U.S. Department of Labor
Assistant Secretary for Policy,
Chief Evaluation Office

Labor Market and DOL-Funded Employment Assistance for Older Workers

Statistical Analysis Report

Contract Number: DOLQ129633247
Order Number: DOL-OPS-15-U-00156

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November 30, 2016

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This report was prepared for the U.S. Department of Labor (DOL), Chief Evaluation Office by IMPAQ International, LLC, under Contract No. DOLQ129633247, Order No. DOL-OPS-15-U-00156. The views expressed are those of the authors and should not be attributed to DOL, nor does mention of trade names, commercial products, or organizations imply endorsement of same by the U.S. Government.

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ACKNOWLEDGEMENTS

The authors would like to thank the U.S. Department of Labor project officer, Christina Yancey; and the members of the Technical Working Group, Kevin Cahill, Christopher O'Leary, and Sara Rix.

EXECUTIVE SUMMARY

A. Introduction

As the Baby Boomer generation moves toward retirement age, a chief concern facing U.S. policymakers is how to accommodate this demographic shift. For the U.S. Department of Labor (DOL) and other agencies, the workforce dynamics of older workers is of particular concern.

The exact definition of older workers varies by source and purpose. For instance, those ages 40 and older are protected from age discrimination by the Age Discrimination in Employment Act of 1967 (ADEA) and by the Older Workers Benefit Protection Act of 1990. In contrast, the Older Americans Act of 1965 defines them as individuals 55 and older. Some analysts describe older workers as 50 and older,[1] and others as 55 and older.[2] In this report, we define older workers as 50 and older and assess six sub-groups (50-56, 57-61, 62-66, 67-71, and 72-76, and 77 and over) within that population.

Older workers differ from younger workers in that they face the challenge of supporting themselves in retirement, a prospect made only more difficult by the Great Recession of 2008-2009 (GR). This report shows that older worker labor market behavior and fortunes were markedly different even five years after the GR ended.

We use nationally representative data to illustrate trends in labor force participation, retirement, and earnings among older workers pre-, during, and post-GR. We provide potential explanations for these trends based on the literature. A better understanding of these trends can inform DOL and other federal agencies' understanding of which policies will best support older workers and their labor market needs.

B. Research Questions/Motivation

Researchers have developed a strong body of work to understand the labor market experiences of older workers during the GR; however, the research seeking to understand their outcomes in the post-GR recovery years[3, 4] is limited due to the short period (through 2013) for which recovery years' data have so far been available. This report builds out prior research on the labor market experiences of older workers post-GR with data that include the post-recovery years 2014-2015.

[1] Brown, Mellissa, Kerstin Aumann, Marcie Pitt-Catsouphes, Ellen Galinsky, and James T. Bond. 2010. Working in Retirement: A 21st Century Phenomenon. New York, N.Y: Family and Work Institute (July). Retrieved on 11/2/2016 from http://familiesandwork.org/downloads/WorkinginRetirement.pdf

[2] Staubli, Stefan, and Josef Zweimüller. "Does raising the early retirement age increase employment of older workers?." Journal of public economics 108 (2013): 17-32.

[3] Burtless, Gary. "Labor force dynamics in the Great Recession and its aftermath: Implications for older workers." CRR WP 1 (2016).

[4] Moscarini, Giuseppe, and Fabien Postel-Vinay. "Did the job ladder fail after the Great Recession?." Journal of Labor Economics 34.S1 (2016): S55-S93.

We refer to 2014-2015 as *post-GR/longer-term*, to emphasize that these data are more recent than any available in previous labor market research.

Four primary research questions guide our analysis:

1. What are the demographic characteristics of older workers? Do these characteristics differ by age?
2. What are the trends in the employment status, earnings, duration of unemployment, and income of older workers pre-, during, and post-GR? Do the trends vary by gender?
3. How did the older workers' labor market outcomes differ compared to those of workers ages 40-49, post-GR/short or longer-term? If so, how?
4. How did the likelihood of retirement change among older workers after the GR compared to before the GR?

C. Data/Methodology

This report uses the Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS) for the period 2005 through 2015. The CPS is a monthly, nationally representative survey that collects information from 50,000 households on the labor force characteristics of the U.S. population. This rich, nationally representative source of data enables us to examine the dynamics of older workers in the labor market in recent years, including trends in labor force participation, earnings, and income, by both age and gender.

Our multivariate analysis assesses the differential effect of the GR on older workers' outcomes compared to those of workers ages 40-49. To assess whether the intensity of the GR's effect differed between the two groups, we use a repeated cross-sectional difference-in-differences (DID) statistical framework for hours worked and earnings, and a logit model for retirement pattern differences.

Our analysis focuses on three periods: (1) pre-GR (CPS March 2005-2007), (2) during GR (CPS March 2008-2010), and (3) post-GR (CPS March 2011-2015). We divide the latter, as noted, into post-GR/short-term (CPS March years 2011-2013) and post-GR/longer-term (CPS March years 2014-2015).

D. Summary of Findings

The key findings of our analysis reveal different patterns for workers over age 62 (the earliest eligible age to draw down Social Security Retirement benefits[5]), vs. workers ages 40-49 (which we chose as the most appropriate prime age comparison cohort). Workers over 62 increased their labor force participation rates, postponed retirement, and earned more post- than pre-GR.

[5] Social Security Administration (2015). *Retirement Benefits.* Retrieved on 11/2/16 from https://www.ssa.gov/pubs/EN-05-10035.pdf

In contrast, workers ages 40-49 and 50-61 had stagnant or lower labor force participation rates, and lower earnings, post- than pre-GR.

- **Labor Force Participation.** Even five years post-GR, the younger cohorts of older adults (ages 50-56 and 57-61) and adults ages 40-49 had stagnant or lower labor force participation rates compared to pre-GR. The older groups (ages 62-66, 67-71, 72-76, and 77 and over) each had statistically significantly higher labor force participation rates (4.5 percent for ages 62-66, 2.4 percent for ages 67-71, 1.2 percent for ages 72-76, and 1.0 percent for ages 77 and over) than pre-GR.

- **Hours Worked.** Compared to those ages 40-49, older workers worked relatively more hours per week both in the short- and longer-term post-GR, with most of the increases statistically significant. For example, older men ages 62-66 and 67-71 worked about 1.1 hours more post-GR/short-term compared to the 40-49 group compared to the oldest group's (77 and over) increase of 2.2. The relative increases in hours worked are larger for men than women, except for those ages 72-76.

- **Duration of Unemployment.** Unemployment duration has not returned to pre-GR levels, either for workers ages 40-49 or for the younger cohorts of older workers (age groups 50-66 taken together). Both of these groups remain the worst affected, with mean weeks of unemployment about 13 weeks higher after than pre-GR, a statistically significant difference.

- **Hourly Earnings.** Some older worker groups experienced a statistically significant increase in hourly earnings after the recession compared to workers ages 40-49. In the short-term, male workers ages 72-76 experienced the largest hourly wage increases (8.6 percent higher than for workers 40-49). Among women, only two of the older groups (ages 62-66 and 77 and over) experienced hourly wage increases compared to their 40-49 year-old counterparts that are statistically significant. Post-GR/longer-term, women ages 77 and over experienced the highest hourly wage increase (28.5 percent) compared to their 40-49 year-old counterparts.

- **Wages and Family Income.** Clear differences exist between the relatively younger and older cohorts of older workers in their post-GR wages and family income levels. Hourly wage-and-salary earnings of younger cohorts of older workers (50-56, 57-61) still remained around 2 percent below pre-GR levels in 2015, a statistically significant decrease. In sharp contrast, the age groups 62-66, 67-71, 72-76, and 77 and over had a statistically significant increase compared to pre-GR in both: (1) their average hourly wage-and-salary earnings (3.2 percent for ages 62-66, 8.0 percent for ages 66-71, 4.4 percent for ages 72-76, and 11.9 percent for ages 77 and over), and (2) family incomes (12 percent for 66-71 year-olds, 11 percent for 72-76 year-olds, and 4 percent for those 77 and over).

- **Retirement Rates.** We define retirement as when a respondent indicates the reason for not working in the previous year as "retirement." We found that older workers were less likely to retire post- than pre-GR. These results are statistically significant for men ages 50-76 and for women ages 50-66 and 72-76 post-GR/short-term. The results are also statistically significant for men ages 50-71 and women ages 50-66 post-GR/longer-term. Men and women ages 62-66 experienced the greatest drop in their likelihood of retiring compared to pre-GR, both post-GR/short-term (7.5 percentage points among men and 5.4 percentage points among women) and longer-term (6.4 percentage points among men and 3.5 percentage points among women). The post-GR decreases in the likelihood of retirement are more pronounced for men than for women.

Implications for Future Research

Given that older workers are a growing part of the labor force, what research can be done to better understand how to serve and support this subpopulation of the labor force? Our recommendations to DOL for future research topics are as follows:

- ***Effectiveness of targeted services.*** As older workers increase their labor force participation, DOL may want to consider additional research on the effectiveness of more targeted services for older workers in the public workforce system, for example:
  - Training programs designed specifically for older workers, such as upgrading technology-intensive skills or skills needed for jobs in high-demand high-growth industries and occupations
  - Training in new job search strategies involving internet job searches and use of social media
  - Targeted job searches for jobs that better accommodate the health and disability-related challenges of older workers
- ***Causes of persistence in long-term unemployment.*** Our findings reveal long unemployment periods post-GR, even longer-term, for almost all cohorts of older workers. Given this finding, further research that more rigorously explores what factors (such as education and skills) are associated with unemployment duration would potentially help DOL to better support those older workers facing the longest unemployment spells.
- ***Overall financial well-being of older workers.*** Our multivariate analysis of income was restricted to wage-and-salary earnings. However, wages and salaries form a small piece of the income for older adults, who increasingly depend on sources like savings, other assets, and Social Security and other retirement income sources as they age. Further research exploring a more holistic measure of financial well-being will provide further insight into the overall financial health of older adults both GR-short- and longer-term.
- ***Accounting for selection bias.*** Our statistical analyses suggest that older workers have been working more hours and earning higher wage rates post-GR. However, our analysis on hours worked was restricted to older workers who were part of the labor force, and our analysis on wage earnings was restricted to older workers who reported positive earnings. As a result, both analyses were subject to selection bias issues.
- ***Research on the 70 and older age group.*** Our analysis reveals that workers 70 years and older are working more hours and earning more per hour post- than pre-GR compared to the 40-49 groupd with increases higher than for younger cohorts among the older worker group. We recommend more research to explore the cause for this counter-intuitive finding.
- ***Labor demand-side research.*** As our literature review report mentioned, we found little research on the labor demand side regarding older workers. In the statistical analysis, we were also unable to measure demand-side factors related to older workers, due to the limitations of publicly available data. Should DOL and other agencies want rigorous research on the labor demand of older workers, researchers will need access to more datasets with firm-level employment and earnings data.

Implications for Future Research, Cont.

- ***Role of Gig Economy.*** The arrival of gig economy platforms have helped provide employment and earning opportunities, especially for those laid off or unemployed during periods of economic decline. However, a critical element of employment in jobs like Uber or Lyft is that such companies consider workers as independent contractors. Since these workers are not considered employees under the law, their employers do not confer any workplace protections or employer-provided benefit – such as overtime compensation, minimum wage protections, health insurance, disability insurance, unemployment insurance, maternity and paternity leave, employer-sponsored retirement plans, workers' compensation for injuries, paid sick leave, and the ability to engage in collective action. We recommend research to understand the extent to which older workers consider the 'gig economy' as a bridge to retirement, and the financial consequences of working in such jobs.
- ***Using administrative data to examine older worker training decisions made by workforce system.***The Secretary of Labor's Taskforce on Aging of the American Labor Force (USDOL, 2008) documented that unemployed older workers receive little training from the public workforce system. The Taskforce's report also found that: 1) older workers are reluctant to participate in job training programs offered by the public workforce system, and 2) American Job Center staff are more likely to refer the older workers to Senior Community Service Employment Program than to either the Workforce Investment Act (WIA) program or the newer Workforce Investment Opportunity Act (WIOA) program. We recommend future research to further examine WIOA administrative data – to assess the reasons driving the underrepresentation of older workers within the public workforce system, as well as the types of jobs those older workers who do utilize the system are referred to.

1. INTRODUCTION

1.1 Older Workers and the Great Recession

The U.S. Department of Labor (DOL) awarded IMPAQ International LLC (IMPAQ) a contract to conduct the *Labor Market and DOL-Funded Employment Assistance for Older Workers* study. The goal of this study is to understand how older workers fared in the labor market in the aftermath of the Great Recession of 2008-2009 (hereafter GR). This report presents the results of the statistical analysis component of the study. A separate report presents the study's literature review component.

How older workers are defined varies by source and purpose. For instance, those 40 and older are protected from age discrimination by the Age Discrimination in Employment Act of 1967 (ADEA).[6] But some analysts define older workers as 50 and older, others as 55 and older. We define older workers as 50 and older,[7] and also assess the labor market outcomes of six sub-groups (50-56, 57-61, 62-66, 67-71, 72-76, and 77 and over) within that population, compared to outcomes of workers ages 40-49.

From December 2007 through June 2009,[8] the GR hit the U.S. and global economies; it was a period of drastic decline in economic activity that led to large increases in unemployment rates and durations for workers of all ages.[9] Many older workers experienced long-term unemployment post-GR, with a stubbornly sluggish recovery.[10] Job loss, compensation reductions, declining home values, investment losses, and high debt also undermined retirement financial plans and expectations. According to a 2012 U.S. Government Accountability Office (GAO) report, "a hypothetical worker who had $70,000 in retirement savings at age 55 and withdrew 50 percent of those savings during a 2 year period of unemployment, would need another 5.5 years of work and savings to rebuild the retirement account to the level it had been

[6] Age Discrimination in Employment Act of 1967 - ADEA - 29 U.S. Code Chapter 14. (n.d.). Retrieved from http://finduslaw.com/age-discrimination-employment-act-1967-adea-29-us-code-chapter-14.

[7] In instances where analyses only refer to individuals in the labor force, we use the term "older workers." When analyses refer to individuals that are both in and out of the labor force, we use the term "older adults.".

[8] National Bureau of Economic Research. (2016). *US Business Cycle Expansions and Contractions.* Retrieved from http://www.nber.org/cycles.html

[9] United States Bureau of Labor Statistics. (2012). *BLS Spotlight on Statistics: The Recession of 2007–2009*. Retrieved from http://www.bls.gov/spotlight/2012/recession/pdf/recession_bls_spotlight.pdf

[10] From 2006 to 2015, workers ages 25-54 experienced unemployment rates higher than workers 55 and oler. The difference was as low as .6 percentage points in 2007 (25-54 year-olds with a 3.75 percent unemployment rate compared to 3.15 for 55 and older workers) and as high as 1.75 percentage points in 2009 (25-54 year-olds with a 8.32 percent unemployment rate compared to 6.57 for 55 and older workers), per Current Population Survey, Seasonal Labor Force Participation Rate, 2006-2016. From 2008 to 2015, workers 55 and older experienced longer spells of unemployment than workers ages 25-54. The difference ranges from as low as 2.3 more mean weeks of unemployment in 2008 to as high as 12.05 weeks of unemployment in 2014, per Census Population Survey, Unemployed persons by age, sex, race, Hispanic or Latino ethnicity, marital status, and duration of unemployment, 2008-2015.

before unemployment began."[11] Many older workers now plan to work longer, postpone retirement, or return to the labor force after retirement.[12] This pattern is evidenced in the data we examine in this report – with older workers unequivocally working more in recent years than they did pre-GR.

1.2 Research Motivation and Questions

The U.S. workforce is aging on average, with workers over 65 remaining active in the labor force at higher rates. The number of people who will reach age 65 and older in the next two decades has increased by 20.7 percent. In the last decade alone, the number of people ages 60 and older increased by 30.7 percent – from 48.1 million (2003) to 62.8 million (2013).[13] Further, since the 1990s, the labor force participation rate of older adults, mainly 55 and older, has steadily increased, reversing the trend toward early retirement that had persisted since the late 19th century.[14] As a result, understanding the employment needs and labor market behaviors of older workers has become particularly pressing, especially in light of the GR. The research presented in this report contributes to addressing this need by showing how older workers' labor market behavior changed post- compared to pre-GR.

Many researchers have studied the labor market experience of older workers during the GR. For example, Gustman et al. (2015), who examined retirement and related labor market outcomes for the early baby boomers (born between 1948 and 1953),[15] found that post-GR the early boomers' probability of being laid off and the length of time it took to find other full-time employment both increased. Johnson (2012), who looked at workers ages 62 and older, found that the unemployment rate for men ages 62 and older increased by 4 percentage points between 2007 and 2010, a surge unprecedented over the past 35 years.[16]

Despite previous studies of older workers' experience during the GR, little is known about older workers' labor market outcomes in the post-GR years, particularly in the longer-term, which we

[11] United States Government Accountability Office. (2012). *Unemployed Older Workers: Many Experience Challenges Regaining Employment and Face Reduced Retirement Security.* Retrieved from http://www.gao.gov/assets/600/590408.pdf.

[12] Rix, S.E. (2011). *Recovering from the Great Recession: Long Struggle Ahead for Older Americans* (Insight on the Issues 50). AARP Public Policy Institute.

[13] United States Department of Health and Human Services Administration on Aging. (n.d.) *A Profile of Older Americans: 2014*. Retrieved from: http://www.aoa.acl.gov/Aging_Statistics/Profile/2014/docs/2014-Profile.pdf

[14] United States Bureau of Labor Statistics. (2008). *TED: The Economics Daily: Labor force participation of seniors, 1948-2007*. Retrieved from: http://www.bls.gov/opub/ted/2008/jul/wk4/art02.htm

Costa, D. L. (1998). The evolution of retirement: An American economic history, 1880-1990(NBER series on long-term factors in economic development; NBER series on long-term factors in economic development). Chicago: University of Chicago Press. http://catdir.loc.gov/catdir/toc/uchi052/97029755.html

[15] Gustman, A. L., Steinmeier, T. L., & Tabatabai, N. National Bureau of Economic Research. (2015). *The Great Recession, Retirement and Related Outcomes* (No. w20960).

[16] Johnson, R. W. (2012). *Older workers, retirement, and the Great Recession.* New York: Russell Sage Foundation.

define as 2014-2015 (five years post-GR). We now have access to newly available data for 2014 and 2015, which enables us to better understand the most recent trends.

To add to the literature, our study investigates the labor market outcomes post-GR and examines how older workers (ages 50 and older) fared in its aftermath. Our analysis focuses on three periods: (1) *pre-GR* (March CPS 2005-2007), (2) *during GR* (March CPS 2008-2010),[17] and (3) *post-GR* (March CPS 2011-2015). We identify the March CPS years 2011-2013 as *post-GR/short-term* and the March CPS years 2014-2015 as *post-GR/longer-term*. Four primary research questions guide the analysis:

1. What are the demographic and socioeconomic characteristics of older workers? Do these characteristics differ by age?
2. What are the trends in the employment status, earnings, duration of unemployment, and income of older workers pre-, during, and post-GR? Do the trends vary by gender?
3. How did the older workers' labor market outcomes differ compared to those of workers ages 40-49, post-GR/short or longer-term? If so, how?
4. How did the likelihood of retirement change among older workers after the GR compared to before the GR?

Researchers have developed a strong body of work to understand the labor market experiences of older workers *during* the GR; however, the research to understand their outcomes in the recovery years is limited to pre-2014. The more thorough understanding of these trends described in this report can help DOL better understand the magnitude of the issues facing older workers and further inform policy development. Extending the study period through 2015 enables us to analyze the most recent evidence of how older workers are doing in post-GR/longer-term. IMPAQ's statistical analysis uses the large, nationally representative Current Population Survey (CPS) March Supplement for 2005-2015 to paint a clear, data-driven picture of the labor market outcomes (hours worked, wage earnings, likelihood of retiring) for older workers over that period.

Understanding the extent of the financial hardship, job loss, and long periods of unemployment older workers faced post-GR is essential in designing policies that can better address the needs of this segment of the population and prepare for future economic downturns.

[17] The National Bureau of Economic Research defines that the Great Recession began in December 2007 and ended in June 2009. (http://www.nber.org/cycles.html)

2. DATA

To address our primary research questions, we use the Annual Social and Economic Supplement (ASEC) of the CPS for 2005-2015. The CPS-ASEC, known as the March supplement, is a monthly, nationally representative survey that collects information from 50,000 households on the labor force characteristics of the U.S. population. Using the March supplement, we can construct individual, household, state, and national labor market measures such as unemployment rates, average hourly wages, and average hours worked. These data also contain detailed demographic information on age, gender, race, ethnicity, marital status, and children – as well as other labor market characteristics such as industry and occupation of employment.

The March CPS has several advantages. First, it is a large and nationally representative sample. Second, it details labor market status, activities, and wage-and-salary-earnings and other income information for the entire previous calendar year. Third, it provides geographic identifiers at the level of census division, state, and in many cases, county and metropolitan statistical area (MSA). Previous research – for instance, Friedberg, et al. (2008) and Sass, et al. (2010) – shows that local economic conditions can have a significant effect on older workers' labor market outcomes.[18] The geographic information in the March CPS enables us to control for these conditions in our analysis.

The March CPS supplement asks respondents to report information for the previous calendar year (January-December). Thus, the March CPS supplement for 2005-2015 covers respondents' labor market outcomes for the period 2004-2014.[19]

Since sample sizes differ for each outcome considered, we present the sample size for each analysis in the appendices. All descriptive and regression analyses are weighted using the March CPS Supplement Final Weight, which produces population estimates for the items covered in the March Supplement Survey.[20] This weight is constructed from the basic weight for each person in the sample, which represents the probability of selection for the survey. By using the weight, therefore, we adjust the sample to be representative of the population as a whole. Also, we top-coded the hourly wages at $200 to correct for outliers. All dollar amounts are adjusted for inflation to 2014 dollars using the BLS Consumer Price Index for All Urban Consumers (CPI-U),.

[18] Friedberg, L, Owyang, M., & Webb, A. (2008). *Identifying Local Differences in Retirement Patterns* (Working Paper No 2008-18). Boston, MA: Center for Retirement Research at Boston College. Retrieved from http://crr.bc.edu/working-papers/identifying-local-differences-in-retirement-patterns/
Sass, S. A., & Webb, A. (2010). *Is the Reduction in Older Workers' Job Tenure a Cause for Concern?* (Working Paper No. 2010-20). Boston, MA: Center for Retirement Research at Boston College. http://crr.bc.edu/working-papers/is-the-reduction-in-older-workers-job-tenure-a-cause-for-concern/

[19] CPS data on labor force participation and income measures refer to the previous year, while demographic characteristics are from the current year. We have accounted for the asynchronous nature of these variables in our analyses. Research using the CPS often analyzes these variables without appropriate controls for the asynchronous nature of these variables.

[20] http://www2.census.gov/programs-surveys/cps/techdocs/cpsmar16.pdf

For this report, as noted, we define older workers as ages 50 and older and focus on the subpopulation of prime-aged adults ages 40-49 as the most appropriate comparison group[21]. We do not include people between 30-39 in our comparison group, for example, because the presence of young children for this younger age group has been shown to play an especially important role in women's labor market participation, given the greater need for child care at those ages (see, for example, Attanasio, Low, and Sánchez-Marcos, 2008; and Michalopoulos and Robins, 2000).[22]

The subgroups of older workers we choose to analyze (50-56, 57-61, 62-66, 67-71, and 72-76, and 77 and over) does not follow the more traditional age breakdown (50-55, 56-60, 60-65, etc.), so we can account for the differential labor market and economic behavior of individuals ages 62 (the earliest age of eligibility for Social Security) and 66 (the current eligibility age for full Social Security benefits for individuals reaching FRA between 2005 and 2015). Since the Social Security program has evolved to encourage older workers to work longer – by raising the full retirement age (FRA) and easing and removing penalties for older workers continuing to work after reaching FRA – controlling for ages 62 and 66 explicitly enables us to capture any differential labor market behavior at these two important legal junctures.[23]

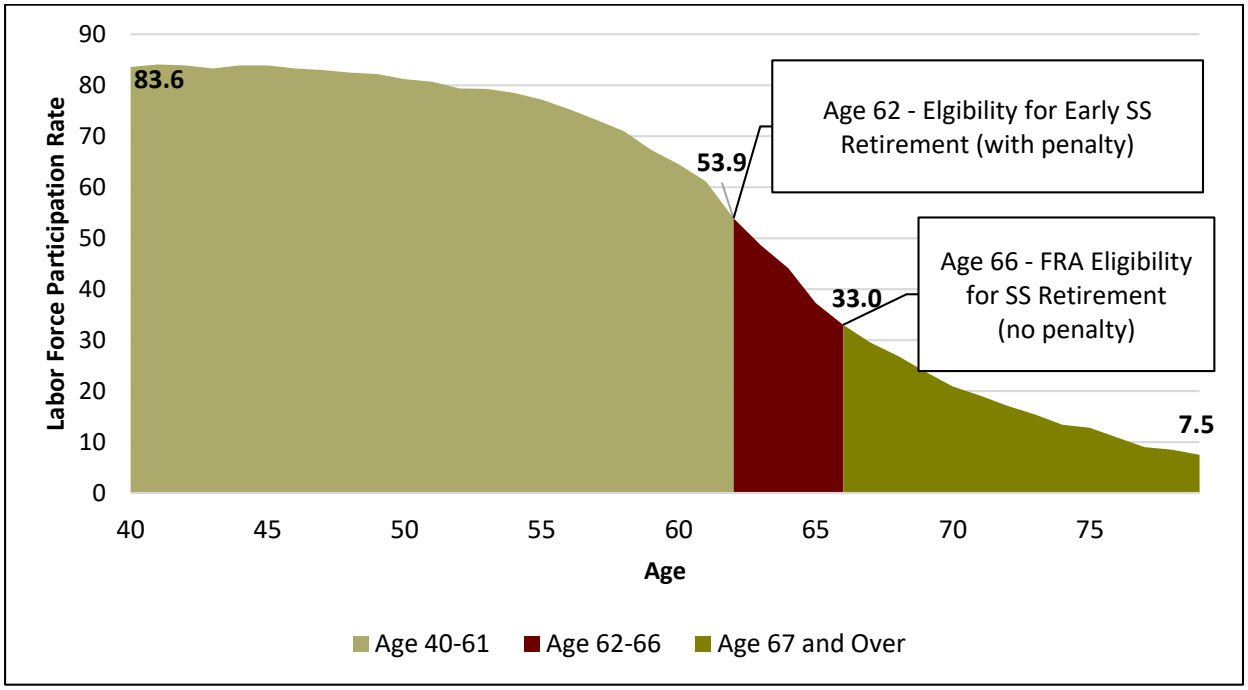
Exhibit 1 shows the proportion of individuals in the labor force at each age starting at age 40. This, and all charts presented in this report, are based on author analyses of March CPS supplement data.

[21] To make sure our results are robust to the comparison group we choose, we repeated our analysis (see Appendix D-1) using age group 35-49 as a comparison group. Compared to the main results, most of the coefficients are similar in magnitude and statistical significance – whereas almost all the coefficients on age groups 52-56 and 57-61 increase in magnitude. This illustrates two things. First, our analysis is robust to the choice of comparison group and our specific definition of prime-aged workers does not drive our results. Second, workers ages 35-39 have significantly different outcomes compared to those ages 40-49, indicating that 40-49 year-olds are indeed more similar to the older workers that are our focus.

[22] Attanasio, O., Low, H., and Sánchez-Marcos, V. (2008). Explaining changes in female labor supply in a life-cycle model. *The American Economic Review*, 98(4), 1517-1552.
Michalopoulos, C., and Robins, P. K. (2000). Employment and child-care choices in Canada and the United States. *Canadian Journal of Economics*, 33(2), 435-470.

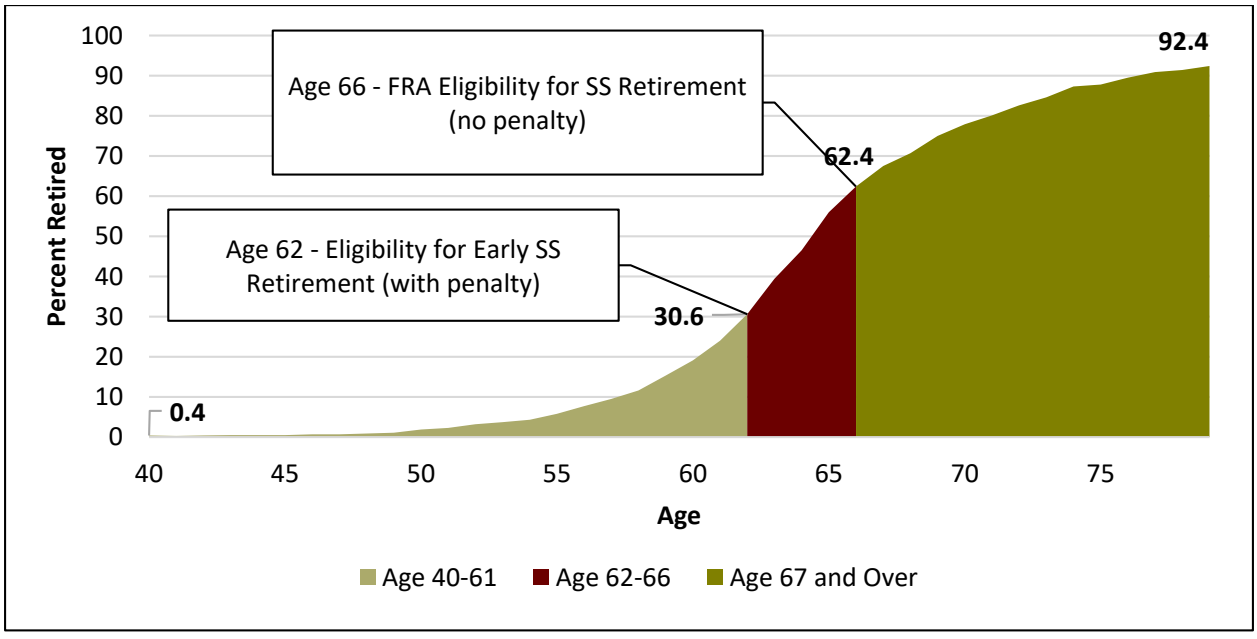
[23] United States Social Security Administration. (n.d.) *Retirement Planner: Full Retirement Age.* Retrieved from: https://www.ssa.gov/planners/retire/retirechart.html

Exhibit 1. Percent in Labor Force as a Share of the Adult Population, by Age



Note: Data are pooled March CPS 2005-2015.

Exhibit 2. Percent Retired as a Share of Working Individuals, by Age



Note: Data are pooled March CPS 2005-2015.
Note: Retirement is defined as survey respondents who indicate the reason for not working in the previous year is "retirement."

The proportion of individuals in the labor force gradually decreases until about age 59. The decrease becomes steeper as individuals turn 60, with the steepest decline occurring at ages 62-66. An inverse trend is presented in **Exhibit 2**, which shows percent retired as a share of working individuals of that age. Individuals are considered retired if they indicate the reason for not working in the previous year is “retirement”.

The proportion of individuals who are retired increases very slowly with age until about age 60. Most retire during their 60s (58.8%), but the largest increase is in the 62-66 year-old cohort. (see breakouts of this exhibit by gender in Appendix B).

3. METHODOLOGY

The statistical analyses presented in this report provide a deeper understanding of older workers' labor market experiences in the past decade, investigate how these experiences differed from our prime-age benchmark (ages 40-49), and examine differences across gender and age cohorts within the older worker population.

We examine trends in labor force participation, earnings, and income by gender and age pre-, during, and post-GR with March CPS data for 2005-2015. We study demographic characteristics (e.g., age, race, ethnicity, and region), as well as socio-economic characteristics (e.g., education level and health status) pooled across the entire sample. We provide summary statistics and identify patterns across time for labor market outcomes – including changes in labor force participation, unemployment rate, weeks unemployed, duration of unemployment,[24] hours worked per week,[25] hourly wages, proportion retired, and proportion self-employed. We define retirement, as noted, as those who indicate the reason for not working in the previous year is "retirement." This is the same definition as adopted by others in the literature,[26, 27] though this is not the only definition of retirement that has been used.[28, 29, 30]

Our analyses assess the differential labor market outcomes post-GR experienced by older workers' compared to those of workers ages 40-49. While both groups were exposed to the GR, the intensity of its effect can vary across age groups. To study this, we use a difference-in-differences (DID) framework for hours worked and hourly wages, and compare these outcomes among older workers pre- and post-GR to those of workers ages 40-49. For retirement outcome, we use a logit model to understand changes in the likelihood of retirement among different

[24] Duration of unemployment is top-coded at 99 weeks in March CPS data for approximately 5 percent of non-zero duration of unemployment values. As a result, the means reported in this exhibit may slightly understate the true duration of unemployment means. The top-code is consistent across 2005-2015, however, so this poses minimal additional risk to the validity of comparisons across time.

[25] Weekly hours worked is top-coded at 99 hours in March CPS data for approximately 0.2 percent of non-zero weekly hours worked values, to avoid extreme outliers. As a result, the means reported in this exhibit may be slight understatements of the true weekly hours worked means. The top-code is consistent across 2005-2015, however, which minimizes additional risk to the validity of the comparisons across time.

[26] Caroli, E., Lucifora, C., & Vigani, D. (2016). Is there a Retirement-Health Care utilization puzzle? Evidence from SHARE data in Europe (No. def049). Università Cattolica del Sacro Cuore, Dipartimenti e Istituti di Scienze Economiche (DISCE).

[27] Eibich, P. (2015). Understanding the effect of retirement on health: mechanisms and heterogeneity. Journal of health economics, 43, 1-12.

[28] "Retirement" self-reported and defined as as out of labor force due to retirement, sickness, disability, or administering family care: Coe, N. B. and Zamarro, G. (2011), 'Retirement effects on health in Europe', Journal of Health Economics 30(1), 77–86.

[29] "Retirement" self-reported and defined as not working since the previous 2-year interview in HRS survey: Ondrich, J., & Falevich, A. (2016). The great recession, housing wealth, and the retirement decisions of older workers. Public Finance Review, 44(1), 109-131.

[30] "Retirement" defined as first withdrawal of public or private pension or 401(k) benefits: Coile, C. C. (2015). Economic Determinants of Workers' Retirement Decisions. Journal of Economic Surveys, 29(4), 830-853.

cohorts of older workers post-GR. We treat the pre-GR period (March CPS 2005-2007) as the baseline period and drop the during-GR period (March CPS 2008-2010) from the analysis.[31] We describe both models in detail below.

The multivariate analyses, including the DID analysis, provide an exploratory picture of older workers' labor market outcomes pre- and post-GR. We repeat our caution on data limitations here: While the March CPS has advantages, such as a large number of observations and extensive information on income and employment, it does not follow the same sample over time, limiting us to a repeated cross-sectional dataset.[32,33,34] As a result, our statistical analyses can only provide a "snapshot" of the characteristics and outcomes of the population of interest each year.[35]

[31] There are two main reasons why we drop the period during the GR. First, a number of studies have looked at the labor market experiences of older workers during the GR years (see, for example, Rix, 2011; Cahill, Giandrea and Quinn, 2013; Gustman, Steinmeier and Tabatabai, 2015; and, Johnson, 2012). Our study focuses on the short-term and long-term adjustment of older workers' labor market outcomes following the Great Recession. Second, the more time periods in the DID analysis, the higher the risk of serial correlation issues, as discussed in Wooldridge (2007).
See, Rix, S.E. (2011). *Recovering from the Great Recession: Long Struggle Ahead for Older Americans* (Insight on the Issues 50). AARP Public Policy Institute.
Cahill, K. E., Giandrea, M. D., & Quinn, J. F. (2013). *New evidence on self-employment transitions among older Americans with career jobs* (No. 463).
Gustman, A. L., Steinmeier, T. L., & Tabatabai, N. (2015). *The Great Recession, Retirement and Related Outcomes* (No. w20960). National Bureau of Economic Research.
Johnson, R. W. (2012). *Older workers, retirement, and the Great Recession*. New York: Russell Sage Foundation.
Wooldridge, J. (2007). What's new in econometrics? Lecture 10 difference-in-differences estimation. *NBER Summer Institute*, available at: www. nber. org/WNE/Slides7–31–07/slides_10_diffindiffs. pdf, accessed April, 9, 2011. Chicago

[32] Although repeated cross-sectional surveys interview individual respondents only once, they field similar surveys (with the same basic sample design, a core set of questions administered each time, and the same method of data collection) on some periodic time schedule.

[33] Tourangeau, R. (2003). *Recurring Surveys: Issues and Opportunities*. National Science Foundation, Arlington, Virginia.

