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4 The Economic Position of the Elderly in Japan

Naohiro Yashiro

Japan's economy and society face a rapid aging of the population. The proportion of the elderly (defined here as those 65 years of age or older) in the total population, which was 4.9 percent in 1950—very low by international standards—rose to 14.8 percent in 1995. The ratio is projected to rise further, to over 25 percent by 2020, which would make it among the highest in the major OECD countries.[1] The rapid aging of the Japanese population reflects the high rate of economic growth during the postwar period and associated structural changes in industry and society, particularly in family structure.

This paper focuses on the economic status of the elderly, with specific reference to their family relationships. First, the transformation of the Japanese household structure in the postwar period is reviewed. Second, the income of elderly households under both conventional and alternative definitions is compared with that of average households for a better understanding of their relative economic status. The distribution of the income and wealth of elderly households is a major concern here. Third, the high proportion of the elderly living with their children, though declining steadily over time, has been a particular characteristic of the Japanese family. Major factors determining the coresidence of the elderly with their children are analyzed based on cross-sectional data by prefecture. Finally, we arrive at some policy conclusions from the above discussions.

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1. The relatively fast aging process in Japan is evident when we compare the time required to double the share of the elderly from 7 percent to 14 percent in various countries. In Japan, this doubling is projected to take only 25 years, compared with 70 years in the United States, and 130 years in France. For an overview of the economic aspects of the aging of the Japanese population, see OECD (1990) and Takayama (1992).

4.1 Changes in Living Arrangements of the Elderly

The aging of the Japanese population has been due largely to the gradual aging of the postwar baby boom cohort (born between 1947 and 1949), which will become elderly toward the year 2020. The rapidity of the aging is due mainly to the continuous decline of the birthrate, from 4.5 in 1947 to 1.43 in 1995. In addition, an increase in life expectancy has contributed to an increase in the average age of the population; the average life expectancy of those reaching age 65 rose from 11.5 years in 1950 to 16.7 years in 1994 for males and from 13.9 years to 21.0 years for females. This extension of life expectancy has greatly affected the living arrangements of the elderly in Japan. In 1990, 85 percent of elderly men lived with their wives (including those who also lived with other family members), while only 42 percent of elderly women lived with their husbands, reflecting the large difference in life expectancies and the low divorce rate.[2]

A major characteristic of Japan's family structure is the high proportion of the elderly who live with their children or other relatives, indicating the important role of extended families in securing a comfortable life for the retired elderly. For example, only 15 percent of all elderly women in Japan lived alone in 1989—much lower than the 41 percent in the United States (table 4.1).[3] In addition, the more aged the elderly become, the more likely they are to live with their extended families.

Moreover, the likelihood of coresidence of elderly women is relatively high; 62 percent of "very elderly" (those aged 75 or over) men and 77 percent of very elderly women live with their families in Japan, compared to 9 and 22 percent in the United States, respectively. While the greater likelihood for women is partly due to the fact that elderly women are on average older than elderly men, the incidence of elderly women living with their children is consistently higher than that of elderly men in the same age groups; for example, over 80 percent of Japanese women aged 80 or over live with their children, compared with 70 percent of men in the same age group. This high rate of coresidence of elderly women with their children helps to reduce the incidence of poverty among the elderly in Japan.

The living arrangements of the elderly, which have important implications for their economic position, have continuously changed over time. The share of the elderly who live with and are supported by their children in the total number of elderly declined from 56 percent in 1977 to 39 percent in 1991, consistent with the decline in the share of extended families in total house-

2. In 1993, Japan's divorce rate (the number of divorces per 1,000 population) was 1.53. This compares with 1990 divorce rates of 4.73 in the United States, 2.88 in the United Kingdom, and 2.20 in Sweden.

3. These figures do not include the elderly who are institutionalized. According to the Census of the Population in 1990, 4.3 percent of the total elderly population was institutionalized.

Table 4.1 **Distribution of Living Arrangements of the Elderly (percent)**

	Men					Women				
Age	With Spouse	Alone	All Relatives	Children's Family	Nonrelatives	With Spouse	Alone	All Relatives	Children's Famly	Nonrelatives
Age 65+										
Japan	37	5	57	36	0	18	15	67	47	0
United States	75	16	7	–	2	40	41	17	–	2
Age 65–74										
Japan	41	5	54	31	0	24	16	60	39	0
United States	80	13	5	–	2	51	33	14	–	2
Age 75+										
Japan	32	6	62	45	0	8	15	77	58	0
United States	67	22	9	–	2	24	51	22	–	3

Sources: For Japan, Ministry of Health and Welfare (1989); for the United States, Hurd (1990).

