

# The Baby Boom Generation and Aggregate Savings

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*Richard Cantor and Andrew Yuengert*

**D**uring the 1970s, household and national savings rates fell sharply. Although concern about low saving rates remains widespread, many analysts have taken the optimistic position that the maturing of the baby boom generation will restore aggregate savings to their earlier levels. Two arguments have been offered in support of this view:

- As baby boomers reach their peak earning and saving years, aggregate savings will increase with this large generation's rising share of national income.
- Baby boomers who spent freely and saved little as young adults will in their middle years find themselves unprepared for retirement. They will respond by increasing their saving rates more aggressively than earlier generations at a similar age.<sup>1</sup>

This article evaluates each argument in turn and finds little reason to expect a large increase in aggregate savings. The demographic effects alleged in the first argument will probably be small. While baby boomers' saving rates

should rise with age, the impact on the aggregate saving rate will be mitigated by a continuing high rate of early retirement and a rising share of households headed by individuals either over sixty-five or under thirty-five—households that tend to have relatively low saving rates.

The second argument, which stems from the popular notion of baby boomer improvidence, is also flawed. Baby boomers appear to have accumulated appreciable wealth, both in comparison to their parents at similar ages and to target retirement wealth levels suggested by theoretical models of optimal lifetime savings. Moreover, even if baby boomers eventually find themselves behind schedule in saving for their retirement (if not because of their shortsightedness, then because of a large cut in Social Security benefits), they may react to the shortfall by reducing planned bequests or taking other steps that do not have the effect of increasing aggregate saving rates. The uncertainty of the baby boom response to any savings shortfall gives us even less reason to expect a surge in aggregate savings as the baby boomers approach retirement.

## LIFE-CYCLE SAVINGS, DEMOGRAPHIC TRENDS, AND AGGREGATE SAVINGS

If baby boomers raise their saving rates in line with increases observed in earlier generations at similar ages, will the aggregate saving rate recover sharply? To answer this question, we review the age profile of income and savings found in recent consumer surveys and the demographic trends projected for the next few decades.

### AGE PROFILES OF INCOME AND SAVINGS

Data from the Board of Governors' Survey of Consumer Finances allow us to examine the proposition that household

incomes and saving rates tend to rise with the age of the household head before retirement. The 1983 survey contains extensive data on the wealth of individual households as of year-end 1982. In 1986, 2822 households from the original group were surveyed again and asked for detailed information on year-end 1985 wealth and on annual income in 1983-85. The two Board surveys are particularly useful in analyzing average savings because they "oversample" the high-income households that account for a disproportionately large share of aggregate savings. A detailed explanation of our use of the survey data to calculate saving rates is contained in the box below.

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## CALCULATING SAVING RATES FROM THE SURVEY OF CONSUMER FINANCES

**AVERAGE INCOME.** We calculate average annual income (in 1982 dollars) from total household income data reported in the 1986 Survey of Consumer Finances for the years 1983, 1984, and 1985. We also include in income several other items reported separately in the survey, such as insurance settlements and cash advances.

**CHANGES IN WEALTH.** Total savings equals the total change in wealth (in 1982 dollars) between year-end 1985 (drawn from the 1986 survey) and year-end 1982 (drawn from the 1983 survey), including capital gains but excluding "windfalls." Windfalls account for roughly one-seventh of all savings in the sample and consist of net inheritances (inheritances received minus inheritances given by a deceased spouse), net support from other family members (received minus given), and several other items. Like other researchers in this area, we exclude windfalls in order to focus on planned savings behavior. We also exclude changes in defined benefit pension wealth because they are not reported in the survey.

**CAPITAL GAINS.** The data permit the calculation of capital gains on housing because they include the value of housing wealth at year-end 1982 and year-end 1985 and sales and

purchases of new homes. Capital gains on other property (secondary residences, farmland, undeveloped land, and investment real estate) equal the 1982 value of the property multiplied by a price index for the type of property. Capital gains on direct holdings of stock and stock mutual funds are assumed to equal the increase in the S&P 500 index over the period multiplied by initial holdings. Because many households hold IRAs, trusts, and thrift plan assets in stocks, we calculate capital gains on these assets as the gains in the S&P 500 times the holdings of trusts, IRAs, and thrift plan assets times the aggregate share of these assets invested in stocks.

**SAVING RATES.** We calculate both total saving rates and personal saving rates. The total saving rate represents the average annual change in total wealth, including capital gains, between year-end 1982 and year-end 1985, divided by average annual income. The personal saving rate is the average change in wealth excluding capital gains, divided by income.

**EXCLUDED OBSERVATIONS.** Even in carefully constructed household surveys, wealth and savings are inaccurately measured, and some household saving rates will be unreasonably high or low. We therefore exclude from our sample certain

obvious outliers—households with particularly large positive or negative saving rates. The exclusion rule drops the bottom and top 0.5 period of the distribution of saving rates. Households that experienced a change in marital status between the 1983 and 1986 surveys are also excluded. The final sample contains 2494 households.

**DIFFERENCES FROM PREVIOUS RESEARCH.** Bosworth, Burtless, and Sabelhaus (1991) calculated age-specific personal saving rates from the Survey of Consumer Finances that dif-

fer significantly from ours. Many of the differences are attributable to differences in the definition of capital gains and the exclusion rules. Bosworth et al. exclude capital gains on housing, directly held stocks, and stock mutual funds, but not capital gains on other real estate IRAs, trusts, and thrift plans. Instead of excluding both large and small saving rate outliers, as we do, they exclude only observations with large saving rates, greater than 1. They also exclude households with significant net worth in unincorporated businesses, which we do not.

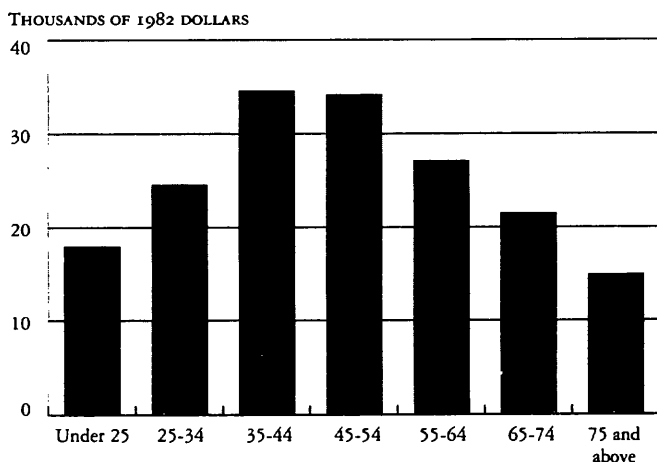
For the households sampled in the 1986 Board survey, average (mean) income rose, then fell, with advancing age (Chart 1). The highest average income, about \$35,000 per year in 1982 dollars, was earned by both the 35 to 44 and 45 to 54 age groups. The distribution of incomes around this peak is roughly symmetric, falling below \$20,000 for households with heads either below 25 or above 75. The shape of this distribution is determined by variations in wage rates and labor force participation rates over the life cycle.<sup>2</sup>

Average *total savings*, defined as the average annual change in total wealth between year-end 1982 and year-end

