

# **Delayed Retirement and the Growth in Income Inequality at Older Ages**

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## **Introduction**

Retirement income depends largely on how much people earned when they were younger. As people earn more over their lifetime, they accumulate more credits toward future employer-sponsored defined benefit (DB) pension benefits—as long as they are covered by an employer plan—and Social Security benefits, which are both tied to past earnings. In addition, higher earnings generally enable people to save more for retirement through a 401(k)-type retirement plan or another vehicle. Consequently, as earnings become more unequally distributed, retirement income tends to become more unequal. The cumulative advantage theory emphasizes that early life advantages cumulate over the life course, magnifying economic inequality in later life (Ferraro and Shippee 2009; O’Rand 1996, 2003). However, Social Security, which accounts for about half of all income received at ages 65 and older (Bee and Mitchell 2017), replaces a larger share of preretirement earnings for low-earning workers than for high-earning workers, mitigating inequality at older ages. Nonetheless, Crystal and Shea (1990a, 1990b) found that income in the 1980s was more unequally distributed at older ages than younger ages.

Recent increases in wage inequality will likely raise future economic inequality at older ages. 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 hourly wages in the middle and near the bottom of the distribution barely changed from 1980 to 2012, especially for men (Cosic, Johnson, and Smith forthcoming). About one-half of employed men experienced no real wage growth, and real wages increased by 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 7 in 10 experiencing real wage growth of at least 20 percent. Gains in annual earnings, a

slightly different concept, have been concentrated at the very top of the distribution, according to data compiled by Piketty and Saez (2006) and their 2012 update. They found that between 1980 and 2011 average earnings increased 135 percent in the top 1 percent, 254 percent in the top 0.1 percent, and 455 percent in the top 0.01 percent.

Early evidence suggests that growing wage inequality is already raising income inequality at older ages. 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 that the continuation of the rising trend in wage inequality would raise the Gini coefficient for retirement income by 0.03 relative to the baseline (Cosic, Johnson, and Smith forthcoming).

The impact of growing disparities in health status on retirement income has received less attention. More workers are extending their careers and delaying retirement. 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 (Johnson and Wang 2017). Longer careers raise lifetime earnings and boost retirement earnings. Actuarial adjustments built into Social Security's retirement benefit formula also raise monthly Social Security benefits for workers who delay Social Security claiming. However, people with health problems are often unable to work longer. As financial security in old age increasingly depends on delaying retirement, older adults with health problems will likely fall further behind their healthier counterparts.

Growing health disparities further increase the possibility that income inequality will rise at older ages. People with higher income and better education are generally in better health and live longer than those with lower income and less education, and these disparities have increased in recent years (Bosworth, Burtless, and Zhang 2016; Buckles et al. 2016; Chetty et al. 2016;

Case and Deaton 2017; Olshansky et al. 2012; Meara, Richards and Cutler 2008). Although health status at midlife had been improving at midlife and older ages, that trend has stopped and may have even reversed. Life expectancy for men has declined slightly for the past two years (Kochanek et al. 2017), and mortality rates have increased for non-Hispanic whites who did not attend college (Case and Deaton 2015, 2017).

To assess how the trend toward later retirement might affect income inequality at older ages, this study examined how the relationship between health status, employment, and income for people eligible for early Social Security retirement benefits but too young to receive full retirement benefits shifted over the past two decades. Using household survey data, we compared health status, employment, Social Security benefit receipt, and household income in 1996 and 2014. The results show that the impact of health status on retirement income has grown over time. While 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. These findings have important implications for Social Security and the disability safety net.

## **Data and Methods**

Our data came from the Health and Retirement Study (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 that the HRS now collects data every two years from more than 22,000

adults older than age 50. Our analysis used the cleaned HRS data release from RAND (version P) (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 the 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 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 on a scale from excellent to poor. Although necessarily subjective, this measure appears to identify people with significant health problems, in that it reliably predicts future mortality (Idler and Benyamini 1997). 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.

