Volume Title: International Comparisons of Household Saving

Volume Author/Editor: James M. Poterba, Editor

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-67621-8

Volume URL: http://www.nber.org/books/pote94-1

Conference Date: March 18-20, 1993

Publication Date: January 1994

Chapter Title: Household Saving Behavior in Japan

Chapter Author: Noriyuki Takayama, Yukinobu Kitamura

Chapter URL: http://www.nber.org/chapters/c8872

Chapter pages in book: (p. 125 - 168)

3 Household Saving Behavior in Japan

Noriyuki Takayama and Yukinobu Kitamura

3.1 Introduction

This chapter presents a brief survey of microdata sources and microdata descriptions of the nature of household behavior and, in particular, saving behavior in Japan. For those who are interested in Japanese saving behavior on the microlevel, this chapter is intended to play the role of an introductory guided tour.

It has been widely recognized that the level of aggregate household savings in Japan is quite high by international standards. To identify who actually saves in Japan, it is necessary to analyze microdata and to investigate the wealth formation process over the life cycle. In so doing, it is not sufficient to observe the age profile of saving behavior from cross-sectional data alone. Life-cycle behavior can be identified only when changes in wealth by the same cohort over time can be fully traced.

We will make our argument more concrete. In Japan, it is true that a high proportion of household financial assets are held by the elderly. But this static fact alone cannot tell us how the elderly have accumulated their wealth from the time when they were much younger. With information on the composition of wealth increases by the same cohort, the wealth formation process over the

life cycle becomes clearer. For instance, we find that households, when young, obtain their wealth partly through their own finance (via loans) and partly through intergenerational transfers from their parents, while, as they get older, their wealth is accumulated through capital gains. After age 60, these households, in turn, start leaving bequests (intergenerational transfers) to their children.

Along with playing the role of tour conductor, we present sufficient materials and a new method to analyze life-cycle, as well as cohort, effects by combining different data points in time. In fact, this chapter presents the first clearcut and probably the most definitive picture of microeconomic household saving behavior in Japan to date.

This chapter is organized as follows. Section 2 explains the available microdata sources on household behavior in Japan. The statistical comparability of the National Survey of Family Income and Expenditure with the Annual Report on National Accounts and with the Flow of Funds Accounts is also discussed at some length. Section 3 gives a detailed data analysis of the NSFIE. Special emphasis is placed on saving and wealth formation behavior over the life cycle. Section 4 examines the age-contribution and age-recipient pattern of social security and retirement pensions, with regard to household saving behavior. A brief conclusion is given in section 5.

3.2 Microdata Sources on Household Behavior in Japan

Several large-sample microsurveys concerning Japanese household behavior are conducted regularly by the government.[1] With advances in sampling survey technique, the data sources cover wide-ranging aspects of household behavior. Major aspects include (1) consumer behavior, (2) asset accumulation, (3) labor supply, and (4) time allocation. These data sources are used for the statistical adjustment of national income accounts, the construction of the consumer price index, and forecasts of business activities, among other things.

Each data source has pros and cons. For example, the Family Income and Expenditure Survey (FIES) has the following characteristics: (1) because it is used to construct the consumer price index, a special emphasis has been placed on time-series comparability; (2) expenditures are accounted by a daily bookkeeping (diary) method; (3) because housewives normally keep records, expenditures made by other members are likely to be underestimated. In particular, the consumption behavior of those who live with their parents is not

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1. The major surveys include the Family Income and Expenditure Survey (Designated Statistics, no. 56), Family Saving Survey (Approved Statistical Report), National Survey of Family Income and Expenditure (Designated Statistics, no. 97), Comprehensive Survey of Living Conditions of the People on Health and Welfare (Designated Statistics, no. 116) and Survey on Time Use and Leisure Activities (Designated Statistics, no. 114). For more information on these surveys, see Statistics Bureau (1991). Note, however, that the Japanese government does not collect "panel data" on household behavior.

captured fully. Nevertheless the reported data are, in general, known to be reliable. A major statistical problem lies in the declining response rate such that households in the randomly selected sample often refuse to participate in data collection. In fact, it is said that the response rate dropped from 69.9 percent in 1955 to 55.0 percent in 1990 (see Mizoguchi 1992, 62). This would distort the sample distribution. Those who refuse to participate are quite likely to fall in the categories of self-employed workers, merchants, unemployed workers by occupation, elderly by age, and wealthier and poorer households by income class.[2] In the case of the National Survey of Family Income and Expenditure (NSFIE), according to the Statistics Bureau the response rate for the 1989 survey was about 85 percent which was substantially higher than for the FIES.

The NSFIE reports much lower per household financial assets than do the Flow of Funds Accounts (FFA) and Annual Report on National Accounts (SNA). In 1984, the FFA estimated 10.35 million yen on average, and the SNA 8.8 million yen, while the NSFIE reported 6.2 million yen. In 1989, the FFA reported 16.45 million yen, the SNA 16.90 million yen, and the NSFIE 10.30 million yen. The gap between the FFA and the SNA is relatively small (i.e., SNA/FFA was 0.850 in 1984 and 1.027 in 1989), compared with that between the NSFIE and the FFA (or between the NSFIE and the SNA) (i.e., NSFIE/FFA was 0.600 in 1984 and 0.626 in 1989; NSFIE/SNA was 0.705 in 1984 and 0.609 in 1989). These facts imply that, although the gap between the SNA and the FFA (less than 15 percent) can be explained in terms of differences in statistical coverage (e.g., private nonprofit institutions and health insurance funds are included in the FFA but not in the SNA), the approximately 40 percent difference between the NSFIE and the FFA (or between the NSFIE and the SNA) must go beyond the usual explanations of differences in statistical coverage and reporting months. Three explanations can be made: First, as was discussed above, there exists a sample selection bias due to refusals among wealthier households to participate in the survey. Consequently, the mean asset holdings in the NSFIE are lower than in the SNA or the FFA. Second, the difference may be affected by underreporting by self-employed households. Although both the NSFIE and the FFA (and the SNA) include self-employed households, those in the NSFIE seem to report financial assets only for personal use and exclude those for business purposes. Third, it should be noted that the SNA data are constructed from value added in the production sector and that, with the commodity flow method, the household sector is treated as a residual. Thus, in general, household sector accounts (e.g., savings) are sub-

2. A similar tendency is found in the United Kingdom, according to Pudney (1989, 62): "The responding and non-responding households were compared in terms of a number of general household characteristics. Significant differences were found for the age of the head of household (younger households being more likely to co-operate), for the number of children (the more children, the greater the likelihood of response), for employment status (much lower response for the self-employed), for household size (better response for large households) and for wealth holdings (wealthier and higher-spending households are less likely to respond)."

ject to statistical (measurement) errors.[3] Note, however, because the data on financial assets in the SNA are based on the FFA, no discrepancy between the two should exist.

Table 3.1 summarizes the data content of the major microsurveys on household behavior. As no survey collects all behavioral variables, an appropriate data source must be selected for a specific purpose. A basic reason why no single survey can collect all variables is that a comprehensive survey would impose too heavy a burden on participants, who would have to keep books for several months. In other words, there is certainly a trade-off between the completeness of the survey and the burden on participants. With the response rate declining, seeking more completeness may not be a realistic option.

Among the available microsurveys, the NSFIE covers nearly all saving and consumption data, except intergenerational transfers (bequests) and education, as is evident from table 3.1. Detailed comparisons of the NSFIE with other data sources in Takayama et al. (1989, chap. 3) indicate that the NSFIE captures a fairly accurate and unbiased picture of household behavior in Japan. All in all, we conclude that the NSFIE is one of the most reliable sources of information (though we admit that it contains possible reporting errors). For this reason, throughout the chapter, the NSFIE is used to identify household behavior in Japan. In addition, fortunately we are able to use three different NSFIE data points in time, i.e., the 1979, 1984, and 1989 surveys. Although these are not panel data, intertemporal comparisons among three data points in time can be made to approximate actual life-cycle behavior.[4]

3.3   Data Analysis of the NSFIE

This section draws a general picture of household behavior in Japan and, in particular, of savings and wealth accumulation over a lifetime. In so doing, we mostly present descriptive statistics from the NSFIE.[5]

3. A statistical error could occur when inventories of consumer goods pile up or when these are increasingly consumed by other sectors of the economy (e.g., the corporate sector).

4. The statistical surveys by the government are published regularly in highly summarized forms. Although these summaries contain valuable information and are accessible to everyone, detailed data analysis can not be made without using the original microdata tapes. According to laws governing the use of these statistics, researchers must apply to use these original tapes and give sound reasons. Only after obtaining permission from the government can researchers use the data tapes, in which individual identities are carefully disguised.

5. Several economists have used NSFIE data. Ando, Yamashita, and Murayama (1986), using the 1979 NSFIE, argue that the extended life-cycle hypothesis holds when the behavior of the elderly living with younger families is carefully distinguished from that of the independent elderly. Hayashi, Ando, and Ferris (1988) conclude from the 1984 NSFIE that a large amount of wealth is being transferred within extended families. Ando et al. (1992), with the 1979 NSFIE, propose an explanation for the lack of dissaving by very young households based on the hypothesis of consumption lumping. Takayama and Arita (1992a, 1992b) make clear the economic profile of elderly couples and singles in the 1989 NSFIE and find that a substantial portion of the elderly can be considered wealthy. Takayama (1992a, 1992b) extensively utilizes the 1979 and 1984 NSFIE and discusses broad issues in household consumption and savings, public pension programs, and tax reform proposals among others. As to saving behavior, he rejects the simple life-cycle hypothesis and the public finance neutrality proposition.

Table 3.1 **Microdata Sources on Household Behavior**

Information	Microdata Source						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Household attributes							
Annual income	*	*	*	*	*	*	*
No. of household members	*	*	*	*	*	*	*
Work status	*	*	*	*		*	*
Type of household	*		*	*	*	*	*
Financial assets/liabilities		*	*				*
Head of household							
Sex and age	*	*	*	*	*	*	*
Occupation (industry type)	*	*	*	*	*	*	*
Education				*		*	
Housing							
Structure	*		*		*	*	*
Ownership	*	*	*	*	*	*	*
Size of house (no. of rooms)	*		*		*	*	*
Area of housing lot			*		*		
Rent	*		*		*		
Other member of household							
Sex and age	*		*	*		*	*
Occupation (industry type)	*		*	*		*	*
Education				*		*	

Source: Mizoguchi (1992, 72, table 4.4).

Notes: An asterisk (*) implies availability of data. Microdata sources are (1) Family Income and Expenditure Survey, (2) Family Saving Survey, (3) National Survey of Family Income and Expenditure, (4) Basic Survey on Wage Structure, (5) Housing Survey, (6) Survey on Time Use and Leisure Activities, and (7) Comprehensive Survey of Living Condition of the People on Health and Welfare.

The NSFIE has been conducted every five years since 1959 to reveal levels of income, consumption, and household assets, and their structure and distribution, as well as their differences among regions, through the investigation of family income and expenditure and assets and liabilities in Japanese households. This survey is designed to sample over 50,000 households (to be more precise, 53,000 in 1979, 54,000 in 1984, and 59,100 in 1989). Survey items include (1) family income and expenditure, (2) annual income, financial assets, and liabilities, (3) major durable goods, and (4) attributes of households and their members, including housing conditions.

With a large sample size and wide coverage in items, the NSFIE is indeed a mine of information. It enables us to make detailed analyses according to various household characteristics.

3.3.1 Disposable Income

In the NSFIE, gross yearly income includes wages and salaries, income through business and work at home, returns from assets, social security benefits, donations, and consumption in kind. The amount left over after deducting

nonconsumption expenditures such as taxes and social security contributions is disposable income. After subtracting consumption expenditures from disposable income, we obtain savings on the flow base.

The definitions of disposable income and consumption in the system of national accounts differ from those of the NSFIE in the treatment of imputed rents from housing and depreciation of housing structures. It will be useful to list here characteristic features and shortfalls of the disposable income concept used in this chapter (except in subsection 3.3.6, where further statistical adjustments are made). These are as follows:

1. Remittances to other family members or relatives are treated as part of "other consumption expenditures." On the other hand, remittances from relatives are counted as a source of yearly income of receiving households. Intergenerational transfers within extended families are not reported separately and are counted in consumption expenditures.

2. Medical benefits in kind are excluded.

3. Imputed rent from housing is excluded from income.

4. The flow of services from consumer durables is not reported. Expenditure on consumer durables is counted as consumption.

5. Capital gains or losses on stocks, equity in one's own home, and equity in consumer durables are not included.

6. The annual tax burden is not reported. Income and resident taxes are to be estimated. Annual social security contributions are also not reported in the NSFIE, while annual social security benefits are reported.