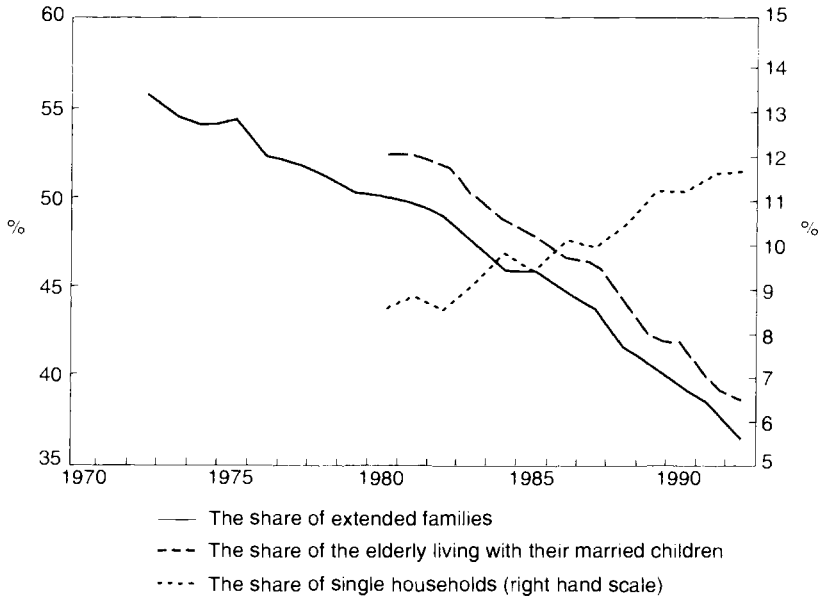

Fig. 4.1 Historical development of living arrangements of the elderly
Source: Ministry of Health and Welfare (1989).

holds. At the same time, the share of the elderly living alone rose from 8 percent to 12 percent (fig. 4.1).

Various signs suggest that this trend is likely to continue in the coming decades. First, the share of extended families in total households in rural areas is consistently higher than the share in urban areas and is inversely related to the size of the city; the share of extended family households in small cities is twice as large as that in large cities. Second, nearly half of farming households are extended families, in both urban and rural areas; this share is much higher than the shares among nonfarm self-employed and employee households (fig. 4.2). Both continued urbanization—migration from rural to urban areas, particularly large cities—and the associated contraction of the agricultural sector as it is replaced by the manufacturing and service sectors should contribute to a further decrease in the share of extended family households and an increase in the incidence of single elderly households.

Improvements in the social security and welfare systems have also contributed to the increased incidence of the elderly living alone and have allowed for other, diversified living arrangements. Instead of the traditional type of extended family in which household members' incomes are pooled, the elderly can live economically independent from their children while sharing the house

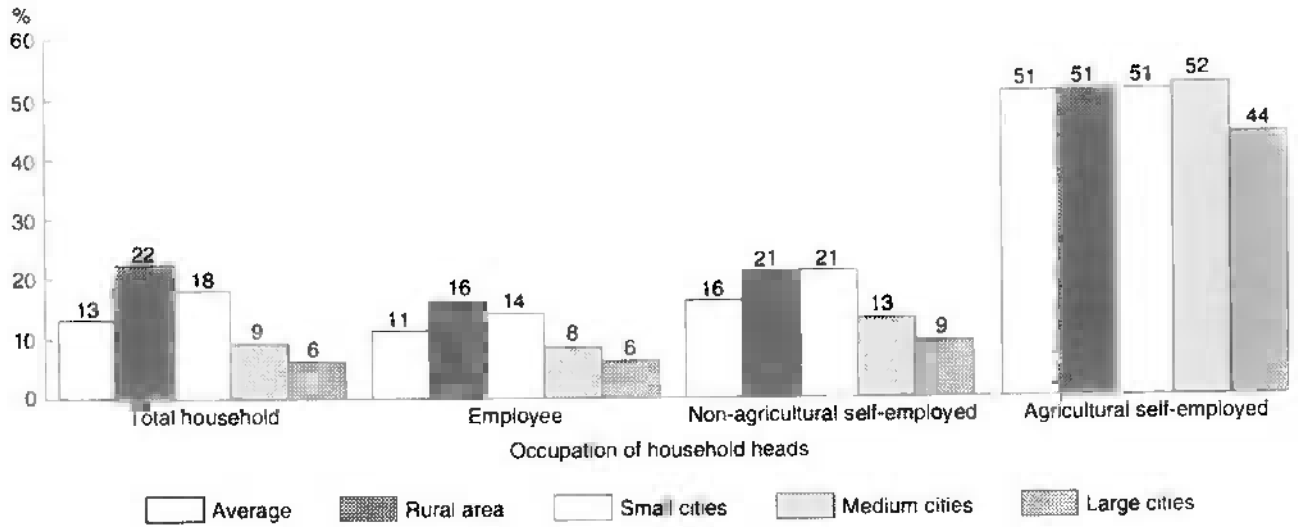

Fig. 4.2 Extended families as a fraction of total households, 1989
Source: Ministry of Health and Welfare (1989).

