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Evidence Based on the Maturation of Postal Saving Certificates

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Abstract

Japan's traditionally high household saving rate has declined substantially since the early 1990s. While this decline is often explained as a result of the rapid increase in the population share of the elderly who are dissaving, we argue that the cause is a decline in interest income triggered by falling interest rates. To examine our hypothesis, we focus on the effect of the maturation of relatively high-yielding postal savings certificates. Estimating a savings function, we find that the reduction in interest income caused by the maturation of the postal saving certificates reduced household saving rates by 3 percentage points.

1. Introduction

Japan's savings rate has traditionally been exceptionally high in international comparison – a fact that numerous studies have sought to explain, either from a domestic or from an international perspective (e.g., Hayashi (1997), Horioka et al. (1997)). Hayashi (1997), for example, proposed a catalogue of reasons to explain the high personal savings rate in Japan: high income growth, demographics, the underdeveloped social security system, the bonus system, tax incentives, high housing/land prices, bequests, and cultural factors. Yet, despite the considerable number of studies trying to explain Japan's high savings rate, the issue has not been conclusively resolved.

Adding to the mystery is that Japan's legendary household savings rate has declined substantially over the past decade and a half (Figure 1).[1] It should be noted that this decline has not always been gradual and a large drop can be observed around the year 2000. According to the new SNA series (93SNA), the household savings rate fell by 2.6 percentage points in FY2000 and another 2.5 percentage points in FY2001 for a total of 5 percentage points in only two years. The savings rate subsequently declined

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[1] There are several measures for the household savings rate. This study uses the SNA measure of the household savings rate, which defines it as the amount of household savings divided by the sum of net household disposable income and the change in pension reserves in pension funds. As pointed out by Horioka (2004), this is the broadest measure of the household savings rate and also the most consistent with the concept of the savings rate.

by a further 2.4 percentage points over the next three years to only 2.6 percent in FY2004.

A number of studies have argued that this decline since the early 1990s can be accounted for by the rapid increase in the share of the elderly in the population, who, in line with the life-cycle model, are drawing down their savings (Horioka et. al.(1997), Koga (2004)).[2] However, if population aging is indeed the dominant factor, then we would expect the savings rate to decline gradually, since population aging is a slow and long-term phenomenon. But what we observe in reality are large annual changes in the household savings rate. In particular the large drop by 5 percentage points during FY2000-FY2001 cannot be explained by population aging, since there is no evidence to suggest that the speed of aging accelerated in that period.

In this study, we propose an alternative explanation for the decline in the household savings rate: a decrease in interest rate income as a result of falling interest rates during the 1990s. Interests on deposits, which had been in the region of 3 or 4 percent at the end of the bubble period in 1991, fell to zero around the turn of the millennium, leading to a decline in household interest income.[3] In order to illustrate our

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[2] Another hypothesis to explain the lower household savings rate since the 1990s is proposed by Ogawa (2005), who argues that the decline is explained by an increase in the proportion of households which are liquidity-constrained.

[3] Interest rates on postal ordinary deposits, for example, were 3.5 percent per annum between September 1990 and July 1991, but then declined throughout the 1990s and have stood at 0.005

argument on the effect of household interest income on the savings rate, we are going to

focus on postal savings certificates (*teigaku chokin*; henceforth: PSC), which are among

the most common financial instruments used by households.

PSCs are fixed-term instruments paying a fixed interest rate unless cancelled

prematurely. The longest term is 10 years. In 1990 and 1991, the interest rate on PSCs

with a maturity of more than three years was 6.33 percent per annum (see Figure 2).[4]

Yielding relatively high returns at no risk, PSCs were extremely popular and new

purchases amounted to 62 trillion yen in FY1990 and another 44 trillion yen in

FY1991.[5] Since the maximum term of PSCs is ten years, the last date PSCs purchased

in 1990/1991 reached maturity is around the year 2000. The total amount of PSCs

reaching maturity in FY2000 amounted to 54 trillion yen, with a further 47 trillion yen

coming due in FY2001. Given the low-interest rate environment at that time, most

households experienced a substantial decline in the returns on their assets. As will be

shown below, most of the funds coming due were reinvested PSCs, but at interest rates

that were close to zero.