[34] One advantage of cross-sectional surveys is that aggregating the sample over time enables us to study a similar population over a long period of time. On the other hand, cross-sectional surveys may be prone to measurement problems such as telescoping or misdating events, which might be an issue for surveys in which participants have to recall events that happened a long time ago. Since CPS survey questions ask participants to recall events in the past year, which is a relatively short time period, this issue is of less concern for our data. For an example of repeated cross-section DID designs, see Lee, M. J., & Kang, C. (2006). Identification for difference in differences with cross-section and panel data. *Economics letters*, *92*(2), 270-276.

[35] Our analyses may also be subject to selection bias. For example, when examining wage earnings, we are only able to observe the earnings of workers who are employed, which is a selected sample likely to be different from those not employed – a limitation that might threaten our ability to generalize our findings. Similarly, in the retirement analysis, our sample contains all older workers, whether retired or working, but excludes those who are unemployed. To address these concerns, We conducted various checks and sensitivity analyses to address these concerns, as described in the subsequent sections of the report, which shows that such biases are likely not a big concern for our study.

3.1 Difference-in-Differences (DID) Analysis: Hours Worked and Earnings

DID is commonly used to evaluate the effect of a treatment (for example, a policy change) on a "treatment group" vs. a "comparison group."[36, 37] In a simple setup, the DID analysis computes the average difference in the change over time between the outcome variable for the treatment as compared to the comparison group.

Our analysis assesses the differential effect of the GR on older workers' labor market outcomes compared to those of workers ages 40-49. The dependent variables of interest are hours worked per week[38] and log hourly wage-and-salary earnings.[39]

Our DID model uses the framework introduced in Wooldridge (2007): [40, 41]

$$(1) \quad Y_i = \alpha + \sum_{i=1}^{6} \beta_i Age_i + \gamma ShortTerm\ After + \theta LongTermAfter + \sum_{i=1}^{6} \delta_i Age_i * ShortTerm\ After + \sum_{i=1}^{6} \vartheta_i Age_i * LongTerm\ After + \mu X_i + \epsilon,$$

where Y is the dependent outcome, and the independent variables are:

- Age_i – equals 1 if individual is in the i^{th} age group: 50-56, 57-61, 62-66, 67-71, 72-76, and 77 and above.[42]
- *ShortTermAfter* – equals 1 if observed in March CPS years 2011-2013[43]
- *LongTermAfter* – equals 1 if observed in March CPS years 2014-2015

[36] See, for example, Card, D. (1992). Do Minimum Wages Reduce Employment? A Case Study of California, 1987–89. *Industrial and Labor Relations Review, 46* (1):), 38–54.

[37] Meyer, B. D. (1995). Natural and quasi-experiments in economics. *Journal of business & economic statistics*, *13*(2):), 151-161.

[38] We exclude individuals who are not in the labor force from the hours worked regression. We also exclude individuals who are self-employed and working without pay.

[39] We restrict our analysis to individuals with a positive hourly wage. We also exclude individuals who are self-employed and working without pay.

[40] Wooldridge, J. NBER Summer Institute. (2007). *What's new in econometrics? Lecture 10 difference-in-differences estimation.* Retrieved from www.nber. org/WNE/Slides7–31–07/slides_10_diffindiffs.pdf.
Also see: Cameron, A.C. and Trivedi, P.K. (2005). *Microeconometrics: Methods and Applications.* Cambridge University Press, New York.

[41] The repeated cross-section difference in-differences approach is based on the assumption that the characteristics of the treatment and comparison group before and after the recession will be same in expectation if there were no recession.

[42] Age 40-49 is the base group, i.e. the omitted category. All comparisons are made in relation to this base group or omitted category. For example, if the coefficient on age 50-56 is 0.2, this means that the value of the dependent variable of the age group 50-59, on average, is 0.2 higher than the age group 40-49.

[43] The time period pre-GR (2005-2007) is the base group, i.e., the omitted category. All comparisons are made in relation to this omitted category.

- Interactions of *Treatment* and *ShortTermAfter* – estimate of the differential outcomes of the specific older cohort post-GR/shorter-term
- Interactions of *Treatment* and *LongTermAfter* – estimate of the differential outcomes of the GR on the specific older cohort post-GR/*longer-term*
- X– control variables that include the following:[44]
    - *Demographic and socio-economic characteristics*: dummy variables for race, ethnicity, marital status, educational attainment, disability and health status, and a continuous variable for family size
    - *Labor market characteristics*: dummy variables for industry, occupation,[45] region, and health insurance status
    - *Local economic conditions*: controls for the unemployment rate for each MSA for the period 2005-2015 obtained from the U.S. Bureau of Labor Statistics[46]
    - *Year fixed effects*
- ϵ – zero-mean disturbance term.

Finally, as noted, we use March CPS Supplement Final Weight and cluster the standard errors by age and year.[47, 48, 49]

[44] Our controls variables in the regression analyses include year fixed effects, region fixed effects, and MSA-level unemployment rate. These variables are meant to control for employment policies at regional or local level that have effects on workers' employment outcomes.

[45] We used CPS' major occupation/industry recodes for these control variables. Details on these recodes and their construction can be found in CPS documentation. For an example of this, see Appendix A/B of this document: http://www.nber.org/cps/cpsmar2015.pdf

[46] All regressions also control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2005 to 2015 obtained from the U.S. Bureau of Labor Statistics. When MSA is unavailable for the individual, we use the state unemployment rate instead.

[47] All regressions are weighted using the March CPS Supplement Final Weight. The final weight is used to produce population estimates for the various items covered in the March Supplement Survey (http://www2.census.gov/programs-surveys/cps/techdocs/cpsmar16.pdf). This weight is constructed from the basic weight for each person, which represents the probability of selection for the survey. By using the weight, we adjusted the sample to be representative of the population.

[48] One potential complication with our analysis is that the error term is possibly correlated within clusters, such as year and age group. For example, unobservable factors associated with one particular age group might affect that group's labor market outcomes. [What might be an unobservable factor associated with a particular age group?]. If that is the case, the assumption of independent standard errors no longer holds. Similarly, since the dataset we are using is repeated and cross-sectional, standard errors may be correlated within each year because of time-specific unobservable factors. Failure to control for within-cluster error correlation can lead to misleadingly small standard errors and low p-values. Therefore, we clustered the standard errors by age group and year to allow for correlated standard errors within age groups and years. See: Cameron, A. C., & Trivedi, P. K. (2009). *Microeconometrics using stata* (Vol. 5). College Station, TX: Stata press.

[49] In Appendix D-2, we repeat our analyses by clustering the standard errors by year, age group, and state to account for possible correlation in standard errors within states. Almost all statistically significant coefficients remain significant despite the large number of clusters we used (over 3,000).

3.2 Logistic Analysis: Probability of Retirement

The outcome variable, retirement, is 1 if the individual responds "retired" and 0 if the individual responds "working and not retired."[50] We use logistic modeling, a binary dependent variable model, to estimate the likelihood of retirement of older workers after the GR, estimating each model separately by gender and age group (50-56, 57-61, 62-66, 67-71, 72-76, and 77 and above).[51] In all models, we cluster the standard errors by year. The regressions were also weighted using the March CPS supplement Final Weight.

Individuals who are unemployed, not in the labor force, self-employed, or working without pay are excluded from the sample. These models can be described as:

$$(2) \qquad Y_i = \alpha + \gamma ShortTermAfter_i + \theta LongTermAfter_i + \mu X_i + \epsilon,$$

where the dependent variable (Y) is the outcome of interest and key independent variables of interest are *ShortTermAfter* and *LongTermAfter*:

- *ShortTermAfter* – equals 1 if observed in March CPS years 2011-2013
- *LongTermAfter* – equals 1 if observed in March CPS years 2014-2015.

The omitted time category is *BeforeRecession*, which represents the time period of March CPS 2005-2007. The control variables in the model are:

- *Demographic and socio-economic characteristics*: dummy variables for race, ethnicity, marital status, educational attainment, disability and health status and a continuous variable for family size
- *Economic and labor market characteristics*: dummy variables for region and health insurance status[52]
- *Local economic conditions*: controls for the unemployment rate for each MSA for the period 2005-2015 obtained from the U.S. Bureau of Labor Statistics.[53, 54]The error term is assumed to be logistically distributed.

[50] Individual is employed (hours worked last year are greater than zero).
[51] Alternatively, we could have included all age groups in the same model and then controlled for age. However, this type of model will only provide the estimate of the association with the outcome of interest, i.e., the slope of the age variable. It will not provide different intercept and differential associations between several demographic, economic, and time-trend variables and the outcome of interest by age group. Separate analysis by age provides the association between all independent variables and the outcome of interest separately for different age groups.
[52] We do not include occupation and industry in the logistic regression due to perfect prediction issues, since only individuals who are employed have a valid occupation and industry in the CPS data.
[53] All regressions also control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2005 to 2015 obtained from the U.S. Bureau of Labor Statistics. When MSA is unavailable for the individual, we use the state unemployment rate.
[54] We do not include year fixed effects in the logistic analysis due to multicollinearity issues.

4. DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF OLDER ADULTS

Key Takeaways

- ***Educational attainment is lowest for the oldest cohorts of older adults.*** The younger cohorts of older adults (40-49, 52-56, and 57-61) have higher rates of bachelor degree attainment than older cohorts. Education levels are lowest for adults over age 61.
- ***For adults over age 61, educational attainment differs by gender.*** Women over age 61 have lower education levels than men. For example, for the 72-76 group, only 17 percent of women have a bachelor's degree, compared to 28 percent of men.
- ***Adults report a poorer health status as they age, which may influence their willingness or ability to work.*** About half (53 percent) of those ages 40-49 reported "excellent/very good" health compared to only 21 percent of the 77and over group.
- ***Marriage rates decline among the older age groups as the share of widowed individuals increases.*** Marriage rates remain above 60 percent through age 72 and then decline to 45 percent for those 77 and over.
- ***Disabled older adults and those with medical limitations*** are a particularly vulnerable group that ***may require more intensive job search assistance.*** Prior research indicates that the GR hit the minority of older workers with disabilities particularly hard, and that this group has had greater difficulty finding new employment post-GR (Altindag et al. (2014)). Schimmel and Stapleton (2012), who studied the period 1994-2004, found that those who had a medical work limitation after age 50 incurred significantly lower wages than those who did not. Cash benefit programs only slightly offset their earnings loss four years after disability onset. In addition, two years after receiving a work limitation status, the poverty rates of those with medical work limitations were nearly double those of the group without a work limitation.
- As they age, ***older adults face deteriorating health*** and, due to policy changes such as those that raise the retirement age, ***may be adversely affected if commensurate financial protections are unavailable*** (Johnson, 2011).

Sources in footnote[55]

[55] Altindag, O., Schmidt, L., & Sevak, P. (2014). *The Great Recession, Older Workers with Disabilities, and Implications for Retirement Security (*Research Paper No. 2012-277). Ann Arbor, MI: Michigan Retirement Research Center.
Schimmel, J., & Stapleton, D.C. (2012). The Financial Repercussions of New Work-Limiting Health Conditions for Older Workers. *Inquiry, 49*(2), 141-163. http://inq.sagepub.com/content/49/2/141.full.pdf+html
Johnson, R.W. (2011). Phased Retirement and Workplace Flexibility for Older Adults: Opportunities and Challenges. *The Annals of the American Academy of Political and Social Science, 638*(1), 68-85.

4.1 Demographic Characteristics

Exhibit 3 presents age subgroup by race, ethnicity, region, education level, marital status, health status, and disability status. (see Appendix A for these characteristics by gender).

Exhibit 3. Demographics of Adults 40-49 and Older Adults in the U.S.
Pooled March CPS 2005-2015

Variable		40-49 Years Old	50-56 Years Old	57-61 Years Old	62-66 Years Old	67-71 Years Old	72-76 Years Old	77 Years and Older
Race	White	79.9	81.8***	83.4***	84.3***	85.2***	86.0***	88.2***
	African-American	12.3	11.6***	10.5***	9.8***	9.2***	8.8***	7.5***
	Asian	5.2	4.4***	4.2***	4.0***	3.8***	3.7***	3.1***
	Other/Mixed	2.6	2.2***	1.9***	1.8***	1.8***	1.5***	1.1***
Hispanic		14.6	10.7***	8.8***	8.1***	7.8***	7.2***	6.1***
Region	Northeast	18.8	18.9	18.8	18.7	18.1***	19.0	21.0***
	Midwest	21.7	22.4***	22.3***	21.4*	21.5	22.1**	22.9***
	South	36.5	36.1***	36.5	37.6***	38.8***	38.1***	34.9***
	West	23.0	22.6***	22.3***	22.3***	21.7***	20.9***	21.2***
Education Level	Less than High School	10.9	10.6***	10.7*	12.8***	16.7***	20.6***	25.8***
	High School or GED	30.3	31.5***	30.9***	32.2***	35.0***	36.7***	37.3***
	Some Associate Degree	27.1	27.7***	27.1	25.6***	22.8***	20.7***	18.3***
	Bachelor's Degree or Higher	31.7	30.1***	31.4*	29.5***	25.6***	22.0***	18.6***
Marital Status	Married	66.7	67.5***	68.6***	68.4***	66.4	61.7***	44.7***
	Widowed	1.2	2.8***	5.1***	8.4***	14.7***	23.7***	45.9***
	Divorced	14.1	16.5***	16.4***	15.5***	13.1***	9.8***	5.7***
	Separated	3.2	2.7***	2.1***	1.7***	1.4***	1.0***	0.6***
	Never Married	14.8	10.6***	7.8***	5.9***	4.3***	3.8***	3.2***
Health Status	Excellent/Very Good	53.3	46.4***	41.9***	37.6***	33.6***	28.1***	21.3***
	Good/Fair	29.2	34.5***	37.7***	41.2***	45.0***	49.3***	53.0***
	Poor	2.8	4.6***	6.1***	6.7***	6.9***	8.2***	11.5***
	Missing	14.7	14.6	14.3***	14.4**	14.6	14.4*	14.2***
Disability That Prevents Work		7.9	12.5***	16.6***	18.7***	17.7***	19.5***	25.7***
Sample Size		318,205	194,508	110,742	86,514	63,988	48,768	81,810

Notes: 1) While the reported sample size is unweighted, the proportions in the table are based on weights provided in CPS March data.
2) Ages 40-49 is the reference categories for all statistical tests. An example interpretation is as follows: 79.9 percent of 40-49 year-olds were white. We tested to see if there is a significant difference compared to the proportion of 50-56 year-olds (of which 81.8 percent are white), and found the difference to be significant at the 1 percent level.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

The white proportion of the population increases with age: about 80 percent of individuals 40-49 is white compared to 88 percent for the 77 and over group. In direct contrast, the proportion African-Americans and Asians decreases with age: adults ages 40-49 are 12 percent African-American and 5 percent Asian, compared to only 8 percent African-American and 3 percent Asian for those ages 77 and over. The percent Hispanic also decreases with age. Individuals 40-49 are the most likely of the age cohorts to be Hispanic (15 percent); the oldest individuals are least likely to be Hispanic (6 percent among those 77 and over).

By region,[56] the largest share of each age group lives in the South – with the highest concentration in the 67-71 age group (at 39 percent).

Over 60 percent of adults ages 40-76 are married. These rates begin to decline gradually in the post-retirement years (defined as over age 62). Marriage rates remain above 60 percent through ages 72-76 and then decline to 45 percent for ages 77 and over. As the share of married people declines in these older age groups, the share of widowed individuals increases – a well-known trend, as women tend to live longer than men.[57] The share of divorced adults is highest among the 50-61 cohort (roughly 16-17 percent) and then declines with age (with only 6 percent of adults 77 and over group divorced).

As expected, self-reported health status deteriorates with age: About half (53 percent) of those ages 40-49 reported "excellent/very good" health, compared to only 21 percent of the 77 and over cohort. In stark contrast, only 3 percent of individuals ages 40-49 reported "poor" health status compared to 12 percent for the 77 and over cohort.

We also present data on disability status that prevents work.[58] Only 8 percent of the 40-49 group report a disability status that prevents work, compared to 26 percent of those ages 77 and over. However, over 80 percent of those ages 62-76 report no disability, thus potentially able to continue work if they choose to postpone retirement.

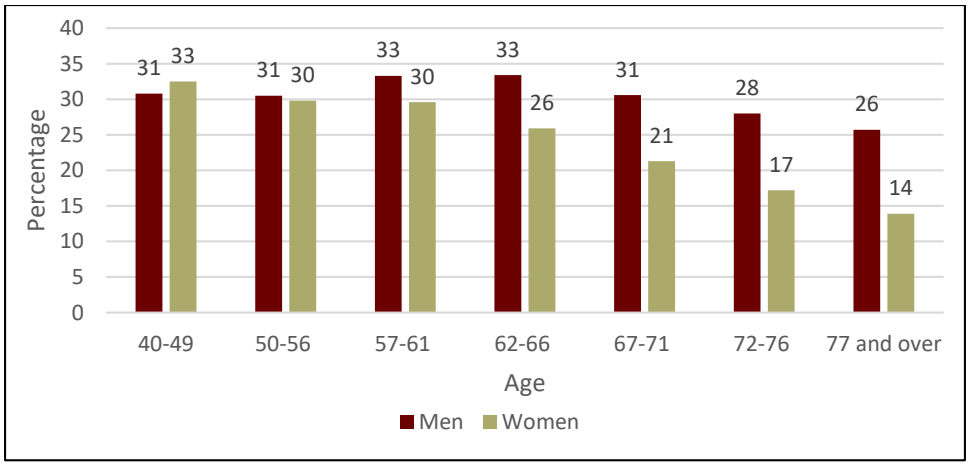
Exhibit 4 shows the share of adults with a bachelor's degree or higher by age group and gender from pooled March CPS data 2005-2015.

Exhibit 4. Percentage with a Bachelor's Degree or Higher Pooled March CPS 2005-2015

[56] The March CPS groups states into regions as follows: Northeast: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, .and Pennsylvania. Midwest: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas. South: Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas. West: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii.

[57] Murphy, S. L., Kochanek, K. D., Xu, J., & Arias, E. Centers for Disease Control and Prevention. (2015) *Mortality in the United States, 2014* (NCHS Data Brief No. 229). Retrieved from http://www.cdc.gov/nchs/data/databriefs/db229.htm

[58] The CPS definition of disability status that prevents work is those who respond "yes" to the question: "Does [individual] have a health problem or a disability which prevents work or which limits the kind or amount of work?"



Overall, the younger cohorts of older adults have higher rates of bachelor degree attainment than their older counterparts. Among individuals ages 40-49, 31 percent of men and 33 percent of women have a bachelor's degree or higher education. Education levels are lowest for the oldest cohorts, with fewer adults over age 67 having a bachelor's degree than those ages 40-61. The share of women with a bachelor's degree or higher drops particularly steeply after age 62-66 – from 26 percent to only 14 percent for women ages 77 and over. The decline in academic achievement for men does not begin until ages 67-71 and is a bit less steep – from 31 percent to 26 percent for men 77 and over.

5. EMPLOYMENT, HOURS WORKED, EARNINGS, AND OTHER INCOME OF OLDER WORKERS

This chapter compares labor force participation, unemployment rate, duration of unemployment,[59] self-employment rate, weekly hours worked,[60] and hourly wages between workers ages 40-49 and older workers (ages 50 and older). We also look at other sources of income pre-, during, and post-GR (both short- and longer-term). We conducted a DID analysis to better understand the labor market outcomes of older workers post-GR (both short- and longer-term), and the extent to which older worker outcomes have recovered post-GR. (see Appendix B for details).

Key Takeaways

- Even five years post-GR, ***adults ages 40-49 are working less*** than pre-GR, but ***adults ages 62 and older are working more*** – marked differences in labor market outcomes that are statistically significant.
- ***Average durations of unemployment remain higher*** than pre-GR levels for both workers ages 40-49 and older workers. However, durations of unemployment have shortened less for workers ages 40-49 and the youngest group of older workers (ages 50-66) than for the 67-71 cohort.
- ***There are clear differences in post-GR income levels by age cohort within the overall group of older workers.*** The family income and personal wage-and -salary earnings of workers ages 40-49 and 50-56 still have not fully returned to pre-GR levels. But workers ages 62-66, 72-76, and 77 and over have seen increased average wage and salary earnings compared to pre-GR levels.
- Compared to workers ages 40-49, ***older workers worked relatively more hours per week*** post-GR (both short and longer -term) – increases that are statistically significant for most age groups.
- Post-GR/longer-term, male workers ages 72-76 worked about two hours more per week, and older female workers in the same age group about three hours more per week, compared to their counterparts ages 40-49.
- ***Some cohorts of older workers experienced statistically significant increases in their hourly earnings post-GR compared to workers ages 40-49***. In post-GR/longer-term, all older male cohorts of workers (67-71, 72-76, and 77 and older) earned between 5.2 percent and 13.4 percent more. Older female workers in the 62-66, 72-76, and 77 and older cohorts all earned more than their 40-49 year-old counterparts – with the most notable result being female workers 77 and over earning 28.5 percent more per hour than female workers ages 40-49.

Note: All differences mentioned in this key takeaway box are statistically significant differences unless otherwise noted.

[59] See Chapter 3 – Methodology for more information on top-coded duration of unemployment values.
[60] See Chapter 3 – Methodology for more information on top-coded weekly hours worked values.

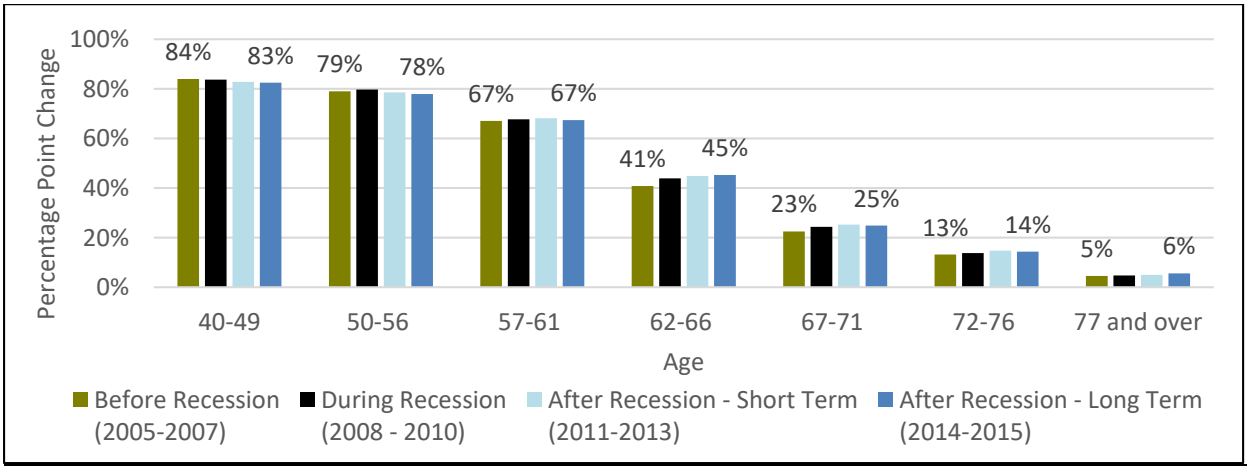
5.1 Labor Force Participation, Earnings and Income

This section examines the labor force characteristics of older workers pre-, during, and post-GR (both short- and longer-term). We compare changes in labor force participation, unemployment rate, duration of unemployment, self-employment rate, and weekly hours worked among workers ages 40-49 with the same outcomes for older adults; we also highlight any notable trends by gender and age group. Note that labor force participation rates are based on all individuals in a given age group.

5.1.1 Labor Force Participation

Even post-GR/longer-term, labor force participation rates of the 40-49 and 50-56 groups remained slightly lower than pre-GR, whereas the rates for age groups 62 and older are higher than pre-GR (see **Exhibit 5)**.

Exhibit 5. Percentage Point Change in Civilian Labor Force Participation Rates: Pre-, During, and Post-GR (March CPS 2005-2015)



Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Percentage Point Change Pre-GR (March CPS 2005-2007) to Post-GR/Longer-Term (March CPS 2014-2015)	-1.5***	-1.1***	0.3	4.5***	2.4***	1.2***	1.0**

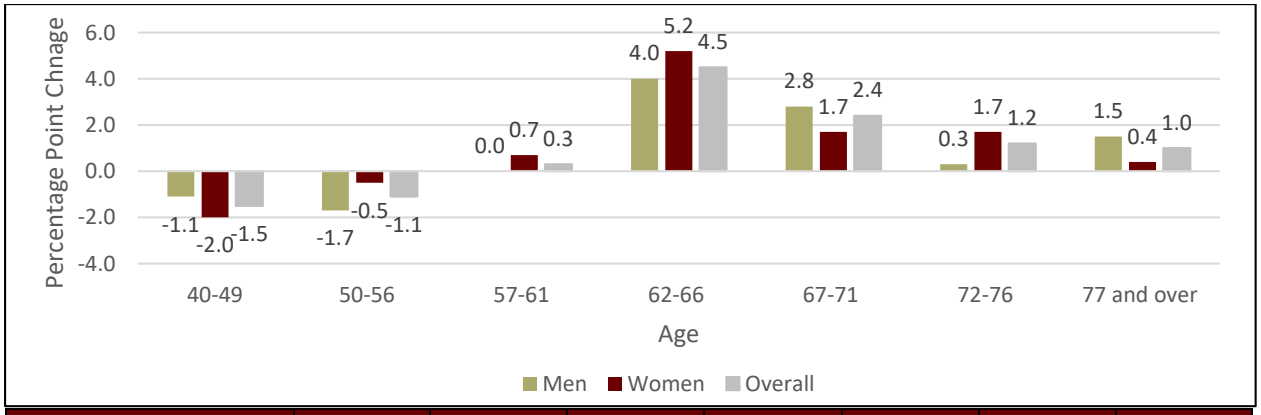
Note: Individuals with missing labor force status, imputed labor force status, or an "armed forces" labor force status are excluded.
We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Post-GR/longer-term labor force participation rates for individuals 62 and older increased over pre-GR rates, with the increase greatest for the 62-66 group (at 5 percentage points). For workers ages 40-49, however, labor force participation dropped by 2 percentage points over the same period. It will be important for future research to look into whether these differences in labor force participation rates eventually return to pre-GR levels in the years to come.

Older adults, in particular, are known to have experienced a loss of financial security[61] post-GR – a loss that may have incentivized them to return to the workforce in greater numbers.

Exhibit 6 displays the percentage point change in the labor force participation rates by gender from March CPS 2005-2007 to March CPS 2014-2015.

Exhibit 6. Percentage Point Change in Civilian Labor Force Participation by Gender: Pre-GR (March CPS 2005-2007) and Post-GR/Longer Term (March CPS 2014-2015)



Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Percentage Point Difference between Men and Women	0.9	-1.2	-0.7	-1.2	1.1	-1.4	1.1

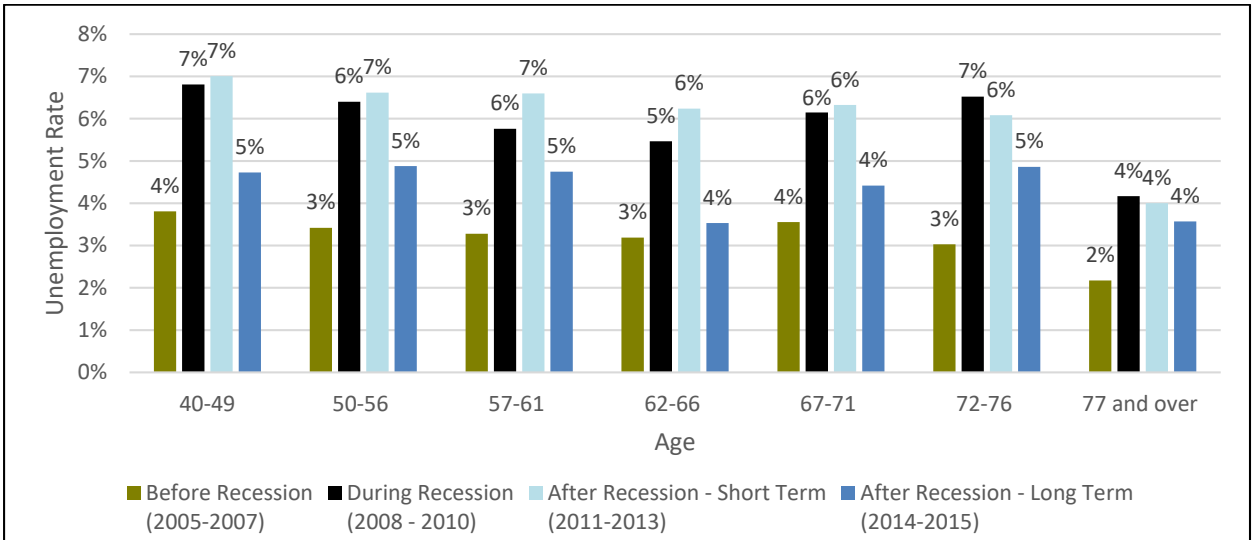
Note: Individuals with missing labor force status, imputed labor force status, and an "armed forces" labor force status are excluded.

Working women ages 62-66 made the most longer-term gains in labor force participation post-GR, both overall and compared to working men; for other age groups, the gender differences are not consistent in direction. The biggest takeaway from this chart is that the labor force participation of the younger cohorts of older adults is stagnant, but participation of the older cohorts is up.

Unemployment Rates and Unemployment Duration. **Exhibit 7** and **Exhibit 8** show the March CPS 2005-2015 civilian unemployment rate and unemployment duration for older workers, respectively.

[61] Munnell, A.H., & Rutledge, M.S. (2013). The effects of the Great Recession on the retirement security of older workers. *The Annals of the American Academy of Political and Social Science, 650*(1), 124-142.

Exhibit 7. Civilian Unemployment Rate by Age: Pre-, During, and Post-GR (March CPS 2005-2015)



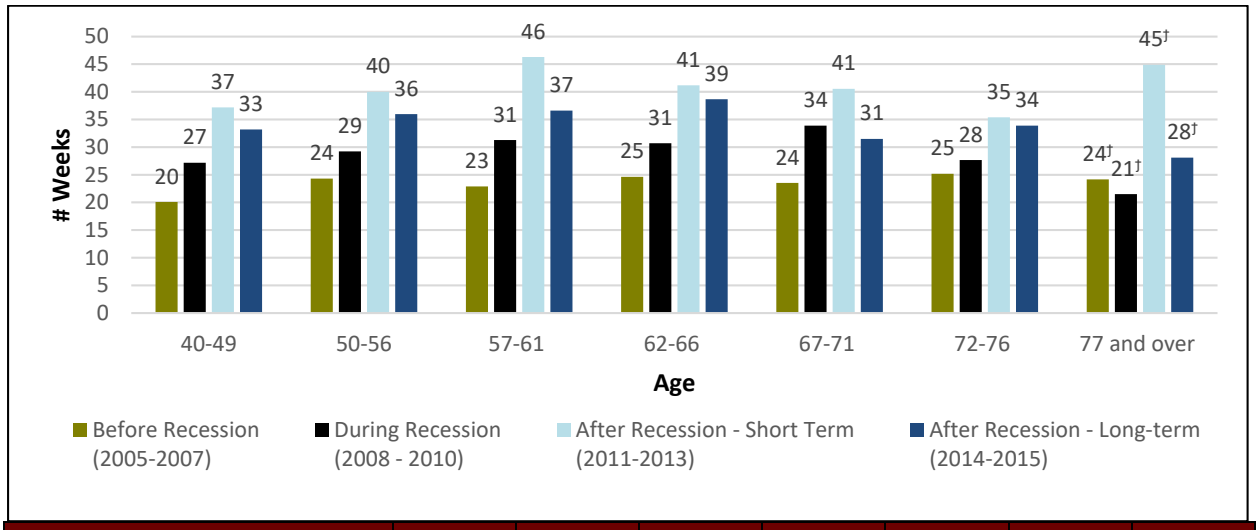
Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Percentage Point Change Pre-GR (March CPS 2005-2007) to Post-GR/Longer-Term (March CPS 2014-2015)	0.9***	1.5***	1.5***	0.3**	0.9***	1.8***	1.3**

Note: Unemployment rate has been calculated as # unemployed/(#unemployed +# employed). Those not in the labor force are excluded from this chart.

We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Unemployment rates rose drastically during the GR, did not recede until several years post-GR, and have still not returned to pre-GR levels for either workers 40-49 or older workers – with no significant difference by gender (see Exhibit B-4 and B-5 in Appendix B). **Exhibit 8** shows the difference in mean weeks of unemployment for those unemployed.

Exhibit 8. Mean Weeks Duration of Civilian Unemployment: Pre-, During, and Post-GR (March CPS 2005-2015)



Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Change in Mean Duration of Unemployment in Number of Weeks Pre-GR (March CPS 2005-2007) to Post-GR/Longer-Term (March CPS 2014-2015)	13.1***	12.6***	13.7***	14.0***	8.0***	8.7***	3.9†

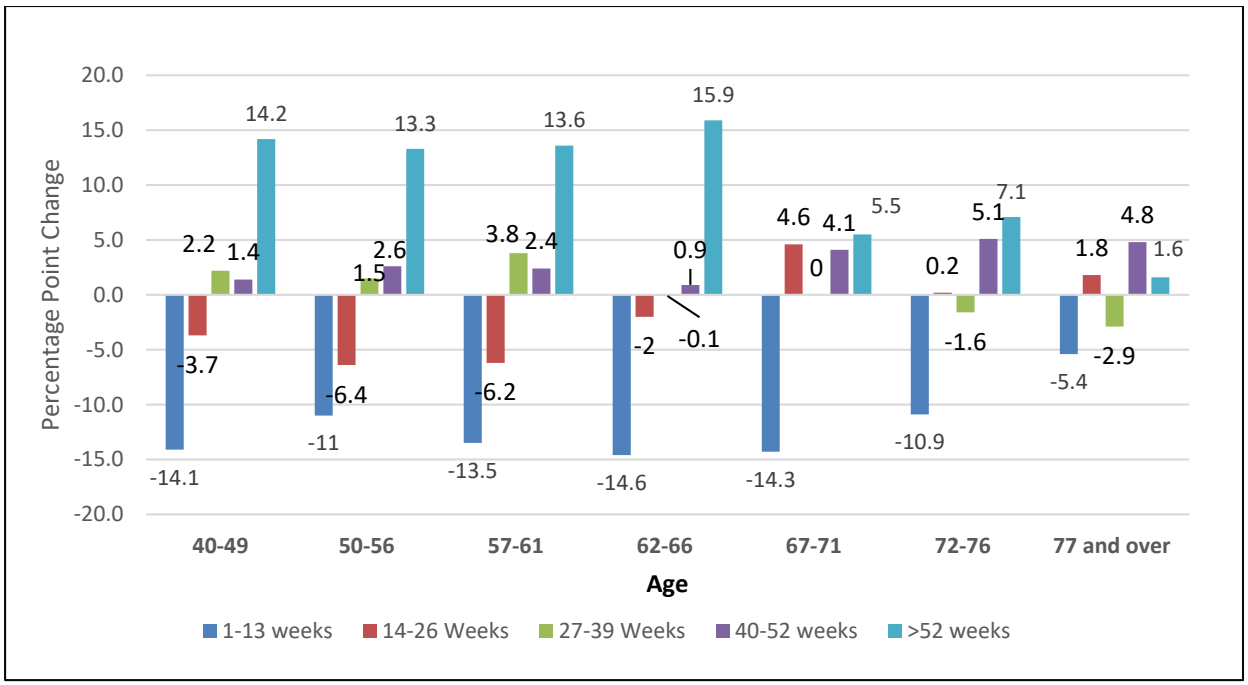
Note:1) When calculating means, unemployment durations of 0 weeks were excluded.
2) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.
3) † The 77 and over age group has insufficient sample size for this outcome for significance testing, so the statistical significance of these differences in means is unknown.
4) Duration of unemployment is top-coded at 99 weeks in March CPS data (affecting approximately 5 percent of non-zero duration of unemployment values). As a result, the means reported in this exhibit may understate the true duration of unemployment means. The top-code is consistent across 2005-2015, however, minimizing additional risk to the validity comparisons of means across time.

Together, **Exhibit 7** and **Exhibit 8** demonstrate that neither the unemployment rate nor the duration of unemployment has returned to its pre-GR level (except for individuals 77 and over, which may not be a statistically significant difference, given the small sample size). Older male workers ages 57-61 and 62-66 were the worst affected by unemployment duration: 14 weeks longer, respectively, than pre-GR. Mean duration of unemployment has recovered more for the older cohorts of older workers (except women 72-76) than for the younger cohorts of older workers. The duration of unemployment has also recovered less for all older male worker groups compared to their female worker counterparts (except those ages 72-76) (see Appendix B for results by gender).[62]

[62] It is important to note that while BLS has access to data with top-coding duration of unemployment at five years starting January 2011, this information is not available to the public. See http://www.bls.gov/cps/duration.htm

Exhibit 9 shows the percentage point change in the duration of unemployment from March CPS 2005-2007 to March CPS 2014-2015.

