How Gloomy is the Retirement Outlook for Millennials?

Richard W. Johnson

Karen E. Smith

How Gloomy is the Retirement Outlook for Millennials?

Abstract

Social, economic, demographic, and public policy shifts have made Millennial retirement security a pressing concern. Many recent trends threaten financial security for future generations of retirees. Male labor force participation pre-age 55 has slumped, men's median earnings have stagnated, marriage and homeownership rates are falling, debt levels remain high, and out-of-pocket spending on medical and long-term services and supports are rising. Other trends are more encouraging, such as women's higher earnings, the rise in labor force participation at older ages, and improvements in educational attainment. We use a dynamic microsimulation model to project how various forces might play out over the next 30 years to shape the retirement security of US residents born in the 1980s. Our projections show that median age-70 income will be higher for Millennials than previous generations, but this cohort faces a higher risk of seeing falling living standards in retirement.

Keywords

retirement, labor force participation, living standards, financial security

Disciplines

Economics

How Gloomy is the Retirement Outlook for Millennials?

Richard W. Johnson and Karen E. Smith

August 2022

How Gloomy is the Retirement Outlook for Millennials?

<u>Abstract</u>

Social, economic, demographic, and public policy shifts have made Millennial retirement security a pressing concern. Many recent trends threaten financial security for future generations of retirees. Male labor force participation pre-age 55 has slumped, men's median earnings have stagnated, marriage and homeownership rates are falling, debt levels remain high, and out-of-pocket spending on medical and long-term services and supports are rising. Other trends are more encouraging, such as women's higher earnings, the rise in labor force participation at older ages, and improvements in educational attainment. We use a dynamic microsimulation model to project how various forces might play out over the next 30 years to shape the retirement security of US residents born in the 1980s. Our projections show that median age-70 income will be higher for Millennials than previous generations, but this cohort faces a higher risk of seeing falling living standards in retirement.

Richard W. Johnson
Urban Institute
500 L'Enfant Plaza SW
Washington, DC 20024
RJohnson@urban.org

Karen E. Smith
Urban Institute
500 L'Enfant Plaza SW
Washington, DC 20024
ksmith@urban.org

Changes in retirement programs and ongoing economic, social, and health care trends raise worrisome questions about the future financial security of American retirees. The increase in social security's full retirement age will reduce benefits for future retirees, and the system's long-term financing problems could lead to additional benefit cuts within the next few years unless policymakers address the funding shortfall. Private-sector employers have moved away from defined benefit (DB) pensions to defined contribution (DC) retirement plans over the past four decades, shifting much of the responsibility for retirement saving from employers to employees and reducing future retirement income flows for many workers (Morrissey 2016; Munnell 2014). Falling labor supply among middle-aged men (Council of Economic Advisers 2016) and stagnant earnings for lower- and moderate-income men (Mishel 2015) also threaten future retirement security, because social security benefits and the capacity to save for retirement depend on lifetime earnings. Future retirees will need more money than earlier generations, as health care costs and indebtedness rise (Hatfield et al. 2018; Karamcheva 2013), and retirement savings must last longer as retirees' life expectancy grows.

Nevertheless, other economic and demographic trends are more encouraging. Women who retire in coming decades will have worked in paid employment longer and earned more than previous generations (Goldin and Mitchell 2017), thus accumulating more social security benefits and retirement savings under their own names. National average wage increases will boost social security payments for all beneficiaries, even for those with relatively low earnings. Widows are especially likely to be impoverished (Sevak et al. 2003/2004), but the shrinking gender gap in life expectancy (Trovato and Heyen 2006) will reduce future widowhood rates. In addition, people are working longer than previous generations (Johnson and Wang 2017), increasing their lifetime earnings, future social security benefits, and capacity to save for retirement.

Given these conflicting trends, it is not surprising that there is little consensus about how future generations will likely fare in retirement. Some studies warn of a looming retirement crisis, predicting that in coming decades many older adults will live in or near poverty, and a majority will be unable to maintain their preretirement living standards (Munnell et al. 2014; Rhee 2013). Other studies are more sanguine, concluding that most people are saving adequately, and that economic growth will boost future retirement incomes (Biggs and Schieber 2014; Butrica et al. 2012; Scholz et al. 2006).

This study uses a dynamic microsimulation model to assess retirement prospects for future generations, with a special focus on the Millennial generation. We project future incomes to age 70, accounting for working-age outcomes that have already occurred. The analysis compares outcomes for adults born 1980–1989, labeled Early Millennials, with outcomes for earlier cohorts. We project inflation-adjusted per capita family income levels and the share of adults with inadequate income, both measured at age 70. The analysis classifies age-70 income as inadequate if it falls below 25 percent of the annual national average wage, a level we deem necessary to cover basic needs, or if it replaces less than 75 percent of annual preretirement earnings, a commonly-assumed minimum amount needed to maintain preretirement living standards. Conversely, we classify income that equals or exceeds 100 percent of the annual national average wage as adequate, regardless of the replacement rate. Because the share of preretirement earnings needed to ensure that retirees can maintain their preretirement livings standards is uncertain, we also consider two alternative replacement rate thresholds: 60 percent and 90 percent.

Our baseline projections assume that social security will pay all benefits scheduled under current law indefinitely. Yet the program faces a long-term financial shortfall, and social security's trustees project that under current benefit and revenue schedules the social security trust funds will

run out before Early Millennials reach age 70, so that they may receive less than their full scheduled benefits. To capture this possibility, we also model two scenarios that cut future social security benefits.

Our results show that inflation-adjusted age-70 incomes are projected to increase over time, yet the share of retirees with insufficient income to meet basic needs or maintain their preretirement income standards is also projected to grow. We estimate that if scheduled social security payments are fully paid, 38 percent of Early Millennials will have inadequate income at age 70 based on a 75 percent replacement rate adequacy threshold, compared with 28 percent of adults born 1937–1945. Inadequate retirement incomes are projected to be especially common among certain groups of Early Millennials, with more than half of Hispanics and those who did not complete high school projected to have inadequate age-70 income. Retirement security will become even more precarious if policymakers do not increase social security's revenues and instead, implement across-the-board benefit cuts when the program's trust funds run out in the mid-2030s. We project that nearly half (49%) of Early Millennials will have inadequate income at age 70 if policymakers fail to shore up social security's finances.

Trends in Employment, Earnings, Wealth, and Demographic Characteristics

How Millennials fare in retirement will largely hinge on how much they earn over their lifetime, as social security retirement benefits, DB pensions, and employer contributions to retirement plans generally increase with earnings, and people are typically better able to save when they earn more. Lifetime earnings, in turn, depend on how much people work and how much they are compensated each hour.

Labor force participation. Millennial men were less likely to participate in the labor force in their 20s and early 30s compared to previous cohorts (Johnson and Smith forthcoming). At ages 26–30, 89 percent of men born 1986–1990 participated in the labor force, compared with 96 percent in the 1941–1945 cohort. The low participation rates for Millennials may simply reflect the high unemployment rates that existed early in their careers, which discouraged them from looking for work, or they may have been related to their high college attendance rates (which also may have resulted from the poor job market). Millennial men's market participation rates now appear to be catching up to those of earlier recent cohorts; at age 36–40, men born 1981–1985 were just about as likely to participate in the labor force as those born 10 years earlier. However, men born in the early 1970s were less likely to participate in the labor force than earlier cohorts, so the fact that Millennial men are catching up to them may not be particularly encouraging.