This situation represents an exogenous change in interest rates. The overall effect

percent since June 2002.

[4] Interest on a PSC with a maturity of three or four years is set using the semiannual compound interest method. The minimum unit of transaction is 1,000 yen.

[5] Data on postal savings are from the Japan Post website: <http://www.zaimu.japanpost.jp/tokei/index-e.html>.

of an exogenous change in interest rates on household savings can go either way, as it depends on the magnitude of both the income and the substitution effect. In other words, a decline in interest rates does not necessarily results in a reduction in household savings. However, we think there is good reason to believe that the maturation of PSCs payer higher rates of interest had a negative impact on household savings, since the marginal propensity to save out of interest income on PSCs can be assumed to be higher than that on other types of income. This is because as long as PSCs are not cancelled, the marginal propensity to save (MPS) out of interest income on PSCs is 100 percent since interest payments are automatically reinvested. However, in the case of PSCs that matured in 2000/2001, once these reached maturity, most households faced a substantial decline in interest rates which lowered household saving rate.

This hypothesis receives further support by the fact that households which purchased PSCs at the beginning of the 1990s faced strong incentives to keep those deposits as long as possible. PSCs purchased at the beginning of the 1990s offered households by far the highest returns of all risk-free assets. Since the interest rate on PSCs is fixed at the time of purchase, households which bought PSCs around 1990 enjoyed returns of more than 6 percent even as interest rates on other financial products declined during the 1990s. They therefore had every reason to hold on to their PSCs

until these reached maturity.

A further reason for savers to hold on to their PSCs are "transaction costs," including the mental burden of having to worry about the most efficient allocation of assets and the physical burden of going to a bank or post office. It seems likely that many households cannot be bothered to sell existing investments and purchase new financial products unless the new investment promises substantially higher returns that would compensate for the troubles involved. Such passive investment behavior is likely to have been widespread because PSCs offered unusually high returns at little risk.

The aim of this study is to examine the effect of the maturation of PSCs around 2000 – which can be considered as an exogenous change in interest rates – on household saving. We do so by using household level data and believe that this is the first study to do so.

Since the interest rate on PSCs coming due around 2000 was fixed, we can examine the effect of a reduction in interest rates on the household savings rate without having to deal with the endogeneity problems that earlier studies exploring the relationship between interest rates and savings have had to contend with. In our analysis, we take advantage of household-level data from the *NEEDS-RADAR Financial Behavior Survey* compiled by Nikkei Media Marketing. This data set contains detailed

information on household investment portfolios, including on holdings of PSCs and when they reach maturity, and on household demographics and households' portfolio.

This study contributes to the large literature on the determinants of household savings rates. Yet, despite the substantial number of studies, as far as we know, few have directly examined the relationship between interest income and household savings rates. There are, however, a number of studies that have analyzed households' portfolio allocation in response to an exogenous change in interest income. For the case of Japan, examples are studies on the effect of the Tax Exemption for Interest Income on Small Savings (called the *maruyu* scheme) on households' asset allocation. Ogawa (1989) and Shigeno (1997) found that the 1988 revision of the *maruyu* scheme (which abolished preferential tax treatment for these small tax-free *maruyu* savings accounts for those aged under 65) led households to shift their portfolio from *maruyu* to non-*maruyu* accounts.[6]

The remainder of the paper is organized as follows. Section 2 provides a description of the data set used in this study. Section 3 outlines our empirical strategy and presents the estimation results. Section 4 summarizes our findings and concludes.)

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[6] Iwamoto, Fujishima and Akiyama (1995) have argued that the effective tax rate on non-*maruyu* assets fell below that on *maruyu* assets following the revision of the exemption.

