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# Trends in the Well-Being of the Aged and Their Prospects through 2030 

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## 1 Introduction

The US population over 65 has seen significant and sustained improvement in its absolute and relative well-being over the past half century. This paper offers a survey of trends in old-age poverty, income, inequality, labor market activity, educational attainment, insurance coverage, and health status. It concludes with a brief discussion of whether the favorable trends of the past half century can continue in the next few decades.

Even though the absolute and relative positions of the nation's aged have steadily improved over time, much of the improvement is traceable to public programs like Social Security and Medicare. These programs face gloomy financial prospects. If future voters and lawmakers scale back benefits to keep payroll taxes close to their current level, the nation's elderly will need to rely on private resources to pay for a bigger fraction of their retirement needs. The statistics on saving and wealth accumulation suggest that relatively few working-age Americans plan to accomplish this by increasing the share of their current incomes they devote to saving. The future economic well-being of the elderly may therefore depend on their willingness to work longer and delay the age at which they rely on public programs and private savings to pay for their consumption.

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## 2 Indicators of Well-Being

### 2.1 Old-Age Poverty

The best known statistic demonstrating the improvement in older Americans' well-being is the poverty rate measured using the US Census Bureau's poverty thresholds. ${ }^{1}$ Figure 1 shows census estimates of the official poverty rate in three age groups - related children under age 18, adults between 18 and 64, and Americans over 65. Fifty-five years ago the aged had the highest poverty rate


Figure 1: Percent of Persons with Income below Official Poverty Line, by Age, 1959-2013. Source: US Census Bureau.

[^1]- more than 35 percent - while adults between 18 and 64 had a poverty rate just half as high. The child poverty rate was distressingly high - about 27 percent - but was nonetheless more than 8 percentage points lower than the poverty rate of the aged. By the mid-1970s the old-age poverty rate dipped below the rate for children, and by the mid-1990s it fell to the same rate as that of 18-to-64 year-olds. In the middle of the last decade, old-age poverty fell below the rate of younger adults, and after the onset of the Great Recession it fell decisively below that rate.

Of course, the official poverty rate measures only one dimension of a group's well-being. Our labor markets, family living arrangements, and social safety net are increasingly successful in keeping the pretax cash incomes of most of the aged from falling below the HHS poverty thresholds. The nation is more successful in reducing cash income poverty in the case of people over 65 than it is for children and non-aged adults. The official poverty rate does not, however, tell us anything about other dimensions of well-being - the income of the median person in the age group, the access of group members to affordable health care, and the disabilities and health status of people in the group.

### 2.2 Absolute Income Gains

As it happens, many other dimensions of well-being have also improved considerably for the nation's elderly, both absolutely and relative to that of younger adults. One way of seeing this is to track the cash incomes of Americans in fairly narrow age groups and to estimate the improvements each age group has experienced over the past 30 or 40 years. In recent research I estimated the income gains and inequality changes of birth cohorts which attained middle age starting in 1979. I used evidence on money income reported in the Census Bureau's annual Current Population Survey (CPS) income survey to examine inequality within narrow age groups in the population. I then assessed average incomes and inequality within these narrow subpopulations and estimated how inequality within given birth cohorts evolved as birth cohorts grew older.

The tabulations presented here cover incomes reported by CPS respondents for 1979 and 2012. The income measure I use is based on the standard Census Bureau definition of "money income." It is derived from respondents' reports of pretax income from wages, self-employment, capital income sources, and cash government transfers, including Social Security and public assistance. It excludes in-kind benefits such as housing assistance, food stamps, and government- and
employer-provided health insurance. ${ }^{2}$ I classified each family in the CPS file based on the age of the head of family or, in the case of married-couple families, the older of the head and the spouse of the head. Single-person households and unrelated individuals were also classified by the person's age, and these people were designated as one-person family units. If more than one family resided in the same household, I separately classified each family by the age of its head. To determine each family's rank in the income distribution I calculated families' size-adjusted incomes and then used family ranks to determine the income ranks of people who were members of the families. ${ }^{3}$ To convert income amounts reported in different years to constant dollars, I deflated incomes using the CPI-URS price index, which uses current indexing methods to derive a consistent price deflator going back to the mid-1970s.