1985, present a similar age profile (Chart 2). This measure of savings includes capital gains on real estate and all financial assets except employer contributions to pension plans, which are not reported in the survey. Total savings rose more steeply with age than did income, with the peak occurring at \$8,200 in the 55 to 64 age range. Savings in these years are large because income is relatively high, family expenses are rela-

Chart 1

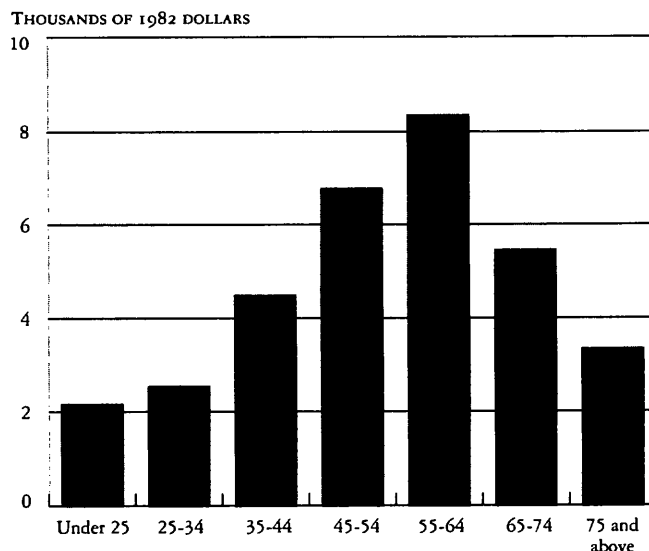
**AVERAGE ANNUAL HOUSEHOLD INCOME, BY AGE OF HOUSEHOLD HEAD 1983-85**



Sources Board of Governors of the Federal Reserve System, Survey of Consumer Finances, 1983 and 1986, Federal Reserve Bank of New York staff estimates

Chart 2

**AVERAGE ANNUAL TOTAL SAVINGS, BY AGE OF HOUSEHOLD HEAD 1983-85**



Sources Board of Governors of the Federal Reserve System, Survey of Consumer Finances, 1983 and 1986, Federal Reserve Bank of New York staff estimates

Note "Total savings" represents the change in total financial and real estate wealth, including capital gains

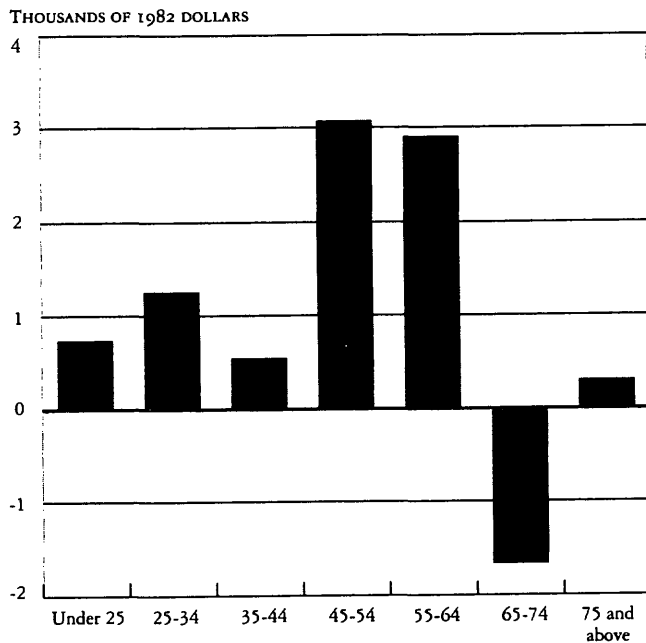
tively low, and the need for retirement savings is immediately apparent for most workers.

In addition to total savings, we are also concerned with the age profile of households' *personal savings*, a narrower conception of savings that excludes capital gains. Since capital gains are often passively earned, unplanned, and illiquid, households may treat them differently than other forms of savings. In addition, capital gains income has been volatile in the past, and hence difficult to project accurately. Since, at the aggregate level, capital gains do not lead directly to increases in national investment, policymakers are generally more concerned about aggregate personal savings exclusive of capital gains (Harris and Steindel 1991)

Personal savings reach their highest level between the ages of 45 and 54 (Chart 3). The peak occurs earlier than the peak in total savings because capital gains are quite large for households with heads aged 55 to 64. Personal savings are extremely low, near zero, between ages 35 and 44, perhaps

Chart 3

AVERAGE ANNUAL PERSONAL SAVINGS, BY AGE OF HOUSEHOLD HEAD 1983-85



Sources Board of Governors of the Federal Reserve System, Survey of Consumer Finances, 1983 and 1986, Federal Reserve Bank of New York staff estimates

Note "Personal savings" represents the change in total financial and real estate wealth less capital gains

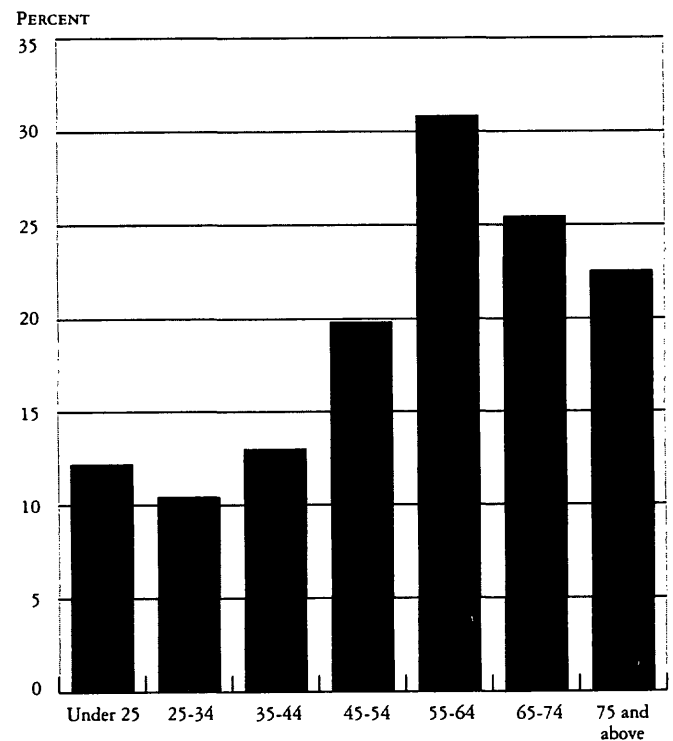
because of the large expenses of child rearing and household formation.

The age profile of saving rates of course depends on the changes in both savings and income over the life cycle. Chart 4 depicts the average total saving rates by age. Before age 45, total saving rates are flat, around 12 percent, because income rises at about the same rate as savings until age 45. Thereafter, saving rates rise sharply to 20 percent between ages 45 and 54 and peak at 31 percent between ages 55 and 64. The total saving rate declines only slightly after 65: although savings levels fall rapidly, income falls almost as quickly.