2. Description of the data

This study takes advantage of household-level data from the *NEEDS-RADAR Financial Behavior Survey (Kinyu Kodo Chosa)*, which is compiled annually by Nikkei Media Marketing, Inc.[7] The survey covers households with household heads aged between 25 and 69 randomly chosen within a 40-kilometer radius of the center of Tokyo. This survey is cross-sectional and the sample size each year is 5,000 households. The questionnaires mailed to the chosen households contain questions on household asset portfolios and on detailed household demographics. Most of the survey questions are the same each year, but each survey also contains questions on topical issues asked only in a particular year.

This study utilizes data from the 1991, 1999 and 2000 surveys. The 1991 survey contains data on households' new purchases of PSCs in that year, while the 1999 and 2000 surveys provide data on households' holdings of PSCs that are reaching maturity. The sample size for 1991 is 2,808 households (the response rate is 56.2 percent), that for 1999 is 2,545 households (response rate: 50.9 percent) and that for 2000 is 2,501 households (response rate: 50.2 percent). After removing observations for which data necessary for our analysis are not available, the sample size for 1991 drops to 1,933,

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[7] Earlier surveys were conducted by Nikkei Data.

that for 1999 to 1,405, and that for 2000 to 1,405.

Table 1 provides the summary statistics of the main variables.[8] They indicate that

the average savings rate in each of the three years was less than 20 percent. The share of

households in 1991 that purchased PSCs was about 40 percent, and the share of

households in 1999 holding PSCs that were reaching maturity was 20 percent. In 2000,

the shares of households holding PSCs that either had reached maturity or were

reaching maturity were 10 and 14 percent, respectively. Average annual household

income was around 7.4 million yen in all three surveys, while the average amount of

total financial assets declined from 12 million yen in 1991 to about 10 million yen in

1999 and 9 million yen in 2000. In addition, looking at the types of assets households

held, we find that more households possess other types of financial assets (such as

stocks, bonds, and time- and saving deposits other than PSCs) in 1991 than in 1999 or

2000. In each of the surveys, about 20 percent of households received incidental

incomes exceeding 1 million yen.[9] Turning to household demographics, we find that the

average age of the household head was about 45 years, and about 90 percent of

household heads were employed. About 50 percent of household heads were junior

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[8] The surveys divide possible answers to certain questions relating to income or assets into brackets, e.g, "2-3 million yen." The summary statistics are calculated based on the average of the range for each choice.

[9] In the 1991 survey, this includes any incidental income received within the preceding year, while in the 1999 and 2000, this refers to any incidental income within the preceding five years.

college or university graduates, while 40 percent were high-school graduates. More than 70 percent of households lived in a detached house, and about 30 percent were paying off a mortgage.

Next, we compare the savings rates of households that had and did not have PSCs reaching maturity. As shown in Table 2(a), households in the 1999 survey that indicated they had ten-year PSCs coming due in 2000 or 2001 had an average savings rate of 37 percent. In contrast, the corresponding figure for households that did not have such PSCs was only 21 percent. For households that held PSCs reaching maturity, the average value of such holdings was approximately 2.5 million yen, equivalent to 24 percent of total household financial assets. The results from the 2000 survey paint a similar picture (Table 2(b)). Households with PSCs that were about to reach maturity had an average savings rate of 48 percent, while households whose PSCs had already come due had an average savings rate of only 28 percent; households without such PSCs had an even lower average savings rate of 21 percent.

Our hypothesis is that the differences in the savings rates of the different household categories (i.e. those with or without PSCs reaching maturity) are a result of the interest rate differential described above. This hypothesis is supported by the replies survey respondents gave to the question how they used the money from PSCs that had

reached maturity. Excluding households that had not yet decided, 60-70 percent of households responded that they were planning to invest the money in PSCs or deposit it in bank accounts which were yielding lower interest rates. This means that upon reinvesting their funds, these households experienced a substantial decline in interest income.