Figure 2 shows the percent changes in size-adjusted real incomes of families sorted by the age of their heads in 1979 and 2012. The families are divided into 3 -year age groups, with the youngest family heads being 47-49 years old and the oldest 77-79. (In fact, the oldest age group consists of families headed by a person who is at least 80. To preserve confidentiality, the actual ages of respondents older than 80 are not recorded in the CPS public use files.) Figure 2 contains three panels, each reflecting the real income changes experienced by a person who occupies a different position in the income distribution of people in the indicated family age group. The top panel, for example, shows the percent changes between 1979 and 2012 in the real incomes of the 10th percentile person in each of the family age groups. The middle and bottom panels show income changes at the 50th and 90th percentiles, respectively, of the people in each family age group.

The notable feature of all three panels is that Americans in families headed by someone past age 65 have fared much better than people in families headed by someone under 65. In light of the growth in inequality it should not be surprising

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Percent change in real income: 50th percentile in age group


Percent change in real income: 90th percentile in age group


Figure 2: Percent Change in Real Income at Selected Income Percentiles, by Age Group, 1979-2012.
Source: Author's calculations of household-size-adjusted income using March Current Population Survey files.
that people at the 90th percentile have fared better than Americans with a lower rank in each of the family age groups, nor should it be astonishing that people at the 10th percentile saw smaller income gains than people in the middle of the distribution. This is true for Americans in families headed by an aged person as
well as for people in families with a non-elderly head. Nonetheless, low-income people in families with an aged head have seen much faster income gains than low-income people in families with a younger head.

### 2.3 Relative Income Gains

Figure 3 presents similar information through a different lens. I have calculated the size-adjusted incomes of Americans who are members of families headed by an aged and by a non-aged head, where an aged head is defined as someone who is at least 62 years old. I calculated the income distributions of the two groups based on separate income tabulations in 4 years - 1979, 1988, 2000, and 2012. The chart shows trends in the relative incomes of people in aged families compared with non-aged families at successive positions in the income distributions, from the 5th income percentile up to the 95th percentile. For example, in 1979 the person at the 20th percentile of the aged family income distribution had a size-adjusted income that was 72 percent of the equivalent income amount received by a person at the 20th percentile of the non-aged family income distribution. By 1988, the relative income of the person in the aged family at the 20th income percentile had increased to 89 percent of that


Figure 3: Income Ratio of Old to Young by Position in Aged Family and Nonaged Family Income Distribution, 1979-2012.
Source: Author's calculations of household-size-adjusted income using March Current Population Survey files.
of a similarly situated person in the non-aged family distribution. By 2000 the relative income of the 20th-percentile person in the aged family distribution had increased to 108 percent, and by 2012 it increased to 125 percent. Over a span of 33 years the relative money income of aged family members at the 20th percentile of the income distribution has improved from more than onequarter below to one-quarter above the income of a similarly situated member of a non-aged family. ${ }^{4}$

The chart shows there was a similar improvement in the relative incomes of members of aged families compared with non-aged families over the entire income distribution of aged and non-aged families. The relative improvement was biggest in the lowest ranks of the distribution. At the bottom of the income distribution, the size-adjusted incomes of elderly families were higher than those of non-elderly families at the same position of the non-elderly income distribution. This was true in both 1979 and 2012. Elsewhere in the income distribution, however, older families have lower incomes than younger ones, though the income gap has shrunk noticeably over the past three and a half decades. By 2012, middle- and upper-middle income aged families had incomes that were just 4 percent to 6 percent below of those received by families with younger heads and which occupied equivalent positions in the income distribution.