Compared with the age profile of total saving rates, the age profile of personal savings is more peaked (Chart 5). Between ages 45 and 64, personal saving rates average about 10 percent. Personal saving rates are very low for households

Chart 4

AVERAGE TOTAL SAVING RATE, BY AGE OF HOUSEHOLD HEAD 1983-85



Sources Board of Governors of the Federal Reserve System, Survey of Consumer Finances, 1983 and 1986, Federal Reserve Bank of New York staff estimates

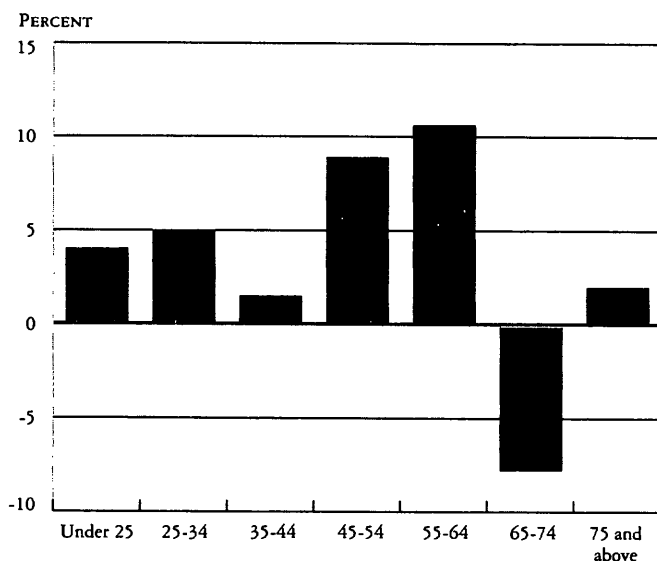
headed by individuals between ages 35 and 44, and negative for those whose head is between ages 65 and 74.

So far, our analysis has focused on means within age groups. In keeping with our interest in aggregate savings, the mean gives appropriate weight to high-income households. A concern about the saving behavior of a typical household would, in contrast, require a focus on median savings. Moreover, popular perceptions about life cycle saving rates are probably based on observations of "typical" rather than "mean" household behavior. We therefore present, in Chart 6, the median personal saving rates by age, also drawn from the survey sample

A comparison of Charts 5 and 6 reveals that (1) median saving rates are much lower than mean rates, or alternatively, that high-income households account for a disproportionate share of aggregate savings; and (2) the age profile of the medians is less peaked than the age profile of mean saving rates. The absence of a strong life cycle pattern in median savings may be explained by the relatively modest amount of financial savings accumulated by most households and their near total reliance on pensions and Social Security in retirement.

Chart 5

AVERAGE PERSONAL SAVING RATE, BY AGE OF HOUSEHOLD HEAD 1983-85



Sources: Board of Governors of the Federal Reserve System, Survey of Consumer Finances, 1983 and 1986, Federal Reserve Bank of New York staff estimates

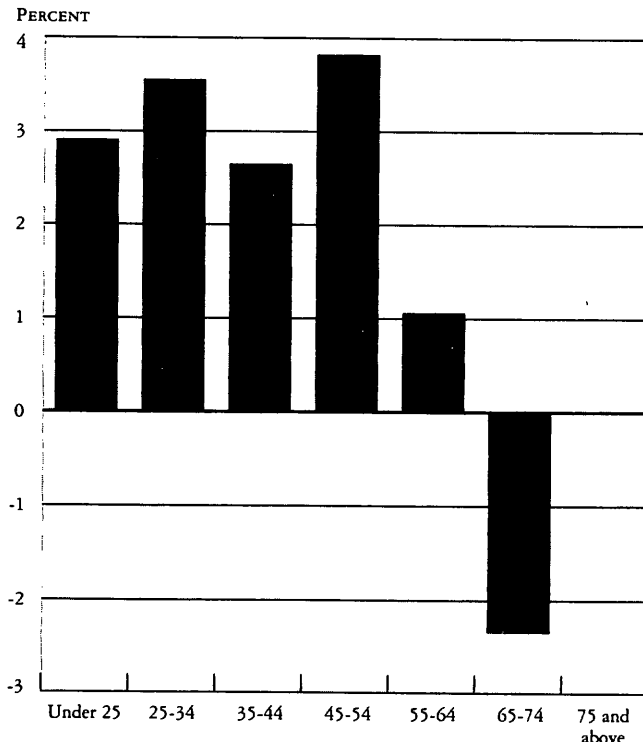
The actual steepness of mean life cycle saving rates is somewhat obscured in Chart 5 by the presence of early retirees in age groups under 65. If we exclude retirees from our sample, the age-savings profile of nonretirees rises more steeply with age and remains higher longer than the age profile for the full sample (Chart 7). This finding need not imply, however, that early retirement reduces aggregate savings, because those that retire early may save more than others in the years preceding their retirement. (The age-savings patterns in Chart 7 cannot be interpreted as the saving rate of a household whose head is expected to retire at age 65, since many of the households in the sample may be planning to retire earlier or later than 65.)

### DEMOGRAPHIC TRENDS

Before projecting the effect of baby boomer savings on the aggregate saving rate, we must first assess the size of the baby

Chart 6

MEDIAN PERSONAL SAVING RATE, BY AGE OF HOUSEHOLD HEAD 1983-85



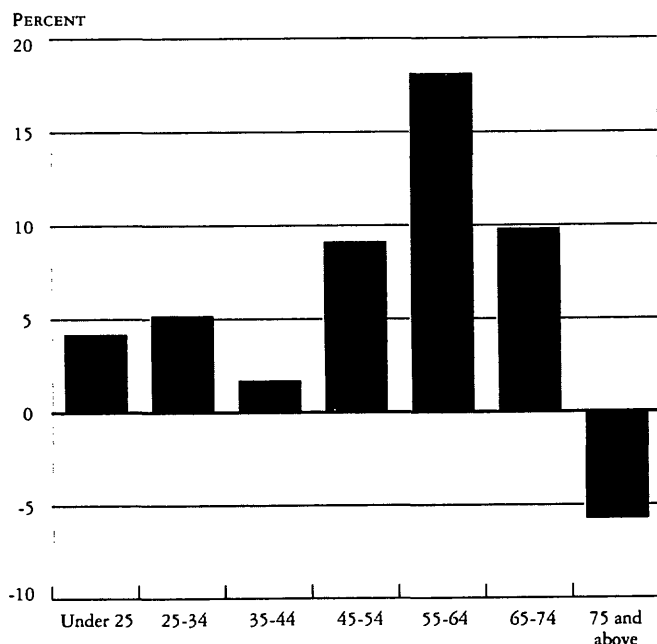
Sources: Board of Governors of the Federal Reserve System, Survey of Consumer Finances, 1983 and 1986, Federal Reserve Bank of New York staff estimates

boom demographic bulge and consider how its relative size can be expected to change over time. Chart 8 presents Census data on the age distribution of household heads for 1970 and 1990 and a forecast of the age distribution in 2010.<sup>3</sup> That part of the age distribution represented by baby boomers is shaded in the chart. For simplicity, we have defined baby boomers as the generation born in the twenty-year period after World War II, between 1945 and 1964. (The baby boom population is normally defined as individuals born between 1946 and 1964.)

