



RESEARCH REPORT

Delayed Retirement and the Growth in Income Inequality at Older Ages

Richard W. Johnson

February 2018



ABOUT THE URBAN INSTITUTE

The nonprofit Urban Institute is dedicated to elevating the debate on social and economic policy. For nearly five decades, Urban scholars have conducted research and offered evidence-based solutions that improve lives and strengthen communities across a rapidly urbanizing world. Their objective research helps expand opportunities for all, reduce hardship among the most vulnerable, and strengthen the effectiveness of the public sector.

Contents

Acknowledgments	iv
Delayed Retirement and the Growth in Income Inequality at Older Ages	1
Background	2
Data and Methods	5
Results	7
Employment Rates	8
Social Security Claiming	11
Retirement Income	13
Retirement Income Changes at Older Ages	19
Conclusions	23
Notes	25
References	26
About the Author	29
Statement of Independence	30

Acknowledgments

This report was funded by the Alfred P. Sloan Foundation. We are grateful to them and to all our funders, who make it possible for Urban to advance its mission.

The views expressed are those of the author and should not be attributed to the Urban Institute, its trustees, or its funders. Funders do not determine research findings or the insights and recommendations of Urban experts. Further information on the Urban Institute's funding principles is available at <https://www.urban.org/aboutus/support-urban-institute>.

The author gratefully acknowledges valuable comments from Melissa Favreault, Teresa Ghilarducci, and Melinda Morrill on an earlier draft of this report and editorial assistance from Michael Marazzi.

Delayed Retirement and the Growth in Income Inequality at Older Ages

Financial security in old age increasingly requires working beyond traditional retirement ages. As defined benefit pension plans that provide retirement annuity income become less common, more retirees must rely on their 401(k) account balances and other savings to supplement Social Security. These savings must last longer as people live longer. By delaying retirement and working longer, however, people can shorten the time that they must rely on their savings in later life and, through the actuarial adjustments built into Social Security's benefit formula, increase their monthly payments from the program. Working longer also raises lifetime earnings, which generally boosts future Social Security income and any defined benefit pensions available. Moreover, people who work longer can often save some of their additional earnings for retirement. As concerns about the adequacy of retirement savings have intensified (Johnson et al. 2017; Munnell, Hou, and Sanzenbacher 2018), working longer is an important way for older adults to significantly improve their retirement security.

Many older adults have been working more over the past two decades (Johnson and Wang 2017; Munnell and Sass 2009). This development is a remarkable turnaround for older men's labor force participation, which had been declining for decades. However, the rising employment trend for older adults may leave behind many older people with health problems who are unable to work longer, leaving them less financially secure in retirement and contributing to increased income inequality among older people. Compounding the potential impact on inequality, older adults with limited education and income, who could most gain from working longer, are more likely to have health problems than those of higher socioeconomic status (Centers for Disease Control and Prevention 2013).

To assess how the trend toward later retirement might affect income inequality at older ages, this report examines how the relationship among health status, employment, and income has shifted over the past two decades for people eligible for early Social Security retirement benefits but too young to receive full retirement benefits. Using household survey data from the Health and Retirement Study (HRS), we compared health status, employment, Social Security benefit receipt, and household income in 1996 and 2014. The results show that the impact on retirement income of health status in one's early and mid-sixties has grown significantly over time. Although employment and income at ages 62 to 64 increased substantially over the past two decades for people in good health, employment and income stagnated for those with health problems, and throughout retirement their average incomes remained

below the average of those in better health. These findings highlight the importance of strengthening the disability safety net and underscore the risks of raising Social Security's retirement ages.

Background

Income inequality in the United States has surged over the past four decades, primarily because of growing earnings disparities (Kopczuk, Saez, and Song 2010; Piketty and Saez 2007, 2013). Although the average real hourly wage has grown over the past 35 years (Board of Trustees 2016), the gains have been concentrated among workers in the top part of the earnings distribution. Data from the Current Population Survey show that men's hourly wages in the middle and near the bottom of the distribution barely changed from 1980 to 2012 (Cosic, Johnson, and Smith, forthcoming). About one-half of employed men experienced no real wage growth, and real wages increased 20 percent or more only for men in the top 15 percent of the wage distribution. Working women in the middle of the wage distribution fared better, with about 70 percent experiencing real wage growth of at least 20 percent. Gains in annual earnings, a slightly different measure, have been concentrated at the very top of the distribution. Between 1971 and 2001, the share of earnings going to the top 1 percent of earners increased 143 percent, while the share going to the top 0.1 percent increased 404 percent (Piketty and Saez 2006).

The effects of rising wage inequality will extend into retirement. The cumulative advantage theory emphasizes that early advantages cumulate over a person's life, magnifying economic inequality in later life (Ferraro and Shippee 2009; O'Rand 1996, 2003). People with relatively high earnings are generally able to amass significant savings in retirement plans and other vehicles, raising their future retirement incomes far above those of people with lower earnings. Crystal and Shea (1990a, 1990b), for example, reported that income in the 1980s was more unequally distributed at older ages than younger ages. In follow-up research, Crystal, Shea, and Reyes (2016) found that later-life inequality was greater in 2010 than in the 1980s but that the age difference in inequality had fallen. Microsimulation projections indicate the continuation of the rising trend in wage inequality will further raise retirement income inequality (Cosic, Johnson, and Smith, forthcoming). These results are striking because Social Security, which accounts for about half of all income received at age 65 and older (Bee and Mitchell 2017), replaces a larger share of preretirement earnings for low-earning workers than for high-earning workers.

The timing of retirement also shapes retirement income. Retired workers may begin collecting Social Security retirement benefits as early as age 62, but actuarial adjustments built into the benefit formula permanently reduce monthly payments for every month that a worker begins collecting them before the program's full retirement age. Social Security's full retirement age is 65 for people who turned 62 before 2000 and 66 for people who turned 62 between 2005 and 2016. The full retirement age is gradually rising again, and it will reach 67 for people who turn 62 in 2022 or later. Compared with claiming Social Security benefits at the full retirement age, claiming benefits at age 62 reduces monthly payments 20 percent for people who turned 62 before 2000, 25 percent for people who turned 62 between 2005 and 2016, and 30 percent for people who turn 62 after 2021. Retirees can receive more than their full monthly benefit amount if they claim Social Security after their full retirement age.¹ Further, as noted, people who delay claiming Social Security and continue working while waiting for benefits will generally accumulate additional Social Security credits and retirement savings, raising their future retirement incomes. Butrica, Smith, and Steuerle (2006) estimated that older people without disabilities could raise their retirement incomes an average of 9 percent by working one additional year.

More older adults are working now than two decades ago. Data from the Current Population Survey show that between 1995 and 2016, labor force participation rates at ages 62 to 64 increased 13 percentage points for men and 15 percentage points for women, while participation rates declined for men and women younger than 55 (Johnson and Wang 2017). The recent surge in old-age employment has raised income inequality among people age 65 and older: an increasing number of older workers are collecting much higher incomes than older adults who have stopped working (Bosworth, Burtless, and Zhang 2016). Because better-educated, higher-earning adults are more likely to work into old age than their counterparts with less education and lower earning capacity (Johnson and Wang 2017), the growth in old-age employment significantly raises income inequality.

Health disparities near traditional retirement ages likely also raise income inequality, especially as employment increases at older ages. Poor health is a leading cause of early retirement (Bound, Stinebrickner, and Waidmann 2010; Fisher, Chaffee, and Sonnega 2016; McGarry 2004). Thus, many people with health problems are unable to extend their working lives and bolster their retirement security. Evidence is growing that overall health status in the United States is no longer improving and may be declining. Life expectancy dropped in 2015 (Xu et al. 2016), its first decline since 1993 during the height of the AIDS epidemic (Arias, Heron, and Xu 2016). Life expectancy fell again in 2016 (Kochanek et al. 2017), the first time in more than 50 years it declined in consecutive years. Mortality rates in the United States for non-Hispanic whites ages 45 to 54 increased between 1998 and 2015,

although they continued to fall in other high-income countries and for other racial and ethnic groups in the United States (Case and Deaton 2015, 2017).

Health problems are not distributed equally across the population. Rather, they are much more common among people with limited income and education (who could most gain from working longer) than among those with more income and education (Centers for Disease Control and Prevention 2013; Woolf et al. 2015; Zimmerman, Woolf, and Haley 2015). For example, studies using Social Security employment records have found that mortality rates are lower among men and women with higher lifetime earnings than those with lower lifetime earnings (Bosworth, Burtless, and Zhang 2016; Waldron 2007, 2013). At age 25, US adults who did not complete high school can expect to die nine years sooner than college graduates (National Center for Health Statistics 2012). In 2011, 15 percent of adults without a high school diploma reported diabetes compared with 7 percent of college graduates (Schiller, Lucas, and Peregoy 2012). Workers who did not complete high school are nearly twice as likely to develop health-related work limitations before age 62 as are college graduates (Johnson, Mermin, and Murphy 2007). The relationship between education and health does not appear to be caused solely by the tendency of healthier people to obtain more education than those in worse health. In an innovative study that exploited the variation in college attendance that arose from draft avoidance during the Vietnam War, Buckles and colleagues (2016) concluded that graduating from college reduced mortality rates more than 50 percent. However, it is not clear whether a college education lowers mortality by reducing stress or by promoting healthier behaviors, better access to health care, or healthier living environments.

