How Do Local Labor Markets Affect Retirement?

Leora Friedberg, Michael T. Owyang, Wei Sun, and Anthony Webb

Compared with prime-age workers, older workers face an easier path out of the labor force if they lose their jobs during a recession. However, premature job exits or earnings losses in the years leading up to retirement may be particularly devastating to retirement savings. The authors analyze the impact of recent business cycles on retirement using multifaceted job transitions of older workers. They focus on local labor markets because older workers are particularly unlikely to move for work. Surprisingly, the biggest effect of a higher local unemployment rate on older workers is to *raise* the propensity to stay in one's current job. Older workers have fewer voluntary transitions to new jobs when the unemployment rate rises, but they especially have fewer voluntary transitions out of the labor force. Thus, the direct effect of job loss in inducing earlier retirement during recessions is outweighed by retirement delays among those with jobs. (JEL J26, J23, J62)

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INTRODUCTION

Considering the vast attention given to studying the impact of business cycles on unemployment, much less emphasis has been given to business cycle effects on retirement. Compared with prime-age workers (ages 25-54), older workers face an easier path out of the labor force if they lose their jobs during a recession, especially if they can access Social Security and private pensions. However, premature job exits or earnings losses in the years leading up to retirement may be particularly devastating to efforts to save for old age.

This latter view is buttressed by a few studies on the impact of job loss on older workers. Older workers who experience layoffs suffer larger earnings losses upon finding new work

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compared with younger workers or else they retire earlier than their peers on average (Chan and Stevens, 2001, 2004, and Couch and Plazcek, 2010) with fewer years to build up their retirement wealth. This finding raises concerns that the Great Recession may have been particularly devastating to workers near retirement age. Yet, the increase in the unemployment rate among workers 55 years of age and older, which rose from a low of 2.9 percent in early 2006 to 7.1 percent in late 2009, was considerably smaller than the increase in unemployment among prime-age workers.

While a handful of recent studies have increased our understanding of the impact of business cycles on retirement, they have not fully incorporated insights from the extensive retirement literature. We make two contributions in this regard. First, we measure business cycles at the local level, focusing on metropolitan statistical areas (MSAs). Some studies have used national, state-level, and/or industry-level unemployment rates (Coile and Levine, 2007, 2011, and von Wachter, 2007) largely because of data limitations, but few studies have focused on the MSA level, which may be most relevant because older workers are particularly unlikely to move to seek a new job. Second, rather than treating retirement as a binary outcome, we consider several possible transitions—exiting the current job on a voluntary or involuntary basis, obtaining a new job that involves part-time or full-time hours, or leaving work entirely. A binary retirement variable does not fit the multifaceted retirement process well (Ruhm, 1990, and Gustman and Steinmeier, 1995). Some workers retire abruptly and others gradually phase into retirement by reducing work hours, often with an accompanying change in employer. Gradual retirement may be particularly attractive during a recession to older workers who are pushed out of full-time jobs. Moreover, labor demand factors, though often ignored in the retirement literature, can also affect late-life work options. We use information on voluntary and involuntary job exits to help characterize demand effects on retirement decisions.

We model multifaceted job transitions in local labor markets using the Health and Retirement Study (HRS), which includes workers 50 years of age and older from 1992 on. The HRS is unique in offering both rich local identifiers on a restricted basis and a lengthy panel, so we are able to observe high-frequency transitions over a long period.[1] We use these data to estimate multinomial logits of job transitions. This approach is not a full dynamic programming exercise, which would incorporate even more complexity in the retirement process but would require modeling how workers form expectations about future unemployment rates as well as their own income, assets, and health. Yet, the multinomial logit captures the richness of observed retirement transitions while maintaining a parsimonious specification.

Surprisingly, we find that the biggest effect of a higher MSA unemployment rate on older workers is to *raise* the propensity to stay in one's current job. Thus, the direct effect of job loss in inducing earlier retirement during recessions is outweighed by retirement delays among those with jobs. Older workers have fewer voluntary transitions to new jobs when the unemployment rate rises, which is unsurprising, but they also have fewer voluntary transitions out of the labor force. This increased attachment to the current job may reflect pessimism about economic well-being during retirement and a reduced fluidity of the labor market, which would undermine the option value of returning to work at a later date (Maestas, 2010). The estimated effects are relatively large, as a 1-percentage-point increase in the local unemploy-

ment rate increases the likelihood of staying in the same job by 0.49 percentage points and reduces the likelihood of voluntary retirement by 0.34 percentage points. By these estimates, the main impact of the Great Recession on older workers was to reduce voluntary retirement by 1.58 percentage points; this result fits with observations in the popular press highlighting the relatively smaller declines in employment among older workers during the Great Recession compared with prime-age workers. As one might expect, a higher local unemployment rate also raises involuntary job exits but, interestingly, those involuntary exits are equally likely to lead to a new job as to retirement within a one-year time frame.

We find similar overall impacts of local unemployment rates on older men and women, with men slightly more likely than women to stay in their current job when the unemployment rate rises. We also find mostly similar patterns for workers of different skill levels, though unskilled workers have a smaller increase in their propensity to stay in their current job when the unemployment rate is high and a lower decline in their propensity to retire voluntarily; semiskilled workers are most affected by the local unemployment rate.

In sum, our study sheds light on the influence of business cycles on retirement timing. Meanwhile, the local business cycle literature has concentrated on identifying differences in business cycles across metropolitan areas (Owyang et al., 2008; Owyang, Piger, and Wall, 2013; Wall, 2013), but it has paid less attention to differential effects when groups of workers differ in their mobility or willingness to opt out of the labor force permanently (Topel, 1986).