In 1970, all baby boomers were less than 25 years old and headed only 7.6 percent of all households. By 1990, however, when baby boomers reached the ages of 25 to 44, they headed 41 million households, roughly 44 percent of all households. In that year, baby boomers headed 50 percent more households than did members of the preceding generation (individuals between the ages of 25 and 44 in 1970). By the year 2010, when baby boomers will be between 45 and 64

Chart 7

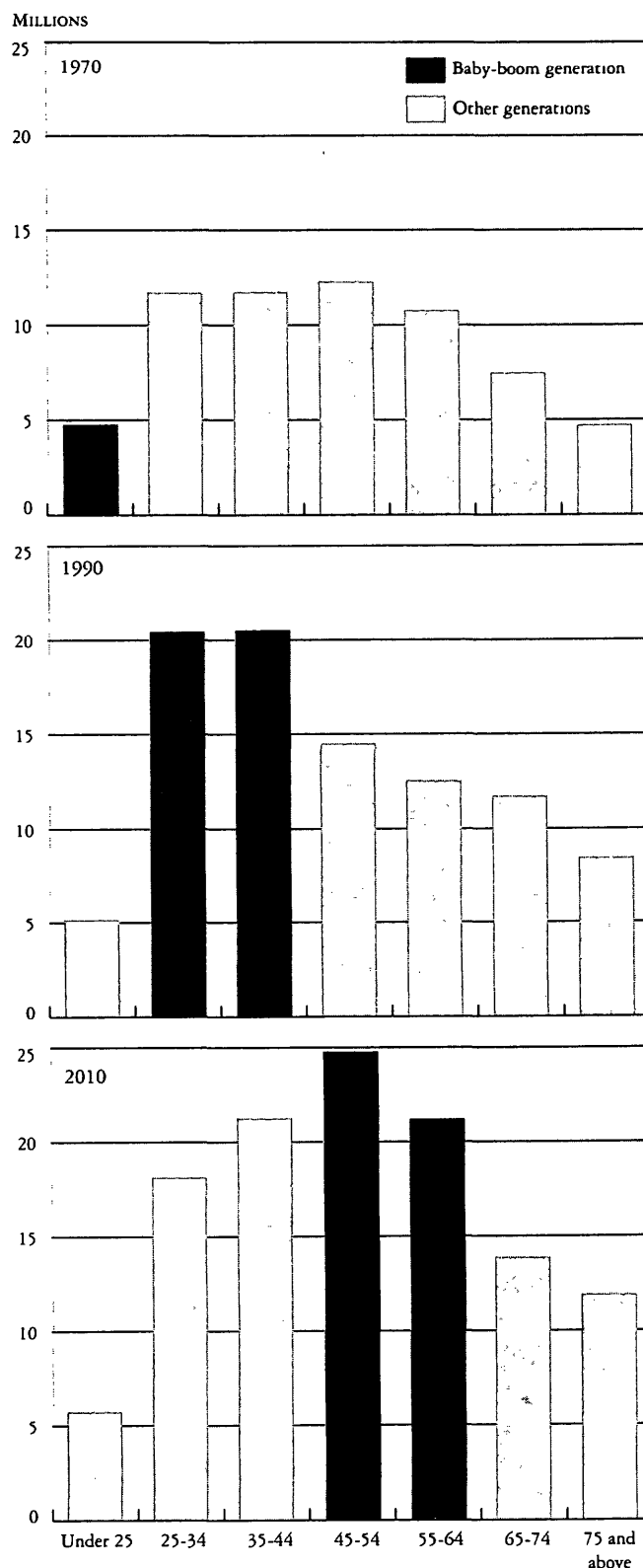
**AVERAGE PERSONAL SAVING RATE, EXCLUDING RETIREES, BY AGE OF HOUSEHOLD HEAD 1983-85**



Sources: Board of Governors of the Federal Reserve System, Survey of Consumer Finances, 1983 and 1986, Federal Reserve Bank of New York staff estimates

Chart 8

**DISTRIBUTION OF HOUSEHOLDS BY AGE OF HOUSEHOLD HEAD 1970, 1990, and Projection for 2010**



Source: U.S. Bureau of the Census, Current Population Reports

years old, they will head about 46 million households, or roughly 39 percent of all households.

The decline in the relative size of the baby boom generation between 1990 and 2010 from 44 percent to 39 percent of all households will diminish its potential impact on the aggregate saving rate. This decline in relative size is due in part to the growing importance of two demographic groups whose low saving rates will offset the baby boom's increased savings. The generation following the baby boomers is expected to head 39 million households in 2010, only 2 million fewer households than the baby boomers headed at the same ages. In addition, the share of elderly households in the population will increase significantly

### THE PROJECTED IMPACT OF DEMOGRAPHIC TRENDS ON AGGREGATE SAVINGS

Assuming that the age patterns in income and savings from the Survey of Consumer Finances remain stable over time, we can use the Census Bureau population forecasts to project the aggregate saving rate as the baby boom generation matures. Our aggregate saving rate projections are derived by averaging household saving rates (shown in Charts 4 and 5), weighting each age group's saving rate by its population

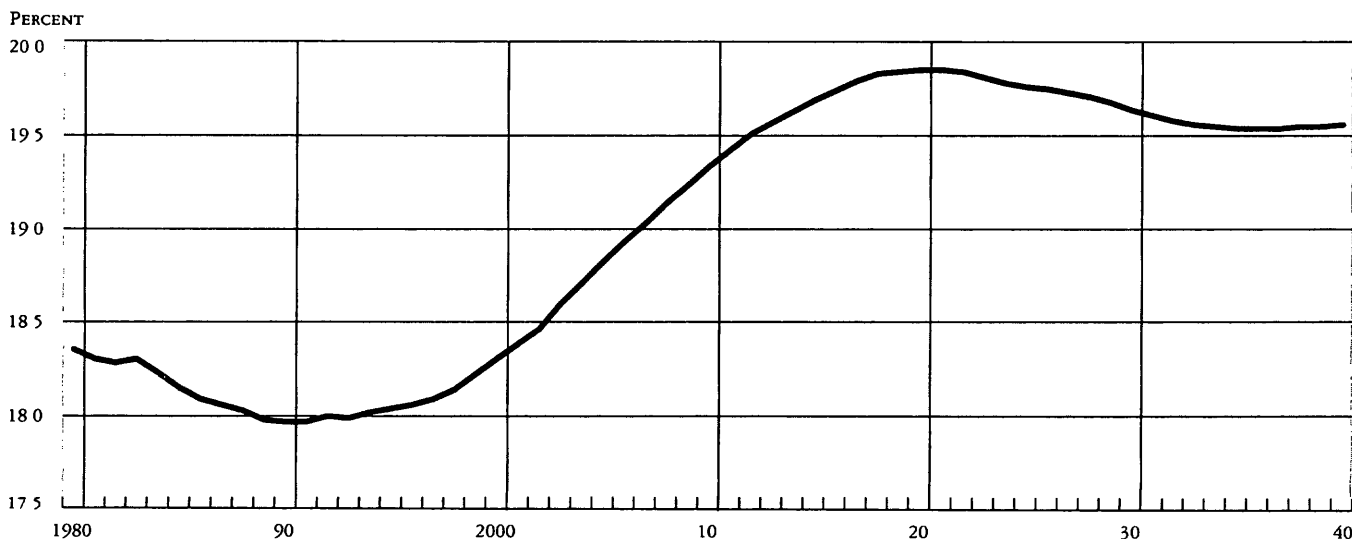
share and its relative income (shown in Chart 1). The household population shares are assumed to change over time in keeping with the Census projections. Larger groups and groups with higher average household incomes have larger weights (For a more exact description of the weighting procedure, see Kennickell 1990 )

The projected behavior of the broad saving rate measure, inclusive of capital gains, is depicted in Chart 9. The demographic trends suggest that the total saving rate should have reached its low point at about 18.0 percent in 1990, will rise to 19.4 percent in 2010, and peak at 19.8 percent in 2015. These projected increases are expected to be quite gradual, with the first 140 basis point increase extending over twenty years and the next 40 basis point rise occurring over the following five years.

