CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

HOW WILL OLDER WORKERS WHO LOSE THEIR JOBS DURING THE GREAT RECESSION FARE IN THE LONG-RUN?

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Abstract

In economic downturns prior to the Great Recession, workers over age 50 had escaped relatively unscathed. But the unemployment rate for older workers soared to record highs during the Great Recession. This paper projects how older workers will fare across a broad set of financial outcomes over the remainder of this decade. The model estimates how these outcomes differ between individuals who remained employed and those who were displaced during the recession, controlling for their demographic characteristics. We also seek to determine whether there is any variation in their financial outcomes based on the nature of their layoffs – mass versus individual layoffs – and whether labor market conditions played a role in these outcomes. First, the results show that displaced workers are projected to be significantly worse off: their earnings are 14-19 percent lower over the remainder of this decade, financial assets are 22-30 percent lower, and they are up to 8 percent more likely to experience another layoff. Projections also indicate that older Americans will continue to feel the effects of the Great Recession and that labor force participation, earnings and financial assets all will be lower than they would have been after a milder recession like the one in 2001-2003. Second, although the model allows for differences in the nature of layoffs and in local labor market conditions, there is neither evidence that workers subject to mass layoffs are of higher average quality nor evidence that outcomes are worse in locations hit by more severe recessions.

1. Introduction

The Great Recession of 2008-2010 was the most severe downturn in a generation. One factor that distinguishes the Great Recession from previous post-war recessions is the degree of job loss among workers over age 50. Whereas in previous recessions the increase in unemployment rate among those age 55 and older was relatively modest compared to the full population, the unemployment rate among this group reached a record high of 7.2 percent in December 2009.[1]

This project aims to determine how the elevated rate of job loss among older workers during the Great Recession will affect labor market, financial, and quality-of-life outcomes over the long run, relative to their non-displaced peers. Though the long-run effects of the recent exceptional increase in late-career displacement will not be known for years, the experience of unemployed older workers in previous cohorts provides guidance. The economics literature has found persistent "scarring" effects of job loss, both for workers in general (Jacobson, Lalonde, and Sullivan 1993, von Wachter, Song, and Manchester 2007) and for older workers in particular (Chan and Stevens 1999, Coile and Levine 2011). Though this literature focuses on short- and medium-run outcomes, up to approximately five years, these results suggest that displaced older workers will end up substantially worse off than those who do not lose their job.

To apply the lessons from previous recessions to a more severe downturn, however, projections must account for the numerous ways that the Great Recession was different. The extraordinary increase in the unemployment rate, especially among older workers, suggests that firms laid off not just their least productive workers, but also employees they would have kept under less severe recessions. Displaced workers in this recession, especially those that were part of mass layoffs, may be of higher average quality than those who lost their jobs during less severe recessions, and especially compared to those losing jobs during expansions.

On the other hand, newly displaced workers found themselves in a much harsher environment than the labor markets faced by previous cohorts, as evidenced by the record 40-week average duration of jobless spells by mid-2011. Workers who spend a long time away from employment, especially those nearing old age, risk skill atrophy and declining health, and may find it difficult to convince employers to hire them. Whether workers who lose their jobs in

[1] The Bureau of Labor Statistics reports the unemployment rate for ages 45 to 54 and 55 and older, but not separately for those 50 and older.

good times or in bad times have better long-run outcomes, therefore, remains an empirical question.

To account for all of these factors, this study estimates econometric models that control for local labor market conditions and the baseline characteristics of older workers. The analysis uses data from the *Health and Retirement Study* (HRS) to compare individuals who lost their job in the two-year interval between interview waves to those who were not laid off in that period.

The results indicate that older workers who lose a job have substantially worse outcomes over the long run than those who avoid involuntary job loss, even after controlling for the lower socioeconomic status of displaced workers at baseline. A decade after job loss, displaced workers earn 14 to 19 percent less, have assets that are 22 to 30 percent lower, and are up to 8 percentage points more likely to experience subsequent layoffs. The evidence regarding labor market conditions at the time of displacement is mixed, as we find that long-run outcomes do not differ substantially by whether the job separation was a mass layoff or by the strength of the local labor market at the time of loss.

These results then are used to project outcomes out to 2018, ten years after the Great Recession began. The model projects that the record unemployment rates during the Great Recession will lead to lower labor force participation, earnings and, to a lesser extent, asset accumulation, compared to the simulation that uses unemployment rates from the 2001-2003 recession, a more typical downturn.

The structure of the paper is as follows. Section 2 provides background information on older workers in the Great Recession and reviews the results of previous studies on post-displacement outcomes. Section 3 describes the HRS data and our methodology. Section 4 details the descriptive and econometric results, and section 5 concludes with a discussion of the expected long-run drag on economic outcomes due to the Great Recession.

2. Background

Though the Great Recession was the most severe economic downturn in a generation, it was not without precedent: the peak unemployment rate of 10.0 percent in October 2009 was still lower than any month's rate from September 1982 to June 1983. Instead, two characteristics distinguish the Great Recession from other post-war downturns. First, unemployment spells have lasted longer: 31.5 percent of the unemployed in 2009 had been jobless for six months or

longer, the highest proportion ever recorded (Vroman 2010). Second, a broader swath of the population felt the effects of the recession directly; more workers than ever experienced a job loss – 16 percent during 2007-2009, exceeding the two previous recessions (12 percent each) – and each education and age group set a new job loss record (Farber 2011).

Workers over age 50 were one group that reached unprecedented unemployment rates, after emerging relatively unscathed from previous recessions. In the 1990-92 recession, the unemployment rate among those 55 and older peaked at 5.0 percent, below the pre-recession unemployment rate for the full working-age population. In the 2001-03 recession, the 55-plus unemployment rate never exceeded 4.3 percent. Between mid-2008 and the end of 2009, however, the 55-plus unemployment rate soared from 3.2 percent to 7.1 percent. Whereas the unemployment rate for those 50 and older is usually substantially below that of younger workers, January 2009 marked the first time that the unemployment rate among men age 50-54 actually equaled the overall unemployment rate, 8.6 percent (Figure 1A). Women's unemployment rates remained below those of the full population, but reached a peak in excess of the peak unemployment rate in the early 1980s recession (Figure 1B).

The high rate of job loss among older workers in the Great Recession fits a longer-term pattern of increased job instability among late-career workers. Rodriguez and Zavodny (2000) show that the relative displacement rates of workers in their 40s and 50s have risen over time. Munnell, Sass, and Zhivan (2009) show that the average tenure of older workers has declined between 1984 and 2006, increasing their risk of involuntary job loss. Examining data for the period 1981-2009, Farber (2011) found that the rate of job loss was lower for those aged 40-49 and 50-64 than for younger age groups, but these rates have converged over time.

The economics literature consistently has found that job loss has a "scarring" effect, permanently reducing future earnings (von Wachter, Song, and Manchester 2007) and increasing job instability (Stevens 1997). Job loss among late-career workers may be especially problematic. Workers losing a career job leave behind years of firm-specific human capital and may have weak networks to exploit in connecting to potential jobs. Employers may view unemployed older workers as expensive (if the employer offers health insurance, in particular) and difficult to retrain, and older workers may be less willing to relocate to find work. The existing literature on the scarring effect of older workers' job loss finds similar negative effects. Chan and Stevens (1999, 2001) shows that late-career job loss has substantial effects on wages,

assets, employment expectations, and actual employment. Chan and Stevens (2004) show that very little of the reduction in employment can be explained by pension incentives. Johnson and Kawachi (2007) provide a descriptive analysis of job changes at older ages, showing that older job changers experience sharp reductions in earnings and loss of benefits.

Whether these scars are deeper for job losses within a recession or during an expansion is an empirical question. On the one hand, displacements during recessions usually result in longer jobless spells, which leads to skill atrophy and stigma. On the other hand, job losses during recessions are more likely to be mass layoffs through no fault of the employee, while losses during expansions may result from poor performance (Gibbons and Katz 1991). Few existing studies have evaluated this question; a recent exception, von Wachter and Davis (2012), finds that the long-run impact of job loss on subsequent earnings is substantially greater for those who are displaced during recessions than for those who are displaced at other times. To our knowledge, no existing study examines the difference in later outcomes for older workers by labor market conditions around the time of job loss; while adverse selection among employees may still influence the pool of laid off workers, the potential adverse effects of long unemployment spells after a recessionary job loss – skill atrophy, health declines, and asset depletion – are likely worse for older workers.[2]

This paper contributes to the literature in three ways. First, it considers the long-run effects of job-loss on supply broad range of outcomes, including labor supply, earnings, assets, pension and health insurance coverage, and subsequent layoff experience. The existing persistent literature on older workers focuses on the short- and medium-run effects of job loss (up to approximately five years, perhaps due to data limitations), examining a much smaller set of outcomes. Previous research focusing on younger workers has shown that the adverse effect of job loss is highly persistent. We hypothesize that the impact of job loss on earnings, labor force participation, financial security, and quality of life at older ages may be similarly long-lasting.

The second contribution is to compare the long-run impact of job loss in weak labor markets with the long-run impact of job loss in stronger labor markets. Other things being equal, we anticipate that those experiencing job loss during a recession will have lower subsequent

[2] This research is related to the literature on graduating from high school or college during a recession. Kahn (2010) and Oreopoulos, Von Wachter, and Heisz (2012) find large persistent negative consequences of graduating from college in a bad economy.

earnings and labor force participation rates. But firms may be less selective in layoff decisions during recessions, so that workers laid off during recessions may be of higher average quality.

Third, the estimation results from prior recessions are used to project the long-run impact of job loss during the 2007-2009 recession. We compare these projections to the outcomes predicted by the model if the unemployment rate in each MSA had followed its pattern from the milder 2001-2003 recession to determine how this recession's severity, the composition of displaced workers, and their duration of joblessness should be expected to affect quality of life near the end of this decade.

3. Data and methodology

This project uses data from the 1992 through 2010 waves of the *Health and Retirement Study* (HRS), a nationally-representative longitudinal survey of age-50-plus Americans conducted by the University of Michigan. The HRS interviews respondents every two years.

The sample consists of 6,314 individuals 50 or older who are working at one interview, *t*, and are still present in the survey five waves later (*t+5*). The sample is categorized into two groups: those who are involuntarily laid off between waves *t* and *t+1* (the "displaced" sub-sample), and those who do not experience an involuntarily layoff between the two waves (the "non-displaced" sub-sample).[3] The sample pools workers from the 1992 through 2000 waves who are present in the HRS in the 2002 through 2010 waves, respectively. The sample is structured as a repeated cross-section, so individuals may appear in the data up to five times (if they are working in every wave from 1992 through 2000).[4]

The discussion of adverse selection by worker quality suggests that those who lose their job in a mass layoff, such as a plant closing, may be of unobservably higher quality than those who lose their job on a more individual basis, and thus their long-run outcomes may be more positive. Accordingly, the displaced group is sub-categorized into those who experience a mass layoff and those who are otherwise laid off, where a "mass layoff" is defined as a layoff where the respondent reported his employer had permanently reduced its number of employees between

[3] A worker is classified as laid off based on two HRS questions. First, he is considered laid off if his answer to the question, "Why did you leave your previous employer?' is either "Business closed, moved or sold," or "Laid off or let go." Second, he is considered laid off if he responds to the question, "How did your employment situation change?" with any of several options: supervisor or coworker encouraged departure, wages or hours reduced, or would have been laid off.