Theoretically, it is of course possible that households choosing to invest in PSCs may be inherently more inclined to have a higher savings rate and the difference in household savings rates is not linked with the higher interest paid on PSCs but by other factors. However, we believe that this is not the case. First, postal savings certificates are well-known, risk-free assets that are easily accessible to anyone, and the minimum investment amount is small. Moreover, as Table 2(c) shows, the savings rates of households that bought new PSCs in 1991 and households that did not were almost identical. In other words, the different savings rates observed among the different groups in 1999 and 2000 are not the result of a self-selection process.

Another possibility is that households holding PSCs are wealthier and hence more inclined to save. But if this were the case, richer households should also display a higher savings rate after the PSCs reached maturity. However, as mentioned in the discussion of Table 2 above, households with PSCs had a higher savings rate than those

without, and at the same time, households whose PSCs had already reached maturity

had a comparable saving rate as those without any PSCs.

In the next section, we will test our hypothesis by estimating a savings function

that controls for household demographics. We will also estimate the extent to which the

change in interest rates affected household savings rates.

3. Estimation strategy and results

In this section, we estimate a household savings function using the micro-data

from the *NEEDS-RADAR Financial Behavior Survey*. Our basic specification is as

follows:

$$\frac{S_{it}}{Y_{it}} = F(PSC_{it}, Fin_{it}, X_{it}) \tag{1}$$

where the dependent variable is the household savings rate (on a flow basis). S_{it} stands

for household savings defined as the amount invested in financial assets or deposited in

bank or postal accounts in the preceding year[10] and Y_{it} is household annual income.[11]

We regress the household savings rate on the dummy variable for households with

PSCs reaching or having reached maturity in 1999 or 2000 (PSC_{it}), returns on other

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[10] Since some households reported an unusually high saving value, we confined our sample in the estimation to only those households whose savings rate was within two standard errors.
[11] Since information on disposable income is not available in the survey, we use pre-tax income for $Y_{it.}$

types of financial assets (Fin_{it}), and household demographics (X_{it}). Since returns on

each type of asset are no available in our data set, we include dummy variables which

take values of one for each type of asset a household holds. X_{it} includes a quadratic term

of household heads' age, household heads' educational attainment, the number of family

members, and a regional dummy for households' residence. We also include three

dummy variables for detached-house owners, households paying off a mortgage, and

those planning to buy a house in the future. Furthermore, we include a dummy for

households that received an incidental income which may otherwise distort the results.

We performed two separate regressions based on specification (1). One uses the

observations from the 1991 survey to examine whether households that purchased PSCs

in that year had a higher savings rate (Table 3(a)). The other uses the pooled

observations of the 1999 and 2000 surveys to explore the effect that the maturation of

PSCs had on the household savings rate (Table 3(b)).

First, we look at the results reported in Table 3(a). We observe that the coefficient

on the dummy variable for households that purchased PSCs is not statistically

significant, implying that the savings rate of households that had PSCs was not

significantly different from that of households that did not. Second, Table 3(b), which

presents the key results of this paper, indicates that the dummy variable for households

whose PSCs had reached maturity is not statistically significant while that for

households whose PSCs were reaching maturity is positive and significant. This means

that PSCs contributed to higher household savings rates before they reached maturity,

but once PSCs had reached maturity, households that had owned PSCs no longer had a

significantly higher savings rate. The estimated coefficient on the dummy for

households that held PSCs that were reaching maturity is 0.034, which implies that

PSCs raised household saving rates by 3.4 percentage point.

4. Conclusion

While most studies on Japan's declining household savings rate explain this trend

with the life-cycle hypothesis, we suggested here that the observed decline may be the

result of a reduction in interest rates. We supported our argument by examining the

effect of the maturation of high-yielding postal savings certificates. Taking advantage of

a rich micro-level dataset, we estimated a savings function and found that the reduction

of interest income around 2000 contributed to the decline in household savings rates.

Concretely, our estimation shows that the maturation of PSCs around 2000 lowered

household savings rates by 3 percentage points. While this study has exclusively

concentrated on the effect of the maturation of PSCs around the year 2000, our

empirical results provide evidence for the more general argument that interest income is

a key factor contributing to the decline in Japan's household savings rate since the early

1990s.