The predicted behavior of the more narrowly defined personal saving rate, which excludes capital gains, is shown in Chart 10. Here demographic changes imply that the personal saving rate should have reached its low point at about 4.1 percent in 1990 and should rise about 80 basis points to peak at 4.9 percent near the year 2010. During the twenty years between 2010 and 2030, the aggregate personal saving rate should decline by about 100 basis points because the

Chart 9

#### PROJECTED TOTAL SAVING RATE



Sources: Board of Governors of the Federal Reserve System, Survey of Consumer Finances, 1983 and 1986, U.S. Bureau of the Census, *Current Population Reports*, Federal Reserve Bank of New York staff estimates

share of retirees in the population will be rising sharply. (Recall from Charts 4 and 5 that households headed by individuals over 65 had low or even negative personal saving rates at the same time that capital gains kept this group's total saving rates fairly high.)

In conclusion, if the life-cycle increase in the saving rates of the baby boom generation is comparable to the increases for previous generations, the rise in aggregate saving rates over the next twenty-five years will be modest: 180 basis points (from 18.0 percent to 19.8 percent) in total saving rates and 80 basis points (from 4.1 percent to 4.9 percent) in personal saving rates. These projected changes in the aggregate saving rates are not particularly large relative to previous fluctuations, reflecting the limited predictive power of demographic models of savings. From the early 1980s to the present, the aggregate personal saving rate fell roughly 300 basis points, as compared with the 80 basis point improvement by 2010 implied by our projections. While the broader total saving rate measure of savings fell less sharply than the personal saving rate, the anticipated improvement in savings attributable to demographic changes cannot be counted on to produce a full recovery in either of these measures.

## SENSITIVITY ANALYSIS OF THE AGGREGATE SAVINGS PROJECTIONS

Our projections for aggregate savings are, of course, sensitive to our assumptions about the future age profiles of the population, relative incomes, and saving rates. Other reasonable

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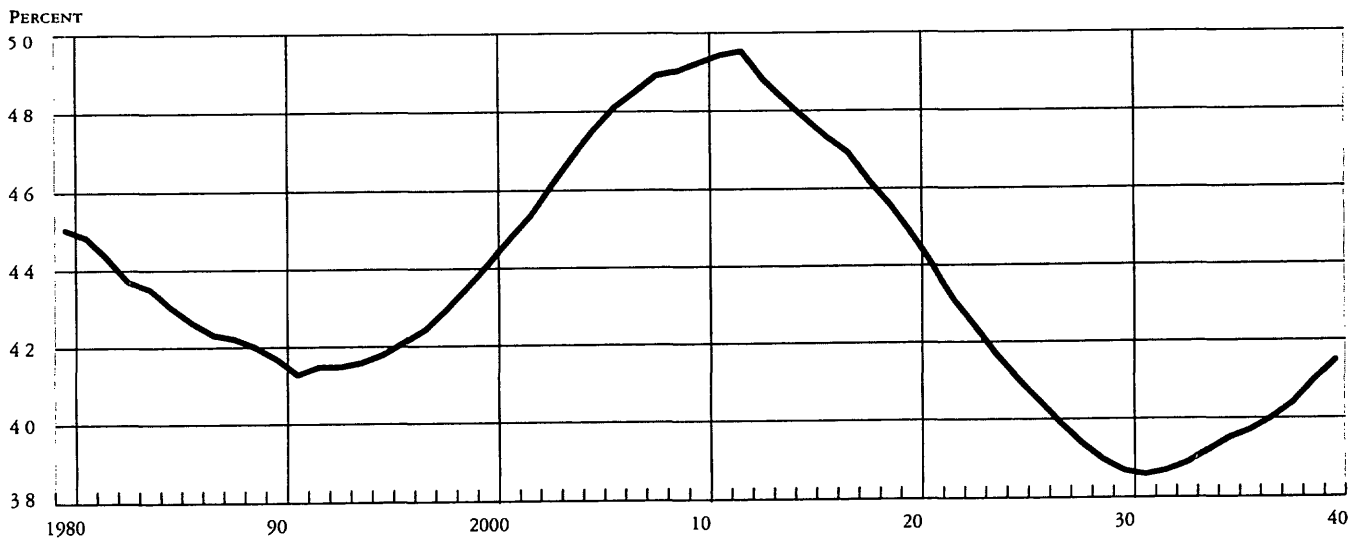
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assumptions, however, do not reverse our basic finding that demographic forces are unlikely to boost the aggregate saving rate substantially.

For example, if we shift the assumptions about population growth from the Census Bureau's so-called middle projection to its high or low projections, we do not get significantly different results. Using the high population growth

Chart 10

### PROJECTED PERSONAL SAVING RATE



Sources: Board of Governors of the Federal Reserve System, Survey of Consumer Finances, 1983 and 1986, U.S. Bureau of the Census, *Current Population Reports*, Federal Reserve Bank of New York staff estimates



projections decreases the projected 2010 aggregate personal saving rate by 4 basis points; using the low growth projection raises it by 10 basis points.

We also tested the sensitivity of our projections to changes in the ratio of population to households (household composition), which we assumed to be fixed from 1992 forward. If household size falls in line with various Census projections, our projections of aggregate personal savings change by no more than 2 or 3 basis points.

Moreover, our assumptions about the age-income profile are, if anything, biased in favor of finding a large rise in aggregate savings over the next twenty years. We may have overestimated the baby boom generations's impact on savings by overestimating its share of aggregate income in future years. We have assumed that boomers between ages 45 and 64 will earn the same amount in relation to other groups as did 45 to 64 year olds in the Survey of Consumer Finances. Because baby boomers are an unusually large labor cohort, their wages may be lower relative to other generations at each point in the life cycle. Welch (1979) has documented that baby boomer entry level wages were 10 percent lower than entry level wages for other cohorts, and Berger (1985) claims that boomer wages have remained relatively depressed. If baby boomer incomes were assumed to be 10 percent lower than the incomes reported in Chart 1, then our projected 80 basis point increase in the aggregate personal saving rate from 1990 to 2010 would be lower by about 20 basis points.