[4] Standard errors are clustered at the individual level to account for the repeated sampling of individuals.

the previous and current waves. Similarly, the non-displaced group is sub-categorized into those who are laid off during the subsequent eight years and those who are never laid off over this time.

We then merge in the unemployment rate for the Metropolitan Statistical Area (MSA), obtained from the Bureau of Labor Statistics' Local Area Unemployment Statistics files, to represent the conditions in the local labor market in wave *t*.[5] The sample further excludes those who were not successfully matched to a local labor market, or anyone living in a labor market with fewer than 30 residents in our sample. The final sample consists of 5,335 individuals with 14,279 person-wave observations.

The econometric model systematically estimates the difference in labor market, financial, and quality-of-life outcomes in wave *t+5* between those who experience a layoff between waves *t* and *t+1* and those that did not. For each outcome *y* for person *i* residing in metropolitan area *m* in wave *t*, the model is:

$$y_{i,m,t+5} = \mathrm{f}\left(\beta_1 ML_{it} + \beta_2 NML_{it} + \beta_3 U_{mt} + \gamma X_{i,m,t} + m_i + \varepsilon_{it}\right), \qquad (1)$$

where the specification of the function *f* is linear, standard normal (probit or ordered probit), Poisson, or multinomial logit depending on the nature of the dependent variable.[6] The model includes the full set of outcomes from the first interview wave, *X*, to control for observable differences between the set of workers laid off and those who did not experience a layoff, as well as MSA fixed effects.[7]

The variables of interest in equation (1) are *ML*, which equals one if *i* lost his job in a mass layoff between waves *t* and *t+1*; *NML*, which equals one if *i* lost his job between *t* and *t+1* but not as part of a mass layoff;[8] and *U*, the average unemployment rate in MSA *m* for the period

[5] We use two different definitions for the local labor market. Most urban residents reside in a Combined Statistical Area (CSA), which combines MSAs in close proximity; for example, New York City is combined with Newark, NJ, and Bridgeport, CT, in one CSA. Other MSAs – including Miami, Phoenix, and San Diego – are not part of a CSA, so we define these labor markets as consisting of only the MSA. We also included Micropolitan Statistical Areas – counties centered around a city with a population below what is required of an MSA, like Tupelo, MS – with enough residents in our sample. In this paper, we use "MSA" to denote local labor market, irrespective of its technical definition.

[6] For nonlinear regressions, we report the marginal effects of the included variables and their interaction effects, taking into account the nonlinearity (Ai and Norton 2003).

[7] Results are robust to using state fixed effects, or dropping fixed effects entirely (Appendix Table 1).

[8] Some specifications include only one indicator variable, equal to one if *i* had either a mass or non-mass layoff.

between *t* and *t+1*.[9] We hypothesize that workers who are laid off will have worse outcomes over the long-run than those who do not experience a layoff; that is, assuming that *y* is a positive outcome like earnings, homeownership, or health insurance coverage, we expect the marginal effects of both *ML* and *NML* to be negative. The adverse selection hypothesis, however, suggests that a worker losing his job in a mass layoff is likely of higher average quality than a worker losing his job on a more individual basis. But workers experiencing mass layoffs may face greater competition for work from workers with similar skills and employment histories. It is unclear which effect will dominate, and whether the marginal effect on *NML* will be more negative than that on *ML*. Previous research suggests that when the unemployment rate is high, both those who are displaced and those who retain their jobs have fewer and worse employment opportunities, so we expect the marginal effect of *U* to be negative as well (assuming a positive outcome).

Though the sharp increase in the unemployment rate seen during the Great Recession greatly surpassed the increase in joblessness during the remainder of our sample period, some MSAs did experience levels of unemployment during the 1990s and 2000s commensurate with the last few years. The adverse selection hypothesis suggests that as labor market conditions worsen, workers of greater average quality lose their job. But an increasing unemployment rate is also associated with longer jobless spells and weaker job prospects for anyone who loses his job. To separate these effects, we estimated an additional specification of the model:

$$y_{i,m,t+5} = \mathrm{f}\big(\beta_1 ML_{it} + \beta_2 NML_{it} + \beta_3 U_{mt} + \beta_4 D_{it} \times U_{mt} + \beta_5 NML_{it} \times \qquad (2)$$
$$Umt + \gamma Xi,m,t + mi + \varepsilon it,$$

where D_{it} equals one if the individual experienced a layoff of either type.

Equation (2) differs from (1) in its inclusion of interactions between the unemployment rate and layoff indicator variables. The interaction between unemployment and any displacement, β_4, is expected to have a negative marginal effect (for a positive outcome). Losing one's job in a weaker economy could result in longer unemployment spells, lower-quality matches with new employers, and greater opportunity for skill degradation or stress-related health conditions, all of which result in poorer long-run outcomes.

[9] An alternative would be to control for the MSA level unemployment rate at the time the individual was laid off. But this would require us to impute an unemployment rate for those individuals who were not laid off. We also recognize that unemployment rates during the follow up period may also affect financial and labor market outcomes.

The other interaction effect, β_5, tests the adverse selection hypothesis directly. Though more mass layoffs occur during periods of high unemployment, the victims of mass layoffs are randomly distributed throughout the skill distribution. In contrast, workers laid off more individually amidst high unemployment are likely of higher quality than those who lose their jobs individually in a better economy. Therefore, the adverse selection hypothesis predicts that, after accounting for the scarring effects of displacement in a high unemployment rate environment (β_4), those who are laid off individually during high unemployment rate will fare better over the long run ($\beta_5 > 0$).

An additional goal of this paper is to project how older workers who lost their job in the Great Recession will fare over the next decade, both in comparison to older workers from previous cohorts and compared to the counterfactual that a milder recession, like the one from 2001-2003, had occurred instead.

First, we estimate a multinomial logit model to determine the probability that an individual loses his job from a mass layoff ($\hat{p}_{1t}$) or non-mass layoff ($\hat{p}_{2t}$). We then project each outcome *y* for each possible layoff status (mass, non-mass, or no displacement) using the actual unemployment rate from the Great Recession, and calculate his outcome, averaged over the probabilities of each layoff status:

$$\hat{y}_{i,m,t+5} = \hat{p}_{1t}\left(\hat{y}_{i,m,t+5}\middle|Mass\right) + \hat{p}_{2t}\left(\hat{y}_{i,m,t+5}\middle|Non\text{-}Mass\right) + (1 - \hat{p}_{1t} - \hat{p}_{2t})\left(\hat{y}_{i,m,t+5}\middle|No\ Layoff\right) \quad (3)$$

In the second scenario, we replace the MSA unemployment rate from 2008-2010 with the average unemployment rate for that same MSA from 2001-2003 and re-calculate each element of equation (3).

Comparing projections from the two scenarios indicates how the breadth and severity of the Great Recession has changed our expectations for older workers' prospects over the remainder of this decade.

4. Results

Table 1A reports personal characteristics and labor market outcomes from the base HRS interview wave (*t*). The first two columns compare those displaced during the two year baseline period (approximately 8 percent of the sample) with those not displaced during this same period. Those experiencing a layoff were generally of lower socio-economic status before the layoff.

They were less likely to work in a white-collar occupation or professional and public services sector, and had fewer years' education. They were less likely to have defined benefit pension coverage, to be in excellent health, or to belong to a union, and had lower earnings. They had less financial wealth, and were less likely to be home-owners, but had similar mortgage debt to those who did not experience involuntary job-loss.

The third and fourth columns of Table 1A split the sample in the first column into those who lost their job as a result of a mass layoff and those who lost their job otherwise. Few of the differences approached statistical significance. Those experiencing a mass layoff were more likely to work in manufacturing and transportation and less likely to work in professional and public services. They were somewhat more likely to be in a DC plan and to be on poor health. These results do not provide strong evidence that those who lose jobs as part of mass layoffs have higher average productivity than workers displaced otherwise.

The fifth and sixth columns split the sample in column 2 into those who were not displaced in the baseline period but experienced a displacement subsequently and those who never experienced a displacement. As expected, those were displaced at some point between waves *t+1* and *t+5* look similar to those who were displaced between *t* and *t+1*, while those who never experienced a layoff over the ten-year period (83.6 percent of column 2) were generally higher status at the outset.

Table 1B reports many of these same characteristics in wave *t+5* for each of these subsamples. Ten years after first being observed, those experiencing involuntary job-loss were less likely to be working for another employer for pay, though more of them had moved into self-employment than those who avoided a layoff in the baseline period. If they were still working, they had 26 percent lower earnings relative to those who did not experience involuntary job loss, were less likely to have a defined benefit pension or health insurance, or to work in a white-collar job. Their financial assets were more than a third lower. Their job instability also appears to have continued: they were almost twice as likely to have experienced subsequent layoffs, and worked an average of one year less over the ten years.

Those who lost their job in a mass layoff between *t* and *t+1* (column 3) and those who were otherwise displaced (column 4) were largely similar a decade later. Those who experienced a mass layoff were more likely to be working in trade and professional services and to be in a blue collar job, and less likely to be in a white collar job. The main difference between

the two groups is in subsequent labor market outcomes: losing one's job in a mass layoff is associated with an extra 9 months of work and a higher probability of leaving the final job voluntarily compared to non-mass layoffs.

The last two columns of Table 1B, comparing those losing jobs subsequently to those who avoided layoff throughout the ten years, report similar results to the first two columns, as expected. The differences with the first two columns – those who eventually experience a layoff worked more years on average, and 80 percent of those who were never laid off left their last job voluntarily – indicate that many of the individuals in the rightmost column may have avoided layoff by retiring voluntarily, shortening their time at risk.

The above analysis, both at the beginning and end of the period, indicates that there are some differences in socioeconomic characteristics between workers displaced amid mass layoffs and those displaced otherwise. A related hypothesis is that workers displaced in a weaker labor market are higher status, and therefore have better outcomes going forward, than those who are laid off in better times, because layoffs include workers further up the skill distribution. Tables 2A and 2B split both displaced and non-displaced workers into terciles by the MSA unemployment rate between the first two waves. The hypothesis suggests that displaced workers in the third tercile, who face the highest unemployment rate around the time of job separation, should be higher status than displaced workers in the first tercile at baseline, and that differences in personal and labor market outcomes should grow wider five waves later.

Contrary to the hypothesis, displaced workers in the third tercile were broadly similar to displaced workers from the lowest-unemployment MSAs at baseline (Table 2A). Where they are not, non-displaced workers in the top tercile also are different from first-tercile non-displaced workers; for example, third-tercile workers are more likely to be Hispanic and to have less than a high school education, regardless of whether they were displaced between waves *t* and *t+1*. Manufacturing workers and the uninsured make up more of the displaced sample in high-unemployment areas, but earnings and assets are roughly equivalent across the three terciles.

Ten years later, workers who lost their jobs in the highest unemployment rate MSAs also are similar to those who lost their jobs in more favorable labor markets (Table 2B). The few characteristics where displaced workers in the third tercile were different in the later period, however, appear to contradict the adverse selection hypothesis. Displaced workers in this group were less likely to have defined contribution pension plans. Also, their mortgage debt is higher

than the other terciles. On the plus side, they are more likely to be in excellent health than displaced workers in more favorable environments.

The unconditional means discussed above provide suggestive evidence that displaced workers end up substantially worse off a decade later than those who avoided layoff. However, many of the statistically significant differences between displaced and non-displaced workers were already present between these two groups the first time they were observed. For example, the earnings of displaced workers were already 22 percent less in wave *t*, so the finding that they made 26 percent less a decade later is not surprising.