7. Interest on loans is included in income and is also treated as part of nonconsumption expenditures.

8. Interest and dividends are underreported.[6]

In sum, this chapter intends to use raw data without arbitrary statistical adjustments; therefore, it does not seek full comparability with the SNA.[7]

Figure 3.1 and table 3.2 present the hump-shaped age profile of disposable income. Regardless of the survey years, disposable income peaks at ages 50–54. The often discussed seniority wage system in Japan is valid until ages 50–54, except for those who are promoted to executive at ages over 55.

3.3.2 Consumption Expenditure

The NSFIE definition of consumption expenditure includes medical expenditures in cash and purchases of consumer durables. Remittances to other family members and intergenerational transfers in the form of gifts are also included.

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6. Around 70 percent of households in the NSFIE do not report any amount of interest or dividends. With such a low awareness of capital income, the value of the real interest rate seems to be hardly recognized by households.

7. In order to obtain full international comparability, it is necessary to use a common accounting framework such as the system of national accounts. Statistical adjustments are, however, not easy to make in different microdata sources. A preliminary trial was made for the 1984 NSFIE and reported in Takayama (1992a, 1992b).

Table 3.2   **Disposable Income (10,000 yen)**

Year and Age	All Households Mean	All Households Median	Employees Households Mean	Employees Households Median	Self-Employed Households Mean	Self-Employed Households Median
1979						
0–24	243	223	241	221	273	257
25–29	283	257	284	258	268	236
30–34	307	287	307	290	304	268
35–39	347	323	349	330	340	287
40–44	379	353	384	363	366	310
45–49	410	384	420	398	387	336
50–54	448	420	454	435	434	378
55–59	427	391	455	429	395	338
60–64	366	319	406	377	348	288
65–69	359	295	421	386	340	259
70–74	350	263	411	347	342	252
75–79	273	214	321	260	271	209
80+	274	176	375	414	273	174
Average	367	331	370	341	361	300
1984						
0–24	275	256	279	260	242	221
25–29	336	315	341	317	294	275
30–34	383	359	388	364	362	320
35–39	431	407	444	420	392	342
40–44	475	453	492	471	430	370
45–49	508	486	532	514	463	402
50–54	535	508	574	555	483	422
55–59	528	491	587	559	496	425
60–64	467	403	502	456	509	441
65–69	413	339	466	433	482	402
70–74	378	314	511	407	440	381
75–79	366	297	486	393	469	372
80+	300	229	183	183	460	386
Average	458	419	476	442	456	387
1989						
0–24	320	302	318	298	412	421
25–29	384	350	381	349	433	374
30–34	446	409	442	409	483	411
35–39	508	471	506	474	526	455
40–44	562	527	563	533	560	487
45–49	631	601	629	612	643	559
50–54	685	646	693	673	680	597
55–59	658	618	684	653	660	589
60–64	538	467	578	530	614	538
65–69	482	394	595	508	577	482
70–74	463	356	539	503	604	512
75–79	428	309	491	421	653	513
80+	385	289	512	380	567	499
Average	558	506	564	522	610	524

Note: Figures for jobless households are included in those for self-employed households only for 1979.
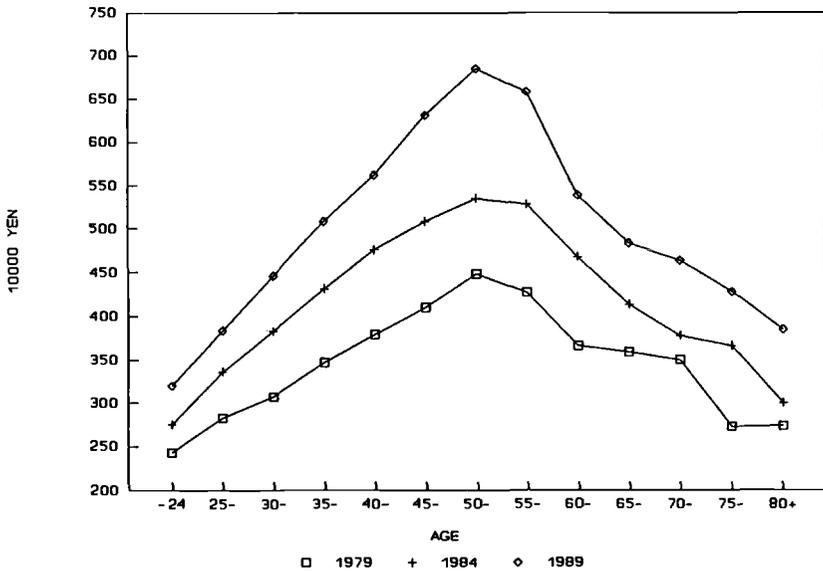
Fig. 3.1   Age profile of disposable income (for all households)
Source: NSFIE for 1979, 1984, and 1989.

In the NSFIE, monthly average household income and expenditures are ob-tained only for three months, namely, September through November. For our analysis, it is necessary to convert monthly data to yearly data. If the monthly average consumption of the three months September through November is sim-ply multiplied by 12, a bias is very likely to result due to the existence of seasonal fluctuations. Using the FIES, seasonal adjustment ratios for 10 major expenditure items are calculated to obtain an annual conversion factor (see table 3.3). In addition, it is known that a substantial number of the sample households may omit reporting purchases of large durables such as cars.

Consumption Smoothing or Lumping?

The age-consumption profile is not smooth over the life cycle. Like the age profile of disposable income, it reaches its peak at ages 50–54 (see fig. 3.2 and table 3.4). Although detailed data are not presented in this chapter, the composition of consumption items also changes over time. Furthermore, this age profile remains robust, regardless of survey years and employment status. It corresponds exactly to the age-income profile of the heads of households. In addition, household composition[8] and the ages of household members may evolve over time and so affect the shape of the age-consumption profile.

These facts cast serious doubt on the plausibility of the permanent-income life-cycle hypothesis at the microlevel. This is not a partial refutation of the

8. Note that equivalence scale adjustment is outside the scope of this chapter.

Table 3.3   **Month-to-Year Consumption Conversion Ratio**

Items	1979/1984	1989
Food	12.240	12.028
Housing	12.252	11.845
Fuel, light, and water charges	13,476	12,790
Housing, furniture, and household appliances	11.952	11.328
Clothes and footwear	12.960	12.361
Medical care	11.808	11.948
Transportation and communication	12.120	12.173
Education	12.900	11.942
Recreation	13.008	12.914
Other	13.092	13.511

Source: FIES for 1984 and 1989.

Note: For the 1979 and 1984 adjustments, the conversion ratios are calculated from the 1984 FIES.
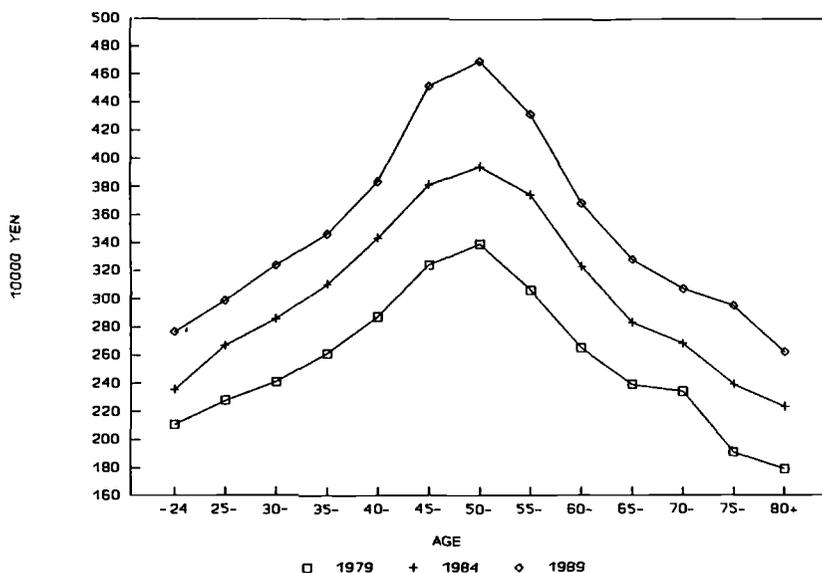
Fig. 3.2 Age profile of consumption (for all households)
Source: NSFIE for 1979, 1984, and 1989.

hypothesis of consumption smoothing, as has often been argued by economists (e.g., Hall and Mishkin 1982)—that is, that a small part of the population is subject to liquidity constraints or myopia while the rest broadly follow the permanent-income life-cycle hypothesis. Using the NSFIE, Takayama (1992a, chap. 5 and app. 6A) presents econometric evidence that Japanese household consumption behavior displays various socioeconomic characteristics which are much more complex than those assumed by the simple permanent-income

Table 3.4 **Consumption Expenditure (10,000 yen)**

Year and Age	All Households		Employee Households		Self-Employed Households	
	Mean	Median	Mean	Median	Mean	Median
1979						
0–24	211	186	208	186	249	195
25–29	228	209	228	211	227	198
30–34	241	219	241	221	241	212
35–39	261	243	260	244	267	235
40–44	287	265	284	266	296	261
45–49	324	291	324	295	321	279
50–54	339	299	345	309	327	275
55–59	306	265	316	280	295	240
60–64	265	219	279	234	258	212
65–69	239	201	252	216	236	197
70–74	234	188	248	219	232	183
75–79	191	168	223	153	190	168
80+	179	137	247	166	178	133
Average	279	248	279	251	278	236
1984						
0–24	236	211	236	215	261	174
25–29	267	249	268	250	265	234
30–34	286	266	287	271	280	249
35–39	310	289	315	293	295	271
40–44	343	321	346	325	334	305
45–49	381	346	394	361	359	313
50–54	394	350	4231	380	357	302
55–59	374	314	409	359	346	272
60–64	323	268	360	297	325	268
65–69	283	241	310	267	305	256
70–74	268	222	317	284	296	245
75–79	239	206	322	240	282	249
80+	223	173	608	608	306	249
Average	333	297	344	310	328	280
1989						
0–24	277	239	277	236	295	274
25–29	299	266	299	266	296	268
30–34	324	294	326	297	308	265
35–39	346	322	350	327	331	296
40–44	383	354	387	359	372	329
45–49	451	407	459	419	435	375
50–54	469	405	487	430	438	351
55–59	431	365	456	388	405	331
60–64	368	310	397	335	370	306
65–69	328	276	385	324	333	280
70–74	307	254	349	289	340	288
75–79	295	310	277	219	400	301
80+	262	194	192	232	354	251
Average	385	335	397	350	384	320

Note: Figures for jobless households are included in those for self-employed households only for 1979. Consumer durables are included.

life-cycle hypothesis. As Ando et al. (1992) argue, each household climbs up and down the socioeconomic ladder, thus changing social status. Along the way, it becomes acquainted with new people, observes new life-styles and discovers new consumption patterns. The age-consumption profile cannot be as smooth as the inherently static life-cycle hypothesis predicts.

Housing-related Issues

The acquisition of a house is probably the most significant consumption decision each household makes over the life cycle. Therefore, saving behavior is quite likely to be affected by the housing purchase decision (see, e.g., Horioka 1988; Hayashi, Ito, and Slemrod 1988). Table 3.5 presents the age profile of the home-ownership rate. Regardless of the survey years, the rate starts rising at around ages 30–34 and reaches a steady-state level (i.e., about 90 percent) at ages 55–59, just before retirement. This steady-state level seems quite high by international standards.

Noguchi (1990) reports that, among residents of the Greater Tokyo area in 1988, 67.6 percent of houses and 57.4 percent of housing lots (land) were acquired completely by their own finance. Others obtained them with the financial help of their parents, presumably through gifts and inheritance. Noguchi also estimates the share of life-cycle wealth (50.9 percent) and intergenerationally transferred wealth (49.1 percent) in total wealth holdings among the sample households.[9] He concludes that, up until the early 1980s, the majority of Japanese households obtained their home out of their own income, but after 1986, homeownership tended to be transferred increasingly through bequests.

Seko (1992) provides interesting information on the composition of home purchase down payments in Japan. For first-time house buyers, a down payment of around 30–33 percent of the total payment is required for households below age 50. As the head of household gets older, the down-payment ratio is raised from 39 percent to 100 percent. Because housing prices went up in the late 1980s, the absolute amount of required down payment also went up substantially, even though the ratios remained, more or less, constant. In practice, as Seko notes, it has become virtually impossible for first-time buyers of a house in the suburbs of Tokyo and Osaka to save substantial financial assets equivalent to down-payment requirements without transfers from their parents or other relatives.

Medical Expenditure and Benefits

As the proportion of the population over age 65 is increasing, medical expenditures are expected to increase, especially among the elderly. Table 3.6 shows the age profile of medical expenditures and benefits. Expenditures in

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9. Note that households in rural areas may enjoy lower housing prices along with a higher possibility of receiving intergenerational transfers. Location of housing plays a crucial role in accelerating the inequality of wealth distribution, chiefly because of different rates of capital gains in different locations.