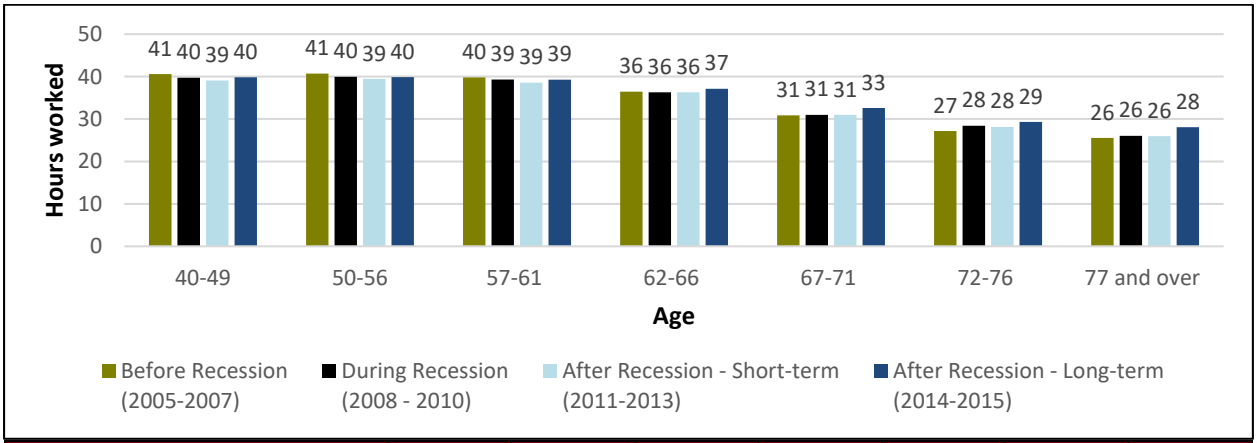
Exhibit 9. Percentage Point Change in Duration of Civilian Unemployment, by Weeks Unemployed: Pre-GR (March CPS 2005-2007) vs. Post-GR/Longer-Term (March CPS 2014-2015)



Changes in the distributions of unemployment duration in **Exhibit 9** show a similar trend. Across all age groups, the proportion of individuals unemployed in the shortest duration category (1-13 weeks) post-GR/longer-term are far below the pre-GR levels — about 14 percentage points below for several age groups. In contrast, the proportions of people unemployed post-GR/longer-term compared to pre-GR levels in the highest duration category (over 52 weeks), though greater across all age groups, are especially much higher for workers 40-49 and the three youngest of the six age cohorts of older workers (50-56, 57-61, and 62-66).

Hours Worked. Exhibit 10 shows the March CPS 2005-2015 mean weekly hours worked for older workers.

Exhibit 10. Mean Weekly Usual Hours Worked among Older Workers: Pre-, During, and Post-GR (March CPS 2005-2015)



Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Change in Mean Hours from Pre-GR (March CPS 2005-2007) to Post-GR/Longer-Term (March CPS 2014-2015)	-0.8***	-0.8***	-0.5***	0.7***	1.7***	2.1***	2.5***

Note: Individuals with missing labor force status have imputed labor force status; "armed forces" labor force, or "out of labor force" are excluded. Unemployed individuals (who have zero hours worked but are not 'retired') are included in these means.

This exhibit includes hours worked data, which in the March CPS is provided for the year before the survey. For instance, in March 2015, hours worked is for 2014.

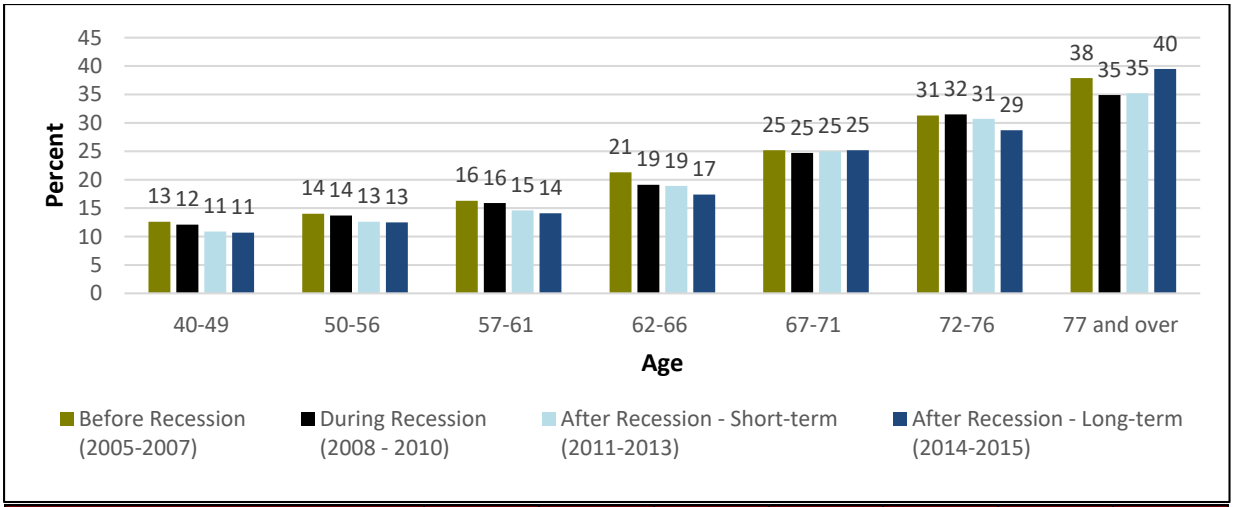
We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Trends in mean hours worked are consistent with the labor force participation trends. For all older worker groups ages 62 and older, we see modest but statistically significant increases in average hours worked from pre-GR to post-GR/longer-term.

Exhibit 11 and **Exhibit 12** depict March CPS 2005-2015 self-employment rates for older workers. The CPS defines self-employment as "employment in one's own business, professional enterprise, or partnership.[63]

Exhibit 11. Civilian Self-Employment Rates among Older Workers: Pre-, During, and Post-GR (March CPS 2005-2015)

[63] United States Census Bureau. (2015) *Current Population Survey, 2015 Annual Social and Economic (ASEC) Supplement.* Retrieved from http://www.nber.org/cps/cpsmar2015.pdf



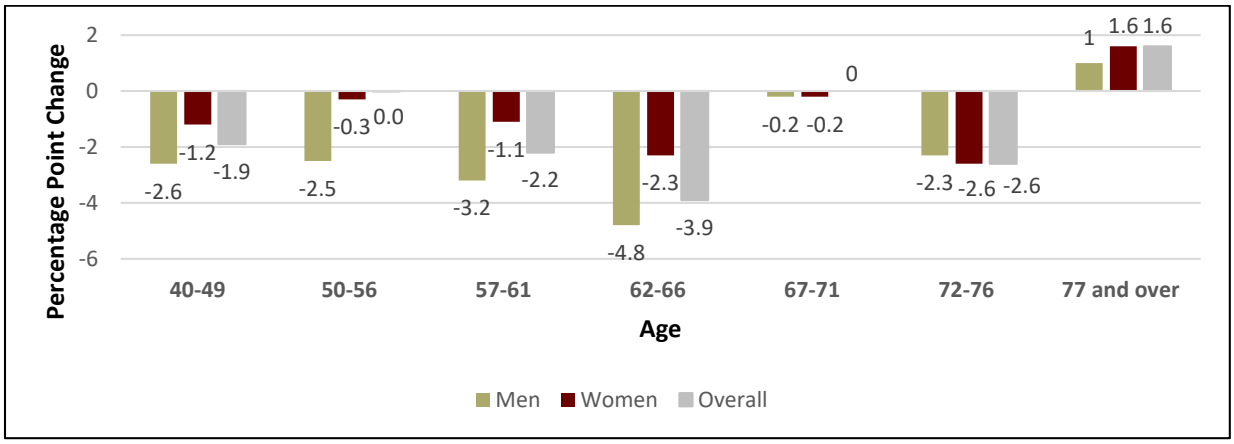
Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Percentage Point Change Pre-GR (March CPS 2005-2007) to Post-GR/Longer-Term (March CPS 2014-2015)	-1.9***	-1.5***	-2.2***	-3.9***	0.0	-2.6	1.6

Note: Out of labor force individuals were excluded from the calculations of self-employment rates.
We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Self-employment declined for most older worker age groups. The 62-66 age group saw the biggest decline in self-employment rates, dropping 4 percentage points.[64]

[64] Not shown in Exhibits 11 and 12, the very oldest group, ages 77 and older, saw an increase in self-employment just in 2014-2015 - a 4.3 percentage point increase from post-GR/short to post-GR/longer term.

Exhibit 12. Change in Civilian Self-Employment Rates among Older Workers: Pre-GR to Post-GR/Longer-term (March CPS 2014-2015)



Note: Out of labor force individuals were excluded from the calculations of self-employment rates.

Exhibit 12 also reveals some variation in the changes in self-employment rates by gender. For older workers ages 50-56, 57-61, and 62-66, self-employment rates among men dropped by greater magnitudes than among women. This gender difference disappeared for the oldest three age groups.

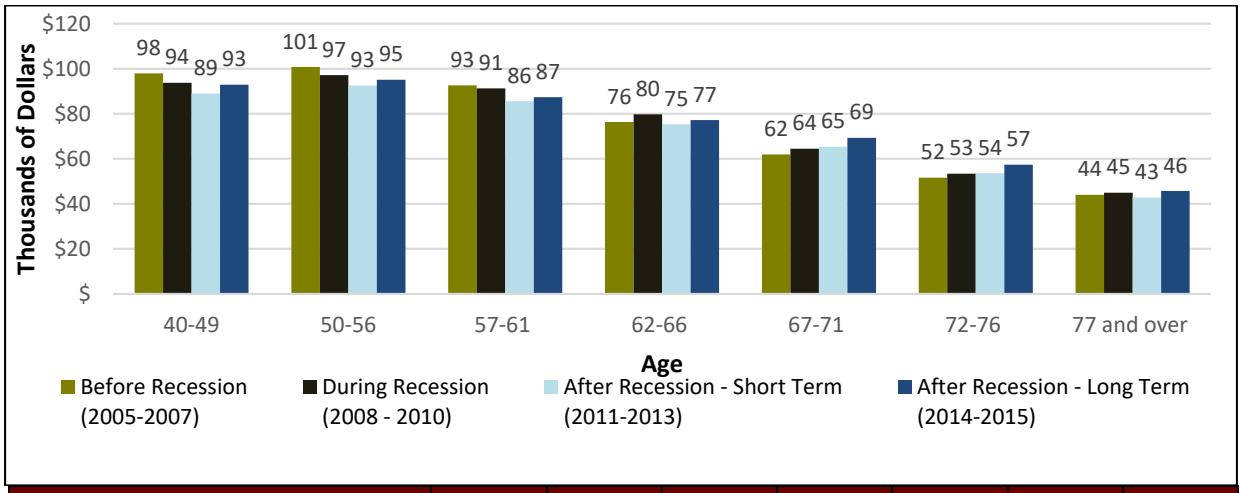
5.1.2 Earnings and other Income

We discuss trends in family income, wage-and-salary earnings, unemployment compensation, self-employment income, retirement income and Social Security income. We also highlight any notable trends by gender and age group (40-49, 50-56, 57-61, 62-66, 67-71, 72-76, and 77 and over). All dollar amounts are adjusted for inflation to 2014 dollars using the BLS Consumer Price Index for All Urban Consumers (CPI-U).

Family Income. Family income serves as a summary measure of financial status – including wage-and-salary earnings, unemployment compensation income, self-employment income, retirement income, Social Security income, rental payments, public assistance, survivor benefits, veteran benefits, worker's compensation, realized capital gains from interest, and other miscellaneous sources.

Exhibit 13 shows March CPS 2005-2015 inflation-adjusted data for family income for older adults.

Exhibit 13. Mean Family Income: Pre-, During, and Post-GR (March CPS 2005-2015)



Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Percentage Point Change Pre-GR (March CPS 2005-2007) to Post-GR/Longer-term (March CPS 2014-2015)	-5%***	-6%***	-6%***	1%***	12%***	11%***	4%***

Note: Individuals with missing labor force status, imputed labor force status, or armed forces labor force statuses, or missing/imputed family income are excluded from this chart's calculations.
We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.
This exhibit includes family income data, which in the March CPS is provided for the year before the survey. For instance, in March 2015, family income is provided for 2014.

Overall, the dollar value of mean family income gradually decreases with age. This likely reflects a change in the composition of income sources, as older adults reduce their hours of paid work (see Section 4.2's discussion on hours worked). For example, in 2014, the Social Security Administration reported that 78 percent of those 55-61 had income from "earnings;" only 31 percent of 70-74 year-olds did. [65] In addition, older age groups are more likely to include widowers, as noted, which may also reduce family income levels and, according to the Social Security Administration, lead to higher poverty rates for widowed older women's households.[66]

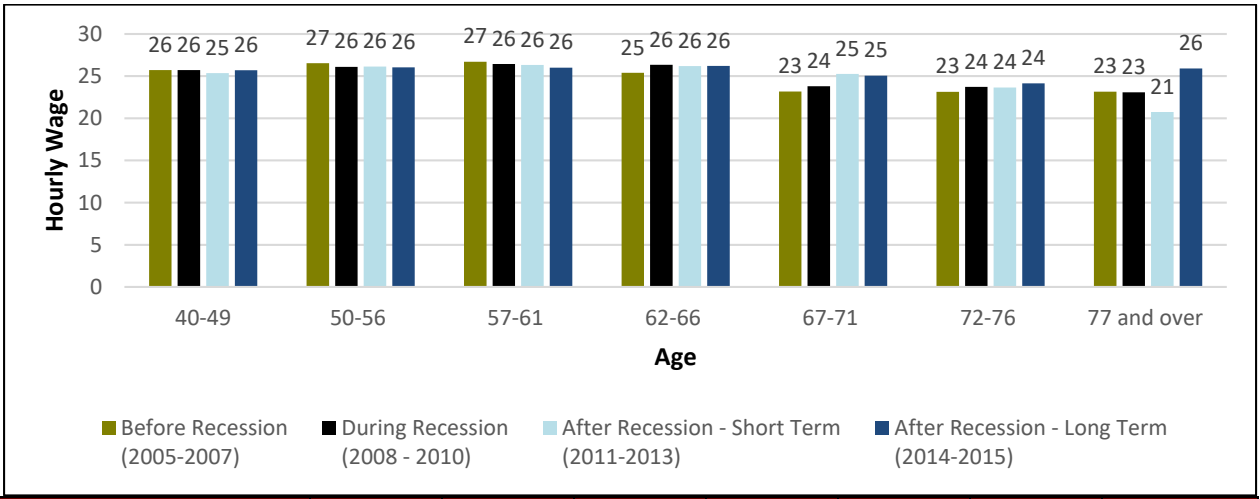
We observe clear differences between the group ages 40-49 and the younger cohorts of older adults (ages 50-56 and 57-61) vs. the older cohorts (62-66, 67-7,72-76, and 77 older) in their post-GR income levels. The younger three groups have failed to fully recover from the recession. But the oldest four of the older age groups have slightly higher mean family incomes post-GR/longer-

[65] United States Social Security Administration (2016). Income of the Population 55 or Older, 2014 (SSA Publication No. 13-11871). Retrieved from https://www.ssa.gov/policy/docs/statcomps/income_pop55/2014/incpop14.pdf
[66] Sevak, P., Weir, D. R., & Willis, R. J. (2003/2004). Perspectives: The Economic Consequences of a Husband's Death: Evidence from the HRS and ahead. *Social Security Bulletin*, Vol. 65(3). https://www.ssa.gov/policy/docs/ssb/v65n3/v65n3p31.html

term than pre-GR ,which is most pronounced for the 67-71 and 72-76 groups. This growth in family income among the older age groups may be due to their rising labor force participation rates. Wage-and-salary earnings have also begun to make up a larger share of family income among 62-66 year-olds (from 32 percent of family income on average pre-GR to 39 percent post-GR/longer term (see Exhibit B-33 in Appendix B for details of this analysis).

Wage-and-Salary Earnings. Wage-and-salary earnings are gained through regular employment. The specific definition is "total money earnings received for work performed as an employee during the income year. It includes wages, salary, Armed Forces pay, commissions, tips, piece-rate payments, and cash bonuses earned, before deductions are made for taxes, bonds, pensions, union dues, etc. Earnings for self-employed incorporated businesses are considered wage-and-salary earnings."[67] **Exhibit 14** shows the trends in inflation-adjusted hourly wage earnings by age group pre-, during, and post-GR/longer-term.

Exhibit 14. Mean Hourly Wage: Pre-, During, and Post-GR (March CPS 2005-2015)



Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Percentage Point Change Pre-GR (March CPS 2005-2007) to Post-GR/Longer-Term (March CPS 2014-2015)	-0.1%***	-1.8%***	-2.6%***	3.2%***	8.0%***	4.4%***	11.9%***

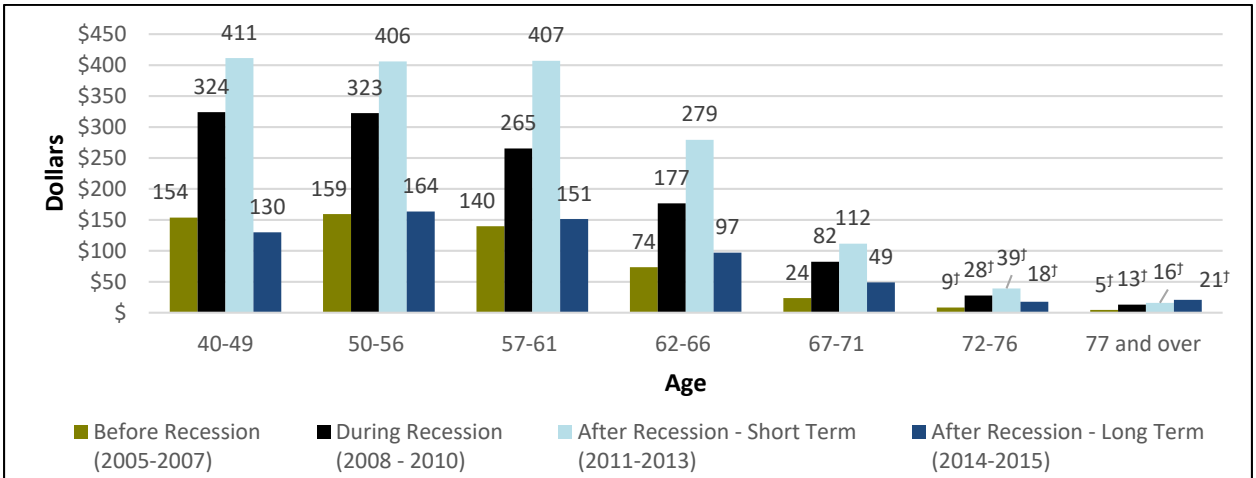
Note: Individuals with missing labor force status, imputed labor force status, or armed forces labor force statuses, or missing/imputed wage and salary earnings are excluded from this chart's calculations.
We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.
This exhibit includes wages-and-salary earnings data, which in the March CPS is provided for the year before the survey. For instance, in March 2015, wages-and-salary earnings is provided for 2014.

[67] United States Census Bureau. (2015) *Current Population Survey, 2015 Annual Social and Economic (ASEC) Supplement.* Retrieved from http://www.nber.org/cps/cpsmar2015.pdf

Exhibit 14 displays the mean hourly wage for each of the four time periods examined in this study. We find that hourly wages decreased slightly for workers 40-49 and for the younger two cohorts of older workers (50-56, and 57-61) post-GR, but increased for the four oldest cohorts of older workers. Workers 57-61 saw their hourly wage fall by 2.6 percent over this period, for example, compared to an 8.0 percent increase for workers 67-71.

Unemployment Compensation. Unemployment compensation income is defined as "(1) unemployment compensation received from government unemployment insurance agencies or private companies during periods of unemployment and any strike benefits received from union funds; (2) money paid periodically by the Veterans Administration to disabled members of the Armed Forces or to survivors of deceased veterans, subsistence allowances paid to veterans for education and on-the-job training, as well as so-called 'refunds' paid to ex-servicemen as GI insurance premiums; and (3) worker's compensation received periodically from public or private insurance companies for injuries incurred at work."[68] **Exhibit 15** shows annual mean inflation-adjusted unemployment compensation pre, during, and post-GR/short term and longer term, by age group.

Exhibit 15. Annual Mean Unemployment Compensation: Pre-, During, and Post-GR (March CPS 2005-2015)



Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Percentage Point Change from Pre-GR (March CPS 2005-2007) to Post-GR/Longer-Term (March CPS 2014-2015)	-15%***	3%	8%	32%	106%	108%†	353%†

Note: Individuals with missing labor force status, imputed labor force status, or armed forces labor force statuses, or missing/imputed unemployment compensation earnings are excluded from this chart's calculations.
We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.
† The 72-76 and 77 and over age groups have insufficient sample sizes for this outcome for significance testing.

[68] United States Census Bureau. (2015) *Current Population Survey, 2015 Annual Social and Economic (ASEC) Supplement.* Retrieved from http://www.nber.org/cps/cpsmar2015.pdf

This exhibit includes unemployment compensation data, which in the March CPS is provided for the year before the survey. For instance, in March 2015, unemployment compensation is provided for 2014.

In **Exhibit 15**, these four time periods displayed together highlight the countercyclical role of unemployment compensation. Generally, the 40-49 group and the youngest two cohorts of older workers (50-56 and 57-61) averaged more unemployment compensation than the oldest four cohorts of older workers (62 and older). Average unemployment compensation skyrocketed for the 40-49 group and younger groups of older workers during and post-GR/short-term, but dropped back down to slightly above pre-GR levels post-GR/longer-term. Katz (2014)[69] notes that such a spike may be partly due to the extension of emergency unemployment compensation in 2008, but mostly reflects GR-related economic conditions. Older age groups still have not returned to pre-recession levels, though for the 72-76 and 77 and over groups, too few observations are available to test for statistical significance.

Self-Employment Income (Non-Farm). Income from self-employment is defined as "net money income (gross receipts minus expenses) from one's own business, professional enterprise, or partnership. Gross receipts include the value of all goods sold and services rendered. Expenses include costs of goods purchased, rent, heat, light, power, depreciation charges, wages and salaries paid, business taxes (not personal income taxes), etc."[70]

[69] Katz, Lawrence. "Long-term unemployment in the Great Recession." Joint Economic Committee U.S. Congress: Hearing on "Long-Term Unemployment: Causes, Consequences and Solutions" (2014).
[70] United States Census Bureau. (2015) *Current Population Survey, 2015 Annual Social and Economic (ASEC) Supplement.* Retrieved from http://www.nber.org/cps/cpsmar2015.pdf

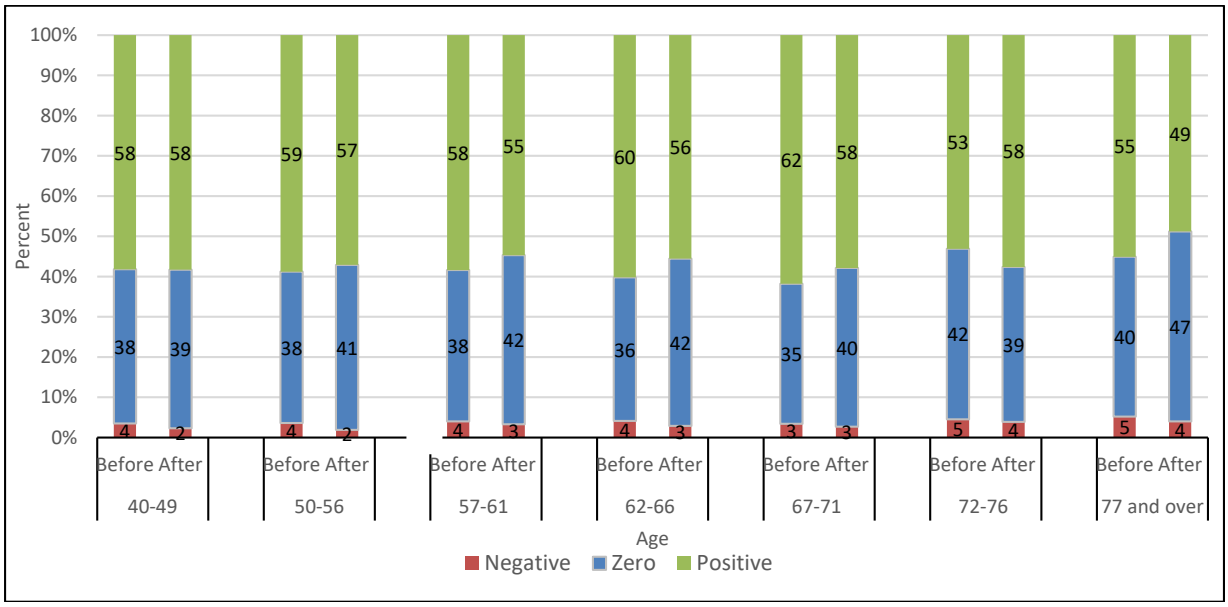
Exhibit 16 shows the percentage of adults with positive, zero, or negative self-employment income (inflation-adjusted).

Roughly 50-60 percent of adults who were self-employed had positive self-employment earnings throughout the period (

Exhibit 16). Negative income represents individuals for whom business expenses exceed income. **Exhibit 12** above showed self-employment rates decreasing from pre-GR to post-GR/longer-term except for the very oldest cohort shown.

Exhibit 16, which displays mean self-employment income pre-GR and post-GR/longer-term shows proportionally fewer individuals reporting positive self-employment earnings post-GR/longer-term, except for the 40-49 group, which experienced no change, and the 72-76 group, which experienced a 5 percentage point increase.

Exhibit 16. Self-Employment Earnings among the Self-Employed: Pre- (March CPS 2005-2007) and Post-GR/Longer term (March CPS 2014-2015)



Note: Only individuals reported as self-employed are included in this chart.
This exhibit includes self-employment earnings data, which in the March CPS is provided for the year before the survey. For instance, in March 2015, self-employment earnings is provided for 2014.

5.2 Difference-in-Differences – Earnings and Hours Worked

The DID analysis assesses older workers' hours worked and wage-and-salary earnings post-GR relative to those of workers ages 40-49.

Exhibit 17 displays the following estimates:

- Interactions of *Treatment* and *ShortTermAfter* provide estimates of the labor market outcomes of older workers post-GR/short-term, *relative to those of workers ages 40-49 over the same period* (March CPS 2011-2013);
- Interactions of *Treatment* and *LongTermAfter* provide estimates of the labor market outcomes of older workers, *relative to those of workers ages 40-49 over the same period* (March CPS 2014-2015).

Exhibit 17. DID Estimates on Hours Worked Per Week and Hourly Wage

Dependent Variable	Hours Worked Per Week		Log Hourly Wage	
Mean	**39.64**	**34.58**	**$30.92**	**$22.70**
	(1)	(2)	(3)	(4)
Independent Variables	**Men**	**Women**	**Men**	**Women**
Short-Term * Ages 50-56	0.385***	-0.044	0.023***	0.005
	(0.099)	*(0.107)*	*(0.005)*	*(0.004)*
Short-Term * Ages 57-61	0.317***	0.404***	-0.015*	0.020
	(0.110)	*(0.094)*	*(0.009)*	*(0.012)*
Short-Term * Ages 62-66	1.148***	0.656***	0.006	0.037***
	(0.121)	*(0.163)*	*(0.011)*	*(0.008)*
Short-Term * Ages 67-71	1.069*	1.137***	0.006	0.023
	(0.543)	*(0.306)*	*(0.020)*	*(0.028)*
Short-Term * Ages 72-76	1.069	1.979*	0.086**	-0.028
	(0.889)	*(1.143)*	*(0.038)*	*(0.036)*
Short-Term * Ages 77 and older	2.196***	0.709	0.008	0.201***
	(0.755)	*(0.864)*	*(0.085)*	*(0.057)*
Longer-Term * Ages 50-56	0.105	0.050	0.017*	-0.007
	(0.101)	*(0.085)*	*(0.010)*	*(0.010)*
Long-Term * Ages 57-61	0.566***	0.452***	0.004	0.014
	(0.118)	*(0.144)*	*(0.009)*	*(0.013)*
Long-Term * Ages 62-66	1.495***	0.873***	0.016	0.056***
	(0.278)	*(0.163)*	*(0.015)*	*(0.017)*
Long-Term * Ages 67-71	1.833***	1.935***	0.054**	0.001
	(0.310)	*(0.301)*	*(0.026)*	*(0.021)*
Long-Term * Ages 72-76	2.395**	3.284***	0.051*	0.079**
	(1.086)	*(0.662)*	*(0.026)*	*(0.036)*
Long-Term * Ages 77 and older	1.677***	1.157	0.134**	0.285***
	(0.542)	*(0.894)*	*(0.057)*	*(0.074)*
Number of Observations	168,041	166,703	171,056	169,499
Adjusted R-Squared	0.147	0.138	0.309	0.272

Notes:

1. Reference period is time pre-GR (i.e., 2005 – 2007).
2. Other independent variables include race, ethnicity, marital status, educational attainment, disability and health status, family size, industry, occupation, region, and health insurance coverage.
3. All regressions control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2005 to 2015 obtained from the U.S. Bureau of Labor Statistics. When MSA is unavailable for an individual, we use state unemployment rate.
4. All regressions control for year fixed effects.
5. Standard errors, which are clustered by age group and year, are shown in italics.
6. Regressions are weighted by CPS March Supplement Final Weight.

7. Regressions on hours worked exclude individuals who are not in the labor force. They also exclude individuals who are self-employed and working without pay.
8. Regressions on log hourly wage include only individuals with a positive hourly wage. They exclude individuals who are self-employed or working without pay.
9. Dollar amounts are adjusted for inflation to 2014 dollars using BLS' Consumer Price Index for All Urban Consumers (CPI-U).
*** p<0.01, ** p<0.05, * p<0.1

Columns (1) and (2) report results from regressions on hours worked per week, for men and women, respectively. Columns (3) and (4) report results from the regressions on log hourly wage, for men and women, respectively. The coefficients are interpreted in relation to the reference category. For example, for men in the hours worked regression, the coefficient on the interaction between *ShortTermAfter* and age group 62-66 is 1.1. This coefficient implies that male older workers ages 62-66 worked 1.1 hours more per week compared to male workers 40-49 post-GR/short-term, holding other things constant. We transform the hourly wage dependent variable into the logarithm of hourly wage, so the coefficients can be interpreted as the percentage change in hourly wages when any of the independent variables is changed by one unit (see Appendix B for full regression results).[71]

Hours Worked Per Week. As
Exhibit 17 shows, most interaction terms in the hours worked regressions are positive and statistically significant, implying that older workers worked relatively more hours per week in both post-GR/short-run and post-GR/longer-run compared to workers ages 40-49.

Post-GR/short-term, the trend is especially strong for older male workers, except for those in the 72-76 age range. Older male workers ages 62-66 and 67-71 worked about 1.1 hours more per week than their 40-49 year-old counterparts. The very oldest group of male workers (77 and older) experienced the largest relative increase in hours worked, at 2.2 hours more per week . Among female workers, those ages 57-61, 62-66, 67-71, and 72-76 worked more than post-GR/short-term than pre-GR, as compared to female workers ages 40-49. The increase was largest for those in the 72-76 category, although statistically significant only at the 10-percent level.

Post-GR/longer-term, the same general trend continued, with older workers working significantly more hours per week compared to workers ages 40-49. This trend is again especially strong for older male workers, among whom all age groups experienced increases in hours worked relative to male workers ages 40-49. Male workers ages 62-66, 67-71, and 77 and over worked about 1.5-1.8 hours more per week; male workers ages 72-76 had the greatest increase in hours worked at about 2.4 hours more per week. Among older female workers, all but the youngest and oldest cohorts worked more than those ages 40-49, with those ages 72-76 experiencing the largest increase, at 3.3 hours more per week.

[71] For both dependent variables in our DID regressions, we conducted a sensitivity test using age group 35-49 as the comparison group. Compared to the regression using age group 40-49 as the comparison group, all coefficients have the same sign and level of statistical significance. Including individuals aged 35-39 causes most coefficients to be slightly larger in magnitude. See Appendix D-1.

Hourly Wage. For hourly wages, the trend is considerably less clear, with fewer statistically significant differences.

Post-GR/short-term, male workers ages 50-56 earned 2.3 percent more than their 40-49 year-old counterparts, but those ages 57-61 actually earned 1.5 percent less. Older male workers ages 72-76 experienced the greatest wage increases, compared to all other male worker age groups – increasing by 8.6 percent relative to their 40-49 year-old counterparts. Among female workers, only those in the 62-66 and 77 and over groups experienced wage increases relative to their 40-49 year-old counterparts – with the oldest group earning 20.1 percent more per hour than their 40-49 year-old counterparts.

Post-GR/longer-term, male workers ages 57-61 and 62-66 experienced no statistically significant changes in hourly wages compared to male workers ages 40-49. In contrast, all older male cohorts of workers (67-71, 72-76, and 77 and older) earned between 5.2 percent and 13.4 percent more. Older female workers in the 62-66, 72-76, and 77 and older cohorts all earned more than their 40-49 year-old counterparts – with the most notable result being female workers 77 and over earning 28.5 percent more per hour than female workers ages 40-49.

With respect to gender, older female workers experienced higher earnings (relative to those ages 40-49) post-GR/longer-term than they did post-GR/short term. In contrast, no clear time pattern emerges for men.

5.3 Discussion

The results in this chapter indicate that older workers have been increasing their labor force participation and hours worked. Researchers have tested a few reasons why this might be the case. Munnell and Rutledge (2013) found that older adults, in particular, have experienced a loss of financial security as a result of the Great Recession.[72] This loss may have incentivized them to return to the workforce and increase their working hours. Indicators of lower wealth – such as lower savings levels, less access to pension plans, and lack of health insurance – are also positively correlated with labor force participation (Leonesio et al., 2012).[73]

Researchers have also pointed to shifting demographics among older workers as a potential cause, such as rising education levels and improving health status (Copeland, 2011).[74] In general,

[72] Munnell, A.H., & Rutledge, M.S. (2013). The effects of the Great Recession on the retirement security of older workers. *The Annals of the American Academy of Political and Social Science, 650*(1), 124-142.

[73] Leonesio, M. V., Bridges, B., Gesumaria, R., & Del Bene, L. Social Security Administration. (2012). The Increasing Labor Force Participation of Older Workers and Its Effect on the Income of the Aged. *The Social Security Bulletin, 72(1)*. https://www.ssa.gov/policy/docs/ssb/v72n1/v72n1p59.html

[74] Copeland, C. (2011). *Employment-based retirement plan participation: geographic differences and trends, 2010.* (EBRI Issue Brief, 363). Washington DC: Employee Benefit Research Institute. Retrieved from https://www.ebri.org/publications/ib/index.cfm?fa=ibDisp&content_id=4911

the job market today requires higher levels of education credentials than it did in previous decades (Carnevale et al., 2016).[75] Carnevale et al. (2016) also found that job growth post-GR/short-term has been quickest for jobs that require a bachelor's degree or higher. Other research has shown that the educational attainment of older adults has increased compared to previous cohorts of older workers.[76] Burtless (2016) suggested that improved education levels among older adults today compared to past levels may partially explain some of the more positive labor force participation trends we see for workers 62 and older in post-GR/short-term, relative to prime-age workers.

External factors were already causing older individuals to stay in the labor market longer well before the GR (even pushing older individuals back into the labor market), and to increase their working hours. The GR likely expedited this process, but to what extent remains unclear.

In terms of wages, we found that some older workers earned higher wages post-GR. In the post-GR/longer-term, both men and women ages 72 and older experienced the greatest wage increases. Similar to the increases in labor force participation, this wage increase is likely attributable to many of the reasons already mentioned. Higher participation in the labor force and longer hours worked, all else equal, will increase the average pay among older workers above – although, since analyzing earnings restricts us to looking at *the earnings of those who were employed*, this presents a partial view of overall financial well-being, as discussed further below.

The DID analysis found that, compared to older male workers, older female workers experienced a larger increase in hourly earnings post-GR – a trend that is particularly true for women in the two oldest age groups (72-76 and 77 and over). Notably, the hourly wages of female workers 77 and over increased by 28.5 percentage points post-GR/longer term, compared to 13.4 percentage points for male workers in the same age group.