Analyses of unreported and under-reported income sources in the CPS file suggest that inclusion of these income items or the full amount of under-reported items would boost the total incomes of aged families more than those of the non-elderly (Wolff and Zacharias 2006; Bosworth et al. 2007). Three income items are particularly important for comparing the well-being of the elderly and non-elderly. The first is capital income, which is under-reported by families irrespective of the age of the head but which is a much more important source of income for aged compared with non-aged families. The second is pension income and withdrawals from workplace retirement plans. This kind of income is poorly reported by CPS respondents, and the shift from defined-benefit to defined-contribution workplace pension plans has made the reporting problem worse. Finally, the CPS interview does not obtain estimates of the value of most in-kind income sources, including the value of subsidies for health insurance and the flow of housing services from owner-occupied homes. Over 98 percent of Americans over 65 are covered by a health insurance plan, and an overwhelming percentage receives generous subsidies to pay for their coverage from the

[^3]government or from a current or former employer. Coverage rates are lower in younger age groups, and the subsidy per person covered is typically less generous than it is for the population over 65 . Families headed by someone older than 65 have the highest homeownership rate of any age group in the population, and by a wide margin they also have the highest percentage of owners who do not have any mortgage on their homes. Correcting for the unreported and under-reported income amounts would boost the relative incomes of the aged across the income distribution. Therefore, by restricting the analysis to money income amounts reported in the CPS, the income comparison shown in Figure 3 understates the relative well-being - and the improvement in relative well-being - experienced the nation's aged population in recent years.

### 2.4 Inequality

As should be plain from the income trends displayed in Figure 2, income inequality increased in every income group. It increased faster in families headed by a person under 62 compared with families headed by someone past 62, however (Burtless 2014). Figure 4 shows the percent change in the Gini coefficient among families classified by the age of the family head. ${ }^{5}$ Whereas families headed by someone in their late 40 s or early 50 s saw inequality rise by more than onequarter, families headed by someone past 60 saw more modest increases.

The age pattern of changes in inequality is linked to the role of labor earnings in determining total family income. As family heads reach older ages, labor earnings become less important and pension and Social Security become more important sources of family income. One of the main contributors to rising overall income inequality has been the surge in wage and other labor income inequality. Of course, soaring earned income disparities are likely to translate eventually into rising inequality of workplace pensions and old-age capital income flows. In fact, when we measure the trend of inequality in birth cohorts as they age through the life course we see that higher inequality in middle and late middle age is also apparent when the birth cohort attains ages past 65 and 70 (Burtless 2014). Because of the strong redistributive tilt in the Social Security benefit formula, however, the effect of rising earnings inequality on the variability of Social Security pensions is more muted. This is particularly true in the case of benefits paid to workers with

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Figure 4: Percent Change in Gini Coefficient between 1979-82 and 2009-12, by Age of Family Head.
Source: Author's calculations of household-size-adjusted income using March Current Author's household size Population Survey files.
low lifetime earnings, because the redistributive tilt in the Social Security formula is especially pronounced at the very bottom of the lifetime earnings distribution. Once workers reach 62 and become eligible for early Social Security pensions, there is a floor under their monthly income that was not available to them when they were 55 or 60 . Consequently, even though inequality among aged families has increased over time, the proportional income gap between 10th-percentile and 50th-percentile income recipients has increased much more modestly than has been the case among families with a non-aged head.

### 2.5 Shift in Lifetime Earnings Patterns

One reason for the improvement in the relative incomes of the aged is that many of them have postponed the age when they cease working. For more than a century starting in the late 1800s the trend in old-age employment was toward earlier retirement ages. Successive generations of workers retired at younger ages compared with their parents' generation. Since 1990 both men and women have tended to delay their retirements compared with earlier generations (Burtless 2013a). The Great Recession and the weak recovery from the recession slowed but did not reverse the trend toward later retirement. The population past age

60 is the only age group that has seen increases in labor force participation and employment rates since the end of the last expansion in 2007. Nearly all younger age groups have lower participation and employment rates.