Health disparities by socioeconomic status, such as education and income, appear to be widening (Goldman and Smith 2011; National Academies of Sciences, Engineering, and Medicine 2015; Olshansky et al. 2012). Mortality rates increased between 1999 and 2015 for non-Hispanic whites who never attended college but not for those who attended college (Case and Deaton 2017). Between the 1980s and 2000, life expectancy gains occurred nearly exclusively among people who completed at least 13 years of education, partly because better-educated people were more likely to give up smoking (Meara, Richards, and Cutler 2008). Chetty and colleagues (2016) found that the negative relationship between income and mortality rates, estimated from tax records and Social Security Administration death records, strengthened between 2001 and 2014.

Data and Methods

We examined how the trend toward later retirement might affect income inequality at older ages using data from the HRS, a nationally representative longitudinal survey of older Americans conducted by the University of Michigan's Survey Research Center with primary funding from the National Institute on Aging. The HRS began in 1992 with interviews of about 12,600 adults ages 51 to 61 and their spouses. These respondents have been reinterviewed every other year. Additional cohorts were added to the study in 1998, 2004, 2010, and 2016, so the HRS now collects data every two years from more than 22,000 adults older than age 50. We used RAND's cleaned version P HRS data release (Bugliari et al. 2016).

Our analysis compared health status, employment, Social Security benefit receipt, and household income in 1996 and 2014—the most recent year with finalized HRS data when we completed our study—for respondents ages 63 to 65. We measured employment by the presence of earnings. Because the HRS asks respondents about income they received in the previous year, our income and employment measures cover outcomes at ages 62 to 64. We focused on that age range because people can first claim Social Security retirement benefits at age 62, the early entitlement age. However, they do not receive full retirement benefits unless they wait to claim until age 65—the full retirement age for people born before 1938, including those ages 63 to 65 in 1996—or unless they wait to claim until age 66—the full retirement age for those born between 1943 and 1954, including those ages 63 to 65 in 2014. Our sample included 1,991 respondents in 1996 and 1,846 respondents in 2014.

We considered two different health measures: overall health status and health-related work limitations. At each wave the HRS asks respondents to rate their overall health status from poor to excellent. Although necessarily subjective, this measure appears to identify people with significant health problems in that it reliably predicts future mortality (Idler and Benyamini 1997; Rupp and Davies 2004). The HRS also asks respondents whether they have any impairment or health problem that limits the kind or amount of paid work they can perform. Our 1996 sample included 473 respondents with fair or poor health and 559 respondents with a health-related work limitation; our 2014 sample included 565 respondents with fair or poor health and 655 respondents with a health-related work limitation.

The analysis classified respondents as being employed if they reported significant earnings for the previous year. We set the earnings threshold equal to \$20,000 in 2013 and \$11,008 in 1995, the equivalent amount in wage-indexed dollars.² This threshold, which excluded about 36 percent of working respondents in our 1996 sample and 30 percent of working respondents in our 2014 sample, ensured that our measure captured substantial employment and not incidental, part-time work.

We compared total household income at ages 62 to 64 and its components, including earnings, Social Security retirement benefits, Social Security disability benefits, Supplemental Security Income (SSI), employer-sponsored pension income, income from assets, unemployment benefits, workers' compensation, government transfers, and other income.³ We measured income in inflation-adjusted 2017 dollars and adjusted for household size by dividing married adults' household income by the square root of two. This approach, which is common in the literature (e.g., Bremer 2014; Litwin and Sapir 2009), reflects the additional resources that married people need relative to single people and recognizes economies of scale in household production that favor larger households.

Regression models estimated on our pooled sample of adults ages 63 to 65 in 1996 and 2014 indicated how employment and income determinants in one's early and mid-sixties have shifted over the past two decades. To examine employment determinants, we estimated probit models of the likelihood of receiving substantial earnings in the previous year. To examine income determinants, we estimated ordinary least squares regression models of the natural logarithm of real household income. Regressors in both models included health status, education, sex, race and ethnicity, and marital status. One set of models used overall health status to measure health; an alternative set instead used the presence of any health-related work limitations. To determine whether the relationship between outcomes and various individual characteristics, especially health status, changed between 1996 and 2014, each regression included an indicator for 2014 and interactions of each predictor with that year indicator.

Finally, we examined how health-related differences in total household income and its components for people in their early and mid-sixties changed over time as they aged. Because people with health problems tend to retire earlier than people in better health, health-related income differences before Social Security's full retirement age may simply reflect that workers with health problems substitute earnings for retirement benefits while workers in better health do not. Consequently, these income differences might disappear as a cohort ages and all members of the cohort withdraw from the labor force. However, we hypothesized that income shortfalls for people with health problems would persist until death, perhaps at a lower level, because early retirement permanently reduces annual Social Security benefits and limits retirement savings.

To test this hypothesis, we followed a cohort of 2,143 HRS respondents ages 63 to 65 in 2002, tracking their total inflation- and size-adjusted household income every other year until 2014, when they were ages 75 to 77. At each interview, we compared income by 2002 health status, which we measured alternatively by overall health status and the presence of any health-related work limitations. To determine whether any observed health-related income differences persisted when we held other

factors constant, we estimated regression models of the natural logarithm of real household-size-adjusted income each year, controlling for 2002 health status, education, sex, race and ethnicity, and marital status. Again, we estimated two models at each interview wave, with one model using overall health status to measure health and the other using the presence of any health-related work limitations.

Results

The prevalence of health problems among adults in their early and mid-sixties increased significantly between 1996 and 2014, especially among those with limited education. Overall, the share of adults ages 63 to 65 reporting some health-related work limitations increased from 28.5 percent in 1996 to 31.8 percent in 2014; the share reporting excellent or very good health fell from 49.6 to 44.5 percent (table 1).

Health problems were more pronounced among people with limited education than their better-educated counterparts. In 2014, 42.3 percent of adults ages 63 to 65 who never attended college reported some health-related work limitations, compared with only 25.5 percent of those who attended college. This gap was wider in 2014 than 18 years earlier because the prevalence of health problems increased much more rapidly over that period among people with limited education. Between 1996 and 2014, the share of adults ages 63 to 65 reporting any health-related work limitations increased 9 percentage points for people who never attended college and 6 percentage points for those who attended college.⁴

Health declines were more pronounced among men than women. Among men ages 63 to 65 who did not attend college, the share reporting fair or poor health increased 16 percentage points, to 44.0 percent, between 1996 and 2014, while the share reporting excellent or very good health fell 20 percentage points, to 24.2 percent. Among their female counterparts, by contrast, the prevalence of self-reported fair or poor health increased 8 percentage points over that period while the prevalence of excellent or very good health fell 7 percentage points. Health status worsened more slowly over the period for both men and women who attended college, and gender differences were smaller.

TABLE 1

**Distribution of Health Status and Prevalence of Health-Related Work Limitations
by Education and Sex (%)**

Adults ages 63 to 65

	All		Men		Women	
	1996	2014	1996	2014	1996	2014
All education groups						
<i>Overall health status</i>						
Excellent or very good	49.6	44.5*	51.2	42.8*	48.2	45.9
Good	27.9	30.8**	26.8	32.4*	28.9	29.4
Fair or poor	22.5	24.7	22.0	24.8	22.9	24.6
<i>Any health problem that limits work</i>	28.5	31.8*	27.9	32.7**	29.1	31.1
<i>Number of observations</i>	1,991	1,846	931	778	1,060	1,068
People who did not attend college						
<i>Overall health status</i>						
Excellent or very good	42.4	29.6*	44.4	24.2*	40.8	33.4*
Good	28.9	30.3	27.5	31.8	30.0	29.3
Fair or poor	28.7	40.1*	28.1	44.0*	29.3	37.3*
<i>Any health problem that limits work</i>	33.6	42.3*	33.3	43.0*	33.8	41.8*
<i>Number of observations</i>	1,310	837	580	331	730	506
People who attended college						
<i>Overall health status</i>						
Excellent or very good	62.4	53.5*	61.3	52.2*	63.6	54.6*
Good	26.2	31.1**	25.9	32.6**	26.6	29.6
Fair or poor	11.4	15.5**	12.8	15.1	9.8	15.8*
<i>Any health problem that limits work</i>	19.6	25.5*	19.8	27.4*	19.3	23.6
<i>Number of observations</i>	680	1,009	351	447	329	562

Source: Author's calculations from the Health and Retirement Survey.

Notes:

*/** Estimate differs significantly from the 1996 estimate at the 0.05/0.10 level, using two-tailed t-tests.