To determine the long-run effect of layoffs on financial and labor market outcomes, we estimate econometric models in which the dependent variable is some measure of the individual's or household's financial or labor market situation at the end of the follow-up period. The results of these regressions, presented in Tables 3A and 3B, are categorized by their specification: probit models for dichotomous outcomes like employment and health insurance; ordered probit for number of layoffs and pension coverage;[10] multinomial logit for industry, occupation, and reason for leaving the most recent job; the Poisson model for years worked over the ten-year period; and log-linear models for outcomes like earnings and wealth. Each regression includes the full set of socioeconomic characteristics from the baseline wave.

Table 3A presents the marginal effects of interest – that is, the mean derivative over the sample for each long-run outcome variable with respect to the indicator for having had a displacement between *t* and *t+2* and the MSA unemployment rate. Compared to individuals who did not lose a job between the first two waves, displaced workers are 5 percentage points less likely to be employed, 4 percentage points less likely to have positive earnings, and 2 percentage points less likely to be a homeowner. They are 6 percentage points less likely to avoid further layoffs, and work about 11 fewer months over the ten-year period. In addition, their earnings are 15 percent lower, pension wealth is 20 percent lower, and their financial assets 30 percent lower, controlling for their initial earnings and wealth levels.[11] While their long-run health status and pension coverage are not statistically different from non-displaced workers, and spouses pick up

[10] Our ordering of pension type is 1) both defined benefit and defined contribution, 2) defined benefit only, 3) defined contribution only, and 4) no pension.

[11] The regression models for earnings and assets are specified as log-linear models. The tables report the mean derivative of the natural log of earnings (assets) with respect to each variable, γ. The proper interpretation of this estimate is in terms of the *dollar* value of earnings, which is calculated as $e^{\gamma} - 1$.

some of the slack (4 percentage points more likely to work), nearly all other outcomes are significantly, and unsurprisingly, worse.

For most outcomes, the marginal effect of the MSA unemployment rate between *t* and *t+1* is statistically insignificant, of small magnitude, or both. But it has a large and statistically significant impact on the probability of being employed, of having positive earnings, and the number of years worked. For example, a one percentage point increase in the unemployment rate decreases the probability of positive earnings by a statistically significant 1.9 percent.

Table 3B presents results from models that include interactions between the unemployment rate and layoff indicator. Most of the statistically significant estimates for the layoff indicator in Table 3A become insignificant with the addition of the interaction, though the magnitudes of the marginal effects are similar. Of the few results that are still statistically significant, displaced workers are 6.3 percentage points more likely to have at least one subsequent layoff and spend about 11 fewer months employed over the next ten years. The interaction effect indicates that displaced workers who live in an MSA with a higher unemployment rate are slightly less likely to have subsequent layoffs or have any pension coverage, but few other interaction coefficients are statistically significant.

Table 4A separates the layoff indicator into separate indicators for displacement due to mass layoff or non-mass layoff. Relative to non-displaced workers, those who experience mass layoffs 19 percent lower earnings, 20 percent lower pension wealth, and 22 percent lower total financial assets. They were 8 percent more likely to experience a subsequent layoff, and work for approximately 8 fewer months. Those experiencing non-mass layoffs also have 20 percent lower earnings than non-displaced workers, and work 16 fewer months. We also find no statistically significant difference in earnings of those individually displaced from either non-displaced workers or those experiencing a mass layoff. But those individually displaced have significantly and substantially less pension and non-pension financial wealth than the non-displaced and those experiencing mass layoffs.

The results including interactions between each of the layoff indicators and the MSA unemployment rate (Table 4B) are qualitatively similar to the results including just one layoff indicator. Only a few results are statistically significant: those who lost jobs in mass layoffs are 8.4 percent more likely to have at least one subsequent layoff, compared to a statistically insignificant 3.9 percent for those otherwise displaced. Those otherwise displaced spend about

15 fewer months employed over the next ten years, compared to a statistically insignificant one month for those experiencing mass layoffs. Losing one's job in a mass layoff is associated with a statistically significant 18 percent decrease in earnings, but there is no statistically significant difference in earnings between the non-displaced and those displaced by non-mass layoffs. Consistent with the results in Table 4A, being displaced in a non-mass layoff is associated with a 52 percent decrease in pension wealth and 50 percent decrease in wealth excluding pensions; those displaced by mass layoffs have no statistical difference in wealth from the non-displaced.

The results in Table 4B differ from 4A in that they allow for differences between displaced and non-displaced workers to grow with the severity of the recession. The results in the fourth column indicate that for every one percentage point increase in the unemployment rate, the total wealth loss from either type of displacement grows by almost 6 percent. The same increase in the unemployment rate also reduces the probability of having any type of pension coverage by 4 percent, and reduces pension wealth by 3 percent.

In the fifth column of Table 4B, we find little evidence in support of the adverse selection hypothesis, as workers displaced outside of a mass layoff are not statistically worse off in most of our measures from those displaced by mass layoffs as the unemployment rate increases. The only exceptions are that an extra percentage point in the unemployment rate results in an 8 percent higher probability of not having any pension coverage and a 3 percent higher probability of having a mortgage balance for those workers displaced in a non-mass layoff compared to a mass layoff. One other estimate actually provides statistically significant evidence in the other direction: every additional percentage point increase in the unemployment rate results in an increase in pension wealth of 18 percent relative to those who lost their jobs in a mass layoff.

For most other variables, the association with the long-run outcomes is in the predicted direction throughout our models. Appendix Table A1 shows the full results for two outcomes: the natural log of earnings and the number of years worked over the ten-year period. Men with higher educational attainment, better health, higher income, health insurance, and later planned retirement dates at baseline work longer and earn more. These results are robust to the exclusion of MSA fixed effects and interactions with the unemployment rate.

Finally, we use the results reported in Table 4B to project long-run outcomes for those individuals who were working at their 2008 HRS interview. The concern with using older cohorts to project the outcomes of current displaced workers is that the younger cohort could

differ at baseline. The severity of the Great Recession in comparison to the previous two recessions, and other jobless rate increases at the metropolitan area, makes this a special concern, as more high-income, high-skilled workers lost their job in the Great Recession. Table 5 shows that the 2008-2010 displaced workers are significantly different from the older cohorts used in the projections in several meaningful ways, but in ways that suggest that these differences are mostly due to long-term demographic and economic trends, rather than selection. The Great Recession cohort is older, more educated, less white, in poorer health, and more likely to work in the service sector than previous cohorts. Planned retirement dates are later in the younger cohort, consistent with recent trends in average retirement ages. Mean earnings for the displaced are higher in the Great Recession, but the difference in assets between displaced workers in the two periods may reflect growing inequality more than differential selection: the mean asset level is higher in the younger cohort, but the median is lower. Finally, the mortgage balances are higher in the Great Recession cohort, reflecting the housing bubble.

With these caveats in mind, the first column of Table 6 reports mean expected outcomes using the unemployment rate they actually faced over the subsequent two years, while the second column reports mean expected outcomes assuming we had experienced a milder recession with unemployment rates at the levels observed 2001-2003. Assuming actual unemployment rates, the model predicts that 6.8 percent of these workers would be part of a mass layoff by 2010, and another 3.4 percent would be displaced otherwise.[12] If a milder recession like 2001-2003 had occurred instead, only 5.9 percent would have been subject to mass layoff, and only 3.1 percent would have lost their jobs otherwise. These percentages are used as weights when averaging outcomes over displaced and non-displaced workers. Finally, column 3 reports the model's predictions for previous cohorts, given their expected probabilities of mass layoff (4.1 percent) and non-mass layoff (2.3 percent) and their underlying characteristics.

One of the largest impacts of the Great Recession is in labor force participation. The weighted average prediction indicates that 23.7 percent will work in 2018. If the recession had instead followed the path of the 2001-2003 recession, 27.5 percent would be working in 2018. By comparison, the model would predict that 36.4 percent of previous cohorts would be working ten years after their respective baselines (column 3); as even the milder recession predicts far

[12] The actual proportion of individuals in our 2008 sample who lost their job in a mass layoff (7.8 percent) or non-mass layoff (3.6 percent) is slightly larger in total, but skewed more toward mass layoffs.

lower labor force participation, this suggests that compositional changes between previous and more recent cohorts will change future outcomes by even more than the severe recession did.

Most other expected outcomes under the two 2008-2010 scenarios are within a statistically insignificant percentage point of each other, but several projections are more substantially different. Earnings are 2.7 percent lower ten years later under the Great Recession scenario, suggesting that most of the effect on employment of displaced workers is on participation rates rather than on earnings. Spouse's earnings are 7 percent higher, indicating that one's spouse increases labor supply on the intensive margin after the other spouse's job loss. The model predicts that the extra Great Recession layoffs above what would have occurred in a more modest recession will result in weaker financial portfolios, though the differences with the 2001-2003-style recession are not substantial: total financial assets are 1.0 percent lower, pension wealth is 2.1 percent lower, and mortgage balances are almost 2.7 percent higher in the Great Recession scenario compared to the milder recession. Surprisingly, workers facing Great Recession unemployment rates are 3.4 percentage points more likely to leave their last job over the ten-year follow-up period voluntarily.

These projections suggest that the aftershocks of the Great Recession will be felt later this decade primarily in labor market and, to a lesser extent, financial outcomes. Though some regression results find statistically significant differences between displaced and non-displaced workers, most marginal effects involving the MSA unemployment rate are statistically insignificant; coupled with relatively low probabilities of job loss, the predicted outcomes ten years hence are, perhaps not surprisingly, similar between the two scenarios.

5. Conclusions

This paper examines how displaced workers over age 50 fare in the decade after they lose their job, and whether their long-run outcomes differ by the nature of the layoff (mass or non-mass) or the labor market conditions around the time of separation. Not surprisingly, displaced older workers have lower earnings and assets, are less likely to be working, have pension coverage, or health insurance, and are more likely to experience subsequent layoffs.

A simple comparison between displaced and non-displaced workers over the long run, however, can miss the fact that individuals who lose their job have lower socioeconomic status at the outset. Econometric models which control for baseline characteristics find that individuals

losing their jobs in mass layoffs have 14 to 19 percent lower earnings and 22 to 30 percent lower assets a decade later, work for 8 to 16 months less over the next ten years, and are up to 8 percentage points more likely to experience subsequent layoffs. The differences between mass and non-mass layoffs generally lack statistical significance, as do the marginal effects for the MSA unemployment rate and, when included, its interactions with layoff status; therefore, we cannot reject the null of equivalent outcomes by the nature of the layoff or labor market conditions around the time of job loss.

These findings are consistent with previous literature on how displaced workers fare relative to non-displaced workers, which either examined shorter-run outcomes or did not focus on the fate of older workers. Our estimates of the reduction in employment rates among older workers after ten years are somewhat smaller than the 20 percentage point decrease estimated by Chan and Stevens (2001), but they re-examine displaced workers only four years after job loss, rather than 8-10 years in our study. Our estimated earnings loss is close to the 20 percent loss estimated by von Wachter, Song, and Manchester (2007) over a slightly longer (15-20 years) period. Our study also provides evidence that older workers fare worse along dimensions besides labor market outcomes, including pension coverage and assets.

We then use these estimates of the association between layoffs and long-run outcomes to project how the unprecedented proportion of older workers who lost their jobs during the Great Recession will fare over the coming decade. The simulations suggest that, going forward to 2018, the unemployment rates seen during the Great Recession will suppress labor force participation, earnings and, to a lesser extent, asset accumulation, relative to a more typical recession.