Table 3.5   **Age Profile of Home Ownership Rates (%)**

Age	1979	1984	1989
0–24	20.8	20.6	15.9
25–29	33.0	29.5	27.1
30–34	47.5	48.9	45.0
35–49	64.1	66.1	64.6
40–44	71.4	76.7	76.5
45–49	79.1	82.9	83.2
50–54	83.9	85.3	85.6
55–59	85.5	90.4	89.1
60–64	85.7	89.0	91.3
65–69	85.2	88.1	90.4
70–74	88.2	90.3	90.4
75–79	87.3	89.2	86.9
80+	80.0	88.5	88.0
Average	68.3	74.2	75.6

Sources: NSFIE for 1979, 1984, and 1989.

Table 3.6   **Age Profile of Health and Medical Costs in 1984 (1,000 yen)**

Age	Expenditure in Cash	Benefits in Kind
0–24	65	210
25–29	75	233
30–34	76	276
35–39	70	308
40–44	69	342
45–49	65	490
50–54	72	536
55–59	83	534
60–64	96	506
65–69	85	590
70–74	83	952
75–79	59	1,024
80+	70	1,044
Average	74	433

Source: National Survey of Medical Expenditures for 1984.

cash among different age groups are, more or less, equal, whereas benefits in kind go mostly to the elderly, over age 70. It is evident that medical benefits in kind are used as a public instrument of intergenerational transfer.

As to the source of social security medical benefits, general revenue from the government covered 35.3 percent in 1979, 34.5 percent in 1984, and 31.4 percent in 1989. Contributions to social health insurance programs provided 53.0 percent in 1979, 53.7 percent in 1984, and 56.1 percent in 1989. User charges (expenditures in cash) accounted for only 11.7 percent in 1979, 11.9 percent in 1984, and 12.5 percent in 1989. In Japan, uninsured medical expen-

ditures have been kept minimal, overall. However, there are growing anxieties about who will provide nursing care or terminal care services. Due to these anxieties, households are very likely to save before retirement and probably even after retirement, as well.

3.3.3   Age-Saving Profile

Flow savings are obtained by subtracting seasonally adjusted yearly consumption expenditure from annual disposable income. In this respect, flow savings are defined by a residual concept.

Using disposable income and consumption expenditure as discussed in the previous sections, 3.3.1 and 3.3.2, flow savings are calculated in table 3.7, table 3.8, and figure 3.3.

Figure 3.3 shows a slightly deformed hump-shaped age profile of savings over the life cycle, with its peak at ages 55–59. It is important to notice that elderly households keep saving a substantial amount even at the very end of their lives (i.e., over age 80). This fact, however, cannot be straightforward evidence to refute the life-cycle hypothesis. Hayashi, Ando, and Ferris (1988, 453), in fact, argue that "many Japanese workers retire just before 60 and they tend to merge with younger households, presumably their children. Those who are remaining independent over the age of 60, and therefore enter the NSFIE sample, tend to be those who are wealthy or remain active in their income earning activities, or both. Therefore, there exists a serious possibility of sample selection biases being present in our estimates." They then distinguish between nuclear families and extended families and analyze them separately, attempting to extract as much information as possible on the behavior of older persons living with younger families. However, their prototypical view of Japanese family formation has been increasingly weakened by the recent trend. For example, the percentage of the population over age 65 who are living with their children decreased rapidly in the 1980s. In the near future the elderly living with their children will become a minority in Japan. In addition, the 1986 Comprehensive Survey of Living Conditions of the People on Health and Welfare indicates that, overall, 44 percent of the elderly are living as household heads and 17 percent as spouses of household heads. Specifically, 30 percent of the elderly living with their married sons or daughters are heads or spouses of heads, and nearly 70 percent of those living with their unmarried children are living as heads or spouses of heads (see, for more details, Takayama 1992a, 43–49). In subsection 3.3.6, we will discuss whether Hayashi, Ando, and Ferris's distinction is crucial and show an alternative approach to identifying the trend and quantity of wealth accumulation of the elderly.

Tables 3.7 and 3.8 provide information on who saves when and how much. Several interesting facts crop up. First, both in 1979 and in 1984, employee households save more than self-employed households, while the reverse is the case in 1989. As is evident from table 3.2, disposable income of self-employed households exceeded that of employee households for the first time in 1989. It is also evident that disposable income of self-employed households does not

Table 3.7   **Savings (10,000 yen)**

Year and Age	All Households		Employee Households		Self-Employed Households	
	Mean	Median	Mean	Median	Mean	Median
1979						
0–24	32	33	33	33	23	25
25–29	55	53	56	54	41	39
30–34	66	66	67	68	64	43
35–39	85	79	89	84	73	45
40–44	92	85	100	93	70	43
45–49	87	86	95	95	66	48
50–54	109	105	110	116	107	79
55–59	121	104	139	123	100	76
60–64	101	77	127	102	90	63
65–69	119	73	169	165	105	57
70–74	116	68	163	130	109	61
75–79	82	36	98	54	81	33
80+	95	32	127	249	95	32
Average	89	77	91	84	83	54
1984						
0–24	38	37	43	39	−19	−33
25–29	69	66	74	70	29	23
30–34	97	89	101	93	82	59
35–39	122	114	129	122	97	73
40–44	132	127	146	142	96	68
45–49	127	122	139	137	104	82
50–54	140	139	153	156	127	110
55–59	154	144	178	177	150	124
60–64	144	112	142	128	184	144
65–69	130	88	156	146	177	129
70–74	110	74	194	129	144	105
75–79	127	74	164	168	187	117
80+	77	34	122	122	155	104
Average	125	111	132	123	128	97
1989						
0–24	43	58	40	57	117	118
25–29	85	86	82	86	137	82
30–34	122	112	116	111	175	136
35–39	162	147	156	147	194	146
40–44	179	170	176	173	188	153
45–49	180	172	171	176	208	155
50–54	216	206	206	207	242	213
55–59	227	212	228	225	254	221
60–64	170	132	181	162	244	200
65–69	154	107	210	172	244	168
70–74	156	99	190	214	264	191
75–79	133	66	214	263	254	205
80+	123	90	320	148	213	197
Average	173	150	167	157	226	177

Note: Figures for jobless households are included in those for self-employed households only for 1979.

Table 3.8   **Savings by Housing Type (10,000 yen)**

| Year and Age	Home-Owning Mean	Home-Owning Median	Tenant Mean	Tenant Median	Household Head Working Mean	Household Head Working Median	Household Head Nonworking Mean	Household Head Nonworking Median
1979								
0–24	62	63	24	25	32	33	131	131
25–29	91	79	37	42	55	53	1	29
30–34	90	85	45	50	66	66	35	30
35–39	101	94	57	57	86	79	38	18
40–44	104	96	62	57	92	85	−7	−5
45–49	94	95	59	55	88	87	−12	−4
50–54	116	116	73	69	111	108	−9	11
55–59	127	111	82	80	133	116	−12	−2
60–64	107	87	67	37	128	105	18	20
65–69	129	89	63	28	173	133	25	21
70–74	127	75	28	23	177	123	40	27
75–79	90	46	22	25	111	70	56	32
80+	113	54	25	15	185	74	29	15
Average	105	94	53	50	92	80	21	19
1984								
0–24	87	78	25	30	39	38	4	−22
25–29	109	107	52	53	70	67	−24	−27
30–34	130	123	66	65	98	90	−14	−12
35–39	145	138	75	74	122	115	−23	−31
40–44	148	144	78	78	133	128	−56	−40
45–49	137	134	77	69	128	123	−13	−19
50–54	150	150	83	79	142	140	−34	−32
55–59	161	153	87	81	165	155	17	20
60–64	154	124	58	45	170	135	48	46
65–69	140	100	54	38	173	133	41	36
70–74	118	80	30	30	150	110	44	40
75–79	137	86	43	13	186	124	66	33
80+	85	44	14	8	154	112	26	15
Average	144	133	69	66	131	117	38	32
1989								
0–24	39	109	44	50	43	58	33	−30
25–29	138	135	66	73	86	86	42	47
30–34	170	152	83	82	122	112	31	72
35–39	191	177	108	104	162	147	94	41
40–44	200	190	111	108	179	170	210	241
45–49	196	189	99	95	180	173	135	48
50–54	227	223	148	120	217	208	119	98
55–59	237	225	140	119	238	223	52	40
60–64	178	141	88	67	218	182	53	50
65–69	160	113	98	52	235	170	43	43
70–74	161	103	106	47	252	197	59	47
75–79	144	80	59	10	251	205	52	36
80+	128	102	84	64	215	197	73	64
Average	196	177	99	91	184	161	58	47
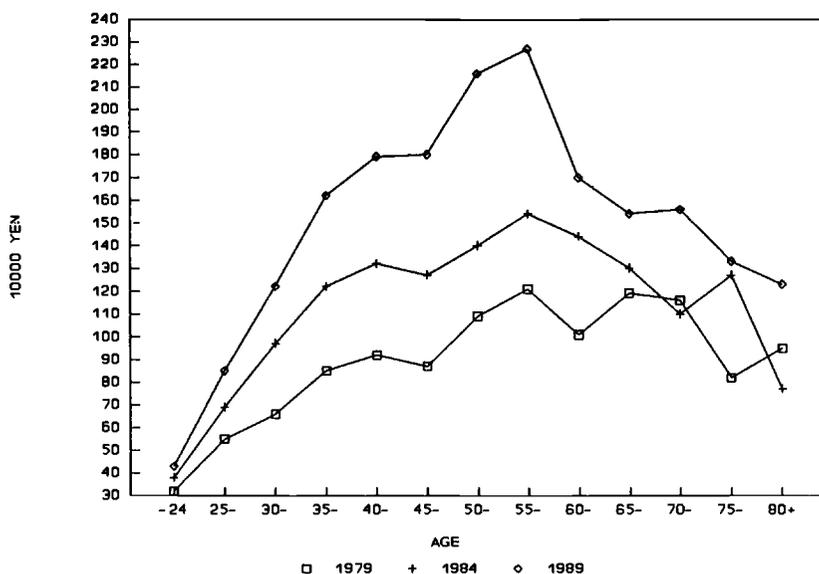
Fig. 3.3   Age profile of savings (for all households)
Source: NSFIE for 1979, 1984, and 1989.

decrease as fast as that of employee households, as they get older. Second, owner-occupied households save much more than tenant households, regardless of the survey years. If, as is often argued, high savings are motivated chiefly by housing purchase, other things being equal, tenant households must save at least as much as owner-occupied households, considering that a certain amount of the savings of owner-occupied households are counted as repayment of housing loans. However, as far as table 3.8 is concerned, this does not seem to be the case throughout the age profile.[10] This is probably because tenant households earn less income than owner-occupied households. It is also clear that households keep saving even after paying back their housing loans at ages over 70. Thus, savings do not seem to be motivated primarily by housing purchase. Third, savings made when the head of household is not working are much lower than those made when he or she is working. However, savings remain broadly positive, except for younger households in 1984. Positive savings by nonworking elderly households are possible because of generous public pension benefits and huge lump-sum retirement severance payments.

Differences in saving behavior between families with and those without children cannot be fully identified by the NSFIE, because the NSFIE surveys only those children who actually live with their parents or who depend on their

10. Note, however, that as table 3.8 does not control for income and other socioeconomic characteristics, the difference in savings between tenant households and owner-occupied households may reflect something other than the motivation for housing purchase.

parents. When children get married and form new households, the NSFIE can no longer trace them.[11]

3.3.4 Saving Rates by Age and Income Class

This section presents the main results of this chapter, namely, the saving rates by different household characteristics. In order to identify stylized facts about household saving behavior in Japan, a new dimension of income class is added. The results are reported in tables 3.9–3.15 and figures 3.4–3.7.

First stylized fact: *What really matters with the saving rate is income rather than the age profile.* Variations of saving behavior across different income classes are much wider than those over the age profile within the same income class (see figs. 3.5–3.7). Indeed, no stylized pattern in saving rates over the age profile across income classes is found.[12]

Second stylized fact: *The households in the highest income class save at increasingly high rates over the age profile.* As income grows and wealth accumulation increases, the richer households depart from the pattern of the life-cycle hypothesis and follow what the intergenerational transfer hypothesis would suggest (see subsection 3.3.6 below). As society in general becomes wealthier, average households behave more the way richer households do (see fig. 3.4).

Third stylized fact: *The elderly households in the middle and higher income classes save at significantly positive rates.* Diversity of saving behavior among elderly households is much wider than among younger households, as their employment status, home ownership, and financial asset holdings differ substantially.

Let us look at each table in turn. About table 3.9, two observations can be made. One is that, within the same survey year, only the poorest quarter of households (I) experience negative saving rates. The other is that, as income grows over the years, even the poorest quarter of households increasingly save positive sums (note that the average saving rate of the poorest quarter becomes positive in 1989). For the second and third quarters of households, the age profiles of saving rates are, more or less, hump-shaped over the life cycle, with positive rates even over age 80 for the third quarter for all years and for the second quarter for 1989. For the richest quarter (IV), the age profile of saving rates is somewhat different from those of the other quarters. It keeps rising until over age 70 and ends with a very high rate (above 40 percent) over age 80. The picture of average saving rates in all households shown in figure 3.4

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11. The Comprehensive Survey of Living Conditions of the People on Health and Welfare includes rich information on children; however, it has a drawback in relatively weak information on savings.