Employment Rates

Employment at ages 62 to 64 increased significantly between 1996 and 2014. Overall, the share of adults ages 63 to 65 who reported earning at least \$20,000 in 2014 wage-indexed dollars in the previous year increased from 24.7 to 31.3 percent over the period (table 2). Employment rates grew 4 percentage points for men and 9 percentage points for women. However, employment increased significantly only among adults in robust health. In 1996, people with health problems were significantly less likely to work for pay than those in better health, and the gap grew substantially over the following two decades. Between 1996 and 2014, the share of adults ages 63 to 65 with no health-related work limitations who reported significant earnings in the previous year increased 12 percentage points for men (to 42.6 percent) and 13 percentage points for women (to 38.7 percent). Among adults ages 63 to

65 with some health-related work limitations, the share with substantial earnings fell by 4 percentage points for men (to 8.4 percent) and increased by 1 percentage point for women (to 7.8 percent), but neither of these changes were statistically significant.

TABLE 2

Percentage with Substantial Labor Market Earnings in the Previous Year by Health and Sex
Adults ages 63 to 65

	All		Men		Women	
	1996	2014	1996	2014	1996	2014
All	24.7	31.3*	29.7	34.1**	20.2	29.0*
<i>Overall health status</i>						
Excellent or very good	29.0	38.8*	34.7	45.1*	23.6	33.7*
Good	26.1	33.1*	31.5	34.5	21.6	31.8*
Fair or poor	13.5	15.9	16.1	14.9	11.3	16.8**
<i>Any health problems that limit work</i>						
No	31.1	42.6*	36.7	47.4*	25.8	38.7*
Yes	9.1	8.1	11.9	8.4	6.7	7.8
Number of observations	1,991	1,846	931	778	1,060	1,068

Source: Author's calculations from the Health and Retirement Survey.

Note: The analysis defined substantial labor earnings as at least \$20,000, measured in constant 2017 dollars.

*/** Estimate differs significantly from the 1996 estimate at the 0.05/0.10 level, using two-tailed t-tests.

Our probit estimates show that people with health problems are significantly less likely to earn substantial income in their early sixties than people in better health, even when education, sex, race and ethnicity, and relationship status are held constant (table 3). In 1996, people ages 63 to 65 in fair or poor health were 12 percentage points less likely to receive substantial earnings in the previous year than people in better health, and those with some health-related work limitations were 22 percentage points less likely to receive substantial earnings. These are large effects in that only about 25 percent of the overall sample received substantial earnings in the previous year. The coefficient on the term interacting health-related work limitations with the 2014 indicator was negative and statistically significant. People with work limitations were another 9 percentage points less likely to receive substantial earnings in 2014 than 1996. However, the term interacting fair or poor health with the 2014 indicator was not significant.

TABLE 3

Regression Estimates of the Likelihood of Having Substantial Earnings in the Previous Year

Adults ages 63 to 65

	Model 1			Model 2		
	Coefficient	Standard error	Marginal effects	Coefficient	Standard error	Marginal effects
Indicator for 2014	0.033	0.122	0.010	0.119	0.109	0.036
<i>Overall health status</i>						
Excellent or very good	0.049	0.074	0.015			
Excellent or very good, 2014 [Reference: Good]	0.022	0.106	0.007			
Fair or poor	-0.409*	0.096	-0.118			
Fair or poor, 2014	-0.050	0.131	-0.015			
<i>Work limitations</i>						
Health-related work limitation				-0.814*	0.087	-0.215
Work limitation, 2014				-0.309*	0.122	-0.085
<i>Education</i>						
Not high school graduate	-0.187*	0.088	-0.056	-0.186*	0.090	-0.054
Not high school graduate, 2014 [Reference: High school graduate]	-0.029	0.148	-0.009	-0.022	0.155	-0.007
Some college	0.254*	0.088	0.083	0.253*	0.091	0.079
Some college, 2014	-0.039	0.123	-0.012	0.008	0.128	0.002
College graduate	0.287*	0.091	0.094	0.257*	0.092	0.081
College graduate, 2014	0.149	0.126	0.048	0.148	0.129	0.046
<i>Gender</i>						
Female	-0.332*	0.067	-0.104	-0.347*	0.070	-0.105
Female, 2014	0.216*	0.094	0.069	0.193*	0.098	0.059
<i>Race and ethnicity</i> [Reference: non-Hispanic white]						
African American	0.080	0.093	0.025	0.018	0.097	0.005
African American, 2014	-0.153	0.126	-0.046	-0.140	0.132	-0.040
Hispanic	-0.097	0.131	-0.029	-0.158	0.135	-0.045
Hispanic, 2014	-0.005	0.167	-0.002	-0.038	0.172	-0.011
Other	0.072	0.341	0.023	-0.022	0.352	-0.007
Other, 2014	-0.193	0.288	-0.056	-0.231	0.297	-0.063
<i>Relationship status</i> [Reference: Married, partnered]						
Divorced or separated	0.023	0.107	0.007	0.092	0.112	0.028
Divorced or separated, 2014	0.081	0.138	0.026	0.060	0.144	0.018
Widowed	0.084	0.105	0.026	0.098	0.110	0.030
Widowed, 2014	-0.384*	0.160	-0.104	-0.280**	0.168	-0.076
Never married	0.299	0.186	0.101	0.319**	0.193	0.105
Never married, 2014	-0.304	0.236	-0.084	-0.199	0.245	-0.055
Constant	-0.582*	0.082		-0.435*	0.068	
	Model 1			Model 2		
Pseudo R ²	0.064			0.118		
Log-likelihood ratio	276.1			504.6		
Number of observations	3,826			3,733		

Source: Author's calculations from the Health and Retirement Survey.

Notes: Estimates were derived from a probit regression of the likelihood of earning at least \$20,000, measured in wage-indexed 2014 dollars, in the previous year.

* $p < 0.05$; ** $p < 0.10$ (two-tailed t-test).

Education and sex are strong predictors of work in one's early sixties. People who did not complete high school were about 6 percentage points less likely to receive substantial earnings than high school graduates who did not attend college, and four-year college graduates were between 8 and 9 percentage points more likely to receive substantial earnings than high school graduates. Women were significantly less likely than men to work, but the difference was much smaller in 2014 than 1996. Race and ethnicity and marital status were not significant predictors of employment for people in their early sixties when other factors were held constant, except that in 2014 widows and widowers were less likely to work than married adults. When the models controlled for health status, education, sex, race and ethnicity, and relationship status, the year 2014 indicator was not statistically significant, implying that these factors account for most of the observed employment increase at ages 62 to 64 over the past two decades.

Social Security Claiming

As employment rates increased over the past two decades for people in their early sixties, the share of people claiming Social Security benefits fell significantly. Between 1996 and 2014, the share of adults who received Social Security income in the previous year fell 10 percentage points, from 67.2 to 57.3 percent (table 4). Benefit receipt rates fell 6 percentage points for men and 13 percentage points for women. However, only people without substantial health problems delayed claiming Social Security benefits. Among people without any health-related work limitations, the share receiving Social Security income fell 14 percentage points over the period for men—to 43.2 percent—and 20 percentage points for women—to 46.5 percent. Among people with some health-related work limitations, by contrast, Social Security benefit receipt rates increased, rising 5 percentage points for men and 1 percentage point for women, but these differences were not statistically significant. In 2014, about 83 percent of adults ages 63 to 65 with some health-related work limitations received Social Security income in the past year, nearly double the rate among those with no health-related work limitations.

Although overall Social Security benefit receipt for people in their early sixties declined as they claimed retirement benefits later, Social Security disability receipt increased. Between 1996 and 2014, the share of people ages 63 to 65 who received Social Security disability benefits in the previous year increased 3 percentage points overall. The share increased 6 percentage points for all men in the age group and 12 percentage points—to 40.1 percent—for men who reported any health-related work limitations. However, Social Security disability benefit receipt did not increase significantly for women in their early sixties.

TABLE 4

Percentage of Adults Receiving Social Security Benefits in the Previous Year by Health and Sex
Adults ages 63 to 65

	All		Men		Women	
	1996	2014	1996	2014	1996	2014
Any Social Security benefits						
All	67.2	57.3*	63.0	56.6*	71.1	58.0*
<i>Overall health status</i>						
Excellent or very good	64.9	46.8*	60.3	44.3*	69.2	48.8*
Good	65.3	58.9*	58.6	58.0	70.9	59.9*
Fair or poor	74.8	74.1	74.4	75.4	75.1	73.0
<i>Any health problems that limit work</i>						
No	62.0	45.0*	57.5	43.2*	66.2	46.5*
Yes	80.7	83.2	77.9	82.6	83.1	83.8
Social Security retirement benefits						
All	58.7	46.3*	55.3	44.3*	61.7	48.0*
<i>Overall health status</i>						
Excellent or very good	62.9	44.5*	57.6	41.1*	67.9	47.1*
Good	58.2	51.0*	53.5	51.3	62.2	50.7*
Fair or poor	49.9	43.9**	51.9	41.0*	48.1	46.5
<i>Any health problems that limit work</i>						
No	61.0	44.2*	56.8	42.4*	64.9	45.8*
Yes	53.3	50.3	52.0	47.0	54.5	53.1
Social Security disability benefits						
All	9.6	12.7*	8.4	13.9*	10.7	11.6
<i>Overall health status</i>						
Excellent or very good	2.7	2.7	3.3	3.2	2.1	2.2
Good	7.3	9.7	5.1	8.0	9.2	11.2
Fair or poor	27.6	33.9*	24.4	38.9*	30.4	29.7
<i>Any health problems that limit work</i>						
No	1.4	1.0	1.0	1.0	1.8	0.9
Yes	30.0	37.7*	27.7	40.1*	31.9	35.5
Number of observations	1,991	1,846	931	778	1,060	1,068

Source: Author's calculations from the Health and Retirement Survey.