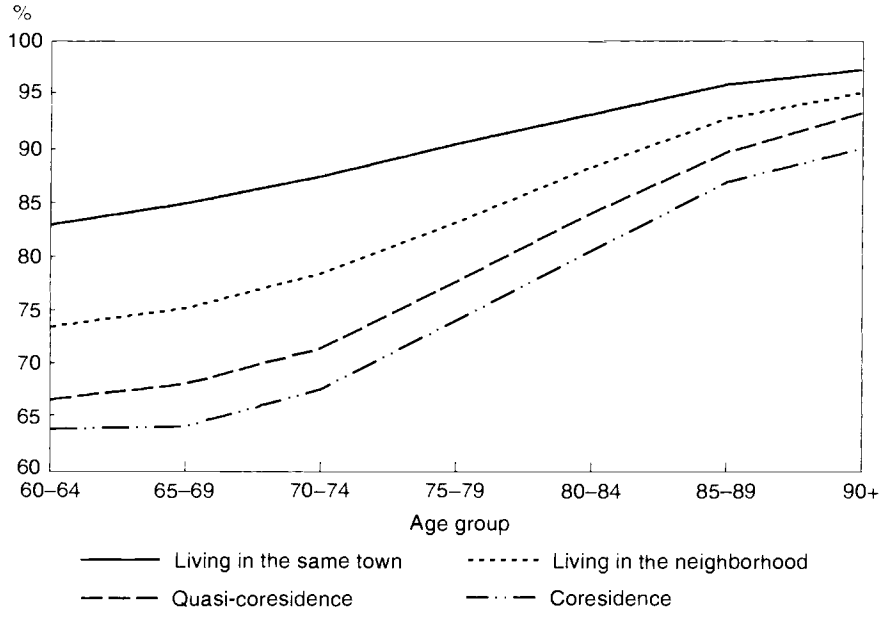

Fig. 4.3 Incidence of various types of living arrangements of the elderly, 1989 (accumulated basis)
Source: Ministry of Health and Welfare (1989).

or housing space ("quasi coresidence"),[4] or they can live alone in either the same neighborhood or the same town as their children. Indeed, the pattern of living arrangements evolves from the elderly living apart from their children but in the same neighborhood toward coresidence as they age. As a result, the accumulated level of the various types of elderly living arrangements (fig. 4.3, *solid line*) is flatter than the closer coresidence type (i.e., living together in the same house) across various age groups (fig. 4.3).

The wide divergence in the living arrangements of the elderly between Japan and the United States and how these arrangements have evolved over time has various analytical and policy implications. In an extended family, the economic independence of household members varies with age: Of males aged 40–59, over 90 percent earn the largest incomes in the household; they are normally heads of household. However, the ratio declines steadily with age, to 23 percent of males aged 80 or over; the remainder are economically dependent on their children.

4. In typical examples of quasi coresidence the child's family lives in a small house built in what was a yard next to the parents' house, or the extended family occupies a multilevel dwelling in which parents and children maintain separate households by living on different floors of the same building.

4.2 Income, Consumption, and Wealth of the Elderly

4.2.1 Income of the Elderly

The economic status of the elderly vis-à-vis the nonelderly has important implications for social policy and the system of transfers from the nonelderly to the elderly. Comparing ordinary household income (excluding single households) by age of household head indicates that elderly households (defined here as those 70 years of age or older) have incomes equivalent to 79 percent of average household income (table 4.2). If we exclude the self-employed, whose reported incomes are less accurate than those of salaried employees, the relative income of the elderly household falls further, to 60 percent of the income of the average employee household. The incomes of single elderly households, which usually belong to the poor group, were approximately 60 and 70 percent of the average, for males and females, respectively.

The large income difference between households headed by the elderly and average households, however, is subject to the following qualifications: First, elderly households are smaller; the average number of members in elderly households was 2.9 compared with 3.8 in all households in 1989. Accounting for the difference in family size, the per capita income and consumption of the elderly household exceeded those of the average household, though scale economies of household consumption should be accounted for.[5] Second, self-employed incomes may not be fully declared, particularly by farming households. Elderly workers are found most often in the self-employed sector; close to 60 percent of elderly workers are self-employed, though self-employed workers account for less than 30 percent of all workers. This high incidence of self-employment among elderly workers may well lead to an underestimation of average elderly income.

Finally, the income gap between the elderly and the nonelderly would be even smaller if imputed incomes from nonmonetary sources were accounted for as follows: First, the ratio of homeownership for elderly households is generally higher than the national average (80 percent vs. 60 percent in 1989). In addition, elderly people who bought their houses in the past have more unrealized capital gains from continuous land price hikes. Both factors result in larger housing and land assets for the elderly, on average two times those of the nonelderly (see table 4.2). Second, the elderly are intensive users of medical benefits, and most such use takes the form of in-kind transfers from the government; the average per capita medical expenses of the elderly are approximately five times as large as those of the nonelderly. Accounting for these

5. To compare per capita household income and consumption by family size, a family of two has 5 percent lower per capita income than a single person and 12 percent lower per capita consumption, implying a scale merit of household consumption of 7 percent. A family of four has 30 percent lower per capita income than a single person and 49 percent lower per capita consumption (Ministry of Health and Welfare 1989).

Table 4.2 **Relative Economic Position of the Elderly (average household = 100)**

Age	Total Ordinary Household			Total Excluding Self-Employed		
	Annual Income	Consumption	Housing Assets	Annual Income	Consumption	Housing Assets
Age 60–69	92.3	91.8	140.9	82.7	90.8	142.5
(per capita)	(112.2)	(111.7)		(113.3)	(124.3)	
Age 70+	79.1	77.2	183.1	59.7	66.9	179.1
(per capita)	(102.9)	(100.4)		(93.9)	(105.2)	
	Single Household					
	Males			Females		
	Annual Income	Consumption	Housing Assets	Annual Income	Consumption	Housing Assets
Age 60–69	73.8	81.2	487.6	94.6	91.3	110.3
Age 70+	60.5	76.3	201.6	72.3	91.0	235.3

Source: Ministry of Health and Welfare (1989).

sources of imputed income would significantly improve the relative economic position of the elderly.