12. Note, however, that many households move across different income classes over the life cycle. It is not surprising to find no stylized relationship between the saving rate and the age profile across income classes. The saving rate over the age profile can be fully analyzed when the actual income-earning profile over the life cycle is identified. See Creedy (1992).
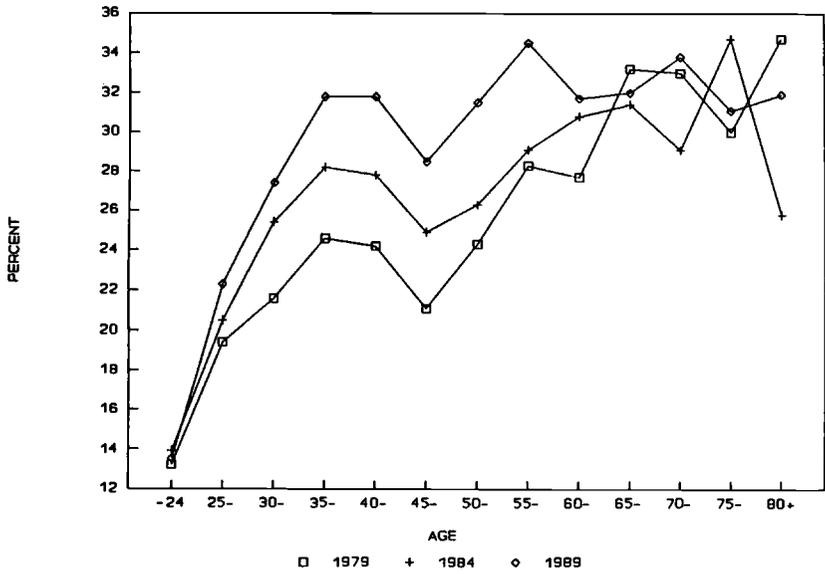
Fig. 3.4 Age profile of saving rates (for all households)
*Source:* NSFIE for 1979, 1984, and 1989.
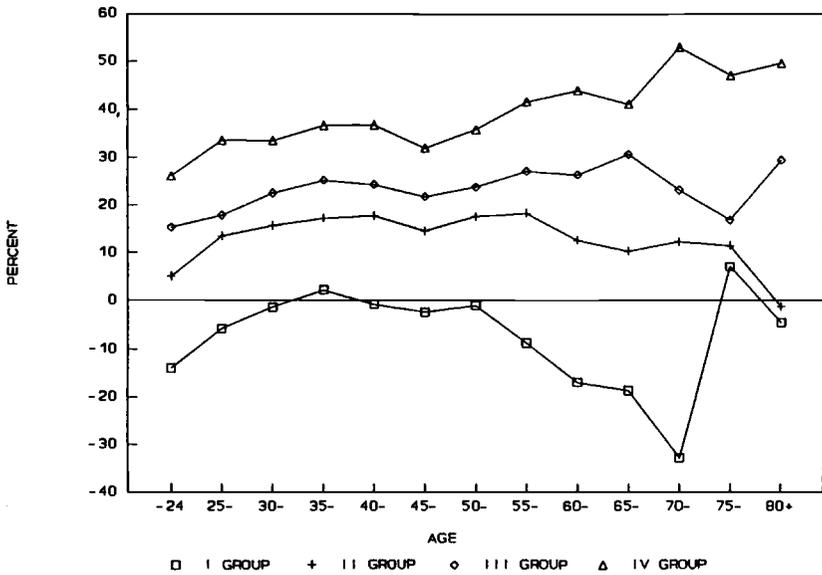
Fig. 3.5 Age profile of saving rates by income class in 1979
*Source:* NSFIE for 1979.
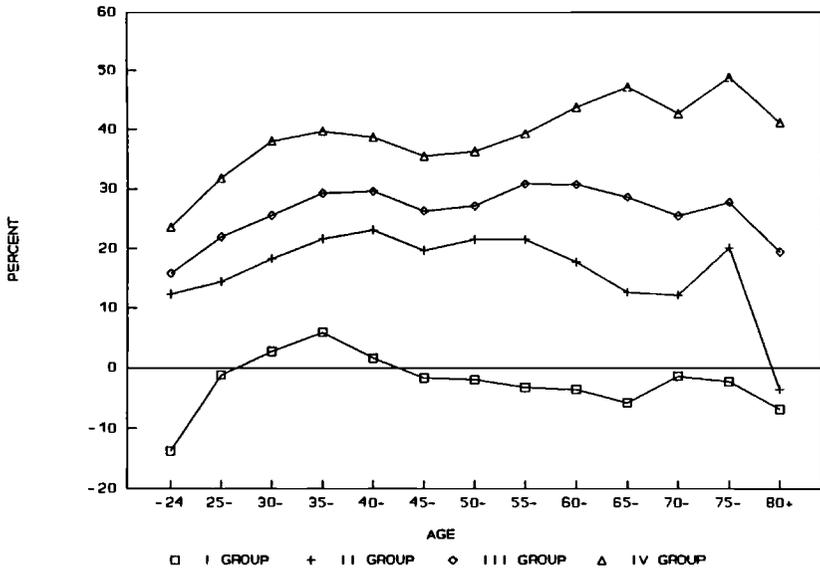
**Fig. 3.6   Age profile of saving rates by income class in 1984**
Source: NSFIE for 1984.
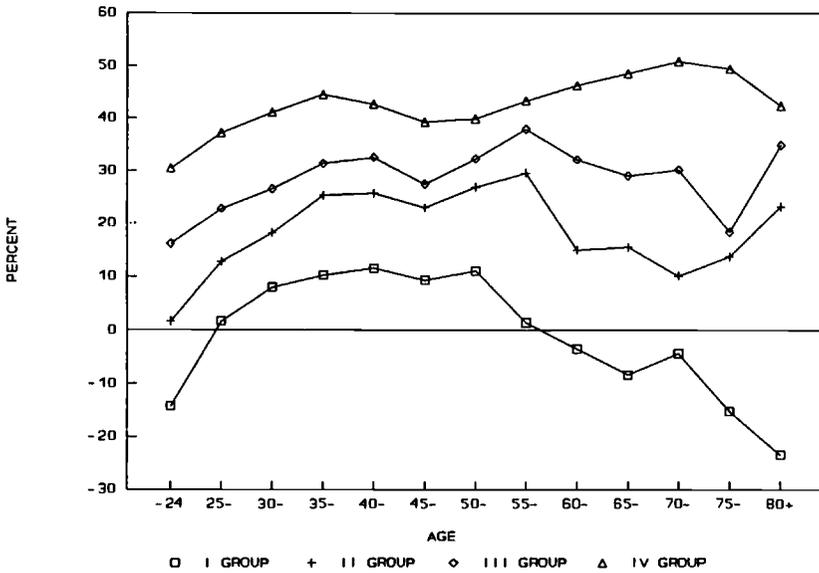
Fig. 3.7   Age profile of saving rates by income class in 1989
Source: NSFIE for 1989.

Table 3.9 **Saving Rates of All Households by Income Class (%)**

	Income Class				
Year and Age	I	II	III	IV	Mean
1979					
0–24	−14.0	5.0	15.3	26.1	13.2
25–29	−5.8	13.4	17.8	33.5	19.4
30–34	−1.4	15.7	22.5	33.4	21.6
35–39	2.2	17.2	25.2	36.6	24.6
40–44	−0.8	17.7	24.3	36.7	24.2
45–49	−2.4	14.5	21.8	31.9	21.1
50–54	−1.0	17.6	23.8	35.8	24.3
55–59	−8.7	18.3	27.2	41.7	28.3
60–64	−16.9	12.6	26.4	44.0	27.7
65–69	−18.6	10.3	30.6	41.1	33.2
70–74	−32.8	12.2	23.2	53.0	33.0
75–79	7.0	11.4	16.8	47.1	30.0
80+	−4.6	−1.3	29.4	49.6	34.7
Average	−2.7	16.3	23.5	36.6	24.1
1984					
0–24	−13.8	12.3	15.8	23.6	13.9
25–29	−1.2	14.4	22.0	31.8	20.5
30–34	2.7	18.3	25.6	38.0	25.4
35–39	5.9	21.6	29.3	39.7	28.2
40–44	1.6	23.1	29.6	38.7	27.8
45–49	−1.7	19.7	26.3	35.5	24.9
50–54	−2.0	21.5	27.1	36.3	26.3
55–59	−3.3	21.5	30.8	39.3	29.1
60–64	−3.6	17.7	30.7	43.7	30.8
65–69	−5.8	12.6	28.6	47.1	31.4
70–74	−1.4	12.1	25.5	42.6	29.1
75–79	−2.3	20.1	27.7	48.8	34.7
80+	−6.9	−3.6	19.4	41.1	25.8
Average	−0.6	19.4	28.5	38.1	27.2
1989					
0–24	−14.2	1.6	16.1	30.4	13.5
25–29	1.7	12.7	22.8	37.1	22.3
30–34	7.9	18.1	26.5	41.0	27.4
35–39	10.2	25.3	31.3	44.4	31.8
40–44	11.5	25.7	32.5	42.6	31.8
45–49	9.3	23.0	27.5	39.3	28.5
50–54	11.0	26.9	32.3	39.9	31.5
55–59	1.4	29.6	37.9	43.3	34.5
60–64	−3.5	14.9	32.1	46.2	31.7
65–69	−8.3	15.5	29.1	48.5	32.0
70–74	−4.3	10.1	30.2	50.8	33.8
75–79	−15.2	13.7	18.4	49.4	31.1
80+	−23.4	23.2	34.8	42.3	31.9
Average	4.6	22.9	31.5	42.1	31.0

Note: Income classes I–IV are yearly income quartile groups.

traces the same trend. It never fits with the picture the simple life-cycle hypothesis would draw.

Table 3.10 presents the saving rates of households that own their homes. This table again shows that it is income class that mainly differentiates saving rates. The general characteristics of saving behavior overlap with those of all households. A noticeable aspect in table 3.10 is that home-owning households with little, if any, saving motivation for housing purchase keep high savings, except for the very poor elderly households. As mentioned before, a substantial part of their savings can be counted as repayments of housing loans. In addition, savings for home reconstruction every 15 to 20 years cannot be negligible. Another reason for high savings is simply that home-owning households earn relatively high income. Table 3.11 shows that the saving rates of tenant households are, in general, lower than those of home-owning households. Judging from the average saving rates in all households, tenant households seem to be concentrated in the first three quarters (I, II, and III) of the income distribution of all households. Thus even the highest income quarter (IV) of tenant households save smaller amounts than the highest quarter (IV) of all households. Nevertheless, it should be noted that only the poorest quarter (I) dissaves.

The general characteristics in table 3.12 of households with a working head also overlap with those in table 3.9. Table 3.13 implies that the saving rate goes down substantially when the household head is not working. Households in the first two quarters (I and II) in table 3.13 dissave quite heavily and save very little, if any. These facts might imply that households whose heads are not working receive very low income flows.

In the case of the employee households (table 3.14), virtually every household saves. The age profile of saving rates is common to all income classes; it keeps rising over the life cycle. This might reflect the fact that the income of employee households is, more or less, guaranteed to increase because the seniority wage system prevails. Table 3.15 exhibits the saving behavior of self-employed households. Income flows of self-employed households, on the other hand, fluctuate a great deal as the saving rates vary from negative for the first quarter (I) to significantly positive for the fourth quarter (IV). In fact, the fourth quarter (IV) of self-employed households seems to be the highest savers, probably with the highest income, in society.

3.3.5   Age-Wealth Profile

Net worth is calculated as a sum of net financial assets, net housing assets, and consumer durables (i.e., total durables minus golf club membership certificates). According to the NSFIE, net worth increases over the life cycle without a substantial decrease after retirement (see fig. 3.8). Net housing assets increase as a share of total worth holdings as housing prices go up. In the 1979 NSFIE, 58.1 percent of total net worth was accounted for by housing assets, in the 1984 NSFIE, 65.8 percent, and in the 1989 NSFIE, 71.8 percent (see tables 3.16–3.18).