(References)

Hayashi, Fumio (1997). *Understanding Saving*, MIT Press.

Horioka, Charles (1997). "A Cointegration Analysis of the Impact of the Age Structure

of the Population on the Household Saving Rate in Japan," *Review of Economics*

and Statistics, vol.79, No.3, 511-516.

Horioka, Charles (2004), "Chochikuritsu to Koreika [The Savings Rate and Population

Aging," *Nihon Keizai Shimbun,* September 9th,

Horioka, Charles and Wako Watanabe (1997). "Why do People Save? A Micro-Analysis

of Motives for Household Saving in Japan," *Economic Journal*, vol. 107, No.

442, 537-552.

Iwamoto, Yasushi, Yuichi Fujishima and Norifumi Akiyama (1995). "Rishi Haito Kazei

no Hyoka to Kadai [An Evaluation of Taxation on Interest Income, Dividends,

and Related Issues]" (in Japanese), *Financial Review*, No. 35, 27-50.

Koga, Maiko (2004). "Chochikuritsu no Chokiteki Teika Keiko o meguru Jissho

Bunseki: Life-cycle-Kojo Shotoku Kasetsu ni Motozuku Approach [An Analysis of the Long-term Decline in the Savings Rate: An Approach Based on the Life-cycle Hypothesis]" (in Japanese), *Bank of Japan Working Paper Series*, No. 04-J-12.

Ogawa, Kazuo (1989). "Kakei Chochiku no Suryo Bunseki – Hikazei Chochiku Seido to Chochiku Kodo [A Quantitative Analysis of Household Savings: The System of Non-taxable Savings and Saving Behavior]" (in Japanese), Chochiku Keizai Kenkyu Center, *Yutaka na Jidai no Kurashi to Chochiku.* Gyosei, 273-309.

Ogawa, Kazuo (2005). "Why Did Japan's Household Savings Rate Fall in the 1990s?" *Discussion Paper* No. 56, Osaka University.

Shigeno, Yukiko (1997). "Rishi Kazei Seido no Seisakuteki Tenkan to Kakei no Hanno [Policy Change in the Taxation of Interest Income and Households' Response]" (in Japanese), *Osaka Daigaku Keizaigaku*, vol.46, No.3, 24-45.

Figure 1: Japan's Household Savings Rate

Figure 2: Postal Savings Certificates -
New Purchases, Withdrawals, and Interest Rate