Notes:

*/** Estimate differs significantly from the 1996 estimate at the 0.05/0.10 level, using two-tailed t-tests.

Over the same 18-year period, Social Security retirement benefit claiming fell significantly for both men and women. The share of men ages 63 to 65 who received Social Security retirement benefit income in the previous year fell 11 percentage points for men and 14 percentage points for women. Among those who did not report any health-related work limitations, the share collecting Social Security retirement benefits fell 14 percentage points for men and 19 percentage points for women.

Retirement Income

People in their early sixties who report health problems generally receive much less income than those in better health. In 1996, the previous year's household size-adjusted income for people ages 63 to 65 averaged \$36,533 in 2017 constant dollars for those with some health-related work limitations, barely half as much as the \$66,326 average value for those with no health-related work limitations (table 5). The income gap between those in excellent or very good health and those in fair or poor health was even larger. Observed income differentials were similar for both men and women.

TABLE 5

Mean Real Household Income in the Previous Year by Health and Sex (in dollars)

Adults ages 63 to 65

	All		Men		Women	
	1996	2014	1996	2014	1996	2014
All	57,608	74,713*	64,890	80,470**	51,044	69,779*
<i>Overall health status</i>						
Excellent or very good	68,289	102,736*	77,180	117,326*	59,786	91,109*
Good	56,403	62,574	61,943	63,952	51,766	61,280**
Fair or poor	35,773	39,739	40,269	39,219	31,895	40,186*
<i>Any health problems that limit work</i>						
No	66,326	91,248*	74,859	99,514*	58,493	84,407*
Yes	36,533	40,569	39,998	43,825	33,531	37,674
Number of observations	1,991	1,846	931	778	1,060	1,068

Source: Author's calculations from the Health and Retirement Survey.

Note: Household income was adjusted for household size by dividing the amounts reported by married adults by 1.41 (the square root of 2). Amounts are reported in inflation-adjusted 2017 dollars.

*/** Estimate differs significantly from the 1996 estimate at the 0.05/0.10 level, using two-tailed t-tests.

Income shortfalls for people in their early sixties with health problems grew substantially over the past two decades. Although mean real household income for people in their early sixties increased significantly between 1996 and 2014, the gains were restricted to people in robust health. Over the period, mean real household income increased 50 percent for those who reported excellent or very good health, from \$68,289 to \$102,736, while increasing only 11 percent, to \$39,739, for those who reported fair or poor health. The gains for those with health problems were not statistically significant. Among men, mean real household income for those in fair or poor health fell insignificantly between 1996 and 2014. In 2014, household income for people in their early sixties with some health-related work limitations averaged only 44 percent as much as for those with no work limitations, and household income for those in fair or poor health averaged only 39 percent as much as for those in excellent or very good health.

Throughout the income distribution, real household incomes have grown more slowly for people in their early sixties with health problems than for their counterparts without health problems. Between 1996 and 2014, incomes at the 10th percentile of the distribution increased 5 percent for those without any health-related work limitations and fell 4 percent for those with some health related work limitations (table 6), Incomes at the 50th percentile (the median value) grew 35 percent for those without any work limitations but only 1 percent for those with some limitations, and incomes at the 90th percentile grew 41 percent for those without any limitations but only 9 percent for those with some limitations.

TABLE 6

**Distribution of Real Household Income in the Previous Year
by Overall Health Status and Work Limitations**

Adults ages 63 to 65

	10th percentile	25th percentile	50th percentile (median)	75th percentile	90th percentile
<i>All</i>					
1996 (\$)	12,302	23,377	40,439	69,660	108,082
2014 (\$)	12,374	24,567	51,152	86,705	146,864
Percent increase	1	5	26	24	36
<i>Excellent or very good health</i>					
1996 (\$)	18,659	29,665	47,948	78,662	127,941
2014 (\$)	21,587	41,125	65,494	108,447	189,693
Percent increase	16	39	37	38	48
<i>Good health</i>					
1996 (\$)	12,439	24,083	39,847	70,883	102,623
2014 (\$)	12,877	25,766	47,156	80,230	132,735
Percent increase	4	7	18	13	29
<i>Fair or poor health</i>					
1996 (\$)	8,678	13,407	25,647	43,263	70,953
2014 (\$)	7,425	12,550	24,760	52,857	92,001
Percent increase	-14	-6	-3	22	30
<i>No health problems that limit work</i>					
1996 (\$)	17,184	28,156	46,116	75,767	124,172
2014 (\$)	18,024	36,492	62,032	104,467	175,017
Percent increase	5	30	35	38	41
<i>Some health problems that limit work</i>					
1996 (\$)	9,404	13,787	26,575	47,338	79,485
2014 (\$)	9,067	13,832	26,749	50,980	86,408
Percent increase	-4	0	1	8	9
Number of observations	1,991	1,846	931	778	1,060

Source: Author's calculations from the Health and Retirement Survey.

Note: Household income was adjusted for household size by dividing the amounts reported by married adults by 1.41 (the square root of 2). Amounts are reported in inflation-adjusted 2017 dollars.

The inflation-adjusted household income gains that people in their early sixties with no health problems experienced over the past two decades came almost entirely from their growing earnings.

Between 1996 and 2014, mean real household earnings in the previous year, adjusted by household size, nearly doubled for adults ages 63 to 65 with no health-related work limitations, increasing from \$22,895 to \$45,453 (table 7). No other component of their income, such as Social Security benefits, pension benefits, income from assets, or government transfers, increased significantly. Their counterparts who reported some health-related work limitations experienced significant gains over the period in Social Security retirement benefits, Social Security disability benefits, SSI, and government transfers as their employment rates fell. However, their average income from unemployment benefits, workers' compensation, and assets fell over the period. Neither their earnings nor their overall income changed significantly between 1996 and 2014.

TABLE 7

Mean Real Household Income in the Previous Year by Source and Health-Related Work Limitations

Adults ages 63 to 65

	All		No Limits		Some Limits	
	1996	2014	1996	2014	1996	2014
Dollar amount						
Total	57,608	74,713*	66,326	91,248*	36,533	40,569
Earnings	19,185	34,459*	22,895	45,453*	10,136	11,519
Social Security retirement	8,015	8,151	8,521	8,231	6,821	8,022*
Social Security disability and SSI	1,112	1,793*	287	394	3,165	4,733*
Pension	8,073	9,128	8,968	10,540	5,942	6,431
Asset income	17,525	16,406	21,716	22,147	7,317	4,288**
Unemployment benefits, worker comp	237	210	138	230	489	173*
Government transfers	1,174	1,854*	1,249	1,553	1,004	2,562*
Other	2,287	2,713	2,553	2,699	1,660	2,842
Percentage of total						
Total	100	100	100	100	100	100
Earnings	33	46	35	50	28	28
Social Security retirement	14	11	13	9	19	20
Social Security disability and SSI	2	2	0	0	9	12
Pension	14	12	14	12	16	16
Asset income	30	22	33	24	20	11
Unemployment benefits, worker comp	0	0	0	0	1	0
Government transfers	2	2	2	2	3	6
Other	4	4	4	3	5	7
Number of observations	1,991	1,846	1,354	1,169	559	655

Source: Author's calculations from the Health and Retirement Survey.

Note: Household income was adjusted for household size by dividing the amounts reported by married adults by 1.41 (the square root of 2). Amounts are reported in inflation-adjusted 2017 dollars.

*/** Estimate differs significantly from the 1996 estimate at the 0.05/0.10 level, using two-tailed t-tests.

The share of household income that came from earnings rose significantly over the past two decades among all adults in their early sixties and among those with no health-related work limitations. In 2014, labor earnings accounted for 50 percent of the household income received in the previous year by adults ages 63 to 65 with no health-related work limitations, up from 35 percent in 1996. By contrast, the importance of earnings for adults with some health-related work limitations did not change between 1996 and 2014, as labor earnings accounted for 28 percent of their household income in both years. (For both groups combined, the share of income from labor earnings increased from 32 to 46 percent over the period.) The share of income that came from Social Security retirement benefits declined from 13 to 9 percent for those with no health-related work limitations, while the share from Social Security disability benefits and SSI increased, from 9 to 12 percent, for people with health problems that limited their work. The relative importance of income from assets dropped substantially for both groups.

Differences in observed income changes over the past two decades by overall health status were similar to differences by the presence of health-related work limitations. For people ages 63 to 65 who described their health as excellent or very good, earnings growth accounted for about three-quarters of the increase in their previous year's mean household-size adjusted income between 1996 and 2014 (table 8). They also experienced a significant increase in pension income over the period and a decline in government transfer income. Mean Social Security disability benefits, SSI, and government transfers grew significantly over the period for people in their early sixties with fair or poor health. Their mean labor earnings also increased over the period, but it grew much more slowly than for their counterparts in better health.