4.2.2 Distribution of Income and Wealth of the Elderly

The comparison of income and wealth between the elderly and the nonelderly indicates that the economic position of the *average* elderly household is no less advantageous than that of the average nonelderly household. However, as in other industrial countries, the income and wealth of the elderly appear to be less equally distributed than those of the nonelderly (Tachibanaki 1989). While the elderly head 18 percent of households, 35 percent of elderly households are in the lowest income quartile, compared with 13 percent of nonelderly households. Moreover, the income distribution of the elderly is U-shaped, contrary to the traditional normal distribution pattern (fig. 4.4).

There are various reasons why income distribution among the elderly is inequitable in Japan. First, while public pensions account for nearly half of average elderly income, labor income still accounts for one-quarter, implying that whether one can continue working beyond retirement age, subject to health as well as employment opportunities, is an important factor (table 4.3). Second, under the seniority-based wage structure prevalent in the Japanese labor market, not only does the average wage of employees grow with age but the dispersion of wages in the same age group becomes wider. Because the size of the firm pension or lump-sum severance payment is proportional to a person's wage at the time of retirement from the firm, differences in wages continue to be reflected in income differentials after retirement. Third, because many elderly women were either homemakers or unpaid family workers, their eco-

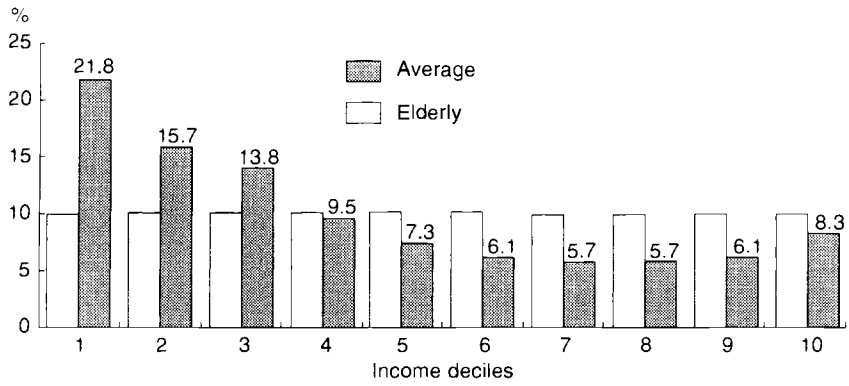

Fig. 4.4 Distribution of elderly household incomes, 1989
Source: Management and Coordination Agency (1989).

nomic positions often depend on family situations, such as whether they live with their extended families, with their spouses, or alone. In 1989, the average income of an elderly man living alone was 40 percent of that of an elderly couple (without children), while that of an elderly woman living alone was 36 percent that of an elderly couple.[6]

Housing assets are even less equitably distributed than household income. While housing and land assets account for much of the wealth of the elderly, the value depends on accumulated potential capital gains in previous periods. The median housing asset of the elderly (those 70 years of age or older) is 50 percent larger than that of the average household, and the gap widens in the third quartile to 150 percent, indicating that the housing asset distribution by age group is wider in the higher asset-holding class. In addition, even among the elderly, the distribution of housing assets varies across regions, particularly between large cities and rural areas. For example, the average value of housing of the elderly in the Tokyo area was twice the national average in 1989 (Management and Coordination Agency 1989).

4.2.3 Savings of the Elderly

One of the major issues concerning Japanese household behavior is how to explain its high rate of savings. Numerous studies have been published giving possible reasons for the difference in the average rate of savings between Japan and the United States.[7] One of the factors that raises average Japanese household savings is the relatively high rate of savings of the elderly, who are ex-

6. Here, the single elderly are defined to be those aged 60 or over, and elderly couples are defined to be those families in which the husband is aged 65 or over and the wife is aged 60 or over (Ministry of Health and Welfare 1989).

7. See Horioka (1990b) for a survey of the major literature on Japan's high savings rate.

Table 4.3 **International Comparison of Major Sources of the Elderly[a] Income (percent)**

Major Sources of Income	Japan			United States			United Kingdom		Korea	
	1981	1986	1990	1981	1986	1990	1981	1990	1981	1990
Wages	31.3	24.5	23.8	15.2	14.1	10.7	6.5	5.5	16.2	31.9
Public pension	34.9	53.4	54.3	53.9	53.0	55.2	64.0	68.8	0.8	2.5
Private pension	3.8	1.9	1.9	10.0	10.4	13.6	13.5	18.0	0.0	0.3
Deposit	2.1	2.2	2.0	1.7	1.8	1.8	1.6	1.3	2.2	1.9
Other wealth income	5.3	5.6	4.0	14.5	17.4	11.0	2.2	1.9	3.3	4.6
Support from children	15.6	9.0	5.7	0.3	0.2	0.7	0.5	0.1	72.4	54.8
Income maintenance	1.2	1.1	0.9	0.7	0.4	1.4	3.1	2.3	1.2	2.2
Others	3.1	1.9	1.8	3.5	2.4	2.7	2.6	0.9	3.2	1.6
None of the above	2.7	0.4	5.7	0.2	0.3	3.0	6.1	1.3	0.6	0.2

Source: Management and Coordination Agency, *Life and View of the Elderly* (in Japanese; Tokyo; Government Printing Office, 1992).