Potential explanations for this trend include selection bias toward older women with strong labor force attachment, who have other characteristics associated with faster wage recovery. Another possibility has also been noted – factors associated with the income or health insurance of the spouse. Previous research has shown that marriage has major implications for retirement decisions, and divorce shapes later workforce behaviors, particularly for women. For example, Couch et al. (2013) examined the long-term effects of divorce on women's labor market outcomes and found that divorces led to substantial and sustained increases in women's

[75] Carnevale, Anthony P, Smith, Nicole, and Strohl, Jeff. (2013). *Recovery: Job Growth and Education Requirements Through 2020*. Washington DC: Georgetown University/Georgetown Public Policy Institute/Center on Education and the Workforce. Retrieved from https://repository.library.georgetown.edu/handle/10822/559311

[76] Burtless, Gary. (2016). *Labor Force Dynamics in the Great Recession and its Aftermath: Implications for Older Workers*. (Working Paper No. 2016-1). Boston, MA: Center for Retirement Research at Boston College. Retrieved from https://www.brookings.edu/wp-content/uploads/2016/07/wp_20161.pdf

earnings.[77] Without the financial support from their spouses, women are incentivized to look for paying jobs, and widowhood might have the same effect.[78] It would be potentially fruitful for future researchers to look into why women in their 70s may be earning higher wages on average compared to women ages 40-49.

Obviously, wage-and-salary earnings for those who are employed, as noted, do not give a complete picture of financial well-being. In fact, our analysis indicates that the duration of unemployment has not returned to pre-GR levels for either 40-49 year-olds or the older workers. Since workers ages 40-49 and the younger cohorts of older workers were the worst affected, these durations are a serious policy concern. Previous research on the recovery of older workers from unemployment has indicated that, among those who experience involuntary job loss, older workers' salary earnings do not recover as quickly (O'Leary and Eberts, 2007).[79] The impact of job loss on future earnings has also been shown to depend in part on the duration of the unemployment.

Since an important indication of older adults' financial well-being is their overall income levels, we examined different income sources of older adults in addition to wage-and-salary earnings – including family income, unemployment compensation, and self-employment income. We found that family incomes of the two youngest cohorts of older adults (50-56 and 56-61) still had not fully recovered from the recession in the post-GR/longer-term. On the other hand, the family income and personal wage-and-salary earnings among the older cohorts (ages 62 and older) were slightly higher post-GR/longer-term than pre-GR. The family income growth of the older age groups may be due to their rising labor force participation rates. In addition, the older age groups experienced lower unemployment rates during the GR than did the 40-49 cohort and the younger cohorts of older workers.

[77] Couch, K. A., Daly, M. C., & Zissimopoulos, J. M. (2013*). Lifecycle events and their consequences: Job loss, family change, and declines in health.* Stanford, California: Stanford Economics and Finance, an imprint of Stanford University Press.

[78] Lusardi, Annamaria, and Olivia Mitchell. "Older Women's Labor Market Attachment, Retirement Planning, and Household Debt." Women Working Longer. University of Chicago Press, 2016.

[79] O'Leary, C. J., & Eberts, R. W. (2007). *Reemployment and earnings recovery among older unemployment insurance claimants* (Working Paper No. 07-133). Kalamazoo, MI: Upjohn Institute. Retrieved from http://research.upjohn.org/up_workingpapers/133/

6. RETIREMENT PATTERNS AMONG OLDER WORKERS

In this chapter, we explore the trends in retirement patterns and Social Security and other retirement income pre-, during, and post-GR (both short- and longer-term). We define retired persons as survey respondents who indicated they did not worked in the previous year and gave the reason as "retirement." We discuss these trends in Section 6.1. We explore the likelihood of retirement for older workers post-GR using logistic analysis by age cohort and gender in Section 6.2. We discuss our results in Section 6.3.

Key Takeaways

- ***Compared to pre-GR, older workers have become less likely to retire.***
  - These results are statistically significant for men ages 50-76 and women ages 50-66 and 72-76 post-GR/short-term (2011-2013).
  - These results are statistically significant for men ages 50-71 and women ages 50-66 post-GR/longer-term (2014-2015).
- ***The decrease in the likelihood of retirement is more pronounced for men than for women.*** For nearly all age cohorts (except for men ages 72-76 post-GR/longer-term), the magnitude is larger for men than women, meaning that men were more likely to continue working and postpone retirement post-GR than were women.
- ***Men and women ages 62-66 experienced the greatest drop in their likelihood of retiring both post-GR/short- and longer-term.*** This age span coincides with Social Security withdrawal ages (with penalty at 62 and without penalty at 66). Perhaps due to their reduced retirement rates, Social Security and other retirement income is also lower for the 62-66 group post-GR compared to pre-GR).
- ***For men and women older than 66, Social Security and other retirement income is higher post-GR/longer-term*** compared to pre-GR – a trend that is stronger for women than for men.

Note: All differences mentioned in this key takeaway box are statistically significant differences.

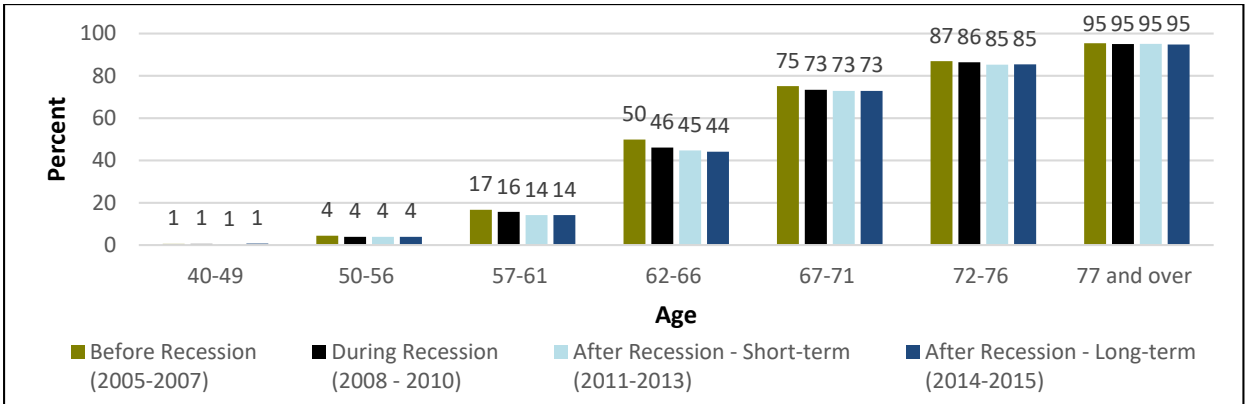
6.1 Retirement Rates and Retirement Income

The decision to retire is based on a variety of factors, such as the stock of retirement savings built over time, recent changes in the stock market that impact wealth accumulation, and personal and family members' health status. In Chapter 5, we observed higher labor force participation rates among men and women ages 62-71 post-GR, perhaps postponing retirement in response to the GR economic downturn (though, as mentioned, this trend started well before that). Below, we dig further into these trends by tracking the retirement rate and retirement income based on March CPS 2005-2015 (see Appendix C for details).

6.1.1. Retirement Rates

As mentioned earlier, individuals are considered retired if they indicate the reason for not working in the previous year as "retirement." **Exhibit 18** displays the proportion of retired adults in the population pre-, during, and post-GR (both short- and longer-term). Retirement rates are defined as the proportion retired among those who are either employed or retired.

Exhibit 18. Proportion Retired: Pre-, During, and Post-GR (March CPS 2005-2015)



Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Percentage Point Change Pre-GR (March CPS 2005-2007) to Post-GR/Longer-Term (March CPS 2014-2015)	0%*	-1%***	-3%***	-6%***	-2%***	-2%**	-1%*

Note: Only employed individuals who are employed or retired are included in the calculations of retirement rates for this exhibit.

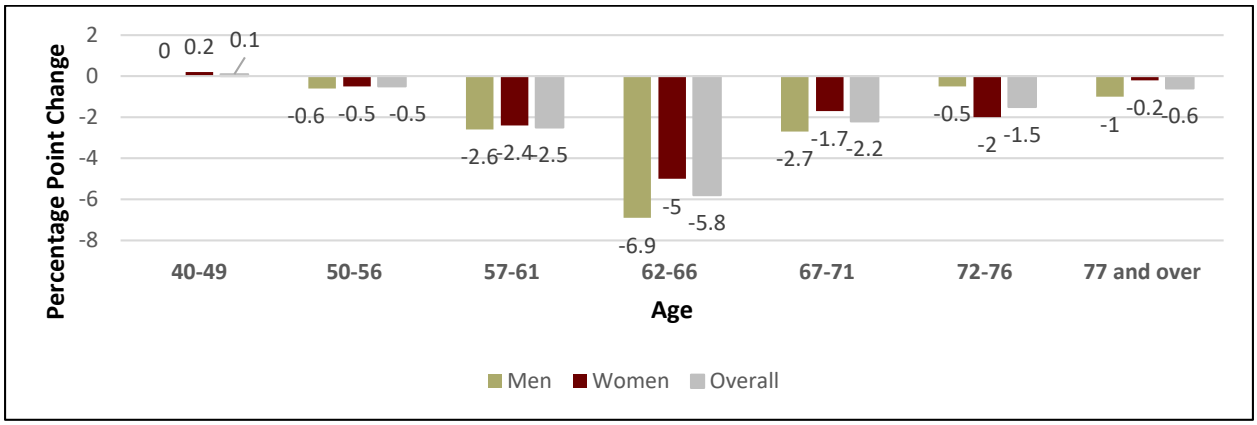
We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

This exhibit includes retirement status data, which in the March CPS is provided for the year before the survey. For instance, in March 2015, retirement status is provided for 2014.

Compared to pre-GR, fewer older workers retired post-GR/longer-term, which is consistent with the higher labor force participation rates that Chapter 5 portrayed. Those in the 62-66 group had the greatest decrease in retirement rates – with 50 percent retired pre-GR vs. only 44 post-GR/ retired, longer-term (a 6 percentage point drop).

Exhibit 19 displays the change in the retirement rates by gender and age group from March CPS 2005-2007 to March CPS 2014-2015.

Exhibit 19. Percentage Point Change in Proportion Retired among Civilian Older Workers by Gender: Pre-GR (March CPS 2005-2007) vs. Post-GR/Longer-Term (March CPS 2014-2015)



Note: Only employed individuals and individuals who are retired are included in the calculations of retirement rates for this exhibit.
This exhibit includes retirement status data, which in the March CPS is provided for the year before the survey. For instance, in March 2015, retirement status is provided for 2014.

Changes in retirement rates did not vary much by gender from March CPS 2005-2007 to March CPS 2014-2015. However, in almost all age categories, men had a larger drop in retirement rates than women. For example, in the 62-66 age group, retirement rates for men dropped 7 percentage points compared to a 5 percentage point drop for women. The only exception is the 72-76 age cohort, for which retirement rates for men dropped by only 0.5 percentage points compared to 2 percentage points for women.

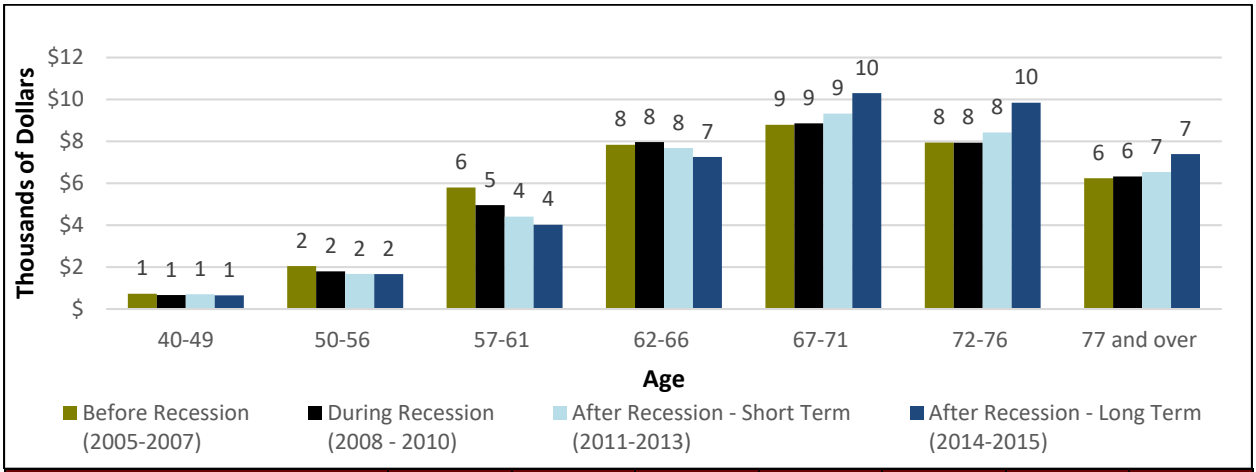
6.1.2. Family Retirement and Social Security Income

We also examined the trends in annual retirement and Social Security income among older adults in this time frame. According to the CPS, retirement income includes "payments people receive from eight sources: companies or unions; federal government (Civil Service); military; state or local governments; railroad retirement; annuities or paid-up insurance policies; individual retirement accounts (IRAs), Keogh, or 401(k) payments; or other retirement income."[80]

Exhibit 20 shows inflation-adjusted retirement income pre-, during, and post-GR (both short- and longer-term, by age group.

[80] United States Department of Labor Employment and Training Administration. (n.d.) *Attachments 1: Current Population Survey (CPS)-Definitions and Explanations*. Retrieved from https://www.doleta.gov/Seniors/other_docs/TEGL_PopSurvey.pdf

Exhibit 20. Mean Family Retirement Income: Pre-, During, and Post-GR (March CPS 2005-2015)



Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Percentage Point Change Pre-GR (March CPS 2005-2007) to Post-GR/Longer-Term (March CPS 2014-2015)	-10%***	-18%***	-31%***	-7%***	17%***	24%***	18%***

Note: Individuals with missing labor force status, imputed labor force status, or armed forces labor force statuses, or missing/imputed family retirement income are excluded from this chart's calculations.
We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.
This exhibit includes retirement income status data (in 2014 dollars), which in the March CPS is provided for the year before the survey. For instance, in March 2015, retirement income is provided for 2014.

A variety of factors affect retirement income, including structural changes in the way employers offer retirement benefits, the need for struggling families to dip into their retirement savings, especially during economic downturns, overall stock market declines, and other economic conditions that affect wealth accumulation.[81, 82] As expected, mean annual family retirement income is lowest for age groups 40-49 and 50-56, as few adults are retired in these age ranges. Retirement income is highest for 67-71 year-olds, averaging over $10,305 per family in 2014-2015.

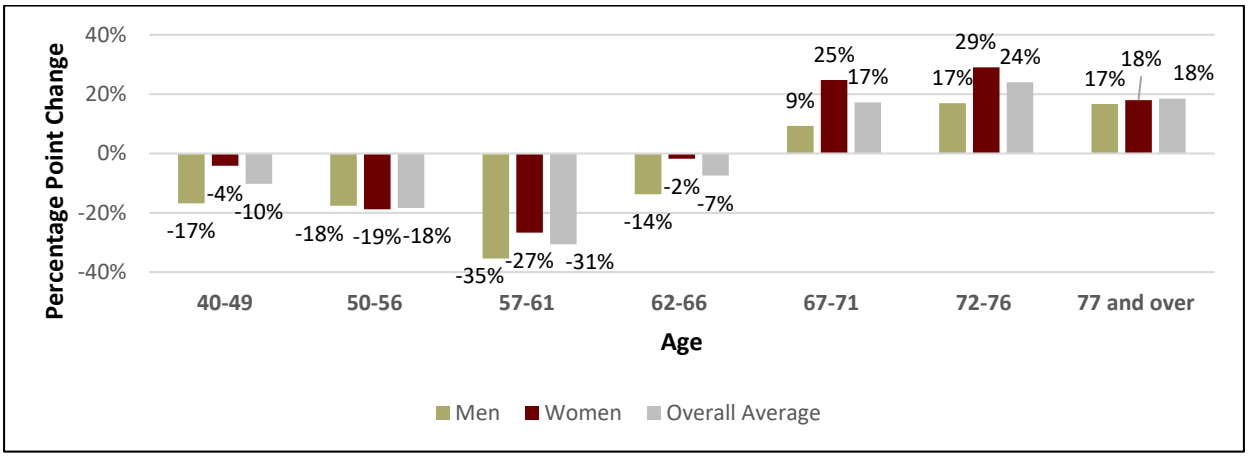
Compared to before pre-GR, the 62-66 age group experienced the greatest decrease in retirement rates post-GR (**Exhibit 19**) and the greatest increase in labor force participation (**Exhibit 5**)**.** With fewer adults retiring post-GR, we might anticipate lower mean retirement

[81] Butrica, B. A., Johnson, R, W., & Smith, K. E. (2011). *The Potential Impact of the Great Recession on Future Retirement Incomes*. Washington DC: The Urban Institute. Retrieved from http://www.urban.org/sites/default/files/alfresco/publication-pdfs/412340-The-Potential-Impact-of-the-Great-Recession-on-Future-Retirement-Incomes.PDF

[82] Munnell, A. H., & Rutledge, M. S. (2013). The Effects of the Great Recession on the Retirement Security of Older Workers. *Annals- American Academy of Political and Social Science*, *650*, 124-142.

incomes. The 62-66 age group had a 7 percent drop in mean retirement income from pre-GR to post-GR/longer-term. But despite having slightly lower post-GR retirement rates, age groups older than 66 have higher mean post-GR retirement income compared to pre-GR. For example, the mean retirement income of the 67-71 age group increased from $8,791 to $10,305 post-GR/longer-term. This rising income trend is consistent with the rising trend in post-GR family income and wages Chapter 5 described for adults older than 66. It is unclear if higher retirement income post-GR signals better or worse financial wellbeing for adults older than 66. For example, higher retirement income might represent an unplanned dip into retirement savings to cope with financial trouble – in which case such early, unplanned withdraws may diminish needed retirement assets in later years. **Exhibit 21** provides a gender breakout of the percentage point change in retirement income from March CPS 2005-2007 to March CPS 2014-2015.

Exhibit 21. Percentage Point Change in Mean Family Retirement Income by Gender: Pre-GR (March CPS 2005-2007) to Post-GR/Longer-term (March CPS 2014-2015)



Note: Individuals with missing labor force status, imputed labor force status, or armed forces labor force statuses, or missing/imputed family retirement income are excluded from this chart's calculations.
This exhibit's retirement income data are for the year before the March CPS survey. For instance, in March 2015, retirement income is provided for 2014.

As **Exhibit 21** shows, in the 62-66 age group, men experienced a much larger drop in retirement income than women, -14 percentage points vs. -2 percentage points, respectively. For the older age groups (older than 66), retirement income increased for both men and women post-GR compared to pre-GR – rising more for women more than for men.

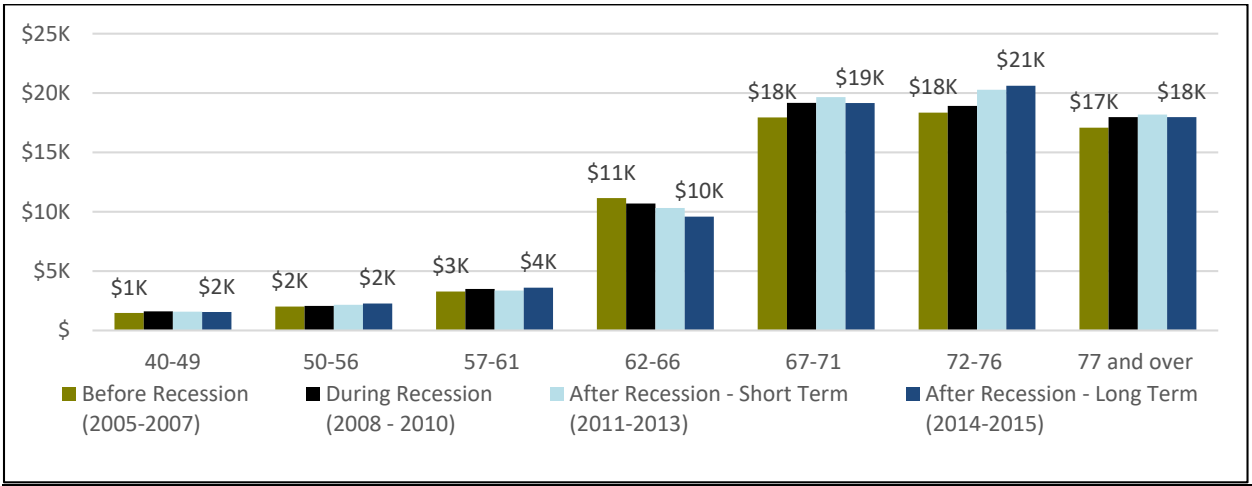
Another important source of income for retired adults is Social Security. Social Security income includes "Social Security pensions and survivors' benefits, and permanent disability insurance payments made by the Social Security Administration prior to deductions for medical insurance and railroad retirement insurance checks from the U.S. Government."[83] As noted, currently, individuals are eligible for full Social Security retirement benefits at age 66 (though this depends

[83] United States Census Bureau. (2015) *Current Population Survey, 2015 Annual Social and Economic (ASEC) Supplement.* Retrieved from http://www.nber.org/cps/cpsmar2015.pdf

on their year of birth and is gradually increasing),[84] and early Social Security retirement benefits are available starting at age 62 with reduced benefit levels. Social Security retirement income is calculated from an individual's lifetime earnings.[85] In addition, Social Security disability benefits are available for eligible adults of all ages who have a medical condition that prevents work.[86]

Exhibit 22 shows mean inflation-adjusted family Social Security income pre- and post-GR by age group. Note that this exhibit does not distinguish between Social Security Retirement and Social Security Disability income, as the distinction between the two is not made in the March CPS.

Exhibit 22. Mean Family Social Security Income: Pre-, During, and Post-GR (March CPS 2005-2015)



Age Group	40-49	50-56	57-61	62-66	67-71	72-76	77 & Over
Percentage Point Change Pre-GR (March CPS 2005-2007) to Post-GR/Longer-Term (March CPS 2014-2015)	5.5%***	12.9%***	9.1%***	-16.3%***	6.3%***	11.0%***	5.0%***

Note: Individuals with missing labor force status, imputed labor force status, or armed forces labor force statuses, or missing/imputed family Social Security income are excluded from this chart's calculations.
This exhibit includes Social Security income data, which in the March CPS is provided for the year before the survey. For instance, in March 2015, Social Security income is provided for 2014.

Mean annual Social Security income is highest among 72-76 year-olds, as noted, at $20,618 per family in 2014-2015 (see **Exhibit 22**). We observe the same trends for Social Security income for those ages 62 and older as we did for other retirement income. For the 62-66 age group, mean Social Security income was lower post-GR/longer-term compared to pre-GR, perhaps due to

[84] United States Social Security Administration. (n.d.). *Retirement Benefits* (SSA Publication No. 05-10035). Retrieved from https://www.ssa.gov/pubs/EN-05-10035.pdf
[85] United States Social Security Administration. (2016). *Your Retirement Benefit: How It's Figured* (SSA Publication No. 05-10070). Retrieved from https://www.ssa.gov/pubs/EN-05-10070.pdf
[86] United States Social Security Administration. (n.d.). *Disability Benefits* (SSA Publication No. 05-10029). Retrieved from https://www.ssa.gov/pubs/EN-05-10029.pdf

lower retirement rates. However, for individuals 66 and older, post-GR shows a higher mean Social Security income than pre-GR. Social Security income is a product of years of work, salary level, and age at retirement. Working longer and delaying retirement, therefore, ultimately increases Social Security Income. Thus, workers who felt obligated to work in the post-GR aftermath would realize increased Social Security earnings once they did retire. This trend may explain the higher Social Security income levels for adults older than 66 post-GR/longer-term.

For those 40-49 and the younger cohorts of older adults (50-56 and 57-61) who are not yet eligible for Social Security income, these dollars represent disability benefits. Social Security Retirement and Disability benefits could not be disaggregated in CPS data, as noted, which explains the non-zero earnings for individuals below the early eligibility age of 62 for Social Security Retirement Benefits.

6.2 Likelihood of Retirement

We now explore the likelihood of retirement for older workers post-GR in a regression framework, by age cohort and gender.

Exhibit 23 and Exhibit 24 present the key regression results from the logit models for men and women, respectively.

Exhibit 23. Results from Logit Estimation for Men

Dependent Variable: Probability of Retirement						
Mean of Dependent Variable	**3.11%**	**12.41%**	**42.68%**	**70.46%**	**83.41%**	**93.21%**
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Independent Variables	**Ages 50-56**	**Ages 57-61**	**Ages 62-66**	**Ages 67-71**	**Ages 72-76**	**Ages 77 & Over**
Post-GR/Short-Term	-0.010***	-0.044***	-0.075***	-0.059***	-0.021***	-0.009
	(0.003)	*(0.005)*	*(0.011)*	*(0.012)*	*(0.008)*	*(0.007)*
Post-GR/Longer-Term	-0.007***	-0.035***	-0.064***	-0.025***	-0.002	-0.007
	(0.002)	*(0.003)*	*(0.006)*	*(0.006)*	*(0.006)*	*(0.007)*
Observations	47,433	26,010	21,385	16,629	12,640	19,700
Pseudo R^2	0.082	0.065	0.052	0.038	0.032	0.050

Notes:

1. Coefficient estimates are average marginal effects.
2. The reference period is pre-GR (i.e., March CPS 2005 – 2007).
3. Other independent variables include race, ethnicity, marital status, educational attainment, disability and health status, family size, region, and health insurance coverage.
4. All regressions control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2004-2014 obtained from the U.S. Bureau of Labor Statistics. When MSA is unavailable for the individual, we use the state unemployment rate.
5. Standard errors clustered by state and year are reported in italics.
6. Regressions are weighted by the March CPS Supplement Final Weight.
7. The regressions exclude individuals who are not working, i.e. hours worked last year is zero (except those who are retired). They also exclude individuals who are self-employed and working without pay.
8. The dependent variable is 1 if the reason for not working is "retired." Dependent variable is 0 if the individual is employed (hours worked last year are greater than 0). In other words, we are restricting the analysis to "retired" vs. "working but not retired." Retirement is defined as having indicated the reason for not working last year as "retirement."
9. The following variables in the regressions are provided for the year before the survey**:** likelihood of retirement and unemployment rate. Each year, March CPS respondents are asked about these variables for the previous year.

*** p<0.01, ** p<0.05, * p<0.1

The key coefficients of interest are "short-term after" and "long-term after." We ran separate logit models for each age cohort of older workers (50-56, 57-61, 62-66, 67-71, 72-76, 77 and over) and report the average marginal effects for these coefficients – which reflect the changes in likelihood of retirement (vs. working but not retired) in the years post-GR.[87] For example, for men

[87] One limitation with our definition is the potential selection bias of the sample. Our sample contains all older workers that are either retired or working but excludes those that are unemployed. As a result, if there was a large change in the number of older workers that are unemployed, it might bias our results. To address this concern, we

ages 62-66, the average marginal effect of the "short-term after" coefficient is -7.5 percentage points. This result implies that men ages 62-66 are 7.5 percentage points less likely to be retired post-GR/short-term compared to pre-GR (see Appendix C for full regression results).

For men ages 50-71, the regression results in Exhibit 23 show that the likelihood of retiring post-GR was lower than pre-GR. Men were also less likely to retire post-GR/short-term compared to post-GR/longer-term. For example, men ages 67-71 were 5.9 percentage points less likely to retire post-GR/short-term after as compared to pre-GR, whereas the corresponding figure for post-GR/longer-term is only 2.5 percentage points (March CPS 2014-2015). This trend is logical in a recovering economy, as more individuals nearing retirement ages postpone their retirements immediately after an economic downturn than as the economy recovers.

Across the male age cohorts, the decreased likelihood of retirement is strongest for men around retirement age, 62-66.[88] Post-GR/short-term, men ages 62-66 were 7.5 percentage points less likely to retire than pre-GR; post-GR/longer-term, the likelihood of retiring for men in this age group drops to 6.4 percentage points.

We observe some different trends for the two oldest male age groups (72-76 and 77 and over). Men ages 72-76 were 2.1 percentage points less likely to retire post-GR/short-term, a difference that is statistically significant; the difference is not statistically significant post-GR/longer-term. These differences are also not significant for men 77 and over in either post-GR/short- or longer-term, plausibly because nearly all (93 percent) of men 77 and over were already retired pre-GR.

Exhibit 24 shows the logit results for women.

conducted a sensitivity analysis using an alternative definition of the dependent variable "retired." The alternative variable takes the value of 1 if the individual is retired and takes the value of 0 if the individual is still in the labor force (employed or unemployed). We present the results of the sensitivity analysis in Appendix D-3 and D-4 for men and women respectively. The results we obtained are similar to those in the main analysis: the signs and level of statistical significance of all coefficients are the same as those in the main analysis, and the magnitudes of the coefficients are only different at the third decimal. This similarity is likely due to the fact that those who are unemployed formed a small percentage of the entire older worker population. Results of the sensitivity analysis suggest that the selection bias is not a big concern in our analysis.

[88] United States Social Security Administration. (2016). *Your Retirement Benefit: How It's Figured* (SSA Publication No. 05-10070). Retrieved from: https://www.ssa.gov/pubs/EN-05-10070.pdf

Exhibit 24. Results from Logit Estimation for Women

Dependent Variable: Probability of Retirement						
Mean of Dependent Variable	**4.23%**	**16.66%**	**48.57%**	**75.65%**	**87.67%**	**96.22%**
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Independent Variables	**Ages 50-56**	**Ages 57-61**	**Ages 62-66**	**Ages 67-71**	**Ages 72-76**	**Ages 77 & Over**
Short-term After	-0.005***	-0.030***	-0.054***	-0.007	-0.012*	-0.004
	(0.002)	*(0.005)*	*(0.012)*	*(0.008)*	*(0.007)*	*(0.003)*
Long-term After	-0.003*	-0.023***	-0.035***	-0.006	-0.007	-0.000
	(0.002)	*(0.004)*	*(0.012)*	*(0.010)*	*(0.005)*	*(0.003)*
Observations	48,156	27,235	23,788	19,706	16,152	29,473
Pseudo R^2	0.054	0.044	0.050	0.044	0.052	0.044

Notes:

1. Coefficient estimates are average marginal effects.
2. The reference period is the time period before the Great Recession, i.e., **March CPS** 2005 - 2007.
3. Other independent variables include race, ethnicity, marital status, educational attainment, disability and health status, family size, region, and health insurance coverage.
4. All regressions also control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2004 to 2014 obtained from the U.S. Bureau of Labor Statistics. When MSA is unavailable for the individual, we use the state unemployment rate instead.
5. Standard errors are clustered by state and year and are reported in italics.
6. Regressions are weighted by the March CPS Supplement Final Weight.
7. The regressions exclude individuals who are not working, i.e. hours worked last year is zero (except those who are retired). They also exclude individuals who are self-employed and working without pay.
8. The dependent variable is 1 if the reason for not working is "retired." Dependent variable is 0 if the individual is employed (hours worked last year are greater than 0). In other words, we are restricting the analysis to "retired" versus "working but not retired." Retirement is defined as those who indicate that the reason for not working last year was "retirement".
9. The following variables in the regressions are provided for the year before the survey**:** likelihood of retirement and unemployment rate. Each year, March CPS respondents are asked about these variables for the previous year.

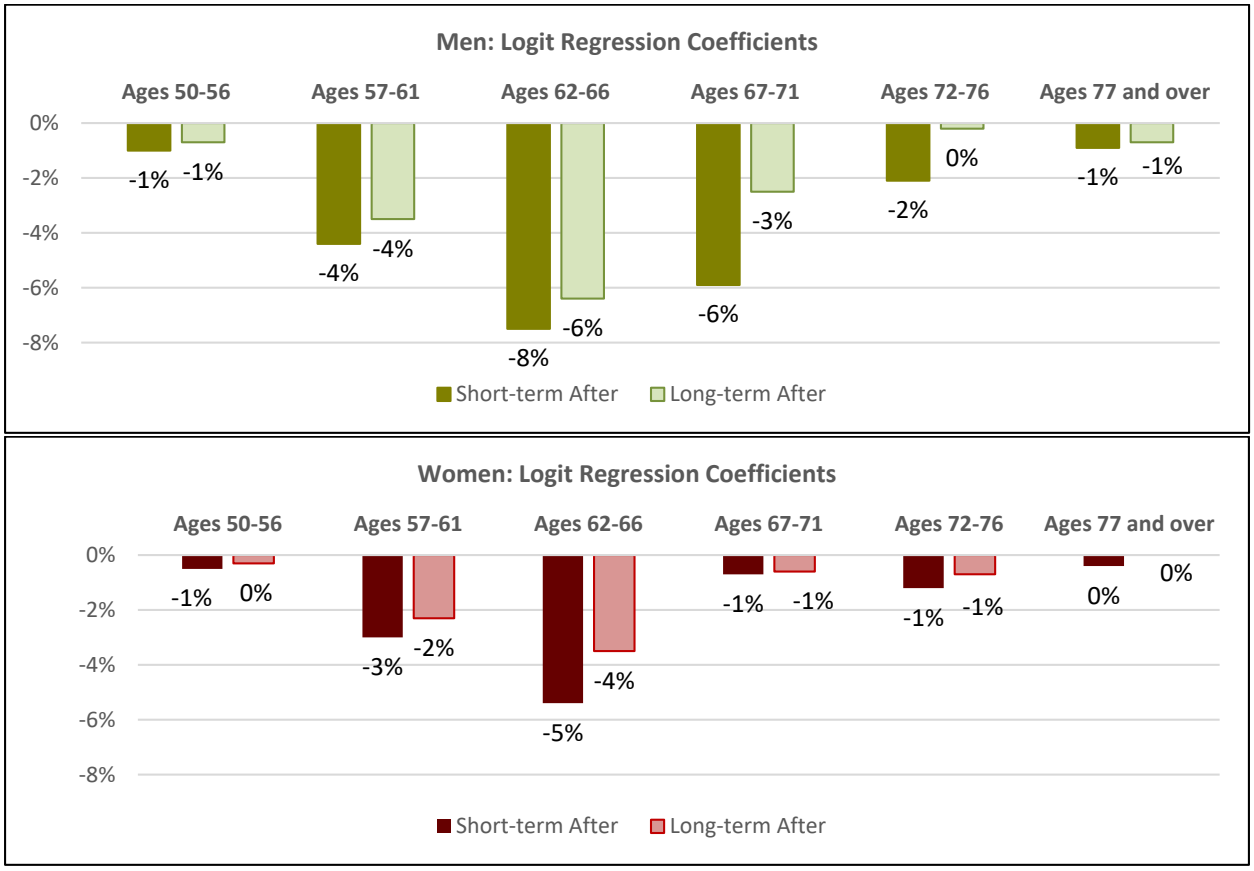
*** p<0.01, ** p<0.05, * p<0.1

Some trends are similar to those for men. Women ages 62-66 are less likely to retire post-GR/short-term than longer-term (5.4 vs. 3.5 percentage points, respectively). As with men, this age group has the greatest change in the likelihood of retirement post-GR.

The younger cohorts of female older workers (50-56 and 57-61) did not experience much change in the likelihood of retiring between post-GR/short and longer-term. With the exception of the 72-76 age group post-GR/short-term, women older than 66 had no statistically significant change in their likelihood of retiring post-GR/ short- or longer-term compared to pre-GR.

Exhibit 25 presents the graphical depiction of the logit results for men and women.

Exhibit 25. Regression Coefficients: "Short-term After" and "Long-term After" Variables[89]



Note: The regressions exclude individuals who are not working, i.e. hours worked last year is zero (except those who are retired). They also exclude individuals who are self-employed and working without pay.

The bars represent the percentage point likelihood of retiring post-GR/short-term compared to pre-GR. For nearly all age cohorts (except for men ages 72-76 post-GR/longer-term), the magnitude is larger for men than women, meaning that men were more likely to continue working and postpone retirement post-GR than were women.

6.3 Discussion

The analysis presented here shows lower retirement rates for older workers post-GR, particularly for men and women ages 62-66. Combined with the results of Chapter 5 indicating higher labor force participation for individuals older than 62, our results imply that those with access to Social Security benefits chose to work longer, perhaps due to wealth losses and general financial insecurity post-GR. Retirement benefits are derived from age and lifetime earnings; therefore, postponing retirement will likely increase the long-term retirement income of this cohort. The lower retirement rates were statistically significant for men ages 67-71 post-GR both short- and

[89] Each age group represents a separate model.

long-term; the difference for the 72-77 age group was only statistically significant post-GR/short-term.

In contrast to men, women over age 66 did not have statistically significant differences in their likelihoods of retirement post-GR compared to pre-GR. Prior research on the factors that affect retirement decisions by gender lend potential insight into this gender contrast. Cahill et al. (2013) found that self-employment was a statistically significant determinant of older worker job transitions and phased retirement for both genders.[90] But because men are much more likely than women to be self-employed later in life, future gender differences in transitioning to retirement may emerge. Gustman and Steinmeier (2014) also found that, although married couples make their retirement decisions jointly, husbands' decisions are more sensitive to wives' retirement than vice versa.[91]

Notably, older workers have more complex work-to-retirement transitions than they did in the past, and lower retirement rates are likely not merely a GR artifact but part of a larger trend. Pre-GR, partial retirement and labor-force reentry for older workers were already on the rise. Cahill et al. (2011) found that older workers were staying in the workforce to earn money, stay active, and serve their communities and society at large.[92] Researchers should track whether retirement rates will gradually return to 2005 levels over the next few years or remain at these lower rates.