A more worrisome trend for future retirement security is the long-term decline in labor supply among men in their 40s and 50s. At ages 41–45, for example, male labor force participation rates fell from 94 percent for the 1941–1945 birth cohort, to 90 percent for the 1971–1975 birth cohort (Johnson and Smith, forthcoming). This decline has been concentrated among men with a high school education or less, perhaps because technological change and increased globalization reduced employer demand for low- and middle-skilled workers (Aaronson et al. 2014; Beaudry et al. 2016; Council of Economic Advisers 2016; Juhn et al. 1991; Juhn and Potter 2006). Rising receipt of social security disability insurance benefits and the opioid epidemic may have also affected the rise in male labor force dropouts (Autor et al. 2016; Autor and Duggan 2003; Bound and Burkhauser 1999; French and Song 2014; Krueger 2017). As average educational attainment has risen over time, those who fail to complete high school are increasingly disadvantaged in employment.

An encouraging sign for retirement security is the recent increase in labor force participation among older men. Men born 1951–1955 were 11 percentage points more likely to participate in the labor force at ages 61–65 than those born 20 years earlier (Johnson and Smith forthcoming). This recent surge reflects higher educational levels among older adults, changes in social security rules that increase work incentives, and erosion in DB pension and retiree health insurance coverage from private-sector employers (Friedberg and Webb 2005; Gustman and Steinmeier 2015; Johnson et al. 2003; Mermin et al. 2007; Song and Manchester 2007).

Working longer can significantly improve the lives of older adults, especially if workers delay social security benefit receipt until they exit the labor force. Extending the work life and delaying retirement benefit take-up can bolster financial security at older ages (Maestas and Zissimopoulos 2010), because adults who work longer can receive higher monthly social security benefits, accumulate more employer-sponsored pensions, save part of their additional earnings, and shrink the period over which their retirement savings must be spread. Working longer may also improve health and happiness at older ages by keeping people physically and mentally active, allowing them to maintain social networks and giving purpose to their lives (Calvo 2006). To date, however, employment gains after age 65 have been concentrated among college graduates (Johnson and Wang 2017). As Coile and Zhang (forthcoming) point out, recent health concerns associated with the COVID-19 pandemic have depressed market participation among older adults more likely than younger workers to experience serious complications if they contract COVID-19. The pandemic appears not to have had long-lasting effects on Millennial workers, however, and the pandemic is likely to have ended long before Millennials reach retirement age.

Millennial women's labor force participation rates have not fallen as far behind the participation rates of previous cohorts, as they did for their male counterparts. At age 26–30,

female participation rates were 73 percent for the 1981–1985 cohort, compared with 76 percent for the 1971–1975 cohort (Johnson and Smith, forthcoming). Although Millennial women's labor force participation rates did fall in the wake of the 2007–2009 Great Recession, the downward pressure created by the weak economy was somewhat offset by the long-term generational increase in women's labor supply. Among women age 31–35, for example, those in the 1981–1985 cohort were more likely to participate in the labor force than women born before 1956. Nevertheless, generational gains in women's labor force participation have slowed over the past two decades (Blau and Kahn 2007). While women's labor supply does tend to dip when women move through their 30s while raising children, over the past two decades there is no evidence that they are more likely to leave the labor force to raise children (Goldin and Mitchell 2017). Women, like men, are also lengthening their careers, working more at older ages than earlier generations (Goldin and Katz 2016).

Earnings. Millennial men have generally earned less than men born 30 or more years earlier, but their earnings so far are roughly comparable to those in recent cohorts (Johnson and Smith, forthcoming). Among men age 25–29 employed full time, median annual earnings for the 1981–1985 birth cohort were 23 percent lower than for the 1941–1945 cohort but only 5 percent lower than for the 1971–1975 cohort. Moreover, as Millennial men moved through their 30s, they closed and even eliminated the earnings gap.

The recent stagnation in median earnings reflects deteriorating labor market prospects for low- and middle-skilled men. Technological advancements, increasing globalization, and declining union membership have enhanced earnings for men in the top quarter of the earnings distribution, even as earnings in the bottom half of the distribution fell or remained flat (Gottschalk and Danziger 2005; Holzer and Hlavac 2012; Kopczuk et al. 2007; Mishel 2015; Rose 2016).

Rising health care costs have also increased the share of compensation going to non-wage benefits, suppressing growth in cash earnings (Burtless and Milusheva 2012).

Millennial women, by contrast, have generally averaged higher earnings than previous cohorts of women employed full time, especially after they entered their 30s (Johnson and Smith, forthcoming). Median inflation-adjusted annual earnings for full-time workers age 30–34 and age 35–39 were higher for the 1981–1985 cohort than for any other cohort over the previous 50 years. For women age 35–39 working full time, median earnings for the 1981–1985 birth cohort were 19 percent higher than for the 1971–1975 cohort, and 59 percent higher than for the 1931–1935 cohort.

Education. Educational trends affect future lifetime earnings because workers with a college education generally earn more than less-educated workers and face less physically demanding working conditions, allowing many to extend their careers. Educational attainment surged for men born in the mid-1940s and then tapered off for men born in the late 1950s and early 1960s (Johnson and Smith, forthcoming). Among men age 31–35, 30 percent of those born 1946–1950 had a four-year college degree, compared with 20 percent of those born 10 years earlier and 25 percent of those born 10 years later. The Vietnam War draft, which many men avoided with an educational deferment, appeared responsible for the surge in college attendance for men in the 1946–1950 birth cohort, who were 20 years old in the late 1960s (Card and Lemieux 2001). For men born 1966–1980, the share with a four-year college degree fluctuated between 30 percent and 32 percent. Nevertheless, the share rose to 37 percent for men born 1981–1985, and 40 percent for those born 1986–1990, who were in their early 20s during and immediately after the Great Recession and likely pursued higher education because employment prospects were bleak (Mordechay 2017). It remains to be seen whether the recent educational surge for men will persist.

Among women, educational attainment has improved steadily over the past five decades. The share of women age 31–35 with a four-year college degree increased from 9 percent for those born 1931–1935, to 21 percent for those born 1946–1950, to 37 percent for those born 1976–1980 (Johnson and Smith, forthcoming). This trend accelerated among Millennials, with 49 percent of women born 1986–1990 having completed college by age 31–35. Since the 1971–1975 birth cohort, women have been more likely than men to hold a four-year college degree. Millennials' high level of educational attainment bodes well for their future earnings and retirement security.

Marriage. Marriage is an important source of retirement security, because it allows spouses to pool resources, insure against risks, and qualify for spouse and survivor benefits from social security (and from employer pensions if they have them). However, the institution of marriage has been eroding for decades for both men and women (Cherlin 2010). For men, each successive cohort has postponed marriage later, and marriage rates for earlier cohorts plateaued in middle age at successively lower levels (Johnson and Smith, forthcoming). At age 51–55, 67 percent of men in the 1961–1965 cohort were married, compared with 78 percent of men born 20 years earlier. Millennial men have continued this trend. At age 36–40, 63 percent of men born 1981–1985 were married, compared with 67 percent of men born 1971–1975, 72 percent of men born 1951–1955, and 89 percent of men 1931–1935.

Marriage patterns are similar for women, who have increasingly delayed marriage over the past four decades, to pursue education or careers (Johnson and Smith, forthcoming). At age 26–30, 39 percent of women born 1981–1985 were married, compared with 81 percent of women born 1941–1945. Yet the share of women who were married in middle age no longer appears to be declining. Women in the 1981–1985 birth cohort were just as likely to be married at age 36–40 as those in the 1971–1975 birth cohort.

