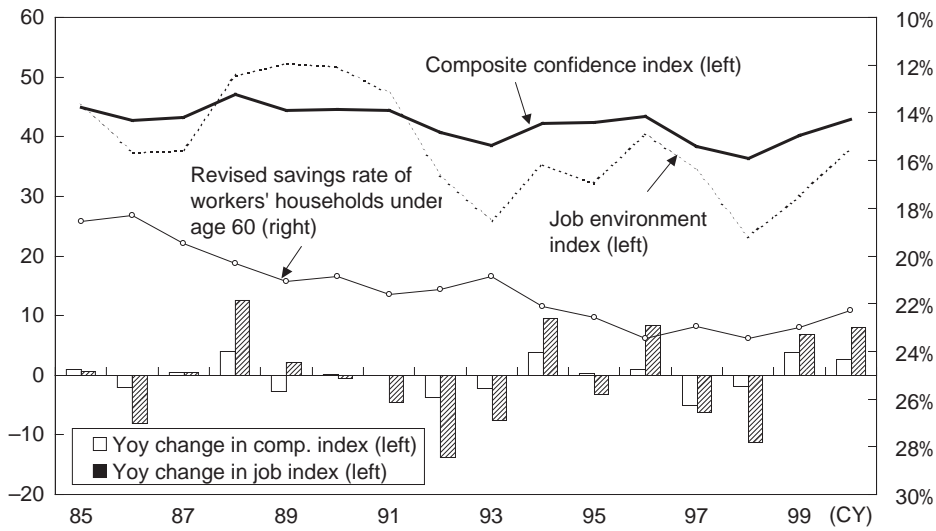
Sources: Cabinet Office, *Consumer Behavior Survey*; Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey*.

Figure 13 Real Income Risk of Households

(Variance of real expected growth rate)

Notes: Based on expectations for growth in income and inflation from the *Consumer Behavior Survey*. Shows variance of real expected income growth rate as measured by the Carlson-Perkin method.

Sources: Cabinet Office, *Consumer Behavior Survey*; Ministry of Public Management, Home Affairs, Posts and Telecommunications, *Annual Report on the Family Income and Expenditure Survey*, and *Consumer Price Indexes*.

By age group, unemployment rates have risen most among the 20s and 30s age groups, suggesting that younger people have greater job anxiety. This inference is compatible with the finding that savings rates adjusted for imputed rent have risen more in the 20s and 30s age groups than in the 40s and 50s

age groups.

Since younger people change jobs more frequently, they may be encouraged to save not only due to employment and income anxiety, but so as to prepare for better job opportunities.

Figure 14 Unemployment Rate by Age Group
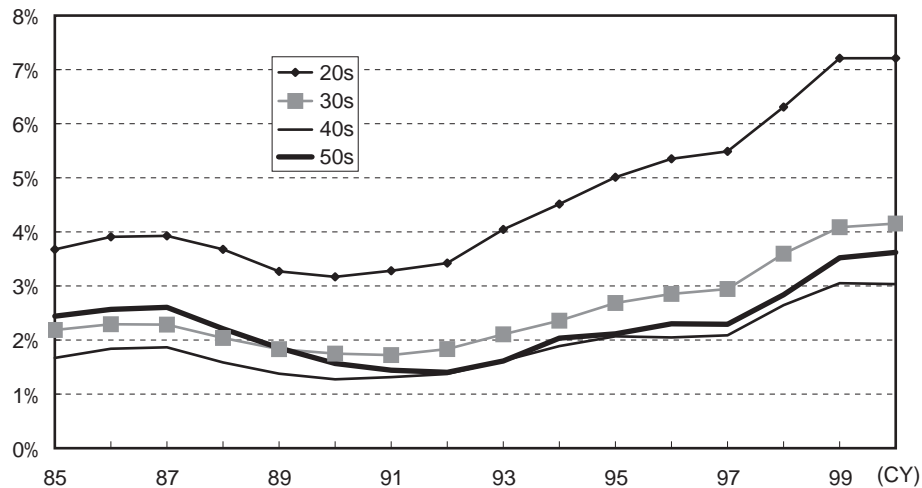
(2) Retirement Life and Pension Anxiety

Compared to the short to medium-term nature of employment anxiety, anxiety about retirement finances and pensions represent a long-term concern.

Figure 15 shows the results of a survey conducted over the past 15 years regarding people's perspective of retirement life (Central Committee for Financial Services Information, *Public Opinion Survey on Household Savings and Consumption*).

Anxiety regarding retirement increased in all age groups in the 1990s. Most notably, in the late 1990s, even the 20s age group, which was least concerned about retirement, became even more concerned than the 50s age group, which is nearest retirement age. This is compatible with the finding that savings rates adjusted for imputed rent rose significantly in the 20s and 30s age groups, such that the savings rate of the 20s age group rose above that of the 50s age group.