[a]Age 60 or older.

pected to be dissavers. Major explanations for the high rate of elderly household savings in Japan are later retirement from the labor market, greater incentive to leave bequests to their children, significant imputed incomes, and absorption of the poor elderly into their children's households (Horioka 1990a).

First, the life-cycle theory states that people start to dissave after retirement. A simple explanation of the high savings rate of the Japanese elderly is that many of them continue to work after normal retirement age. Though labor force participation rates of the male elderly fall with age, the decline at age 60—the normal retirement age from a company—is relatively small, and beyond age 60 the participation rate falls only gradually; the average participation rates for those aged 60–64 and 65–69 in 1992 were 72 and 59 percent, respectively (fig. 4.5). Moreover, declining labor force participation rates bottomed out and then rose from 1988 to 1992, partly reflecting tightening labor market conditions. If this new trend toward later retirement continues, it may have a significant impact on Japanese household savings.

If Japanese household savings rates are examined by age group in employee household data (the most readily available and thus the most often cited statistic), elderly household savings rates are found to be as high as 50 percent (fig. 4.6). This surprisingly high rate of savings is attributable to the fact that only the rich elderly remain employed while continuing to be household heads; they accounted for 15 percent of those aged 65–69 and only 5 percent of those aged 70 or older. On the other hand, the retired elderly (those who do not work) do dissave in Japan as the life-cycle theory predicts. Combining these employee and retired households results in a falling savings rate for elderly households,

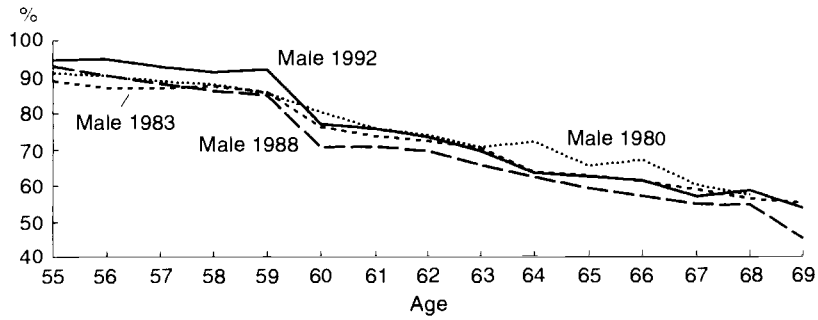

Fig. 4.5 Labor force participation of the elderly by age, 1992
Source: Ministry of Labor, *Basic Survey on the Elderly's Employment* (Tokyo, 1992).

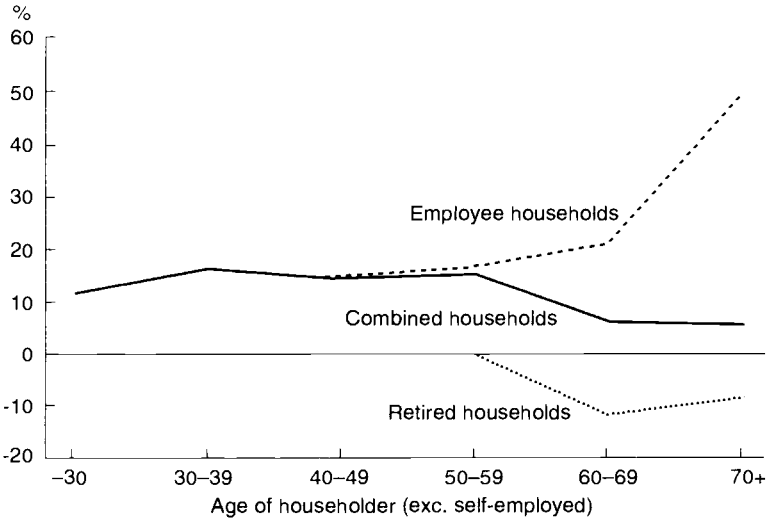

Fig. 4.6 Household savings rates (employee vs. retired households)
Source: Management and Coordination Agency (1989).

though not to a negative level, which is similar to what occurs in the United States.

A principal factor behind longer retirement life is the continuous extension of Japanese life expectancy; expected life remaining at age 65 increased by 4.9 years for males and 6.7 years for females between 1950 and 1993. This increase forces the elderly to save more in order to finance their longer lives. Another factor accounting for the large aggregate household savings (National Account basis) is the large fraction in the elderly labor force of the self-

employed,[8] whose business profits are often mixed with household savings and for whom retirement is quite flexible, unlike the case of employees subject to mandatory retirement.[9]

Second, the desire of the Japanese elderly to leave bequests to their children is also important in explaining their later retirement and relatively high rate of savings. A survey by the Bank of Japan in 1990 indicated that the majority of Japanese parents who have financial and real assets want to leave bequests to their children. The share is higher among the older generation and among self-employed, particularly farming, households. The bequest motive, however, can be altruistic or strategic. While 60 percent of the elderly responded that they would leave the bequest unconditionally, the remainder said that they would do so only if their children agreed to take care of them in their retired life (Management and Coordination Agency 1992).