One effect of delayed retirement is that the labor incomes of aged families represent a larger percentage of their total incomes than was the case in the 1980s and early 1990s. Furthermore, the average labor income of older workers is now relatively higher compared with younger workers than was true in the past. This tilt in the lifetime age-earnings profile is displayed in Figure 5, which shows ageearnings profiles in 1985 and 2010. The average earnings of people in each of the indicated age groups is expressed as a percentage of the average labor income earned by people who are between 35 and 54 years old. ${ }^{6}$ Note that the calculations include people in each age group who have no earned income as well as the people who have positive earnings in the indicated years. Earnings records maintained by the Social Security Administration suggest that for typical workers the peak level of lifetime earnings is attained sometime between ages 35 and 54. The results in the chart show that significant labor incomes are now earned later in life. In 2010 every age group past 50 received significantly higher labor income


Figure 5: Age Profile of Annual Earned Income of US Adults (Including Those with No Earnings), 1985 and 2010.
Source: Author's calculations of average annual earnings using March Current Population Survey files.

6 The age-earnings profiles in the chart reflect the unadjusted earned incomes of actual people in the indicated age groups. The calculations do not include any adjustment for family size, nor do they assign anyone to an age category based on the age of the head of a family.
than was the case back in 1985. The percentage changes in relative incomes are displayed in Figure 6.

The sizeable increase in labor income of the aged compared with younger adults is traceable to two main developments. The first has already been mentioned: Aged adults are nowadays more likely to work and receive labor income than was the case in the not-too-distant past. Some of the increase took the form of part-time work or re-employment in a job that is less demanding than the worker's career job. However, full-time work and delays in retirement from career jobs are also more common today than they were in the 1980s.

Many critics of the nation's retirement institutions believe they should be reformed to encourage even later retirement. A greater percentage of people nowadays live long enough to receive a pension, and after qualifying for an early pension at age 62 workers can expect to live longer than workers who began receiving age- 62 pensions in the 1960s or 1980s. Some of these critics may not realize that a trend toward later retirement began about a quarter century ago. That trend has significantly extended the work life of non-disabled workers.

A second development has also contributed to the tilt in the age-earnings profile. Older workers now earn relatively higher wages than they did in the past. If we restrict our analysis solely to people who are actually employed in a given year, those past age 60 have enjoyed noticeable improvements in their earned incomes relative to the earnings of prime-age ( 35 to 54-year-old) workers.


Figure 6: Change in Age Profile of Annual Earned Income of Adults (Including Those with No Earnings), 1985 to 2010.
Source: Author's calculations of average annual earnings using March Current Population Survey files.

The improvement has been especially large for workers who remain employed past age 65. Although workers between 65 and 74 continue to earn lower annual incomes than workers who are between 35 and 54, the gap is much smaller today than it was in the mid-1980s. In 1985, workers age 65-69 earned just 53 percent of the average earnings of 35-54 year olds. By 2010 they earned 83 percent as much, an improvement of 30 percentage points (Burtless 2013b).

The increase in earned income among the aged has also led to a shift in the components of aged families' incomes. While Social Security benefits continue to account for the largest percentage of income received by families containing a person 65 or older, labor earnings now accounts for a sharply higher share of income (Bosworth and Burke 2012; Leonesio et al. 2012). Between 1990 and 2010, for example, earned income increased from 18 percent to 30 percent of aged families' incomes while Social Security benefits remained roughly unchanged, increasing from 36 percent to 38 percent of their incomes. Income derived from pensions other than Social Security remained unchanged (18 percent of total income). The major income source that declined was income from financial assets - interest, dividends, and other kinds of capital income. Whereas asset income accounted for 25 percent of the income of the aged in 1990, it accounted for just 11 percent in 2010. Other miscellaneous income sources accounted for about 3 percent of total income in both years (Bosworth and Burke 2012). The increase in earned income and falloff in asset income were especially noticeable in the top income groups where earnings and capital income are particularly important.