BACKGROUND

Postponing retirement is frequently touted as a solution to growing concerns related to financial well-being in old age, including inadequate retirement saving, post-retirement gaps in health insurance coverage, and underfunding of Social Security and Medicare. In planning retirement, at least half of workers state a desire to undertake a gradual transition from a full-time career job into retirement (U.S. General Accounting Office, 2001, and Hutchens, 2007). Opportunities for part-time work may facilitate postponing retirement, yet gradual retirement frequently necessitates a change of employer. Therefore, the ability of employees to exit the labor force at an age and in a manner of their choosing depends on local labor market conditions. Those conditions will affect both involuntary exits from jobs and the opportunity after involuntary or voluntary exits to find bridge jobs that allow phased retirement.

Although labor economists usually focus on the unemployment rate as a key characteristic of local labor markets, studies of retirement have ignored local labor demand until recently.[2] While retirement models have grown extraordinarily complex, the complexity arises in modeling individual budget constraints and preferences, rather than local conditions. As an example of what can be learned by incorporating both concerns, Black, Kolesnikova, and Taylor (2014) find that variation in commuting time helps explain large differences in married women's labor force participation rates across locations—even for women with the same number of children and levels of education.

Recent studies of retirement that directly or indirectly consider local labor markets offer a few exceptions. Chan and Stevens (2001, 2004) set the stage for consideration of labor mar-

ket conditions by highlighting the extent to which involuntary job loss among older workers in the HRS spurs early retirement. They find that the probability of re-employment following displacement declines precipitously with age. Although they do not directly examine the role of local market conditions, their findings suggest labor market conditions may have been overlooked in the retirement literature. Similar findings appear in Coile and Levine (2011) and Callaway (2015), while Ozturk and Gallo (2013) show that job loss by older workers is associated with lower subsequent wealth accumulation. Black and Liang (2005) study the impact on older workers of shocks to county-specific steel and coal production and shocks to city-specific manufacturing production. Their empirical approach emphasizes natural experiments rather than estimation of full retirement models, in part because their data from the U.S. Census and Social Security Administration (SSA) lack the rich set of covariates available in the HRS.

Some recent work suggests that state-level economic conditions influence retirement, which underlines the importance of moving the focus to local conditions. Coile and Levine (2007, 2010, 2011) use 30 years of data from the Current Population Survey (CPS) to estimate the effects of state-level unemployment rates, along with stock market and real estate price changes, on retirement. They find that labor force exits of older workers, especially for those with a high school diploma, rise when state-level unemployment rates rise. However, their analysis does not distinguish how workers flow into retirement. von Wachter (2007) analyzes the impact of employment rates, also using data from the CPS, and finds results similar to those of Coile and Levine: When state-level unemployment rates rise, the employment of older workers declines. Complementary work by Munnell et al. (2008) uses data from the CPS from 1977 to 2007 and from the HRS to examine the role of state-level conditions.[3] However, the CPS has only a subset of the covariates available in the HRS and a very short panel.

A few recent articles directly or indirectly consider local labor market effects. Hairault, Langot, and Zylberberg (2015) include local fixed effects in a regression examining transitions into self-reported retirement in the HRS from employment versus unemployment; however, they do not incorporate variation in local labor market conditions over time.[4] Goda, Shoven, and Slavov (2012) use the HRS and find that county-level unemployment rates do not affect future retirement expectations, but this focus on future expectations fails to capture immediate business cycle effects arising from job loss, for example. The study most similar to ours, Maestas, Mullen, and Powell (2013), uses the HRS, as we do, to focus on local labor markets, but they emphasize characteristics of a person's current job, while we emphasize characteristics of the transition path that a person follows out of that job. They analyze industry-specific and nonpecuniary job characteristics in detail but consider only unidimensional transitions from employment to either non-employment or self-reported retirement.[5]

Compared with the recent literature, we model job transitions as a multidimensional process, which turns out to be critical in distinguishing business cycle effects on voluntary versus involuntary transitions. We also measure labor market conditions at the local level to evaluate how business cycles influence retirement transitions.

EMPIRICAL STRATEGY

Our approach involves estimating a multinomial logit model explaining annual job transitions for aging workers in the HRS. The emphasis in the literature on the heterogeneity in retirement transitions explains our multichotomous approach (Ruhm, 1990, and Gustman and Steinmeier, 1995). This approach is richer than common specifications that pick a single binary definition of retirement (leaving a career job, describing oneself as retired, working zero hours, and so on).[6] This also allows us to consider both voluntary and involuntary job exits, where we view voluntary job exits as reflecting labor supply factors and involuntary job exits as reflecting labor demand. This distinction has been overlooked in much of the retirement literature but is critical when evaluating local employment conditions.

Thus, we seek to explain the probability of observing outcome $y_{ntk} = 1, 2, \ldots K$ for each individual n in each year t, where the $K = 5$ outcomes at the end of the year are as follows:

- staying in the beginning-of-the-year job,
- leaving that job involuntarily to another job,
- leaving that job voluntarily to another job,
- leaving that job involuntarily to retirement, or
- leaving that job voluntarily to retirement.[7]

Ignoring for now the possible correlation of the error term across observations for the same individual, we can write $y_{ntk} = y_{ik}$. The probability that a particular y_{ik} is observed, conditional on observables x_i, can be expressed as

$$\Pr\left[y_{ik} = j \middle| x_i\right] = \frac{\exp\left(x_i'\beta_j\right)}{1 + \sum_{j=1}^{K} \exp\left(x_i'\beta_j\right)}. \tag{1}$$

The covariates x_i reflect individual-level factors that affect retirement. These factors capture substitution and income effects on labor supply as well as labor demand conditions. This specification yields a coefficient estimate for each covariate x_i that is specific to each outcome k; so, for example, the local unemployment rate is allowed to have different effects on the likelihood of each possible transition but one. As is usual in the multinomial formulation, those coefficients are identified for K–1 of the outcomes, relative to an arbitrarily chosen outcome as a base case.