We measured employment by the presence of at least \$20,000 of earnings, measured in constant inflation-adjusted 2017 dollars, in the previous year. We set that threshold, which eliminated about 40 percent of our employed sample in 1996 and 28 percent of our employed sample in 2014, so that our measure captured substantial employment, 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. We 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 while capturing the 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 earning at least \$20,000 in constant 2017 dollars 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, and 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 differentials 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 differentials before Social Security's full retirement age may simply reflect the substitution of earnings for retirement benefits by workers with health problems but not by workers in better health. Consequently, these income differentials 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 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, 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 share of adults in their early and mid-sixties with health problems 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 in 1996 to 31.8 percent in 2014, while 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, as the prevalence of health problems increased much more rapidly 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.

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 the 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.<sup>1</sup>

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<sup>1</sup> 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 in our sample who attended college increased from 36 to 62 percent.



### *Employment rates*

Employment at ages 62 to 64 increased significantly between 1996 and 2014 (table 2). Overall, the share of adults ages 63 to 65 who reported earning at least \$20,000 in constant 2017 dollars in the previous year increased from 23.4 to 31.5 percent over the period. Employment rates grew 6 percentage points for men and 10 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—to 47.5 percent—for men and 15 percentage points—to 38.7 percent—for women. Among adults 63 to 65 with some health-related work limitations, the share with significant earnings fell insignificantly by 2 percentage points—to 9.2 percent—for men and increased insignificantly by 2 percentage points—to 7.8 percent—for women.

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 11 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 about 21 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 about another 8 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.

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, except that in 2014 widows 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 among people in their early sixties over the past two decades, Social Security benefit claiming also fell significantly (table 4). 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. Benefit receipt rates fell 6 percentage points for men and 13 percentage points for women. However, only people without substantial health problems delayed their Social Security claiming. Among people without any health-related work limitations, the share receiving Social Security income fell 14 percentage points over the period for men—to 42.3 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 insignificantly increased, rising 4 percentage points for men and 1 percentage point for women. 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.

The decline in overall Social Security benefit receipt was driven solely by delayed retirement benefit claiming, as Social Security disability receipt increased for people in their early sixties. 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 men 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.

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 point for men and 14 percentage point 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, 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.

Income shortfalls for people in their early sixties with health problems grew substantially over the past two decades. While mean real household income for people in their early sixties grew significantly between 1996 and 2014, the gains were restricted to people in strong 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 averaged only 44 percent as much for those with some health-related work limitations as for those with no work limitations, and only 39 percent as much for those in fair or poor health as for those in excellent or very good health.

The inflation-adjusted household income gains that people in their early sixties with no health problems experienced over the past two decades came also 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, increasing from \$22,895 to \$45,453 (table 6). 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 and SSI, and government transfers as their employment rates fell. However, their average income from unemployment

benefits, workers' compensation, and assets fell over the people. Neither their earnings nor their overall income changed significantly between 1996 and 2014.

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 important 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 7). 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 who described their health as fair or poor. 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 8). 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 statistically insignificant.

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 high school graduates who did not attend college, and 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 nonmarried adults. There is some evidence 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 statistically insignificant, 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 9 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. Previous year's mean real household-size adjusted income was only 57 percent as much at ages 63 to 65 for those with health problems as for those with no health problems. This share increased to 64 percent at ages 67 to 69, 68 percent at ages 71 to 73, and 78 percent at ages 75 to 77. The gap shrunk 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 10 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 shows again 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 report only 49 percent as much income at those ages, 54 percent as much income at ages 67 to 69, 55 percent as much income at ages 71 to 73, and 61 percent as much income at ages 75 to 77. The income gap declined as people aged as more of those without health problems at ages 63 to 65 withdrew from the labor force.

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 11). 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 on retirement income has grown. While 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. The income shortfalls for people with health problems in their early sixties are not temporary gaps that simply reflect early retirement and the substitution of Social Security benefits for labor market earnings. Instead, they persist throughout later life, as people who withdraw from the labor force at relatively young ages have accumulated less retirement wealth than healthier people and receive permanently reduced monthly Social Security benefits.

These findings are particularly concerning as evidence mounts that health status at midlife and older ages is worsening. 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.

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. Strengthening Social Security's disability program could protect

some older adults with health problems. Altering the Social Security’s retirement benefit formula to make the system more progressive could also help beneficiaries with health problems, since many of them have relatively low lifetime earnings.