Table 3.10 **Saving Rates of Home-Owning Households by Income Class (%)**

Year and Age	Income Class				Mean
	I	II	III	IV	
1979					
0–24	5.5	3.3	22.7	29.2	19.4
25–29	3.7	20.6	28.6	39.7	28.0
30–34	5.1	20.8	26.0	38.3	26.6
35–39	6.4	21.8	28.3	38.5	27.6
40–44	2.7	20.5	25.9	37.9	26.1
45–49	−2.7	16.5	24.0	32.1	22.0
50–54	0.4	17.9	25.3	36.2	24.9
55–59	−6.0	20.3	27.1	42.3	28.8
60–64	−15.5	14.5	26.5	44.5	28.2
65–69	−21.5	11.5	33.7	52.1	34.1
70–74	−26.9	12.8	23.5	54.5	34.5
75–79	7.2	7.8	23.5	47.1	31.2
80+	−8.5	−5.3	29.2	54.9	37.7
Average	0.1	19.5	25.8	38.2	26.4
1984					
0–24	5.4	13.0	19.4	44.2	26.8
25–29	5.1	22.9	31.0	39.6	29.0
30–34	11.0	23.4	31.3	42.2	31.0
35–39	11.6	25.3	33.2	42.0	31.7
40–44	6.5	25.0	31.4	40.2	29.9
45–49	1.9	21.3	27.4	36.1	26.1
50–54	0.0	22.9	28.5	36.6	27.3
55–59	−4.2	22.4	31.5	40.1	29.7
60–64	−3.1	19.8	32.4	44.4	31.9
65–69	−2.7	13.4	31.7	47.3	32.6
70–74	0.6	14.0	26.2	44.5	30.5
75–79	0.4	21.3	29.2	49.6	35.7
80+	−13.9	7.2	19.1	41.6	27.1
Average	3.2	23.3	30.5	39.5	29.5
1989					
0–24	20.9	−58.6	13.0	37.1	10.3
25–29	3.6	26.2	35.3	41.4	31.2
30–34	14.9	30.2	35.7	44.1	34.7
35–39	15.8	28.4	34.8	47.1	35.2
40–44	16.0	28.5	34.5	43.8	34.0
45–49	12.5	24.6	29.3	40.0	30.0
50–54	11.9	28.6	33.4	39.8	32.2
55–59	2.6	31.1	38.2	43.8	35.2
60–64	−3.6	15.7	34.1	46.3	32.2
65–69	−7.7	15.7	29.6	48.9	32.3
70–74	−4.9	11.5	29.7	51.2	33.9
75–79	−13.1	19.0	21.1	48.4	32.0
80+	−21.0	27.7	32.3	42.3	31.9
Average	7.9	26.3	33.8	43.1	33.0

Note: Income classes I–IV are yearly income quartile groups.

Table 3.11   **Saving Rates of Tenant Households by Income Class (%)**

Year and Age	Income Class				Mean
	I	II	III	IV	
1979					
0–24	−18.6	2.3	16.8	23.6	10.9
25–29	−6.8	8.5	14.8	26.2	14.2
30–34	−7.0	10.5	18.3	27.3	16.1
35–39	−2.9	12.2	18.9	31.0	18.4
40–44	−5.6	11.8	19.3	31.6	18.6
45–49	−8.5	13.1	16.1	28.5	16.9
50–54	−9.1	12.9	24.1	30.3	20.2
55–59	−17.0	17.5	20.5	38.7	24.2
60–64	−22.3	1.1	22.2	43.5	23.6
65–69	−18.2	−1.2	21.4	44.0	25.3
70–74	−39.6	0.7	5.7	29.0	13.6
75–79	−23.4	19.2	5.0	28.6	14.4
80+	−0.5	21.6	n.a.	13.1	14.2
Average	−8.9	11.0	17.9	30.3	15.6
1984					
0–24	−17.3	9.5	19.3	13.1	9.7
25–29	−7.5	12.4	18.8	26.6	16.3
30–34	−4.4	15.1	19.6	30.4	19.0
35–39	−1.6	14.2	20.1	31.4	19.8
40–44	−9.9	14.6	22.5	30.3	19.4
45–49	−16.3	10.2	19.1	31.0	18.0
50–54	−7.4	8.9	21.8	29.5	19.0
55–59	−5.5	12.7	18.0	34.4	21.4
60–64	−10.9	7.1	16.7	30.9	17.9
65–69	−34.9	6.7	19.9	33.3	18.3
70–74	−29.4	10.0	19.9	13.6	10.9
75–79	−27.5	16.5	1.5	38.4	19.8
80+	−50.6	−2.0	10.9	23.4	8.0
Average	−7.3	11.7	19.4	29.9	18.7
1989					
0–24	−16.2	4.9	17.3	30.2	14.2
25–29	−2.9	11.8	18.8	31.2	18.2
30–34	3.6	12.3	18.5	34.5	20.2
35–39	3.4	18.4	26.7	36.2	24.3
40–44	−0.7	16.7	26.6	33.9	23.1
45–49	−3.4	15.4	18.4	29.1	19.1
50–54	10.0	16.7	24.8	37.8	26.6
55–59	−12.3	23.4	29.0	37.7	27.3
60–64	−9.0	16.0	19.9	35.9	22.7
65–69	−4.6	8.9	28.3	43.4	27.4
70–74	−12.5	8.9	29.4	51.6	32.2
75–79	−37.4	−11.9	17.8	48.1	22.1
80+	−90.5	12.8	28.9	55.1	31.7
Average	0.0	15.0	22.5	33.9	22.4

Note: Income classes I–IV are yearly income quartile groups.

Table 3.12   **Saving Rates of Households with Working Head by Income Class (%)**

Year and Age	Income Class				
	I	II	III	IV	Mean
1979					
0–24	−14.2	5.0	15.3	26.0	13.2
25–29	−5.9	13.5	17.9	33.5	19.5
30–34	−1.2	15.6	22.6	33.4	21.6
35–39	2.3	17.2	25.2	36.5	24.7
40–44	−0.4	18.1	24.3	36.6	24.3
45–49	−1.6	14.6	21.9	32.0	21.3
50–54	0.3	18.3	24.6	35.8	24.6
55–59	−1.8	21.6	28.6	42.6	29.9
60–64	−6.2	20.4	29.1	46.7	31.8
65–69	−1.4	25.8	40.2	52.9	39.8
70–74	−39.4	28.1	28.1	58.7	39.6
75–79	4.9	9.1	12.1	54.8	31.6
80+	−7.1	27.1	22.0	66.3	46.5
Average	−0.1	16.9	24.0	36.7	24.6
1984					
0–24	−11.1	11.4	15.8	23.6	14.1
25–29	0.2	14.4	22.1	31.8	20.8
30–34	2.9	18.3	25.7	38.1	25.5
35–39	6.7	21.5	29.2	39.9	28.3
40–44	2.3	23.4	29.6	38.7	28.0
45–49	−1.0	19.4	26.6	35.5	25.0
50–54	−1.1	21.9	27.3	36.3	26.5
55–59	2.8	22.2	32.3	39.8	30.3
60–64	3.5	22.0	34.5	45.0	33.6
65–69	−0.5	23.8	36.3	48.4	36.1
70–74	11.9	14.9	31.5	45.3	33.4
75–79	20.4	20.6	37.1	51.1	39.5
80+	3.7	21.8	21.8	49.3	33.7
Average	2.7	20.7	28.8	38.3	27.8
1989					
0–24	−13.9	1.6	15.8	30.4	13.5
25–29	0.1	12.7	22.8	37.1	22.3
30–34	8.3	18.2	26.5	41.0	27.4
35–39	10.6	25.3	31.2	44.4	31.9
40–44	11.9	25.6	32.4	42.4	31.8
45–49	9.8	22.9	27.4	39.2	28.5
50–54	11.7	26.9	32.3	39.8	31.6
55–59	6.4	31.1	38.0	43.5	35.3
60–64	6.5	25.1	36.0	48.7	36.4
65–69	13.9	28.3	38.2	52.6	40.5
70–74	9.7	29.4	40.4	55.4	42.5
75–79	0.1	11.5	40.5	54.4	39.1
80+	−11.0	31.8	32.3	50.7	38.0
Average	8.5	24.6	32.3	42.3	31.9

Note: Income classes I–IV are yearly income quartile groups.

Table 3.13 Saving Rates of Households with Nonworking Head by Income Class (%)

Year and Age	Income Class				
	I	II	III	IV	Mean
1979					
0–24	37.3	n.a.	n.a.	n.a.	37.3
25–29	−104.2	−0.3	22.7	9.8	1.1
30–34	−48.6	15.7	24.1	24.2	16.2
35–39	−13.2	8.8	9.4	34.1	18.4
40–44	−160.8	−22.3	16.2	21.5	−3.9
45–49	−73.9	−3.5	11.9	−4.0	−5.6
50–54	−55.5	−14.6	−24.4	21.6	−4.3
55–59	−52.2	−31.9	7.6	8.0	−5.0
60–64	−35.2	−2.6	1.3	25.6	7.3
65–69	−25.7	−13.8	3.7	33.0	11.0
70–74	−22.4	4.4	15.0	32.4	17.3
75–79	−2.8	12.6	17.8	44.9	27.5
80+	−3.6	−7.6	22.5	25.4	16.0
Average	−26.7	−10.5	5.6	27.1	9.2
1984					
0–24	n.a.	n.a.	−15.4	22.1	2.7
25–29	−0.4	−74.1	−38.4	−10.2	−22.9
30–34	−100.9	−11.9	−21.1	11.8	−9.3
35–39	−103.6	−28.9	−3.0	4.6	−16.8
40–44	−135.3	−56.3	−46.1	5.2	−31.3
45–49	−92.1	−6.7	−17.0	19.4	−6.2
50–54	−46.1	−52.1	−10.0	5.6	−14.4
55–59	−63.7	−15.1	4.9	28.5	5.5
60–64	−10.9	0.6	11.0	29.3	14.8
65–69	−13.8	8.9	8.2	28.5	14.6
70–74	−9.2	7.3	11.2	32.1	16.9
75–79	−20.9	11.1	19.8	43.3	25.4
80+	−5.1	−31.7	25.2	28.3	13.5
Average	−21.5	2.7	9.7	28.1	13.4
1989					
0–24	−101.0	−33.7	41.1	n.a.	16.9
25–29	19.0	−45.6	20.0	62.4	18.7
30–34	−288.8	20.4	25.0	60.7	9.6
35–39	−120.9	−2.3	43.7	48.6	25.3
40–44	−116.4	16.1	55.8	50.3	39.2
45–49	−80.4	−17.8	28.9	51.2	28.4
50–54	−74.1	16.8	20.0	47.5	27.1
55–59	−50.3	−9.2	4.3	39.4	13.4
60–64	−11.1	−4.5	10.1	30.9	13.7
65–69	−27.9	1.3	10.9	30.9	12.5
70–74	−7.0	9.5	2.5	36.7	18.0
75–79	−12.8	5.0	17.6	34.2	18.6
80+	−26.2	18.9	36.4	34.5	25.5
Average	−22.0	3.0	9.7	34.9	16.2

Note: Income classes I–IV are yearly income quartile groups.

Table 3.14		Saving Rates of Employee Households by Income Class (%)			
			Income Class		
Year and Age	I	II	III	IV	Mean
1979					
0–24	−14.1	4.3	17.4	26.6	13.6
25–29	−2.1	14.1	18.5	33.1	19.9
30–34	2.9	15.9	22.9	32.5	21.7
35–39	9.4	20.2	26.3	35.3	25.5
40–44	9.9	20.8	25.8	36.0	26.0
45–49	7.4	17.9	23.1	31.3	22.7
50–54	9.0	19.2	24.1	32.6	24.1
55–59	9.7	25.6	30.0	39.8	30.5
60–64	3.6	27.7	28.0	42.6	31.3
65–69	17.6	35.9	42.1	46.5	40.1
70–74	−9.1	25.6	34.6	54.2	39.6
75–79	24.9	30.8	31.4	30.9	30.5
80+	n.a.	−3.7	n.a.	60.0	34.0
Average	6.0	19.9	24.8	33.9	24.6
1984					
0–24	−9.2	11.7	17.3	25.2	15.4
25–29	1.2	14.9	22.2	33.1	21.6
30–34	7.3	19.6	25.4	37.8	25.9
35–39	13.4	23.3	29.8	38.7	29.1
40–44	13.8	26.4	31.0	37.6	29.7
45–49	10.7	23.9	26.5	33.2	26.1
50–54	13.3	23.6	27.7	32.4	26.6
55–59	17.8	22.4	31.5	38.1	30.3
60–64	14.1	19.7	27.0	37.5	28.3
65–69	16.6	31.6	33.9	39.4	33.5
70–74	36.3	18.1	39.1	45.0	38.0
75–79	34.5	−2.8	49.2	37.3	33.7
80+	n.a.	n.a.	n.a.	66.8	66.8
Average	11.4	23.1	29.0	35.2	27.7
1989					
0–24	−13.6	1.6	16.2	28.7	12.7
25–29	0.5	12.8	23.6	35.1	21.6
30–34	9.2	17.6	26.6	38.9	26.3
35–39	14.0	26.1	30.3	41.7	30.8
40–44	16.8	26.4	32.4	39.8	31.3
45–49	15.3	23.4	26.3	35.3	27.2
50–54	15.6	26.6	30.5	36.4	29.8
55–59	14.4	31.1	36.8	38.2	33.3
60–64	9.6	21.5	33.6	41.1	31.4
65–69	21.1	32.3	31.4	43.2	35.4
70–74	31.0	37.3	33.3	37.7	35.3
75–79	1.8	54.3	42.3	49.9	43.5
80+	38.9	n.a.	83.2	n.a.	62.5
Average	12.1	24.9	30.8	37.4	29.6

Note: Income classes I–IV are yearly income quartile groups.