Relative to the structural retirement literature (e.g., Rust and Phelan, 1997; Gustman and Steinmeier, 2005; French and Jones, 2011), we do not (i) specify underlying preferences, (ii) model features of job outcomes that are not chosen, (iii) capture the full dynamics in the evolution of retirement benefits, or (iv) (specific to this case) model expectations about the future unemployment rate. Accounting for these issues carefully would require making functional form assumptions that tend to have little clear empirical justification. To deal with retirement benefits, we control parsimoniously for public and private pension characteristics associated with the gains to delaying exit from the current job (Coile and Gruber, 2007, and Friedberg and Webb, 2005). We also control for other characteristics of the initial job and of the indi-

vidual, as described in the next section. We also allow for arbitrary correlation of the error term for observations that occur for the same individuals over time.

DATA

The HRS is a detailed longitudinal survey of over 7,600 representative households with a member born between 1931 and 1941. The HRS cohort began in 1992 and participants are surveyed every two years. We use data from the first 10 waves through 2010.[8]

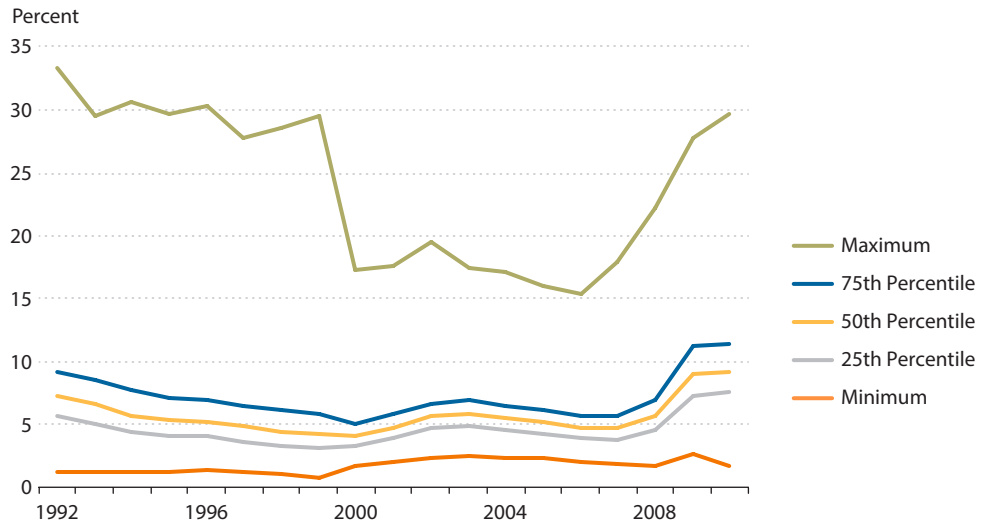
The HRS asks about the precise timing of a job exit. We also use information on the reasons for leaving the former employer; if someone reports that the reason was a layoff or business closure or that they were encouraged to leave, the transition is classified as involuntary.[9] The HRS reports data on the zip code where each individual was interviewed at each wave, also on a restricted basis; the latter data enable us to assign individuals to local labor markets. Lastly, the HRS provides enormous detail about covariates that help explain retirement and may be correlated with local factors, such as job characteristics, health, marital status, and assets.

We define the individual's location as the core-based statistical area (CBSA) in which he or she was interviewed.[10] The HRS is intended to be nationally representative, subject to oversampling of minorities and residents of Florida.[11] Most micropolitan statistical areas (μSAs) and some small MSAs contain only a handful of respondents, although these contribute to our analysis of the overall impact of unemployment on labor market behavior. A potential difficulty with analyses of the impact of local labor market conditions on retirement transitions is the treatment of individuals who move from one MSA to another. In practice, this is not a significant issue. Among the person-year observations in our sample, only 1,217, or 3.5 percent, changed MSAs between one birthday and the next (which is when many people embark on retirement). We retain them in the sample, using their MSA at the beginning of the year to characterize their labor market conditions.

Our key geographic variable is the MSA-specific unemployment rate. The unemployment rate reflects conditions that workers face in the current job, in other potential jobs, and in retirement. As noted in the literature, older workers who lose their jobs may choose early retirement, and this early retirement channel is likely to deepen during recessions. However, a worse labor market also reduces voluntary job exits at any age because finding a new job is more difficult. A poor labor market may further slow voluntary retirement flows because resources available for retirement seem less solid and the option to return to the labor force becomes more difficult to exercise. We use unemployment rates for the period 1990-2010 obtained from the U.S. Bureau of Labor Statistics. As Figure 1 shows, the unemployment rate varies considerably across business cycles. The median MSA unemployment rate dropped steadily through the 1990s, reaching a low of 4.1 percent in 2000. After that it increased until 2003, then dropped, and then jumped to a high of 9.3 percent in 2010. The difference between the 25th and 75th percentile values is typically around 4 percentage points, while the minimum MSA unemployment rate is around 2 percent in any given year and the maximum typically exceeds 20 percent. We also find that location and year do not explain all of the variation in the unemployment rate, with a 21.7 percent residual variation remaining.

Figure 1

MSA Unemployment Rates



SOURCE: BLS Local Area Unemployment Statistics.