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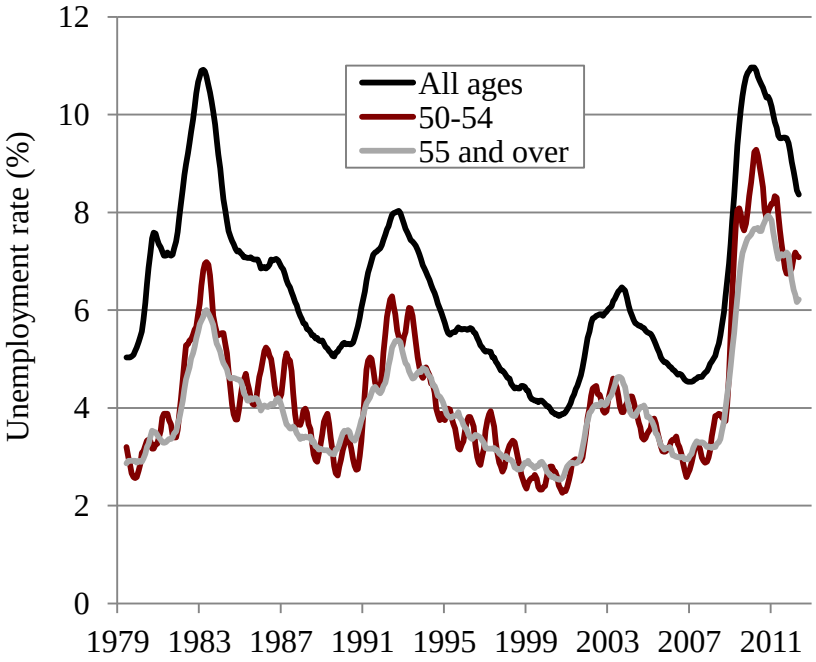
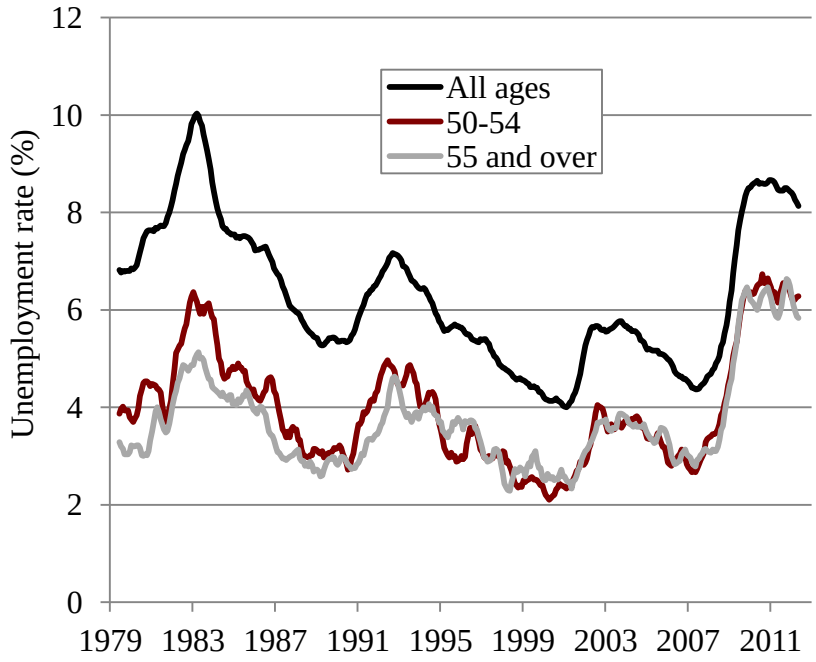
Figure 1A. *Unemployment Rate by Age 1979-2012 – Men*



Source: Bureau of Labor Statistics.

Figure 1B. *Unemployment Rate by Age 1979-2012 – Women*



Source: Bureau of Labor Statistics.

Table 1A: Comparison of displaced workers with those who were not displaced - prior to displacement

				Circumstances of displacement		Displaced in follow-up period	
	Displaced		Not Displaced	Mass Layoff	Non-Mass Layoff	Yes	No
Age	58.5	***	57.8	59.1	59.2	57.7	57.9
Marital Status	0.718		0.746	0.741 *	0.676	0.742	0.747
Male	0.492		0.489	0.508	0.474	0.507	0.485
Education							
Less than HS	0.159	**	0.131	0.146	0.186	0.139	0.130
HS	0.390	*	0.358	0.388	0.353	0.359	0.358
Some College	0.452	***	0.510	0.466	0.461	0.502	0.512
Ethnicity							
White	0.885		0.873	0.887	0.900	0.893 **	0.869
Black	0.082		0.093	0.081	0.080	0.074 ***	0.097
Hispanic	0.066	*	0.048	0.072	0.068	0.059	0.046
Industry (if working)							
Agriculture, Mining, and Construction	0.090	***	0.047	0.079	0.101	0.065 **	0.043
Manufacturing and Transportation	0.313	***	0.263	0.381 ***	0.218	0.286	0.258
Professional and Public Services	0.343	***	0.505	0.297 ***	0.434	0.404 ***	0.526
Trade and Non-Professional Services	0.255	***	0.185	0.243	0.246	0.244 ***	0.173
Occupation (if working)							
Blue Collar	0.391		0.364	0.387	0.396	0.372	0.363
White Collar	0.275	***	0.372	0.280	0.263	0.322 ***	0.382
Pink Collar	0.334	***	0.263	0.333	0.342	0.306 ***	0.255
Union Member (if working)	0.102	***	0.165	0.089	0.069	0.115 ***	0.174
Pension Coverage (if working)							
DB	0.132	***	0.272	0.139	0.117	0.158 ***	0.294
DC	0.216		0.239	0.234 *	0.178	0.247	0.238
Both	0.100	***	0.149	0.096	0.084	0.136	0.151
Health Insurance							
Insured under 65	0.716	***	0.813	0.728	0.667	0.770 ***	0.822
Health Status							
Excellent	0.194	***	0.239	0.166	0.195	0.224	0.242
Very Good	0.362		0.373	0.391	0.344	0.381	0.372
Good	0.321	**	0.283	0.334	0.324	0.295	0.280
Fair	0.103		0.091	0.100	0.101	0.091	0.091
Poor	0.021		0.014	0.010 *	0.037	0.009 **	0.015
Earnings	$41,000	***	$52,600	$41,700	$37,600	$47,200 ***	$53,700
Spouse Working (if R male)	0.576		0.585	0.560	0.593	0.610	0.580
Spouse Working (if R female)	0.522		0.563	0.513	0.557	0.590	0.559
Spouse Earnings (if R male, median) [1]	$32,900		$33,000	$33,200	$31,500	$30,200	$33,500
Spouse Earnings (if R female, median) [1]	$50,700	**	$56,900	$50,700	$49,800	$50,800 ***	$57,000
Planned Retirement Age	62.3		62.3	62.8	62.0	62.7	62.3
Financial Assets							
Mean	$114,900	***	$163,200	$128,700	$121,300	$126,400 ***	$170,600
Median	$30,500	***	$45,800	$38,500 *	$26,500	$33,600 ***	$47,700
Home Owner	0.826	***	0.874	0.847	0.816	0.852 **	0.879
Mortgage							
Have Mortgage	0.617		0.601	0.585	0.641	0.624	0.596
Mean Balance (if R has mortgage)	$87,500		$90,100	$90,600	$90,200	$87,500	$90,600
Median Balance (if R has mortgage)	$66,300		$66,300	$72,500	$70,100	$64,500	$68,400
N	1,187		13,092	585	330	2,146	10,946

Notes: All entries are means, calculated using HRS sample weights, unless otherwise stated. In 1992 wave, we were unable to identify mass layoffs, and the number of observations in the sub-analysis columns is less than the numbers in the first two columns. Stars indicate whether coefficients in the two adjacent columns differ at the 10, 5, or 1 percent level of significance. Significance tests reflect individual level clustering.

Source: Health and Retirement Study, 1992-2010

[1] Among those with a working spouse.

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Ethnicity							
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Hispanic	0.066	*	0.048	0.072	0.068	0.059	0.046
Industry (if working)							
Agriculture, Mining, and Construction	0.090	***	0.047	0.079	0.101	0.065 **	0.043
Manufacturing and Transportation	0.313	***	0.263	0.381 ***	0.218	0.286	0.258
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Pink Collar	0.334	***	0.263	0.333	0.342	0.306 ***	0.255
Union Member (if working)	0.102	***	0.165	0.089	0.069	0.115 ***	0.174
Pension Coverage (if working)							
DB	0.132	***	0.272	0.139	0.117	0.158 ***	0.294
DC	0.216		0.239	0.234 *	0.178	0.247	0.238
Both	0.100	***	0.149	0.096	0.084	0.136	0.151
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Poor	0.021		0.014	0.010 *	0.037	0.009 **	0.015
Earnings	$41,000	***	$52,600	$41,700	$37,600	$47,200 ***	$53,700
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Spouse Working (if R female)	0.522		0.563	0.513	0.557	0.590	0.559
Spouse Earnings (if R male, median) [1]	$32,900		$33,000	$33,200	$31,500	$30,200	$33,500
Spouse Earnings (if R female, median) [1]	$50,700	**	$56,900	$50,700	$49,800	$50,800 ***	$57,000
Planned Retirement Age	62.3		62.3	62.8	62.0	62.7	62.3
Financial Assets							
Mean	$114,900	***	$163,200	$128,700	$121,300	$126,400 ***	$170,600
Median	$30,500	***	$45,800	$38,500 *	$26,500	$33,600 ***	$47,700
Home Owner	0.826	***	0.874	0.847	0.816	0.852 **	0.879
Mortgage							
Have Mortgage	0.617		0.601	0.585	0.641	0.624	0.596
Mean Balance (if R has mortgage)	$87,500		$90,100	$90,600	$90,200	$87,500	$90,600
Median Balance (if R has mortgage)	$66,300		$66,300	$72,500	$70,100	$64,500	$68,400
N	1,187		13,092	585	330	2,146	10,946

Notes: All entries are means, calculated using HRS sample weights, unless otherwise stated. In 1992 wave, we were unable to identify mass layoffs, and the number of observations in the sub-analysis columns is less than the numbers in the first two columns. Stars indicate whether coefficients in the two adjacent columns differ at the 10, 5, or 1 percent level of significance. Significance tests reflect individual level clustering.

Source: Health and Retirement Study, 1992-2010

[1] Amont those with a working spouse.