Homeownership. Homeownership is an important financial resource in retirement. Retirees can avoid rental payments by owning a home, and homeowners may tap into their housing wealth to supplement their retirement income. Millennials are less likely to own a home than people born between the early 1940s and the mid-1960s. At age 31–35, only 44 percent of people born 1981–1985 owned a home; that rate was about 10 points lower than the rate for people born 1971–1975, 1961–1965, or 1951–1955, and it was 20 points lower than for people born 1941–1945 (Johnson and Smith, forthcoming). At age 36–40, Millennials remained 9 percentage points less likely to own a home than people born 20 years earlier, and 18 percentage points less likely than people born 30 years earlier.

Retirement accounts. The share of household heads and their spouses who hold a retirement account increases with age until it reaches about 66 percent in the mid-40s (Johnson and Smith, forthcoming). Retirement account ownership then declines somewhat after age 60, as people retire and deplete their account holdings.

Retirement account ownership has generally increased with each successive birth cohort, although the pattern is not a smooth one, and growth has slowed recently. At age 33–38, 58 percent of Millennial household heads and their spouses held a retirement account, about the same percentage as for people born in the 1960s and early 1970s (Johnson and Smith, forthcoming). By contrast, those born in the early 1970s were about 5 percentage points less likely to own a retirement account during their 40s than their counterparts born in the late 1940s. This pattern, if it persists, is a worrisome sign for Millennials' retirement security.

Household debt. Household debt has grown significantly over the past quarter-century. The share of household heads and spouses with debt has not changed much in midlife or at younger ages, although it has fallen somewhat over the past two decades for people in their 20s, 30s, and early

40s (Johnson and Smith, forthcoming). Older Americans, however, are now more likely to hold debt than in the past. At age 69–74, 69 percent of people born 1945–1950 held debt, compared with 60 percent of people born 1933–1938.

Debt holdings among people with debt have risen sharply over time. At age 51–56, median per capita outstanding debt for debt holders born 1957–1962 was 51 percent higher than for people born 12 years earlier, and more than three times as high as for people born 24 years earlier (Johnson and Smith, forthcoming). At age 33–38, median per capita debt was more than twice as high for people born 1969–1974 than for people born 1957–1962. Median per capita debt levels for Millennials were about the same as for people born in the early 1970s, well above levels for earlier generations.

Rising housing prices, financial innovations that increased access to credit, demographic shifts, and low and stagnating incomes spurred the rise in household indebtedness (Barba and Pivetti 2009; Dynan and Kohn 2007). Student loan debt has also been growing over time (Brown et al. 2014). The median debt level for debt holders declined between 2007 and 2019, but it remained at much higher levels than in the 1990s. As people enter retirement with more debt, debt service payments could strain their financial wellbeing (Butrica and Karamcheva 2013; Karamcheva 2013).

Household net worth. In each generation, household net worth (the value of household assets minus outstanding debt) grows rapidly over the life course. For people born 1957–1962, median per capita household net worth increased from $23,600 in inflation-adjusted 2021 dollars at age 27–32, to $187,900 at age 57–62 (Johnson and Smith, forthcoming). For people born in the 1940s, 1950s, and 1960s, household net worth increased with each successive generation. At ages 45 to

50, for example, median per capita household net worth was 55 percent higher for people born in the early 1960s than for those born 15 years earlier.

By contrast, household net worth has stagnated for those born in the 1970s and 1980s. For people born in the early 1970s, median per capita household net worth has been somewhat below the level at the same age for people born 10 years earlier (Johnson and Smith, forthcoming). At age 33–38, median net worth for Millennials roughly equaled that for people born in the early 1960s. Sabelhaus and Volz (forthcoming) also note that household wealth has become more unequal over time. For people born in the 1960s and 1970s, wealth in the bottom of the distribution has declined relative to earlier cohorts.

Data and Methods

To assess retirement prospects for people born in the 1980s, we compare projections of retirement incomes for different birth cohorts generated by our dynamic microsimulation model. The analysis generates outcomes at the individual level, and we report all financial values in constant 2021 dollars, adjusted by the change in the consumer price index. To do so, we use the Urban Institute's Dynamic Simulation of Income Model (DYNASIM4), a dynamic microsimulation model designed to analyze the long-run distributional consequences of retirement and aging issues. The model starts with a representative sample of individuals and families from the 2004 and 2008 Surveys of Income and Program Participation (SIPP) and ages them year by year, simulating key demographic, economic, and health events. For example, DYNASIM4 projects that, each year, some people in the sample get married, have a child, or find a job. The model projects that other people become divorced or widowed, stop working, begin collecting social security, become disabled, or die. These transitions are based on probabilities generated by

carefully calibrated equations estimated from nationally representative household survey data. The equations account for differences by sex, education, earnings, and other characteristics in the likelihood of various experiences.

Other equations in DYNASIM4 project annual earnings, savings, and home values. The model uses program rules—combined with projections of lifetime earnings, disability status, and household income and wealth—to project social security retirement and disability benefits and Medicaid coverage. For consistency with social security's projections about system finances, we generally use the same assumptions as the social security and Medicare trustees.[1]

Using DYNASIM4, we project outcomes for six birth cohorts: 1937–1945 (Pre-Boomers), 1946–1954 (Early Boomers), 1955–1964 (Late Boomers), 1965–1972 (Early Gen Xers), 1973–1979 (Late Gen Xers), and 1980–1989 (Early Millennials). The analysis compares inflation-adjusted per capita family income levels and the share of adults with inadequate income, both measured as of age 70. We focus age 70 because most people have stopped working by then. Our income measure includes social security payments, earnings, DB pension benefits, Supplemental Security Income (SSI), and other government cash benefits, plus the income stream that retirees would receive if they annuitized 80 percent of their retirement accounts and other financial assets under actuarially fair terms. Excluding the annuitized value of financial assets from our income measure would understate the financial resources available to later generations of retirees, because many employers have shifted from offering workers DB pensions that provide a steady income stream to offering DC retirement plans whose balances are rarely annuitized (Lockwood 2012; Smith et al. 2009). We divide family income by two for married adults to create a per capita measure.

As noted above, we classify age-70 income as inadequate if it is less than 25 percent of the annual national average wage, or if it replaces less than 75 percent of annual preretirement earnings received from age 50–59, a commonly assumed minimum amount needed to maintain preretirement living standards (T. Rowe Price 2019). The replacement rate needed to maintain preretirement living standards is deemed less than 100 percent because retirees do not generally pay payroll taxes or save for retirement, and expenses usually fall after children leave the home. Of course how much income retirees actually need is uncertain, and low-income people who do not save much for retirement or pay much in taxes when they are working may need more than 75 percent of their preretirement earnings to maintain their living standards (Benz 2010). To test the sensitivity of our adequacy estimates to our replacement rate threshold, we also consider two alternative replacement rates: 60 percent and 90 percent.