Our multinomial logit also includes demographic and socioeconomic controls that are known to explain retirement and that capture job characteristics related to the industrial composition of local labor markets. The controls include gender, marital status, race, education (three categories), self-reported health (five categories), single age dummies, financial wealth by quintile (which, though potentially endogenous, has little effect on other estimated coefficients when included), job tenure, plant size (six categories), industry (four categories), occupation (three categories),[12] whether the individual has responsibility for pay and promotion (a key indicator of management jobs), and union membership. We include information on employer-provided pensions. We use self-reported information on pension type (defined benefit, defined contribution, both, none).[13] Lastly, in other specifications we try to control for an individual's Social Security incentives.[14]

We select our sample as follows. Beginning with 12,652 individuals in the 1992 HRS, we keep individuals observed for at least one 12-month period starting at any age between 50 and 69, leaving 11,232 individuals. We drop those who were not working or self-employed in 1992, leaving 6,437.[15] Further, we drop those whose geographic identifiers are missing and who live outside an MSA or μSA, as their local unemployment rate cannot be obtained; we also exclude those for whom we cannot obtain financial or demographic data, leaving 5,387. We used the recall data on job transitions to convert the observations to 34,895 person-year observations. These person-year observations report the following employment transitions of workers from one birthday to the next: whether the person was working for the same employer and, if not, whether the person left voluntarily or involuntarily, stopped working,

or took a job with another employer, and, if so, whether the new job involved full-time or part-time work hours (more or less than 30 weekly hours, respectively).[16]

For an idea of how those included in the sample transition out of their initial jobs and into retirement, note that between turning age 55 and turning age 56, 88.2 percent of the sample (defined as people who are in a job at the beginning of the period) stay in the same job. Among the rest, 2.6 percent lose their job involuntarily and take another job, 3.9 percent leave their job voluntarily and take another job, while 1.1 percent and 4.1 percent have the same types of exits, respectively, but retire. At age 60, almost the same percentage, 86.7 percent, stay in their jobs, while this declines to 85.0 percent at age 61 and 79.5 percent at age 62. Involuntary and voluntary job exits to another job decline gradually as the sample ages, while involuntary job exits to retirement remain roughly steady. Meanwhile, voluntary job exits to retirement rise to 6.3 percent at age 60, 9.2 percent at age 61, and 13.5 percent at age 62.

EMPIRICAL RESULTS

Interpretation of Multinomial Logit Results

Tables 1 through 5 report marginal effects and standard errors clustered at the person level obtained from weighted multinomial logit estimation. Our multinomial outcome variables involve birthday-to-birthday job transitions, as detailed below.[17] Each table reports the estimated marginal effects of the right-hand-side variables on the likelihood of one of the transitions occurring relative to the default state of staying in one's initial job. Each column of a table reports estimates for a different sample of interest, as detailed in the boxed insert.

The tables report the estimated effects of each covariate in the form of marginal effects. The marginal effect is a transformation of the estimated logit coefficient and captures the impact of a marginal change in a covariate on the likelihood of the occurrence of a particular job transition. As is common to multinomial models, the effect of covariates on the base outcome (staying in the current job) is not identified, as their coefficient estimates indicate the effect on the latent value of a particular outcome relative to the base outcome; marginal effects of these covariates on the base outcome are simply equal to 1 minus the sum of the marginal effects on the other outcomes.

Job transition outcome (reported by table)	Estimation sample (reported by column)
Stay in current job (Table 1)	Full sample (column (A))
Involuntary exit to a new job (Table 2)	Males (column (B))
Voluntary exit to a new job (Table 3)	Females (column (C))
Involuntary exit to retirement (Table 4)	Skilled occupations (column (D))
Voluntary exit to retirement (Table 5)	Semi-skilled occupations (column (E))
	Unskilled occupations (column (F))

