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# Introduction

Michael D. Hurd and Naohiro Yashiro

A common theme of the papers in this volume, by both the Japanese and the U.S. authors, is that population aging in these two countries will have both micro- and macroeffects and that in some cases these effects will be substantial. The most obvious effects will be on the social programs that specifically serve the elderly, such as the public pension systems and provisions for the medical needs of the elderly. But aging will also affect labor markets, capital markets, the housing market, and the market for health care services. It will affect firms through their participation in the demand side of the labor market and through their provisions for pensions. Aging will have macroeffects on saving rates, the rate of return on assets, the balance of payments, and, most likely, economic growth.

The fraction of the population that is elderly (aged 65 or over) is expected to increase rapidly in Europe, the United States, and Japan as the result of falling fertility rates, the aging of the baby boom cohort, and increases in life expectancy at age 65 (Hurd, chap. 2 in this volume; Yashiro and Oishi, chap. 3 in this volume). The change is likely to be particularly rapid in Japan. For example, the elderly made up about 12 percent of the Japanese population in 1990; they are forecast to be 25 percent of the population by 2020. By comparison the corresponding change in the United States will be rather modest: from 12 percent to 16 percent. The working-age population (aged 15–64) has already started to decline in Japan, whereas it will continue to grow for several decades in the United States.

The most important cause of the difference between forecasts for the Japanese and U.S. populations, particularly in the long run (more than 30 years in

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the future), is the assumption about the fertility rate. In 1990 the fertility rate in Japan was 1.6 births per woman, whereas in the United States it was about 2.1. A second reason for more rapid aging in Japan is more rapid growth in life expectancy at age 65. In Japan between 1960 and 1990 the life expectancy of both women and men increased by about 40 percent, whereas in the United States the gains were 19 and 16 percent for women and men, respectively. The increase in life expectancy will lead to a large increase in the elderly population after the large baby boom cohort reaches age 65.

Even if the increase in the elderly population were the same in the two countries, we would expect the consequences of aging to differ because of institutional and cultural differences. Indeed, an objective of the JCER-NBER conferences is to try to understand economic behavior better by observing how these differences cause behavior to be different. The main objective of this Introduction will be to make some comparisons, drawing on the results of the papers in this volume.

As measured by income the elderly in the two countries are about as well off as the nonelderly (Yashiro, chap. 4). The composition of income, however, is very different. The elderly in Japan are much more dependent on public pensions. A good benchmark is the fraction of the elderly that get 80 percent or more of their income from public pensions. In Japan about half of elderly couples who live independently and about three-fourths of nonworking elderly couples receive more than 80 percent from public pensions (Takayama, chap. 10). In the United States, only about one-fifth of elderly couples get at least 80 percent of their income from Social Security. One explanation for the difference stems from the differing structure of the public pension system: Japan has a basic pension that provides a minimum level for all to which is added a wage-related component, which can be substantial. In the United States, Social Security benefits increase at just 0.15 of average indexed monthly earnings in the top bracket with the result that the maximum benefit is low compared with

**Table 1** Comparison of Demographic Characteristics and Projections

Year	Fertility Ratio		Life Expectancy at 65				Percentage of Population 65 or Over	
	Japan	U.S.	Japan		U.S.		Japan	U.S.
			Males	Females	Males	Females		
1960	2.00	3.61	11.6	14.1	12.9	15.9	5.7	15.9
1990	1.55	2.07	16.2	20.0	15.0	19.0	12.0	12.3
2020	1.80	1.90	17.8	22.6	16.5	20.2	25.5	16.4

*Sources:* For Japan, Ato et al. (1992); for the United States, Board of Trustees of the Federal OASDI Trust Funds (1994).

the earnings of many workers. Thus, there is a greater need for private pensions in the United States.

The Japanese elderly have more income from earnings because their labor force participation rate is considerably higher. They have considerably less asset income because they hold a much greater fraction of their wealth in the form of housing. Besides the obvious explanation of very large increases in housing and land prices in Japan, this great housing wealth is partly the result of the high rate of homeownership among the Japanese elderly. It is likely that the elderly retain their homes because of the very low property taxes in Japan, and because of the custom of bequeathing the house to a child in exchange for the child's taking care of the elderly parents.