Third, the significant imputed income of the elderly raises their savings rate as conventionally measured. When we account for estimated imputed income and consumption from housing and land, as well as medical benefits, the savings rate of the elderly falls, resulting in a consumption pattern resembling the life-cycle pattern. In addition, if household expenditure for education, which is conventionally defined as consumption, is reclassified as savings for human capital investment in the family, it raises the savings rate of the nonelderly, while having little effect on the rate for the elderly. Also, by so doing, the mysterious decline in the household savings rate for those aged 40–49 (when the household's burden of educational expenditure is largest) disappears, and we are left with a smooth life-cycle pattern of savings in Japan (fig. 4.7).

4.2.4 Age Selectivity Bias

The sharp decline in the economic independence of the Japanese elderly as they age is a major source of the "age selectivity bias" in Japanese household statistics concerning the income and savings of the elderly that makes it difficult to compare the economic position of the elderly in Japan with that of the elderly in the United States. The extent of this age selectivity bias can be approximated by the gap between the age composition of the population and the age composition of heads of households. For example, 70-year-olds account for 13.2 percent of the population above age 30, but only 7.8 percent of household heads (table 4.4). This age composition gap is much smaller in the United States.

The likelihood that the Japanese elderly will be economically dependent on

8. The rates of labor force participation of the male elderly (those aged 65 years or older) in self-employed and employee households in 1991 were 72 and 40 percent, respectively. However, with a declining self-employed elderly population, mainly concentrated in agriculture, the average labor force participation rate of the elderly is likely to fall in the long run.

9. The age of mandatory retirement from a firm practicing long-term employment is set on a firm-by-firm basis. In 1991, over 90 percent of Japanese firms had this system, and half of them set retirement age at 60 or older. Unlike in the United States, this mandatory retirement system is a perfectly legal practice in Japan.

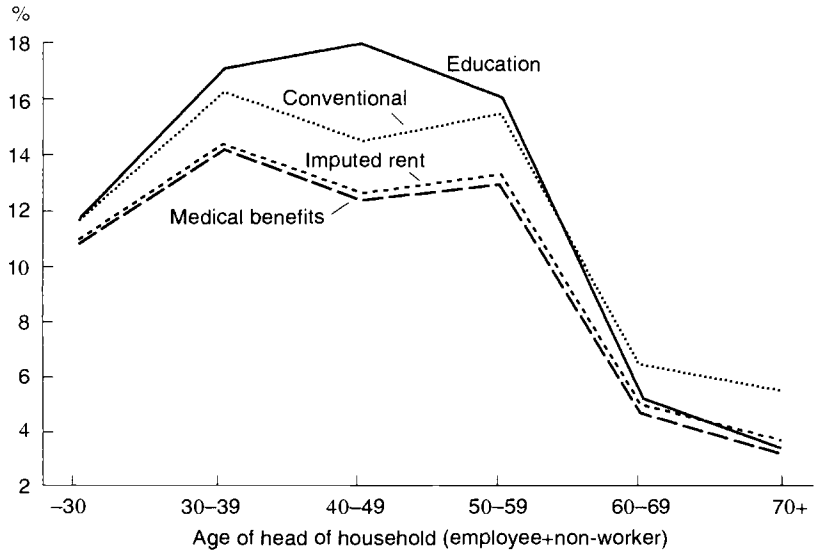

Fig. 4.7 Alternative definitions of household savings rates (excluding the self-employed)
Source: Management and Coordination Agency (1989).

Table 4.4 Comparison of Age Compositions of the Population and of Heads of Households between Japan and the United States, 1989

Japan			United States		
Age	Population	Households	Age	Population	Households
30–39	22.7	27.0	25–34	27.9	23.9
40–49	26.6	29.3	35–44	23.1	22.9
50–59	21.4	21.2	45–54	15.8	16.0
60–69	16.0	14.7	55–64	13.7	14.6
70+	13.2	7.8	65–74	11.5	13.3
			75+	8.1	9.3
Total	100.0	100.0	Total	100.0	100.0

Sources: For Japan, Management and Coordination Agency (1989); for the United States, U.S. Bureau of the Census, *Current Population Reports* (Washington, D.C., 1989).

their children or relatives, and will thus be omitted from statistics compiled on a household basis, is closely related to their income level. Three-quarters of the elderly who have annual incomes of less than 400,000 yen live with their children, which results in an *upward* bias in the perceived elderly household income because it is the relatively rich elderly who can afford to remain heads of households. However, the negative correlation between elderly individual