Economists identify three main reasons for the rise in average retirement ages. An important one is that the institutions that provide income in old age have stopped becoming more generous. The introduction and liberalization of Social Security and the post-World War II expansion of employer-sponsored pension plans provided reliable sources of retirement income for the great majority of American workers. Those expansions have ceased. Social Security benefits stopped rising in relation to workers' wages in the early 1980s, and coverage under employer pension plans stopped growing at about the same time. A second notable change is that the financial incentives in both Social Security and employer pensions evolved in ways that now encourage later retirement. Social Security rules once made it almost impossible for beneficiaries to have labor income while continuing to receive benefits. The rules have been changed to permit beneficiaries to have substantial earned income while receiving a pension. Workers who have reached the full retirement age, currently 66, can earn unlimited wages without incurring any benefit reduction. Private retirement plans also offer better incentives for remaining in a job past the early or standard retirement age. The overwhelming majority of workers covered by a pension were once enrolled in defined-benefit plans, which usually impose financial penalties
on workers who retire after the plan's standard retirement age. Most covered workers are now enrolled in defined-contribution plans, which do not have this work-discouraging feature. Finally, improvements in workers' health in old age and reductions in the physical burdens of work have made it more feasible for workers in their 60s and 70s to continue working.

### 2.6 Gains in Educational Attainment

Older workers have experienced earnings gains compared with younger ones partly as a result of rapid improvements in their relative educational attainment. Post-World War II gains in high school and college completion boosted the schooling attainment of young adults compared with older ones, but the gains in schooling attainment among young people slowed starting in the 1970s. The rapid gains in schooling among the aged are highlighted in Figure 7, which shows trends in educational attainment between 1986 and 2011. The top panel of the chart shows attainment changes in the population between 65 and 69; the bottom panel shows the same trends among the age group that is exactly 30 years younger. In the 25 years covered by the tabulations the percentage of $65-69$ year olds who failed to complete high school plunged, falling from 41 percent to just 14 percent. The share with a college diploma or a post-college degree increased from 11 percent to 29 percent. These sizeable gains are explained by the remarkable improvement in high school completion and college enrollment for the birth cohorts born after World War II. Schooling gains among 35-39 year olds over the 1986-2011 period are less impressive. Slightly more than 10 percent of this age group were high school dropouts throughout the period, and the college completion rate rose just 7 percentage points.

The educational attainment of the aged population will continue to improve in the future, but the gains will not be as fast as those displayed in the top panel of Figure 7. Figure 8 shows estimates of the schooling attainment of Americans age 65 and older in 1995-1996 and 2013-2014 as well as my projections for 2031-2032. ${ }^{7}$ Estimates and projections for older men are displayed in the top panel; estimates for women are shown in the bottom panel. The percentage of older people who have failed to complete high school will decline over the next

[^5]Percent of 65-69 year olds with indicated level of schooling


Percent of 35-39 year olds with indicated level of schooling


Figure 7: Trends in Schooling Attainment among 65-69 Year Olds and 35-39 Year Olds, 1986-2011.
Source: Author's calculations using Current Population Survey files.
two decades, though especially among men the drop will be slower than has been the case in recent years. Similarly the share of older Americans who have obtained a bachelor's degree will continue to increase, but the increase will be much faster among women than men. The slowdown in educational gains among older men may mean that in the future they will see slower earnings gains than they have seen over the past two decades. In addition, there may be a slowdown in the trend toward later retirement. Among women gains in educational attainment as well as accumulated labor market experience may continue to push up participation and employment rates in old age. It is hard to find any evidence the labor market skills of older women will decline relative to those of younger women.

Percent of males past age 65 with indicated level of schooling


Percent of females past age 65 with indicated level of schooling


Figure 8: Trends in Schooling Attainment among 65-69 Year Olds and 35-39 Year-Olds, 1986-2011.

Source: Author's calculations using Current Population Survey files.