The workplace of the modern economy has also been shifting in a way that may better accommodate delayed retirement but reduced hours or remote work for older workers. Businesses are offering more flexible work schedules, for example. The Families and Work Institute's nationally representative survey of for-profit and nonprofit employers with at least 50 employees found increased levels of workplace flexibility from 2008 to 2014, ranging from "flex time and place, choices in managing work time, and time during the workday to attend to important family or personal needs without loss of pay.[93, 94] Blau and Shvydko (2007) found that older workers in firms with higher flexibility on hours had fewer job separations.[95]

The trends toward higher retirement income and Social Security post-GR for the age groups older than 66 are more difficult to explain. We observe higher retirement incomes and Social Security

[90] Cahill, K. E., Giandrea, M.D., & Quinn, J.F. U.S. Bureau of Labor Statistics. (2013). *Are Gender Differences Emerging in the Retirement Patterns of the Early Boomers?* (Working Paper 468). U.S. Bureau of Labor Statistics. Retrieved from http://www.bls.gov/ore/pdf/ec130090.pdf

[91] Gustman, A. L., & Steinmeier, T. L. (2014). Integrating Retirement Models: Understanding Household Retirement Decisions. Factors Affecting Worker Well-being: The Impact of Change in the Labor Market. *Research in Labor Economics, 40*, *Emerald Group Publishing Limited*, *40,* 79-112.

[92] Cahill, K.E., Giandrea, M.D., & Quinn, J.F. (2011). Reentering the Labor Force after Retirement. *Monthly Labor Review, June*. Retrieved from http://www.bls.gov/opub/mlr/2011/06/art2full.pdf

[93] The comparison from 2008 to 2014 refers to the survey questions that asked if the "organization allows at least some employees to" receive various types of flexibility benefits.

[94] Families and Work Institute. *2014 National Study of Employers*.

[95] Blau, D., & Tetyana, S. (2011). Labor Market Rigidities and the Employment Behavior of Older Workers. *Industrial & Labor Relations Review*, *64*(3), 464-484.

for individuals age 66 and older post- than pre-GR, and this trend is stronger for women than men. Argento et al. (2013) found that older workers increased early withdrawals from retirement accounts post-GR, which is consistent with higher levels of retirement income for adults over age 66.[96] However, these early withdrawals may reduce financial security for these adults later in life.

Research to date tells a complex story about trends in Social Security Income. Card et al. (2014)[97] found that the GR-generated labor market shocks increased the probability of claiming Social Security Income early (ages 62-64) to cope with financial instability. However, Johnson et al. (2013) found that the increase in early Social Security retirement benefit claims post-GR was both small (1.6 percent for men and 1.2 percent for women) and short-lived (only during 2009). Instead, there is an overall demographic trend among older adults to wait to claim Social Security retirement benefits until they reach the Social Security full retirement age. This trend is driven by higher education levels among older workers, reduced prevalence of traditional pension plans, and a rise in 401(k)-type plans.[98] This research supports our finding of higher Social Security Income levels for adults over age 66 post-GR/longer-term compared to pre-GR. It suggests that these adults are plausibly staying in the labor force longer both to cope with retirement wealth losses after the Great Recession and also due to larger societal and demographic shifts.

[96] Argento, R., Victoria L. B., & John S. (2013). *Early Withdrawals from Retirement Accounts during the Great Recession.* (FEDS Working Paper No. 2013-22). The Federal Reserve. Retrieved from https://www.federalreserve.gov/pubs/feds/2013/201322/index.html

[97] Card, D., Maestas, N., & Purcell, P. (2014). *Labor Market Shocks and Early Social Security Claiming*. (Paper No, 2014-317). Ann Arbor, MI: University of Michigan/Michigan Retirement Research Center. Retrieved from http://www.mrrc.isr.umich.edu/publications/papers/pdf/wp317.pdf

[98] Johnson, R. W., Smith, K. E., and Haaga, O. (2013). *How Did the Great Recession Affect social security Claiming?* Washington DC: Urban Institute. Retrieved from http://www.urban.org/sites/default/files/alfresco/publication-pdfs/412875-How-Did-the-Great-Recession-Affect-Social-Security-Claiming-.PDF

7. CONCLUSION

Our analysis provides new evidence on older workers' characteristics and labor force activities because we are able to use CPS March Supplement data through 2015, the last two years of which has only recently become available. Previous literature was only able to extend the post-GR period through 2013. Specifically, we conducted a statistical analysis using the large, nationally representative CPS March Supplement for the 2005-2015 period to paint a clear, data-driven picture of the labor market outcomes for older workers (employment, hours worked, wages earned, and likelihood of retiring) before and after the Great Recession (GR) of 2008-2009. We compared older worker labor market outcomes (ages 50 and older) to workers ages 40-49 (still prime age, but more similar to older workers in non-age characteristics potentially related to labor force outcomes). We also compared outcomes among older workers across age cohorts and gender. We summarize our primary findings and recommended areas for future research below.

7.1 Main Findings

Compared to workers ages 40-49, older workers are working more and retiring later post- than pre-GR. Older men and women in some age ranges are even earning more compared to workers ages 40-49. This increase is especially pronounced among workers ages 62 and older. In fact, our analysis finds that, among the older cohorts of older workers age groups (72-76 and 77 and over), men worked about two hours more per week and women about three hours more per week post-GR/longer term (2014-2015) than in pre-GR (2005-2007). Post-GR/longer-term, men and women 77 and over earned 13 percent and 29 percent higher wages, respectively, than workers ages 40-49.

This general picture is supported by previous literature, with various explanations offered. Munnell and Rutledge (2013) found that older adults, in particular, have experienced loss of financial security as a result of the Great Recession,[99] and that this loss may have incentivized them to continue working or return to the workforce. Other researchers have pointed to shifting demographics among older adults as a potential cause, including rising education levels and improved health status (Copeland, 2011).[100] In general, the job market today requires higher levels of education credentials than it did in previous decades (Carnevale et al., 2016);[101] and Carnevale et al. (2016) found that job growth post-GR has been quickest for jobs that require a

[99] Munnell, A.H., and Rutledge, M.S. (2013). The effects of the Great Recession on the retirement security of older workers. *The Annals of the American Academy of Political and Social Science, 650*(1), 124-142.

[100] Copeland, C. (2011). *Employment-based retirement plan participation: geographic differences and trends, 2010* (EBRI Issue Brief, 363). Washington DC: Employee Benefit Research Institute. Retrieved from https://www.ebri.org/publications/ib/index.cfm?fa=ibDisp&content_id=4911

[101] Carnevale, Anthony P, Smith, Nicole, and Strohl, Jeff. (2013). *Recovery: Job Growth and Education Requirements Through 2020*. Washington DC: Georgetown University/Georgetown Public Policy Institute/Center on Education and the Workforce. Retrieved from https://repository.library.georgetown.edu/handle/10822/559311

bachelor's degree or higher. Other research has shown that the educational attainment of older adults has increased compared to previous cohorts of the same ages.[102] Burtless (2016) suggested that improved education levels among older adults today compared to in the past may partially explain some of the increases in labor force participation for adults ages 62 and older during the GR compared to prime-aged adults.

Older workers are also less likely to retire post-GR. Men and women ages 62-66 experienced the greatest drop in their likelihood of retiring in both post-GR/short-term and post-GR/longer term. This could be emblematic of more complex work-to-retirement transitions than in the past. In other words, lower retirement rates may not be merely an artifact of the GR but part of a larger trend. Pre-GR, for example, partial retirement and labor force reentry among older workers were already on the rise. Cahill et al. (2011) found that older workers were staying in the workforce to earn money, stay active, and serve their communities and society at large. It would be valuable for researchers to track whether retirement rates will gradually return to March CPS 2005 levels over the next few years or remain at the recent lower rates. Of note, BLS seems to think so, projecting that older worker labor force participation rates will continue to increase over the next several years.[103]

Age cohort 62-66 coincides with Social Security benefit withdrawal ages (with penalty at 62 and without penalty at 66). Our results are consistent with the finding that those with access to Social Security benefits are choosing to work longer despite such access – perhaps due to wealth losses and general financial insecurity caused by the GR.

Compared to older women, older men are working more hours post-GR, in the short- and longer-term. Older men are also more likely to forgo retirement post-GR. Several explanations have been offered for this trend, including selection bias toward older women with strong labor force attachment, who also have other characteristics associated with faster wage recovery. Factors associated with the income or health insurance of the spouse may also have contributed to this trend. Previous research has shown that marriage has major implications for retirement decisions, for example, and divorce has been shown to shape later workforce behaviors, particularly for women.

Despite such significant increases in labor force participation and earnings, the average duration of unemployment remains persistently higher than pre-GR levels for both workers ages 40-49 and older workers up to age 76. Duration of unemployment has recovered less for 40-49, 50-56, 57-61 and 62-66 age groups than for the older cohorts of older workers – with higher proportions of workers 40-49, 50-56, 57-61 and 62-66 unemployed for over 52 weeks post-GR compared to pre-GR. This shows that looking only at wage-and-salary earnings does not give a complete

[102] Burtless, Gary. (2016). *Labor Force Dynamics in the Great Recession and its Aftermath: Implications for Older Workers* (Working Paper No. 2016-1). Boston, MA: Center for Retirement Research at Boston College. Retrieved from https://www.brookings.edu/wp-content/uploads/2016/07/wp_20161.pdf

[103] United States Bureau of Labor Statistics. (2014). *Labor force participation projected to fall for people under age 55 and rise for older age groups*. Retrieved from: http://www.bls.gov/opub/ted/2014/ted_20140106.htm

picture of the well-being of the entire older worker population. Longer durations of unemployment are a serious policy concern, as previous research on the recovery of older workers from unemployment has indicated that, among those who experience involuntary job loss, older workers' salary earnings do not recover as quickly (O'Leary and Eberts, 2007).[104]

7.2 Limitations

Our analysis provides new evidence on how older workers fared five years post-GR compared to pre-GR, based on the CPS March Supplement 2005-2015. This database provides large nationally representative samples for analysis and extensive information on income and employment. It has certain limitations, however, which need to be taken into account when interpreting our findings.

Lack of Causal Inference. Cross-sectional data can only provide "snapshots" of the characteristics and outcomes of the population of interest each year. Absence of longitudinal data over March CPS 2005-2015, which would follow the same individuals over time, limits our ability to draw causal conclusions, even though the data are nationally representative. Our analysis provides an exploratory picture of older workers' labor market outcomes pre-, during, and post-GR. This is valuable in identifying plausible hypotheses but cannot be interpreted as causal.

Inability to Study Job Transitions. Lack of longitudinal data also prohibits study of employment transitions over time. Therefore, we were not able to study older workers' transitions out of the labor force or into career jobs, part-time jobs, retirement, or reentry into the labor force, which are important issues with respect to older adults' labor force participation.

Potential Selection Bias. Our analysis on hours worked was restricted to older workers who were a part of the labor force, and our analysis on wage-and-salary earnings was restricted to older workers who had positive earnings. As a result, both analyses were subject to selection bias issues. We were not able to observe the potential hours worked of people that dropped out of the labor force after the recession, for example, or the potential wage earnings of those who did not work during our period of analysis.

7.3 Future Research

Prior to this study, older worker's experiences post-GR had only been examined through 2013. We are able to observe older workers' labor market fortunes through two more years (2014-2015), which we refer to as post-GR/longer-term. Our multivariate analysis suggests that many of the older age groups experienced increased hours worked and higher wages post-GR/longer-term relative to workers ages 40-49—the subgroup of prime-aged workers whose characteristics most closely resemble those of the younger cohorts of older workers as defined for our study. This relative labor market recovery is particularly true among some of the oldest age cohorts..

[104] O'Leary, C. J., & Eberts, R. W. (2007). *Reemployment and earnings recovery among older unemployment insurance claimants* (Working Paper No. 07-133). Kalamazoo, MI: Upjohn Institute. Retrieved from http://research.upjohn.org/up_workingpapers/133/

Our findings highlight the need for future research to better understand the forces behind older workers' emerging labor market decisions, as well as to design programs and policies tailored to their needs in the aftermath of future economic downturns. Further research on the effectiveness of such programs might also be warranted in such an effort.

Using administrative data to examine older worker training decisions made by the workforce system. The Secretary of Labor's Taskforce on Aging of the American Labor Force (USDOL, 2008) documented that unemployed older workers receive little training from the public workforce system. The Taskforce's report also found that: 1) older workers are reluctant to participate in job training programs offered by the public workforce system, and 2) American Job Center staff are more likely to refer the older workers to Senior Community Service Employment Program than to *either* the Workforce Investment Act (WIA) program *or* the newer Workforce Investment Opportunity Act (WIOA) program. We recommend future research to further examine WIOA administrative data – to assess the reasons driving the underrepresentation of older workers within the public workforce system, as well as the types of jobs those older workers who do utilize the system are referred to.[105]

Effectiveness of targeted services. As older workers increase their participation in labor force, DOL may want to consider additional and more targeted services for older workers in the public workforce system, for example:

- Training programs designed specifically for older workers, such as those upgrading technology-intensive skills or skills needed for jobs in high-demand high-growth industries and occupations
- Training in new job search strategies involving internet job searches and use of social media
- Targeted job searches for jobs that better accommodate the health and disability-related challenges of older workers
- Intensive support services to minimize older workers' duration of unemployment

Duration of Unemployment. An under-explored factor is unemployment duration. Our study revealed persistently high duration of unemployment post-GR/longer-term for all age groups in our study, but especially for the 40-49 year-old cohort and the younger cohorts of older workers. The age cohort 62-66 represents a particularly interesting age group – with low unemployment rates and increased labor participation rates post-GR, but also one of the highest increases in post-GR unemployment duration. In other words, the small share of unemployed workers who are ages 62-66 face particularly long spells of unemployment. Given this finding, DOL should more rigorously explore what factors (such as education and skills) are associated with higher or lower unemployment duration, to inform how the agency might better support those facing the highest unemployment durations.

[105] U.S. Department of Labor. 2008. *Report of the Taskforce on Aging in the American Workforce*. Washington, DC: U.S. Department of Labor, Employment and Training Administration.

Overall Financial Well-being. Our multivariate analysis of earnings measures was restricted to wage-and-salary earnings. However, wages and salaries form a small piece of the total income for older adults, who increasingly depend on sources like savings and other assets and retirement and Social Security incomes as they age. We found that older male workers increased their employment post-GR relatively more than older female workers, but the older women saw more pronounced increases in their earnings. Identifying which gender was actually better off overall post-GR requires more inclusive measures of financial well-being. We recommend further research that explores a more holistic measure of financial well-being to understand the full financial health of older adults post-GR (both short- and longer-term).

Accounting for Selection Bias. Our statistical analyses suggest that older workers have been working more hours and earning higher wage rates post-GR. However, we did not include individuals with zero earnings or those who left the labor force altogether. If, for example, older workers with higher educational attainment and skill levels were more likely to stay in the labor force post-GR, our results present a biased picture of the experiences of older workers taken as a whole. Future research needs to shed light on what happened to older workers who dropped out of the labor force or remained unemployed post-GR.

Research on the 70 and Older Age Groups. Our analysis found that workers ages 70 and older are working more hours and earning more per hour, with increases higher than for younger cohorts post GR. More research is needed to explore the reasons why. What are the driving forces behind this trend? Is it due to the GR, or is it a trend that will sustain into future years? Is the overall financial well-being of this age group also improving? Research answering these questions will help in the design of appropriate programs and policies better targeted at the oldest cohorts among the elderly worker populations.

Research on the Demand Side. Little research has been done on the demand side of the labor market, whether for all workers or for older workers. We were unable to measure demand side factors related to older workers due to lack of publicly available data. Should DOL and other agencies want rigorous research on the labor demand of older workers, more large datasets with firm-level employment and earnings data need to be made accessible to researchers.

Role of the Gig Economy. The arrival of gig economy platforms has helped provide employment and earning opportunities, especially for those laid off or unemployed during periods of economic decline. However, a critical element of employment in jobs like Uber or Lyft is that such companies consider workers as independent contractors, not employees. Thus, these firms do not have to confer any workplace protections or employer-provided benefits (such as overtime compensation, minimum wage protections, health insurance, disability insurance, unemployment insurance, maternity and paternity leave, employer-sponsored retirement plans, workers' compensation for injuries, paid sick leave, and the ability to engage in collective

action).[106,107] Research is needed to understand the extent to which older workers consider the gig economy as a bridge to retirement, and the financial consequences of working in such jobs.

[106] Dokko, J., Mumford, M., & Schanzenbach, D. W. (2015). Workers and the Online Gig Economy.
[107] Donovan, S. A., Bradley, D. H., & Shimabukuru, J. O. (2016). What Does the Gig Economy Mean for Workers?.

APPENDIX A. ADDITIONAL DEMOGRAPHIC TABLES

Exhibit A-1: Demographics - Males

Variable		40-49 Years Old	50-56 Years Old	57-61 Years Old	62-66 Years Old	67-71 Years Old	72-76 Years Old	77 Years Old and Over
Race	White	81.1	82.8***	84.5***	85.1***	85.8***	87.0***	89.3***
	African-American	11.4	10.8***	9.6***	9.3***	8.6***	7.8***	6.4***
	Asian	5.0	4.2***	4.0***	3.8***	3.8***	3.6***	3.2***
	Other/Mixed	2.6	2.2***	1.9***	1.8***	1.8***	1.6***	1.1***
Hispanic		15.2	10.8***	8.9***	7.7***	7.2***	7.0***	6.3***
Region	Northeast	18.6	18.9*	18.6	18.5	18.0**	18.2	20.4***
	Midwest	21.8	22.6***	23.1***	21.4*	21.6	21.8	22.6***
	South	36.2	35.9	35.9	37.3***	38.4***	38.2***	35.1***
	West	23.4	22.5***	22.4***	22.7***	22.0***	21.8***	21.9***
Education Level	Less than High School	12.1	11.2***	11.0***	12.7***	16.4***	19.7***	25.3***
	High School or GED	32.3	32.3	29.7***	29.4***	31.3***	32.5	31.6**
	Some Associate Degree	24.8	25.9***	26.0***	24.5	21.7***	19.7***	17.4***
	Bachelor's Degree or Higher	30.8	30.5	33.3***	33.4***	30.6	28.0***	25.7***
Marital Status	Married	66.6	69.3***	73.1***	75.6***	77.0***	76.9***	68.2***
	Widowed	1.7	1.3***	2.4***	3.6***	6.0***	9.8***	23.3***
	Divorced	15.4	15.1**	14.4***	13.1***	11.2***	8.4***	4.8***
	Separated	3.6	2.4***	2.0***	1.7***	1.4***	1.1***	0.7***
	Never Married	12.7	11.9***	8.2***	6.0***	4.4***	3.9***	3.0***
Health Status	Excellent/Very Good	53.9	46.8***	42.3***	38.1***	34.3***	29.1***	21.8***
	Good/Fair	28.9	34.0***	36.9***	40.2***	44.3***	47.5***	52.3***
	Poor	2.6	4.5***	6.2***	7.0***	6.9***	8.2***	11.6***
	Missing	14.7	14.7	14.6	14.7	14.4	15.2*	14.2**
Disability That Prevents Work		7.7	12.2***	16.6***	18.7***	17.7***	19.5***	24.1***
Number of Observations		**152,888**	**94,972**	**53,844**	**41,444**	**29,326**	**21,570**	**32,355**

Note: 1) While the reported sample size is unweighted, the proportions in the table are based on weights provided in March CPS data. Proportions are calculated based on pooled data from March CPS 2005-2015.

2) "40-49 Years Old" is the reference categories for all statistical tests. An example interpretation of this testing is as follows: 81.1 percent of male 40-49 year olds were white. We tested to see if there is a significant difference compared to the proportion of male 50-56 year olds (of which 83.0 percent are white), and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent. † denotes that there is insufficient sample size to conduct statistical testing.

Exhibit A-2: Demographics - Females

Variable		40-49 Years Old	50-56 Years Old	57-61 Years Old	62-66 Years Old	67-71 Years Old	72-76 Years Old	77 Years Old and Over
Race	White	78.8	80.9***	82.3***	83.6***	84.7***	85.2***	87.5***
	African-American	13.3	12.3***	11.3***	10.3***	9.7***	9.5***	8.2***
	Asian	5.4	4.6***	4.5***	4.2***	3.9***	3.8***	3.1***
	Other/Mixed	2.5	2.2***	1.9***	1.9***	1.7***	1.5***	1.1***
Hispanic		14.2	10.5***	8.8***	8.4***	8.2***	7.4***	5.9***
Region	Northeast	19.0	18.8	19.0	18.8	18.1***	19.5*	21.4***
	Midwest	21.6	22.2***	21.6	21.4	21.3	22.3***	23.1***
	South	36.8	36.3***	37.2*	37.8***	39.1***	38.0***	34.7***
	West	22.6	22.6	22.3	21.9***	21.5***	20.2***	20.7***
Education Level	Less than High School	9.7	10.1***	10.4***	12.9***	16.9***	21.3***	26.1***
	High School or GED	28.4	30.7***	32.0***	34.7***	38.1***	40.1***	41.1***
	Some Associate Degree	29.4	29.4	28.0***	26.5***	23.7***	21.4***	18.9***
	Bachelor's Degree or Higher	32.5	29.8***	29.6***	25.9***	21.3***	17.2***	13.9***
Marital Status	Married	66.6	65.7***	64.3***	61.8***	57.2***	49.5***	29.3***
	Widowed	1.7	4.2***	7.7***	12.9***	22.2***	34.8***	60.7***
	Divorced	15.4	17.8***	18.2***	17.7***	14.8***	11.0***	6.2***
	Separated	3.6	3.0***	2.3***	1.8***	1.5***	1.0***	0.5***
	Never Married	12.7	9.2***	7.5***	5.9***	4.3***	3.7***	3.3***
Health Status	Excellent/Very Good	52.7	45.9***	41.5***	37.2***	32.9***	27.3***	20.9***
	Good/Fair	29.5	34.9***	38.4***	42.1***	45.5***	50.7***	53.5***
	Poor	3.0	4.7***	6.0***	6.5***	6.9***	8.3***	11.4***
	Missing	14.8	14.5**	14.1***	14.2***	14.7	13.7***	14.2***
Disability That Prevents Work		8.2	12.8***	16.5***	18.4***	17.6***	20.1***	26.7***
Number of Observations		**165,255**	**99,510**	**56,879**	**45,053**	**34,647**	**27,191**	**49,446**

Note: 1) While the reported sample size is unweighted, the proportions in the table are based on weights provided in March CPS data. Proportions are calculated based on pooled data from March CPS 2005-2015.

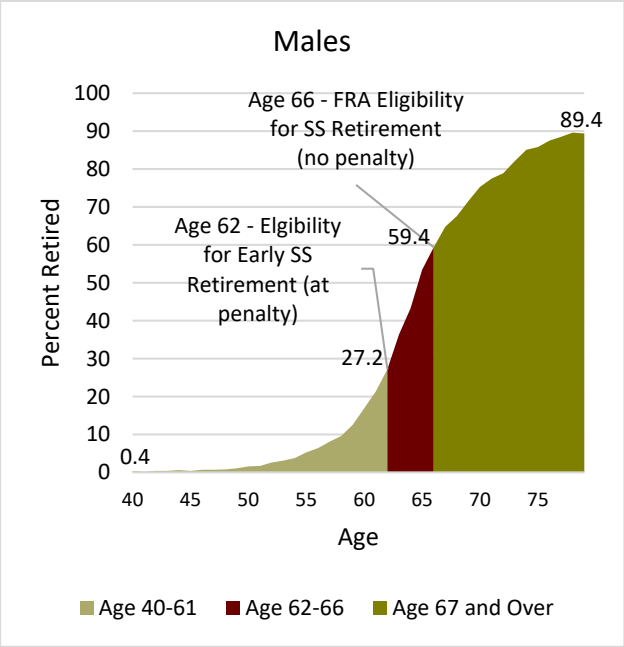
2) "40-49 Years Old" is the reference categories for all statistical tests. An example interpretation of this testing is as follows: 78.8 percent of female 40-49 year olds were white. We tested to see if there is a significant difference compared to the proportion of female 50-56 year olds (of which 81.1 percent are white), and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

APPENDIX B. ADDITIONAL EMPLOYMENT, EARNINGS, AND INCOME TABLES

B.1 Additional Descriptive Analyses Tables

Exhibit B-1: Percent Retired as a Share of Working Individuals, by Age and Gender



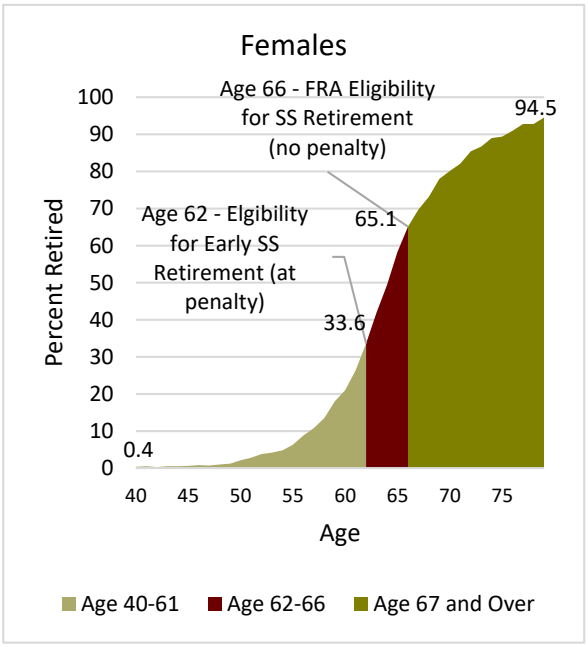
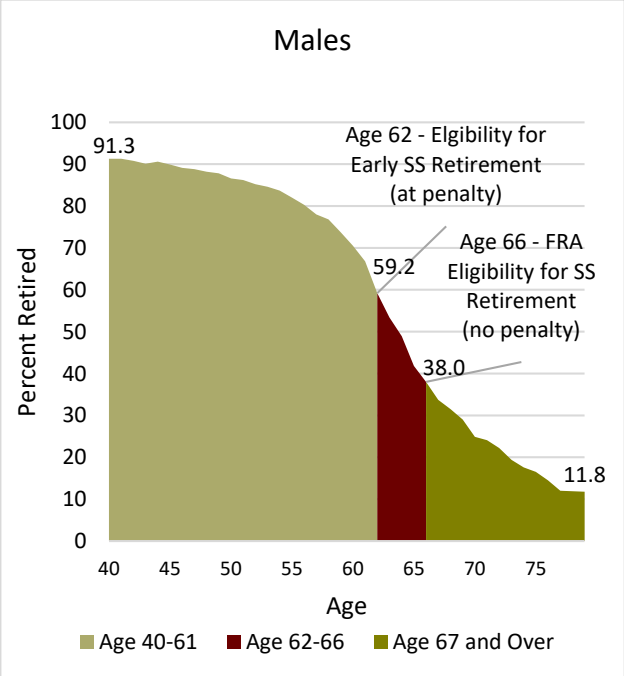


Exhibit B-2: Percent in Labor Force as a Share of the Adult Population, by Age and Gender



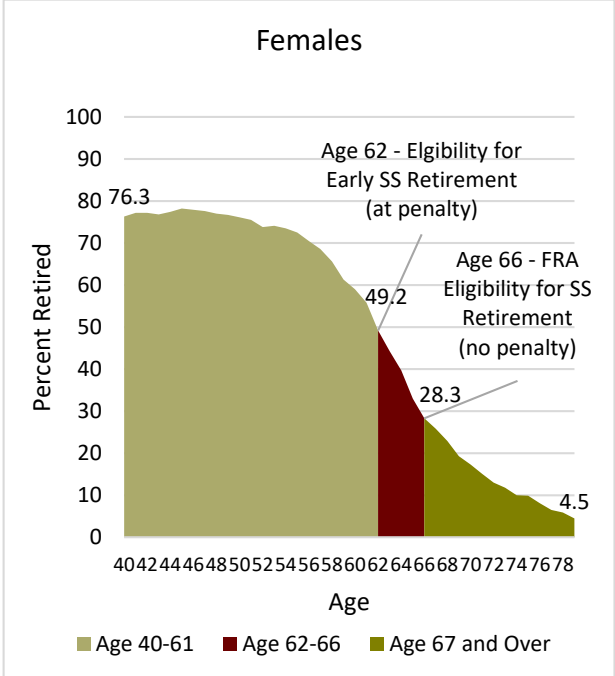


Exhibit B-3: Labor Force Status

Recession Period	Age Group	Employed	Unemployed	Out of Labor Force	Number of Observations
		Percentage	Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	80.8	3.2	15.9	95,962
	50-56	76.3	2.7	21.0	35,829
	57-61	64.9	2.2	32.9	28,128
	62-66	39.5	1.3	59.3	21,125
	67-71	21.7	0.8	77.5	15,965
	72-76	12.8	0.4	86.9	13,451
	77+	4.5	0.1	95.4	22,468
During Recession (March CPS 2008-2010)	40-49	78.0***	5.7***	16.2*	91,649
	50-56	74.6***	5.1***	20.3***	37,963
	57-61	63.8***	3.9***	32.3	31,490
	62-66	41.5***	2.4***	56.1***	23,202
	67-71	22.9***	1.5***	75.6***	17,351
	72-76	12.9	0.9***	86.2*	13,353
	77+	4.6	0.2***	95.2	22,877
After Recession - Short Term (March CPS 2011-2013)	40-49	77.0***	5.8***	17.2***	84,920
	50-56	73.4***	5.2***	21.4	38,580
	57-61	63.7***	4.5***	31.8***	32,275
	62-66	42.1***	2.8***	55.0***	26,253
	67-71	23.7***	1.6***	74.7***	18,867
	72-76	13.9***	0.9***	85.2***	13,698
	77+	4.8	0.2***	95.0**	23,219
After Recession - Long Term (March CPS 2014-2015)	40-49	78.6***	3.9***	17.5***	44,193
	50-56	74.1***	3.8***	22.1***	20,949
	57-61	64.2	3.2***	32.6	18,798
	62-66	43.7***	1.6**	54.7***	15,920
	67-71	23.8***	1.1***	75.1***	11,804
	72-76	13.7*	0.7***	85.6***	8,266
	77+	5.4***	0.2**	94.4***	13,246

Note: 1) Individuals with missing labor force status, imputed labor force status, and an "armed forces" labor force status are excluded.

2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 80.8 percent of 40-49 year olds were employed. We tested to see if there is a significant difference compared to during the recession (when 78.0 percent of 40-49 year olds were employed, and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Exhibit B-4: Labor Force Status: Males

Recession Period	Age Group	Employed	Unemployed	Out of Labor Force	Number of Observations
		Percentage	Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	86.7	3.7	9.6	45,875
	50-56	81.5	3.2	15.3	25,911
	57-61	70.8	2.7	26.4	13,695
	62-66	44.7	1.4	53.9	10,110
	67-71	25.3	1.2	73.5	7,249
	72-76	17.1	0.5	82.4	5,874
	77+	7.2	0.2	92.6	8,756
During Recession (March CPS 2008-2010)	40-49	82.6***	7.0***	10.4***	43,714
	50-56	78.6***	6.4***	15.0	27,113
	57-61	68.0***	4.7***	27.4*	15,318
	62-66	45.9*	3.1***	51.0***	11,266
	67-71	27.0**	2.0***	70.9***	7,765
	72-76	16.8	1.2***	82.1	5,837
	77+	7.0	0.3	92.7	8,910
After Recession - Short Term (March CPS 2011-2013)	40-49	82.7***	6.6***	10.7***	40,773
	50-56	77.5***	6.2***	16.4***	27,151
	57-61	68.7***	5.3***	26.0	15,774
	62-66	45.8*	3.5***	50.7***	12,463
	67-71	28.4***	2.1***	69.5***	8,834
	72-76	18.4*	1.0***	80.5***	6,082
	77+	7.4	0.3	92.3	9,352
After Recession - Long Term (March CPS 2014-2015)	40-49	85.1***	4.2***	10.7***	21,202
	50-56	78.7***	4.3***	17.0***	14,577
	57-61	69.7*	3.8***	26.6	9,017
	62-66	48.1***	2.0***	49.9***	7,592
	67-71	28.1***	1.2	70.6***	5,478
	72-76	16.8	1.1***	82.1	3,777
	77+	8.6***	0.3	91.1***	5,337

Note: 1) Individuals with missing labor force status, imputed labor force status, and an "armed forces" labor force status are excluded.

2) "Before Recession" is the reference categories for all statistical tests across time periods (denoted with *'s). Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 86.7 percent of male 40-49 year olds were employed. We tested to see if there is a significant difference compared to during the recession (when 82.6 percent of male 40-49 year olds were employed, and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Exhibit B-5: Labor Force Status: Females

Recession Period	Age Group	Employed	Unemployed	Out of Labor Force	Number of Observations
		Percentage	Percentage	Percentage	
Before Recession	40-49	75.1	2.8	22.1	50,053
	50-56	71.3	2.2	26.5	27,077
	57-61	59.4	1.7	38.9	14,422
	62-66	34.7	1.1	64.2	11,004
	67-71	18.7	0.5	80.8	8,706
	72-76	9.5	0.2	90.3	7,574
	77+	2.8	0.1	97.1	13,708
During Recession	40-49	73.6***	4.5***	21.9	47,912
	50-56	70.7	3.9***	25.4***	28,284
	57-61	59.9	3.2***	36.9***	16,166
	62-66	37.4***	1.8***	60.8***	11,930
	67-71	19.6	1.0***	79.4**	9,581
	72-76	9.9	0.7***	89.4*	7,513
	77+	3.1	0.1	96.8	13,962
After Recession - Short Term	40-49	71.5***	5.0***	23.5***	44,143
	50-56	69.6***	4.2***	26.2	28,624
	57-61	59.0	3.8***	37.2***	16,501
	62-66	38.8***	2.2***	58.9***	13,790
	67-71	19.6	1.1***	79.3**	10,033
	72-76	10.4*	0.7***	88.9***	7,615
	77+	3.1	0.2**	96.8	13,867
After Recession - Long Term	40-49	72.4***	3.5***	24.1***	22,990
	50-56	69.7***	3.3***	27.0	15,493
	57-61	59.2	2.6***	38.2	9,779
	62-66	39.7***	1.3	59.0***	8,328
	67-71	19.9*	1.0***	79.1***	6,326
	72-76	11.0***	0.4**	88.6***	4,489
	77+	3.2*	0.1	96.6**	7,909

Note: 1) Individuals with missing labor force status, imputed labor force status, and an "armed forces" labor force status are excluded.

2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 75.1 percent of female 40-49 year olds were employed. We tested to see if there is a significant difference compared to during the recession (when 73.6 percent of female 40-49 year olds were employed, and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Exhibit B-6: Labor Force Status: Individuals in Families with No Wage Earners

Recession Period	Age Group	Employed	Unemployed	Out of Labor Force	Number of Observations
		Percentage	Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	31.5	4.2	64.3	12,969
	50-56	25.2	3.1	71.6	9,445
	57-61	17.9	1.7	80.3	7,653
	62-66	9.2	0.7	90.1	10,321
	67-71	5.3	0.5	94.2	10,719
	72-76	3.4	0.2	96.4	10,545
	77+	1.4	0.0	98.6	19,594
During Recession (March CPS 2008-2010)	40-49	28.8***	8.4***	62.8**	13,192
	50-56	24.3	6.1***	69.6***	9,928
	57-61	17.2	3.6***	79.2*	8,609
	62-66	9.3	1.4***	89.3*	10,692
	67-71	5.1	0.8***	94.1	11,355
	72-76	3.4	0.5***	96.1	10,305
	77+	1.2*	0.1***	98.7	19,784
After Recession - Short Term (March CPS 2011-2013)	40-49	26.0***	10.6***	63.5	13,192
	50-56	21.7***	7.8***	70.5*	10,950
	57-61	15.9***	5.8***	78.3***	8,609
	62-66	8.3**	2.0***	89.7	10,692
	67-71	5.3	1.0***	93.7	11,355
	72-76	3.5	0.4***	96.1	10,305
	77+	1.3	0.1***	98.6	19,784
After Recession - Long Term (March CPS 2014-2015)	40-49	25.2***	7.2***	67.7***	6,608
	50-56	20.6***	5.8***	73.5**	5,785
	57-61	14.8***	3.6***	81.6*	5,204
	62-66	8.0***	1.3***	90.6	7,100
	67-71	5.0	0.6	94.4	7,700
	72-76	3.5	0.2	96.3	6,379
	77+	1.6	0.1***	98.2***	11,446

Note: 1) Individuals with missing labor force status, imputed labor force status, and an "armed forces" labor force status are excluded.