The mounting anxiety of younger persons regarding retirement appears to be related to trends in the public pension system. Younger generations are understandably concerned because while the pension reforms of 1994 and 1999 cut overall benefit levels, the ratio of benefits to contributions remains heav-

ily biased against younger persons, while the need for further reforms remains certain. Public pension benefits are an extremely important component of life planning and preparation for retirement, and as long as the future of the system remains unclear, people are forced to prepare more by themselves.

Moreover, according to a survey of savings motives with respect to actual savings, only about 10 percent of persons in their 20s are saving for retirement. Thus although younger persons are growing more anxious about matters in the distant future such as public pensions, the fact that they are not preparing adequately now implies that the savings rate may rise further as they begin to prepare seriously.

Figure 15 Anxiety Regarding Retirement Life
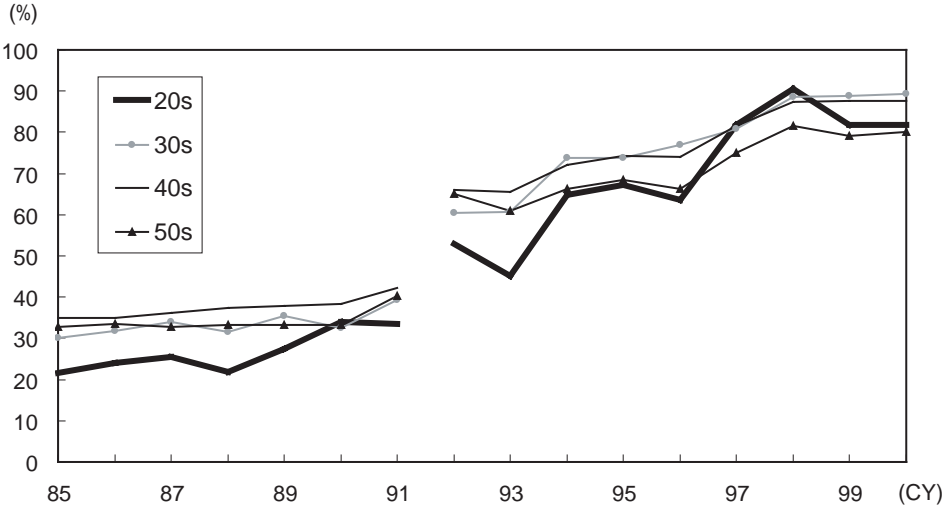
Note: Shows proportion of respondents who are somewhat or very worried. The gap indicates that data after 1991 is not directly comparable due to rewording of responses in 1992.
Source: Central Committee for Financial Services Information, *Public Opinion Survey on Household Savings and Consumption*.

Figure 16 "Saving for Retirement" as a Motive in Actual Savings Behavior
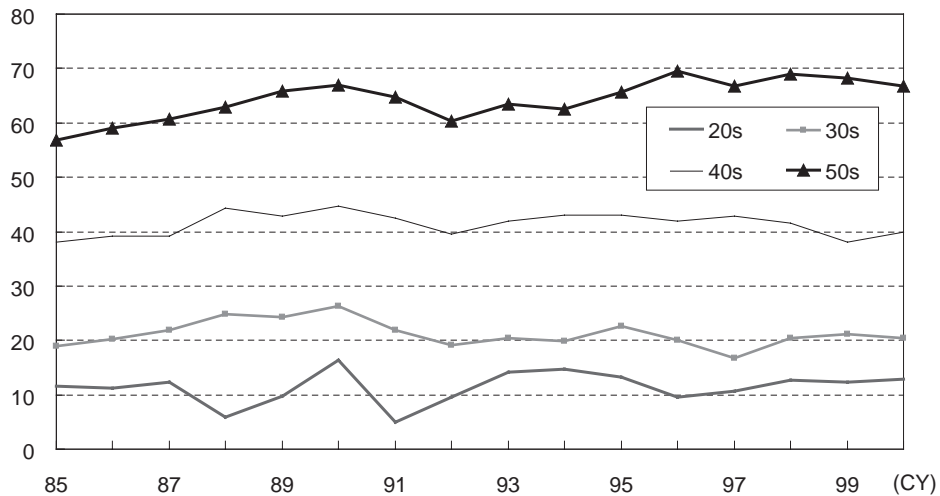
Source: Central Committee for Financial Services Information, *Public Opinion Survey on Household Savings and Consumption.*

5. Conclusion

We have shown how the savings rate of workers' households — particularly those under age 60 — continues to rise even after adjusting for imputed rent, while the savings rate of non-working households — most of whom are elderly — is significantly negative. What is happening is that the rising savings rate of workers' households is being offset by the growing proportion of non-working households. As a result, even as aging progresses, the overall household savings rate remains unchanged.