Social security's long-term financing gap complicates our income projections. The social security trustees' 2022 intermediate projections indicate that the program will be able to finance full benefits under existing revenue forecasts only until 2035 (Social Security Trustees 2022), 15 years before the oldest Millennials reach age 70. Unless the system receives additional revenue, the Trustees project that the program will be able to pay only about 75 percent of scheduled benefits in later years. Our analysis considers three scenarios about future social security payments. We focus first on the *scheduled benefits* scenario, which assumes policymakers will replenish the program's revenue so that retirees receive the full payments provided under the existing benefit formula. Next, because policymakers' response to social security's financial problems is uncertain, we also consider two alternative scenarios. The *payable benefits* scenario assumes that the program receives no additional financing, and benefits are cut across the board to close the financing gap once social security's trust fund is depleted. The *balanced benefits* scenario assumes that Congress

implements a balanced reform that closes half the financing shortfall through benefit cuts and half through revenue increases.[2]

Results

The model projects that per capita family income at age 70 will increase over time (see Table 1). Average age-70 income is projected to reach $80,300 for Early Millennials in 2021 inflation-adjusted dollars, 35 percent higher than the $59,400 average for Pre-Boomers and 23 percent higher than the $65,400 for Late Boomers. While overall incomes rise, there is also much heterogeneity. For Early Millennials, projected age-70 income ranges from $16,200 at the 10th percentile and $28,100 at the 25th percentile to $90,100 at the 75th percentile and $154,700 at the 90th percentile.

Table 1 here

Income sources. The projected composition of age-70 income varies across income levels (see Table 2). Social security accounts for about three-quarters of total income in the bottom income quintile and about one-half of income in the middle income quintile. In the top income quintile, however, it accounts for less than one-fifth of income. For Early Millennials, after claiming social security, income from assets and labor earnings are the most important income sources for older adults in the bottom and middle income quintiles. In the top income quintile, labor earnings account for more income than any other source, followed closely by income from assets. Social security is the third most important income source in the top income quintile.

Table 2 here

Our model also projects that mean age-70 income will grow somewhat more rapidly for higher-income people than for lower-income people. Over the roughly 45 years that separate the Pre-Boomers and the Early Millennials, projected mean income will rise 26 percent in the bottom

income quintile, 31 percent in the middle income quintile, and 39 percent in the top income quintile. Growth differences are starker when we consider income levels, with mean income rising $3,000 in the bottom income quintile and $62,300 in the top quintile.

Income sources are also shifting. The importance of labor earnings at older ages is projected to rise, especially for older adults near the top of the income distribution, while the importance of DB pensions falls. SSI benefits also decline, with participation rates falling because the program does not index eligibility thresholds for income growth or inflation (Favreault 2021). We project that SSI accounts for 9 percent of income for Pre-Boomers in the bottom income quintile, compared with only 3 percent for Early Millennials.

Income differences by demographic characteristics. Age-70 projected incomes are also rising for men, non-Hispanic white adults, married adults, and people with a college education, more than for women, people of color, single adults, and people who did not attend college (see Table 3). Yet many of these projected differentials are likely to narrow over the coming decades, as retirement incomes grow rapidly for people of color and women, reflecting lifetime earnings gains for these groups. Comparing Pre-Boomers and Early Millennials, we project that median age-70 income will increase 97 percent for Hispanic adults and 63 percent for Black adults, but only 33 percent for white adults. Consequently, the median income advantage for non-Hispanic white adults relative to Hispanic adults will fall from 175 percent among Pre-Boomers to 87 percent for Early Millennials, and the advantage for non-Hispanic white adults relative to Black adults will fall from 78 percent to 46 percent. We project that median age-70 income for women will be 40 percent higher among Early Millennials than Pre-Boomers, whereas median income for men will be only 23 percent higher among Early Millennials. Anticipated strong income growth for women

will shrink men's income advantage from 22 percent among Pre-Boomers to only 8 percent among Early Millennials.

Table 3 here

Nevertheless, projected age-70 income differentials by lifetime earnings will also grow over time. For people in the top quintile of the lifetime earnings distribution, median age-70 income will be 51 percent higher among Early Millennials than Pre-Boomers. Median age-70 income across the six generations will grow only 22 percent for people in the middle lifetime earnings quintile and only 31 percent for people in the bottom lifetime earnings quintile. This differential largely reflects ongoing growth in earnings inequality, as earnings increase more rapidly near the top of the earnings distribution than in the middle or near the bottom (Piketty and Saez 2003).

Income adequacy at older ages. the anticipated rise in age-70 income over time, the share of older adults unable to cover basic needs or maintain their preretirement living standards is also projected to grow. Defining inadequate income at age 70 as income that falls below 25 percent of the annual national average wage or that falls below 75 percent of average annual earnings received at age 50–59 (unless age-70 income equals or exceeds the annual national average wage), we project that age-70 income will be inadequate for 38 percent of Early Millennials, versus 28 percent of Pre-Boomers and Early Boomers, and 30 percent of Late Boomers (see Table 4). These estimates assume that social security continues to pay full scheduled benefits after the program's trust fund runs out in 2035 (Social Security Trustees 2022), before Early Gen Xers, Late Gen Xers, and Early Millennials reach age 70. Therefore the projected share of older adults with inadequate income increases over time, as retirement incomes will grow more slowly than labor market earnings.

Table 4 here

Inadequate retirement income is especially prevalent for people of color, people who did not attend college, people who never marry, and people with limited lifetime earnings. We project that, among Early Millennials, 53 percent of Hispanic adults, 42 percent of Black adults, 66 percent of people who did not complete high school, 45 percent of people with no more than a high school diploma, and 50 percent of people who never marry, will have inadequate income to meet basic needs at age 70 or maintain their preretirement living standards. Additionally, 64 percent of people in the bottom quintile of the lifetime earnings distribution are projected to have inadequate income at age 70. Even relatively privileged groups face a meaningful financial risk at older ages. We project that 28 percent of Early Millennials with a four-year college degree and 23 percent of those in the top quintile of the lifetime earnings distribution will lack an adequate income at age 70.

Although we project that financial security in retirement will deteriorate for nearly all demographic groups, certain Early Millennial groups will not face much more financial risk compared to their Pre-Boomer counterparts. Thus the projected share of Early Millennials receiving inadequate income at age 70 is only 7 percentage points higher among Black adults and a few percentage points lower among Hispanic adults and other nonwhite adults. The share with inadequate income is forecasted to rise only 4 percentage points for widowed adults, 7 percentage points for divorced adults, and 6 percentage points for adults in the top quintile of the lifetime earnings distribution.

Impact of social security's financing gap. Thus far, the retirement income projections assume that policymakers will find the additional revenues to pay social security scheduled benefits. Next we examine both the *payable* scenario, which assumes across-the-board benefit cuts when the trust

funds run out, and the *balanced* scenario which splits the difference between cutting benefits and raising payroll taxes.

Under these assumptions, the projected share of Early Millennials with insufficient income at age 70 to meet basic needs or maintain their preretirement living standards will increase to 43 percent under the balanced scenario and 49 percent under the payable scenario (see Table 5). Under the payable scenario, 53 percent of Black adults in the Early Millennial cohort, 62 percent of Hispanic adults, 75 percent of adults who did not complete high school, 57 percent of adults with only a high school diploma, and 74 percent of adults in the bottom quintile of the lifetime earnings distribution will receive inadequate retirement income.

Table 5 here

Sensitivity to the definition of adequate income. Our projections of income adequacy also depend on the share of earnings that retirees are assumed to need to maintain their preretirement living standards. Thus far, we have assumed a replacement rate of 75 percent. Yet when the replacement rate is cut to 60 percent, the projected share of Early Millennials with inadequate retirement income falls from 38 percent to 29 percent (see Table 6). When we increase the required replacement rate to 90 percent, the share with inadequate income rises to 46 percent. Under all of these replacement rate assumptions, the projected share of financially insecure retirees is substantially higher for the Early Millennial cohort than for the Pre-Boomer cohort.