Comparisons of income and wealth between the Japanese and U.S. elderly are tenuous, however, because of the very large difference in living arrangements (Yashiro, chap. 4). In Japan, about 33 percent of elderly women and 42 percent of elderly men either live alone or with their spouses, compared with 81 and 91 percent in the United States, respectively. The rest live in extended households in which the elderly person is not the head of the household. This fact has two consequences. First, because of returns to scale in consumption it is difficult to assess the economic status of individuals in multiperson households. Second, when an elderly person is not the head of the household, the income of the household is associated with the nonelderly head, so that figures on the average income of the elderly cover only about 40 percent of the elderly. In that the well-to-do elderly tend to live independently and the less well-to-do tend to live in extended families, the percentage included in income statistics falls with economic status. For example, only 28 percent of those in the lowest income quintile (those who are household heads) are covered in the household statistics. As a consequence, age-income or age-wealth paths will be too steep because at older ages only the wealthy of the cohort are included in the sample (Yashiro, chap. 4). There is no easy or obvious solution to this data problem: the income and assets of the elderly who live in extended families are reported with the income and assets of the family unit.

Having said this, we do not mean to imply that we cannot learn a good deal from the available data. There are several major household-level surveys, and for the most part, they form the basis of the empirical papers in this volume. The most widely used is the *Monthly Report on the Family Income and Expenditure Survey* (MRFIE), which is published by the Management and Coordination Agency (MCA). The National Survey of Family Income and Expenditure (NSFIE) is the most extensive survey on households, but it is published only every five years by the MCA. The NSFIE covers a number of types of households, including single persons and nonworking households, that are not covered by the MRFIE. The Basic Survey on People's Life by the Ministry of Welfare has extensive information on family income and savings by type of household, and it partly includes information on the single elderly. Nonethe-

less, the problem of constructing a sample that is representative of elderly individuals remains in all of these surveys.

In the United States there has been a considerable volume of research based on household-level data aimed at verifying the life-cycle hypothesis about consumption (LCH). In Japan there has been a good deal of research about the consequences of aging for the national saving rate: under the LCH the projected aging of the population will cause the saving rate to fall because the elderly consume more of their income than the nonelderly. However, because of data limitations it has been difficult to verify or even study the LCH at the microlevel. First, cross-sectional wealth holdings may not give a good estimate of the wealth paths of individuals because it is hard to control for cohort effects, living arrangements, and differential mortality. In the United States these problems are overcome by using panel data, but in Japan there are no panel data. Second, in synthetic cohorts there is no control for differential mortality or living arrangements. Third, because consumption is difficult to measure in household surveys, it is often underestimated, so saving rates are overestimated. Fourth, because of the high rate of homeownership among the elderly, the apparent high saving rate in old age would be reduced were the implicit high income and consumption flows from housing taken into account; this adjustment would make the lifetime pattern of consumption and saving conform more closely to a life-cycle pattern.

An alternative to studies based on household data is to estimate directly the effect on the national saving rate of changes in the age composition of the population. In the context of the LCH, however, age is not just years since birth. Age should also take into account life expectancy: holding age constant, an increase in life expectancy should increase an individual's saving rate and retirement age. Indeed, in the forecasts of Yashiro and Oishi (chap. 3), which control for increases in life expectancy, the national saving rate would be 10 percent in 2020–25 rather than –5 percent with no change in life expectancy.

In the United States, even though the household saving rate as measured in panel data varies with age, the aging of the population will probably have only small effects on household-level saving: the life-cycle pattern is not large enough to produce a substantial aggregate change because the population will age rather slowly (Hurd, chap. 2). But, as pointed out by Poterba, Venti, and Wise (chap. 9), saving for retirement purposes through employer-provided pension plans is a large fraction of total personal saving in the United States: in 1989 this kind of saving amounted to about \$120 billion; personal saving as measured in the national income and product accounts amounted to \$152 billion. Changes in the fraction of the population that works could cause substantial changes in this kind of saving. Indeed, Schieber and Shoven (chap. 5) estimate that real saving through private pensions, which is now almost 4 percent of payroll, will become negative in about 2024.