Table 1B: Comparison of displaced workers with those who were not displaced - ten years after initial observation

				Circumstances of displacement			Displaced in follow-up period		
Status ten years after initial observation	Displaced		Not Displaced	Mass Layoff		Non-Mass Layoff	Yes		No
Marital Status	0.640	***	0.694	0.666	**	0.588	0.679		0.697
Work for Pay	0.314	***	0.368	0.313		0.289	0.323	***	0.377
Self Employed	0.184	**	0.136	0.186		0.187	0.178	**	0.128
Industry (if working)									
Agriculture, Mining, and Construction	0.029		0.041	0.025		0.017	0.056		0.039
Manufacturing and Transportation	0.161		0.171	0.130		0.182	0.146		0.176
Professional and Public Services	0.537		0.555	0.517		0.604	0.467	***	0.569
Trade and Non-Professional Services	0.273		0.232	0.329	**	0.198	0.331	***	0.216
Occupation (if working)									
Blue Collar	0.438	**	0.353	0.515	***	0.309	0.429	***	0.340
White Collar	0.215	***	0.347	0.163	**	0.335	0.224	***	0.368
Pink Collar	0.347		0.300	0.321		0.356	0.347	*	0.292
Pension Coverage (if working)									
DB	0.091	***	0.150	0.064		0.115	0.063	***	0.165
DC	0.258		0.260	0.284		0.201	0.216	**	0.267
Both	0.060	*	0.091	0.046		0.086	0.037	***	0.100
Health Insurance									
Insured under 65	0.727	***	0.816	0.711		0.747	0.737	***	0.833
Health Status									
Excellent	0.088	***	0.119	0.080		0.097	0.107		0.121
Very Good	0.306	***	0.349	0.300		0.305	0.331		0.353
Good	0.375	*	0.341	0.395		0.360	0.359		0.338
Fair	0.162		0.148	0.166		0.154	0.164		0.145
Poor	0.069	***	0.042	0.059		0.083	0.038		0.043
Earnings (if working)	$32,800	***	$44,600	$30,000		$33,500	$36,900	***	$45,900
Spouse Working (if R male)	0.387	**	0.329	0.366		0.374	0.409	***	0.312
Spouse Working (if R female)	0.265		0.260	0.284		0.232	0.311	*	0.251
Spouse Earnings (if R male, median) [1]	$33,100		$29,800	$37,300		$30,900	$28,600		$31,000
Spouse Earnings (if R female, median) [1]	$37,200		$28,400	$42,500	[2]	$14,000	$27,500		$28,600
Years Worked in Last 10 Years	6.0	***	7.0	6.2	**	5.5	7.5	***	6.9
Number of Layoffs in Last 10 Years [3]	0.330	***	0.189	0.358		0.301	1.135	***	0.000
Financial Assets									
Mean	$167,800	***	$265,100	$183,100		$166,900	$210,100	***	$276,100
Median	$31,800	***	$66,000	$35,600	*	$23,000	$53,100	***	$69,800
Pension Wealth									
Mean	$271,200	***	$410,400	$243,500		$353,300	$291,400	***	$434,300
Median	$0	***	$34,400	$0		$0	$0	***	$54,700
Financial Assets (incl. pension wealth)									
Mean	$439,000	***	$675,500	$426,600		$520,200	$501,500	***	$710,300
Median	$111,500	***	$278,700	$120,500		$97,400	$165,700	***	$310,900
Home Owner	0.796	***	0.870	0.797		0.780	0.828	***	0.879
Mortgage									
Have Mortgage	0.411		0.408	0.399		0.441	0.424		0.405
Mean Balance (if R had mortgage)	$104,200	**	$117,200	$107,300		$106,700	$107,800	*	$119,000
Median Balance (if R had mortgage)	$76,200		$89,100	$74,300		$84,900	$84,700		$90,700
Last Job (if not working)									
Quit Voluntarily (excl. current wave job)	0.393	***	0.687	0.408	*	0.331	0.174	***	0.799
Quit Involuntarily (excl. current wave job)	0.187	**	0.147	0.208		0.170	0.826	***	0.000
N	1,187		13,092	585		330	2,146		10,946

Notes: All entries are means, calculated using HRS sample weights, unless otherwise stated. In 1992 wave, we were unable to identify mass layoffs, and the number of observations in the sub-analysis columns is less than the numbers in the first two columns. Stars indicate whether coefficients in the two adjacent columns differ at the 10, 5, or 1 percent level of significance. Significance tests reflect individual level clustering.

Source: Health and Retirement Study, 1992-2010

[1] Among those with a working spouse.

[2] Sample size is 43 (mass layoff) and 19 (non-mass layoff).

[3] Number of layoffs excludes current wave layoff.

Table 2A: Comparison of displaced workers with those who were not displaced by MSA unemployment terciles - prior to displacement

	Displaced				Not Displaced			
	First Tercile	Second Tercile	Third Tercile		First Tercile	Second Tercile	Third Tercile	
Age	58.6	58.8	58.1		58.0	58.0	57.5	***
Marital Status	0.746	0.725	0.693		0.766	0.739	0.734	*
Male	0.452	0.536	0.482		0.495	0.494	0.478	
Education								
Less than HS	0.112	0.177	0.176	**	0.113	0.139	0.142	***
HS	0.416	0.381	0.378		0.367	0.356	0.352	
Some College	0.472	0.441	0.446		0.521	0.505	0.506	
Ethnicity								
White	0.850	0.887	0.908	*	0.896	0.858	0.866	***
Black	0.106	0.094	0.056	**	0.088	0.114	0.075	
Hispanic	0.020	0.022	0.136	***	0.017	0.025	0.102	***
Industry (if working)								
Agriculture, Mining, and Construction	0.077	0.095	0.094		0.044	0.041	0.056	
Manufacturing and Transportation	0.274	0.291	0.359	**	0.247	0.277	0.264	
Professional and Public Services	0.349	0.374	0.310		0.518	0.502	0.496	
Trade and Non-Professional Services	0.299	0.239	0.237		0.190	0.180	0.184	
Occupation (if working)								
Blue Collar	0.360	0.383	0.421		0.347	0.369	0.376	
White Collar	0.272	0.320	0.239		0.380	0.382	0.355	
Pink Collar	0.369	0.297	0.341		0.272	0.249	0.270	
Union Member (if working)	0.078	0.121	0.101		0.139	0.165	0.189	***
Pension Coverage (if working)								
DB	0.107	0.147	0.137		0.246	0.284	0.284	***
DC	0.238	0.233	0.184		0.251	0.245	0.222	**
Both	0.095	0.108	0.095		0.159	0.140	0.147	
Health Insurance								
Insured under 65	0.749	0.741	0.673	*	0.809	0.829	0.802	
Health Status								
Excellent	0.181	0.167	0.226		0.235	0.223	0.260	*
Very Good	0.412	0.410	0.284	***	0.372	0.388	0.359	
Good	0.304	0.303	0.349		0.289	0.287	0.273	
Fair	0.088	0.100	0.115		0.089	0.090	0.094	
Poor	0.014	0.020	0.026		0.015	0.012	0.014	
Earnings	$38,200	$43,900	$40,500		$50,500	$55,000	$52,300	*
Spouse Working (if R male)	0.656	0.562	0.536	*	0.613	0.576	0.567	
Spouse Working (if R female)	0.565	0.500	0.505		0.584	0.542	0.564	
Spouse Earnings (if R male, median) [1]	$31,500	$31,300	$33,500		$33,500	$31,900	$33,000	
Spouse Earnings (if R female, median) [1]	$49,800	$49,800	$54,900		$55,300	$57,000	$56,900	
Planned Retirement Age	62.2	62.6	62.2		62.4	62.2	62.4	
Financial Assets								
Mean	$134,600	$108,100	$107,100		$168,400	$170,400	$150,900	
Median	$30,800	$32,600	$26,500		$47,000	$47,800	$40,600	***
Home Owner	0.846	0.828	0.810		0.904	0.876	0.843	***
Mortgage								
Have Mortgage	0.615	0.616	0.619		0.633	0.571	0.599	*
Mean Balance (if R has mortgage)	$85,500	$80,700	$95,100		$85,400	$86,200	$99,100	
Median Balance (if R has mortgage)	$67,000	$63,200	$66,300		$67,700	$63,500	$70,300	***
N	336	399	452		4,320	4,522	4,250	

Notes: All entries are means, calculated using HRS sample weights, unless otherwise stated. In 1992 wave, we were unable to identify mass layoffs, and the number of observations in the sub-analysis columns is less than the numbers in the first two columns. Stars indicate whether coefficients in first and third terciles differ at the 10, 5, or 1 percent level of significance. Significance tests reflect individual level clustering.

Source: Health and Retirement Study, 1992-2010

[1] Among those with a working spouse.

Table 2B: Comparison of displaced workers with those who were not displaced by MSA unemployment terciles - ten years after initial observation

	Displaced				Not Displaced			
	First	Second	Third		First	Second	Third	
Status ten years after initial observation	Tercile	Tercile	Tercile		Tercile	Tercile	Tercile	
Marital Status	0.642	0.668	0.613		0.705	0.686	0.693	
Work for Pay	0.339	0.300	0.314		0.377	0.352	0.374	
Self Employed	0.148	0.210	0.187		0.140	0.145	0.122	
Industry (if working)								
Agriculture, Mining, and Construction	0.000	0.061	0.024	**	0.039	0.035	0.050	
Manufacturing and Transportation	0.124	0.203	0.154		0.176	0.176	0.162	
Professional and Public Services	0.602	0.499	0.519		0.544	0.534	0.585	
Trade and Non-Professional Services	0.274	0.238	0.302		0.241	0.255	0.203	
Occupation (if working)								
Blue Collar	0.395	0.427	0.480		0.352	0.357	0.350	
White Collar	0.248	0.239	0.169		0.340	0.347	0.355	
Pink Collar	0.357	0.334	0.351		0.308	0.296	0.295	
Pension Coverage (if working)								
DB	0.094	0.093	0.085		0.137	0.138	0.176	**
DC	0.339	0.310	0.152	***	0.253	0.264	0.262	
Both	0.092	0.082	0.016	**	0.109	0.078	0.085	
Health Insurance								
Insured under 65	0.755	0.740	0.702		0.807	0.834	0.809	
Health Status								
Excellent	0.068	0.078	0.111	*	0.114	0.115	0.127	
Very Good	0.343	0.304	0.282		0.364	0.349	0.335	**
Good	0.369	0.411	0.347		0.345	0.347	0.332	
Fair	0.153	0.150	0.179		0.137	0.145	0.163	
Poor	0.067	0.057	0.081		0.041	0.043	0.043	**
Earnings (if working)	$29,400	$40,600	$28,800		$42,200	$44,700	$46,800	*
Spouse Working (if R male)	0.511	0.372	0.318	***	0.336	0.314	0.338	
Spouse Working (if R female)	0.316	0.279	0.211		0.280	0.239	0.261	
Spouse Earnings (if R male, median) [1]	$33,100	$32,200	$35,100		$29,800	$31,600	$29,200	
Spouse Earnings (if R female, median) [1]	$38,500	$44,100	$32,300		$31,600	$29,800	$25,800	
Years Worked in Last 10 Years	6.0	6.1	5.9		7.2	6.9	7.0	
Number of Layoffs in Last 10 Years [2]	0.347	0.368	0.324		0.166	0.337	0.221	***
Financial Assets								
Mean	$157,700	$195,100	$150,900		$270,400	$275,700	$249,100	
Median	$33,500	$42,400	$22,000		$75,300	$65,000	$60,500	***
Pension Wealth								
Mean	$236,900	$313,000	$263,000		$424,800	$383,000	$425,200	
Median	$0	$0	$0		$31,900	$31,400	$41,400	
Financial Assets (incl. pension wealth)								
Mean	$394,600	$508,100	$413,800		$695,200	$658,700	$674,300	
Median	$100,000	$162,800	$89,500		$298,400	$280,900	$259,500	***
Home Owner	0.819	0.815	0.762		0.896	0.874	0.841	***
Mortgage								
Have Mortgage	0.390	0.408	0.431		0.429	0.384	0.410	
Mean Balance (if R had mortgage)	$98,200	$85,100	$125,400	*	$108,000	$110,800	$133,400	***
Median Balance (if R had mortgage)	$82,500	$67,700	$89,500		$88,100	$83,800	$101,600	***
Last Job (if not working)								
Quit Voluntarily (excl. current wave job)	0.396	0.400	0.384		0.718	0.684	0.661	***
Quit Involuntarily (excl. current wave job)	0.187	0.214	0.164		0.123	0.146	0.173	***
N	336	399	452		4,320	4,522	4,250	

Notes: All entries are means, calculated using HRS sample weights, unless otherwise stated. In 1992 wave, we were unable to identify mass layoffs, and the number of observations in the sub-analysis columns is less than the numbers in the first two columns. Stars indicate whether coefficients in first and third terciles differ at the 10, 5, or 1 percent level of significance. Significance tests reflect individual level clustering.