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Table 1

Distribution of Health Status and Share with Work-Limiting Health Problems, 1996 and 2012 (%)  
*Adults ages 63 to 65*

	All		Men		Women	
	1996	2014	1996	2014	1996	2014
<b>All education groups</b>						
<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
<b>People who did not attend college</b>						
<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
<b>People who attended college</b>						
<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

Note: \* difference between 1996 and 2014 estimates is statistically significant ( $p < 0.05$ , two-tailed t-test)

† difference between 1996 and 2014 estimates is marginally significant ( $p < 0.10$ , two-tailed t-test)

Table 2  
 Percentage with Substantial Labor Market Earnings in the Previous Year  
 Adults ages 63 to 65

	All		Men		Women	
	1996	2014	1996	2014	1996	2014
All	23.4	31.5*	28.7	34.4*	18.6	29.0*
<i>Overall health status</i>						
Excellent or very good	27.6	39.0*	34.0	45.8*	21.6	33.7*
Good	24.7	33.2*	30.7	34.6	19.6	31.8*
Fair or poor	12.4	15.9	14.1	14.9	11.0	16.8†
<i>Any health problems that limit work</i>						
No	29.5	42.7*	35.7	47.5*	23.8	38.7*
Yes	8.4	8.5	11.0	9.2	6.1	7.8
<i>Number of observations</i>	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.

\* difference between 1996 and 2014 estimates is statistically significant ( $p < 0.05$ , two-tailed t-test)

† difference between 1996 and 2014 estimates is marginally significant ( $p < 0.10$ , two-tailed t-test)

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	0.070	0.123	0.021	0.156	0.109	0.046
<i>Overall health status</i>						
Excellent or very good	0.049	0.075	0.015			
Excellent or very good, 2014	0.027	0.106	0.008			
[Reference: Good]						
Fair or poor	-0.386*	0.097	-0.110			
Fair or poor, 2014	-0.079	0.132	-0.024			
Health-related work limitation				-0.802*	0.089	-0.209
Work limitation, 2014				-0.304*	0.122	-0.082
<i>Education</i>						
Not high school graduate	-0.211*	0.089	-0.062	-0.211*	0.092	-0.059
Not high school graduate, 2014	-0.012	0.149	-0.004	-0.006	0.156	-0.002
[Reference: High school graduate]						
Some college	0.251*	0.089	0.080	0.258*	0.092	0.080
Some college, 2014	-0.033	0.123	-0.010	0.008	0.128	0.002
College graduate	0.286*	0.091	0.092	0.257*	0.093	0.080
College graduate, 2014	0.140	0.126	0.044	0.141	0.129	0.043
Female	-0.353*	0.068	-0.109	-0.365*	0.071	-0.109
Female, 2014	0.225*	0.095	0.071	0.198*	0.099	0.060
<i>Race and ethnicity</i>						
[Reference: non-Hispanic white]						
African American	0.085	0.094	0.026	0.032	0.098	0.010
African American, 2014	-0.142	0.126	-0.042	-0.135	0.132	-0.038
Hispanic	-0.133	0.134	-0.039	-0.194	0.139	-0.054
Hispanic, 2014	0.030	0.170	0.009	-0.004	0.175	-0.001
Other	0.025	0.342	0.008	-0.078	0.352	-0.022
Other, 2014	-0.144	0.288	-0.042	-0.175	0.297	-0.048
<i>Relationship status</i>						
[Reference: Married, partnered]						
Divorced or separated	0.048	0.108	0.015	0.110	0.113	0.033
Divorced or separated, 2014	0.047	0.138	0.014	0.027	0.145	0.008
Widowed	0.020	0.109	0.006	0.022	0.113	0.006
Widowed, 2014	-0.327*	0.162	-0.089	-0.214	0.170	-0.058
Never married	0.220	0.192	0.072	0.231	0.199	0.073
Never married, 2014	-0.234	0.240	-0.065	-0.125	0.250	-0.035
Constant	-0.606*	0.083		-0.461*	0.069	0.000

Table 3 (continued)

	<b>Model 1</b>	<b>Model 2</b>
<i>Pseudo R<sup>2</sup></i>	0.067	0.120
<i>Log-likelihood ratio</i>	287.9	507.9
<i>Number of observations</i>	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 constant 2017 dollars, in the previous year.