2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 31.5 percent of 40-49 year olds in families with no wage earners were employed. We tested to see if there is a significant difference compared to during the recession (when 28.8 percent of 40-49 year olds in families with no wage earners in the previous year were employed), and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Exhibit B-7: Labor Force Status: Individuals in Families with a Single Wage Earner

Recession Period	Age Group	Employed	Unemployed	Out of Labor Force	Number of Observations
		Percentage	Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	87.6	3.4	9.0	53,683
	50-56	86.3	2.8	10.9	28,386
	57-61	81.1	2.4	16.5	14,620
	62-66	67.3	1.9	30.8	8,432
	67-71	55.5	1.5	43.0	4,294
	72-76	48.2	1.0	50.8	2,446
	77+	28.7	0.9	70.5	2,401
During Recession (March CPS 2008-2010)	40-49	85.2***	5.7***	9.0	51,598
	50-56	84.4***	5.3***	10.3**	29,633
	57-61	79.5***	4.1***	16.4	16,315
	62-66	67.1	3.3***	29.6*	9,603
	67-71	56.1	2.9***	41.0*	4,956
	72-76	47.7	2.3***	50.0	2,539
	77+	29.8	1.1	69.1	2,545
After Recession - Short Term (March CPS 2011-2013)	40-49	85.4***	5.3***	9.3*	48,272
	50-56	84.6***	4.8***	10.6	29,725
	57-61	80.1**	4.4***	15.5**	16,700
	62-66	68.5*	3.7***	27.8***	11,121
	67-71	57.9**	2.8***	39.3***	5,405
	72-76	50.1	2.3***	47.7**	2,731
	77+	31.8**	0.8	67.4**	2,554
After Recession - Long Term (March CPS 2014-2015)	40-49	86.9***	3.6	9.5**	25,168
	50-56	86.0	3.4***	10.6	16,071
	57-61	81.8	3.3***	14.9***	9,631
	62-66	70.3***	1.7	28.0***	6,686
	67-71	57.9**	2.2**	39.9***	3,384
	72-76	49.0	2.4***	48.6	1,595
	77+	33.3***	0.6	66.1***	1,515

Note: 1) Individuals with missing labor force status, imputed labor force status, and an "armed forces" labor force status are excluded.

2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 87.6 percent of 40-49 year olds in families with one wage earner were employed. We tested to see if there is a significant difference compared to during the recession (when 85.2 percent of 40-49 year olds in families with no wage earners in the previous year were employed), and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Exhibit B-8: Labor Force Status: Individuals in Families with Multiple Wage Earners

Recession Period	Age Group	Employed	Unemployed	Out of Labor Force	Number of Observations
		Percentage	Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	92.8	2.4	4.8	29,310
	50-56	91.7	2.3	6.0	15,173
	57-61	88.7	2.1	9.2	5,855
	62-66	77.4	1.6	21.0	2,372
	67-71	63.7	2.2	34.2	952
	72-76	54.5	0.6	44.9	460
	77+	21.5	0.7	77.9	473
During Recession (March CPS 2008-2010)	40-49	91.1***	4.2***	4.7	26,859
	50-56	89.9***	4.2***	5.9	15,846
	57-61	88.1	3.8***	8.2**	6,566
	62-66	77.5	3.3***	19.2	2,907
	67-71	67.9**	3.1	29.0**	1,040
	72-76	48.1**	2.3**	49.7	509
	77+	23.4	0.6	76.0	548
After Recession - Short Term (March CPS 2011-2013)	40-49	91.4***	3.8***	4.8	23,520
	50-56	90.9**	3.8***	5.3***	15,100
	57-61	88.5	3.0***	8.5	6,675
	62-66	79.8**	3.2***	17.0***	3,250
	67-71	68.9**	2.9	28.1***	1,201
	72-76	52.9	2.9***	44.2	468
	77+	21.5	1.2	77.4	567
After Recession - Long Term (March CPS 2014-2015)	40-49	92.9	2.4	4.7	12,417
	50-56	91.1	3.0***	6.0	8,214
	57-61	89.0	2.3	8.7	3,963
	62-66	81.6***	2.5**	15.9***	2,134
	67-71	70.4***	1.6	28.0***	720
	72-76	52.4	1.8	45.8	292
	77+	26.7	0.0	73.3	285

Note: 1) Individuals with missing labor force status, imputed labor force status, and an "armed forces" labor force status are excluded.

2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 92.8 percent of 40-49 year olds in families with multiple wage earners were employed. We tested to see if there is a significant difference compared to during the recession (when 91.1 percent of 40-49 year olds in families with no wage earners in the previous year were employed), and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Exhibit B-9: Self-Employment Rate

Recession Period	Age Group	Self Employed	Not Self Employed	Number of Observations
		Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	12.6	87.4	81,752
	50-56	14.0	86.0	42,433
	57-61	16.3	83.7	19,107
	62-66	21.3	78.7	8,751
	67-71	25.2	74.8	3,752
	72-76	31.3	68.7	1,775
	77+	37.9	62.1	1,073
During Recession (March CPS 2008-2010)	40-49	12.1***	87.9***	77,756
	50-56	13.7	86.3	44,670
	57-61	15.9	84.1	21,590
	62-66	19.1***	80.9***	10,366
	67-71	24.7	75.3	4,422
	72-76	31.5	68.5	1,936
	77+	34.9	65.1	1,162
After Recession - Short Term (March CPS 2011-2013)	40-49	10.9***	89.1***	71,289
	50-56	12.6***	87.4***	44,342
	57-61	14.6***	85.4***	22,284
	62-66	18.9***	81.1***	12,005
	67-71	25.0	75.0	4,888
	72-76	30.7	69.3	2,100
	77+	35.2	64.8	1,270
After Recession - Long Term (March CPS 2014-2015)	40-49	10.7***	89.3***	36,881
	50-56	12.5***	87.5***	23,747
	57-61	14.1***	85.9***	12,786
	62-66	17.4***	82.6***	7,314
	67-71	25.2	74.8	3,003
	72-76	28.7	71.3	1,218
	77+	39.5	60.5	742

Note: 1) Out of labor force individuals were excluded from the calculations of self-employment rates.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 12.6 percent of 40-49 year olds were self-employed. We tested to see if there is a significant difference compared to during the recession (when 12.1 percent of 40-49 year olds were self-employed), and found the difference to be significant at the 1 percent level.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Exhibit B-10: Self-Employment Rate: Males

Recession Period	Age Group	Self Employed	Not Self Employed	Number of Observations
		Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	15.6	84.4	42,226
	50-56	81.9	18.1	22,296
	57-61	20.9	79.1	10,174
	62-66	26.3	73.7	4,755
	67-71	31.1	68.9	2,016
	72-76	37.0	63.0	1,024
	77+	44.1	55.9	653
During Recession (March CPS 2008-2010)	40-49	14.9***	85.1***	39,966
	50-56	82.6*	17.4*	23,368
	57-61	20.3	79.7	11,284
	62-66	23.8***	76.2***	5,619
	67-71	30.6	69.4	2,368
	72-76	37.1	62.9	1,076
	77+	42.1	57.9	680
After Recession - Short Term (March CPS 2011-2013)	40-49	13.3***	86.7***	37,107
	50-56	84.3***	15.7***	23,069
	57-61	18.5***	81.5***	11,770
	62-66	23.7***	76.3***	6,255
	67-71	29.0	71.0	2,712
	72-76	39.2	60.8	1,207
	77+	43.8	56.2	761
After Recession - Long Term (March CPS 2014-2015)	40-49	13.0***	87.0***	19,266
	50-56	84.4***	15.6***	12,368
	57-61	17.7***	82.3***	6,701
	62-66	21.5***	78.5***	3,851
	67-71	30.9	69.1	1,642
	72-76	34.7	65.3	701
	77+	45.1	54.9	471

Note: 1) Out of labor force individuals were excluded from the calculations of self-employment rates.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 15.6 percent of male 40-49 year olds were self-employed. We tested to see if there is a significant difference compared to during the recession (when 14.9 percent of male 40-49 year olds were self-employed), and found the difference to be significant at the 1 percent level.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

Exhibit B-11: Self-Employment Rate: Females

Recession Period	Age Group	Self Employed	Not Self Employed	Number of Observations
		Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	9.2	90.8	39,500
	50-56	90.5	9.5	27,077
	57-61	11.2	88.8	8,926
	62-66	15.2	84.8	3,991
	67-71	18.3	81.7	1,734
	72-76	23.2	76.8	751
	77+	27.8	72.2	420
During Recession (March CPS 2008-2010)	40-49	9.0	91.0	37,771
	50-56	90.3	9.7	28,284
	57-61	11.2	88.8	10,302
	62-66	13.6**	86.4**	4,743
	67-71	17.9	82.1	2,053
	72-76	24.0	76.0	860
	77+	23.9	76.1	481
After Recession - Short Term (March CPS 2011-2013)	40-49	8.4***	91.6***	34,178
	50-56	90.8	9.2	28,624
	57-61	10.4*	89.6*	10,514
	62-66	13.8*	86.2*	5,750
	67-71	19.7	80.3	2,176
	72-76	18.8**	81.2**	893
	77+	20.8**	79.2**	509
After Recession - Long Term (March CPS 2014-2015)	40-49	8.0***	92.0***	17,614
	50-56	90.8	9.2	15,493
	57-61	10.1**	89.9**	6,084
	62-66	12.9***	87.1***	3,463
	67-71	18.1	81.9	1,361
	72-76	20.6	79.4	517
	77+	29.4	70.6	271

Note: 1) Out of labor force individuals were excluded from the calculations of self-employment rates.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 9.2 percent of female 40-49 year olds were self-employed. We tested to see if there is a significant difference compared to during the recession (when 9.0 percent of female 40-49 year olds were self-employed), and found the difference not to be significant.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent. † denotes that there is insufficient sample size to conduct statistical testing.

Exhibit B-12: Duration of Unemployment

Recession Period	Age Group	Mean Duration in Weeks	1-13 Weeks	14-26 Weeks	27-39 Weeks	40-52 weeks	More than 52 weeks	Number of Observations
			Percentage	Percentage	Percentage	Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	20.1	56.8	21.4	6.2	6.9	8.7	2,855
	50-56	23.8	51.0	21.6	8.6	6.5	12.4	1,408
	57-61	22.9	53.5	21.4	6.3	6.7	12.1	622
	62-66	24.6	55.0	17.8	7.1	5.3	14.7	282
	67-71	23.5	62.1	12.9	5.3	4.2	15.6	143
	72-76	25.2	59.4	13.8	6.7	5.1	15.1	57
	77+	24.2	61.8	5.8	10.5	5.1	16.9	33
During Recession (March CPS 2008-2010)	40-49	27.2***	42.7***	22.4	10.6***	9.7***	14.7***	4,786
	50-56	29.4***	42.7***	19.4*	9.9	10.1***	18.0***	2,712
	57-61	31.3***	39.6***	21.3	8.8*	11.5***	18.9***	1,202
	62-66	30.7***	43.4***	18.0	7.0	11.4**	20.2	570
	67-71	33.9***	43.9***	14.5	6.5	10.6**	24.5**	248
	72-76	27.7***	48.1	20.5	3.2	11.5	16.7	122
	77+	21.5**	58.7	8.4	15.1	10.5	7.3	44
After Recession - Short Term (March CPS 2011-2013)	40-49	37.2***	35.4***	18.6***	9.0***	9.9***	27.1***	4,489
	50-56	40.4***	33.4***	17.9***	7.8	9.7***	31.2***	2,836
	57-61	46.3***	27.8***	15.3***	8.9**	10.2**	37.9***	1,433
	62-66	41.2***	29.6***	17.6	12.1**	10.0**	30.7***	722
	67-71	40.5***	32.9***	15.9	12.2**	8.5*	30.5***	304
	72-76	35.4***	43.4**	14.9	4.8	7.7	29.2**	120
	77+	44.9***	35.2**	14.3	5.1	7.9	37.6**	63
After Recession - Long Term (March CPS 2014-2015)	40-49	33.2***	42.7***	17.7***	8.4***	8.3*	22.9***	1,568
	50-56	36.4***	38.1***	20.5	6.8*	8.6**	25.9***	1,090
	57-61	36.6***	40.0***	15.2***	10.1**	9.1	25.7***	569
	62-66	38.7***	40.4***	15.8	7.0	6.2	30.6***	267
	67-71	31.5***	47.8**	17.5	5.3	8.3	21.1	128
	72-76	33.9***	48.5	14.0	5.1	10.2	22.2	53
	77+	28.1**	56.4	7.6	7.6	9.9	18.5	26

Note: 1) Individuals with unemployment durations of 0 weeks were excluded from this exhibits' calculations.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean duration of unemployment among unemployed 40-49 year olds was 20.1 weeks. We tested to see if there is a significant difference compared to during the recession (when the mean duration of unemployed among 40-49 year olds was 27.2 weeks), and found the difference to be significant at the 1 percent level.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent. † denotes that there is insufficient sample size to conduct statistical testing.
4) Duration of unemployment is top-coded at 99 weeks in March CPS data for approximately 5 percent of non-zero duration of unemployment values. As a result, the means reported in this exhibit are slight understatements of the true duration of unemployment means. The top-code is consistent across 2005-2015, and so this does not pose much additional risk to the validity comparisons of means across time.

Exhibit B-13: Duration of Unemployment: Males

Recession Period	Age Group	Mean Duration in Weeks	1-13 Weeks	14-26 Weeks	27-39 Weeks	40-52 weeks	More than 52 weeks	Number of Observations
			Percentage	Percentage	Percentage	Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	21.1	55.4	21.7	6.1	7.2	9.7	1,519
	50-56	24.9	47.2	23.1	8.7	7.3	13.6	811
	57-61	23.3	51.4	23.2	6.9	6.6	11.9	385
	62-66	21.8	58.3	20.8	4.9	3.0	12.9	148
	67-71	24.8	62.2	12.3	4.3	5.4	15.8	95
	72-76	28.7	65.2	8.8	0.5	2.8	22.7	38
	77+	28.2	54.8	6.7	8.8	7.1	22.6	23
During Recession (March CPS 2008-2010)	40-49	27.4***	41.9***	22.4	11.1***	9.7***	14.9***	2,727
	50-56	30.3***	42.5**	18.2***	10.1	9.9**	19.3***	1,659
	57-61	30.8***	37.9***	23.1	9.9*	11.5***	17.6**	691
	62-66	31.8***	40.7***	19.8*	6.6	12.8**	20.0	344
	67-71	36.7***	39.2***	15.4	7.2	11.1	27.1**	160
	72-76	26.4	47.5*	23.9*	1.8	12.6*	14.1	65
	77+	23.7**	55.2	10.3	16.9	5.8	11.8	27
After Recession - Short Term (March CPS 2011-2013)	40-49	36.9***	35.6***	19.7	8.2**	9.3**	27.2***	2,447
	50-56	41.2***	31.5***	18.3***	7.4	7.9	34.9***	1,612
	57-61	46.2***	28.0***	16.4***	8.3	8.7	38.6***	827
	62-66	42.1***	29.2***	18.0	10.8*	9.1	32.8***	419
	67-71	39.0***	34.4***	17.9	11.8**	8.0	28.0**	190
	72-76	34.2***	45.5*	18.7	0.0	8.5	27.3	65
	77+	43.7***	32.2*	21.6	5.6	5.3	35.2	33
After Recession - Long Term (March CPS 2014-2015)	40-49	32.9***	43.0***	19.0	8.4**	7.1	22.5***	824
	50-56	37.7***	36.4***	21.2	6.3*	8.2	27.9***	601
	57-61	39.5***	36.5***	16.2**	9.0	8.1	30.1***	327
	62-66	41.0***	39.8***	15.4	4.5	7.5	32.7***	151
	67-71	35.8***	43.6**	13.4	5.2	9.4	28.5**	74
	72-76	33.4***	55.9	6.8	7.1	4.9	25.2	39
	77+	40.9***	33.6	7.0	14.0	18.2	27.2	16

Note: 1) Individuals with unemployment durations of 0 weeks were excluded from this exhibits' calculations.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean duration of unemployment among unemployed male 40-49 year olds was 21.1 weeks. We tested to see if there is a significant difference compared to during the recession (when the mean duration of unemployed among male 40-49 year olds was 27.4 weeks), and found the difference to be significant at the 1 percent level.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent. † denotes that there is insufficient sample size to conduct statistical testing.
4) Duration of unemployment is top-coded at 99 weeks in March CPS data for approximately 5 percent of non-zero duration of unemployment values. As a result, the means reported in this exhibit are slight understatements of the true duration of unemployment means. The top-code is consistent across 2005-2015, and so this does not pose much additional risk to the validity comparisons of means across time.

Exhibit B-14: Duration of Unemployment: Females

Recession Period	Age Group	Mean Duration in Weeks	1-13 Weeks	14-26 Weeks	27-39 Weeks	40-52 weeks	More than 52 weeks	Number of Observations
			Percentage	Percentage	Percentage	Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	18.7	58.8	21.1	6.2	6.5	7.4	1,336
	50-56	22.2	52.6	21.3	8.8	6.3	11.0	596
	57-61	22.3	56.7	18.7	5.4	6.7	12.5	237
	62-66	27.9	51.1	14.3	9.8	8.0	16.8	134
	67-71	21.3	61.8	13.9	7.0	2.0	15.3	48
	72-76	18.9	48.9	22.6	17.5	9.2	1.8	19
	77+	14.2	79.0	3.4	14.7	0.0	3.0	10
During Recession (March CPS 2008-2010)	40-49	26.9***	43.7***	22.4	9.8***	9.7***	14.3***	2,058
	50-56	28.0***	43.8***	19.6	10.9	9.7**	15.9***	1,053
	57-61	31.9***	41.9***	18.8	7.2	11.5**	20.7***	511
	62-66	28.8**	47.9*	15.0	7.6	9.2*	20.2	225
	67-71	29.1***	52.1	13.0	5.2	9.8*	19.9	88
	72-76	29.2***	48.9	16.0	4.9*	10.0	20.2*	57
	77+	18.0*	64.4	5.3	12.2	18.1	0.0	17
After Recession - Short Term (March CPS 2011-2013)	40-49	37.6***	35.2***	17.2***	10.0***	10.7***	27.0***	2,042
	50-56	39.4***	34.0***	17.0**	8.1	11.8***	29.1***	1,224
	57-61	46.5***	27.5***	13.8*	9.6**	12.1**	36.9***	606
	62-66	39.9***	30.2***	16.9	13.9	11.3**	27.7*	303
	67-71	43.3***	30.4***	12.5	12.9	9.3*	34.9**	114
	72-76	36.8***	41.0	10.5	10.3	6.7	31.6***	55
	77+	46.4***	39.0**	4.7	4.4	11.2	40.6**	30
After Recession - Long Term (March CPS 2014-2015)	40-49	33.5***	42.4***	16.2***	8.4*	9.6**	23.4***	744
	50-56	34.8***	38.8***	20.6	8.2	8.6	23.7***	489
	57-61	32.8***	44.6***	13.7	11.5**	10.5	19.8**	242
	62-66	35.4***	41.3**	16.3	10.4	4.4	27.6*	116
	67-71	26.8***	52.5	21.9	5.5	7.1	13.0	54
	72-76	35.0***	30.5	31.4	0.0*	23.0	15.0	14
	77+	13.0	83.4	8.4	0.0	0.0***	8.2	10

Note: 1) Individuals with unemployment durations of 0 weeks were excluded from this exhibits' calculations.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean duration of unemployment among unemployed female 40-49 year olds was 18.7 weeks. We tested to see if there is a significant difference compared to during the recession (when the mean duration of unemployed among female 40-49 year olds was 26.9 weeks), and found the difference to be significant at the 1 percent level.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent. † denotes that there is insufficient sample size to conduct statistical testing.
4) Duration of unemployment is top-coded at 99 weeks in March CPS data for approximately 5 percent of non-zero duration of unemployment values. As a result, the means reported in this exhibit are slight understatements of the true duration of unemployment means. The top-code is consistent across 2005-2015, and so this does not pose much additional risk to the validity comparisons of means across time.

Exhibit B-15: Hours Worked

Recession Period	Age Group	Mean Weekly Hours Worked	Not Working Percentage	Part-time Percentage	Full-time Percentage	Number of Observations
Before Recession (March CPS 2005-2007)	40-49	40.6	2.1	21.8	76.1	84,487
	50-56	40.7	1.9	22.1	75.9	43,993
	57-61	39.8	1.8	26.8	71.3	20,356
	62-66	36.4	2.6	40.6	56.9	10,248
	67-71	30.9	3.9	56.9	39.3	4,558
	72-76	27.2	5.3	65.9	28.8	2,248
	77+	25.6	4.7	70.5	24.8	1,466
During Recession (March CPS 2008-2010)	40-49	39.7***	3.0***	23.7***	73.2***	80,315
	50-56	40.0***	2.7***	23.5***	73.8***	46,263
	57-61	39.3***	2.6***	26.9	70.5*	22,829
	62-66	36.3***	3.2**	39.7***	57.1***	11,955
	67-71	31.0***	4.3	55.0*	40.7	5,283
	72-76	28.4***	4.6	62.6**	32.8**	2,387
	77+	26.0***	3.8	72.4	23.8	1,566
After Recession - Short Term (March CPS 2011-2013)	40-49	39.1***	3.0***	23.7***	73.2***	73,584
	50-56	39.4***	3.8***	23.5***	72.7***	45,811
	57-61	38.6***	2.6***	26.9	70.5*	23,548
	62-66	36.3***	3.2**	39.7***	57.1***	13,665
	67-71	31.0***	4.3	55.0*	40.7	5,819
	72-76	28.2***	4.6	62.6**	32.8***	2,566
	77+	25.9***	3.8	72.4	23.8	1,639
After Recession - Long Term (March CPS 2014-2015)	40-49	39.8***	3.1***	21.7	75.3***	38,024
	50-56	39.9***	3.0***	21.9	75.1**	24,504
	57-61	39.3***	3.0***	25.6**	71.4	13,497
	62-66	37.1***	2.5***	36.5***	61.1***	8,288
	67-71	32.6***	3.4	51.1***	45.5***	3,584
	72-76	29.3***	4.4	62.6*	33.0**	1,481
	77+	28.1***	6.3	60.5***	33.2***	970

Note: 1) Individuals with missing labor force status, imputed labor force status, or an "armed forces" labor force status are excluded.

2) Based on the Census Bureau's definitions,[108] the categories in this exhibit are defined as follows:

Not Working: 0 hours worked, but in labor force

Part-time: less than 35 hours worked per week, or less than 51 weeks worked per year

Full-time: 35 or more hours worked per week and 51 or more weeks worked per year

3) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean hours worked among 40-49 year olds was 40.6 hours. We tested to see if there is a significant difference compared to during the recession (when the mean hours worked among 40-49 year olds was 39.7 hours), and found the difference to be significant at the 1 percent level.

4) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

5) This exhibit includes hours worked data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014.

[108] *Census Bureau*. *Labor Force Statistics*. Retrieved from https://www.census.gov/hhes/www/laborfor/faq.html#Q7

Exhibit B-16: Hours Worked: Male

Recession Period	Age Group	Mean Weekly Hours Worked	Not Working	Part-time	Full-time	Number of Observations
			Percentage	Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	43.5	1.7	14.1	84.2	43,315
	50-56	43.3	1.7	16.4	82.0	22,962
	57-61	42.5	1.6	20.6	77.9	10,739
	62-66	38.6	2.5	35.4	62.1	5,502
	67-71	33.2	3.6	52.4	44.0	2,427
	72-76	29.5	5.6	60.0	34.4	1,269
	77+	27.1	4.5	67.6	27.9	881
During Recession (March CPS 2008-2010)	40-49	42.4***	2.8***	17.6***	79.6***	41,095
	50-56	42.3***	2.5***	18.4***	79.0***	24,060
	57-61	41.6***	2.6***	21.6*	75.8***	11,874
	62-66	38.6	3.3	34.3***	62.5***	6,434
	67-71	33.5***	4.2	48.7**	47.1**	2,771
	72-76	30.7***	4.3	59.3	36.4	1,333
	77+	28.5***	3.8	66.9	29.3	908
After Recession - Short Term (March CPS 2011-2013)	40-49	41.5***	2.8***	17.6***	79.6***	38,117
	50-56	41.7***	2.5***	18.4***	79.0***	23,692
	57-61	40.7***	2.6***	21.6*	75.8***	12,336
	62-66	38.4***	3.3	34.3***	62.5***	7,129
	67-71	32.9***	4.2	48.7**	47.1**	3,214
	72-76	30.2***	4.3	59.3	36.4	1,454
	77+	27.8***	3.8	66.9	29.3	983
After Recession - Long Term (March CPS 2014-2015)	40-49	42.5***	2.5***	15.1***	82.4***	19,751
	50-56	42.1***	2.8***	16.9	80.3***	12,704
	57-61	41.5***	3.1***	20.6	76.3**	7,030
	62-66	39.5***	2.4***	30.5***	67.1***	4,332
	67-71	34.6***	3.4	45.8***	50.9***	1,933
	72-76	31.2***	4.1	58.1	37.8	843
	77+	30.5***	6.4	55.8***	37.8***	606

Note: 1) Individuals with missing labor force status, imputed labor force status, and an "armed forces" labor force status are excluded.

2) Based on the Census Bureau's definitions,[109] the categories in this exhibit are defined as follows:

Not Working: 0 hours worked, but in labor force

Part-time: less than 35 hours worked per week, or less than 51 weeks worked per year

Full-time: 35 or more hours worked per week and 51 or more weeks worked per year

3) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean hours worked among male 40-49 year olds was 43.5 hours. We tested to see if there is a significant difference compared to during the recession (when the mean hours worked among male 40-49 year olds was 42.4 hours), and found the difference to be significant at the 1 percent level.

4) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

5) This exhibit includes hours worked data, which in the March CPS is provided for the year before the survey. For instance, in March 2015, income is provided for 2014.

[109] *Census Bureau*. *Labor Force Statistics*. Retrieved from https://www.census.gov/hhes/www/laborfor/faq.html#Q7

Exhibit B-17: Hours Worked: Female

Recession Period	Age Group	Mean Weekly Hours Worked	Not Working Percentage	Part-time Percentage	Full-time Percentage	Number of Observations
Before Recession (March CPS 2005-2007)	40-49	37.3	2.5	30.3	67.2	41,145
	50-56	37.9	68.9	28.9	2.2	21,019
	57-61	36.8	2.1	33.7	64.2	9,610
	62-66	33.8	2.7	46.6	50.7	4,740
	67-71	28.2	4.2	62.0	33.8	2,129
	72-76	24.0	4.9	73.7	21.4	979
	77+	23.0	5.1	74.8	20.1	585
During Recession (March CPS 2008-2010)	40-49	36.7***	3.4***	30.4	66.2***	39,200
	50-56	37.4***	68.1*	29.2	2.7***	22,194
	57-61	36.8***	2.7***	32.5*	64.9	10,951
	62-66	33.6***	3.0**	46.1***	50.9***	5,517
	67-71	28.1***	4.4	61.9	33.7	2,510
	72-76	25.5***	5.0	66.9***	28.1***	1,054
	77+	22.3***	3.8	79.8*	16.3	657
After Recession - Short Term (March CPS 2011-2013)	40-49	37.0***	3.4***	30.4	66.2***	35,463
	50-56	37.1***	67.1***	29.1	3.8***	22,119
	57-61	36.1***	2.7***	32.5*	64.9	11,212
	62-66	34.0***	3.0**	46.1***	50.9***	6,536
	67-71	28.4***	4.4	61.9	33.7	2,605
	72-76	25.3***	5.0	66.9***	28.1***	1,112
	77+	22.9**	3.8	79.8*	16.3	656
After Recession - Long Term (March CPS 2014-2015)	40-49	36.8***	3.4***	30.4	66.2**	18,272
	50-56	37.5***	69.2	27.7**	3.1***	11,800
	57-61	36.8***	2.7**	32.5	64.9	6,466
	62-66	34.5***	3.0**	46.1***	50.9***	3,956
	67-71	30.2***	4.4	61.9	33.7	1,651
	72-76	26.7***	5.0	66.9**	28.1***	638
	77+	23.8***	3.8	79.8	16.3	364

Note: 1) Individuals with missing labor force status, imputed labor force status, and an "armed forces" labor force status are excluded.

2) Based on the Census Bureau's definitions,[110] the categories in this exhibit are defined as follows:

Not Working: 0 hours worked, but in labor force

Part-time: less than 35 hours worked per week, or less than 51 weeks worked per year

Full-time: 35 or more hours worked per week and 51 or more weeks worked per year

3) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean hours worked among female 40-49 year olds was 37.3 hours. We tested to see if there is a significant difference compared to during the recession (when the mean hours worked among female 40-49 year olds was 36.7 hours), and found the difference to be significant at the 5 percent level.

4) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.

5) This exhibit includes hours worked data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014. Each year, March CPS respondents are asked about their hours worked for the previous year.

[110] *Census Bureau*. *Labor Force Statistics*. Retrieved from https://www.census.gov/hhes/www/laborfor/faq.html#Q7

Exhibit B-18: Mean Annual Income by Type

Recession Period	Age Group	Mean Annual Wage/Salary Earnings (in $)	Mean Unemployment Compensation Income (in $)	Mean Family Income (in $)	Mean Family Retirement Income (in $)	Mean Family Social Security Income (in $)
Before Recession (March CPS 2005-2007)	40-49	45,764	154	97,957	729	1,475
	50-56	44,206	159	100,797	2,047	2,014
	57-61	36,726	140	92,578	5,796	3,282
	62-66	20,215	74	76,333	7,838	11,152
	67-71	8,348	24	61,942	8,791	17,951
	72-76	4,036	9	51,594	7,941	18,356
	77+	1,329	5	44,028	6,240	17,083
During Recession (March CPS 2008-2010)	40-49	44,352***	324***	93,721***	669***	1,611***
	50-56	43,006***	323***	97,146***	1,795***	2,076***
	57-61	36,367***	265***	91,295***	4,961***	3,497***
	62-66	22,461***	177***	79,739***	7,966***	10,696***
	67-71	9,239***	82	64,485***	8,861***	19,168***
	72-76	4,617***	28	53,402***	7,938	18,920***
	77+	1,426	13	44,942***	6,322***	17,975***
After Recession - Short Term (March CPS 2011-2013)	40-49	43,077***	411***	88,954***	704*	1,583***
	50-56	42,949***	406***	92,555***	1,672***	2,165***
	57-61	36,595***	407***	85,583***	4,411***	3,358***
	62-66	23,634***	279***	75,352***	7,685***	10,321***
	67-71	10,674***	112	65,327***	9,323***	19,661***
	72-76	4,887***	39	53,612***	8,423***	20,276***
	77+	1,425	16	42,768***	6,542***	18,184***
After Recession - Long Term (March CPS 2014-2015)	40-49	44,785***	130***	92,877***	655***	1,561***
	50-56	42,872***	164	95,113***	1,670***	2,275***
	57-61	36,497***	151	87,335***	4,020***	3,611***
	62-66	23,861***	97	77,155***	7,256***	9,585***
	67-71	10,942***	49	69,316***	10,305***	19,152***
	72-76	5,169***	18	57,378***	9,849***	20,618***
	77+	1,858***	21	45,692***	7,392***	17,974***

Note: 1) For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.

2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean wage and salary earnings among 40-49 year olds was $45,764. We tested to see if there is a significant difference compared to during the recession (when the mean wage and salary earnings among 40-49 year olds was $44,352), and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent. † denotes that there is insufficient sample size to conduct statistical testing.

4) This exhibit includes income data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014. Each year, March CPS respondents are asked about their income for the previous year.

5) All figures are adjusted using CPI-U, and are in 2014 dollars.

Exhibit B-19: Mean Annual Income by Type: Number of Observations

Recession Period	Age Group	Annual Wage/Salary Earnings	Unemployment Compensation Income	Family Income	Family Retirement Income	Family Social Security Income
		Number of Observations	Number of Observations	Number of Observations	Number of Observations	Number of Observations
Before Recession (March CPS 2005-2007)	40-49	75,914	2,905	95,477	2,981	7,844
	50-56	39,052	1,534	52,447	3,991	6,607
	57-61	17,765	691	27,775	5,159	5,866
	62-66	8,632	334	20,904	6,114	11,446
	67-71	3,588	101	15,755	5,344	11,061
	72-76	1,694	32	13,309	4,579	9,424
	77+	1,036	29	22,223	6,733	15,433
During Recession (March CPS 2008-2010)	40-49	71,847	4,074	90,919	2,689	7,873
	50-56	41,092	2,370	54,734	3,804	6,945
	57-61	19,931	1,097	31,073	5,195	6,477
	62-66	10,160	529	22,935	6,404	11,856
	67-71	4,242	186	17,146	5,805	12,087
	72-76	1,822	82	13,189	4,482	9,300
	77+	1,172	48	22,551	6,907	15,673
After Recession - Short Term (March CPS 2011-2013)	40-49	65,464	4,315	65,055	2,424	7,212
	50-56	40,340	2,766	42,209	3,591	7,236
	57-61	20,480	1,473	24,337	4,825	6,609
	62-66	11,714	816	21,095	6,915	12,955
	67-71	4,668	281	17,179	6,347	13,130
	72-76	1,954	109	12,658	4,577	9,605
	77+	1,209	75	21,612	7,054	15,790
After Recession - Long Term (March CPS 2014-2015)	40-49	34,328	1,045	38,616	1,129	3,720
	50-56	21,909	830	26,303	1,734	4,036
	57-61	11,968	465	16,422	2,496	4,027
	62-66	7,213	249	14,343	3,805	7,266
	67-71	2,914	102	11,222	3,929	7,807
	72-76	1,143	42	7,940	2,789	5,563
	77+	705	29	12,698	3,888	8,457

Note: For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.

Exhibit B-20: Mean Annual Income by Type: Males

Recession Period	Age Group	Mean Annual Wage/Salary Earnings (in $)	Mean Unemployment Compensation Income (in $)	Mean Family Income (in $)	Mean Family Retirement Income (in $)	Mean Family Social Security Income (in $)
Before Recession (March CPS 2005-2007)	40-49	59,849	177	98,706	716	1,628
	50-56	57,462	200	104,276	1,614	1,774
	57-61	49,249	202	100,827	5,411	2,279
	62-66	28,412	83	83,547	7,953	9,805
	67-71	12,094	31	68,931	9,858	18,418
	72-76	6,776	14	59,411	9,805	20,025
	77+	2,625	6	49,302	8,546	19,181
During Recession (March CPS 2008-2010)	40-49	57,056***	402***	94,086***	644***	1,752***
	50-56	54,805***	435***	99,628***	1,436***	1,840***
	57-61	47,180***	343***	96,516***	4,388***	2,563***
	62-66	30,654***	239***	86,199***	8,000***	9,383***
	67-71	13,550***	114	71,811***	9,654***	19,910***
	72-76	7,761***	26	61,375***	9,518***	20,642***
	77+	2,711	20	51,626***	8,825***	20,153***
After Recession - Short Term (March CPS 2011-2013)	40-49	55,201***	500***	89,092***	656**	1,714***
	50-56	55,204***	502***	95,357***	1,373***	1,913***
	57-61	46,948***	513***	90,746***	3,822***	2,476***
	62-66	31,929***	352***	81,565***	7,440***	8,995***
	67-71	15,908***	140	72,786***	10,118***	19,978***
	72-76	7,918***	55	59,943***	10,080***	21,783***
	77+	2,485	17	48,963***	9,006***	20,337***
After Recession - Long Term (March CPS 2014-2015)	40-49	57,984***	159	94,006***	596**	1,664***
	50-56	55,092***	203	97,355***	1,329***	2,150***
	57-61	47,314***	184	92,932***	3,494***	2,893***
	62-66	31,389***	118	82,381***	6,861***	8,285***
	67-71	15,513***	58	76,522***	10,773***	19,207***
	72-76	7,726***	21	63,073***	11,470***	22,284***
	77+	3,698***	7	53,599***	9,973***	20,407***

Note: 1) For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.

2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean wage and salary earnings among male 40-49 year olds was $59,849. We tested to see if there is a significant difference compared to during the recession (when the mean wage and salary earnings among male 40-49 year olds was $57,056), and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent. † denotes that there is insufficient sample size to conduct statistical testing.

4) This exhibit includes income data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014. Each year, March CPS respondents are asked about their income for the previous year.

5) All figures are adjusted using CPI-U, and are in 2014 dollars.