Our regression estimates show that when we control for education, sex, race and ethnicity, and relationship status, people with health problems have significantly lower income at ages 62 to 64 than people in better health (table 9). Household income levels, adjusted for household size, were about 30 percent lower for people who described their health as fair or poor or who reported some health-related work limitations than for their counterparts who described their health as good or who reported no work limitations. The relationship between income and overall health status strengthened between 1996 and 2014. The coefficient on the term interacting excellent or very good health status with the 2014 indicator was significantly greater than zero, and it indicates that excellent or very good health was associated with 22 percent higher income levels in 2014 than in 1996. However, coefficients on the term interacting fair or poor health with the 2014 indicator and the term interacting the presence of any work limitations with the year indicator were not statistically significant.

TABLE 8

Mean Real Household Income in the Previous Year by Source and Overall Health Status
Adults ages 63 to 65

	Excellent or Very Good		Good		Fair or Poor	
	1996	2014	1996	2014	1996	2014
Dollar amount						
Total	68,289	102,736*	56,403	62,574	35,773	39,739
Earnings	21,975	47,205*	20,610	29,925*	11,362	17,365*
Social Security retirement	8,806	8,391	7,797	9,090*	6,546	6,597
Social Security disability and SSI	387	547	1,014	1,538**	2,837	4,273*
Pension	8,758	12,024*	9,990	8,940	4,226	4,203
Asset income	24,446	29,258	13,522	7,877*	7,289	3,991
Unemployment benefits, worker comp	112	157	315	184	416	338
Government transfers	1,552	955*	797	3,009*	810	2,046*
Other	2,253	4,199	2,357	2,012	2,288	925*
Percentage of total						
Total	100	100	100	100	100	100
Earnings	32	46	37	48	32	44
Social Security retirement	13	8	14	15	18	17
Social Security disability and SSI	1	1	2	2	8	11
Pension	13	12	18	14	12	11
Asset income	36	28	24	13	20	10
Unemployment benefits, worker comp	0	0	1	0	1	1
Government transfers	2	1	1	5	2	5
Other	3	4	4	3	6	2
Number of observations	925	697	591	581	473	565

Source: Author's calculations from the Health and Retirement Survey.

Note: Household income was adjusted for household size by dividing the amounts reported by married adults by 1.41 (the square root of 2). Amounts are reported in inflation-adjusted 2017 dollars.

*/** Estimate differs significantly from the 1996 estimate at the 0.05/0.10 level, using two-tailed t-tests.

TABLE 9

Regression Estimates of Real Household Income
Adults ages 63 to 65

	Model 1			Model 2		
	Coefficient	Standard error	Marginal effects	Coefficient	Standard error	Marginal effects
Indicator for 2014	-0.129	0.110	-0.121	-0.056	0.094	-0.054
<i>Overall health status</i>						
Excellent or very good	0.047	0.067	0.048			
Excellent or very good, 2014 [Reference: Good]	0.200*	0.098	0.221			
Fair or poor	-0.362*	0.078	-0.304			
Fair or poor, 2014	0.018	0.109	0.018			
<i>Work limitations</i>						

	Model 1			Model 2		
	Coefficient	Standard error	Marginal effects	Coefficient	Standard error	Marginal effects
Health-related work limitation				-0.363*	0.063	-0.304
Work limitation, 2014				-0.037	0.088	-0.036
<i>Education</i>						
Not high school graduate	-0.294*	0.073	-0.254	-0.317*	0.072	-0.271
Not high school graduate, 2014	-0.175	0.120	-0.161	-0.181	0.118	-0.166
[Reference: High school graduate]						
Some college	0.308*	0.081	0.361	0.318*	0.081	0.375
Some college, 2014	0.004	0.111	0.004	0.019	0.110	0.019
College graduate	0.660*	0.083	0.935	0.655*	0.083	0.925
College graduate, 2014	0.023	0.116	0.024	0.085	0.114	0.089
<i>Gender</i>						
Female	-0.114*	0.058	-0.108	-0.128	0.058	-0.120
Female, 2014	0.104	0.084	0.110	0.142**	0.083	0.153
<i>Race and ethnicity</i>						
[Reference: non-Hispanic white]						
African American	-0.299*	0.081	-0.258	-0.327*	0.080	-0.279
African American, 2014	-0.088	0.110	-0.084	-0.106	0.109	-0.101
Hispanic	-0.784*	0.107	-0.544	-0.810*	0.106	-0.555
Hispanic, 2014	0.099	0.139	0.104	0.043	0.137	0.044
Other	-0.329	0.233	-0.281	-0.410**	0.228	-0.336
Other, 2014	-0.471**	0.285	-0.375	-0.488**	0.278	-0.386
<i>Relationship status</i>						
[Reference: Married, partnered]						
Divorced or separated	-0.603*	0.092	-0.453	-0.535*	0.092	-0.414
Divorced or separated, 2014	-0.066	0.121	-0.063	-0.160	0.120	0.068
Widowed	-0.456*	0.089	-0.366	-0.462*	0.089	-0.370
Widowed, 2014	0.024	0.133	0.024	0.066	0.132	0.068
Never married	-0.834*	0.167	-0.566	-0.692*	0.165	-0.499
Never married, 2014	0.055	0.210	0.056	-0.008	0.208	-0.008
Constant	10.748*	0.073		10.813*	0.059	
		Model 1			Model 2	
Adjusted R ²		0.243			0.243	
Number of observations		3,826			3,733	

Source: Author's calculations from the Health and Retirement Survey.

Notes: Estimates were derived from an OLS regression of the natural logarithm of real household income on the specified regressors. The analysis measure household income in constant 2017 inflation-adjusted dollars and adjusted for differences in household size by dividing the amounts reported by married adults by 1.41 (the square root of 2). Marginal effects were computed by exponentiating the estimated coefficient and subtracting one.

* $p < 0.05$; ** $p < 0.10$ (two-tailed t-test).

Education, sex, race and ethnicity, and relationship status were all significantly associated with household income for people in their early sixties. Income was about 93 percent higher for four-year college graduates than for high school graduates who did not attend college; compared with the latter group, income was about 25 percent lower for those who did not complete high school. African Americans and Hispanics received significantly less income than non-Hispanic whites, women received significantly less income than men, and married and partnered adults received significantly more

income than unmarried adults. Some evidence suggests that household income at ages 62 to 64 has been declining for other racial groups, such as Asians and Native Americans, relative to non-Hispanic whites and improving for women relative to men. The coefficient on the term interacting the other race indicator with the 2014 indicator was negative, and the coefficient on the term interacting the female and 2014 indicators was positive, but both coefficients were only marginally significant. The year 2014 indicator was not statistically significant, implying that compositional changes in the population at ages 62 to 64, such as improvements in educational attainment, accounted for most of the observed income gains between 1996 and 2014.

Retirement Income Changes at Older Ages

Income shortfalls in one's early sixties for people with health problems appear to persist for decades, although they narrow as people enter their seventies. Table 10 compares mean real income, adjusted for household size, for people born between 1937 and 1939 who reported some health-related work limitations in 2002, when they were ages 63 to 65, with mean income for their counterparts who did not report any health-related work limitations in 2002. The previous year's mean real household-size adjusted income at ages 63 to 65 was 43 percent less for those with health problems than for those with no health problems. This shortfall declined to 36 percent at ages 67 to 69, 32 percent at ages 71 to 73, and 22 percent at ages 75 to 77. The gap shrank as people without any work limitations eventually retired and replaced their earnings with Social Security and pension benefits, which were generally lower. Between ages 63 to 65 and ages 67 to 69, the mean overall income advantage for people without any work limitations fell by about \$7,200, and their mean earnings advantage fell by about \$8,000. By ages 71 to 73, their mean earnings advantage fell by about \$11,900, and their overall income advantage had fallen by about \$12,900. Nonetheless, people without any health-related work limitations in their early sixties continued to receive more income into their seventies than those who reported some health-related work limitations in their early sixties because those in better health earlier in life worked longer and received more Social Security, pension, and asset income.