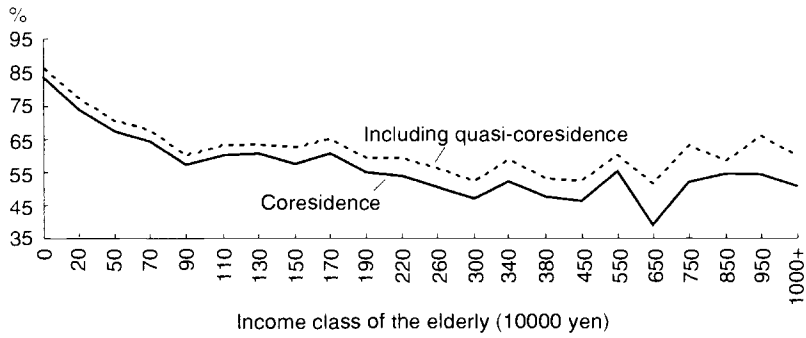

Fig. 4.8 Incidence of coresidence of the elderly (percentage of the total elderly population)
Source: Ministry of Health and Welfare (1989).

income level and incidence of coresidence with children disappears when income level exceeds 2 million yen, implying that the decision of the elderly to live with their children may be independent of their income level unless their income is so low that they have few choices. There is even a positive correlation between elderly income level and incidence of quasi coresidence (shown by the gap between the two lines in fig. 4.8). Thus, while coresidence is more prominent for the poor elderly, quasi coresidence, which assures privacy while maintaining the benefits of coresidence, is more associated with the rich elderly.

There are various ways to cope with this age selectivity bias (Ando, Yamashita, and Murayama 1986; Hayashi 1986). Hayashi (1986) estimated the income and consumption of the elderly living with their children as the difference between the income and consumption of extended families taking care of elderly members and those of nuclear families. We basically follow this method with various modifications, such as estimating the savings rate of the "hypothetical" elderly group, who are actually absorbed in their children's families, by equating the age compositions of the population and of household heads (Yashiro and Maeda 1994).[10] With this adjustment, the savings rate of elderly households (aged 70 or older) is estimated to be −93 percent—that is, they consume nearly twice their own incomes. The large negative savings of the elderly living with their children is not surprising, given their low incomes.[11]

10. This assumes that the elderly who depend economically on their children are statistically independent household heads. Including these hypothetical household heads with low savings greatly lowers the average elderly household savings rate.

11. The large negative savings rate of the elderly living with their children is consistent with the following estimates of a loglinear equation based on the income and consumption data of nonearning households in 1989 (Yashiro and Maeda 1994):

This result has two implications. First, the savings behavior of the Japanese elderly is not necessarily different from that of the U.S. elderly, but the large gap in rates of coresidence with children tends to overstate the difference. Second, the falling incidence of coresidence with children among the Japanese elderly is likely to lower their savings rate in household-based statistics and thus narrow the gap with the United States.

4.3 Determinants of Living Arrangements of the Elderly

The living arrangements of the elderly play a key role in determining their economic position as well as their household savings. We already observed in section 4.1 that the percentage of the elderly who live with their children rises with age. Also, the percentage of coresidence is higher for women, those who are without a spouse, those in farming households, and those living in rural areas; since the very old are more likely to be women and spouseless, these variables are not mutually exclusive.

Various studies indicate that the effect of economic factors, particularly the income level of the elderly, on their living arrangements is indecisive. Many previous studies attribute the increasing ratio of elderly persons living alone to their rising income level. According to this view, the poor elderly must live with their children for financial reasons, even though they do not wish to do so. In contrast, the school of the strategic bequest motive argues that many adult children live with their elderly parents for financial reasons—they cannot afford to buy their own homes. In return, the elderly parents expect in-kind services as well as monetary support from their adult children. For this reason, it may well be the rising income of children that will lower the likelihood of shared living arrangements.

4.3.1 Review of Previous Studies

Kotlikoff and Morris (1988) presented a model of family living arrangements in which the joint utility maximization between elderly parents and their adult children was explored. In the model, the economic gain from shared housing was compared with its disutility in determining whether the parent and child would live together. For example, when parents would like to coreside, but their children would not, the parents were able to bribe their children to coreside if their income, including housing services, was high enough relative to their children's income. A major conclusion of this study was that nonmonetary characteristics of children (such as gender and education) are

$$\ln \text{PTC} = \underset{(41.03)}{3.63} - \underset{(5.50)}{0.282} \ln \text{DI}, \qquad R^2 = 0.791,$$

where PTC is propensity to consume, DI is disposable income, and figures in parentheses are *t*-values.

more important than income differences as determinants of living arrangements.

With specific reference to Japan, Ando et al. (1986) compared the behavior of extended nonelderly families and nuclear nonelderly families. Their conclusion was that the larger the assets of the elderly, the lower their probability of living with their children, because the rich elderly tended to live alone. In contrast, Otake (1991) indicated that both the assets and the income of elderly parents increased the probability of coresidence with their children, mainly because of the parents' strategic bequest motive. The implications of these two results differ widely: Ando et al. implied that the current tendency of elderly incomes to rise, partly as the result of improved social security benefits, would lower the probability of coresidence, while Otake's conclusion was exactly the opposite.