### 2.7 Health Insurance Coverage

The creation and implementation of Medicare and Medicaid in the mid-1960s greatly expanded health insurance coverage among the nation's aged and low-
income populations. At least since 1968 insurance coverage among the elderly has been notably higher than it is in the population under 65 (see Figure 9). Time series estimates of insurance coverage are not consistent over time, both because of changes in survey methodology and changes in the coverage questions posed to respondents. The estimates displayed in Figure 9 suffer from this problem. They are derived from two different surveys, the National Health Interview Survey (NHIS) covering the years from 1959 through 1968 and the Medical Expenditure Panel Survey (MEPS household component) covering the years from 1996 through 2012. In the late 1950s and 1960s the NHIS questionnaire obtained point-in-time information about respondents' coverage under a "hospital insurance" plan.

The MEPS survey results reflect respondents' answers to questions about their coverage under public and private health insurance plans over the course of a full year. The percentages shown indicate the share of respondents who had coverage under one or more plans during at least part of a calendar year. The surge in insurance coverage among the elderly between 1963 and 1968, and its much slower growth in the population under 65, was uncovered in the NHIS interviews. The continued wide gap between coverage rates among the elderly and non-elderly since 1996 is plainly visible in the MEPS household interviews.

Before Medicare was created in 1965 insurance coverage was rising in both the aged and non-aged populations, but coverage under a "hospital insurance"


Figure 9: Trends in Health or Hospital Insurance Coverage in Aged and Nonaged Populations, 1959-2012.
Sources: 1959 to 1969 - National Health Interview Survey as reported in Cohen et al. (2009); 1996 to 2016 - Author's tabulations of Medical Expenditure Panel (Household) Survey.
plan among the aged remained 18 percentage points lower than it was among the non-aged (54 percent vs. 72 percent). By 1968, 2 years after enrollment in Medicare began, coverage under a hospital insurance plan was 17 percentage points higher in the aged population compared with the non-aged ( 96 percent vs. 79 percent). As can be seen in Figure 9, insurance coverage has remained much higher among the elderly than it is among the non-elderly.

### 2.8 Life Expectancy and Health Status

Whether it is the result of expanded health insurance, better public health, new medical technologies, or rising incomes, life expectancy of the aged has improved over time. Between 1950 and 2010 the life expectancy of a woman who survived to 65 increased 5.3 years, rising from 80.0 to 85.3 (Figure 10). The improvement in life expectancy for a 65 -year-old man has been a bit slower - 4.9 years - but the gap between male and female life expectancy has been shrinking since 1980. Predictions about future life expectancy are uncertain, but the intermediate forecast of the Social Security Actuary is that women's life expectancy at age 65 will increase another 1.4 years between 2010 and 2030 while men's life expectancy will rise 1.9 years.

The increase in life expectancy at older ages probably signals an improvement in Americans' health at least among the "young old." Another hypothesis is that improvements in medical care have added to the number of unhealthy years at the end of life. According to this theory, the additional people kept alive by modern medical practice are more likely to be frail and suffer work disabilities or other health limits on their daily activities. Though it is difficult to measure disabilities and activity limits in a consistent way over a lengthy span of years, data since 1980 do not appear to support the pessimistic view. Activity limits within narrow age groups of the elderly became less prevalent during the 1980s and 1990s, though this favorable trend came to at least a temporary halt in the past decade (Martin et al. 2010; Freedman et al. 2013). Making suitable adjustments for the age distribution of the population over 65, the elderly appear to be in better health today than they were in 1980.