Exhibit B-21: Mean Annual Income by Type: Males, Number of Observations

Recession Period	Age Group	Annual Wage/Salary Earnings	Unemployment Compensation Income	Family Income	Family Retirement Income	Family Social Security Income
		Number of Observations	Number of Observations	Number of Observations	Number of Observations	Number of Observations
Before Recession (March CPS 2005-2007)	40-49	38,599	1,612	45,900	1,326	3,598
	50-56	20,008	874	25,686	1,614	2,694
	57-61	9,156	389	13,547	2,223	2,050
	62-66	4,489	195	10,007	2,809	4,987
	67-71	1,831	59	7,151	2,509	5,004
	72-76	908	22	5,813	2,155	4,130
	77+	579	17	8,654	3,156	6,091
During Recession (March CPS 2008-2010)	40-49	36,429	2,405	43,620	1,212	3,563
	50-56	21,017	1,443	26,840	1,556	2,938
	57-61	10,113	673	15,127	2,181	2,336
	62-66	5,301	308	11,136	2,970	5,193
	67-71	2,130	110	7,666	2,574	5,395
	72-76	974	41	5,769	2,094	4,154
	77+	645	28	8,783	3,217	6,240
After Recession - Short Term (March CPS 2011-2013)	40-49	33,755	2,443	31,463	1,136	3,350
	50-56	20,540	1,579	20,501	1,459	3,089
	57-61	10,519	846	11,918	1,994	2,486
	62-66	5,983	457	9,874	3,134	5,553
	67-71	2,511	168	7,858	2,984	6,113
	72-76	1,057	67	5,581	2,151	4,301
	77+	675	30	8,800	3,345	6,446
After Recession - Long Term (March CPS 2014-2015)	40-49	17,757	621	18,668	489	1,719
	50-56	11,247	497	12,764	715	1,744
	57-61	6,134	269	7,895	1,028	1,532
	62-66	3,705	136	6,795	1,653	3,145
	67-71	1,498	54	5,172	1,789	3,577
	72-76	626	26	3,622	1,352	2,565
	77+	423	16	5,141	1,768	3,477

Note: For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.

Exhibit B-22: Mean Annual Income by Type: Females

Recession Period	Age Group	Mean Annual Wage/Salary Earnings (in $)	Mean Unemployment Compensation Income (in $)	Mean Family Income (in $)	Mean Family Retirement Income (in $)	Mean Family Social Security Income (in $)
Before Recession (March CPS 2005-2007)	40-49	32,102	131	97,223	742	1,325
	50-56	31,662	121	97,504	2,455	2,241
	57-61	25,189	82	84,951	6,149	4,210
	62-66	12,661	65	69,576	7,741	12,413
	67-71	5,215	18	56,100	7,942	17,557
	72-76	1,936	4	45,596	6,605	17,088
	77+	512	4	40,704	4,888	15,719
During Recession (March CPS 2008-2010)	40-49	31,979***	248***	93,340***	692**	1,474***
	50-56	31,753***	216***	94,761***	2,135***	2,301***
	57-61	26,248***	193***	86,411***	5,492***	4,369***
	62-66	14,819***	119	73,663***	7,935***	11,934***
	67-71	5,736***	57	58,497***	8,251***	18,566***
	72-76	2,185***	29	47,233***	6,780***	17,558***
	77+	602	9	40,658***	4,831***	16,540***
After Recession - Short Term (March CPS 2011-2013)	40-49	31,383***	326***	88,822***	751	1,455***
	50-56	31,338***	315***	89,900***	1,956***	2,404***
	57-61	26,883***	308***	80,742***	4,960***	4,184***
	62-66	16,226***	215**	69,955***	7,901***	11,515***
	67-71	6,050***	87	58,977***	8,649***	19,380***
	72-76	2,461***	26	48,616***	7,166***	19,063***
	77+	708**	15	38,515***	4,990***	16,711***
After Recession - Long Term (March CPS 2014-2015)	40-49	32,096*	102*	91,787***	711	1,461***
	50-56	31,322***	127	92,998***	1,993***	2,393***
	57-61	26,479***	121	82,167***	4,507***	4,278***
	62-66	17,051***	78	72,514***	7,604***	10,784***
	67-71	6,932***	41	63,105***	9,911***	19,104***
	72-76	2,968***	15	52,452***	8,523***	19,188***
	77+	621	30	40,357***	5,769***	16,321***

Note: 1) For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.

2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean wage and salary earnings among female 40-49 year olds was $32,102. We tested to see if there is a significant difference compared to during the recession (when the mean wage and salary earnings among female 40-49 year olds was $31,979), and found the difference was not significant.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent. † denotes that there is insufficient sample size to conduct statistical testing.

4) This exhibit includes income data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014. Each year, March CPS respondents are asked about their income for the previous year.

5) All figures are adjusted using CPI-U, and are in 2014 dollars.

Exhibit B-23: Mean Annual Income by Type: Females, Number of Observations

Recession Period	Age Group	Annual Wage/Salary Earnings	Unemployment Compensation Income	Family Income	Family Retirement Income	Family Social Security Income
		Number of Observations	Number of Observations	Number of Observations	Number of Observations	Number of Observations
Before Recession (March CPS 2005-2007)	40-49	37,291	1,293	49,543	1,652	4,241
	50-56	19,032	660	26,745	2,375	3,911
	57-61	8,604	302	14,217	2,934	3,815
	62-66	4,139	139	10,887	3,301	6,453
	67-71	1,755	42	8,595	2,830	6,051
	72-76	786	10	7,493	2,424	5,292
	77+	457	11	13,565	3,577	9,338
During Recession (March CPS 2008-2010)	40-49	35,401	1,667	47,276	1,476	4,306
	50-56	20,067	927	27,884	2,247	4,006
	57-61	9,814	424	15,940	3,012	4,139
	62-66	4,856	221	11,793	3,433	6,660
	67-71	2,110	76	9,475	3,231	6,690
	72-76	848	41	7,417	2,387	5,144
	77+	527	20	13,763	3,687	9,429
After Recession - Short Term (March CPS 2011-2013)	40-49	31,706	1,872	33,589	1,288	3,862
	50-56	19,800	1,187	21,708	2,132	4,147
	57-61	9,961	627	12,419	2,831	4,123
	62-66	5,731	359	11,221	3,781	7,402
	67-71	2,157	113	9,321	3,363	7,017
	72-76	897	42	7,076	2,426	5,303
	77+	534	45	12,812	3,709	9,344
After Recession - Long Term (March CPS 2014-2015)	40-49	16,570	424	19,948	640	2,001
	50-56	10,662	333	13,539	1,019	2,292
	57-61	5,834	196	8,526	1,468	2,494
	62-66	3,508	113	7,548	2,152	4,121
	67-71	1,416	48	6,050	2,140	4,230
	72-76	517	16	4,318	1,437	2,998
	77+	282	13	7,557	2,120	4,980

Note: For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.

Exhibit B-24: Mean Annual Income by Type: Individuals in Families with No Wage Earners

Recession Period	Age Group	Mean Annual Wage/Salary Earnings (in $)	Mean Unemployment Compensation Income (in $)	Mean Family Income (in $)	Mean Family Retirement Income (in $)	Mean Family Social Security Income (in $)
Before Recession (March CPS 2005-2007)	40-49	-	144	58,757	1,016	3,412
	50-56	-	118	56,247	2,859	4,851
	57-61	-	70	55,893	8,695	6,086
	62-66	-	33	53,021	9,818	14,542
	67-71	-	8	48,268	9,589	18,479
	72-76	-	3	43,144	8,179	18,374
	77+	-	1	38,333	6,320	17,163
During Recession (March CPS 2008-2010)	40-49	-	434***	54,224***	902	3,854***
	50-56	-	380**	52,248***	2,638***	4,792***
	57-61	-	239	52,563***	7,271***	6,401***
	62-66	-	104	55,268***	10,051***	14,677***
	67-71	-	40	48,992***	9,354***	19,706***
	72-76	-	14	44,292***	8,338***	19,072***
	77+	-	8	39,090***	6,350***	18,089***
After Recession - Short Term (March CPS 2011-2013)	40-49	-	744***	48,095***	988	3,654***
	50-56	-	579***	45,030***	2,021***	4,750***
	57-61	-	540***	47,348***	6,262***	6,235***
	62-66	-	254	50,510***	9,609***	14,125***
	67-71	-	70	50,522***	10,225***	20,480***
	72-76	-	20	44,548***	8,551***	20,310***
	77+	-	10	37,765***	6,491***	18,259***
After Recession - Long Term (March CPS 2014-2015)	40-49	-	163	47,680***	1,145	3,836***
	50-56	-	155	44,702***	2,469***	4,856
	57-61	-	106	45,314***	5,970***	6,518***
	62-66	-	69	50,588***	9,537***	13,718***
	67-71	-	24	52,052***	11,304***	19,972***
	72-76	-	8	48,142***	10,256***	20,675***
	77+	-	21	39,621***	7,563***	17,997***

Note: 1) For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.

2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean unemployment compensation income among 40-49 year olds in families with no wage earners in the previous year was $144. We tested to see if there is a significant difference compared to during the recession (when the mean unemployment compensation income among 40-49 year olds in families with no wage earners in the previous year was $434), and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent. † denotes that there is insufficient sample size to conduct statistical testing.

4) Mean annual wage/salary earnings are not included in this exhibit, as individuals in families with no wage earners by construction have mean average wage/salary earnings of zero.

5) This exhibit includes income data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014. Each year, March CPS respondents are asked about their income for the previous year.

6) All figures are adjusted using CPI-U, and are in 2014 dollars.

Exhibit B-25: Mean Annual Income by Type: Individuals in Families with No Wage Earners, Number of Observations

Recession Period	Age Group	Annual Wage/Salary Earnings	Unemployment Compensation Income	Family Income	Family Retirement Income	Family Social Security Income
		Number of Observations	Number of Observations	Number of Observations	Number of Observations	Number of Observations
Before Recession (March CPS 2005-2007)	40-49	-	173	12,065	506	2,457
	50-56	-	106	8,820	971	2,681
	57-61	-	56	7,294	1,815	2,724
	62-66	-	44	10,073	3,376	6,522
	67-71	-	10	10,522	3,825	7,434
	72-76	-	7	10,449	3,681	7,420
	77+	-	9	19,348	6,013	13,470
During Recession (March CPS 2008-2010)	40-49	-	443	12,076	497	2,649
	50-56	-	302	9,190	934	2,731
	57-61	-	166	8,134	1,875	3,003
	62-66	-	92	10,435	3,406	6,645
	67-71	-	49	11,097	3,983	7,924
	72-76	-	24	10,126	3,581	7,194
	77+	-	18	19,475	6,041	13,573
After Recession - Short Term (March CPS 2011-2013)	40-49	-	712	9,506	510	2,535
	50-56	-	470	7,995	913	2,999
	57-61	-	332	6,585	1,676	3,135
	62-66	-	221	9,635	3,606	7,083
	67-71	-	92	11,425	4,339	8,594
	72-76	-	37	9,877	3,565	7,377
	77+	-	39	19,036	6,155	13,666
After Recession - Long Term (March CPS 2014-2015)	40-49	-	110	5,332	244	1,359
	50-56	-	86	4,736	410	1,673
	57-61	-	53	4,351	859	1,876
	62-66	-	42	6,376	1,940	4,031
	67-71	-	25	7,354	2,690	5,205
	72-76	-	8	6,157	2,207	4,305
	77+	-	16	11,033	3,381	7,275

Note: 1) For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.
2) Mean annual wage/salary earnings are not included in this exhibit, as individuals in families with no wage earners by construction have mean average wage/salary earnings of zero.

Exhibit B-26: Mean Annual Income by Type: Individuals in Families with a Single Wage Earner

Recession Period	Age Group	Mean Annual Wage/Salary Earnings (in $)	Mean Unemployment Compensation Income (in $)	Mean Family Income (in $)	Mean Family Retirement Income (in $)	Mean Family Social Security Income (in $)
Before Recession (March CPS 2005-2007)	40-49	53,044	168	94,321	693	1,292
	50-56	52,689	179	98,272	1,884	1,607
	57-61	48,351	172	95,663	4,769	2,456
	62-66	38,831	110	90,988	5,972	8,523
	67-71	24,954	55	84,427	7,217	17,016
	72-76	18,753	26	78,469	7,168	18,449
	77+	11,425	31	79,716	5,750	16,874
During Recession (March CPS 2008-2010)	40-49	51,738***	316***	90,495***	627***	1,353***
	50-56	50,970***	323***	94,938***	1,613***	1,692***
	57-61	47,829***	300***	94,947***	4,197***	2,712***
	62-66	40,453***	226***	92,742***	6,360***	8,070***
	67-71	26,148***	169	89,219***	8,097***	18,564***
	72-76	21,706***	69	81,177***	6,681***	18,946***
	77+	11,754***	51	79,849**	6,338***	17,619***
After Recession - Short Term (March CPS 2011-2013)	40-49	51,031***	361***	87,930***	631**	1,267***
	50-56	52,486***	368***	93,136***	1,566***	1,752***
	57-61	49,599***	373***	90,166***	3,802***	2,547***
	62-66	42,506***	304***	89,688***	6,347***	7,818***
	67-71	30,970***	197*	91,552***	7,813***	18,388***
	72-76	21,331***	70	83,970***	8,006***	20,443***
	77+	12,405***	59	79,203***	7,267***	18,231***
After Recession - Long Term (March CPS 2014-2015)	40-49	52,792***	127***	90,479***	525***	1,249***
	50-56	52,488***	171	95,566***	1,490***	1,854***
	57-61	49,112***	174	93,963***	3,306***	2,844***
	62-66	41,421***	118	89,470***	5,585***	6,964***
	67-71	30,562***	94	95,433***	8,323***	17,899***
	72-76	23,370***	53	87,494***	8,772***	20,581***
	77+	14,596***	21	83,592***	6,688***	18,195***

Note: 1) For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.

2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean annual wage and salary earnings among 40-49 year olds in families with a single wage earner in the previous year was $53,044. We tested to see if there is a significant difference compared to during the recession (when the mean wage and salary earnings among 40-49 year olds in families with multiple wage earners in the previous year was $51,738), and found the difference to be significant at the 1 percent level.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent. † denotes that there is insufficient sample size to conduct statistical testing.

4) This exhibit includes income data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014. Each year, March CPS respondents are asked about their income for the previous year.

5) All figures are adjusted using CPI-U, and are in 2014 dollars.

Exhibit B-27: Mean Annual Income by Type: Individuals in Families with a Single Wage Earner, Number of Observations

Recession Period	Age Group	Annual Wage/Salary Earnings	Unemployment Compensation Income	Family Income	Family Retirement Income	Family Social Security Income
		Number of Observations	Number of Observations	Number of Observations	Number of Observations	Number of Observations
Before Recession (March CPS 2005-2007)	40-49	47,886	1,875	53,891	1,659	3,867
	50-56	24,787	947	28,433	1,562	2,148
	57-61	12,420	464	14,734	2,430	2,478
	62-66	6,500	218	8,425	2,137	3,982
	67-71	2,884	71	4,320	1,265	3,017
	72-76	1,406	20	2,402	779	1,712
	77+	907	18	2,395	619	1,656
During Recession (March CPS 2008-2010)	40-49	46,061	2,447	51,791	1,476	3,804
	50-56	26,138	1,396	29,672	1,506	2,325
	57-61	13,667	688	16,249	2,402	2,744
	62-66	7,562	332	9,638	2,363	4,220
	67-71	3,372	116	4,968	1,523	3,443
	72-76	1,506	43	2,550	760	1,764
	77+	1,014	26	2,549	739	1,751
After Recession - Short Term (March CPS 2011-2013)	40-49	42,922	2,547	37,253	1,269	3,430
	50-56	26,102	1,605	22,706	1,428	2,349
	57-61	14,250	847	12,701	2,314	2,763
	62-66	8,745	458	8,925	2,634	4,757
	67-71	3,729	154	4,842	1,682	3,796
	72-76	1,639	59	2,420	888	1,936
	77+	1,036	30	2,145	764	1,769
After Recession - Long Term (March CPS 2014-2015)	40-49	22,340	637	22,222	579	1,722
	50-56	14,175	526	14,277	674	1,308
	57-61	8,292	290	8,606	1,180	1,725
	62-66	5,325	158	6,145	1,451	2,635
	67-71	2,312	60	3,187	1,025	2,167
	72-76	942	29	1,514	494	1,075
	77+	612	12	1,399	440	1,000

Note: For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.

Exhibit B-28: Mean Annual Income by Type: Individuals in Families with Multiple Wage Earners

Recession Period	Age Group	Mean Annual Wage/Salary Earnings (in $)	Mean Unemployment Compensation Income (in $)	Mean Family Income (in $)	Mean Family Retirement Income (in $)	Mean Family Social Security Income (in $)
Before Recession (March CPS 2005-2007)	40-49	55,114	130	125,471	654	870
	50-56	58,429	149	136,799	1,811	921
	57-61	58,599	154	136,293	4,546	1,683
	62-66	45,895	130	129,671	6,018	6,893
	67-71	34,393	68	127,343	6,841	16,258
	72-76	24,755	43	116,182	6,423	17,412
	77+	11,595	16	131,267	5,016	14,420
During Recession (March CPS 2008-2010)	40-49	54,354***	279***	122,908***	623	907***
	50-56	57,295***	282***	132,510***	1,577***	1,028***
	57-61	57,373***	214	134,609***	3,852***	1,703
	62-66	48,624***	292	130,760***	5,774***	5,915***
	67-71	34,708*	158	123,037***	7,097*	16,407***
	72-76	20,128***	128	113,537***	5,733***	15,644***
	77+	11,015	59	122,910***	5,049	15,215***
After Recession - Short Term (March CPS 2011-2013)	40-49	53,627***	309***	119,015***	684	969***
	50-56	57,218***	338***	131,629***	1,621***	1,066***
	57-61	55,444***	297***	131,181***	3,435***	1,559***
	62-66	48,778***	290*	126,133***	5,323***	6,092***
	67-71	35,707***	177	127,804**	6,688	17,174***
	72-76	26,051***	331	114,051***	7,920***	18,358***
	77+	9,452***	71	118,601***	5,167	15,001***
After Recession - Long Term (March CPS 2014-2015)	40-49	54,974***	115	126,511***	637	1,231***
	50-56	56,581***	154	134,504***	1,428***	1,036***
	57-61	56,471***	158	131,674***	3,140***	1,677
	62-66	51,586***	129	136,377***	5,044***	5,131***
	67-71	41,421***	118	148,048***	8,961***	16,599***
	72-76	24,835	43	114,646***	6,594	19,498***
	77+	13,822*	5	132,447**	4,260**	16,020***

Note: 1) For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.

2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, the mean wage and salary earnings among 40-49 year olds in families with multiple wage earners in the previous year was $55,114. We tested to see if there is a significant difference compared to during the recession (when the mean wage and salary earnings among 40-49 year olds in families with a multiple wage earners in the previous year was $54,354), and found the difference to not be significant.

3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent. † denotes that there is insufficient sample size to conduct statistical testing.

4) This exhibit includes income data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014. Each year, March CPS respondents are asked about their income for the previous year.

5) All figures are adjusted using CPI-U, and are in 2014 dollars.

Exhibit B-29: Mean Annual Income by Type: Individuals in Families with Multiple Wage Earners, Number of Observations

Recession Period	Age Group	Annual Wage/Salary Earnings	Unemployment Compensation Income	Family Income	Family Retirement Income	Family Social Security Income
		Number of Observations	Number of Observations	Number of Observations	Number of Observations	Number of Observations
Before Recession (March CPS 2005-2007)	40-49	28,028	857	29,521	816	1,520
	50-56	14,265	481	15,194	992	967
	57-61	5,345	171	5,747	914	664
	62-66	2,132	72	2,406	601	942
	67-71	704	20	913	254	610
	72-76	288	5	458	119	292
	77+	129	2	480	101	307
During Recession (March CPS 2008-2010)	40-49	25,786	1,184	27,052	716	1,420
	50-56	14,954	672	15,872	952	1,070
	57-61	6,264	243	6,690	918	730
	62-66	2,598	105	2,862	635	991
	67-71	870	21	1,081	299	720
	72-76	316	15	513	141	342
	77+	158	4	527	127	349
After Recession - Short Term (March CPS 2011-2013)	40-49	22,542	1,056	18,296	645	1,247
	50-56	14,238	691	11,508	845	1,035
	57-61	6,230	294	5,051	835	711
	62-66	2,969	137	2,535	675	1,115
	67-71	939	35	912	326	740
	72-76	315	13	361	124	292
	77+	173	6	431	135	355
After Recession - Long Term (March CPS 2014-2015)	40-49	11,988	298	11,062	306	639
	50-56	11,884	218	7,290	450	589
	57-61	3,676	122	3,465	457	426
	62-66	1,888	49	1,822	414	600
	67-71	602	17	681	214	435
	72-76	201	5	269	88	183
	77+	93	1	266	67	182

Note: For each type of income, individuals with missing, imputed, or armed forces labor force statuses, or missing/imputed income for that given type are excluded from that income type's calculations.

Exhibit B-30: Self-Employment Annual Income

Recession Period	Age Group	Negative	Zero	$1-$9,999	$10,000-$99,999	$100,000+	Number of Observations
		Percentage	Percentage	Percentage	Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	3.5	38.3	12.7	40.8	4.7	10,284
	50-56	3.6	37.6	12.8	40.4	5.6	6,021
	57-61	4.0	37.6	14.0	39.5	4.9	3,148
	62-66	4.1	35.7	19.0	35.9	5.3	1,916
	67-71	3.4	34.8	23.1	35.0	3.7	1,012
	72-76	4.5	42.4	22.3	27.7	3.1	586
	77+	5.2	39.7	24.9	26.9	3.3	450
During Recession (March CPS 2008-2010)	40-49	2.7***	38.5	11.7**	42.4**	4.6	9,363
	50-56	2.6***	40.5***	12.0	39.6	5.3	6,037
	57-61	2.9**	38.9	13.0	39.4	5.8	3,392
	62-66	2.7**	40.1***	14.2***	35.3	7.6***	2,075
	67-71	2.9	40.4***	19.2**	32.7	4.7	1,146
	72-76	5.4	41.2	20.1	28.6	4.7	607
	77+	4.3	44.8	17.1***	26.4	7.4***	439
After Recession - Short Term (March CPS 2011-2013)	40-49	1.8***	37.1*	12.7	43.7***	4.7	7,809
	50-56	2.3***	40.1***	11.7*	40.3	5.5	5,641
	57-61	2.9**	39.7*	14.5	37.2*	5.7	3,162
	62-66	2.6***	40.5***	14.5***	36.3	6.1	2,218
	67-71	3.7	38.2*	19.4**	32.8	5.9**	1,241
	72-76	4.0	36.0**	23.8	31.3	4.9	644
	77+	2.5**	40.6	18.5**	33.2**	5.2	460
After Recession - Long Term (March CPS 2014-2015)	40-49	2.3***	39.4	10.4***	43.7***	4.2	3,912
	50-56	1.9***	41.0***	11.0**	41.7	4.3***	2,952
	57-61	3.3	42.0***	11.9**	39.1	3.7**	1,792
	62-66	2.9*	41.5***	15.8**	34.7	5.0	1,271
	67-71	2.7	39.5**	21.2	31.5	5.3	765
	72-76	3.9	38.5	19.2	35.4**	3.1	374
	77+	4.0	47.2**	19.3*	26.1	3.4	289

Note: 1) Only individuals reported as self-employed are included in the calculations of this exhibit.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 3.5 percent of 40-49 year olds had negative self-employment income. We tested to see if there is a significant difference compared to during the recession (when 2.7 percent of 40-49 year olds had negative self-employment income), and found the difference to be significant at the 1 percent level.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.
4) This exhibit includes income data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014. Each year, March CPS respondents are asked about their income for the previous year.
5) Figures used to generate this exhibit are adjusted using CPI-U, and are in 2014 dollars.

Exhibit B-31: Self-Employment Annual Income: Males

Recession Period	Age Group	Negative Percentage	Zero Percentage	$1-$9,999 Percentage	$10,000-$99,999 Percentage	$100,000+ Percentage	Number of Observations
Before Recession (March CPS 2005-2007)	40-49	2.8	42.3	8.2	40.7	6.0	6,622
	50-56	2.8	40.8	9.0	40.7	6.8	4,075
	57-61	3.4	41.3	9.0	40.1	6.2	2,130
	62-66	3.8	38.7	14.2	36.2	7.1	1,293
	67-71	2.3	38.9	18.9	35.7	4.3	670
	72-76	5.0	46.1	15.8	29.1	4.1	412
	77+	5.5	42.3	20.3	27.3	4.6	329
During Recession (March CPS 2008-2010)	40-49	2.3*	42.0	7.0**	42.9**	5.7	5,987
	50-56	2.5	44.7***	7.8*	38.4**	6.5	4,007
	57-61	2.6	43.3	8.7	38.4	7.1	2,297
	62-66	2.8	43.0**	11.3**	33.3	9.6**	1,418
	67-71	2.8	45.2**	12.2***	33.9	6.0	770
	72-76	3.7	46.6	14.9	29.5	5.3	421
	77+	3.1	50.5**	11.6***	25.7	9.1**	317
After Recession - Short Term (March CPS 2011-2013)	40-49	2.3*	42.0	7.0**	42.9**	5.7	4,872
	50-56	2.0**	44.0***	8.2	39.0	6.7	3,698
	57-61	2.6	43.3	8.7	38.4	7.1	2,084
	62-66	2.8	43.0**	11.3**	33.3	9.6**	1,439
	67-71	2.8	45.2**	12.2***	33.9	6.0	836
	72-76	3.7	46.6	14.9	29.5	5.3	470
	77+	3.1	50.5**	11.6***	25.7	9.1**	356
After Recession - Long Term (March CPS 2014-2015)	40-49	1.9**	44.7**	6.1***	42.3	5.0*	2,523
	50-56	1.6***	45.6***	8.1	39.5	5.2**	1,939
	57-61	3.0	47.9***	7.9	37.1*	4.1**	1,204
	62-66	3.2	44.7***	10.9**	34.4	6.8	830
	67-71	2.0	43.0	18.5	29.6**	6.9**	532
	72-76	4.5	41.5	14.9	35.8*	3.3	266
	77+	4.7	53.7***	14.7*	22.3	4.6	214

Note: 1) Only individuals reported as self-employed are included in the calculations of this exhibit.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 2.8 percent of male 40-49 year olds had negative self-employment income. We tested to see if there is a significant difference compared to during the recession (when 2.3 percent of male 40-49 year olds had negative self-employment income), and found the difference to be significant at the 10 percent level.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.
4) This exhibit includes income data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014. Each year, March CPS respondents are asked about their income for the previous year.
5) Figures used to generate this exhibit are adjusted using CPI-U, and are in 2014 dollars.

Exhibit B-32: Self-Employment Annual Income: Females

Recession Period	Age Group	Negative	Zero	$1-$9,999	$10,000-$99,999	$100,000+	Number of Observations
		Percentage	Percentage	Percentage	Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	4.8	30.6	21.5	41.0	2.1	3,659
	50-56	5.3	30.8	21.0	39.8	3.1	1,946
	57-61	5.3	29.9	24.3	38.2	2.2	1,018
	62-66	4.6	29.2	29.1	35.4	1.6	620
	67-71	5.8	26.6	31.6	33.6	2.4	341
	72-76	3.4	34.7	36.3	24.6	1.0	174
	77+	4.5	32.5	37.4	25.6	0.0	121
During Recession (March CPS 2008-2010)	40-49	3.5***	32.1	20.3	41.5	2.6	3,373
	50-56	2.7***	32.3	20.1	41.9	3.0	2,028
	57-61	3.6*	30.4	21.5	41.3	3.2	1,095
	62-66	2.7*	33.7*	20.4***	39.7	3.4**	656
	67-71	3.3	30.8	33.3	30.4	2.2	376
	72-76	9.0**	30.2	30.6	26.7	3.5	186
	77+	7.6	29.3	31.7	28.5	2.9*	121
After Recession - Short Term (March CPS 2011-2013)	40-49	2.2***	30.8	19.9	44.3***	2.8*	2,936
	50-56	2.9***	32.8	18.2**	42.9**	3.2	1,943
	57-61	3.4**	31.5	22.1	39.3	3.6*	1,078
	62-66	3.1	31.3	22.4***	40.1*	3.0*	779
	67-71	4.5	26.6	30.5	36.1	2.3	405
	72-76	5.9	24.2**	34.3	33.4*	2.2	174
	77+	3.7	30.1	29.8	34.7	1.8	104
After Recession - Long Term (March CPS 2014-2015)	40-49	2.9***	29.7	18.2***	46.3***	2.9*	1,389
	50-56	2.5***	32.0	16.7***	46.0***	2.7	1,013
	57-61	3.8	30.2	20.0**	43.1*	2.9	588
	62-66	2.4*	35.6**	25.1	35.4	1.5	441
	67-71	4.1	31.9	26.9	35.5	1.6	233
	72-76	2.4	31.0	29.8	34.2*	2.5	108
	77+	1.9	28.3	32.9	37.0*	0.0	75

Note: 1) Only individuals reported as self-employed are included in the calculations of this exhibit.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 4.8 percent of female 40-49 year olds had negative self-employment income. We tested to see if there is a significant difference compared to during the recession (when 3.5 percent of female 40-49 year olds had negative self-employment income, and found the difference to be significant at the 1 percent level.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.
4) This exhibit includes income data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014. Each year, March CPS respondents are asked about their income for the previous year.
5) Figures used to generate this exhibit are adjusted using CPI-U, and are in 2014 dollars.

Exhibit B-33: Earnings as a Share of Annual Income

Recession Period	Age Group	Earnings as a Share of Income
Before Recession (2005-2007)	40-49	79%
	50-56	72%
	57-61	61%
	62-66	32%
	67-71	13%
	72-76	6%
	77+	2%
During Recession (2008 - 2010)	40-49	79%
	50-56	73%
	57-61	61%
	62-66	35%
	67-71	14%
	72-76	7%
	77+	2%
After Recession - Short Term (2011-2013)	40-49	79%
	50-56	72%
	57-61	62%
	62-66	37%
	67-71	14%
	72-76	7%
	77+	2%
After Recession - Long Term (2014-2015)	40-49	80%
	50-56	73%
	57-61	63%
	62-66	39%
	67-71	15%
	72-76	8%
	77+	3%

B.2 Complete Difference-in-Differences Regression Results– Earnings and Hours Worked

Exhibit B-34: Difference-in-Differences Regression Results – Earnings and Hours Worked

Dependent Variable		Hours Worked Per Week		Log Hourly Wage	
		(1)	(2)	(3)	(4)
Mean		**39.64**	**34.58**	**$30.92**	**$22.70**
Independent Variables (Standard errors in parentheses)		**Men**	**Women**	**Men**	**Women**
Short-term	**Short-term After * Ages 50-56**	0.385***	-0.044	0.023***	0.005
		(0.099)	*(0.107)*	*(0.005)*	*(0.004)*
	Short-term After * Ages 57-61	0.317***	0.404***	-0.015*	0.020
		(0.110)	*(0.094)*	*(0.009)*	*(0.012)*
	Short-term After * Ages 62-66	1.148***	0.656***	0.006	0.037***
		(0.121)	*(0.163)*	*(0.011)*	*(0.008)*
	Short-term After * Ages 67-71	1.069*	1.137***	0.006	0.023
		(0.543)	*(0.306)*	*(0.020)*	*(0.028)*
	Short-term After * Ages 72-76	1.069	1.979*	0.086**	-0.028
		(0.889)	*(1.143)*	*(0.038)*	*(0.036)*
	Short-term After * Ages 77 and older	2.196***	0.709	0.008	0.201***
		(0.755)	*(0.864)*	*(0.085)*	*(0.057)*
Long-term	**Long-term After * Ages 50-56**	0.105	0.050	0.017*	-0.007
		(0.101)	*(0.085)*	*(0.010)*	*(0.010)*
	Long-term After * Ages 57-61	0.566***	0.452***	0.004	0.014
		(0.118)	*(0.144)*	*(0.009)*	*(0.013)*
	Long-term After * Ages 62-66	1.495***	0.873***	0.016	0.056***
		(0.278)	*(0.163)*	*(0.015)*	*(0.017)*
	Long-term After * Ages 67-71	1.833***	1.935***	0.054**	0.001
		(0.310)	*(0.301)*	*(0.026)*	*(0.021)*
	Long-term After * Ages 72-76	2.395**	3.284***	0.051*	0.079**
		(1.086)	*(0.662)*	*(0.026)*	*(0.036)*
	Long-term After * Ages 77 and older	1.677***	1.157	0.134**	0.285***
		(0.542)	*(0.894)*	*(0.057)*	*(0.074)*
Short-term After		-0.448***	0.297***	-0.033***	-0.027***
		(0.078)	*(0.086)*	*(0.005)*	*(0.005)*
Long-term After		-0.362***	0.176**	-0.032***	-0.033***
		(0.076)	*(0.086)*	*(0.008)*	*(0.009)*
Age Groups	**Ages 50-56**	-0.519***	0.078	0.205	0.041***
		(0.092)	*(0.062)*	*(0.145)*	*(0.012)*
	Ages 57-61	-1.377***	--1.219***	-0.373**	-0.003
		(0.061)	*(0.082)*	*(0.179)*	*(0.011)*
	Ages 62-66	-4.964***	-4.083***	-2.563***	-0.015
		(0.075)	*(0.125)*	*(0.221)*	*(0.017)*
	Ages 67-71	-10.099***	-9.350***	-6.297***	-0.056*
		(0.304)	*(0.298)*	*(0.347)*	*(0.030)*
	Ages 72-76	-14.293***	-13.950***	-8.693***	-0.034
		(557)	*(0.606)*	*(1.190)*	*(0.043)*
	Ages 77 and older	-17.708***	-15.012***	-13.138***	-0.116
		(0.493)	*(0.722)*	*(1.038)*	*(0.088)*

Dependent Variable		Hours Worked Per Week		Log Hourly Wage	
		(1)	(2)	(3)	(4)
Mean		**39.64**	**34.58**	**$30.92**	**$22.70**
Independent Variables (Standard errors in parentheses)		**Men**	**Women**	**Men**	**Women**
Race Base: Other/Mixed Race	**White**	0.047	-0.878***	0.044***	0.040***
		(0.205)	*(0.171)*	*(0.012)*	*(0.011)*
	Black	-1.106***	-0.128	-0.065***	0.020*
		(0.217)	*(0.168)*	*(0.013)*	*(0.011)*
	Asian	-1.191***	0.412*	-0.039***	0.061***
		(0.228)	*(0.216)*	*(0.014)*	*(0.017)*
Ethnicity	**Hispanic**	-0.685***	0.997***	-0.107***	-0.053***
		(0.094)	*(0.109)*	*(0.006)*	*(0.005)*
Highest Degree Attained Base: Less than High School	**High School Graduate or GED**	0.226*	0.314*	0.148***	0.118***
		(0.127)	*(0.164)*	*(0.010)*	*(0.007)*
	Some College or Associate	0.523***	0.095	0.243***	0.214***
		(0.142)	*(0.183)*	*(0.010)*	*(0.009)*
	Bachelor or Higher	1.401***	0.986***	0.496***	0.466***
		(0.154)	*(0.227)*	*(0.014)*	*(0.012)*
Marital Status Base: Never married	**Married**	1.457***	-1.560***	0.185***	0.004
		(0.143)	*(0.104)*	*(0.009)*	*(0.006)*
	Widowed	0.277	-0.845***	0.087***	-0.032***
		(0.325)	*(0.191)*	*(0.018)*	*(0.010)*
	Divorced	1.331***	0.442***	0.086***	0.023***
		(0.135)	*(0.130)*	*(0.010)*	*(0.006)*
	Separated	1.314***	0.043	0.079***	-0.019
		(0.248)	*(0.187)*	*(0.012)*	*(0.012)*
No. of people in the family		0.143***	-0.568***	0.009***	-0.012***
		(0.026)	*(0.073)*	*(0.002)*	*(0.002)*
Disabled		-5.608***	-5.585***	-0.166***	-0.077***
		(0.257)	*(0.260)*	*(0.022)*	*(0.015)*
Have any health insurance coverage		1.656***	1.858***	0.241***	0.199***
		(0.147)	*(0.132)*	*(0.009)*	*(0.007)*
Health Status Base: Excellent/Very good	**Missing**	1.487***	2.014***	0.165***	0.132***
		(0.152)	*(0.160)*	*(0.007)*	*(0.007)*
	Good/Fair	-0.737***	-0.166**	-0.084***	-0.086***
		(0.067)	*(0.077)*	*(0.004)*	*(0.004)*
	Poor	-1.735***	-1.211***	-0.117***	-0.117***
		(0.306)	*(0.329)*	*(0.019)*	*(0.016)*
Local Unemployment Rate		-0.056***	-0.089***	-0.002	-0.003
		(0.017)	*(0.022)*	*(0.002)*	*(0.002)*
Industry Dummies Base: Educational and health services	**Agriculture, forestry, fishing, and hunting**	4.903***	-0.605	-0.094***	-0.043
		(0.561)	*(0.689)*	*(0.023)*	*(0.041)*
	Mining	8.736***	2.501***	0.330***	0.293***
		(0.406)	*(0.399)*	*(0.015)*	*(0.050)*
	Construction	0.954***	-1.231***	0.133***	0.115***
		(0.217)	*(0.266)*	*(0.011)*	*(0.015)*
	Manufacturing	1.849***	2.396***	0.176***	0.157***
		(0.190)	*(0.113)*	*(0.008)*	*(0.008)*
		0.762***	-0.904***	0.004	-0.064***