Table 1

Multinomial Logit Marginal Effects: Outcome = Stay in Current Job

	(A) Full sample		(B) Males		(C) Females		(D) Skilled		(E) Semi-skilled		(F) Unskilled	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Unemployment rate	0.0049	0.0010***	0.0057	0.0015***	0.0044	0.0013***	0.0048	0.0019**	0.0086	0.0019***	0.0031	0.0014**
Ages												
50-55	0.0466	0.0090***	0.0560	0.0148***	0.0469	0.0115***	0.0677	0.0164***	0.0488	0.0162***	0.0256	0.0148*
56-59	0.0352	0.0078***	0.0309	0.0123**	0.0421	0.0102***	0.0212	0.0136	0.0424	0.0139***	0.0423	0.0133***
60-61	–0.0059	0.0082	–0.0140	0.0123	0.0047	0.0112	–0.0094	0.0143	0.0225	0.0150	–0.0256	0.0136*
62	–0.0493	0.0093***	–0.0662	0.0144***	–0.0299	0.0123**	–0.0528	0.0160***	–0.0151	0.0177	–0.0757	0.0154***
63-64	–0.0255	0.0081***	–0.0300	0.0125**	–0.0188	0.0106*	–0.0385	0.0142***	0.0089	0.0148	–0.0428	0.0135***
65	–0.0444	0.0103***	–0.0528	0.0160***	–0.0370	0.0135***	–0.0600	0.0169***	–0.0260	0.0186	–0.0451	0.0183**
66	–0.0171	0.0114	–0.0285	0.0170*	–0.0082	0.0154	–0.0355	0.0191*	–0.0118	0.0207	–0.0063	0.0194
Male	0.0060	0.0049					0.0097	0.0081	-0.0039	0.0101	0.0089	0.0079
Education												
Less than high school	–0.0061	0.0059	0.0034	0.0092	–0.0124	0.0076	0.0039	0.0189	0.0144	0.0133	–0.0148	0.0077*
Some college	–0.0040	0.0050	–0.0064	0.0078	–0.0020	0.0066	0.0065	0.0089	–0.0046	0.0083	–0.0083	0.0091
Black	0.0088	0.0057	0.0037	0.0099	0.0120	0.0069*	–0.0342	0.0109***	0.0348	0.0148**	0.0194	0.0080**
Labor type												
Unskilled	–0.0009	0.0056	0.0096	0.0097	–0.0031	0.0068						
Skilled	0.0138	0.0060**	0.0265	0.0103**	0.0074	0.0075						
Industry												
Mining	–0.0080	0.0094	–0.0155	0.0114	0.0109	0.0215	0.0003	0.0191	–0.0151	0.0297	–0.0048	0.0126
Manufacturing	–0.0123	0.0057**	–0.0038	0.0079	–0.0228	0.0082***	–0.0024	0.0111	–0.0248	0.0109**	–0.0094	0.0090
Professional	0.0223	0.0055***	0.0218	0.0095**	0.0182	0.0066***	0.0328	0.0092***	0.0143	0.0098	0.0186	0.0095**
Married	–0.0011	0.0049	–0.0020	0.0098	–0.0024	0.0057	–0.0120	0.0086	–0.0010	0.0089	0.0064	0.0083
Union member	0.0043	0.0013***	0.0029	0.0020	0.0043	0.0018**	0.0022	0.0024	0.0072	0.0027***	0.0030	0.0021
Employee decides promotion	0.0054	0.0014***	0.0011	0.0019	0.0092	0.0019***	0.0027	0.0019	0.0071	0.0026***	0.0069	0.0028**
Size of work location												
< 5 employees	0.0067	0.0100	0.0029	0.0142	0.0099	0.0141	0.0217	0.0164	0.0225	0.0208	–0.0178	0.0172
5 to 14 employees	0.0030	0.0128	-0.0096	0.0199	0.0176	0.0172	–0.0125	0.0226	0.0045	0.0247	0.0254	0.0217
15 to 24 employees	0.0013	0.0121	0.0049	0.0168	–0.0003	0.0178	–0.0027	0.0207	0.0067	0.0258	0.0002	0.0189
25 to 99 employees	0.0151	0.0069**	0.0117	0.0113	0.0190	0.0088**	0.0060	0.0116	0.0223	0.0126*	0.0153	0.0119
100 to 499 employees	0.0026	0.0049	–0.0033	0.0074	0.0077	0.0066	0.0021	0.0082	0.0059	0.0093	–0.0028	0.0080
Financial wealth												
1st quintile	0.0146	0.0065**	0.0126	0.0098	0.0176	0.0086**	0.0318	0.0132**	0.0257	0.0119**	0.0026	0.0100
2nd quintile	–0.0018	0.0064	–0.0103	0.0096	0.0054	0.0086	–0.0026	0.0118	0.0061	0.0120	–0.0068	0.0103
3rd quintile	–0.0082	0.0062	–0.0265	0.0090***	0.0081	0.0085	–0.0108	0.0100	0.0028	0.0109	–0.0165	0.0113
4th quintile	–0.0015	0.0066	–0.0085	0.0100	0.0067	0.0089	–0.0044	0.0099	0.0160	0.0122	–0.0156	0.0127
Health												
Excellent	0.0204	0.0062***	0.0183	0.0092**	0.0217	0.0083***	0.0070	0.0095	0.0377	0.0117***	0.0192	0.0112*
Very good	0.0099	0.0049**	0.0129	0.0075*	0.0080	0.0065	0.0050	0.0084	0.0138	0.0092	0.0118	0.0082
Fair	–0.0247	0.0065***	–0.0210	0.0098**	–0.0257	0.0086***	–0.0176	0.0134	–0.0317	0.0128**	–0.0247	0.0094***
Poor	–0.0569	0.0147***	–0.0483	0.0211**	–0.0539	0.0220**	0.1569	0.0354***	–0.1016	0.0287***	–0.0506	0.0196***
Pension type												
DC	0.0436	0.0056***	0.0392	0.0084***	0.0451	0.0076***	0.0286	0.0093***	0.0416	0.0105***	0.0586	0.0094***
DB	0.0241	0.0061***	0.0160	0.0094*	0.0312	0.0082***	0.0129	0.0095	0.0270	0.0125**	0.0324	0.0105***
DB and DC	0.0067	0.0070	0.0060	0.0105	0.0052	0.0094	0.0040	0.0107	0.0166	0.0130	-0.0099	0.0127
Tenure	0.0014	0.0002***	0.0006	0.0003**	0.0024	0.0003***	0.0011	0.0004***	0.0023	0.0005***	0.0010	0.0004***
Marginal effect of unemployment rate at percentiles of the distribution												
Unemployment rate (p10)	0.0057	0.0012***	0.0068	0.0018***	0.0050	0.0015***	0.0058	0.0023**	0.0102	0.0025***	0.0038	0.0016**
Unemployment rate (p25)	0.0054	0.0011***	0.0064	0.0017***	0.0048	0.0014***	0.0054	0.0022**	0.0095	0.0022***	0.0035	0.0015**
Unemployment rate (p50)	0.0050	0.0010***	0.0059	0.0015***	0.0045	0.0013***	0.0049	0.0020**	0.0088	0.0020***	0.0032	0.0014**
Unemployment rate (p75)	0.0046	0.0009***	0.0053	0.0013***	0.0041	0.0012***	0.0043	0.0018**	0.0080	0.0017***	0.0029	0.0013**
Unemployment rate (p90)	0.0040	0.0008***	0.0046	0.0012***	0.0037	0.0011***	0.0036	0.0016**	0.0070	0.0014***	0.0025	0.0012**
N	34,895		15,327		19,568		10,884		9,711		14,297	

NOTE: Observations at the person-year level for a sample from the Health and Retirement Study, original HRS cohort, from 1992-2010. Coeff., coefficiant. S.E., standard error. The sample consists of those observed for at least two waves between ages 50-69 and initially employed or self-employed and who live in an MSA or μSA and for whom self-reports or imputations exist for all the variables in the regression. The table reports marginal effects estimated from a weighted multinomial logit (using survey weights to make the sample nationally representative) with five job transitions observed based on recall data from one birthday to the next (stay in current job, involuntary exit to new job, voluntary exit to new job, involuntary exit to retirement, voluntary exit to employment). The table also reports standard errors clustered at the person level, with statistical significance denoted by *** (1% level), ** (5% level), and * (10% level). The unemployment rate is measured at the MSA or μSA level. See the text for more information about control variables.