Table 11 reports how mean income changes in later life for people in excellent or very good health at ages 63 to 65 and those in fair or poor health at ages 63 to 65. This alternative health measure again shows that the income gap for people with health problems in their early sixties persists for decades. Compared with people in excellent or very good health at ages 63 to 65, those in fair or poor health at ages 63 to 65 reported 51 percent less income at those ages, 46 percent less income at ages 67 to 69, 45 percent less income at ages 71 to 73, and 39 percent less income at ages 75 to 77. The income gap

declined as people aged because more of those without health problems at ages 63 to 65 withdrew from the labor force.⁵

TABLE 10

Mean Real Household Income by Source and Baseline Health Related Work Limitations

Adults Ages 63 and 65 in 2002

Age (year)	Baseline (2002) work limitations	Total	Earnings	Social Security		Asset income	Other	No. of obs.
				and SSI	Pension			
63–65 (2002)	(a) No limits (\$)	69,063	27,783	9,871	8,525	19,235	3,648	1,547
	(b) Some limits (\$)	39,139*	10,254*	12,632*	6,439*	7,668*	2,147	596
	% shortfall: (a-b)/a	43	63	-28	24	60	41	
65–67 (2004)	(a) No limits (\$)	70,167	22,064	14,388	10,035	16,845	6,834	1,467
	(b) Some limits (\$)	38,971*	7,192*	14,989	7,252*	7,104*	2,435*	538
	% shortfall: (a-b)/a	44	67	-4	28	58	64	
67–69 (2006)	(a) No limits (\$)	63,011	16,044	16,825	10,035	16,239	3,868	1,398
	(b) Some limits (\$)	40,247*	6,468*	15,358*	7,572*	8,069*	2,780	494
	% shortfall: (a-b)/a	36	60	9	25	50	28	
69–71 (2008)	(a) No limits (\$)	61,136	13,474	17,311	10,784	15,418	4,148	1,351
	(b) Some limits (\$)	41,731*	5,020*	15,599*	7,104*	10,731**	3,277	466
	% shortfall: (a-b)/a	32	63	10	34	30	21	
71–73 (2010)	(a) No limits (\$)	53,188	9,028	18,542	10,248	11,646	3,725	1,283
	(b) Some limits (\$)	36,117*	3,430*	16,232*	7,666*	6,988*	1,801**	402
	% shortfall: (a-b)/a	32	62	12	25	40	52	
73–75 (2012)	(a) No limits (\$)	49,603	7,195	17,923	10,490	9,904	4,092	1,218
	(b) Some limits (\$)	34,146*	2,753*	15,724*	6,000*	7,769	1,900**	375
	% shortfall: (a-b)/a	31	62	12	43	22	54	
75–77 (2014)	(a) No limits (\$)	50,459	5,072	18,311	12,106	10,938	4,031	1,117
	(b) Some limits (\$)	39,414*	1,715*	16,868*	8,309*	7,110**	5,413	312
	% shortfall: (a-b)/a	22	66	8	31	35	-34	

Source: Author's calculations from the Health and Retirement Survey.

Note: The analysis compared household income for a sample of adults ages 63 to 65 in 2002 by the presence of health-related work limitations that year, and followed these adults until 2014, when they were ages 77 to 79. Household income was adjusted for household size by dividing the amounts reported by married adults by 1.41 (the square root of 2). Amounts are reported in inflation-adjusted 2017 dollars. To limit the impact of outliers, the analysis excluded 22 observations with real household income in excess of \$1 million.

* difference between estimates for adults with some work limitations and those with no limitations is statistically significant ($p < 0.05$, two-tailed t-test).

** difference between estimates for adults in with some work limitations and those with no limitations is marginally significant ($p < 0.10$, two-tailed t-test).

TABLE 11

Mean Real Household Income by Source and Baseline Overall Health Status

Adults Ages 63 and 65 in 2002

Age (year)	Baseline (2002) health status	Total	Earnings	Social Security		Asset income	Other	No. of obs.
				and SSI	Pension			
63–65	(a) Excellent, very good (\$)	75,888	29,722	10,361	9,899	21,777	4,129	909

Age (year)	Baseline (2002) health status	Social Security and SSI						No. of obs.
		Total	Earnings	Pension	Asset income	Other		
(2002)	(b) Fair, poor (\$)	37,449*	12,941*	10,933	4,789*	6,687*	2,101*	559
	% shortfall: (a-b)/a	51	56	-6	52	69	49	
65-67	(a) Excellent, very good (\$)	79,044	23,473	15,132	10,908	20,363	9,168	861
(2004)	(b) Fair, poor (\$)	36,314*	9,997*	13,180*	5,455*	5,611*	2,071*	503
	% shortfall: (a-b)/a	54	57	13	50	72	77	
67-69	(a) Excellent, very good (\$)	70,939	17,892	17,588	10,712	20,172	4,576	823
(2006)	(b) Fair, poor (\$)	37,998*	7,690*	14,314*	5,671*	7,456*	2,867	462
	% shortfall: (a-b)/a	46	57	19	47	63	37	
69-71	(a) Excellent, very good (\$)	69,700	14,577	17,824	11,695	19,526	6,078	803
(2008)	(b) Fair, poor (\$)	34,579*	5,373*	14,877*	5,141*	7,540*	1,649*	437
	% shortfall: (a-b)/a	50	63	17	56	61	73	
71-73	(a) Excellent, very good (\$)	59,177	9,726	19,151	11,745	15,327	3,229	770
(2010)	(b) Fair, poor (\$)	32,578*	3,992*	15,623*	5,610*	4,742*	2,610	385
	% shortfall: (a-b)/a	45	59	18	52	69	19	
73-75	(a) Excellent, very good (\$)	55,558	7,902	18,415	11,509	12,723	5,009	750
(2012)	(b) Fair, poor (\$)	29,219*	1,660*	15,355*	5,131*	4,581*	2,491	344
	% shortfall: (a-b)/a	47	79	17	55	64	50	
75-77	(a) Excellent, very good (\$)	56,313	5,718	18,722	13,941	13,579	4,354	687
(2014)	(b) Fair, poor (\$)	34,411*	1,356*	15,960*	6,651*	5,309*	5,134	288**
	% shortfall: (a-b)/a	39	76	15	52	61	-18	

Source: Author's calculations from the Health and Retirement Survey.

Note: The analysis compared household income for a sample of adults ages 63 to 65 in 2002 by their overall health status that year, and followed these adults until 2014, when they were ages 77 to 79. Household income was adjusted for household size by dividing the amounts reported by married adults by 1.41 (the square root of 2). Amounts are reported in inflation-adjusted 2017 dollars. To limit the impact of outliers, the analysis excluded 22 observations with real household income in excess of \$1 million.

* difference between estimates for adults in fair or poor health and those in excellent or very good health is statistically significant ($p < 0.05$, two-tailed t-test)

** difference between estimates for adults in fair or poor health and those in excellent or very good health is marginally significant ($p < 0.10$, two-tailed t-test)

TABLE 12

Regression Estimates of Previous Year's Real Household Income, by Age

Adults ages 63 to 65 in 2002

	Model 1			Model 2		
	Coefficient	Standard error	Marginal effect	Coefficient	Standard error	Marginal effect
Ages 63 to 65, 2002						
<i>Overall health status</i>						
Excellent or very good	0.133*	0.060	0.142			
Fair or poor	-0.331*	0.069	-0.282			
<i>Health-related work limitation</i>						
Number of observations	2,143			-0.416*	0.058	-0.340
Adjusted R ²	0.214			0.216		
Ages 65 to 67, 2004						
<i>Overall health status</i>						
Excellent or very good	0.212*	0.057	0.236			
Fair or poor	-0.364*	0.066	-0.305			

	Model 1			Model 2		
	Coefficient	Standard error	Marginal effect	Coefficient	Standard error	Marginal effect
<i>Health-related work limitation</i>				-0.400*	0.056	-0.330
Number of observations	2,010			2,010		
Adjusted R ²	0.255			0.245		
Ages 67 to 69, 2006						
<i>Overall health status</i>						
Excellent or very good	0.184*	0.053	0.202			
Fair or poor	-0.220*	0.062	-0.197			
<i>Health-related work limitation</i>				-0.299*	0.052	-0.258
Number of observations	1,905			1,905		
Adjusted R ²	0.259			0.255		
Ages 69 to 71, 2008						
<i>Overall health status</i>						
Excellent or very good	0.116*	0.050	0.123			
Fair or poor	-0.339*	0.058	-0.287			
<i>Health-related work limitation</i>				-0.330*	0.050	-0.281
Number of observations	1,827			1,827		
Adjusted R ²	0.295			0.288		
Ages 71 to 73, 2010						
<i>Overall health status</i>						
Excellent or very good	0.173*	0.060	0.189			
Fair or poor	-0.286*	0.072	-0.249			
<i>Health-related work limitation</i>				-0.154*	0.061	-0.143
Number of observations	1,690			1,690		
Adjusted R ²	0.223			0.206		
Ages 73 to 75, 2012						
<i>Overall health status</i>						
Excellent or very good	0.101**	0.057	0.107			
Fair or poor	-0.191*	0.073	-0.174			
<i>Health-related work limitation</i>				-0.273*	0.058	-0.239
Number of observations	1,495			1,495		
Adjusted R ²	0.263			0.266		
Ages 75 to 77, 2014						
<i>Overall health status</i>						
Excellent or very good	0.160*	0.054	0.173			
Fair or poor	-0.262*	0.071	-0.230			
<i>Health-related work limitation</i>				-0.245*	0.056	-0.217
		Model 1			Model 2	
Number of observations		1,304			1,304	
Adjusted R ²		0.272			0.255	

Source: Author's calculations from the Health and Retirement Survey

Notes: Estimates were derived from an OLS regressions of the natural logarithm of real household income from the previous year for a sample of adults ages 63 to 65 in 2002. The analysis followed this sample through 2014, and estimated separate models every other year. In addition to the health measures shown in the model, the models controlled for sex, education, race and ethnicity, and marital status. Health status was measured in 2002, when respondents were ages 63 to 65. The analysis measured household income in constant 2017 inflation-adjusted dollars and adjusted for differences in household size by dividing the amounts reported by married adults by 1.41 (the square root of 2).

* $p < 0.05$; ** $p < 0.10$ (two-tailed t-test).