Another aspect of saving for retirement through private pensions is that we expect the consumption rate of annuitized wealth to be higher than the con-

sumption rate of bequeathable wealth. The reasoning is that if there is no bequest motive, a cohort will completely consume its annuitized wealth by the time the last survivor dies whereas a cohort will accidentally bequeath (not consume) some fraction of its bequeathable wealth. If there is a bequest motive, the difference will be reduced but not eliminated. In the United States, retirement saving through 401(k) plans and, to a lesser extent, individual retirement accounts is becoming the primary mode of retirement saving. This trend should increase the fraction of wealth that is annuitized in the United States and by itself reduce the saving rate. In Japan, little retirement income comes from private pensions, and as a result, little household wealth is in the form of private pensions: in 1992 pension reserves were 4 percent of household financial assets in Japan whereas they were 28 percent in the United States (Yamauchi, chap. 6).

There are a number of similarities in the pattern and determinants of retirement in Japan and in the United States. In both countries the labor force participation rate of 60–64-year-old males fell rather sharply during the 1970s and early 1980s, a period when real public pension benefits increased rapidly. Particularly in Japan, where most retirees are heavily dependent on income from public pensions, it is hard to imagine that the decline would have happened without the increase in pensions. Workers seem to be very responsive to retirement incentives. In Japan there is substantial bunching of workers at the point on the annual budget constraint where the earnings test becomes binding (Seike, chap. 12), just as in the United States. In Japan the structure of separation pay (a lump-sum defined-benefit pension) is very similar to a typical back-loaded defined-benefit pension in the United States. This structure causes annual compensation to increase substantially until separation, and in the United States it reduces worker mobility before separation (Lumsdaine, Stock, and Wise, chap. 11). In both countries, the public pension system encourages retirement at age 65 in that the increase in benefits from a year's work after age 65 is less than the actuarially fair increase. Consequently, the labor force participation rate falls sharply after age 65.

There are, however, a number of differences between the labor markets. The most striking is the rate of work among the elderly. For example, in 1992 the labor force participation rate of 65–69-year-old Japanese men was 56.5 percent.<sup>1</sup> In the United States just 25.9 percent of men aged 65–69 were in the labor force. Part of the explanation for the high participation rate of the elderly in Japan is the prevalence of self-employment: among male workers aged 70 or over, 64 percent were self-employed or worked for other family members. This kind of employment offers flexibility in the choice of hours, which can keep workers in the labor force. In addition, however, we imagine that the difference in the number of expected years of retirement could be an important determinant of the differences in retirement patterns. As we discussed pre-

1. Of these, 80.6 percent worked full time.

viously, the increase in life expectancy at age 65 has been much greater in Japan, so it is reasonable to suppose that retirement-age workers forecast even greater future increases in life expectancy. Furthermore, in Japan mandatory retirement from the career job is mostly at age 60, while in the United States, where mandatory retirement is illegal, the retirement hazard rate has large peaks at ages 62 and 65. The net result is that a 60-year-old retiree in Japan probably anticipates financing many more years of retirement than a 62- or 65-year-old worker in the United States, possibly as many as seven or eight more years.

Financial explanations probably play a role. Few retired Japanese have income from private pensions: most separation pay is a lump sum, which benefits from favorable tax treatment. In the United States many defined-benefit private pensions encourage retirement, and new jobs are difficult to find for older workers.<sup>2</sup> In addition, some private pensions are employment conditioned so that pension income is lost if earnings are too great. This, of course, would not be the case in Japan, where separation pay is a lump sum.

The overall financial wealth of the Japanese elderly may be less than that of the U.S. elderly, although because of the difference in living arrangements it is hard to be precise. What is clear is the important difference in the level and composition of total wealth due to the value of housing. In 1989, the average value of housing and land among those aged 70 or over was 82 million yen, or about \$820,000, which represents about 84 percent of their assets.<sup>3</sup> If this could be monetized either through the sale of housing or through home equity conversion mortgages (reverse annuity mortgages), the income of the elderly could be increased substantially (Noguchi, chap. 8). However, because the children of the elderly cannot afford to buy housing, most elderly live with their children in their own houses, which are eventually bequeathed to the children. The conclusion is that, although total wealth among the elderly is considerably higher in Japan than in the United States, the resources available for nonhousing consumption may not be any greater, and are possibly even less. This would encourage a longer work life.