Table 2

Multinomial Logit Marginal Effects: Outcome = Involuntary Exit to a New Job

	(A) Full sample		(B) Males		(C) Females		(D) Skilled		(E) Semi-skilled		(F) Unskilled	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Unemployment rate	0.0006	0.0003*	0.0004	0.0005	0.0007	0.0005	0.0011	0.0006*	–0.0001	0.0008	0.0007	0.0005
Ages												
50-55	0.0052	0.0036	0.0109	0.0057*	0.0014	0.0046	0.0028	0.0059	–0.0060	0.0070	0.0167	0.0061***
56-59	0.0036	0.0032	0.0074	0.0049	0.0014	0.0042	0.0013	0.0053	0.0008	0.0058	0.0086	0.0056
60-61	–0.0030	0.0037	–0.0015	0.0058	–0.0035	0.0048	0.0033	0.0061	–0.0111	0.0068	–0.0020	0.0063
62	–0.0087	0.0048*	–0.0115	0.0076	–0.0060	0.0061	–0.0043	0.0075	–0.0193	0.0097**	–0.0031	0.0079
63-64	–0.0058	0.0039	–0.0008	0.0060	–0.0098	0.0050**	0.0037	0.0060	–0.0225	0.0075***	–0.0016	0.0067
65	0.0020	0.0050	0.0012	0.0085	0.0037	0.0060	0.0049	0.0073	–0.0057	0.0091	0.0071	0.0092
66	–0.0108	0.0057*	–0.0072	0.0087	–0.0127	0.0077*	–0.0009	0.0086	–0.0200	0.0108*	–0.0113	0.0105
Male	0.0052	0.0022**					0.0053	0.0037	0.0093	0.0044**	0.0003	0.0036
Education												
Less than high school	–0.0018	0.0027	–0.0014	0.0043	–0.0025	0.0034	0.0000	0.0073	–0.0056	0.0067	–0.0003	0.0036
Some college	0.0050	0.0024**	0.0069	0.0041*	0.0033	0.0029	0.0004	0.0038	0.0084	0.0040**	0.0065	0.0044
Black	–0.0023	0.0028	–0.0055	0.0049	–0.0010	0.0033	0.0031	0.0055	–0.0134	0.0085	–0.0009	0.0036
Labor type												
Unskilled	–0.0043	0.0027	–0.0081	0.0046*	–0.0016	0.0030						
Skilled	–0.0040	0.0027	–0.0050	0.0047	–0.0048	0.0033						
Industry												
Mining	0.0050	0.0038	0.0074	0.0049	–0.0020	0.0082	0.0020	0.0072	0.0041	0.0109	0.0076	0.0052
Manufacturing	0.0020	0.0025	0.0015	0.0038	0.0028	0.0033	0.0038	0.0040	–0.0023	0.0052	0.0012	0.0045
Professional	–0.0113	0.0028***	–0.0128	0.0053**	–0.0094	0.0032***	–0.0117	0.0039***	–0.0069	0.0050	–0.0096	0.0049**
Married	–0.0024	0.0023	0.0063	0.0048	–0.0051	0.0027*	–0.0007	0.0040	–0.0058	0.0045	–0.0013	0.0037
Union member	0.0005	0.0007	0.0001	0.0011	0.0011	0.0009	0.0020	0.0014	0.0021	0.0018	–0.0009	0.0010
Employee decides promotion	–0.0003	0.0006	0.0004	0.0009	–0.0011	0.0009	–0.0010	0.0008	0.0005	0.0015	0.0009	0.0015
Size of work location												
< 5 employees	0.0020	0.0047	0.0076	0.0064	–0.0062	0.0076	–0.0050	0.0077	–0.0094	0.0125	0.0137	0.0069**
5 to 14 employees	0.0065	0.0060	0.0162	0.0089*	–0.0022	0.0083	–0.0104	0.0140	–0.0044	0.0138	0.0230	0.0085***
15 to 24 employees	–0.0002	0.0062	–0.0078	0.0106	0.0066	0.0074	–0.0008	0.0101	0.0076	0.0112	–0.0033	0.0110
25 to 99 employees	0.0009	0.0034	0.0093	0.0051*	–0.0055	0.0047	0.0054	0.0050	–0.0101	0.0070	0.0068	0.0061
100 to 499 employees	0.0079	0.0024***	0.0081	0.0036**	0.0078	0.0031**	0.0043	0.0034	0.0052	0.0047	0.0139	0.0043***
Financial wealth												
1st quintile	0.0008	0.0028	0.0041	0.0044	–0.0023	0.0037	–0.0007	0.0051	0.0013	0.0056	0.0004	0.0045
2nd quintile	0.0059	0.0029**	0.0082	0.0046*	0.0034	0.0037	0.0098	0.0045**	0.0065	0.0058	0.0032	0.0048
3rd quintile	0.0002	0.0029	0.0042	0.0044	–0.0029	0.0039	0.0013	0.0045	–0.0018	0.0057	0.0019	0.0051
4th quintile	0.0000	0.0031	0.0043	0.0049	–0.0034	0.0040	0.0006	0.0044	–0.0039	0.0060	0.0057	0.0061
Health												
Excellent	–0.0018	0.0028	0.0017	0.0043	–0.0046	0.0037	0.0050	0.0040	–0.0079	0.0057	–0.0037	0.0050
Very good	–0.0042	0.0023*	–0.0050	0.0039	–0.0032	0.0028	–0.0013	0.0039	–0.0066	0.0044	–0.0038	0.0040
Fair	–0.0041	0.0031	–0.0026	0.0048	–0.0050	0.0039	0.0010	0.0057	0.0028	0.0060	–0.0100	0.0047**
Poor	0.0002	0.0076	0.0077	0.0113	–0.0066	0.0089	0.0105	0.0121	0.0016	0.0146	–0.0020	0.0099
Pension type												
DC	–0.0075	0.0026***	–0.0064	0.0039	–0.0092	0.0035***	–0.0029	0.0034	–0.0121	0.0054**	–0.0095	0.0051*
DB	–0.0200	0.0036***	–0.0233	0.0056***	–0.0178	0.0047***	–0.0175	0.0053***	–0.0232	0.0082***	–0.0196	0.0055***
DB and DC	–0.0201	0.0037***	–0.0226	0.0057***	–0.0184	0.0050***	–0.0167	0.0048***	–0.0207	0.0071***	–0.0213	0.0074***
Tenure	–0.0008	0.0001***	–0.0007	0.0002***	–0.0009	0.0002***	–0.0007	0.0002***	–0.0012	0.0003***	–0.0006	0.0002***
Marginal effect of unemployment rate at percentiles of the distribution												
Unemployment rate (p10)	0.0006	0.0003*	0.0004	0.0005	0.0007	0.0004*	0.0010	0.0005**	0.0000	0.0008	0.0007	0.0005
Unemployment rate (p25)	0.0006	0.0003*	0.0004	0.0005	0.0007	0.0004	0.0010	0.0005**	0.0000	0.0008	0.0007	0.0005
Unemployment rate (p50)	0.0006	0.0003*	0.0004	0.0005	0.0007	0.0004	0.0011	0.0006*	0.0000	0.0008	0.0007	0.0005
Unemployment rate (p75)	0.0006	0.0004	0.0004	0.0005	0.0007	0.0005	0.0011	0.0006*	–0.0001	0.0008	0.0007	0.0005
Unemployment rate (p90)	0.0006	0.0004	0.0004	0.0006	0.0007	0.0005	0.0012	0.0007*	–0.0001	0.0008	0.0007	0.0006
N	34,895		15,327		19,568		10,884		9,711		14,297	