Even though life expectancy continues to improve and should continue to do so, there is growing evidence that recent gains have been unequal across social and economic groups. Much of the recent increase in life expectancy has occurred in the top half of the income and education distributions. A 2007 study of men based on Social Security records, for example, showed that recent changes in life expectancy were correlated with workers' average lifetime earnings (Waldron 2007). Other studies have confirmed this basic finding using alternative data


Figure 10: Trends in Life Expectancy of Americans Surviving to Age 65, 1950-2040.
Sources: National Center for Health Statistics (2012, table 22); Board of Trustees of the Federal OASDI Trust Funds (2014, table V.A.).
sources and different measures of social and economic status (see National Academies of Sciences, Engineering, and Medicine 2015). The implication of these studies is that men and women at the bottom of the income distribution and the distribution of educational attainment may be obtaining small or negligible gains in life expectancy, even as average life spans continue to rise steadily for Americans with high incomes and better than average educational credentials. Whether this is the result of rising income inequality or differences in behaviors that are linked to longevity is not yet known.

## 3 Future Prospects

Over the past half-century trends in the well-being of the elderly have been more favorable than they have been for any other age group. The income poverty rates of the aged have declined sharply since the late 1950s, their health insurance coverage rates soared in the 1960s as a result of Medicare and Medicaid, and their cash and in-kind incomes have continued to improve, even as the incomes of younger people at the bottom of the distribution have stagnated or declined. Fueling the income gains of the "young old" - Americans between 65 and 74 -
has been an increase in their employment rate and a shift in the age-earnings profile that has favored older workers. In the bottom ranks of the old-age income distribution, seniors' incomes have been protected by Social Security, which is indexed to inflation and remains by far the biggest source of income for older Americans in modest circumstances.

Compared with the elderly population in earlier decades, today's aged have considerably better educational credentials. Many fewer of them failed to complete high school; many more of them completed college and obtained post-college degrees. The gains in schooling have contributed to the trend toward delayed retirement because they expanded the range of occupations that workers can continue to hold when they are past the traditional retirement age. The improvements in older Americans' educational attainment, especially in the case of women, will continue over the next couple of decades.

Looking at past trends provides some guidance for thinking about the future prospects of the elderly, though many observers expect the future will be less bright than the past five decades. One reason for pessimism is the dim financial outlook facing the two main public programs that provide income and health insurance to the elderly. The 2014 OASDI Trustees' Report projected that the combined Trust Funds of the Old-Age, Survivors, and Disability Insurance programs will be depleted in 2033. The 2014 Medicare Trustees’ Report concluded the Hospital Insurance Trust Fund will be exhausted 3 years earlier, in 2030. The forecasts are subject to error, of course, but no informed observer thinks the programs' reserves can last much beyond 2035. Under current law, when a Trust Fund is depleted benefit payments can only be paid out of the flow of new payroll tax revenues or with new appropriations approved by Congress. In the absence of such appropriations or a change in law, benefits must be cut. In the case of OASDI payments, the cut will be roughly 23 percent. Families that can live comfortably on current pensions might find it harder to subsist if Social Security benefits were one quarter smaller.

Experts on retirement preparedness are divided on whether today's middleage workers are on the path to accumulating enough savings for a comfortable retirement. The majority view, argued by Alicia Munnell (Retirement Research Center at Boston College) and Jack VanDerhei (Employee Benefit Research Institute), is that a worryingly large percentage of middle-age workers are saving too little to support themselves during retirement. An alternative view, advanced by John Karl Scholz (University of Wisconsin), is that financial planners and other economists have exaggerated the optimal savings needed to support a comfortable retirement. Consequently, their calculations overstate the fraction of middleage workers who have under-saved and exaggerate the amount of under-savings for those workers whose nest eggs fall short.

Munnell's case is easiest to understand. She and her coauthors point out that workers' wealth-to-income ratio offers the simplest measure of their lifetime accumulation to pay for retirement (Munnell et al. 2015). These analysts note that the average age profile of the wealth-to-income ratio has changed little over the past three decades. Based on estimates of average wealth-to-income ratios derived from the Federal Reserve's household wealth surveys, Munnell and her colleagues report that the average ratio has declined at most ages since 2009, though this may be just a temporary by-product of the financial crisis. For a variety of reasons, middle-age workers should nowadays have saved more than workers in earlier generations accumulated at the same ages.