As we have indicated, the housing market apparently operates very differently in the two countries. In the United States the evidence suggests (or at least does not contradict) some downsizing with age. This implies that housing prices may fall as the population ages, although, to the extent that the housing prices can be forecast from population change, adjustments in housing choice and in the supply of housing can moderate price change (Hoynes and McFadden, chap. 7). Should prices fall as the baby boom generation moves past retirement, the ability to finance nonhousing consumption by reducing housing consumption will be reduced, and the baby boom generation may find itself with

2. In the United States the wage rate falls by 35–50 percent when a postretirement job is taken. In Japan the wage falls by about 50 percent on a new job after the career job ends (usually at age 60; Seike, chap. 12).

3. This figure is calculated over independent households excluding singles.

fewer resources in retirement than anticipated. In Japan, children move in with their elderly parents because they cannot afford to buy a house, and then the house is passed on to the children. Of course, demographic changes could cause housing prices to fall, but that would not affect the flow of real housing services of the two closely linked generations. A possible effect, however, is that separation of the generations, which has been happening fairly slowly, could accelerate: if housing becomes more affordable, the working generation could choose to buy housing rather than live with parents.

The public pension system in Japan is in debt in the sense that promised future benefit payments are greater than the fund dedicated to paying the benefits (Hatta and Oguchi, chap. 14). That is, the public pension system is not fully funded, and the amount of shortfall is about equal to the GNP. This has happened because of windfall gains to the start-up generation and because the future benefits of current workers exceed the value of their past contributions. As in the United States, this causes transfers across generations.

Because of the aging of the population, keeping the system solvent will require increases in tax rates: Ogura (chap. 1) forecasts that with no changes in benefit structure, the tax rate will have to increase from 15 percent today to about 40 percent in 2040.<sup>4</sup> This is much greater than the required increase in the tax rate in the United States: a more relevant comparison is with Germany or Austria, which forecast similar tax rates. The main causes of the very high rate are the replacement rate (about 60 percent in Japan compared with about 45 percent in the United States), greater life expectancy, and low fertility.

It seems unlikely such a high tax rate will be realized, which means that benefits will have to be reduced. In Japan, as in the United States, a natural response is to increase the age for full benefits because of the increase in life expectancy and better health. Increasing the age for full benefits to 65 from 60 would reduce the required tax rate to about 35 percent. Indexing benefits to prices rather than wages and taxing benefits could reduce the required tax rate to about 25 percent. All of these reforms seem reasonable from the U.S. point of view because they are already part of the Social Security system.

The part of the U.S. Social Security system that funds retirement benefits is forecast eventually to become negative, but the tax rates required to keep the fund solvent are not particularly large, especially from the Japanese point of view: in 2040 the cost rate is forecast to be greater than the income rate by 3.4 percent of taxable payroll, which means that the fund would be stabilized if the tax rate were increased by 3.4 percent to 16.6 percent of taxable payroll (Hurd, chap. 2). This is, of course, very different from the 40 percent rate that is forecast for Japan.

The major problem facing the U.S. Social Security system is health care costs. The increase in such costs is only moderately due to the aging of the

4. This is higher than the official government forecasts because Ogura forecasts a lower total fertility rate.

population: most of the increase comes from price inflation in medical services and increasing real consumption per capita. If medical care costs are not controlled, they will probably eventually influence the Social Security retirement trust fund through interfund borrowing.

In Japan the delivery of medical care to the elderly is also a major policy issue. While total medical costs have stabilized at 6 percent of national income for the last 10 years, the medical costs of those aged 70 or over have doubled, and their per capita consumption of medical services is about four times the average. An apparent cause is generous medical benefits, which have resulted in care being provided in hospitals rather than in less costly settings.

We conclude by noting that, despite the differences in culture and social and government structure, there are many similarities in the economic status and behavior of the elderly in the two countries. Furthermore, some of the apparent differences are due to measurement: for example, even though the elderly in Japan have much higher saving rates than the elderly in the United States, the difference would be reduced if the saving rate of the dependent elderly (who are missing from Japanese household statistics) could be included. At the macrolevel both countries face substantial difficulties associated with population aging: in Japan the public pension system has a large cash surplus on current account, but in fact it has large future liabilities, just like the U.S. Social Security system. Although population aging in Japan will be much more rapid than in the United States, the effects from an associated fall in the saving rate may be similar because Japan starts from a considerably higher saving rate. We believe that this volume shows that a comparison of similarities and differences can increase our understanding of the possible future effects of population aging in each of the two countries.

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