Table 6 here

Although the projected share of adults with inadequate retirement income at age 70 is sensitive to the replacement rate assumption, the replacement rate has little impact on projected income adequacy for adults near the top and bottom of the lifetime earnings distribution. Increasing the replacement rate threshold from 60 percent to 90 percent changes the share of Early Millennials

in the bottom quintile of the lifetime earnings distribution projected to have inadequate retirement income by only 2 percentage points, and the share in the top lifetime earnings quintiles with inadequate income increases only 8 percentage points. Many people with limited lifetime earnings are projected to have inadequate retirement income because their annual income falls below 25 percent of the annual national average wage, not because their projected replacement rate is too low. Many people with substantial lifetime earnings are projected to have adequate income because their income equals or exceeds 100 percent of the annual national average wage, not because they can replace a substantial portion of their preretirement earnings.

Conclusions

Our analysis combine data from multiple high-quality sources to project how various trends in demographics, employment, earnings, savings, and other factors might play out over the next 40 years to shape future retirement incomes.

Projections show that median age-70 income will be higher for Early Millennials than previous generations, but this group still faces a higher risk of lacking sufficient retirement income to meet basic needs or maintain preretirement living standards. Classifying age-70 income as inadequate if it falls below 25 percent of the annual national average wage or if it replaces less than 75 percent of annual preretirement earnings (unless it equals or exceeds 100 percent of the annual national average wage), we project that 38 percent of Early Millennials will have inadequate age-70 income, compared with 28 percent of Pre-Boomers (born 1937–1945) and 30 percent of Late Boomers (born 1955–1964). Retirement security is projected to be especially precarious for Early Millennials of color, those with little education and limited lifetime earnings, and those who are not married.

These projections assume that social security will pay scheduled social security benefits . Yet because social security faces a long-term financing shortfall, benefits may be cut by one quarter, in which case we project that 48 percent of Early Millennials will have inadequate income at age 70.

Retirement is still more than two decades away for Americans born in the 1980s, and their old age financial security will hinge on several factors that have yet to play out. The future course of stock market returns, interest rates, housing prices, and inflation will affect future retirement incomes. How long people work, which depends partly on how health trajectories evolve, will surely help determine financial security for future retirees. How rapidly future wages grow will also shape future retirement security. Wage growth will depend on labor productivity which will likely continue to rise, although perhaps more slowly than in the past (Fernald 2016; Gordon 2014). Another consideration is that the relationship between wage growth and labor productivity growth has been weakening over time, reducing the share of the nation's output that goes to labor. In the past decade, productivity in the non-farm-business sector increased 12.3 percent, while real labor compensation grew only 5.1 percent (Solow 2015). Declining unionization, the shift from labor to capital, and rising employer health care costs may explain why wages have not been keeping pace with productivity growth (Ginsburg 2014; Karabarbounis and Neiman 2013).

Rising out-of-pocket spending on health care and long-term services and supports pose an additional threat to future retirees' financial security. Although Medicare covers nearly all older adults, out-of-pocket spending on Medicare premiums, premiums for supplemental private insurance, copays, and uncovered services can be financially burdensome. Hatfield et al. (2018) projected that the median share of income that adults age 65+ medical care spending will grow from 10 to 14 percent between 2012 and 2030. Fronstin and VanDerhei (2017) estimated that a

65-year-old man would require $127,000 in savings to be 90 percent certain of covering all future medical expenses, and a 65-year-old woman would need $143,000 (exclusive of long term care costs). Spending on long-term services and supports, which include nursing home care, residential care, and home care, can be even more burdensome for families because relatively few people have private long-term care insurance, Medicare does not usually cover them, and Medicaid pays only for people who have already depleted virtually all their wealth. Favreault and Dey (2015) projected that people turning 65 today would need $36,000 by age 65 to cover expected lifetime out-of-pocket costs for intensive long-term services and supports, and about 1 in 10 will need to set aside more than $100,000. Our projection model, DYNASIM4, now projects out-of-pocket and third-party spending on medical care and long-term services and supports, and future analyses will incorporate these estimates into our studies of retirement income adequacy.

References

Aaronson, S., T. Cajner, B. Fallick, F. Galbis-Reig, C. Smith, and W. Wascher. (2014). 'Labor Force Participation: Recent Developments and Future Prospects.' *Brookings Papers on Economic Activity,* Fall 2014: 197–275.

Autor, D. H., and M. H. Duggan (2003). 'The Rise in the Disability Rolls and the Decline in Unemployment.' *Quarterly Journal of Economics,* 118(1): 157–206.

Autor, D. H., M. Duggan, K. Greenberg, and D. S. Lyle (2016). 'The Impact of Disability Benefits on Labor Supply: Evidence from the VA's Disability Compensation Program.' *American Economic Journal: Applied Economics,* 8(3): 31–68.

Barba, A. and M. Pivetti (2009). 'Rising Household Debt: Its Causes and Macroeconomic Implications—A Long-Period Analysis.' *Cambridge Journal of Economics,* 33 (1): 113–137.

Beaudry, P., D. A. Green, and B. M. Sand (2016). 'The Great Reversal in the Demand for Skill and Cognitive Tasks.' *Journal of Labor Economics,* 34(1): s199–s247.

Benz, C. (2010). 'Digging Into the 80% Rule for Income Replacement in Retirement.' *Morningstar,* (updated June 1, 2010). https://www.morningstar.com/articles/334233/beyond-the-80-rule.

Biggs, A. G. and S. Schieber (2014). 'Is There a Retirement Crisis?' *National Affairs,* 20 (Summer).

Bipartisan Policy Center (2016). *Securing Our Financial Future: Report of the Commission on Retirement Security and Personal Savings*. Washington DC: Bipartisan Policy Center. https://bipartisanpolicy.org/report/retirement-security/.

Blau, F. D. and L. M. Kahn (2007). 'Changes in the Labor Supply Behavior of Married Women: 1980–2000.' *Journal of Labor Economics,* 25(3): 393–438.

Bound, J. and R. V. Burkhauser (1999). 'Economic Analysis of Transfer Programs Targeted on People with Disabilities.' In O.C. Ashenfelter and D. Card, eds., *Handbook of Labor Economics*, Volume 3. Amsterdam: Elsevier, pp. 3417–3528.

Brown, M., A. Haughwout, D. Lee, J. Scally, and W. van der Klaauw (2014). 'Measuring Student Debt and Its Performance.' *Federal Reserve Bank of New York Staff Report No. 668*. New York: Federal Reserve Bank of New York. https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr668.pdf.

Burtless, G. and S. Milusheva (2012). *Effects of Employer Health Costs on the Trend and Distribution of Social-Security-Taxable Wages*. Washington, DC: Brookings Institution. https://www.brookings.edu/wp-content/uploads/2016/06/0509_health_wages_burtless.pdf.

Butrica, B. A. and N. S. Karamcheva (2013). 'Does Household Debt Influence the Labor Supply and Benefit Claiming Decisions of Older Americans?' CRR WP 2013-22. Chestnut Hill, MA: Center for Retirement Research at Boston College. http://crr.bc.edu/wp-content/uploads/2013/12/wp_2013-221.pdf.