Dependent Variable		Hours Worked Per Week		Log Hourly Wage	
		(1)	(2)	(3)	(4)
Mean		**39.64**	**34.58**	**$30.92**	**$22.70**
Independent Variables (Standard errors in parentheses)		**Men**	**Women**	**Men**	**Women**
	Wholesale and retail trade	*(0.145)*	*(0.139)*	*(0.010)*	*(0.009)*
	Transportation and utilities	2.853***	1.137***	0.245***	0.200***
		(0.230)	*(0.210)*	*(0.009)*	*(0.012)*
	Information	0.510*	-0.081	0.177***	0.112***
		(0.258)	*(0.306)*	*(0.016)*	*(0.017)*
	Financial activities	-0.025	0.656***	0.172***	0.147***
		(0.158)	*(0.149)*	*(0.013)*	*(0.008)*
	Professional and business services	0.461***	-0.371**	0.173***	0.103***
		(0.136)	*(0.159)*	*(0.008)*	*(0.009)*
	Leisure and hospitality	-0.068	-1.151***	-0.120***	-0.122***
		(0.152)	*(0.179)*	*(0.014)*	*(0.008)*
	Other services	0.579**	-3.729***	-0.137***	-0.085***
		(0.244)	*(0.234)*	*(0.017)*	*(0.012)*
	Public administration	0.457**	0.917***	0.243***	0.159***
		(0.180)	*(0.144)*	*(0.012)*	*(0.010)*
	Armed forces	4.403***	5.611***	-0.076***	0.183**
		(0.506)	*(1.289)*	*(0.019)*	*(0.075)*
Occupation Dummies Base: Professional and related occupations	**Management, business, and financial occupations**	2.288***	3.526***	0.069***	0.101***
		(0.102)	*(0.120)*	*(0.005)*	*(0.007)*
	Service occupations	-1.638***	-2.265***	-0.422***	-0.408***
		(0.184)	*(0.158)*	*(0.015)*	*(0.010)*
	Sales and related occupations	1.052***	-0.644***	-0.189***	-0.268***
		(0.120)	*(0.157)*	*(0.019)*	*(0.013)*
	Office and administrative support occupations	-2.070***	-0.191**	-0.367***	-0.222***
		(0.198)	*(0.084)*	*(0.013)*	*(0.006)*
	Farming, fishing, and forestry occupations	0.005	2.046***	-0.452***	-0.412***
		(0.501)	*(0.654)*	*(0.033)*	*(0.045)*
	Construction and extraction occupations	-1.427***	1.138	-0.223***	-0.110**
		(0.150)	*(0.685)*	*(0.011)*	*(0.048)*
	Installation, maintenance, and repair occupations	-0.856***	2.320***	-0.183***	-0.022
		(0.129)	*(0.439)*	*(0.009)*	*(0.030)*
	Production occupations	-1.035***	0.169	-0.318***	-0.392***
		(0.119)	*(0.188)*	*(0.011)*	*(0.013)*
	Transportation and material moving occupations	-0.289	-1.634***	-0.414***	-0.380***
		(0.231)	*(0.255)*	*(0.016)*	*(0.012)*
Region Base: South	**Northeast**	-0.694***	-1.303***	0.078***	0.098***
		(0.081)	*(0.089)*	*(0.007)*	*(0.005)*
	Midwest	-0.527***	-0.925***	-0.007	-0.004
		(0.082)	*(0.091)*	*(0.005)*	*(0.005)*
	West	-0.756***	-0.933***	0.075***	0.097***

Dependent Variable		Hours Worked Per Week		Log Hourly Wage	
		(1)	(2)	(3)	(4)
Mean		**39.64**	**34.58**	**$30.92**	**$22.70**
Independent Variables (Standard errors in parentheses)		**Men**	**Women**	**Men**	**Women**
		(0.091)	*(0.099)*	*(0.006)*	*(0.007)*
Year Dummies Base: Year 2005	**Year 2006**	0.073	0.239***	-0.004	-0.000
		(0.069)	*(0.053)*	*(0.005)*	*(0.006)*
	Year 2007	0.008	0.159**	-0.006	-0.008*
		(0.048)	*(0.067)*	*(0.004)*	*(0.004)*
	Year 2011	-0.211**	0.055	0.032***	0.035***
		(0.090)	*(0.111)*	*(0.006)*	*(0.006)*
	Year 2012	-0.021	-0.024	0.020***	0.020***
		(0.079)	*(0.086)*	*(0.005)*	*(0.005)*
	Year 2014	0.019	-0.210**	-0.010	0.009
		(0.084)	*(0.081)*	*(0.007)*	*(0.007)*
Constant		40.345***	40.391***	2.619***	2.607***
		(0.300)	*(0.398)*	*(0.029)*	*(0.021)*
Observations		168,041	166,703	171,056	169,499
R-squared		0.148	0.139	0.309	0.272
Adjusted R-Squared		0.147	0.138	0.309	0.272

Notes:
1. The reference period is the time period before the Great Recession, i.e., March CPS 2005 - 2007.
2. Other independent variables include race, ethnicity, marital status, educational attainment, disability and health status, family size, industry, occupation, region, and health insurance coverage.
3. All regressions also control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2004 to 2014 obtained from the U.S. Bureau of Labor Statistics (BLS). When MSA is unavailable for the individual, we use the state unemployment rate instead.
4. All regressions also control for year fixed effects.
5. Standard errors are clustered by age group and year and are reported in italics.
6. Regressions are weighted by the March CPS Supplement Final Weight.
7. The regressions on hours worked exclude individuals who are not in the labor force. They also exclude individuals who are self-employed and working without pay.
8. The regressions on log hourly wage include only individuals with a positive hourly wage. They exclude individuals who are self-employed and working without pay.
9. The following variables in the regressions are provided for the year before the survey: hour worked per week, log hourly wage, industry, occupation, and local unemployment rate. Each year, March CPS respondents are asked about these variables for the previous year.
10. For hourly wage, all dollar amounts are adjusted for inflation using BLS's Consumer Price Index for All Urban Consumers (CPI-U) and are in 2014 dollars.
*** p<0.01, ** p<0.05, * p<0.1

APPENDIX C: ADDITIONAL RETIREMENT PATTERNS TABLES

C. 1 Retirement Rate Tables

Exhibit C-1: Retirement Rate

Recession Period	Age Group	Retired	Not Retired	Number of Observations
		Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	0.6	99.4	74,467
	50-56	4.4	95.6	38,677
	57-61	16.7	83.1	20,301
	62-66	49.9	49.7	16,026
	67-71	75.1	24.6	13,338
	72-76	86.9	12.9	11,644
	77+	95.4	4.6	20,089
During Recession (March CPS 2008-2010)	40-49	0.6	99.4	71,193
	50-56	3.9***	96.1***	40,418
	57-61	15.7***	83.9**	22,687
	62-66	46.1***	53.4***	17,711
	67-71	73.4***	26.2***	14,487
	72-76	86.4	13.4	11,621
	77+	95.0*	4.9	20,690
After Recession - Short Term (March CPS 2011-2013)	40-49	0.5**	99.4	66,022
	50-56	3.9***	96.1***	39,869
	57-61	14.2***	85.3***	23,437
	62-66	44.7***	54.6***	19,991
	67-71	72.9***	26.5***	15,712
	72-76	85.3***	14.4***	11,958
	77+	95.1	4.8	20,943
After Recession - Long Term (March CPS 2014-2015)	40-49	0.7*	99.3*	34,265
	50-56	3.9***	96.1***	21,622
	57-61	14.2***	85.4***	13,423
	62-66	44.1***	55.4***	12,184
	67-71	72.9***	26.8***	9,859
	72-76	85.4***	14.4***	7,182
	77+	94.8**	5.1**	11,925

Note: 1) Only employed individuals and individuals who are retired are included in the calculations of retirement rates for this exhibit.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 0.6 percent of 40-49 year olds were employed. We tested to see if there is a significant difference compared to during the recession (when 0.6 percent of 40-49 year olds were employed, and found the difference to not be significant.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.
4) This exhibit includes retirement status data, which in the March CPS provided for the year before the survey. For instance, in March 2015, income is provided for 2014.

Exhibit C-2: Retirement Rate: Males

Recession Period	Age Group	Retired	Not Retired	Number of Observations
		Percentage	Percentage	
Before Recession (March CPS 2005-2007)	40-49	0.6	99.4	36,855
	50-56	3.9	96.1	19,199
	57-61	14.3	85.5	9,903
	62-66	47.4	52.3	7,641
	67-71	72.7	26.9	6,031
	72-76	84.1	15.6	5,073
	77+	93.5	6.4	7,884
During Recession (March CPS 2008-2010)	40-49	0.6	99.4	35,257
	50-56	3.1***	96.9***	20,026
	57-61	14.0	85.7	10,974
	62-66	43.3***	56.1***	8,555
	67-71	71.0**	28.5**	6,409
	72-76	83.6	16.3	5,058
	77+	93.3	6.6	8,121
After Recession - Short Term (March CPS 2011-2013)	40-49	0.5*	99.5*	33,371
	50-56	3.4***	96.6***	19,737
	57-61	12.0***	87.5***	11,528
	62-66	41.6***	57.5***	9,417
	67-71	68.9***	30.5***	7,257
	72-76	82.7*	17.0*	5,227
	77+	93.4	6.5	8,420
After Recession - Long Term (March CPS 2014-2015)	40-49	0.6	99.4	17,314
	50-56	3.3***	96.7***	10,766
	57-61	11.7***	87.9***	6,515
	62-66	40.5***	59.1***	5,734
	67-71	70.0***	29.7***	4,469
	72-76	83.6	16.2	3,254
	77+	92.5**	7.4**	4,815

Note: 1) Only employed individuals and individuals who are retired are included in the calculations of retirement rates for this exhibit.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 0.6 percent of male 40-49 year olds were employed. We tested to see if there is a significant difference compared to during the recession (when 0.6 percent of male 40-49 year olds were employed, and found the difference to not be significant.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.
4) This exhibit includes retirement status data, which in the March CPS is provided for the year before the survey. For instance, in March 2015, income is provided for 2014.

Exhibit C-3: Retirement Rate: Females

Recession Period	Age Group	Retired Percentage	Not Retired Percentage	Number of Observations
Before Recession (March CPS 2005-2007)	40-49	0.6	99.4	37,588
	50-56	4.9	95.1	19,466
	57-61	18.9	80.8	10,389
	62-66	52.3	47.2	8,378
	67-71	77.0	22.7	7,298
	72-76	89.0	10.9	6,569
	77+	96.6	3.4	12,201
During Recession (March CPS 2008-2010)	40-49	0.6	99.4	35,919
	50-56	4.7	95.3	20,385
	57-61	17.4***	82.3***	11,709
	62-66	48.6***	50.9***	9,151
	67-71	75.3**	24.3**	8,073
	72-76	88.6	11.2	6,561
	77+	96.1**	3.9**	12,565
After Recession - Short Term (March CPS 2011-2013)	40-49	0.6	99.3**	98,299
	50-56	4.5*	95.5*	20,132
	57-61	16.3***	83.1***	11,909
	62-66	47.4***	52.0***	10,574
	67-71	76.3	23.1	8,455
	72-76	87.3***	12.5***	6,730
	77+	96.2*	3.7	12,523
After Recession - Long Term (March CPS 2014-2015)	40-49	0.8***	99.2***	16,950
	50-56	4.4**	95.6**	10,856
	57-61	16.5***	83.1***	6,907
	62-66	47.3***	52.3***	6,450
	67-71	75.3**	24.4**	5,390
	72-76	87.0***	12.8***	3,928
	77+	96.4	3.6	7,110

Note: 1) Only employed individuals and individuals who are retired are included in the calculations of retirement rates for this exhibit.
2) "Before Recession" is the reference categories for all statistical tests. Statistical tests are performed separately for each age group. An example interpretation of this testing is as follows: Before the recession, 0.6 percent of female 40-49 year olds were employed. We tested to see if there is a significant difference compared to during the recession (when 0.6 percent of female 40-49 year olds were employed, and found the difference to not be significant.
3) We used Z-tests for population proportions for statistical comparisons: *** denotes significance at 1 percent, ** significance at 5 percent, * significance at 10 percent.
4) This exhibit includes retirement status data, which in the March CPS is provided for the year before the survey. For instance, in March 2015, income is provided for 2014. Each year, March CPS respondents are asked about their retirement status for the previous year.

C. 2 Full Logistic Regression Results– Likelihood of Retirement

Exhibit C-4: Logistic Regression Results: Males

Dependent Variable: Probability of Retirement							
Mean of Dependent Variable		**3.11%**	**12.41%**	**42.68%**	**70.46%**	**83.41%**	**93.21%**
Males		**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**
Independent Variables (Standard errors in parentheses)		**50-56**	**57-61**	**62-66**	**62-71**	**72-26**	**77+**
Short-term After		-0.010***	-0.044***	-0.075***	-0.059***	-0.021***	-0.009
		(0.003)	*(0.005)*	*(0.011)*	*(0.012)*	*(0.008)*	*(0.007)*
Long-term After		-0.007***	-0.035***	-0.064***	-0.025***	-0.002	-0.007
		(0.002)	*(0.003)*	*(0.006)*	*(0.006)*	*(0.006)*	*(0.007)*
Base: Other/Mixed Race	**White**	-0.009	-0.036***	0.012	-0.033	-0.010	0.026*
		(0.008)	*(0.011)*	*(0.027)*	*(0.022)*	*(0.018)*	*(0.015)*
	Black	0.003	-0.019	0.034	-0.016	0.010	0.010
		(0.008)	*(0.012)*	*(0.038)*	*(0.020)*	*(0.018)*	*(0.020)*
	Asian	-0.007	-0.049***	-0.013	-0.009	0.005	0.046***
		(0.012)	*(0.014)*	*(0.041)*	*(0.028)*	*(0.024)*	*(0.015)*
Ethnicity	**Hispanic**	-0.004	-0.031***	-0.041**	-0.049***	-0.007	-0.010
		(0.003)	*(0.008)*	*(0.018)*	*(0.017)*	*(0.008)*	*(0.010)*
Highest Degree Attained Base: Less than High School	**High School Graduate or GED**	0.008*	-0.005	-0.009	-0.044***	-0.004	-0.019**
		(0.004)	*(0.010)*	*(0.009)*	*(0.015)*	*(0.011)*	*(0.008)*
	Some College or Associate	0.001	-0.006	-0.056***	-0.057***	-0.011	-0.026***
		(0.003)	*(0.011)*	*(0.013)*	*(0.013)*	*(0.017)*	*(0.006)*
	Bachelor or Higher	-0.004	-0.014	-0.117***	-0.127***	-0.059***	-0.047***
		(0.005)	*(0.012)*	*(0.012)*	*(0.015)*	*(0.011)*	*(0.008)*
Marital Status Base: Never married	**Married**	-0.000	-0.027**	-0.008	-0.016	-0.021	0.023**
		(0.004)	*(0.012)*	*(0.021)*	*(0.015)*	*(0.024)*	*(0.011)*
	Widowed	0.021	0.045	0.048**	0.057***	0.022	0.047***
		(0.014)	*(0.036)*	*(0.023)*	*(0.020)*	*(0.025)*	*(0.008)*
	Divorced	-0.009*	-0.040***	-0.006	0.004	-0.069***	-0.015
		(0.005)	*(0.008)*	*(0.020)*	*(0.023)*	*(0.026)*	*(0.018)*
	Separated	-0.012***	-0.065***	-0.036	-0.042	-0.037	-0.039*
		(0.004)	*(0.023)*	*(0.049)*	*(0.044)*	*(0.061)*	*(0.022)*
No. of people in the family		-0.007***	-0.015***	-0.026***	-0.018***	-0.016***	-0.007***
		(0.001)	*(0.002)*	*(0.002)*	*(0.001)*	*(0.003)*	*(0.001)*
Disabled		0.132***	0.258***	0.248***	0.127***	0.058***	0.037***
		(0.017)	*(0.029)*	*(0.022)*	*(0.016)*	*(0.006)*	*(0.006)*
Health Status Base: Excellent/Very good	**Missing**	0.020***	0.036***	0.064***	0.039***	0.027**	0.014
		(0.004)	*(0.006)*	*(0.013)*	*(0.015)*	*(0.012)*	*(0.009)*
	Good/Fair	0.012***	0.020***	0.083***	0.065***	0.061***	0.035***
		(0.003)	*(0.006)*	*(0.010)*	*(0.008)*	*(0.009)*	*(0.007)*
	Poor	0.021***	0.067***	0.180***	0.191***	0.126***	0.068***
		(0.004)	*(0.022)*	*(0.022)*	*(0.022)*	*(0.014)*	*(0.006)*
Local Unemployment Rate		0.002***	0.008***	0.011***	0.012***	0.004***	0.004**
		(0.000)	*(0.001)*	*(0.004)*	*(0.002)*	*(0.001)*	*(0.001)*
Region	**Northeast**	-0.005**	-0.022***	-0.038**	-0.030**	-0.025*	-0.017***

Dependent Variable: Probability of Retirement							
Mean of Dependent Variable		**3.11%**	**12.41%**	**42.68%**	**70.46%**	**83.41%**	**93.21%**
Males		**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**
Independent Variables (Standard errors in parentheses)		**50-56**	**57-61**	**62-66**	**62-71**	**72-26**	**77+**
Base: South		*(0.002)*	*(0.005)*	*(0.017)*	*(0.014)*	*(0.014)*	*(0.004)*
	Midwest	-0.004	-0.002	-0.016	-0.002	-0.013	-0.016***
		(0.004)	*(0.007)*	*(0.013)*	*(0.011)*	*(0.009)*	*(0.004)*
	West	0.003	-0.008	0.013	0.009	0.021	0.003
		(0.003)	*(0.007)*	*(0.015)*	*(0.013)*	*(0.013)*	*(0.005)*
Observations		47,433	26,010	21,385	16,629	12,640	19,700
Pseudo R^2		0.082	0.065	0.052	0.038	0.032	0.050

Notes:

1. Coefficient estimates are average marginal effects.
2. The reference period is the time period before the Great Recession, i.e., March CPS 2005 - 2007.
3. All regressions also control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2004 to 2014 obtained from the U.S. Bureau of Labor Statistics. When MSA is unavailable for the individual, we use the state unemployment rate instead.
4. Standard errors are clustered by year and are reported in parenthesis.
5. Regressions are weighted by the March CPS Supplement Final Weight.
6. The regressions exclude individuals who are not working, i.e. hours worked last year is zero (except those who are retired). They also exclude individuals who are self-employed and working without pay.
7. The dependent variable = 1 if the reason for not working is "retired." Dependent variable = 0 if the individual is employed (hours worked last year > 0). In other words, we are restricting the analysis to "retired" versus "working but not retired.
8. The following variables in the regressions are provided for the year before the survey: likelihood of retirement and local unemployment rate. Each year, March CPS respondents are asked about these variables for the previous year.

*** p<0.01, ** p<0.05, * p<0.1

Exhibit C-5: Logistic Regression Results: Women

Dependent Variable: Probability of Retirement							
Mean of Dependent Variable		**4.23%**	**16.66%**	**48.57%**	**75.65%**	**87.67%**	**96.22%**
Women		**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**
Independent Variables (Standard errors in parentheses)		**50-56**	**57-61**	**62-66**	**62-71**	**72-26**	**77+**
Short-term After		-0.005***	-0.030***	-0.054***	-0.007	-0.012*	-0.004
		(0.002)	*(0.005)*	*(0.012)*	*(0.008)*	*(0.007)*	*(0.003)*
Long-term After		-0.003*	-0.023***	-0.035***	-0.006	-0.007	-0.000
		(0.002)	*(0.004)*	*(0.012)*	*(0.010)*	*(0.005)*	*(0.003)*
Race Base: Other/Mixed Race	**White**	-0.003	-0.001	0.028	0.006	0.038	0.045***
		(0.006)	*(0.025)*	*(0.025)*	*(0.018)*	*(0.026)*	*(0.011)*
	Black	0.004	0.007	0.030	-0.008	0.052*	0.040***
		(0.007)	*(0.021)*	*(0.024)*	*(0.020)*	*(0.030)*	*(0.013)*
	Asian	0.006	-0.004	-0.014	0.017	0.077***	0.049***
		(0.006)	*(0.022)*	*(0.027)*	*(0.020)*	*(0.029)*	*(0.013)*
Ethnicity	**Hispanic**	-0.009***	-0.014	-0.017	-0.009	0.008	0.004
		(0.003)	*(0.010)*	*(0.014)*	*(0.015)*	*(0.009)*	*(0.004)*
Highest Degree Attained Base: Less than High School	**High School Graduate or GED**	-0.013***	-0.041***	-0.056***	-0.047***	-0.038***	-0.013***
		(0.004)	(0.007)	(0.011)	(0.011)	(0.008)	(0.003)
	Some College or Associate	-0.025***	-0.073***	-0.131***	-0.091***	-0.078***	-0.022***
		(0.004)	(0.005)	(0.012)	(0.007)	(0.007)	(0.004)
	Bachelor or Higher	-0.026***	-0.061***	-0.134***	-0.106***	-0.083***	-0.027***
		(0.005)	(0.010)	(0.012)	(0.008)	(0.012)	(0.007)
Marital Status Base: Never married	**Married**	0.033***	0.074***	0.157***	0.105***	0.083***	0.011
		(0.002)	*(0.012)*	*(0.014)*	*(0.012)*	*(0.013)*	*(0.008)*
	Widowed	0.034***	0.063***	0.112***	0.056***	0.049***	0.011
		(0.007)	*(0.013)*	*(0.016)*	*(0.017)*	*(0.011)*	*(0.007)*
	Divorced	-0.005**	-0.049***	-0.050***	-0.055***	-0.042***	-0.010
		(0.002)	*(0.007)*	*(0.018)*	*(0.018)*	*(0.009)*	*(0.008)*
	Separated	-0.009*	-0.040***	-0.052	-0.058*	0.016	-0.044
		(0.005)	*(0.012)*	*(0.033)*	*(0.034)*	*(0.021)*	*(0.055)*
No. of people in the family		-0.008***	-0.010***	-0.003	0.001	-0.003	0.003***
		(0.001)	*(0.003)*	*(0.003)*	*(0.004)*	*(0.003)*	*(0.001)*
Disabled		0.104***	0.200***	0.198***	0.093***	0.050***	0.017***
		(0.014)	*(0.017)*	*(0.015)*	*(0.011)*	*(0.010)*	*(0.002)*
Health Status Base: Excellent/Very good	**Missing**	0.017***	0.015*	0.027**	0.063***	0.031***	0.024***
		(0.002)	*(0.008)*	*(0.011)*	*(0.009)*	*(0.008)*	*(0.005)*
	Good/Fair	0.008**	0.004	0.061***	0.070***	0.059***	0.028***
		(0.003)	*(0.005)*	*(0.005)*	*(0.008)*	*(0.007)*	*(0.004)*
	Poor	0.035**	0.095***	0.152***	0.177***	0.113***	0.048***
		(0.017)	*(0.033)*	*(0.023)*	*(0.018)*	*(0.011)*	*(0.004)*
Local Unemployment Rate		0.001	0.003**	0.008***	0.006***	0.002	0.001
		(0.001)	*(0.001)*	*(0.002)*	*(0.001)*	*(0.002)*	*(0.001)*
Region Base:	**Northeast**	-0.011***	-0.028**	-0.042***	-0.024**	-0.007	-0.009*
		(0.003)	*(0.011)*	*(0.007)*	*(0.010)*	*(0.008)*	*(0.005)*

Dependent Variable: Probability of Retirement							
Mean of Dependent Variable		**4.23%**	**16.66%**	**48.57%**	**75.65%**	**87.67%**	**96.22%**
Women		**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**
South	**Midwest**	-0.012***	-0.013	-0.056***	-0.012**	-0.005	-0.005*
		(0.002)	*(0.008)*	*(0.009)*	*(0.005)*	*(0.007)*	*(0.003)*
	West	0.004	0.011*	0.009	0.023***	-0.000	0.001
		(0.003)	*(0.006)*	*(0.013)*	*(0.006)*	*(0.010)*	*(0.002)*
Observations		48,156	27,235	23,788	19,706	16,152	29,473
Pseudo R2		0.054	0.044	0.050	0.044	0.052	0.044

Notes:

1. Coefficient estimates are average marginal effects.
2. The reference period is the time period before the Great Recession, i.e., March CPS 2005 - 2007.
3. All regressions also control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2004 to 2014 obtained from the U.S. Bureau of Labor Statistics. When MSA is unavailable for the individual, we use the state unemployment rate instead.
4. Standard errors are clustered by year and are reported in parenthesis.
5. Regressions are weighted by the March CPS Supplement Final Weight.
6. The regressions exclude individuals who are not working, i.e. hours worked last year is zero (except those who are retired). They also exclude individuals who are self-employed and working without pay.
7. The dependent variable is 1 if the reason for not working is "retired." Dependent variable is 0 if the individual is employed (hours worked last year are greater than 0). In other words, we are restricting the analysis to "retired" versus "working but not retired." Retirement is defined as those who indicate that the reason for not working last year was "retirement".
8. The following variables in the regressions are provided for the year before the survey: likelihood of retirement and local unemployment rate. Each year, March CPS respondents are asked about these variables for the previous year.

*** p<0.01, ** p<0.05, * p<0.1

APPENDIX D: ADDITIONAL SENSITIVITY ANALYSIS RESULTS

D. 1 Difference-in-Differences Analysis Using 35-49 as Comparison Group

Exhibit D-1: Difference-in-Differences Analyses using 35-49 as a Comparison Group

Dependent Variable	Hours Worked Per Week		Log Hourly Wage	
	(1)	(2)	(3)	(4)
Independent Variables	**Men**	**Women**	**Men**	**Women**
Short-Term After * Ages 50-56	0.433***	-0.051	0.031***	-0.001
	(0.120)	*(0.108)*	*(0.004)*	*(0.003)*
Short-Term After * Ages 57-61	0.368***	0.402***	-0.008	0.015
	(0.107)	*(0.085)*	*(0.009)*	*(0.012)*
Short-Term After * Ages 62-66	1.210***	0.659***	0.017	0.031***
	(0.126)	*(0.169)*	*(0.011)*	*(0.008)*
Short-Term After * Ages 67-71	1.087*	1.157***	0.012	0.020
	(0.549)	*(0.315)*	*(0.019)*	*(0.026)*
Short-Term After * Ages 72-76	1.099	2.034*	0.092**	-0.029
	(0.886)	*(1.150)*	*(0.038)*	*(0.034)*
Short-Term After * Ages 77 and older	2.247***	0.702	0.017	0.194***
	(0.756)	*(0.877)*	*(0.085)*	*(0.059)*
Long-Term After * Ages 50-56	0.252**	-0.048	0.024**	-0.007
	(0.120)	*(0.083)*	*(0.011)*	*(0.009)*
Long-Term After * Ages 57-61	0.719***	0.351**	0.010	0.013
	(0.103)	*(0.142)*	*(0.009)*	*(0.011)*
Long-Term After * Ages 62-66	1.630***	0.764***	0.022	0.053***
	(0.306)	*(0.166)*	*(0.015)*	*(0.017)*
Long-Term After * Ages 67-71	1.891***	1.815***	0.051*	-0.003
	(0.291)	*(0.311)*	*(0.026)*	*(0.021)*
Long-Term After * Ages 72-76	2.493**	3.155***	0.053**	0.073**
	(1.120)	*(0.672)*	*(0.026)*	*(0.036)*
Long-Term After * Ages 77 and older	1.818***	0.972	0.140**	0.275***
	(0.524)	*(0.944)*	*(0.057)*	*(0.078)*
Number of Observations	207,313	204,300	211,045	207,779
Adjusted R-Squared	0.138	0.129	0.304	0.271

Notes :

1. The reference period is the time period before the Great Recession, i.e., 2005 - 2007. The reference age group is 35-49 years old.
2. Other independent variables include race, ethnicity, marital status, educational attainment, disability and health status, family size, industry, occupation, region, and health insurance coverage.
3. All regressions also control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2005 to 2015 obtained from the U.S. Bureau of Labor Statistics. When MSA is unavailable for the individual, we used state unemployment rate instead.
4. All regressions also control for year fixed effects.
5. Standard errors are clustered by age group and year. They are reported in italics.
6. Regressions are weighted by CPS March Supplement Final Weight.
7. The regressions on hours worked exclude individuals who are not in the labor force. They also exclude individuals who are self-employed and working without pay.

8. The regressions on log hourly wage include only individuals with a positive hourly wage. They exclude individuals who are self-employed and working without pay.
9. For hourly wage, all dollar amounts are adjusted for inflation using BLS' Consumer Price Index for All Urban Consumers (CPI-U) and are in 2015 dollars.

*** p<0.01, ** p<0.05, * p<0.1

D. 2 Sensitivity Analysis with Standard Errors Clustered by Year, Age Group, and State

Exhibit D-2: Difference-in-Differences Analysis with Standard Errors Clustered by Year, Age Group, and State

Dependent Variable	Hours Worked Per Week		Log Hourly Wage	
	(1)	(2)	(3)	(4)
Independent Variables	**Men**	**Women**	**Men**	**Women**
Short-Term After * Ages 50-56	0.385**	-0.044	0.023	0.005
	(0.163)	*(0.163)*	*(0.014)*	*(0.015)*
Short-Term After * Ages 57-61	0.317	0.404*	-0.015	0.020
	(0.216)	*(0.207)*	*(0.017)*	*(0.017)*
Short-Term After * Ages 62-66	1.148***	0.656**	0.006	0.037**
	(0.429)	*(0.301)*	*(0.021)*	*(0.018)*
Short-Term After * Ages 67-71	1.069	1.137**	0.006	0.023
	(0.662)	*(0.540)*	*(0.034)*	*(0.028)*
Short-Term After * Ages 72-76	1.069	1.979**	0.086	-0.028
	(0.849)	*(0.828)*	*(0.061)*	*(0.051)*
Short-Term After * Ages 77 and older	2.196*	0.709	0.008	0.201***
	(1.239)	*(1.118)*	*(0.075)*	*(0.061)*
Long-Term After * Ages 50-56	0.105	0.050	0.017	-0.007
	(0.177)	*(0.206)*	*(0.017)*	*(0.016)*
Long-Term After * Ages 57-61	0.566**	0.452*	0.004	0.014
	(0.231)	*(0.237)*	*(0.018)*	*(0.018)*
Long-Term After * Ages 62-66	1.495***	0.873**	0.016	0.056**
	(0.430)	*(0.384)*	*(0.024)*	*(0.023)*
Long-Term After * Ages 67-71	1.833***	1.935***	0.054	0.001
	(0.663)	*(0.593)*	*(0.036)*	*(0.037)*
Long-Term After * Ages 72-76	2.395**	3.284***	0.051	0.079
	(0.950)	*(0.964)*	*(0.058)*	*(0.056)*
Long-Term After * Ages 77 and older	1.677	1.157	0.134	0.285***
	(1.342)	*(1.353)*	*(0.096)*	*(0.070)*
Number of Observations	168,041	166,703	171,056	169,499
Adjusted R-Squared	0.147	0.138	0.309	0.272

Notes :

1. The reference period is the time period before the Great Recession, i.e., 2005 - 2007.
2. Other independent variables include race, ethnicity, marital status, educational attainment, disability and health status, family size, industry, occupation, region, and health insurance coverage.
3. All regressions also control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2005 to 2015 obtained from the U.S. Bureau of Labor Statistics. When MSA is unavailable for the individual, we used state unemployment rate instead.
4. All regressions also control for year fixed effects.
5. Standard errors are clustered by age group, year, and state. They are reported in italics.
6. Regressions are weighted by CPS March Supplement Final Weight.
7. The regressions on hours worked exclude individuals who are not in the labor force. They also exclude individuals who are self-employed and working without pay.

8. The regressions on log hourly wage include only individuals with a positive hourly wage. They exclude individuals who are self-employed and working without pay.
9. For hourly wage, all dollar amounts are adjusted for inflation using BLS' Consumer Price Index for All Urban Consumers (CPI-U) and are in 2015 dollars.

*** p<0.01, ** p<0.05, * p<0.1

D. 3 Sensitivity Analysis Including the Unemployed Sample

Exhibit D-3: Logistic Regressions on Likelihood of Retirement Using the Sample which includes those that are Unemployed, Male

Dependent Variable: Probability of Retirement						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Independent Variables	**Ages 50-56**	**Ages 57-61**	**Ages 62-66**	**Ages 67-71**	**Ages 72-76**	**Ages 77 & Over**
Short-term After	-0.011***	-0.043***	-0.079***	-0.062***	-0.021**	-0.011
	(0.003)	*(0.005)*	*(0.012)*	*(0.013)*	*(0.009)*	*(0.007)*
Long-term After	-0.007***	-0.034***	-0.064***	-0.025***	-0.001	-0.007
	(0.002)	*(0.003)*	*(0.006)*	*(0.007)*	*(0.006)*	*(0.007)*
Observations	48,788	26,705	21,696	16,755	12,686	19,727
Pseudo R^2	0.076	0.062	0.050	0.037	0.030	0.049

Notes:
1. Coefficient estimates are average marginal effects.
2. The reference period is the time period before the Great Recession, i.e., **March CPS** 2005 - 2007.
3. Other independent variables include race, ethnicity, marital status, educational attainment, disability and health status, family size, region, and health insurance coverage.
4. All regressions also control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2004 to 2014 obtained from the U.S. Bureau of Labor Statistics. When MSA is unavailable for the individual, we use the state unemployment rate instead.
5. Standard errors are clustered by state and year and are reported in italics.
6. Regressions are weighted by the March CPS Supplement Final Weight.
7. The regressions exclude individuals who are not in the labor force (except those who are retired). They also exclude individuals who are self-employed and working without pay.
8. The dependent variable is 1 if the reason for not working is "retired." Dependent variable is 0 if the individual is in the labor force (employed or unemployed). In other words, we are restricting the analysis to "retired" versus "in the labor force but not retired." Retirement is defined as those who indicate that the reason for not working last year was "retirement".
9. The following variables in the regressions are provided for the year before the survey**:** likelihood of retirement and unemployment rate. Each year, March CPS respondents are asked about these variables for the previous year.
*** p<0.01, ** p<0.05, * p<0.1

Exhibit D-4: Logistic Regressions on Likelihood of Retirement Using the Sample which includes those that are Unemployed, Female

Dependent Variable: Probability of Retirement						
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Independent Variables	**Ages 50-56**	**Ages 57-61**	**Ages 62-66**	**Ages 67-71**	**Ages 72-76**	**Ages 77 & Over**
Short-term After	-0.005***	-0.031***	-0.054***	-0.009	-0.013**	-0.004
	(0.002)	*(0.006)*	*(0.012)*	*(0.009)*	*(0.007)*	*(0.003)*
Long-term After	-0.003**	-0.023***	-0.035***	-0.005	-0.007	-0.000
	(0.002)	*(0.004)*	*(0.011)*	*(0.010)*	*(0.005)*	*(0.003)*
Observations	49,685	27,916	24,057	19,829	16,204	29,506
Pseudo R^2	0.052	0.042	0.048	0.043	0.052	0.044

Notes:
1. Coefficient estimates are average marginal effects.
2. The reference period is the time period before the Great Recession, i.e., **March CPS** 2005 - 2007.
3. Other independent variables include race, ethnicity, marital status, educational attainment, disability and health status, family size, region, and health insurance coverage.
4. All regressions also control for the unemployment rate for each Metropolitan Statistical Area (MSA) for the period 2004 to 2014 obtained from the U.S. Bureau of Labor Statistics. When MSA is unavailable for the individual, we use the state unemployment rate instead.
5. Standard errors are clustered by state and year and are reported in italics.
6. Regressions are weighted by the March CPS Supplement Final Weight.
7. The regressions exclude individuals who are not in the labor force (except those who are retired). They also exclude individuals who are self-employed and working without pay.
8. The dependent variable is 1 if the reason for not working is "retired." Dependent variable is 0 if the individual is in the labor force (employed or unemployed). In other words, we are restricting the analysis to "retired" versus "in the labor force but not retired." Retirement is defined as those who indicate that the reason for not working last year was "retirement".
9. The following variables in the regressions are provided for the year before the survey**:** likelihood of retirement and unemployment rate. Each year, March CPS respondents are asked about these variables for the previous year.
*** p<0.01, ** p<0.05, * p<0.1