Regression models show that health problems in one's early sixties are significantly associated with lower household income levels throughout later life, even when education, sex, race and ethnicity, and relationship status are held constant (table 12). Controlling for those other factors, regression results indicate that people ages 63 to 65 in fair or poor health report 28 percent less household income, adjusted for household size, for the previous year at those ages than their counterparts in good health, 20 percent less income at ages 67 to 69, 25 percent less income at ages 71 to 73, and 23 percent less income at ages 75 to 77. Compared with people with no health-related work limitations at ages 63 to 65, those with health-related work limitations at ages 63 to 65 report 34 percent less household income at those ages, 26 percent less income at ages 67 to 69, 14 percent less income at ages 71 to 73, and 22 percent less income at ages 75 to 77.

Conclusions

As older adults have delayed retirement and worked longer, the impact of health status in late working life on retirement income has grown. Although employment and income at ages 62 to 64 increased substantially over the past two decades for people in good health, employment and income stagnated for those with health problems. Although the results were not consistent for both health measures we considered, we found some evidence that health's impact increased significantly over the past decade even when other factors were held constant. The income shortfalls experienced by people with health problems in their early sixties were not temporary gaps simply reflecting early retirement and the replacement of labor market earnings with relatively low benefits from Social Security and employer retirement plans. Instead, they persisted throughout later life, as people who withdrew from the labor force at relatively young ages had accumulated less retirement wealth than healthier people and received permanently reduced monthly Social Security benefits.

These findings are particularly concerning as evidence mounts that health status at midlife and older ages is worsening and health disparities by income and education are growing (Case and Deaton 2015; Centers for Disease Control and Prevention 2013; National Academies of Sciences, Engineering, and Medicine 2015). In our sample, 32 percent of adults ages 63 to 65 reported a health problem in 2014 that limited the type or amount of work they could perform. Among people who never attended college, 42 percent reported a health-related work limitation, up 9 percentage points since 1996. By contrast, only 26 percent of people ages 63 to 65 reported a health-related work limitation in 2014. The high prevalence of health problems at older ages among people with limited education further threatens their later-life financial security. These health and employment trends reinforce growing

wage inequities in the labor market (Piketty and Saez 2013) and will raise income inequality at older ages.

Our results have important policy implications for Social Security and the disability safety net. Raising Social Security's retirement ages without implementing any policies to protect low-income people, especially those with health problems, could undermine retirement security for many older Americans. Increasing the program's early retirement age above 62 could strip essential benefits from people with health limitations who cannot work. Raising the program's full retirement age without changing the early retirement age would widen the retirement income gap between those in good health who can remain in the workforce until qualifying for full benefits and those with health problems who retire at the earliest possible age and receive reduced benefits. As life expectancy at older ages increases, it may be necessary to adjust Social Security's retirement ages, but policy changes should include protections for older adults with health problems who cannot work longer. Strengthening Social Security's disability program could protect some older adults with health problems, although the program faces significant financing challenges. Altering Social Security's retirement benefit formula to make the system more progressive could also help beneficiaries with health problems because many of them have relatively low lifetime earnings.

Notes

1. People who turned 62 in 1999 and face a full retirement age of 65 would receive 132.5 percent of their full Social Security benefits if they claimed benefits at age 70. People who turned 62 between 2005 and 2016 and face a full retirement age of 66 would receive 132 percent of their full benefits if they claimed at age 70. Those turning 62 after 2021, whose full retirement age is 67, would receive 124 percent of their full benefits if they claimed at age 70.
2. Social Security Administration data show that the national average wage was \$24,706 in 1995 and \$44,888 in 2013. See “National Average Wage Index,” Social Security Administration, accessed January 26, 2018 <https://www.ssa.gov/oact/cola/AWI.html>.
3. Adults ages 65 and older with people with disabilities qualify for SSI, a federal income supplement program, if they have very little income or financial resources. For eligibility details, see “Understanding Supplemental Security Income SSI Eligibility Requirements,” Social Security Administration, accessed January 25, 2018, <https://www.ssa.gov/ssi/text-eligibility-ussi.htm>.
4. Because health problems are less common among college graduates than those with less education, recent gains in educational attainment among older adults reduced the overall prevalence of health problems in the older population. Between 1996 and 2014, the share of adults ages 63 to 65 in our sample who attended college increased from 36 to 62 percent.
5. People with health problems in their early sixties exhibit higher mortality rates than those in better health. In our sample of adults ages 63 to 65 in 2002, 44 percent of those in fair or poor health that year had died by 2014, when they would have been ages 75 to 77, compared with only 15 percent of those in excellent or very good health. When we restricted our comparisons of old-age income trajectories to respondents who survived to ages 75 to 77, the observed health-related income gap fell somewhat more slowly over time. Eliminating people who died by ages 75 to 77, we found that the income shortfall for people in fair or poor health relative to those in excellent or very good health declined from 48 percent at ages 63 to 65 to 39 percent at ages 75 to 77, and the income shortfall for people with health-related work limitations relative to those with no limitations declined from 41 percent at ages 63 to 65 to 22 percent at ages 75 to 77.

References

- Arias, Elizabeth, Melonie Heron, and Jiaquan Xu. 2016. "United States Life Tables, 2012." *National Vital Statistics Reports* 65 (8): 1–64. https://www.cdc.gov/nchs/data/nvsr/nvsr65/nvsr65_08.pdf.
- Bee, Adam, and Joshua Mitchell. 2017. "Do Older Americans Have More Income than We Think?" Working paper 2017-39. Washington, DC: US Census Bureau, Social, Economic, and Housing Statistics Division. <https://www.census.gov/content/dam/Census/library/working-papers/2017/demo/SEHSD-WP2017-39.pdf>.
- Board of Trustees (Board of Trustees, Federal Old-Age and Survivors Insurance and the Federal Disability Insurance Trust Funds). 2016. *The 2016 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*. Washington, DC: Board of Trustees.
- Bosworth, Barry, Gary Burtless, and Kan Zhang. 2016. *Later Retirement, Inequality in Old Age, and the Growing Gap in Longevity between Rich and Poor*. Washington, DC: Brookings Institution. https://www.brookings.edu/wp-content/uploads/2016/02/bosworthburtlesszhang_retirementinequalitylongevityfullpaper.pdf.
- Bound, John, Todd Stinebrickner, and Timothy Waidmann. 2010. "Health, Economics Resources, and the Work Decisions of Older Men." *Journal of Econometrics* 156 (1): 106–29.
- Bremer, Patrick. 2014. "Forgone Care and Financial Burden Due to Out-of-Pocket Payments within the German Health Care System." *Health Economics Review* 4 (1): 1–9.
- Buckles, Kasey, Andreas Hagemann, Ofer Malamud, Melinda S. Morrill, and Abigail K. Wozniak. 2016. "The Effect of College Education on Mortality." *Journal of Health Economics* 50: 99–114.
- Bugliari, Dean, Nancy Campbell, Chris Chan, Orla Hayden, Michael Hurd, Regan Main, Joshua Mallett, Colleen McCullough, Erik Meijer, Michael Moldoff, Philip Pantoja, Susann Rohwedder, and Patricia St. Clair. 2016. *RAND HRS Data Documentation, Version P*. Santa Monica, CA: RAND.
- Butrica, Barbara A., Karen E. Smith, and C. Eugene Steuerle. 2006. "Working for a Good Retirement." Retirement Project discussion paper 06-03. Washington, DC: Urban Institute.
- Case, Anne, and Angus Deaton. 2015. "Rising Morbidity and Mortality in Midlife among White Non-Hispanic Americans in the 21st Century." *Proceedings of the National Academy of Sciences* 112 (49): 15078–83.
- . 2017. "Mortality and Morbidity in the 21st Century." *Brookings Paper on Economic Activity* 2017: 397–476.
- Centers for Disease Control and Prevention. 2013. "CDC Health Disparities and Inequalities Report—United States, 2013." *Morbidity and Mortality Weekly Report* 62 (3 Supp). <https://www.cdc.gov/mmwr/pdf/other/su6203.pdf>.
- Chetty, Raj, Michael Stepner, Sarah Abraham, Shelby Lin, Benjamin Scuderi, Nicholas Turner, Augustin Bergeron, and David Cutler. 2016. "The Association between Income and Life Expectancy in the United States, 2001–2014." *Journal of the American Medical Association* 315 (16): 1750–66.
- Cosic, Damir, Richard W. Johnson, and Karen E. Smith. Forthcoming. *Growing Wage Inequality, the Minimum Wage, and the Future Distribution of Retirement Income*. Washington, DC: Urban Institute.
- Crystal, Stephen, and Dennis G. Shea. 1990a. "Cumulative Advantage, Cumulative Disadvantage, and Inequality among Elderly People." *Gerontologist* 30 (4): 437–43.
- . 1990b. "The Economic Well-Being of the Elderly." *Review of Income and Wealth* 36 (3): 227–47.
- Crystal, Stephen, Dennis G. Shea, and Adriana M. Reyes. 2016. "Cumulative Advantage, Cumulative Disadvantage, and Evolving Patterns of Late-Life Inequality." *Gerontologist* 57 (5): 910–20. doi:10.1093/geront/gnw056.