The most obvious risk in our forecast comes from our assumptions about the saving rates of different age groups. Nevertheless, other studies, using other household surveys and covering other time periods, have generally found less steeply sloped age-saving profiles, also implying weak demographic effects on the aggregate saving rate. (See, for example, Summers and Carroll 1987, Auerbach and Kotlikoff 1989, Bosworth, Burtless, and Sabelhaus 1991, Kennickell 1990, and Attanasio 1993.) The most steeply sloped age-saving profile among these studies is calculated from the 1972-75 Consumer Expenditure Surveys by Bosworth, Burtless, and Sabelhaus (1991). This profile, when used in our projections, generates a 32 basis point rise in personal saving rates from 1990 to 2010, compared with the 80 basis point increase projected using the 1986 Survey of Consumer

Finances saving profile

Our main conclusion stands up to this sensitivity analysis: aggregate saving rates are not likely to be pushed up sharply by demographics if future age profiles of saving rates are similar to those observed in the recent past. This is not to say, however, that the aggregate saving rate would be insensitive to an unexpectedly large increase in baby boomer saving rates. If the age profile of boomer saving rates turns out quite different from what we've projected, the effect on aggregate savings could be large. We have already noted that in the year 2010, 39 percent of households will be headed by baby boomers. Those households will be in their peak earning years and will account for 44 percent of aggregate income. If the baby boomers' personal saving rate in middle age exceeds that of previous generations by 2 percentage points (12 percent, rather than 10 percent), the aggregate saving rate projection would increase another 90 basis points beyond the 80 basis point increase we are already projecting through 2010.

#### THE ALLEGED RETIREMENT SAVINGS SHORTFALL AND AGGREGATE SAVINGS

Is there any reason to expect that the life-cycle increase in baby boomer saving rates will be more pronounced than those of earlier generations? In the view of some, the baby boomers differ from earlier generations in the level of their retirement savings. The popular image in the 1980s of free-spending baby boomers ("yuppies"), coinciding as it did with a sharp fall in the aggregate personal saving rate, left the impression that baby boomers do not save enough. If baby boomers are not saving adequately for retirement, they may eventually try to make up the savings shortfall by raising their saving rates more sharply than did previous generations. In this section, we examine the available empirical evidence on the adequacy of baby boomer savings. We concentrate on the older half of the baby boom (ages 35 to 44 in 1989) because younger baby boomers (ages 25 to 34 in 1989) did not, as of 1989, need significant retirement savings, so are not yet interesting subjects of study.

Exact statements about savings adequacy require detailed information about the average household's willingness to trade off current for future consumption (preferences for saving), the expected path of future income, and expected

future interest rates. Lacking this sort of data, analysts take two approaches to the adequacy of baby boomer savings.

The first approach compares the accumulated savings of the baby boomers to the savings of previous generations at the same ages. The second approach uses estimates of future earnings and interest rates, together with assumptions about preferences for savings, to calculate "desirable" or "target" levels of retirement savings for baby boomers at every age. These savings targets are then compared with the actual savings of baby boomers. We find little compelling evidence of retirement undersaving under either approach.

#### COMPARISONS WITH PREVIOUS GENERATIONS

The logic of the first approach is simple: if the baby boomers have put aside as much as current retirees had at the same ages and can expect similar levels of Social Security and pension benefits in the future, then the baby boom generation is making adequate provision for a comfortable retirement.<sup>4</sup>

Our intergenerational comparisons focus on net wealth relative to income because we need to adjust for improvements in living standards and because we recognize that retirement savings are typically meant to replace a certain fraction of earned income. The first line of Table 1 compares the average wealth-to-income ratios of baby boomers at year-end 1988 with those of their parents at year-end 1962. The second line compares medians. The ratios are calculated from the Board of Governors' 1963 Survey of Financial Characteristics of Consumers and the 1989 Survey of Consumer Finances. These survey measures of wealth include housing and most other assets except defined benefit and defined contribution pension wealth.

In 1988, baby boomers held on average more assets than their life-cycle counterparts held in 1962. The same pat-

tern is evident in the median comparisons (Manchester 1993). From these rough measures, it appears that baby boomers have managed to accumulate more wealth than their parents had at the same ages.

These results may be misleading, however, because the 1963 and 1989 surveys were successful to different degrees in measuring household wealth. Detailed comparisons of aggregate wealth as measured by the two surveys and the Federal Reserve's Flow of Funds Division suggest that while aggregate wealth from the 1989 Survey of Consumer Finances matched the Flow of Funds aggregates closely, the 1963 Survey of Financial Characteristics of Consumers captured only 82 percent of the Flow of Funds aggregates.<sup>5</sup> The Flow of Funds data and the household surveys represent very different methodologies of wealth measurement; some disparity in their findings is to be expected. Nevertheless, if the differences are due to mismeasurement in the household surveys, comparisons across the surveys may be flawed.

The intergenerational wealth comparisons of the two lines of Table 1 are based on the extreme assumption that all of the differences between the household surveys and the Flow of Funds data are attributable to mismeasurement in the latter source. One way to check the sensitivity of the cross-generational comparisons is to assume instead that all differences between the two types of survey stem from mismeasurement in the household surveys and to benchmark the household surveys to the Flow of Funds data. Benchmarking increases the 1962 wealth measures by one-fourth. The 1989 household survey aggregates equal 97 percent of the Flow of Funds aggregates, so benchmarking increases 1988 wealth by 3 percent.

Table 2 compares mean and median benchmarked ratios across generations. By both measures, baby boomers have accumulated more assets than their parents did in 1962, although the differences have shrunk from Table 1. Benchmarking the ratios thus leaves intact the finding of higher wealth accumulation among baby boomers.

Cross-generational comparisons of wealth, therefore, indicate that the baby boom generation is well prepared for retirement. Unfortunately, simple comparisons of nonpension wealth ignore other factors that determine the need for saving: the baby boom generation faces challenges different

*Table 1*  
SAVINGS OF THE BABY BOOMERS AND THE PRECEDING GENERATION:  
EVIDENCE FROM UNADJUSTED HOUSEHOLD SURVEY DATA

	Household Head 35 to 44 Years Old in 1962	Household Head 35 to 44 Years Old in 1988
Average wealth-to-income ratios	2.07	2.76
Median wealth-to-income ratios	0.87	1.10

Sources: Survey of Financial Characteristics of Consumers, 1963, Survey of Consumer Finances, 1989, Federal Reserve Bank of New York staff estimates

from those its parents faced, challenges that may increase its need for retirement savings relative to previous generations

Three factors in particular point to an increased need for retirement savings for baby boomers. First, in spite of an imminent increase in the Social Security retirement age to 66, baby boomers must save for a retirement that may last longer than that of their parents. Second, the generation of current retirees benefited from the inflation of the 1970s, which sharply reduced its mortgage liabilities. The baby boom generation cannot count on a similar windfall. Third, the measures of household wealth compared across generations in Table 1 do not include the most important components of household retirement wealth: public and private pensions and Social Security. Although trends in these programs are uncertain at present, they may decrease the retirement resources available to baby boomers.