NOTE: Observations at the person-year level for a sample from the Health and Retirement Study, original HRS cohort, from 1992-2010. Coeff., coefficiant. S.E., standard error. The sample consists of those observed for at least two waves between ages 50-69 and initially employed or self-employed and who live in an MSA or μSA and for whom self-reports or imputations exist for all the variables in the regression. The table reports marginal effects estimated from a weighted multinomial logit (using survey weights to make the sample nationally representative) with five job transitions observed based on recall data from one birthday to the next (stay in current job, involuntary exit to new job, voluntary exit to new job, involuntary exit to retirement, voluntary exit to employment). The table also reports standard errors clustered at the person level, with statistical significance denoted by *** (1% level), ** (5% level), and * (10% level). The unemployment rate is measured at the MSA or μSA level. See the text for more information about control variables.

Table 3

Multinomial Logit Marginal Effects: Outcome = Voluntary Exit to a New Job

	(A) Full sample		(B) Males		(C) Females		(D) Skilled		(E) Semi-skilled		(F) Unskilled	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Unemployment rate	–0.0027	0.0006***	–0.0034	0.0010***	–0.0022	0.0007***	–0.0027	0.0011**	–0.0027	0.0011**	–0.0027	0.0008***
Ages												
50-55	0.0185	0.0045***	0.0289	0.0073***	0.0106	0.0056*	0.0246	0.0084***	0.0180	0.0083**	0.0157	0.0071**
56-59	0.0154	0.0043***	0.0256	0.0068***	0.0070	0.0054	0.0190	0.0081**	0.0126	0.0078	0.0165	0.0065**
60-61	0.0118	0.0045***	0.0178	0.0071**	0.0069	0.0057	0.0155	0.0084*	0.0061	0.0083	0.0143	0.0069**
62	0.0188	0.0050***	0.0331	0.0077***	0.0064	0.0067	0.0265	0.0092***	0.0079	0.0094	0.0214	0.0079***
63-64	0.0105	0.0046**	0.0169	0.0073**	0.0055	0.0059	0.0175	0.0088**	0.0043	0.0088	0.0109	0.0072
65	0.0116	0.0057**	0.0200	0.0088**	0.0053	0.0074	0.0248	0.0102**	0.0118	0.0102	–0.0010	0.0102
66	0.0060	0.0063	0.0112	0.0099	0.0023	0.0083	0.0106	0.0114	0.0106	0.0108	–0.0018	0.0106
Male	0.0064	0.0024***					0.0037	0.0038	0.0102	0.0053*	0.0071	0.0037*
Education												
Less than high school	–0.0080	0.0033**	–0.0155	0.0051***	–0.0016	0.0043	–0.0137	0.0116	–0.0105	0.0078	–0.0061	0.0042
Some college	0.0060	0.0026**	0.0020	0.0042	0.0088	0.0034***	0.0003	0.0048	0.0051	0.0046	0.0094	0.0042**
Black	–0.0045	0.0031	–0.0034	0.0052	–0.0041	0.0037	0.0048	0.0055	–0.0052	0.0075	–0.0089	0.0043**
Labor type												
Unskilled	0.0030	0.0029	0.0003	0.0052	0.0012	0.0034						
Skilled	–0.0002	0.0032	–0.0109	0.0055**	0.0060	0.0038						
Industry												
Mining	–0.0022	0.0044	–0.0008	0.0055	0.0041	0.0102	–0.0115	0.0102	0.0219	0.0115*	–0.0043	0.0057
Manufacturing	–0.0050	0.0029*	–0.0051	0.0044	–0.0043	0.0042	–0.0070	0.0057	–0.0055	0.0058	–0.0047	0.0045
Professional	–0.0024	0.0026	0.0057	0.0044	–0.0057	0.0031*	–0.0012	0.0042	–0.0033	0.0053	–0.0033	0.0046