Butrica, B. A., K. E. Smith, and H. M. Iams (2012). 'This Is Not Your Parents' Retirement: Comparing Retirement Income Across Generations.' *Social Security Bulletin,* 72(1): 37–58.

Calvo, E. (2006). 'Does Working Longer Make People Healthier and Happier?' *An Issue in Brief 2*. Chestnut Hill, MA: Center for Retirement Research at Boston College.

Card, D. and T. Lemieux (2001). 'Going to College to Avoid the Draft: The Unintended Legacy of the Vietnam War.' *American Economic Review: Papers and Proceedings,* 91(2): 97–102.

Cherlin, A. J. (2010). 'Demographic Trends in the United States: A Review of the Research in the 2000s.' *Journal of Marriage and Family,* 72(3): 403–19.

Coile, C. and H. Zhang (forthcoming). 'Recessions and Retirement: New Evidence from the COVID-19 Pandemic.' In O. S. Mitchell, J. Sabelhaus, and S. Utkus, eds., *Real-World Shocks and Retirement System Resiliency.* Oxford, UK: Oxford University Press.

Council of Economic Advisers (2016). *The Long-Term Decline in Prime-Age Male Labor Force Participation.* Washington, DC: Executive Office of the President of the United States.

Dynan, K. E. and D. L. Kohn (2007). 'The Rise in U.S. Household Indebtedness: Causes and Consequence.' In C. Kent and J. Lawson, eds., *The Structure and Resilience of the Financial System.* Sydney, Australia: Pegasus Print Group, pp. 84–113.

Favreault, M. M. (2021). *Supplemental Security Income: Continuity and Change since 1974.* Washington, DC: AARP.

Favreault, M. M. and J. G. Dey (2015). 'Long-Term Services and Supports for Older Americans: Risks and Financing.' *ASPE Issue Brief.* Washington, DC: US Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. https://aspe.hhs.gov/system/files/pdf/106211/ElderLTCrb-rev.pdf.

Favreault, M. M., K. E. Smith, and R.W. Johnson (2015). 'The Dynamic Simulation of Income Model (DYNASIM): An Overview.' Washington, DC: Urban Institute. http://www.urban.org/research/publication/dynamic-simulation-income-model-dynasim-overview.

Fernald, J. G. (2016). 'Reassessing Longer-Run U.S. Growth: How Low?' Working Paper Series 2016–18. San Francisco, CA: Federal Reserve Bank of San Francisco. https://ideas.repec.org/p/fip/fedfwp/2016-18.html.

French, E. and J. Song (2014). 'The Effect of Disability Insurance Receipt on Labor Supply.' *American Economic Journal: Economic Policy,* 6(2): 291–337.

Friedberg, L. and A. Webb (2005). 'Retirement and the Evolution of Pension Structure.' *Journal of Human Resources,* 40(2): 281–308.

Fronstin, P. and J. VanDerhei. (2017). 'Savings Medicare Beneficiaries Need for Health Expenses: Some Couples Could Need as Much as $350,000.' *EBRI Notes,* 38(1): 1–12. https://www.ebri.org/pdf/notespdf/EBRI_Notes_Hlth-Svgs.v38no1_31Jan17.pdf.

Ginsburg, P. B. (2014). 'Alternative Health Spending Scenarios: Implications for Employers and Working Households.' *Health Policy Issue Brief*. Washington, DC: The Brookings Institution. https://www.brookings.edu/research/health-policy-issue-brief-health-spending-implications-for-employers-and-working-households/.

Goldin, C. and L.F. Katz (2016). 'Women Working Longer: Facts and Some Explanations.' NBER Working Paper 22607. Cambridge, MA: National Bureau of Economic Research.

Goldin, C. and J. Mitchell (2017). 'The New Life Cycle of Women's Employment: Disappearing Humps, Sagging Middles, Expanding Tops.' *Journal of Economic Perspectives,* 31(1): 161–82.

Gordon, R. J. (2014). 'The Demise of U.S. Economic Growth: Restatement, Rebuttal, and Reflections.' NBER Working Paper 19895. Cambridge, MA: National Bureau of Economic Research.

Gottschalk, P. and S. Danziger (2005). 'Inequality of Wage Rates, Earnings, and Family Income in the United States, 1975–2002.' *Review of Income and Wealth,* 51(2): 231–54.

Gustman, A. and T. Steinmeier (2015). 'Effects of Social Security Policies on Benefit Claiming, Retirement and Saving.' *Journal of Public Economics,* 129:51–62.

Hatfield, L., M. M. Favreault, T. G. McGuire, and M. E. Chernew (2018). 'Modeling Health Care Spending Growth of Older Adults.' *Health Services Research,* 53(1): 138–55.

Holzer, H. J. and M. Hlavac (2012). 'A Very Uneven Road: U.S. Labor Markets in the Past 30 Years.' New York, NY: Russell Sage Foundation. https://s4.ad.brown.edu/Projects/Diversity/Data/Report/report03082012.pdf.

Johnson, R. W., A. J. Davidoff, and K. Perese (2003). 'Health Insurance Costs and Early Retirement Decisions.' *Industrial and Labor Relations Review,* 56(4): 716–729.

Johnson, R. W. and K. E. Smith (forthcoming). *How Might Millennials Fare in Retirement?* Washington, DC: Urban Institute.

Johnson, R. W. and C.X. Wang (2017). *Educational Differences in Employment at Older Ages.* Washington, DC: Urban Institute. http://www.urban.org/research/publication/educational-differences-employment-older-ages.

Juhn, C., K. M. Murphy, R. H. Topel, J. L. Yellen, and M. N. Baily (1991). 'Why Has the Natural Rate of Unemployment Increased over Time?' *Brookings Papers on Economic Activity,* 22(2): 75–142.

Juhn, C. and S. Potter (2006). 'Changes in Labor Force Participation in the United States.' *Journal of Economic Perspectives,* 20(3): 27–46.

Karabarbounis, L. and B. Neiman (2013). 'The Global Decline of the Labor Share.' NBER Working Paper 19136. Cambridge, MA: National Bureau of Economic Research.

Karamcheva, N. (2013). 'Is Household Debt Growing for Older Americans?' Washington, DC: Urban Institute. http://www.urban.org/research/publication/household-debt-growing-older-americans.

Kopczuk, W., E. Saez, and J. Song (2007). 'Uncovering the American Dream: Inequality and Mobility in Social Security Earnings Data since 1937.' NBER Working Paper 13345. Cambridge, MA: National Bureau of Economic Research.

Krueger, A.B. (2017). 'Where Have All the Workers Gone? An Inquiry into the Decline of the U.S. Labor Force Participation Rate.' *Brookings Papers on Economic Activity* conference draft, September 7–8. https://www.brookings.edu/wp-content/uploads/2017/09/1_krueger.pdf.

Lockwood, L.M. (2012). 'Bequest Motives and the Annuity Puzzle.' *Review of Economic Dynamics,* 15(2): 226–43.

Maestas, N. and J. Zissimopoulos (2010). 'How Longer Work Lives Ease the Crunch of Population Aging.' *Journal of Economic Perspectives,* 24(1): 139–60.

Mermin, G. B. T., R. W. Johnson, and D. Murphy (2007). 'Why Do Boomers Plan to Work Longer?' *Journal of Gerontology: Social Sciences,* 62B(5): S286–94.

Mishel, L. (2015). *Causes of Wage Stagnation*. Washington, DC: Economic Policy Institute. http://www.epi.org/publication/causes-of-wage-stagnation/.