Table 3.15   **Saving Rates of Self-Employed Households by Income Class (%)**

Year and Age	Income Class				Mean
	I	II	III	IV	
1979					
0–24	−17.2	14.3	3.6	17.0	8.6
25–29	−28.8	2.0	11.4	35.8	15.2
30–34	−27.2	6.1	16.6	42.6	20.9
35–39	−24.3	4.2	17.9	41.4	21.4
40–44	−24.8	3.0	15.8	38.7	19.1
45–49	−29.5	0.3	18.5	33.3	17.0
50–54	−24.3	8.0	23.1	42.0	24.6
55–59	−30.8	8.1	24.4	42.7	25.3
60–64	−23.0	1.8	24.8	44.9	25.7
65–69	−25.3	2.3	23.9	51.3	30.7
70–74	−33.1	10.1	24.0	51.0	32.0
75–79	5.5	11.5	16.1	47.7	30.0
80+	−6.8	−0.1	26.8	50.6	34.7
Average	−25.1	5.1	19.3	41.7	23.0
1984					
0–24	−26.3	−15.4	−12.3	1.8	−7.7
25–29	−26.2	7.7	13.5	18.0	9.8
30–34	−21.4	7.4	23.9	40.2	22.6
35–39	−19.7	9.8	23.9	44.2	24.8
40–44	−26.7	7.2	22.0	41.6	22.3
45–49	−28.5	9.6	22.3	40.1	22.4
50–54	−19.8	13.4	26.6	41.8	26.2
55–59	−16.1	18.9	34.6	41.3	30.3
60–64	−4.5	24.9	37.3	48.6	36.2
65–69	−7.0	21.1	36.6	50.9	36.8
70–74	9.3	13.6	32.8	43.9	32.6
75–79	19.5	22.1	36.0	52.2	39.9
80+	0.5	21.8	21.8	49.3	33.6
Average	−16.7	12.8	28.6	43.6	28.0
1989					
0–24	−23.0	8.9	43.0	56.3	28.4
25–29	−8.3	13.8	20.2	60.4	31.6
30–34	1.6	23.7	33.2	53.5	36.3
35–39	−7.3	20.2	37.5	54.9	37.0
40–44	−5.6	21.0	32.1	50.6	33.5
45–49	−8.8	20.4	30.6	48.4	32.3
50–54	1.0	25.9	39.5	45.7	35.6
55–59	−6.4	29.1	40.5	51.4	38.6
60–64	3.6	27.8	39.3	52.3	39.7
65–69	12.6	25.8	41.3	55.3	42.3
70–74	5.5	27.0	42.2	57.6	43.7
75–79	2.0	7.9	40.3	54.9	38.8
80+	−11.0	31.5	32.3	50.1	37.6
Average	−0.7	22.9	37.5	51.1	37.1

Note: Income classes I–IV are yearly income quartile groups. Figures for jobless households are included in 1979.
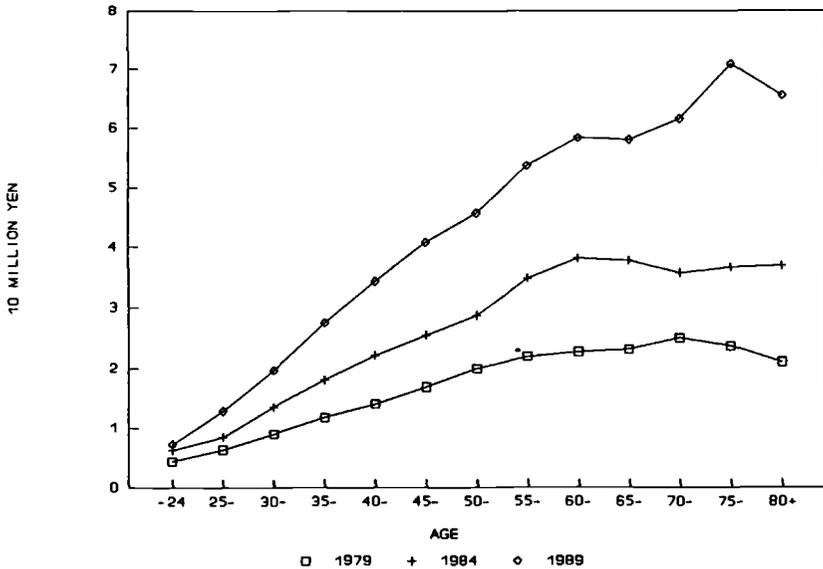
Fig. 3.8 Age profile of net worth (for all households)
Source: NSFIE for 1979, 1984, and 1989.

Wealth distribution also became more imbalanced in the 1980s. In particular, net worth holdings became increasingly distorted between home owners and tenants (see table 3.16). For example, the ratio of net worth holdings by tenants to those of home owners, on average, decreased from 19.0 percent in 1979, to 15.4 percent in 1984, and, further, to 11.9 percent in 1989. In other words, home owners were 8.4 times as rich as tenants in 1989, while they had been 5.3 times as rich in 1979.[13]

Figure 3.9 exhibits net worth held by cohorts over the period of 1979–89. Net worth increases substantially in the period between 1984 and 1989, which corresponds to the bubble economy period in Japan. In the 1989 survey, those born in 1905–14 may not reflect the distribution of the same cohort in the previous surveys, because of disproportional increases in wealth in the 1984–89 period. Apart from this problem, each cohort increases its wealth holdings over time. Figure 3.10 illustrates net financial assets held by cohorts over the same period. Those who reach ages 60–64 seem to have the largest holdings of financial assets. This would certainly reflect the fact that employee households receive lump-sum retirement severance payments at around age 60.

The share of small savers among those who reach retirement age is shown in table 3.19. Considering the amount of average annual expenditure by the elderly (e.g., for ages over 80, 2.2 million yen in 1984 and 2.6 million yen in

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13. In Japan net worth holdings classified by income class and employment status are less significantly distorted than classified by home ownership.

Table 3.16   **Net Worth by Home Ownership (10,000 yen)**

Year and Age	Total		Home-Owning		Tenant	
	Mean	Median	Mean	Median	Mean	Median
1979						
0–24	438	201	1,379	1,160	190	166
25–29	636	355	1,373	1,213	273	237
30–34	899	559	1,538	1,343	320	286
35–39	1,177	961	1,625	1,427	375	321
40–44	1,399	1,152	1,790	1,500	422	352
45–49	1,687	1,368	2,017	1,645	434	369
50–54	1,995	1,607	2,276	1,835	526	419
55–59	2,192	1,732	2,458	1,988	624	469
60–64	2,269	1,804	2,543	1,986	631	415
65–69	2,310	1,856	2,630	2,138	473	334
70–74	2,495	1,769	2,759	2,030	516	292
75–79	2,365	1,715	2,654	2,004	381	242
80+	2,103	1,629	2,559	2,155	285	227
Average	1,483	1,142	1,994	1,610	378	303
1984						
0–24	625	243	2,174	1,806	223	196
25–29	845	407	2,055	1,826	339	304
30–34	1,352	798	2,319	2,004	428	368
35–39	1,804	1,361	2,496	2,102	453	405
40–44	2,211	1,832	2,731	2,286	494	422
45–49	2,543	2,097	2,946	2,430	592	473
50–54	2,870	2,379	3,253	2,695	649	492
55–59	3,478	2,813	3,775	3,034	691	473
60–64	3,807	3,041	4,192	3,395	681	504
65–69	3,772	3,095	4,185	3,440	723	543
70–74	3,569	2,944	3,882	3,257	658	457
75–79	3,656	2,953	4,044	3,173	459	384
80+	3,683	2,777	4,071	3,041	705	330
Average	2,456	1,916	3,141	2,537	483	388
1989						
0–24	726	242	3,128	2,073	271	203
25–29	1,283	442	3,761	2,368	361	328
30–34	1,964	804	3,786	2,441	485	419
35–39	2,747	1,544	3,939	2,565	578	476
40–44	3,431	2,149	4,288	2,831	650	496
45–49	4,070	2,641	4,747	3,213	723	504
50–54	4,569	2,913	5,203	3,455	829	520
55–59	5,366	3,306	5,894	3,740	954	594
60–64	5,829	3,746	6,287	4,093	993	648
65–69	5,799	3,574	6,326	4,022	913	566
70–74	6,148	3,591	6,730	3,926	764	643
75–79	7,079	3,789	8,046	4,847	782	505
80+	6,548	4,171	7,364	4,868	691	334
Average	4,025	2,349	5,129	3,262	611	444

Table 3.17 Net Financial Assets by Home Ownership (10,000 yen)

Year and Age	Total		Home-Owning		Tenant	
	Mean	Median	Mean	Median	Mean	Median
1979						
0–24	137	70	296	150	95	62
25–29	203	133	260	159	175	126
30–34	272	195	305	212	243	178
35–39	340	249	357	260	308	225
40–44	425	300	449	320	364	254
45–49	527	360	566	380	378	270
50–54	640	433	674	455	466	332
55–59	778	507	816	525	555	401
60–64	772	492	810	522	549	316
65–69	759	479	823	521	390	250
70–74	871	485	929	530	442	220
75–79	761	421	825	470	324	201
80+	677	310	785	377	245	200
Average	470	291	546	342	305	204
1984						
0–24	157	82	396	167	95	70
25–29	226	159	287	200	200	143
30–34	353	247	397	275	311	223
35–39	447	315	483	339	375	277
40–44	544	380	575	401	442	308
45–49	640	430	667	445	509	360
50–54	747	485	780	500	554	388
55–59	979	609	1,018	637	607	393
60–64	1,066	681	1,124	727	600	405
65–69	987	643	1,035	670	633	430
70–74	932	598	969	607	590	380
75–79	913	509	978	590	380	300
80+	876	500	910	578	620	269
Average	620	390	728	449	388	252
1989						
0–24	194	70	458	163	144	60
25–29	326	201	512	283	257	170
30–34	464	329	532	356	409	310
35–39	626	438	666	456	553	402
40–44	778	534	820	560	641	440
45–49	975	635	1,029	671	709	455
50–54	1,091	675	1,135	713	834	452
55–59	1,359	829	1,412	890	920	546
60–64	1,660	1,040	1,725	1,097	968	588
65–69	1,659	1,000	1,743	1,090	882	530
70–74	1,631	910	1,728	967	729	594
75–79	1,466	830	1,574	939	759	490
80+	1,561	840	1,687	966	662	315
Average	999	580	1,139	670	568	360

Table 3.18   Net Housing Assets (10,000 yen)