#### BERNHEIM AND SCHOLZ'S SIMULATION STUDIES OF SAVINGS ADEQUACY

In contrast to intergenerational comparisons of wealth, the simulation studies of Bernheim and Scholz (1993) and Bernheim (1992, 1993, 1994) attempt to provide an *absolute* measure of savings adequacy that takes into account the particular economic circumstances faced by the baby boom generation. These researchers construct a model of optimal savings behavior for baby boomers who would like to maintain after retirement roughly the same standard of living they enjoy just before their retirement.

To calculate target retirement wealth at each age, Bernheim and Scholz develop forecasts of future economic conditions and assume a path for future interest rates. Controlling for age and education, they forecast a representative

baby boomer's future earnings. Also built into the model are assumptions about future changes in family composition and related expenses, the increased life expectancy of baby boomers, and the structure of social security and pension benefits.

These technical assumptions and forecasts probably affect the generated savings targets in important ways. More critical, however, are the authors' assumptions about motives for saving and their treatment of sources of retirement wealth other than savings accumulated in financial assets. Bernheim and Scholz assume that people save for one reason only: consumption in retirement. But people also save to protect

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*Cross-generational comparisons of wealth . . . indicate that the baby boom generation is well prepared for retirement.*

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themselves against financial emergencies, to pay for their children's education, or to leave their children an inheritance. Since we cannot separate observed savings into savings for retirement and savings for other reasons, the targets are too low. In addition, the model assumes that baby boomers will receive no inheritances, and that they will not change housing after they retire, using some portion of home equity to finance retirement consumption. If baby boomers expect to receive inheritances and draw on their home equity, the Bernheim and Scholz targets are too high. Since these targets may be either too low or too high, comparisons between the targets and survey data may either under- or overstate retirement preparedness.

The simulation model generates *target wealth* (accumulated savings) for the head of a household at every age. The *change in target wealth* as the head of the household ages determines *annual target savings*. Bernheim compares the annual target savings for households earning more than \$20,000 per year with the savings observed in Merrill Lynch surveys of such households. He concludes that in 1991 and in 1992, baby boomers were saving at roughly 34 percent of the recommended rate of target (nonhousing) savings. Bernheim

Table 2  
SAVINGS OF THE BABY BOOMERS AND THE PRECEDING GENERATION: EVIDENCE FROM HOUSEHOLD SURVEY DATA BENCHMARKED TO THE FLOW OF FUNDS DATA

	Household Head 35 to 44 Years Old in 1962	Household Head 35 to 44 Years Old in 1988
Average wealth-to-income ratios	2.52	2.85
Median wealth-to-income ratios	1.06	1.13

Sources: Board of Governors of the Federal Reserve System, Flow of Funds Accounts, Survey of Financial Characteristics of Consumers, 1963; Survey of Consumer Finances, 1989; Federal Reserve Bank of New York staff estimates.

and Scholz obtain similar results by comparing saving rates from the 1986 Survey of Consumer Finances with their target rates, but they reveal that undersaving is concentrated among individuals without college educations.

Surprisingly, although these authors find that households' saving rates fell far short of the model's savings targets in 1983-85, 1991, and 1992, their work also implies that boomers have done a reasonable job of reaching their retirement wealth targets. In a 1993 report, the authors compare accumulated wealth in the 1986 Survey of Consumer Finances with target levels and find relatively high median ratios, especially among college-educated households. Our own examination of data from the most recent (1989) Survey of Consumer Finances reveals that the median ratio of accumulated wealth to the Bernheim-Scholz target level is 0.95 for 35 to 44 year olds.<sup>6</sup> That is, nearly half of the sample report nonhousing assets greater than the authors' targets

This discrepancy—that wealth accumulation appears on target while saving rates appear low—is not easy to explain; however, we have somewhat greater confidence in the wealth results. The inadequacy of saving rates was shown to hold only over a few years and hence may not be true for other years. Moreover, surveys of changes in wealth (savings) probably suffer from proportionately more measurement error than do surveys of accumulated wealth. However, the results showing that the flow of savings is too low, if true, would be quite troubling. If a shortfall in the flow of savings continues, it will inevitably lead to a shortfall in the stock of savings.

The Bernheim and Scholz approach is, however, not entirely appropriate for our purposes. Their analysis focuses on the retirement preparedness of the median, or typical, household. Since our interest is in aggregate savings, the mean ratio is also of interest. This ratio gives a greater weight to the savings of high-income households, which account for a disproportionately large share of aggregate savings. The mean ratio of wealth to the Bernheim targets in 1988 is 2.07, suggesting that those households whose savings have the greatest impact on aggregate savings are comfortably on track for retirement.

In summary, although the simulation studies of Bernheim (1993) and Bernheim and Scholz (1993) suggest

that baby boomer saving rates were dangerously low in 1983-85 and in 1991-92, this generation's accumulated wealth is nevertheless in line with simulated retirement savings targets. Moreover, high-income households, who are more important in the determination of aggregate saving rates, seem to be putting aside savings on schedule.

#### SOCIAL SECURITY AND PENSIONS

Although we have so far kept to issues that are amenable to empirical investigation, we recognize that aggregate savings may be substantially affected by other, more indefinite factors such as the future of the Social Security program, the impact of changes in pension coverage, and the various adjustments that baby boomers might make to retirement savings inadequacy. Baby boomers may receive lower Social Security benefits than their parents as federal fiscal pressures force a choice between increasing taxation and reducing benefits over the next few decades. Moreover, the future generosity of private and public pensions is uncertain.

Auerbach and Kotlikoff (1994) have analyzed the effects of hypothetical Social Security restructuring on baby boomer wealth. They project that if social security benefits are cut sharply in 2009, most baby boomers will face a standard of living worse than that of the current generation of

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*This discrepancy—that wealth accumulation appears on target while saving rates appear low—is not easy to explain; however, we have somewhat greater confidence in the wealth results.*

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retirees. To date, potential shortfalls in the Social Security and Medicare Trust Funds have been remedied by increases in taxation, with few cuts in benefits. Only the increase in the normal retirement age, enacted in 1983, and the more recent taxation of the Social Security benefits of higher income recipients can be unambiguously construed as a decrease in benefits.

Trends in public and private pensions are more difficult to evaluate. Although private pension coverage has increased over the last three decades, the nature of that coverage has changed. In the last twenty years, the mix of plans has changed: defined benefit coverage has been falling while defined contribution coverage has been rising (Chart 11). It is not yet clear which of these plans is the better vehicle for retirement savings, from the perspective of either the employer or the employee. While some evidence suggests that the most popular defined contribution plans stimulate savings (see, for example, Poterba, Vent, and Wise 1992), there is growing concern that employees do not invest defined contribution assets appropriately for retirement.

### ADJUSTMENTS TO SAVINGS SHORTFALLS

Although there is no conclusive evidence of a baby boomer savings shortfall, the risks to the social security benefits of baby boomers cannot be ignored. The risks are admittedly speculative—we do not know whether the government will move to cut benefits substantially. Nevertheless, the question arises, if baby boomers were to face a substantial shortfall in

their retirement funds for any reason, would they rapidly step up their saving rates in response to it? To answer this question, one must examine the options facing a person who, approaching retirement, discovers the inadequacy of his or her retirement provision.