The rising savings rate of workers' households under age 60 is explained by precautionary savings prompted by future uncertainties such as the worsening employment environment, declining income, and public pension benefit cuts. In other words, people are either postponing or foregoing consumption due to mounting uncertainties, which is a truly undesirable situation.

For the society as a whole, these uncertainties need to be alleviated as much as possible. Toward this end, the first priority is to achieve stable economic growth by implementing appropriate macroeconomic policies and pushing through structural reforms. On the employment front, it is vital to reduce the social cost of job changing by promoting job migration to growth industries and companies, and reducing frictional unemployment caused by mismatching of supply and demand. In addition, a clear vision needs to be articulated for reform of the social security system to eliminate anxieties.

Notes

1. The terminology used in the *Family Income and Expenditure Survey* is "ratio of surplus."

2. The household savings rate derived from national accounts statistics is estimated using a prescribed methodology that provides full coverage and detailed tallying of the household sector, which is the largest sector of the economy. While the *Family Income and Expenditure Survey* is an important primary data source, other data are also used including household statistical surveys, business establishment statistics, supply-side statistics, tax statistics, and population statistics. The statistics thus obtained are consistent with the statistics for the rest of the economy.

3. Under 68SNA, this statistic remained flat during the 1990s. However, under 93SNA, social benefits in kind of the health insurance system were removed from both disposable income and consumption, causing the savings rate to be revised upward.

4. Among households aged 65 and above, 67.3 percent are non-working households.

5. The savings rate for single-person households, which can be obtained from the *Income and Expenditure Survey of One-Person Households* (Ministry of Public Management), does not differ significantly from that of two-person households in the Family Survey.

6. For a detailed explanation of the method and results of revising 68 SNA based savings rates along the concepts of the *Family Survey*, see the discussion paper, "Comparison of Saving Rates Derived from SNA Statistics and the Family Income and Expenditure Survey."*National Economic Accounts Quarterly,* no. 99, December 1993.

7. After referring to the discussion paper in Note 6, we extracted key 68SNA categories for which data is available in the *Annual Report on National Accounts*, and selected those for adjustment after considering differences between 68SNA and 93SNA.
   Items deducted from net disposable income: Operating surplus (imputed service of owner-occupied dwellings, net), property income attributed to insurance policyholders (receivable; the amount corresponding to voluntary employees' social contributions is deducted), and voluntary employers' actual social contributions.
   Items added to net disposable income: Interest paid on consumer debt, interest paid on housing loan, rent paid on land for owner-occupied dwellings, net non-life insurance premiums, and miscellaneous current transfers in other current transfers (payable).
   Items deducted from final consumption expenditure of households: Imputed rent on of owner-occupied dwellings, portion of life insurance premiums consumed.
   Items added to final consumption expenditure of households: Rent paid on land of owner-occupied dwellings, net non-life insurance premiums, and miscellaneous transfers in other current transfers (payable).
    The following definitions are used:
   Household savings rate (%) =|1 – Final consumption expenditure of households ÷ (Disposable income + Change in pension fund reserve)| × 100.
   Land rent paid on owner-occupied dwellings = Net operating surplus of owned home – Corporate income of owned home – Interest paid for owned home.
   Since the portion of life insurance premiums consumed is not contained in the *Annual Report on National Accounts*, we substituted household consumption expenditure for life insurance contained in the *Industrial Input Output Table* (METI).

8. The home ownership ratio derived from the *Family Income and Expenditure Survey* is low compared to the exhaustive *Housing and Land Survey* (Ministry of Public Management, Home Affairs, Posts and Telecommunications) conducted every five years. This is attributed in part to the fact that the *Family Survey* excludes one-person households, who have a low ownership ratio.

9. The average rent, which is obtained by combining owner and renter households, is the sum of: [Ownership ratio $\times$ 0] + [(1 – Ownership ratio) $\times$ Rent paid by renter household]. Thus after adjustment for imputed rent, the average rent for all households is:

Rent before adjustment + (Ownership ratio $\times$ Imputed rent of owner-occupied dwellings).

Moreover, the imputed rent for owner-occupied dwellings is obtained as follows:

Floor space of owner-occupied dwellings $\div$ Floor space of rented dwellings $\times$ Rent paid by renter households
= Floor space of owner-occupied dwellings $\div$ Floor space of rented dwellings $\times$ Rent before adjustment $\div$ (1 – Ownership ratio).

As a result,

Overall average rent after adjustment for imputed rent = Rent before adjustment $\times$ |1 + Ownership ratio $\div$ (1 – Ownership ratio) $\times$ Floor space of owned home $\div$ Floor space of rented home |.

In addition, note that [Amount corresponding to operating surplus of owner-occupied dwellings $\times$ Ownership ratio] has been added into disposable income.

10. For greater accuracy, instead of the savings rate by age at given periods, we need to follow the savings rate pattern of the same generation over a lifetime.