New Purchases /
Withdrawals

Unit: Billion Yen

Interest Rate

Unit: %

— New Purchases
···· Withdrawals
— Interest Rate (on PSCs with a maturity of more than three years)
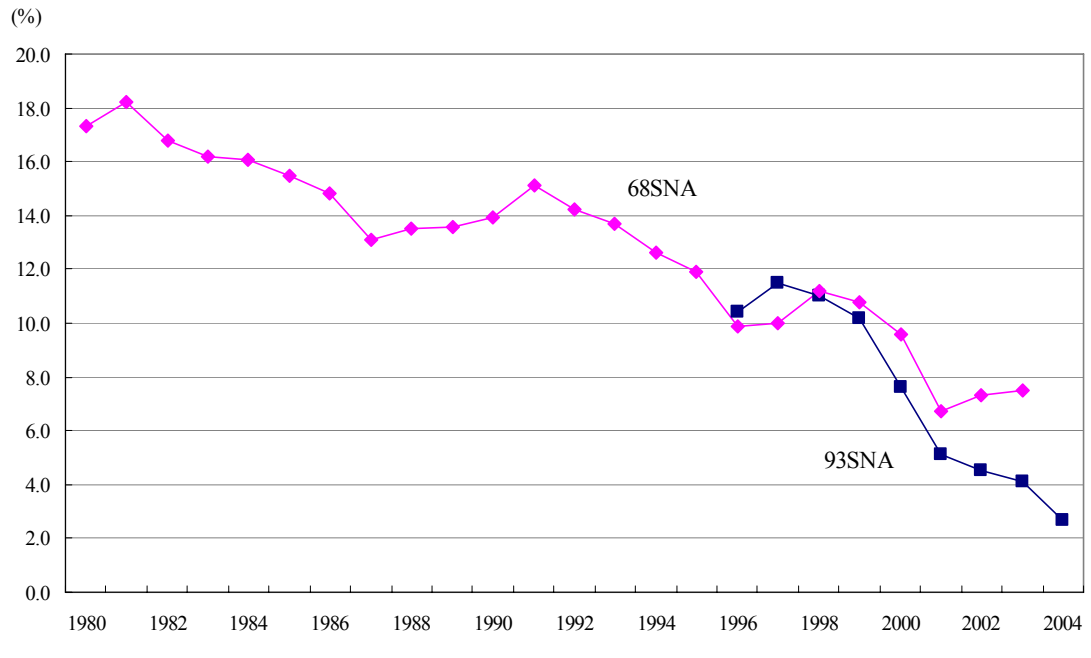
Table 1: Descriptive statistics
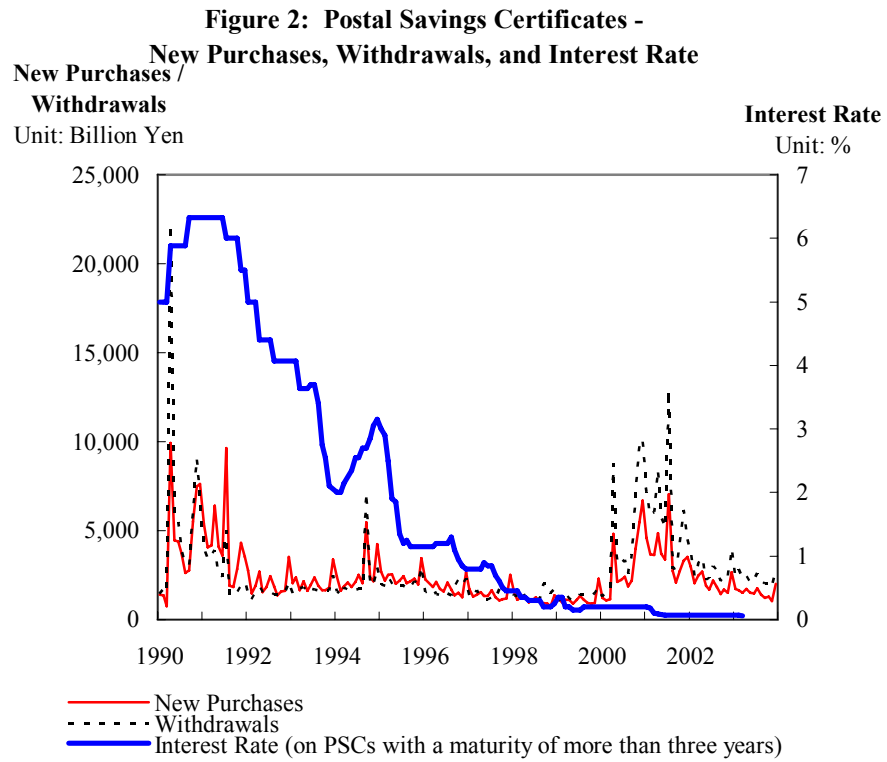
	1991		1999		2000	
	Mean	Std. deviation	Mean	Std. deviation	Mean	Std. deviation
Savings rate	0.18	0.20	0.17	0.22	0.16	0.23
Dummy for						
(new purchase of PSCs)	0.36	0.48	-	-	-	-
(having PSCs which had reached maturity)	-	-	-	-	0.10	0.30
(having PSCs which are reaching maturity)	-	-	0.19	0.39	0.14	0.35
Annual income (hundred thousand yen)	73.88	43.66	74.52	44.96	73.61	45.61
Total financial assets (hundred thousand yen)	120.06	194.91	105.72	161.40	92.84	155.39
Dummies for households holding the following assets:						
Time- and saving-deposits except PSCs	0.80	0.40	0.58	0.49	0.48	0.50
Stocks	0.34	0.47	0.28	0.45	0.26	0.44
Bonds	0.32	0.47	0.22	0.42	0.19	0.39
Other	0.38	0.49	0.34	0.47	0.31	0.46
Dummy for households with an incidental income	0.20	0.40	0.21	0.40	0.19	0.39
Age of household head	44.86	11.93	45.96	13.05	45.77	13.01
Employed (household head)	0.94	0.23	0.91	0.28	0.91	0.29
Family size	3.02	1.37	2.88	1.36	2.95	1.34
Educational attainment (household head)						
Junior high school	0.10	0.29	0.07	0.25	0.08	0.27
High school	0.38	0.49	0.32	0.47	0.32	0.47
Junior college	0.08	0.27	0.11	0.32	0.11	0.31
University / Graduate school	0.44	0.50	0.50	0.50	0.49	0.50
Area of residence						
Central Tokyo (23 wards)	0.27	0.44	0.27	0.44	0.27	0.45
Outer Tokyo	0.12	0.33	0.16	0.37	0.17	0.38
Saitama prefecture	0.19	0.39	0.16	0.37	0.17	0.37
Chiba prefecture	0.16	0.37	0.16	0.36	0.16	0.37
Kanagawa prefecture	0.26	0.44	0.24	0.43	0.22	0.41
Ibaraki prefecture	-	-	0.01	0.10	0.01	0.11
Detached house owner	0.70	0.46	0.73	0.44	0.72	0.45
Dummy for paying off a mortgage	0.32	0.47	0.31	0.46	0.33	0.47
Dummy for planning to buy a house	0.38	0.49	0.33	0.47	0.37	0.48
Number of observations	1,933		1,453		1,405	