\*  $p < 0.05$  (two-tailed t-test)

†  $p < 0.10$  (two-tailed t-test)



Table 4  
 Percentage of Adults Receiving Social Security Benefits in the Previous Year  
 Adults ages 63 to 65

	All		Men		Women	
	1996	2014	1996	2014	1996	2014
<b>Any Social Security benefits</b>						
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
<b>Social Security retirement benefits</b>						
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
<b>Social Security disability benefits</b>						
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
<i>Number of observations</i>	1,991	1,846	931	778	1,060	1,068

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

Note: \* difference between 1996 and 2014 estimates is statistically significant ( $p < 0.05$ , two-tailed t-test)

† difference between 1996 and 2014 estimates is marginally significant ( $p < 0.10$ , two-tailed t-test)

Table 5  
Mean Real Household Income in the Previous Year  
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
<i>Number of observations</i>	<i>1,991</i>	<i>1,846</i>	<i>931</i>	<i>778</i>	<i>1,060</i>	<i>1,068</i>

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.

\* difference between 1996 and 2014 estimates is statistically significant ( $p < 0.05$ , two-tailed t-test)

† difference between 1996 and 2014 estimates is marginally significant ( $p < 0.10$ , two-tailed t-test)

Table 6  
 Real Mean Household Income in the Previous Year by Source and Health-Related Work Limitations, 1996 and 2014 (\$) *Adults ages 63 to 65*

	All		No Limits		Some Limits	
	1996	2014	1996	2014	1996	2014
<b>Dollar amount</b>						
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
<b>Percentage of total</b>						
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
<i>Number of observations</i>	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.

\* difference between 1996 and 2014 estimates is statistically significant ( $p < 0.05$ , two-tailed t-test)

† difference between 1996 and 2014 estimates is marginally significant ( $p < 0.10$ , two-tailed t-test)

Table 7

Real Mean Household Income in the Previous Year by Overall Health Status, 1996 and 2014 (\$)  
*Adults ages 63 to 65*

	<u>Excellent or Very Good</u>		<u>Good</u>		<u>Fair or Poor</u>	
	1996	2014	1996	2014	1996	2014
<b>Dollar amount</b>						
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*
<b>Percentage of total</b>						
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
<i>Number of observations</i>	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.

\* difference between 1996 and 2014 estimates is statistically significant ( $p < 0.05$ , two-tailed t-test)

† difference between 1996 and 2014 estimates is marginally significant ( $p < 0.10$ , two-tailed t-test)

Table 8  
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	0.200*	0.098	0.221			
[Reference: Good]						
Fair or poor	-0.362*	0.078	-0.304			
Fair or poor, 2014	0.018	0.109	0.018			
Health-related work limitation				-0.363*	0.063	-0.304
Work limitation, 2014				-0.037	0.088	-.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
Female	-0.114*	0.058	-0.108	-0.128	0.058	-0.120
Female, 2014	0.104	0.084	0.110	0.142 <sup>†</sup>	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 <sup>†</sup>	0.228	-0.336
Other, 2014	-0.471 <sup>†</sup>	0.285	-0.375	-0.488 <sup>†</sup>	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	

Table 8 (continued)

	<b>Model 1</b>	<b>Model 2</b>
<i>Adjusted R<sup>2</sup></i>	0.243	0.243
<i>Number of observations</i>	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.