Mordechay, K. (2017). 'The Effects of the Great Recession on Educational Attainment: Evidence from a Large Urban High School District.' *Urban Review,* 49(1): 47–71.

Morrissey, M. (2016). *The State of American Retirement: How 401(k)s Have Failed Most American Workers.* Washington, DC: Economic Policy Institute. http://www.epi.org/publication/retirement-in-america/.

Munnell, A. H. (2014). '401(k)/IRA Holdings in 2013: An Update from the SCF.' *Issue in Brief series Number 14-15*. Chestnut Hill, MA: Center for Retirement Research at Boston College. http://crr.bc.edu/wp-content/uploads/2014/09/IB_14-151.pdf.

Munnell, A. H., W. Hou, and A. Webb (2014). 'NRRI Update Shows Half Still Falling Short.' *Issue in Brief series 14-20*. Chestnut Hill, MA: Center for Retirement Research at Boston College. http://crr.bc.edu/briefs/nrri-update-shows-half-still-falling-short/.

Piketty, T. and E. Saez (2003). 'Income Inequality in the United States, 1913-1998.' *Quarterly Journal of Economics,* 113(1): 1–39.

Rhee, N. (2013). *The Retirement Savings Crisis: Is It Worse than We Think?* Washington, DC: National Institute on Retirement Security. https://www.nirsonline.org/reports/the-retirement-savings-crisis-is-it-worse-than-we-think/.

Rose, S. (2016). *The Growing Size and Incomes of the Upper Middle Class*. Washington, DC: Urban Institute. https://www.urban.org/research/publication/growing-size-and-incomes-upper-middle-class.

Sabelhaus, J. and A. H. Volz (forthcoming). 'Wealth Inequality and Retirement Preparedness: A Cross-Cohort Perspective.' In O. S. Mitchell, J. Sabelhaus, and S. Utkus, eds., *Real-World Shocks and Retirement System Resiliency.* Oxford, UK: Oxford University Press.

Scholz, J. K., A. Seshadri, and S. Khitatrakun (2006). 'Are Americans Saving 'Optimally' for Retirement?' *Journal of Political Economy,* 114(4): 607–43.

Sevak, P., D. R. Weir, and R. J. Willis (2003/2004). 'The Economic Consequences of a Husband's Death: Evidence from the HRS and AHEAD.' *Social Security Bulletin,* 65(3): 31–44.

Smith, K. E., M. Soto, and R. G. Penner (2009). *How Seniors Change Their Asset Holdings during Retirement*. Washington, DC: Urban Institute. https://www.urban.org/research/publication/how-seniors-change-their-asset-holdings-during-retirement.

Social Security Trustees. (2022). *The 2022 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*. Washington, DC: Social Security Trustees.

Solow, R. (2015). 'The Future of Work: Why Wages Aren't Keeping Up.' Santa Barbara, CA: Pacific Standard. https://psmag.com/the-future-of-work-why-wages-aren-t-keeping-up-6fcfac468e4.

Song, J. G. and J. Manchester (2007). 'New Evidence on Earnings and Benefit Claims Following Changes in the Retirement Earnings Test in 2000.' *Journal of Public Economics,* 91(3-4): 669–700.

T. Rowe Price. (2019). 'Income Replacement in Retirement.' *Retirement Perspectives*, May 2019, https://www.troweprice.com/financial-intermediary/us/en/insights/articles/2018/q2/income-replacement-inretirement.html.

Trovato, F. and N. B. Heyen. (2006). 'A Varied Pattern of Change of the Sex Differential in Survival in the G7 Countries.' *Journal of Biosocial Science,* 38(3): 391–401.

Urban Institute. (2015). 'DYNASIM: Projecting Older Americans' Future Well-Being.' Washington, DC: Urban Institute. http://www.urban.org/research/publication/dynasim-projecting-older-americans-future-well-being.

Endnotes

[1] For more information about DYNASIM4 and an earlier version of the model, see Urban Institute (2015) and Favreault et al. (2015).

[2] We model the balanced benefit scenario after a social security reform proposal developed by the Bipartisan Policy Center's Commission on Retirement Security and Personal Savings (Bipartisan Policy Center 2016). That proposal would increase social security revenues by increasing the payroll tax rate, raising the maximum taxable earnings level, and increasing taxes on benefits for higher-income beneficiaries, and it would cut benefits by indexing the retirement age to longevity, capping the spousal benefit, reducing cost-of-living adjustments, and cutting benefits for higher income beneficiaries. The proposal would also increase payments to lower-income beneficiaries by establishing a basic minimum benefit and enhancing survivor benefits. The commission projected that social security would attain long-range solvency if the proposal had been implemented in 2016, but not if implemented later. We revised the proposal to include more revenue for social security and additional benefit cuts so that it would achieve long-range solvency if implemented in 2023.

Table 1. Projected mean and distribution of per capita annual family income at age 70 by birth cohort ($)

Percentile of distribution	Pre-Boomers	Early Boomers	Late Boomers	Early Gen Xers	Late Gen Xers	Early Millennials
Mean	59,400	61,800	65,400	71,700	73,500	80,300
Percentile of the distribution						
10th	12,000	13,200	13,300	14,000	14,400	16,200
25th	20,800	23,200	22,800	23,900	25,100	28,100
50th (median)	38,800	42,400	42,100	43,500	45,600	50,700
75th	70,100	76,500	77,300	81,100	84,600	90,100
90th	116,500	126,600	132,800	138,000	149,400	154,700

Notes: Estimates are rounded to the nearest $100 and expressed in 2021 inflation-adjusted dollars. The analysis assumes that scheduled social security benefits are paid in full. The income measure includes social security, earnings, DB pensions, SSI, other government cash benefits, and the annual income from an actuarially fair annuity valued at 80 percent of financial assets, including retirement accounts. The analysis divides total family income by two for married adults.

Source: Authors' calculations using DYNASIM4 runid999.

Table 2. Projected annual per capita family income at age 70 by birth cohort, income source, and income quintile

	Pre-Boomers		Early Millennials		Change	
	Mean ($)	% of Total	Mean ($)	% of Total	Mean ($)	%
Bottom Quintile						
Social Security	8,700	75	10,900	75	2,200	25
Labor Market	400	3	900	6	500	125
Assets	700	6	1,900	13	1,200	171
DB Pension	500	4	200	1	-300	-60
SSI	1,100	9	400	3	-700	-64
Other income	200	2	300	2	100	50
Total	11,600	100	14,600	100	3,000	26
Middle quintile						
Social Security	17,400	45	27,100	53	9,700	56
Labor Market	4,400	11	7,100	14	2,700	61
Assets	7,700	20	12,200	24	4,500	58
DB Pension	7,900	20	2,100	4	-5,800	-73
SSI	0	0	0	0	0	na
Other income	1,200	3	2,300	5	1,100	92
Total	38,800	100	50,800	100	12,000	31
Top quintile						
Social Security	20,400	13	37,000	17	16,600	81
Labor Market	37,300	23	82,100	37	44,800	120
Assets	61,800	39	73,200	33	11,400	18
DB Pension	28,100	18	11,200	5	-16,900	-60
SSI	0	0	0	0	0	na
Other income	12,000	8	18,400	8	6,400	53
Total	159,500	100	221,800	100	62,300	39

Notes: Estimates are rounded to the nearest $100 and expressed in 2021 inflation-adjusted dollars. The analysis assumes that scheduled social security benefits are paid in full. See the notes to Table 1 for details on the income measure.