Year and Age	Total		Home-Owning	
	Mean	Median	Mean	Median
1979				
0–24	188	0	929	772
25–29	303	0	954	842
30–34	487	0	1,069	912
35–39	688	528	1,103	937
40–44	820	658	1,173	956
45–49	999	790	1,279	1,002
50–54	1,186	929	1,424	1,103
55–59	1,250	982	1,468	1,148
60–64	1,347	1,008	1,574	1,195
65–69	1,421	1,062	1,669	1,266
70–74	1,502	1,056	1,702	1,227
75–79	1,493	1,048	1,710	1,214
80+	1,335	1,066	1,670	1,303
Average	862	638	1,282	1,012
1984				
0–24	325	0	1,592	1,312
25–29	445	0	1,547	1,291
30–34	815	0	1,708	1,447
35–39	1,163	807	1,796	1,457
40–44	1,467	1,194	1,941	1,576
45–49	1,691	1,371	2,054	1,658
50–54	1,902	1,544	2,239	1,801
55–59	2,274	1,783	2,522	1,956
60–64	2,544	1,951	2,862	2,193
65–69	2,614	2,106	2,969	2,352
70–74	2,482	1,944	2,751	2,194
75–79	2,604	2,038	2,921	2,274
80+	2,673	1,980	3,020	2,193
Average	1,616	1,235	2,197	1,725
1989				
0–24	385	0	2,487	1,699
25–29	801	0	3,057	1,657
30–34	1,359	0	3,092	1,758
35–39	1,987	844	3,124	1,787
40–44	2,519	1,321	3,323	1,925
45–49	2,950	1,668	3,564	2,123
50–54	3,326	1,814	3,907	2,277
55–59	3,859	1,982	4,327	2,301
60–64	4,045	2,103	4,433	2,386
65–69	4,041	2,160	4,480	2,430
70–74	4,428	2,182	4,907	2,561
75–79	5,538	2,361	6,391	3,086
80+	4,919	2,365	5,604	3,167
Average	2,890	1,407	3,846	2,124
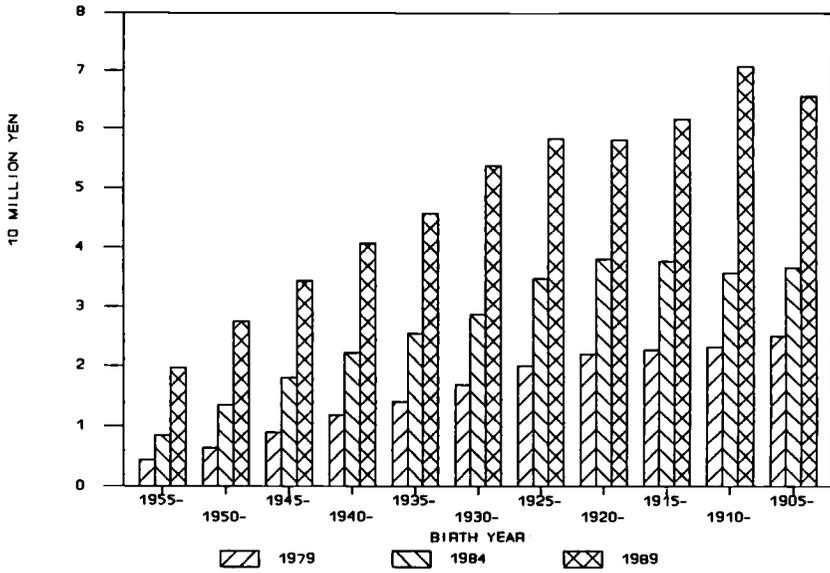
Fig. 3.9   Net worth by birth year (for all households)
Source: NSFIE for 1979, 1984, and 1989.
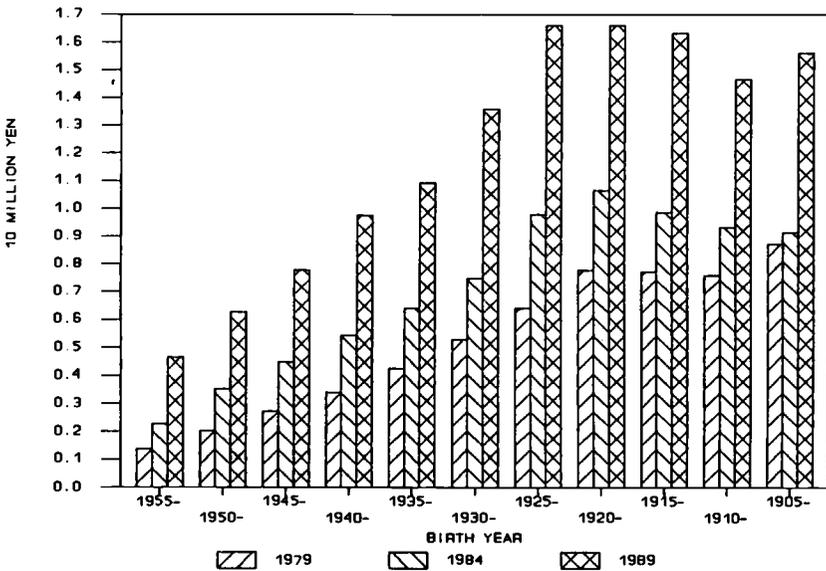
Fig. 3.10   Net financial assets by birth year (for all households)
Source: NSFIE for 1979, 1984, and 1989.

Table 3.19   **Share of Small Savers in the Elderly Population (%)**

	Financial Assets Less Than 1 Million Yen			Financial Assets Less Than 3 Million Yen		
	Total	Home Ownership		Total	Home Ownership	
Year and Age		Owner	Tenant		Owner	Tenant
1979						
55–59	11.1	10.6	13.9	32.3	31.2	39.1
60–64	10.3	9.0	17.7	32.9	30.6	46.3
65–69	10.8	8.9	21.5	33.2	29.1	56.6
70–74	10.9	8.2	31.3	36.5	33.6	57.9
75–79	15.0	13.0	29.4	39.4	34.3	74.0
80+	13.3	13.1	14.0	45.4	39.9	67.1
1984						
55–59	10.3	9.5	18.2	27.5	25.9	42.2
60–64	9.1	8.0	18.1	25.1	23.1	41.4
65–69	9.6	8.4	18.2	25.9	24.5	35.9
70–74	12.3	10.6	28.2	30.1	28.5	45.4
75–79	11.4	10.2	21.1	30.0	27.6	49.5
80+	17.7	16.9	23.2	41.2	39.4	55.1
1989						
55–59	8.6	7.3	19.1	20.3	18.4	36.4
60–64	6.0	5.3	13.6	14.8	13.7	26.8
65–69	4.7	4.1	10.8	15.4	14.1	27.5
70–74	5.2	4.4	12.1	16.9	15.5	30.8
75–79	6.7	5.1	17.5	19.8	17.6	33.9
80+	8.1	4.5	35.0	20.8	17.0	48.6

1989), financial assets of less than 3 million yen are by no means sufficient. In particular, a substantial portion of tenant households fall into the category with financial assets below 3 million yen. For those households, social security pension benefits are the major source of income. We will discuss this issue, in detail, in section 3.4.

3.3.6   Intergenerational Transfers

Increase in net worth over the life cycle of the cohort would draw a different picture from that of the age profile, from cross-sectional data, in figure 3.8. As discussed before, Hayashi, Ando, and Ferris (1988) argue that the prevalence of extended families makes the analysis of increase in net worth over the life cycle extremely difficult. The existence of extended families implies that there are two categories of older people: those still maintaining independent households (the independent elderly) and those living with children (the dependent elderly). It is the independent elderly only that enter the NSFIE sample. This creates sample selection bias. Hayashi, Ando, and Ferris (1988) present an innovative method to delete this bias by using only one data point in time (i.e., the 1984 NSFIE). In their method, increase in net worth brought about by

the presence of older generations (intergenerational transfers) is inferred by the difference in income, consumption, and wealth between extended and nuclear families in the same age bracket (cohort).

We present an alternative method to infer intergenerational transfers by combining three data points in time (i.e., the 1979, 1984, and 1989 NSFIEs). Our method uses the following identity of wealth stock for cohort a at the end of year t:

(1) $W(a,t) = S(a,t) + TR(a,t) + (1 + \phi)W(a,t-1),$

where W = wealth stock, S = flow savings on an asset increment basis,[14] TR = intergenerational transfers, and ϕ = the capital gains rate. Note that all capital income, such as interest and dividends, is included in disposable income, while capital gains are not included in the NSFIE. Note also that aggregate intergenerational transfers at the macroeconomic level cancel out to zero because they are mere transactions among the household sector. Rearranging equation (1) yields

(2) $TR(a,t) = dW(a,t, t-1) - S(a,t) - \phi W(a,t-1),$

where $dW(a,t, t-1)$ = wealth stock change from year $t-1$ to year t. Given a fixed composition of wealth stock with respective capital gains rates and its change over years, intergenerational transfers can be calculated as a residual, if accumulated savings are obtained.

Suppose that the flow savings of each cohort grow at $100g$ percent per annum. Given the actual flow savings in the five-year interval, the annual growth rate (g) can be calculated as follows:

(3) $g = \frac{1}{5}[\log(S(a, t)) - \log(S(a, t-5))].$

The five-year accumulated savings (A) are then given, using g from equation (3), by

(4) $A(a,t) = S(a,t-5)[(1 + g) + (1 + g)^2 + (1 + g)^3 + (1 + g)^4 + (1 + g)^5].$

Reformulating equation (2) in terms of the five-year transfers,

(5) $TR(a,t, t-5) = dW(a, t, t-5) - A(a,t) - \phi W(a,t-5).$

Equation (5) is the formula used for calculating intergenerational transfers. A positive value of TR means that, on average, the household receives wealth from other members of the family or from someone else, and a negative value

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14. In order to estimate intergenerational transfers as accurately as possible, the concept of savings used here is statistically adjusted in the sense that service flows and depreciation of consumer durables, interest payments on loans, etc., are taken into account (see case 7 in Takayama 1992a, 173).

means that, on average, the household transfers wealth to other members of the family or to someone else.[15]

The results are reported in figures 3.11 and 3.12. As is evident from figure 3.11, the growth of net worth peaks at around ages 55–59, just before retirement, at which point transfers (receipts) from other generations start declining and transfers (by gifts or bequests) to younger generations increase. A similar story holds in figure 3.12, even though the growth of net worth peaks once at ages 55–59, then reaches a second peak at ages over 70. The second peak could be the result of strong sample bias.[16] Nevertheless, as for 1979–84, for 1984–89 intergenerational transfers become negative at around age 60. A noticeable feature in figure 3.12 is that wealth increases are made mainly through capital gains in this period. The younger generations around age 45 start receiving intergenerational transfers, although these remain small until around age 60.

Our method does not try to adjust sample selection bias[17] as discussed by Hayashi, Ando, and Ferris (1988). On the other hand, we combine three NSFIE data points in time; in so doing, increases in net worth over an extended period of time can be directly inferred. What we show, then, is that even independent elderly households, on average, transfer wealth to younger generations at ages over 60. The merged dependent elderly households would transfer more, as shown by Hayashi, Ando, and Ferris (1988). Our result can, therefore, be considered a complement to Hayashi, Ando, and Ferris (1988). In addition, considering the high level of wealth holdings at ages over 70 and the comparatively lower intergenerational transfers, the bulk of intergenerational transfers must take the form of bequests. This point is also made by Hayashi, Ando, and Ferris (1988) and supported by our empirical findings.

3.4   Social Security and Retirement Pensions

3.4.1   Social Security Pensions: Background

Public pensions are provided under six different programs in Japan. However, the benefit structures have all been similar since the most recent fundamental amendments became effective on April 1, 1986. Japan currently has a

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15. It should be borne in mind that lump-sum retirement severance payments (which are transfers from employers) at around age 60 could be counted in intergenerational transfers because they are not treated as disposable income in the NSFIE. Unfortunately, the NSFIE cannot isolate lump-sum retirement severance payments from the wealth stock either, so intergenerational transfers could be, more or less, overestimated in our calculation at around age 60. However, this fact enforces, rather than offsets, our point that elderly households, in fact, transfer more wealth (in the form of gifts or bequests) to the younger generations than would appear to be the case from the values calculated from eq. (5).

16. We could not eliminate this bias by omitting samples as outliers when they are distributed outside 4σ (four times the standard deviation). The samples within 4σ seem to contain the elderly households with relatively high capital gains.

17. Takayama, Arita, and Kitamura (1994) discuss the problems arising from sample selection bias and the omission of single-person households from the sample.
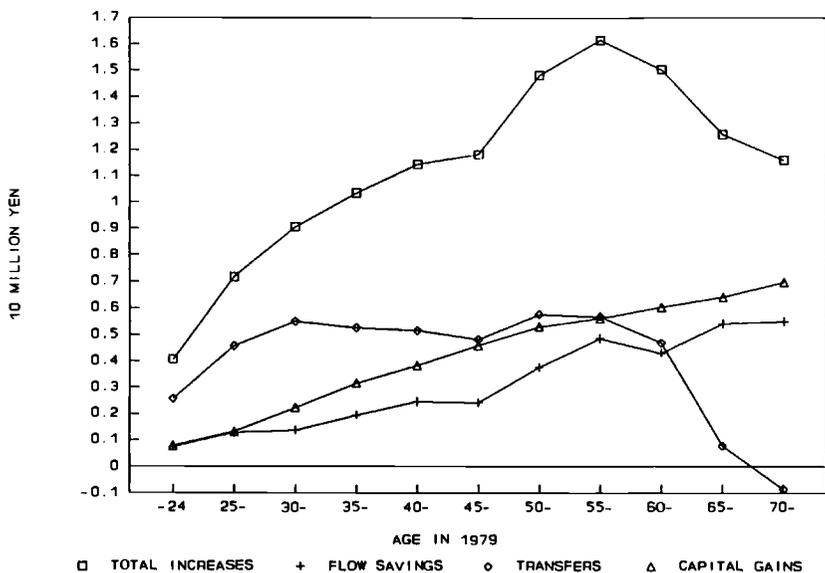
Fig. 3.11   Wealth increases from 1979 to 1984
*Source:* NSFIE for 1979 and 1984.
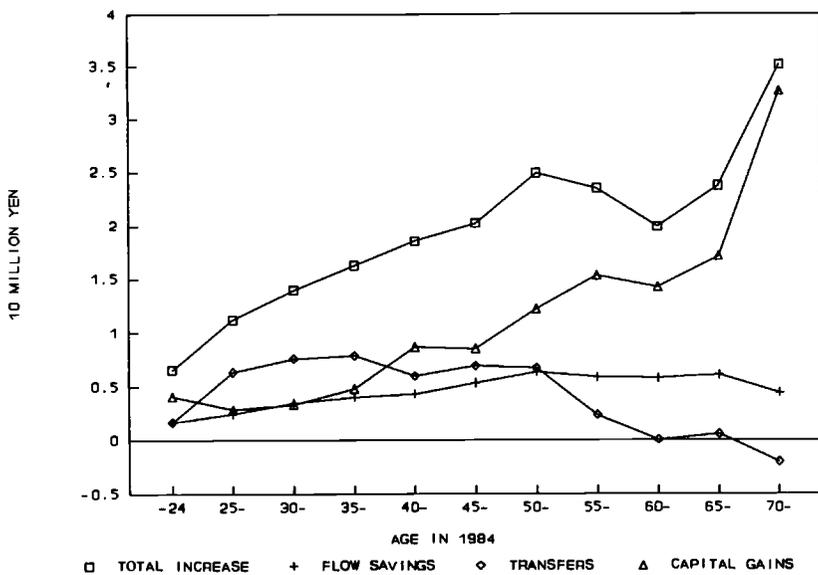
Fig. 3.12   Wealth increases from 1984 to 1989
Source: NSFIE for 1984 and 1989.

two-tier system of public pensions; the first tier, flat-rate basic benefits, covers all residents including self-employed and jobless persons. The second tier, earnings-related benefits, applies only to employees.