- Ferraro, Kenneth F., and Tetyana Pylypiv Shippee. 2009. "Aging and Cumulative Inequality: How Does Inequality Get Under the Skin?" *Gerontologist* 49 (3): 333–43.
- Fisher, Gwenith G., Dorey S. Chaffee, and Amanda Sonnega. 2016. "Retirement Timing: A Review and Recommendations for Future Research." *Work, Aging, and Retirement* 2 (2): 230–61.
- Goldman, Dana, and James P. Smith. 2011. "The Increasing Value of Education to Health." *Social Science and Medicine* 72 (10): 1728–37.
- Idler, Ellen L., and Yael Benyamini. 1997. "Self-Rated Health and Mortality: A Review of Twenty-Seven Community Studies." *Journal of Health and Social Behavior* 38 (1): 21–37.
- Johnson, Richard W., Gordon B.T. Mermin, and Dan Murphy. 2007. "The Impact of Late-Career Health and Employment Shocks on Social Security and Other Wealth." Retirement Project discussion paper 07-07. Washington, DC: Urban Institute.
- Johnson, Richard W., Karen E. Smith, Damir Cosic, and Claire Xiaozhi Wang. 2017. "Retirement Prospects for the Millennials: What Is the Early Prognosis?" Working paper 2017-17. Chestnut Hill, MA: Center for Retirement Research at Boston College. <http://crr.bc.edu/working-papers/retirement-prospects-for-the-millennials-what-is-the-early-prognosis/>.
- Johnson, Richard W., and Claire Wang. 2017. *Educational Differences in Employment at Older Ages*. Washington, DC: Urban Institute. https://www.urban.org/sites/default/files/publication/92231/educational_differences_in_employment_at_older_ages.pdf.
- Kochanek, Kenneth D., Sherry L. Murphy, Jiaquan Xu, and Elizabeth Arias. 2017. "Mortality in the United States, 2016." NCHS Data Brief, no 293. Hyattsville, MD: National Center for Health Statistics. <https://www.cdc.gov/nchs/data/databriefs/db293.pdf>.
- Kopczuk, Wojciech, Emmanuel Saez, and Jae Song. 2010. "Earnings Inequality and Mobility in the United States: Evidence from Social Security Data since 1937*." *Quarterly Journal of Economics* 125 (1): 91–128.
- Litwin, Howard, and Eliyahu V. Sapir. 2009. "Perceived Income Adequacy among Older Adults in 12 Countries: Findings from the Survey of Health, Ageing, and Retirement in Europe." *Gerontologist* 49 (3): 397–406.
- McGarry, Kathleen. 2004. "Health and Retirement: Do Changes in Health Affect Retirement Expectations?" *Journal of Human Resources* 39 (3): 624–48.
- Meara, Ellen R., Seth Richards, and David M. Cutler. 2008. "The Gap Gets Bigger: Changes in Mortality and Life Expectancy, by Education, 1981–2000." *Health Affairs* 27 (2): 350–60.
- Munnell, Alicia H., Wenliang Hou, and Geoffrey T. Sanzenbacher. 2018. "National Retirement Risk Index Shows Modest Improvement in 2016." Issue brief 18-1. Chestnut Hill, MA: Center for Retirement Research at Boston College. <http://crr.bc.edu/briefs/national-retirement-risk-index-shows-modest-improvement-in-2016/>.
- Munnell, Alicia H., and Steven A. Sass. 2009. *Working Longer: The Solution to the Retirement Income Challenge*. Washington, DC: Brookings Institution Press.
- National Academies of Sciences, Engineering, and Medicine. 2015. *The Growing Gap in Life Expectancy by Income: Implications for Federal Programs and Policy Responses*. Washington, DC: National Academies Press.
- National Center for Health Statistics. 2012. *Health, United States, 2012: With Special Feature on Socioeconomic Status and Health*. Hyattsville, MD: National Center for Health Statistics.
- O'Rand, Angela M. 1996. "The Precious and the Precocious: Understanding Cumulative Disadvantage and Cumulative Advantage over the Life Course." *Gerontologist* 36 (2): 230–38.

- . 2003. "Cumulative Advantage Theory in Life Course Research." In *Annual Review of Gerontology and Geriatrics: Focus on Economic Outcomes in Later Life*, edited by Stephan Crystal and Dennis G. Shea, 14–30. New York: Springer.
- Olshansky, S. Jay, Toni Antonucci, Lisa Berkman, Robert H. Binstock, Axel Boersch-Supan, John T. Cacioppo, Bruce A. Carnes, Laura L. Carstensen, Linda P. Fried, Dana P. Goldman, James Jackson, Martin Kohli, John Rother, Yuhui Zheng, and John Rowe. 2012. "Differences in Life Expectancy Due to Race and Educational Differences Are Widening, and Many May Not Catch Up." *Health Affairs* 31 (8): 1803–13.
- Piketty, Thomas, and Emmanuel Saez. 2006. "The Evolution of Top Incomes: A Historical and International Perspective." *American Economic Review* 96 (2): 200–205.
- . 2007. "Income and Wage Inequality in the United States, 1913–2002." In *Top Incomes over the Twentieth Century: A Contrast between European and English-Speaking Countries*, edited by Anthony Barnes Atkinson and Thomas Piketty, 141–225. New York: Oxford University Press.
- . 2013. "Top Incomes and the Great Recession: Recent Evolutions and Policy Implications." *IMF Economic Review* 61 (3): 456–78.
- Rupp, Kalman, and Paul S. Davies. 2004. "A Long-Term View of Health Status, Disabilities, Mortality, and Participation in the DI and SSI Disability Programs." In *Accounting for Worker Well-Being (Research in Labor Economics, Volume 23)*, edited by Solomon W. Polachek, 119–83. Bingley, UK: Emerald Group Publishing Limited.
- Schiller, Jeannine S., Jacqueline W. Lucas, and Jennifer A. Peregoy. 2012. "Summary Health Statistics for US Adults: National Health Interview Survey, 2011." *Vital Health Statistics* 10 (256).
- Waldron, Hilary. 2007. "Trends in Mortality Differentials and Life Expectancy for Male Social Security-Covered Workers, by Socioeconomic Status." *Social Security Bulletin* 67 (3): 1–28.
- . 2013. "Mortality Differentials by Lifetime Earnings Decile: Implications for Evaluations of Proposed Social Security Law Changes." *Social Security Bulletin* 67 (3): 1–37.
- Wolf, Steven H., Laudan Aron, Lisa Dubay, Sarah M. Simon, Emily Zimmerman, and Kim X. Luk. 2015. *How Are Income and Wealth Linked to Health and Longevity?* Washington, DC and Richmond, VA: Urban Institute and Center on Society and Health, Virginia Commonwealth University.
<https://www.urban.org/research/publication/how-are-income-and-wealth-linked-health-and-longevity>.
- Xu, Jiaquan, Sherry L. Murphy, Kenneth D. Kochanek, and Elizabeth Arias. 2016. "Mortality in the United States, 2015." Data brief 267. Hyattsville, MD: National Center for Health Statistics.
<https://www.cdc.gov/nchs/data/databriefs/db267.pdf>.
- Zimmerman, Emily B., Steven H. Wolf, and Amber Haley. 2015. *Understanding the Relationship between Education and Health*. Rockville, MD: Agency for Healthcare Research and Quality.
<https://www.ahrq.gov/professionals/education/curriculum-tools/population-health/zimmerman.html>.

About the Author



Richard W. Johnson is a senior fellow in the Income and Benefits Policy Center at the Urban Institute, where he directs the Program on Retirement Policy. His current research focuses on older Americans' employment and retirement decisions, long-term services and supports for older adults with disabilities, and state and local pensions. Recent studies have examined job loss at older ages, occupational change after age 50, employment prospects for 50+ African Americans and Hispanics, and the impact of the 2007–09 recession and its aftermath on older workers and future retirement incomes. He has also written extensively about retirement preparedness, including the financial and health risks people face as they approach retirement, economic hardship in the years before Social Security's early eligibility age, and the adequacy of the disability safety net.

Johnson's long-term services and supports research focuses on financing options and uses DYNASIM, Urban's dynamic microsimulation model, to project demand for services under current and alternative policies. His other major research thread involves state and local pension plans. He recently directed a team of researchers evaluating public pension plans in all 50 states and the District of Columbia, and he is examining how reforms might affect public-sector employees.

Johnson, who writes and speaks frequently about income and health security at older ages, earned his AB from Princeton University and his PhD from the University of Pennsylvania, both in economics.

STATEMENT OF INDEPENDENCE

The Urban Institute strives to meet the highest standards of integrity and quality in its research and analyses and in the evidence-based policy recommendations offered by its researchers and experts. We believe that operating consistent with the values of independence, rigor, and transparency is essential to maintaining those standards. As an organization, the Urban Institute does not take positions on issues, but it does empower and support its experts in sharing their own evidence-based views and policy recommendations that have been shaped by scholarship. Funders do not determine our research findings or the insights and recommendations of our experts. Urban scholars and experts are expected to be objective and follow the evidence wherever it may lead.



2100 M Street NW
Washington, DC 20037

www.urban.org