Source: Health and Retirement Study, 1992-2010

[1] Among those with a working spouse.

[2] Number of layoffs excludes current wave layoff.

Table 3A: Impact of layoff on long-run employment, financial, and other outcomes

	Displacement		Unemployment Rate		
Dependent variable	Coeff	SE	Coeff	SE	N
Probit					
Marital Status	-0.020	(0.011) *	-0.003	(0.004)	14,279
Self Employed	0.014	(0.009)	0.001	(0.002)	14,279
Employed	-0.046	(0.016) ***	-0.018	(0.006) ***	14,279
Spouse Employed	0.036	(0.019) *	-0.015	(0.006) **	9,711
Health Insurance (under 65 only)	-0.043	(0.030)	0.005	(0.009)	3,701
Fair or Poor Health	0.009	(0.013)	-0.0004	(0.004)	14,279
Home Owner	-0.023	(0.011) **	-0.003	(0.003)	14,279
Positive Earnings	-0.042	(0.016) ***	-0.019	(0.006) ***	14,279
Positive Spouse Earnings	0.043	(0.018) **	-0.012	(0.006) *	9,711
Positive Financial Wealth	-0.012	(0.008)	-0.001	(0.003)	14,279
Positive Mortgage	-0.012	(0.016)	-0.006	(0.005)	14,279
Positive Pension Wealth	-0.028	(0.018)	-0.013	(0.006)	14,279
Positive Financial Wealth (incl. pension)	-0.002	(0.007)	-0.001	(0.002)	14,279
Ordered Probit					
Pension Coverage					
None	0.036	(0.028)	0.005	(0.009)	4,928
DC	-0.011	(0.010)	-0.001	(0.003)	4,928
DB	-0.013	(0.010)	-0.002	(0.003)	4,928
Both	-0.012	(0.009)	-0.002	(0.003)	4,928
Number of Layoffs					
0	-0.063	(0.014) ***	0.001	(0.004)	14,279
1	0.049	(0.011) ***	-0.001	(0.004)	14,279
2	0.012	(0.003) ***	-0.0002	(0.001)	14,279
3	0.002	(0.000) ***	0.0000	(0.000)	14,279
4	0.0002	(0.000) ***	0.0000	(0.000)	14,279
Multinomial Logit					
Industry					
Agriculture, Mining, and Construction	-0.020	(0.016)	-0.005	(0.006)	4,928
Manufacturing and Transportation	-0.024	(0.048)	0.002	(0.013)	4,928
Trade and Non-Professional Services	-0.013	(0.059)	0.004	(0.015)	4,928
Occupation					
White Collar	-0.017	(0.109)	0.009	(0.023)	4,928
Blue Collar	0.033	(0.130)	-0.001	(0.030)	4,928
Last Job					
Quit Voluntarily	-0.080	(0.043) *	0.017	(0.016)	12,429
Quit Involuntarily	0.050	(0.021) **	0.001	(0.005)	12,429
Poisson					
Years Worked in Last 10 Years	-0.908	(0.117) ***	-0.077	(0.033) **	14,279
Linear					
Earnings	-0.163	(0.063) ***	-0.016	(0.021)	4,649
Spouse Earnings	0.073	(0.077)	0.026	(0.034)	2,537
Asset Wealth	-0.347	(0.076) ***	-0.006	(0.025)	13,027
Mortgage Balance	-0.016	(0.054)	0.023	(0.019)	4,815
Pension Wealth	-0.221	(0.095) **	0.022	(0.026)	7,469
Asset Wealth (incl. pension)	-0.360	(0.083) ***	-0.042	(0.025) *	13,400

Notes: Estimates use HRS sample weights. Standard errors are adjusted for individual level clustering. Dependent variable is outcome at end of eight year follow-up period. Models include a full set of socio-economic control variables. Base cases for multinomial logits are professional and public services, pink collar, and still working. One, two, and three stars indicate statistical significance at the 10, 5, and 1 percent level.
Source: Health and Retirement Study, 1992-2010

Table 3B: Impact of layoff on long-run employment, financial, and other outcomes - interacting layoffs with MSA level unemployment rate

Dependent Variable	Displacement Coeff	SE		Unemployment Rate Coeff	SE		Displacement x Unemployment Coeff	SE		N
Probit										
Marital Status	-0.019	(0.015)		-0.003	(0.004)		-0.009	(0.004)	**	14,279
Self Employed	0.014	(0.011)		0.001	(0.003)		0.004	(0.003)		14,279
Employed	-0.046	(0.021)	**	-0.018	(0.006)	***	-0.004	(0.006)		14,279
Spouse Employed	0.036	(0.024)		-0.015	(0.007)	**	-0.012	(0.008)		9,711
Health Insurance (under 65 only)	-0.050	(0.037)		0.005	(0.009)		0.015	(0.010)		3,701
Fair or Poor Health	0.009	(0.017)		-0.0004	(0.004)		-0.006	(0.005)		14,279
Home Owner	-0.023	(0.014)		-0.003	(0.004)		0.0002	(0.004)		14,279
Positive Earnings	-0.042	(0.020)	**	-0.019	(0.006)	***	-0.003	(0.006)		14,279
Positive Spouse Earnings	0.042	(0.024)	*	-0.012	(0.007)	*	-0.009	(0.008)		9,711
Positive Financial Wealth	-0.012	(0.011)		-0.0006	(0.003)		-0.0002	(0.003)		14,279
Positive Mortgage	-0.012	(0.020)		-0.006	(0.005)		0.001	(0.006)		14,279
Positive Pension Wealth	-0.027	(0.023)		-0.013	(0.006)	**	-0.007	(0.008)		14,279
Positive Financial Wealth (incl. pension)	-0.002	(0.008)		-0.001	(0.002)		0.000	(0.002)		14,279
Ordered Probit										
Pension Coverage										
None	0.037	(0.036)		0.006	(0.009)		0.021	(0.012)	*	4,928
DC	-0.013	(0.014)		-0.002	(0.003)		-0.007	(0.005)		4,928
DB	-0.013	(0.013)		-0.002	(0.003)		-0.008	(0.004)	*	4,928
Both	-0.012	(0.011)		-0.002	(0.003)		-0.006	(0.004)		4,928
Number of Layoffs										
0	-0.063	(0.018)	***	0.001	(0.005)		0.009	(0.005)	*	14,279
1	0.049	(0.013)	***	-0.001	(0.004)		-0.007	(0.004)	*	14,279
2	0.012	(0.004)	***	-0.0003	(0.001)		-0.002	(0.001)	*	14,279
3	0.002	(0.001)	***	0.0000	(0.000)		-0.0003	(0.000)		14,279
4	0.0002	(0.000)	***	0.0000	(0.000)		0.0000	(0.000)		14,279
Multinomial Logit										
Industry										
Agriculture, Mining, and Construction	-0.020	(0.023)		-0.005	(0.006)		0.0004	(0.006)		4,928
Manufacturing and Transportation	-0.025	(0.059)		0.003	(0.013)		0.002	(0.018)		4,928
Trade and Non-Professional Services	-0.013	(0.071)		0.003	(0.016)		-0.011	(0.019)		4,928
Occupation										
White Collar	-0.017	(0.132)		0.009	(0.024)		0.004	(0.041)		4,928
Blue Collar	0.033	(0.176)		-0.001	(0.033)		0.001	(0.057)		4,928
Last Job										
Quit Voluntarily	-0.081	(0.055)		0.017	(0.016)		0.013	(0.017)		12,429
Quit Involuntarily	0.050	(0.026)	*	0.0005	(0.005)		-0.009	(0.008)		12,429
Poisson										
Years Worked in Last 10 Years	-0.905	(0.145)	***	-0.078	(0.035)	**	-0.030	(0.042)		14,279
Linear										
Earnings	-0.122	(0.140)		-0.010	(0.021)		-0.006	(0.020)		4,649
Spouse Earnings	-0.115	(0.190)		0.027	(0.032)		0.039	(0.029)		2,537
Asset Wealth	-0.270	(0.216)		-0.004	(0.025)		-0.015	(0.038)		13,027
Mortgage Balance	0.113	(0.121)		0.024	(0.019)		-0.024	(0.018)		4,815
Pension Wealth	-0.457	(0.207)	**	0.021	(0.025)		0.039	(0.030)		7,469
Asset Wealth (incl. pension)	-0.281	(0.208)		-0.037	(0.025)		-0.018	(0.034)		13,400

Notes: Estimates use HRS sample weights. Standard errors are adjusted for individual level clustering. Dependent variable is outcome at end of eight year follow-up period. Models include a full set of socio-economic control variables. Base cases for multinomial logits are professional and public services, pink collar, and still working. One, two, and three stars indicate statistical significance at the 10, 5, and 1 percent level.
Source: Health and Retirement Study, 1992-2010

Table 4A: Impact of mass and non-mass layoff on long-run employment, financial, and other outcomes

	Mass Layoff		Non-Mass Layoff		Unemployment rate		
Dependent variable	Coeff	SE	Coeff	SE	Coeff	SE	N
Probit							
Marital Status	-0.012	(0.015)	-0.036	(0.023)	-0.003	(0.004)	14,279
Self Employed	0.021	(0.014)	0.004	(0.014)	0.001	(0.002)	14,279
Employed	-0.042	(0.023) *	-0.063	(0.028) **	-0.019	(0.006) ***	14,279
Spouse Employed	0.037	(0.026)	0.017	(0.035)	-0.014	(0.006) **	9,711
Health Insurance (under 65 only)	-0.072	(0.049)	0.002	(0.058)	0.005	(0.008)	3,701
Fair or Poor Health	0.012	(0.019)	-0.001	(0.022)	-0.0004	(0.004)	14,279
Home Owner	-0.030	(0.016) *	-0.028	(0.019)	-0.004	(0.003)	14,279
Positive Earnings	-0.039	(0.023) *	-0.057	(0.028) **	-0.020	(0.006) ***	14,279
Positive Spouse Earnings	0.046	(0.026) *	0.021	(0.034)	-0.011	(0.006) *	9,711
Positive Financial Wealth	-0.013	(0.012)	-0.0002	(0.013)	-0.001	(0.003)	14,279
Positive Mortgage	-0.015	(0.022)	0.004	(0.029)	-0.006	(0.005)	14,279
Positive Pension Wealth	-0.015	(0.025)	-0.043	(0.029) **	-0.013	(0.006) **	14,279
Positive Financial Wealth (incl. pension)	0.002	(0.009)	0.006	(0.008)	-0.001	(0.002)	14,279
Ordered Probit							
Pension Coverage							
None	0.060	(0.041)	0.014	(0.052)	0.005	(0.009)	4,928
DC	-0.020	(0.016)	-0.004	(0.019)	-0.002	(0.003)	4,928
DB	-0.021	(0.015)	-0.005	(0.019)	-0.002	(0.003)	4,928
Both	-0.019	(0.012)	-0.005	(0.017)	-0.002	(0.003)	4,928
Number of Layoffs							
0	-0.083	(0.020) ***	-0.044	(0.025) *	0.001	(0.004)	14,279
1	0.064	(0.014) ***	0.034	(0.019) *	-0.0005	(0.003)	14,279
2	0.017	(0.004) ***	0.008	(0.005)	-0.0001	(0.001)	14,279
3	0.003	(0.001) ***	0.001	(0.001)	0.0000	(0.000)	14,279
4	0.0004	(0.000) ***	0.0002	(0.000)	0.0000	(0.000)	14,279
Multinomial Logit							
Industry							
Agriculture, Mining, and Construction	-0.024	(0.020)	-0.008	(0.031)	-0.005	(0.006)	4,928
Manufacturing and Transportation	-0.074	(0.046)	0.060	(0.141)	0.003	(0.012)	4,928
Trade and Non-Professional Services	0.029	(0.090)	-0.059	(0.093)	0.003	(0.015)	4,928
Occupation							
White Collar	-0.056	(0.138)	0.102	(0.249)	0.009	(0.023)	4,928
Blue Collar	0.089	(0.191)	-0.100	(0.181)	-0.002	(0.030)	4,928
Last Job							
Quit Voluntarily	-0.072	(0.061)	-0.094	(0.074)	0.016	(0.016)	12,429
Quit Involuntarily	0.054	(0.028) *	0.051	(0.038)	0.001	(0.005)	12,429
Poisson							
Years Worked in Last 10 Years	-0.653	(0.164) ***	-1.315	(0.218) ***	-0.092	(0.033) ***	14,279
Linear							
Earnings	-0.211	(0.095) **	-0.217	(0.112) *	-0.019	(0.021)	4,649
Spouse Earnings	0.176	(0.110)	-0.138	(0.112)	0.026	(0.034)	2,537
Asset Wealth	-0.253	(0.102) **	-0.459	(0.141) ***	-0.012	(0.025)	13,027
Mortgage Balance	-0.047	(0.075)	0.083	(0.096)	0.024	(0.019)	4,815
Pension Wealth	-0.221	(0.112) **	-0.480	(0.156) ***	-0.048	(0.025) *	7,649
Asset Wealth (incl. pension)	-0.253	(0.145) *	-0.022	(0.153) ***	0.020	(0.026)	13,400