Source: Authors' calculations using DYNASIM4 runid999.

Table 3. Projected median annual per capita family income at age 70 by birth cohort and personal characteristics ($)

	Pre-Boomers	Early Boomers	Late Boomers	Early Gen Xers	Late Gen Xers	Early Millennials
All	38,800	42,400	42,100	43,500	45,600	50,700
Gender						
Men	42,900	45,000	45,000	46,600	46,800	52,700
Women	35,100	40,500	39,900	41,200	44,500	49,000
Race and ethnicity						
Non-Hispanic white	44,900	49,000	49,400	53,800	55,300	59,900
Non-Hispanic Black	25,200	29,700	29,900	34,100	33,800	41,000
Hispanic	16,300	19,700	21,500	22,100	25,000	32,100
Other	31,000	33,300	39,300	47,200	60,000	59,900
Education						
No high school diploma	17,600	16,600	16,200	15,300	15,100	17,600
High school diploma	32,200	31,600	30,500	29,700	30,400	34,300
Some college	45,600	42,800	44,500	44,000	45,800	47,500
Four-year college degree or more	74,700	74,700	81,000	80,900	82,500	79,900
Marital Status						
Married	43,000	47,500	48,800	50,200	52,900	56,600
Widowed	27,900	35,400	35,800	35,400	39,800	47,700
Divorced	33,200	35,100	34,500	37,400	38,200	45,500
Never married	25,700	31,000	27,700	27,200	28,500	37,000
Quintile of lifetime earnings						
Bottom	13,400	14,700	14,400	14,900	15,500	17,600
Second	25,200	28,500	27,100	27,400	28,600	33,200
Third	40,500	42,700	40,900	42,300	43,200	49,600
Fourth	53,800	61,900	61,700	65,300	68,200	73,300
Top	86,900	98,200	110,000	113,400	127,500	131,400

Notes: Estimates are rounded to the nearest $100 and expressed in 2021 inflation-adjusted dollars. The analysis assumes that scheduled social security benefits are paid in full. The income measure includes social security, earnings, DB pensions, SSI, other government cash benefits, and the annual income from an actuarially fair annuity valued at 80 percent of financial assets, including retirement accounts. The analysis divides total family income by two for married adults. The lifetime earnings measure includes annual earnings of spouses in year when married, and only one earnings in years when single.

Source: Authors' calculations using DYNASIM4 runid999.

Table 4. Projected percentage of adults with inadequate income at age 70 by birth cohort and personal characteristics

	Pre-Boomers	Early Boomers	Late Boomers	Early Gen Xers	Late Gen Xers	Early Millennials
All	28	28	30	35	39	38
Gender						
Men	29	28	29	33	38	38
Women	27	28	31	37	40	39
Race and ethnicity						
Non-Hispanic white	23	23	25	29	32	33
Non-Hispanic Black	35	35	37	39	45	42
Hispanic	54	50	48	54	56	53
Other	37	37	35	35	33	34
Education						
No high school diploma	49	54	54	64	70	66
High school diploma	31	31	35	42	46	45
Some college	23	27	27	32	36	38
Four-year college degree or more	14	17	19	22	26	28
Marital Status						
Married	26	25	27	32	35	35
Widowed	29	26	28	32	34	33
Divorced	33	33	35	38	40	40
Never married	39	41	43	51	55	50
Quintile of lifetime earnings						
Bottom	50	53	61	65	67	64
Second	24	25	28	34	37	35
Third	23	25	25	32	36	35
Fourth	25	22	24	28	34	36
Top	17	16	15	18	19	23

Notes: We classify adults as having inadequate income if their age-70 income falls below 25% of the annual average national wage or if they are unable to replace at least 75% of the average amount they earned from age 50–59 (unless their age-70 income equals or exceeds the annual average national wage). The analysis assumes that scheduled social security benefits are paid in full. See the notes to Table 3 for details on the income and lifetime earnings measures.

Source: Authors' calculations using DYNASIM4 runid999.

Table 5. Projected percentage of Pre-Boomers and Early Millennials with inadequate income at age 70 under alternative scenarios about how social security benefits will be paid after the trust funds run out, by personal characteristics

| | Pre-Boomers | Early Millennials | | |
	All Scenarios	Scheduled Scenario	Payable Scenario	Balanced Scenario
All	28	38	49	43
Gender				
Men	29	38	47	43
Women	27	39	50	44
Race and ethnicity				
Non-Hispanic white	23	33	44	38
Non-Hispanic Black	35	42	53	46
Hispanic	54	53	62	56
Other	37	34	42	39
Education				
No high school diploma	49	66	75	68
High school diploma	31	45	57	50
Some college	23	38	50	43
Four-year college degree or more	14	28	36	33
Marital Status				
Married	26	35	46	43
Widowed	29	33	45	33
Divorced	33	40	49	41
Never married	39	50	59	50
Quintile of lifetime earnings				
Bottom	50	64	74	64
Second	24	35	50	41
Third	23	35	46	41
Fourth	25	36	45	43
Top	17	23	29	28

Notes: The scheduled scenario assumes all social security benefits currently scheduled will be paid after the trust funds run out, the payable scenario assumes that only benefits that can be financed under existing revenue streams will be paid, and the balanced scenario assumes that half the financing shortfall will be closed through benefit cuts and half will be closed through revenue increases. We classify adults as having inadequate income if their age-70 income falls below 25% of the annual average national wage or they are unable to replace at least 75% of the average amount they earned from age 50–59 (unless their age 70 income equals or exceeds the annual average national wage). See the notes to Table 1 for details on the income and lifetime earnings measures.

Source: Authors' calculations using DYNASIM4 runid999.

Table 6. Projected percentage of Pre-Boomers and Early Millennials with inadequate income at age 70 under alternative adequacy measures, by personal characteristics

	75% Replacement Rate		60% Replacement Rate		90% Replacement Rate	
	Pre-Boomer	Early Millennial	Pre-Boomer	Early Millennial	Pre-Boomer	Early Millennial
All	28	38	21	29	34	46
Gender						
Men	29	38	22	29	34	45
Women	27	39	21	30	34	47
Race and ethnicity						
Non-Hispanic white	23	33	16	23	29	41
Non-Hispanic Black	35	42	29	34	41	50
Hispanic	54	53	49	45	58	59
Other	37	34	30	25	43	42
Education						
No high school diploma	49	66	43	64	55	70
High school diploma	31	45	22	37	39	53
Some college	23	38	17	26	29	48
Four-year college degree or more	14	28	9	18	17	35
Marital Status						
Married	26	35	19	25	32	45
Widowed	29	33	21	25	35	39
Divorced	33	40	27	33	39	46
Never married	39	50	34	42	42	55
Quintile of lifetime earnings						
Bottom	50	64	48	64	52	66
Second	24	35	17	26	33	46
Third	23	35	14	20	32	47
Fourth	25	36	16	21	33	48
Top	17	23	13	17	20	25

Notes: We classify adults as having inadequate income if their age-70 income falls below 25% of the annual average national wage or the ratio of their age-70 income to the average annual earnings they received from age 50–59 falls below the specified threshold (unless their age-70 income equals or exceeds the annual average national wage). The analysis assumes that scheduled social security benefits will be paid in full. See the notes to Table 1 for details on the income and lifetime earnings measures.

Source: Authors' calculations using DYNASIM4 runid999.