The full old-age pension is payable after 40 years of contributions. The maximum flat-rate basic benefit for the 1992 fiscal year was about 60,000 yen per month. The pension may be claimed at any age between 60 and 70. It is subject to actuarial reduction if claimed by self-employed or jobless persons before age 65 or to actuarial increase if claimed after age 65. The benefit is indexed automatically each fiscal year (as of April 1) to reflect changes in the consumer price index of the previous calendar year.

Earnings-related benefits are given to all employees. Under the KNH (Kosei Nenkin Hoken, the principal program for private-sector employees), the accrual rate for the earnings-related component of old-age benefits is 0.75 percent per year, in principle. Thus, 40-year contributions will earn 30 percent of the career average monthly real earnings. The full pension is payable starting at age 60 to an employee who is fully retired. From age 60, he or she can receive the full amount of benefits, including the flat-rate component, without any reductions. An individual who has reached age 60 but has not fully retired can receive a reduced pension. The earnings test is applicable only to those under age 65.

At present, KNH old-age benefits for the newly awarded "model" retiree (with an average salary earned for the average 35 years of coverage) and his dependent spouse (full-time housewife) were about 206,000 yen per month in 1991, replacing 68 percent of the average *monthly* earnings of currently active male workers.

In Japan, employees usually receive semiannual bonuses which typically amount to four or five months' salary, although in small companies they are often much smaller. Since these bonuses are not included in the earnings base for both public pension contributions and benefits, the replacement rate for the above-mentioned "model" retiree will be considerably lower, about 50 percent of the average *annual* earnings.

Needless to say, the labor income replacement rate varies with different income levels. The highest rate will be 180 percent (not the 68 percent stated above) for the minimum-salary earners (80,000 yen per month in 1992), while it will be the lowest, 53 percent, for employees at the earnings ceiling covered by the KNH (currently 530,000 yen per month in 1992).

Under the KNH, equal percentage contributions are required of employees and their employers. The total percentage in effect in 1991 was 14.5 percent.[18] The contribution rate of the KNH was initially set at 6.4 percent in 1942 and in 1944 was raised to 11.0 percent; it was reduced to 3.0 percent in 1948. The relatively low rate of 1948 has been gradually increased, and the current

18. The contribution rate of the KNH was 9.1 percent in 1979, 10.6 percent in 1984, and 12.4 percent in 1989.

contribution rate is expected to rise by 2.5 percent every five years, although this is not legally fixed.

Independent workers, the self-employed, and the jobless between ages 20 and 59 make flat-rate individual contributions to social security pensions. The rate as of April 1994 is 11,700 yen per month. It is scheduled to rise each fiscal year by 500 yen plus the increase in the consumer price index from the previous calendar year.[19]

3.4.2   Age-Contribution and Age-Recipiency Patterns of Social Security Pensions

Table 3.20 presents the age-contribution and age-recipiency patterns of social security pensions of Japan in 1984. It indicates that the mean and median of social security benefits per annum were about 1.40 million yen in 1984. Note that these figures include self-employed and jobless persons.

Figure 3.13 shows the 1989 distribution of annual public pension benefits for elderly couples only. The majority of them were retired salaried workers. On average, they were receiving benefits of about 2.4 million yen per annum. The present value of their total lifetime benefits would be near 60 million yen. Public pension benefits are the major source of income for the elderly and, overall, form a little over 50 percent of total income, though the share of public pension benefits in income varies with the current employment status of the household head and with his or her age (see table 3.21).[20]

3.4.3   Private Pensions

About 90 percent of private companies and institutions in Japan have occupational retirement benefit plans. Their benefits are usually paid as a lump sum. The average benefits paid to benefit-eligible male retirees were 20–24 million yen in large firms and 10–13 million yen in smaller ones in 1989.

Occupational retirement benefits in Japan are largely financed on a pay-as-you-go basis, and in general no contributions are required from employees.

Table 3.22 shows the marginal accrual rate of lump-sum retirement benefits and the labor income replacement rate in terms of final monthly salaries, too. It shows that the typical replacement rate is about 40 months for those with a lifetime of continuous employment.

The 90 percent coverage of occupational retirement benefit plans has remained unchanged. A growing number of contracted-out plans (e.g., Kosei Nenkin Kikin, employee pension funds) are rapidly being set up, which finance part of their retirement benefits on a fully funded basis.[21]

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19. The contributions per month for nonemployees were 3,300 yen in 1979, 6,220 in 1984, and 8,000 in 1989. See Takayama (1992a, chap. 1) for a general description of public pension programs in Japan and Takayama (1994) for the 1994 government reform plan of the public pension system.

20. See Takayama and Arita (1992a, 1992b) and Takayama (1992a, chap. 2; 1993) for an economic profile of the elderly in current Japan.

21. Takayama (1993) gives a brief explanation of occupational pensions in Japan.

Table 3.20   **Annual Amount of Public Pension Benefits and Contributions (10,000 yen)**

	Benefits		Contributions	
Year and Age	Mean	Median	Mean	Median
1984				
0–24	5	0	13	12
25–29	7	0	15	14
30–34	10	0	16	15
35–39	12	0	17	16
40–44	12	0	19	17
45–49	12	0	20	19
50–54	14	0	22	22
55–59	41	0	22	22
60–64	110	80	78	7
65–69	142	140	6	0
70–74	144	131	6	0
75–79	146	136	6	0
80+	122	108	6	0
Average	32	0	17	16
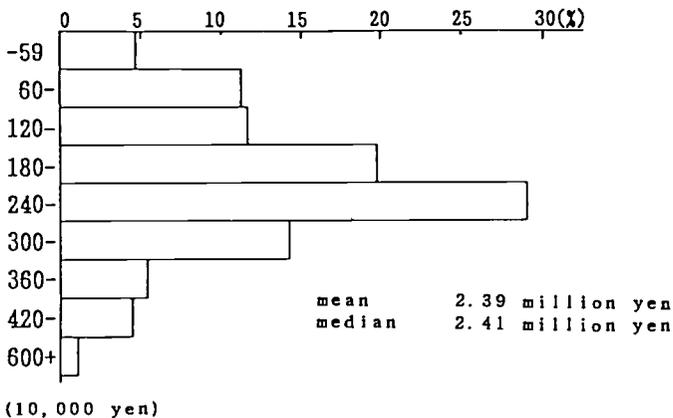
Fig. 3.13 Household distribution of annual public pension benefits
Source: NSFIE for 1989.
Notes: Figures for elderly couples only.

Private individual pensions have also been growing in Japan, though their coverage is still very small. This growth is mainly due to recent reforms in the tax treatment of individual pensions and to the introduction of the Kokumin Nenkin Kikin, a new scheme of individual pensions giving extremely generous tax advantages to nonemployee persons.[22]

22. See Ito and Kitamura (1994) for more details.

Table 3.21   **Household Distribution by the Share of Public Pension Benefits in Income**

	Share of Benefits in Annual Income (%)						Average Benefits	Average Annual Income
	0–19.9	20–39.9	40–59.9	60–79.9	80–99.9	100		
Age								
60–64	11.4	15.5	17.3	18.8	19.2	17.8	238	448
65–69	9.8	12.0	14.9	17.5	24.1	21.8	243	447
70–74	6.2	12.3	14.6	15.7	25.4	25.7	245	436
75+	5.1	9.4	14.4	14.8	23.4	32.8	226	346
Total	8.9	12.8	15.6	17.2	22.6	22.9	239	430
Average benefits	102	183	228	261	296	260	–	–
Average annual income	941	600	458	373	328	260	–	–
Head of household working	20.2	25.5	27.1	16.2	8.4	2.6	202	572
Nonworking couples	0.8	2.8	5.9	15.3	33.8	41.4	269	322

Source: NSFIE for 1989.

Notes: Figures are for elderly couples only. Units: average benefits and average annual income (10,000 yen), others (%).

Table 3.22   **Marginal Accrual Rate of Lump-Sum Retirement Benefits**

Continuing Years of Service	Lump-Sum Retirement Benefits (MSE)	Continuing Period of Service (years)	Marginal Accrual Rate (months)
Senior High School Graduates			
5	3.4	0–5	0.68
10	7.3	5–10	0.78
15	12.4	10–15	1.02
20	19.0	15–20	1.32
25	26.8	20–25	1.56
30	34.2	25–30	1.48
35	39.8	30–35	1.12
37	42.3	35–37	1.25
College and University Graduates			
5	3.2	0–5	0.64
10	7.2	5–10	0.80
15	12.2	10–15	1.00
20	18.8	15–20	1.32
25	26.4	20–25	1.52
30	34.3	25–30	1.58
33	38.2	30–33	1.30

Source: Central Labor Relation Board, 1991.

Notes: MSE = monthly salary equivalent. The survey from Central Labor Relation Board covers large employers with 1,000 or more employees.

There will probably be a big change in the Japanese public pension system in 1994. The social security wealth of each individual will be reduced by raising the normal retirement age (from 60 to 65) and/or by decreasing real levels of monthly benefits (by introducing *net* wage indexation in place of current *gross* wage indexation). These reforms will encourage household savings through private retirement saving programs, including occupational pensions.

3.5 Conclusion

This chapter presents a broad survey of microdata sources and microdata descriptions of the nature of household saving behavior in Japan. As the three NSFIE data sets are mines of information, the statistical materials we provide in this chapter are a very small portion of all the information available. It should be noted, however, that the NSFIEs are not free from statistical and conceptual difficulties. Nevertheless, all the chapters in this volume use the same definitions of income, consumption, and savings. International comparisons among the different countries can be done without further statistical adjustments.

In the course of data analysis, several interesting features of household saving behavior in Japan became clear:

1. Variations in saving behavior across different income classes are much wider than those over the age profile within the same income class.

2. As income grows and wealth accumulation increases, richer households save at increasingly high rates over the age profile.

3. Diversity of saving behavior among elderly households is much greater than among younger households, as their employment status, home ownership, and financial asset holdings differ substantially. The richer elderly households keep saving at significantly positive rates.

4. The above findings do not imply that intergenerational transfers occur only at the death of elderly household heads. With a careful analysis of the increase in net wealth by the cohort over time, the wealth formation process over the life cycle emerges clearly. The growth of net wealth peaks at ages 50–59, just before retirement (for 1984–89, the samples at ages over 70 include uncontrollable bias). At the same time, receipts of intergenerational transfers start declining and transfers of wealth to the next generation increase.

5. According to Noguchi (1990), thus far in Tokyo, those who have obtained their housing assets through bequests are small in number compared with those who have financed such purchases by themselves. The strong propensity of Japanese households to purchase their houses at an early stage of accumulated wealth has resulted in unexpected capital gains on home equity, thereby increasing their wealth holdings to quite high levels. As a result, inequality in wealth holdings between home owners and tenants and/or between home owners in high capital gain areas and those in low capital gain areas has worsened.

6. As society experiences a growing proportion of people over age 65, the

personal burden of medical costs is expected to increase and social security benefits to be reduced in coming years. Whether they like it or not, households will have to prepare for their expenditures after retirement. As far as the NSFIEs are concerned, dissavings by the elderly are unlikely to happen in Japan until the final stage, just before death, as is evident in this chapter.

Economic behavior over the life cycle can be analyzed directly by panel data. However, household panel data does not exist in Japan. The second-best approach, the one we have taken, is to combine different microsurveys in time and to examine the cohort effect. The more data points in time are available, the more detailed the cohort analysis can be. In particular, effects of structural changes over time, such as financial liberalization and the demographic change discussed by Takahashi and Kitamura (1994), can be analyzed by the microsurvey data both in cross section and in cohort time series, if the surveys can be combined over sufficiently long periods. In the case of the NSFIE, we have to accumulate survey data for the coming decades. Alternatively, we can combine the FIES with the NSFIE as a benchmark because, since the FIES is surveyed every year, the missing data for years between the NSFIE surveys can be filled. In any case, we believe that this type of approach can apply to various empirical and policy issues in future research.

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1. The major surveys include the Family Income and Expenditure Survey (Designated Statistics,

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