Notes: Estimates use HRS sample weights. Standard errors are adjusted for individual level clustering. Dependent variable is outcome at end of eight year follow-up period. Models include a full set of socio-economic control variables. Base cases for multinomial logits are professional and public services, pink collar, and still working. One, two, and three stars indicate statistical significance at the 10, 5, and 1 percent level.
Source: Health and Retirement Study, 1992-2010

Table 4B: Impact of mass and non-mass layoff on long-run employment, financial, and other outcomes - interacting layoffs with MSA level unemployment rate

Dependent Variable	Mass Layoff Coeff	Mass Layoff SE	Non-Mass Layoff Coeff	Non-Mass Layoff SE	Unemployment Rate Coeff	Unemployment Rate SE	Displacement x Unemployment Rate Coeff	Displacement x Unemployment Rate SE	Non-Mass Layoff x Unemployment Coeff	Non-Mass Layoff x Unemployment SE	N
Probit											
Marital Status	0.016	(0.018)	-0.036	(0.025)	-0.002	(0.004)	-0.003	(0.004)	0.0005	(0.006)	14,279
Self Employed	0.008	(0.016)	0.006	(0.019)	0.001	(0.003)	0.004	(0.004)	0.005	(0.006)	14,279
Employed	-0.017	(0.030)	-0.065	(0.035) *	-0.018	(0.006) ***	-0.005	(0.007)	-0.006	(0.011)	14,279
Spouse Employed	0.027	(0.035)	0.013	(0.042)	-0.014	(0.007) **	-0.001	(0.009)	-0.004	(0.013)	9,711
Health Insurance (under 65 only)	-0.074	(0.058)	0.013	(0.067)	0.006	(0.009)	0.011	(0.013)	0.022	(0.021)	3,701
Fair or Poor Health	0.015	(0.025)	-0.006	(0.027)	-0.0005	(0.004)	-0.006	(0.006)	-0.011	(0.008)	14,279
Home Owner	-0.032	(0.021)	-0.028	(0.024)	-0.004	(0.004)	-0.003	(0.005)	-0.006	(0.007)	14,279
Positive Earnings	-0.017	(0.030)	-0.057	(0.035)	-0.019	(0.006) ***	-0.002	(0.007)	-0.001	(0.011)	14,279
Positive Spouse Earnings	0.029	(0.035)	0.017	(0.042)	-0.012	(0.007) *	-0.001	(0.009)	-0.005	(0.013)	9,711
Positive Financial Wealth	-0.006	(0.015)	-0.0003	(0.017)	-0.001	(0.003)	-0.002	(0.003)	-0.003	(0.004)	14,279
Positive Mortgage	0.009	(0.028)	0.017	(0.035)	-0.006	(0.005)	0.012	(0.007) *	0.029	(0.010) ***	14,279
Positive Pension Wealth	0.010	(0.031)	-0.050	(0.041)	-0.013	(0.006) **	-0.011	(0.010)	-0.017	(0.016)	14,279
Positive Financial Wealth (incl. pension)	0.009	(0.011)	0.005	(0.011)	-0.001	(0.002)	-0.001	(0.002)	-0.0005	(0.003)	14,279
Ordered Probit											
Pension Coverage											
None	0.038	(0.049)	0.068	(0.074)	0.008	(0.010)	0.043	(0.021) **	0.083	(0.036) **	4,928
DC	-0.012	(0.018)	-0.034	(0.033)	-0.003	(0.003)	-0.015	(0.011)	-0.028	(0.019)	4,928
DB	-0.014	(0.017)	-0.022	(0.024)	-0.003	(0.003)	-0.015	(0.008) *	-0.028	(0.013) **	4,928
Both	-0.012	(0.015)	-0.012	(0.020)	-0.003	(0.003)	-0.013	(0.008) *	-0.026	(0.014) *	4,928
Number of Layoffs											
0	-0.084	(0.025) ***	-0.039	(0.031)	0.001	(0.005)	-0.0004	(0.006)	-0.001	(0.008)	14,279
1	0.064	(0.019) ***	0.031	(0.023)	-0.0004	(0.004)	0.0003	(0.004)	0.001	(0.006)	14,279
2	0.017	(0.006) ***	0.007	(0.006)	-0.0001	(0.001)	0.0001	(0.001)	0.0002	(0.002)	14,279
3	0.003	(0.001) ***	0.001	(0.001)	0.0000	(0.000)	0.0000	(0.000)	0.0000	(0.000)	14,279
4	0.0004	(0.000) **	0.0001	(0.000)	0.0000	(0.000)	0.0000	(0.000)	0.0000	(0.000)	14,279
Multinomial Logit											
Industry											
Agriculture, Mining, and Construction	-0.007	(0.043)	-0.006	(0.049)	-0.005	(0.006)	0.001	(0.007)	0.003	(0.010)	4,928
Manufacturing and Transportation	-0.089	(0.054) *	0.069	(0.190)	0.003	(0.013)	0.006	(0.034)	0.010	(0.060)	4,928
Trade and Non-Professional Services	0.088	(0.141)	-0.065	(0.114)	0.004	(0.016)	-0.010	(0.024)	-0.008	(0.035)	4,928
Occupation											
White Collar	-0.034	(0.171)	0.113	(0.304)	0.010	(0.025)	0.006	(0.055)	0.018	(0.089)	4,928
Blue Collar	0.067	(0.259)	-0.102	(0.237)	-0.002	(0.033)	0.003	(0.057)	0.001	(0.076)	4,928
Last Job											
Quit Voluntarily	-0.053	(0.077)	-0.082	(0.096)	0.017	(0.016)	0.009	(0.018)	0.023	(0.026)	12,429
Quit Involuntarily	0.052	(0.040)	0.046	(0.046)	0.001	(0.005)	-0.003	(0.011)	-0.007	(0.016)	12,429
Poisson											
Years Worked in Last 10 Years	-0.070	(0.227)	-1.283	(0.273) ***	-0.083	(0.035) **	-0.026	(0.052)	0.060	(0.079)	14,279
Linear											
Earnings	-0.200	(0.111) *	0.104	(0.230)	-0.019	(0.021)	-0.003	(0.011)	-0.063	(0.040)	4,649
Spouse Earnings	0.123	(0.132)	-0.562	(0.255) **	0.023	(0.033)	0.012	(0.015)	0.079	(0.051)	2,537
Asset Wealth	-0.0001	(0.132)	-0.689	(0.378) *	-0.004	(0.025)	-0.051	(0.019) ***	0.097	(0.075)	13,027
Mortgage Balance	0.014	(0.101)	0.242	(0.184)	0.025	(0.019)	-0.013	(0.013)	-0.019	(0.031)	4,815
Pension Wealth	-0.106	(0.177)	-0.661	(0.304) **	0.020	(0.025)	-0.030	(0.018) *	0.165	(0.058) ***	7,649
Asset Wealth (incl. pension)	0.070	(0.147)	-0.373	(0.367)	-0.040	(0.025)	-0.059	(0.000) ***	0.036	(0.072)	13,400

Notes: Estimates use HRS sample weights. Standard errors are adjusted for individual level clustering. Dependent variable is outcome at end of eight year follow-up period. Models include a full set of socio-economic control variables. Base cases for multinomial logits are professional and public services, pink collar, and still working. One, two, and three stars indicate statistical significance at the 10, 5, and 1 percent level.
Source: Health and Retirement Study, 1992-2010

Table 5: Comparison of workers displaced in 1992-2002 to with those displaced in 2008-2010 - prior to displacement

	Displaced in 1992-2002	Displaced in 2008-2010	
Age	58.5	60.6	***
Marital Status	0.718	0.685	
Male	0.492	0.499	
Education			
Less than HS	0.159	0.095	***
HS	0.390	0.326	*
Some College	0.452	0.579	***
Ethnicity			
White	0.885	0.809	***
Black	0.082	0.108	
Hispanic	0.066	0.069	
Industry (if working)			
Agriculture, Mining, and Construction	0.090	0.087	
Manufacturing and Transportation	0.313	0.307	
Professional and Public Services	0.343	0.415	*
Trade and Non-Professional Services	0.255	0.192	*
Occupation (if working)			
Blue Collar	0.391	0.370	
White Collar	0.275	0.289	
Pink Collar	0.334	0.341	
Union Member (if working)	0.102	0.089	
Pension Coverage (if working)			
DB	0.132	0.059	***
DC	0.216	0.354	***
Both	0.100	0.087	
Health Insurance			
Insured under 65	0.716	0.739	
Health Status			
Excellent	0.194	0.126	***
Very Good	0.362	0.336	
Good	0.321	0.301	
Fair	0.103	0.208	***
Poor	0.021	0.029	
Earnings	$41,000	$50,800	**
Spouse Working (if R male)	0.576	0.510	
Spouse Working (if R female)	0.522	0.539	
Spouse Earnings (if R male, median) [1]	$32,900	$24,200	
Spouse Earnings (if R female, median) [1]	$50,700	$51,800	
Planned Retirement Age	62.3	64.5	***
Financial Assets			
Mean	$114,900	$119,300	
Median	$30,500	$18,000	***
Home Owner	0.826	0.814	
Mortgage			
Have Mortgage	0.617	0.599	
Mean Balance (if R has mortgage)	$87,500	$165,900	***
Median Balance (if R has mortgage)	$66,300	$116,700	***
N	1,187	296	

Notes: All entries are means, calculated using HRS sample weights, unless otherwise stated. Stars indicate whether coefficients in the two samples differ at the 10, 5, or 1 percent level of significance. Significance tests reflect individual level clustering.