Table 2: A Comparison of Savings Rates of Households with and without Postal Savings Certificates Reaching Maturity

(a) 1999 Survey

	Households with PSCs reaching maturity		Households without PSCs reaching maturity	
	No. of obs.=355		No. of obs.=1430	
	Average	Std. Dev.	Average	Std. Dev.
Age of household head (years)	52.35	11.80	44.69	12.84
Annual household income (100,000 yen) (A)	78.84	43.26	72.64	45.84
Amount saved during the past year (100,000 yen) (B)	27.17	72.05	13.20	28.06
Savings rate (B)/(A)	0.37	0.86	0.21	0.66
Value of PSCs reaching maturity (100,000 yen) (C)	24.72	28.45	-	-
Total financial assets (100,000 yen) (D)	187.34	205.22	86.35	145.75
Value of PSCs reaching maturity as a share of total financial assets (C)/(D)	0.24	0.38	-	-

(b) 2000 Survey

	Households with PSCs reaching maturity		Households with PSCs that had reached maturity		Households without PSCs that have reached maturity	
	No. of obs.=239		No. of obs.=169		No. of obs.=1294	
	Average	Std. Dev.	Average	Std. Dev.	Average	Std. Dev.
Age of household head (years)	51.38	12.20	50.69	11.87	44.26	12.71
Annual household income (100,000 yen) (A)	77.70	45.15	80.93	52.29	70.99	44.09
Amount saved during the past year (100,000 yen) (B)	27.98	65.99	16.93	26.50	13.28	32.98
Savings rate (B)/(A)	0.48	1.40	0.28	0.63	0.21	0.66
Value of PSCs reaching maturity (100,000 yen) (C)	22.49	29.22	18.55	21.81	-	-
Total financial assets (100,000 yen) (D)	171.30	203.63	120.83	158.09	75.41	136.85
Value of PSCs reaching maturity as a share of total financial assets (C)/(D)	0.29	0.46	0.33	0.44	-	-