4.3.2 Empirical Specification

The living arrangements of the elderly are explained by the incomes of the elderly and their adult children, housing services, and other family characteristics. The source of the data examined in this paper is the Basic Survey on the People's Life (BSPL), which was conducted nationwide by stratified random sampling in 1986 and 1989 by the Japanese Ministry of Health and Welfare. The 1986 and 1989 BSPL were based on about 40,000 randomly selected households. Because microdata were not available, the pooled data for 47 prefectures in 1986 and 1989 were used instead.

Table 4.5 shows the estimates of the living arrangements of the elderly. The dependent variable is the ratio of the elderly living with their married children and sharing income and consumption to the total elderly.[12] The elderly living with unmarried children were removed from the sample to eliminate cases of unmarried youths living with their parents until marriage. Elderly people living with their married children are classified by age group. Almost 30 percent of the elderly (those 65 years of age or older) in 1990 were self-employed. Since self-employment incomes are difficult to measure, household consumption is used as a proxy for permanent income. Consumption in households where the head is aged 40–49 is used as a proxy for children's income. Housing services are represented by the area of the house divided by the number of "tatami" mats (about 1.7 square meters each) per household member.

Major findings are the following: First, the higher the income (approximated by household consumption) of the elderly, the greater the probability of coresidence, which is consistent with the result obtained by Otake (1991). The extent of this income effect, however, declines with age, implying that the effect of

12. This is the narrowest definition of coresidence and is different from quasi coresidence (i.e., living together in the same living unit but maintaining independent family budgets) used in Otake (1991).

Table 4.5 Determinants of Coresidence[a]

Age Group	Constant	Consumption of the Eldrely	Consumption of Supporters[b]	Housing Spaces[c]	1989 Dummy	R^2
60–69	−5.187	2.984	−2.31	1.564	−0.345	0.583
	(0.293)	(5.446)	(−3.580)	(4.540)	(−5.32)	
70+	0.315	1.263	−0.89	0.648	−0.201	0.718
	(0.130)	(8.034)	(−3.983)	(4.032)	(−5.349)	

Sources: Ministry of Health and Welfare (1989).

Note: Figures in parentheses ate *t*-values.

[a]The ratio of the elderly living with children to the total number of elderly having children.

[b]Average consumption of the age group 40–49 (10,000 yen per month).

[c]1.7 m^2 per household number.

higher elderly income used to bribe children into coresidence diminishes with age, mainly because elderly income levels fall with age. Second, the higher the children's income, the *lower* the probability of their living with parents, which is consistent with what Kotlikoff and Morris (1988) implied. The greater independence of children with higher incomes would encourage their living alone, particularly in present-day Japan, where values differ widely between generations, in part, because of the vastly different societies in which the generations grew up. However, the extent of this negative income effect also declines with the age of the elderly, partly because the deteriorating health of a parent may depress economic incentives. Finally, better housing services, measured by larger space per household member, result in less congestion and more privacy, thereby stimulating coresidence. The effect again becomes relatively small as the age of the elderly increases.

The conclusion, based on prefectural data, that higher income of the elderly raises the probability of coresidence with their children could be subject to sample selection bias because the elderly who are economically independent tend to be richer in prefectures with a higher incidence of coresidence. However, the level of elderly consumption by prefecture is negatively correlated with the ratio of elderly household heads to the total elderly population.[13] This effect is mainly due to the fact that prefectures with a relatively high ratio of elderly household heads are generally poor regions in Japan, indicating that this sample selection bias is not necessarily significant when prefectural data are used.

13. Consumption of elderly households (C) is explained by the ratio of elderly household heads to total elderly (H) using data from 47 prefectures in both 1989 and 1990 as follows:

$$\ln C = \underset{(32.10)}{4.012} - \underset{(4.38)}{0.262} \ln H - \underset{(3.37)}{0.100} D, \qquad R^2 = 0.183,$$

where D is a dummy for the year 1990. Figures in parentheses are *t*-values.

4.5 Summary and Conclusion

The pattern of Japanese family structure has been marked by a high number of extended families living together. This characteristic indicates that the role of the family in securing a comfortable retired life for the elderly is quite important in Japan and is a major source of "age selectivity bias" in household-based statistics. The economic position of the elderly and their savings rate as conventionally measured are largely overstated because these data tend to exclude the poor elderly who are economically dependent members of their children's families. This not only explains why the savings rate of the Japanese elderly is so much higher than that of the U.S. elderly but also predicts a decline in savings rate in the near future given the persistent increase in elderly persons living alone.

The economic position of the Japanese elderly on average is almost equivalent to that of the nonelderly. In addition, accounting for imputed income further narrows the gap between the elderly and the nonelderly. While the income of the majority of households headed by the elderly may be low, their asset level is significant, thanks to past asset inflation in Japan, so that the elderly may persuade their children to live with them by offering rich housing services. Empirical estimates suggest that this strategic bequest motive may well be important in determining the living arrangements of the elderly, despite their children's feelings about shared living.

Finally, the income and wealth distribution of the elderly is much wider than that of the nonelderly and is more concentrated in the lower income classes. This implies that welfare policy targeting the elderly *per se* would be inefficient, particularly given increasing fiscal constraints. The policy of concentrating welfare resources on the *poor* elderly, rather than on the elderly population as a whole, would be effective.

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