\*  $p < 0.05$  (two-tailed t-test)

†  $p < 0.10$  (two-tailed t-test)

Table 9  
Real Mean Household Income by Source and Baseline Health Related Work Limitations  
Adults Ages 63 and 65 in 2002

Age	Baseline Work Limitations	Total	Earnings	Social Security and SSI	Pension	Asset Income	Other	No. of Obs.
63-65	(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
	(b) as % of (a)	57	37	128	76	40	59	
65-67	(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
	(b) as % of (a)	56	33	104	72	42	36	
67-69	(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
	(b) as % of (a)	64	40	91	75	50	72	
69-71	(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
	(b) as % of (a)	68	37	90	66	70	79	
71-73	(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
	(b) as % of (a)	68	38	88	75	60	48	
73-75	(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
	(b) as % of (a)	69	38	88	57	78	46	
75-77	(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
	(b) as % of (a)	78	34	92	69	65	134	

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 adults 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 10  
Real Mean Household Income by Source and Baseline Overall Health Status  
Adults Ages 63 and 65 in 2002

Age	Baseline Work Limitations	Total	Earnings	Social Security and SSI	Pension	Asset Income	Other	No. of Obs.
63-65	(a) Excellent, very good (\$)	75,888	29,722	10,361	9,899	21,777	4,129	909
	(b) Fair, poor (\$)	37,449*	12,941*	10,933	4,789*	6,687*	2,101*	559
	(b) as % of (a)	49	44	106	48	31	51	
65-67	(a) Excellent, very good (\$)	79,044	23,473	15,132	10,908	20,363	9,168	861
	(b) Fair, poor (\$)	36,314*	9,997*	13,180*	5,455*	5,611*	2,071*	503
	(b) as % of (a)	46	43	87	50	28	23	
67-69	(a) Excellent, very good (\$)	70,939	17,892	17,588	10,712	20,172	4,576	823
	(b) Fair, poor (\$)	37,998*	7,690*	14,314*	5,671*	7,456*	2,867	462
	(b) as % of (a)	54	43	81	53	37	63	
69-71	(a) Excellent, very good (\$)	69,700	14,577	17,824	11,695	19,526	6,078	803
	(b) Fair, poor (\$)	34,579*	5,373*	14,877*	5,141*	7,540*	1,649*	437
	(b) as % of (a)	50	37	83	44	39	27	
71-73	(a) Excellent, very good (\$)	59,177	9,726	19,151	11,745	15,327	3,229	770
	(b) Fair, poor (\$)	32,578*	3,992*	15,623*	5,610*	4,742*	2,610	385
	(b) as % of (a)	55	41	82	48	31	81	
73-75	(a) Excellent, very good (\$)	55,558	7,902	18,415	11,509	12,723	5,009	750
	(b) Fair, poor (\$)	29,219*	1,660*	15,355*	5,131*	4,581*	2,491	344
	(b) as % of (a)	53	21	83	45	36	50	
75-77	(a) Excellent, very good (\$)	56,313	5,718	18,722	13,941	13,579	4,354	687
	(b) Fair, poor (\$)	34,411*	1,356*	15,960*	6,651*	5,309*	5,134	288 <sup>†</sup>
	(b) as % of (a)	61	24	85	48	39	118	

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 adults 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 11

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
<b>Ages 63 to 65, 2002</b>						
<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>				-0.416*	0.058	-0.340
Number of observations	2,143			2,143		
Adjusted R <sup>2</sup>	0.214			0.216		
<b>Ages 65 to 67, 2004</b>						
<i>Overall health status</i>						
Excellent or very good	0.212*	0.057	0.236			
Fair or poor	-0.364*	0.066	-0.305			
<i>Health-related work limitation</i>				-0.400*	0.056	-0.330
Number of observations	2,010			2,010		
Adjusted R <sup>2</sup>	0.255			0.245		
<b>Ages 67 to 69, 2006</b>						
<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 <sup>2</sup>	0.259			0.255		
<b>Ages 69 to 71, 2008</b>						
<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 <sup>2</sup>	0.295			0.288		
<b>Ages 71 to 73, 2010</b>						
<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 <sup>2</sup>	0.223			0.206		

(Continued)

Table 11 (continued)

	Model 1			Model 2		
	Coefficient	Standard Error	Marginal Effect	Coefficient	Standard Error	Marginal Effect
<b>Ages 73 to 75, 2012</b>						
<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 <sup>2</sup>	0.263			0.266		
<b>Ages 75 to 77, 2014</b>						
<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
Number of observations	1,304			1,304		
Adjusted R <sup>2</sup>	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).

\*  $p < 0.05$  (two-tailed t-test)

†  $p < 0.10$  (two-tailed t-test)