(c) 1991 Survey

	With newly purchased PSCs		Without newly purchased PSC	
	No. of obs.=812		No. of obs.=1516	
	Average	Std. Dev.	Average	Std. Dev.
Age of household head (years)	47.58	11.92	44.02	11.53
Annual household income (100,000 yen) (A)	75.65	44.77	72.14	43.04
Amount saved during the past year (100,000 yen) (B)	16.89	26.94	15.38	43.48
Savings rate (B)/(A)	0.24	0.41	0.22	0.78
Total financial assets (100,000 yen) (D)	158.04	203.98	104.00	189.96

Table 3(a): The Determinants of Household Savings Rates in 1991

Dependent Variables	Estimated Coefficient	Std. Error	
Intercept	0.2919	0.0750	**
Dummy for having purchased PSCs in 1991	0.0178	0.0123	
Educational attainment (household head)			
Junior high school	0.0365	0.0165	*
Junior college	0.0009	0.0179	
University / Graduate school	0.0091	0.0120	
Area of residence			
Outer Tokyo	0.0118	0.0172	
Saitama prefecture	0.0160	0.0156	
Chiba prefecture	0.0196	0.0171	
Kanagawa prefecture	0.0058	0.0137	
Age of household head	-0.0090	0.0038	*
Age of household head ^{2}	0.0001	0.0000	*
Family size	-0.0108	0.0048	*
Employed (household head)	0.0271	0.0199	
Detached-house owner	0.0130	0.0130	
Detached-house owner*(Paying off a mortgage)	-0.0192	0.0141	
Dummy for planning to buy a house	-0.0026	0.0113	
Total financial assets	0.0004	0.0001	**
Dummy for having the following assets			
Time and saving deposits except PSCs	0.0149	0.0119	
Stocks	0.0267	0.0123	*
Bonds	-0.0062	0.0134	
Other	0.0001	0.0117	
Dummy for having received incidental income	0.0883	0.0128	**

Number of observations = 1,933
Log likelihood = 535.115

Note: 1. The coefficients are estimated using a Tobit model in which standard errors are calculated under the assumption that heteroskedasticity is a function of the variables.

2. ** Siginificant at the 1-percent level. * Siginificant at the 5-percent level.

3. The base case for educational attainment is "high school" and that for area of residence is Central Tokyo (23 wards).

Table 3(b): The Determinants of Household Savings Rates in 1999 and 2000

Dependent Variables	Estimated Coefficient	Std. Error	
Intercept	0.3470	0.0744	**
Dummy for year 2000	-0.0088	0.0099	
Dummy for holding PSCs which			
(had reached maturity)	0.0243	0.0227	
(were reaching maturity)	0.0341	0.0140	*
Educational attainment (household head)			
Junior high school	-0.0177	0.0227	
Junior college	0.0186	0.0155	
University / Grad school	-0.0033	0.0104	
Area of residence			
Outer Tokyo	-0.0084	0.0139	
Saitama prefecture	-0.0241	0.0140	
Chiba prefecture	-0.0148	0.0145	
Kanagawa prefecture	-0.0251	0.0129	
Ibaraki prefecture	-0.0129	0.0521	
Age of household head	0.0024	0.0037	
Age of household head ^{2}	-0.0001	0.0000	
Family size	-0.0138	0.0037	**
Employed (household head)	-0.2429	0.0162	**
Detached-house owner	0.0441	0.0120	**
Detached-house owner*(Paying off a mortgage)	-0.0272	0.0115	*
Dummy for planning to buy a house	0.0229	0.0094	*
Total financial assets	0.0004	0.0001	**
Dummy for having the following assets			
Time and saving deposits except PSCs	0.0267	0.0098	**
Stocks	0.0053	0.0122	
Bonds	0.0224	0.0133	
Other	0.0058	0.0112	
Dummy for having received incidental income	0.1734	0.0107	**

Number of observations = 2,858
Log likelihood = 479.395

Note: 1. The coefficients are estimated using a Tobit model in which standard errors are calculated under the assumption that heteroskedasticity is a function of the variables.

2. ** Siginificant at the 1-percent level. * Siginificant at the 5-percent level.

3. The base case for educational attainment is "high school" and that for area of residence is Central Tokyo (23 wards)