Source: Health and Retirement Study, 1992-2010

[1] Among those with a working spouse.

Table 6: Mean Predicted Long-Run Outcomes

Sample	2008	2008	1992 - 2000
Unemployment Rate Used	2008-2010	2001-2003	Waves *t-t+2*
Probabilities			
Mass Layoff	0.068	0.059	0.041
Non Mass Layoff	0.034	0.031	0.023
Working	0.898	0.910	0.936
Long-Run Outcome			
Marital Status	0.645	0.651	0.689
Self Employed	0.052	0.051	0.059
Employed	0.237	0.275	0.364
Spouse Employed	0.177	0.206	0.300
Health Insurance (under 65 only)	0.765	0.753	0.770
Health Status	0.211	0.211	0.193
Home Owner	0.811	0.822	0.864
Positive Earnings	0.219	0.260	0.346
Positive Spouse Earnings	0.183	0.207	0.281
Positive Financial Wealth	0.894	0.896	0.931
Positive Mortgage	0.341	0.356	0.353
Positive Pension Wealth	0.354	0.383	0.535
Positive Financial Wealth (incl. pension)	0.905	0.908	0.952
Years Worked	6.154	6.336	6.951
Number of Layoffs	0.815	0.814	0.825
Industry			
Agriculture, Mining, and Construction	0.014	0.019	0.043
Manufacturing and Transportation	0.155	0.154	0.183
Professional and Public Services	0.513	0.522	0.535
Trade and Non-Professional Services	0.318	0.305	0.240
Occupation			
White Collar	0.414	0.387	0.322
Blue collar	0.305	0.311	0.391
Pink Collar	0.281	0.302	0.287
Last Job			
Quit Voluntarily	0.536	0.502	0.485
Quit Involuntarily	0.185	0.180	0.112
Still Working	0.279	0.318	0.403
Pension Type			
None	0.633	0.620	0.543
DC	0.217	0.222	0.248
DB	0.101	0.106	0.132
DBDC	0.048	0.052	0.077
Earnings	$31,600	$32,500	$35,100
Spouse Earnings	$39,600	$36,900	$35,000
Financial Assets	$86,000	$86,900	$134,700
Mortgage Balance	$60,000	$58,400	$33,500
Pension Wealth	$132,100	$134,900	$267,200
Asset Wealth (incl. pension)	$168,500	$184,400	$434,100
N	2,592	2,592	14,279

Source: Health and Retirement Study, 1992-2010

Table A1: Impact of layoff on years worked and earnings - full results

	Years Worked				Earnings			
	No Interactions		With Interactions		No Interactions		With Interactions	
	No FE	MSA FE	No FE	MSA FE	No FE	MSA FE	No FE	MSA FE
Mass Layoff	-0.652 ***	-0.653 ***	-0.066	-0.070	-0.169 *	-0.211 **	-0.163	-0.200 *
	(0.165)	(0.164)	(0.227)	(0.227)	(0.098)	(0.095)	(0.112)	(0.111)
Non-Mass Layoff	-1.322 ***	-1.315 ***	-1.281 ***	-1.284 ***	-0.190 *	-0.217 *	0.137	0.104
	(0.221)	(0.218)	(0.280)	(0.273)	(0.114)	(0.112)	(0.228)	(0.230)
Unemployment Rate	-0.029	-0.092 ***	-0.026	-0.083 **	0.012	-0.019	0.014	-0.019
	(0.019)	(0.033)	(0.021)	(0.035)	(0.010)	(0.021)	(0.010)	(0.021)
Marital Status	-0.046	-0.059	-0.048	-0.060	0.071	0.079	0.071	0.079
	(0.114)	(0.114)	(0.114)	(0.114)	(0.062)	(0.061)	(0.062)	(0.061)
Male	0.284 ***	0.269 ***	0.285 ***	0.270 ***	0.301 ***	0.305 ***	0.301 ***	0.305 ***
	(0.096)	(0.095)	(0.096)	(0.095)	(0.053)	(0.051)	(0.053)	(0.051)
Education								
Less than HS	-0.172	-0.212	-0.174	-0.215	-0.069	-0.058	-0.070	-0.060
	(0.139)	(0.139)	(0.139)	(0.139)	(0.065)	(0.064)	(0.065)	(0.064)
Some College	0.248 **	0.241 **	0.248 **	0.240 **	0.085 *	0.067	0.086 *	0.069
	(0.103)	(0.104)	(0.103)	(0.104)	(0.051)	(0.052)	(0.051)	(0.052)
Ethnicity								
Black	-0.019	0.027	-0.026	0.019	0.056	0.035	0.056	0.035
	(0.128)	(0.135)	(0.128)	(0.135)	(0.072)	(0.077)	(0.072)	(0.077)
Hispanic	-0.102	-0.183	-0.111	-0.194	-0.080	-0.098	-0.076	-0.097
	(0.190)	(0.203)	(0.189)	(0.202)	(0.107)	(0.116)	(0.107)	(0.116)
Industry								
Agriculture, Mining, and Construction	-0.311	-0.367 *	-0.293	-0.348 *	-0.004	-0.011	-0.004	-0.011
	(0.191)	(0.190)	(0.191)	(0.190)	(0.098)	(0.103)	(0.098)	(0.103)
Manufacturing and Transportation	-0.494 ***	-0.482 ***	-0.486 ***	-0.474 ***	0.012	0.027	0.012	0.027
	(0.100)	(0.100)	(0.100)	(0.100)	(0.063)	(0.062)	(0.063)	(0.062)
Trade and Non-Professional Services	0.082	0.065	0.092	0.074	-0.063	-0.074	-0.064	-0.073
	(0.112)	(0.112)	(0.112)	(0.113)	(0.053)	(0.053)	(0.053)	(0.053)
Occupation								
White Collar	0.085	0.087	0.084	0.086	0.231 ***	0.210 ***	0.230 ***	0.209 ***
	(0.111)	(0.110)	(0.111)	(0.110)	(0.057)	(0.057)	(0.057)	(0.057)
Blue Collar	-0.052	-0.054	-0.057	-0.058	-0.139 **	-0.126 **	-0.137 **	-0.124 **
	(0.114)	(0.114)	(0.114)	(0.114)	(0.058)	(0.057)	(0.058)	(0.057)
Union Member	-0.064	-0.041	-0.058	-0.036	-0.025	-0.048	-0.026	-0.049
	(0.095)	(0.096)	(0.095)	(0.096)	(0.064)	(0.062)	(0.064)	(0.062)
Pension Coverage								
DB	-0.643 ***	-0.655 ***	-0.660 ***	-0.671 ***	0.056	0.043	0.056	0.043
	(0.096)	(0.096)	(0.096)	(0.096)	(0.060)	(0.060)	(0.060)	(0.060)
DC	0.087	0.068	0.080	0.062	0.322 ***	0.328 ***	0.322 ***	0.328 ***
	(0.095)	(0.095)	(0.095)	(0.095)	(0.048)	(0.048)	(0.048)	(0.048)
Both	-0.555 ***	-0.523 ***	-0.566 ***	-0.535 ***	0.183 **	0.157 **	0.182 **	0.156 **
	(0.107)	(0.107)	(0.107)	(0.107)	(0.072)	(0.070)	(0.072)	(0.070)
Health Insurance (if under 65)	0.192 *	0.183 *	0.194 **	0.184 *	0.117 **	0.132 **	0.115 **	0.130 **
	(0.099)	(0.097)	(0.099)	(0.097)	(0.053)	(0.054)	(0.053)	(0.054)
65 and Over	1.020 ***	1.005 ***	1.030 ***	1.015 ***	0.589 ***	0.616 ***	0.587 ***	0.613 ***
	(0.250)	(0.250)	(0.251)	(0.250)	(0.122)	(0.120)	(0.122)	(0.121)
Fair or Poor Health	-1.053 ***	-1.041 ***	-1.047 ***	-1.035 ***	-0.187 ***	-0.177 **	-0.188 ***	-0.178 **
	(0.121)	(0.120)	(0.121)	(0.120)	(0.070)	(0.071)	(0.070)	(0.071)
Spouse Employed	1.146 ***	1.137 ***	1.138 ***	1.128 ***	0.101	0.107	0.100	0.106
	(0.269)	(0.268)	(0.269)	(0.268)	(0.151)	(0.150)	(0.152)	(0.150)
Home Owner	-0.342 ***	-0.358 ***	-0.349 ***	-0.363 ***	-0.175 **	-0.105	-0.174 **	-0.105
	(0.132)	(0.132)	(0.132)	(0.132)	(0.080)	(0.076)	(0.080)	(0.076)
Positive Mortgage	-0.707	-0.783 *	-0.712	-0.778 *	-1.170 ***	-1.086 ***	-1.165 ***	-1.081 ***
	(0.452)	(0.459)	(0.452)	(0.458)	(0.248)	(0.245)	(0.248)	(0.245)
Age	-1.222 ***	-1.216 ***	-1.227 ***	-1.222 ***	-0.419 ***	-0.425 ***	-0.418 ***	-0.424 ***
	(0.051)	(0.050)	(0.051)	(0.050)	(0.028)	(0.028)	(0.028)	(0.028)
Planned Retirement Age	0.062 ***	0.064 ***	0.063 ***	0.065 ***	0.011 *	0.009 *	0.011 *	0.009 *
	(0.009)	(0.009)	(0.009)	(0.009)	(0.005)	(0.005)	(0.005)	(0.005)

Table A1: Impact of layoff on years worked and earnings - full results (continued)

	Years Worked				Earnings			
	No Interactions		With Interactions		No Interactions		With Interactions	
	No FE	MSA FE	No FE	MSA FE	No FE	MSA FE	No FE	MSA FE
Earnings	0.092 ***	0.091 ***	0.091 ***	0.090 ***	0.056 ***	0.053 ***	0.056 ***	0.054 ***
	(0.020)	(0.019)	(0.020)	(0.019)	(0.012)	(0.011)	(0.012)	(0.011)
Spouse Earnings	-0.099 ***	-0.100 ***	-0.099 ***	-0.100 ***	-0.019	-0.021	-0.019	-0.021
	(0.023)	(0.023)	(0.023)	(0.023)	(0.014)	(0.014)	(0.014)	(0.014)
Financial Assets	-0.042 ***	-0.040 ***	-0.043 ***	-0.041 ***	0.014 **	0.010	0.014 **	0.010
	(0.012)	(0.012)	(0.012)	(0.012)	(0.006)	(0.006)	(0.006)	(0.006)
Mortgage Balance	0.101 **	0.112 **	0.102 **	0.112 **	0.125 ***	0.115 ***	0.124 ***	0.115 ***
	(0.043)	(0.045)	(0.043)	(0.045)	(0.023)	(0.023)	(0.023)	(0.023)
Interaction Terms								
Unemployment and Mass Layoff			-0.025	-0.026			-0.001	-0.003
			(0.053)	(0.052)			(0.010)	(0.011)
Unemployment and Non-Mass Layoff			0.070	0.060				
			(0.082)	(0.079)			(0.066) *	(0.063)
							(0.038)	(0.040)
N	14,279	14,279	14,279	14,279	4,649	4,649	4,649	4,649

Notes: Estimates use HRS sample weights. Standard errors are adjusted for individual level clustering. Dependent variable is outcome at end of eight year follow-up period. Models include a full set of socio-economic control variables. Base cases for multinomial logits are professional and public services, pink collar, and still working. One, two, and three stars indicate statistical significance at the 10, 5, and 1 percent level.
Source: Health and Retirement Study, 1992-2010

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