Life expectancy is increasing, so workers' retirement nest eggs must support them for a couple of extra years. Private employers have phased out defined-benefit pensions, so workers' own personal savings, including savings in 401(k) plans, will have to fund a bigger percentage of private-sector workers' retirement. Future Social Security benefits are likely to be trimmed for reasons already mentioned. This will leave a bigger hole for personal retirement savings to fill. Finally, even if the Social Security formula is left unchanged, most retirees who enroll in Medicare Part B have their Medicare premiums deducted from their monthly pensions. Since future Medicare premiums are likely to increase faster than Social Security pensions, beneficiaries will be left with smaller cash benefits out of which they will need to pay for monthly living expenses. For all of these reasons, the Boston College researchers suggest that the age profile of the wealth-income ratio should be trending upward. Instead it is unchanged or drifting down.

Another interpretation of the same evidence is that middle-age workers expect to retire later than workers in earlier generations. This is already occurring, and the trend toward later retirement has now persisted for a quarter of a century (Burtless 2013a). There is also evidence that middle-age workers nowadays expect to retire later than their predecessors. The financial crisis and resulting drop in household wealth probably induced some workers to reassess their retirement plans, and many apparently concluded they should aim to retire later than they expected to before the crisis (Banerjee 2011). Not all workers will be able to remain employed as long as they may wish when they are in their 40s or 50s. Some will experience failing health, which will prevent work or restrict the kind of work they can do. Others will suffer a layoff, possibly in the midst of a recession, and face serious problems getting reemployed. Nonetheless, many people who work for pay in their late 50s can remain employed into their late 60s or early 70s. If enough of them choose to extend their work life, even in a parttime position, less savings is needed to live comfortably in retirement. A future challenge for American institutions will be to find ways to finance a decent retirement for workers who do not have the option of extending their work lives.

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[^1]:    1 The estimated poverty rates are obtained by the Census Bureau using household income reports from a large nationally representative sample and a set of dollar value thresholds that vary by family size and composition (DeNavas-Walt and Proctor 2015). Persons and families with gross cash incomes below the thresholds are classified as poor. For most family sizes the thresholds were originally calculated as three times the estimated cost of an economical but adequate diet.

[^2]:    2 The public use version of the CPS file uses an inconsistent method for top-coding high income amounts reported by respondents. In effect, the top-coding procedure truncates reported incomes much more severely in the 1980s and early 1990s compared with later years. To circumvent this problem I replaced the original Census Bureau top codes with alternative codes proposed by analysts with access to the uncensored data (Larrimore et al. 2008).
    3 The family size adjustment is intended to determine families' income rank by their "equivalent" incomes, that is, their family income adjusted to reflect the effects of family size on the family's consumption needs. The adjustment I used is to divide each family's unadjusted income by the square root of the number of family members. This adjustment implies that a family consisting of four members requires twice as much income to have the same "equivalent" income as a household containing just one member. Note that each of the income quantiles contains an equal number of persons rather than an equal number of families.

[^3]:    4 Between 1979 and 2012 the equivalent income per person in a 20th-percentile aged family increased from $\$ 3900$ to $\$ 15,600$ measured in constant 2012 dollars, an increase of about 297 percent. In contrast, the equivalent income per person in a 20th-percentile nonaged family increased only from $\$ 5400$ to $\$ 12,400$.

[^4]:    5 To calculate the change in the Gini coefficient, I computed the average Gini coefficient for size-adjusted income inequality within each age group in 1979 and 1982 and in 2009 and 2012, respectively, and then calculated the percent change in the average Gini for the latter 2 years relative to the earlier ones.

[^5]:    7 The projections are derived from separate estimates of the schooling attainment of men and women 65-69, 70-74, 75-79, and 80 and older. The 2031-2032 forecast for each age group is based on the observed schooling attainment distribution of these same birth cohorts exactly 18 years earlier (that is, in 2013-2014) as well as mortality and net immigration forecasts for each educational attainment group and birth cohort.