The first option is a large increase in saving rates. Such a response will, of course, boost aggregate saving rates as baby boomers approach retirement. The second option is a large decline in consumption in retirement. This response will also lead to an increase in aggregate savings, as retiring baby boomers dissave (eat into their retirement savings) at a lower rate. (Note, however, that under this scenario, the increase in saving rates will come later, after baby boomers retire.) A third reaction is to postpone retirement and extend working life. Both the income and savings of baby boomers will rise as they work longer. A fourth possibility is an increase in net intergenerational transfers to retirees, either from an increase in the generosity of Social Security benefits or from a decrease in inheritances. In light of the looming shortfalls in Social Security, an increase in the generosity of Social Security seems unlikely, a decrease in bequests by baby boomers will entail a decrease in retiree savings (increases in dissaving) and an increase in the savings of younger generations, who will expect smaller inheritances. (Empirical work in Weil 1994 suggests that the expectation of bequests lowers savings.)

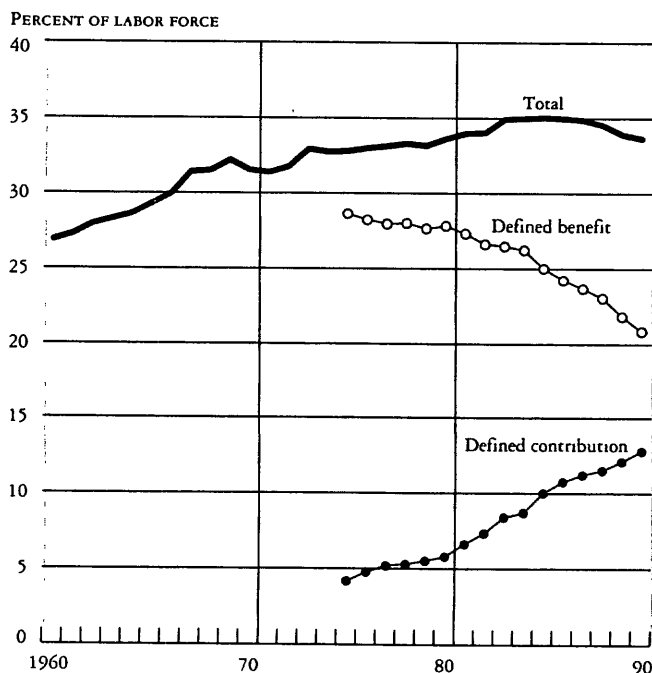
A review of these options suggests that even if there is a retirement savings shortfall, the baby boom generation may not increase its savings in response to it. No clear evidence on the reaction of households to savings shortfalls currently exists. Should a surge in baby boomer savings occur, the effect on aggregate savings will very likely be large, but the surge itself is uncertain.

### CONCLUSION

Policymakers concerned about low aggregate saving rates should not rely on the aging of the baby boom generation to restore aggregate savings to earlier levels. We draw this conclusion from (1) a review of life-cycle increases in saving rates and demographic trends and (2) an assessment of the prospect that baby boomers will accelerate their saving rates in response to a retirement savings shortfall.

Chart 11

PENSION COVERAGE, BY PRIMARY PLAN



Source: Employee Benefits Research Institute

First, as baby boomers move more fully into middle age, the life-cycle increases in their saving rates will lead to only a modest increase in aggregate saving rates. Survey evidence from the mid-1980s suggests that boomers' own saving rates will roughly double as they move into middle age. Partially offsetting this positive effect on savings, however, will be a rise in the relative population shares of low-savings groups (people above 75 and below 35) over the next two decades. Our projections indicate that demographic trends should push up the aggregate personal saving rate in total only about 80 basis points by the year 2010.

Second, barring a major reduction in Social Security

benefits, the evidence that baby boomers are not saving adequately for retirement is unconvincing. To date, boomers have generally accumulated more wealth relative to their incomes than their parents had by the same ages. Moreover, the stocks of wealth that boomers have accumulated are roughly consistent with target levels recommended by optimal lifetime savings models. These healthy stocks of savings are, however, hard to reconcile with the reportedly weak flow of savings observed in survey data. Nonetheless, even if baby boomers do face a shortfall—perhaps one resulting from a decrease in Social Security benefits—it is not clear that they would dramatically increase their savings in response.

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## ENDNOTES

1 These arguments have been analyzed by a number of authors. Summers and Carroll (1987), Bosworth, Burtless, and Sabelhaus (1991), and Attanasio (1993) examine the role of demographics in the fall of the aggregate savings rate in the early 1980s. Auerbach and Kotlikoff (1989) and Kennickell (1990) examine the effect of baby boomer aging on future saving rates. Auerbach and Kotlikoff predict a modest increase in saving rates, Kennickell predicts a small increase. Arguments supporting the view that baby boomers are undersaving are presented in Bernheim (1993) and Bernheim and Scholz (1993), opposing views are presented in Manchester (1993) and Easterlin, Schaeffer, and Macunovich (1993).

2 The age-income cross-sectional distribution in Chart 1 is measured at a point in time and is not representative of the age-earnings profile that a typical household can expect to earn over time. The latter profile would probably rise more steeply with age, because young workers will typically earn more when old than old workers currently earn. (For further discussion, see Easterlin, Schaeffer, and Macunovich 1993.) This "bias" in the cross-sectional age-earnings profile is also present in the age-savings profile. The age profile of saving rates, however, will not necessarily be biased.

3 Historical data on the age distribution of households are published annually by the U.S. Department of Commerce, Bureau of the Census, in Current Population Reports, "Household and Family Characteristics," Series P20. Projections of the future age distribution of households were obtained by assuming that (1) within ten-year age bands, the current ratios of households to population remain constant over time and (2) population cohorts grow at the "middle series" estimates published by the Census

### *Note 3 continued*

Bureau in Current Population Reports, *Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin 1992 to 2050*, P25-1092

4 Several analysts have explored this approach. Easterlin, Schaeffer, and Macunovich (1993) compare income and wealth across generations at similar points in the life cycle and find a general improvement across generations. Manchester (1993) concentrates on wealth and finds that the median wealth position of baby boomers is modestly better than that of earlier generations.

5 For comparisons of the 1963 Survey of Financial Characteristics of Consumers with the Flow of Funds data, see Avery, Elliehausen, and Kennickell (1988). We are indebted to Rochelle Antoniewicz of the Federal Reserve Board Flow of Funds Division for pointing out a mistake in the comparisons in this source and for providing preliminary comparisons of the 1989 Survey of Consumer Finances with the Flow of Funds Accounts.

6 The analysis was carried out on 35 to 44 year olds. Bernheim (1993) presents targets for individuals who earned \$30,000 or more at age 35. We use his estimates of age-earnings profiles, combined with his method of imputing income to spouses, to estimate earnings at age 35 for the 1989 Survey of Consumer Finances sample. Interpolating where necessary, we calculate target savings (excluding household wealth) for each household. Target savings are taken from Table 1 of Bernheim (1993). Estimated age-income profiles are taken from Bernheim (1992).

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