Married	–0.0008	0.0025	0.0078	0.0050	–0.0023	0.0029	–0.0005	0.0046	0.0009	0.0047	–0.0029	0.0037
Union member	0.0012	0.0007*	0.0009	0.0010	0.0020	0.0010*	0.0019	0.0012	–0.0005	0.0015	0.0020	0.0011*
Employee decides promotion	–0.0002	0.0007	–0.0009	0.0010	0.0006	0.0010	0.0005	0.0009	0.0000	0.0015	–0.0018	0.0012
Size of work location												
< 5 employees	0.0075	0.0047	0.0051	0.0069	0.0098	0.0063	–0.0004	0.0080	0.0059	0.0091	0.0138	0.0075*
5 to 14 employees	0.0081	0.0066	–0.0004	0.0125	0.0129	0.0076*	0.0148	0.0109	0.0177	0.0102*	–0.0095	0.0130
15 to 24 employees	0.0071	0.0057	0.0055	0.0081	0.0080	0.0079	0.0122	0.0090	–0.0068	0.0139	0.0107	0.0086
25 to 99 employees	0.0048	0.0036	0.0069	0.0057	0.0031	0.0047	0.0058	0.0061	0.0067	0.0063	0.0029	0.0062
100 to 499 employees	0.0085	0.0026***	0.0079	0.0039**	0.0088	0.0034***	0.0069	0.0042*	0.0082	0.0051	0.0107	0.0042**
Financial wealth												
1st quintile	0.0002	0.0031	–0.0019	0.0049	0.0021	0.0040	0.0016	0.0058	–0.0055	0.0059	0.0046	0.0051
2nd quintile	0.0038	0.0031	0.0004	0.0048	0.0059	0.0040	0.0058	0.0055	0.0023	0.0056	0.0044	0.0050
3rd quintile	0.0012	0.0030	0.0074	0.0045*	–0.0048	0.0041	–0.0004	0.0049	0.0010	0.0054	0.0032	0.0055
4th quintile	–0.0080	0.0033**	–0.0004	0.0050	–0.0146	0.0045***	–0.0072	0.0050	–0.0141	0.0067**	–0.0012	0.0061
Health												
Excellent	0.0046	0.0030	0.0017	0.0044	0.0078	0.0039**	0.0035	0.0044	0.0012	0.0065	0.0087	0.0049*
Very good	0.0008	0.0026	–0.0063	0.0040	0.0070	0.0033**	–0.0040	0.0046	0.0034	0.0051	0.0022	0.0040
Fair	0.0013	0.0034	0.0019	0.0052	0.0009	0.0045	–0.0081	0.0073	0.0039	0.0065	0.0042	0.0049
Poor	–0.0123	0.0103	–0.0057	0.0134	–0.0225	0.0171	–0.0080	0.0161	0.0030	0.0197	–0.0194	0.0154
Pension type												
DC	–0.0149	0.0028***	–0.0150	0.0042***	–0.0147	0.0039***	–0.0096	0.0045**	–0.0162	0.0053***	–0.0190	0.005***
DB	–0.0171	0.0033***	–0.0154	0.0047***	–0.0208	0.0049***	–0.0152	0.0053***	–0.0191	0.0066***	–0.0156	0.0055***
DB and DC	–0.0126	0.0037***	–0.0154	0.0054***	–0.0102	0.0052**	–0.0094	0.0055*	–0.0220	0.0080***	–0.0062	0.0068
Tenure	–0.0008	0.0001***	–0.0006	0.0002***	–0.0010	0.0002***	–0.0008	0.0002***	–0.0010	0.0003***	–0.0006	0.0002**
Marginal effect of unemployment rate at percentiles of the distribution												
Unemployment rate (p10)	–0.0032	0.0008***	–0.0041	0.0014***	–0.0025	0.001***	–0.0031	0.0015**	–0.0032	0.0016**	–0.0033	0.0012***
Unemployment rate (p25)	–0.0030	0.0007***	–0.0038	0.0012***	–0.0024	0.0009***	–0.0029	0.0014**	–0.0030	0.0014**	–0.0031	0.0010***
Unemployment rate (p50)	–0.0027	0.0006***	–0.0034	0.0010***	–0.0022	0.0007***	–0.0027	0.0011**	–0.0028	0.0011**	–0.0028	0.0009***
Unemployment rate (p75)	–0.0025	0.0005***	–0.0030	0.0008***	–0.0020	0.0006***	–0.0024	0.0009***	–0.0025	0.0009***	–0.0025	0.0007***
Unemployment rate (p90)	–0.0022	0.0004***	–0.0026	0.0005***	–0.0018	0.0005***	–0.0021	0.0007***	–0.0022	0.0007***	–0.0022	0.0005***
N	34,895		15,327		19,568		10,884		9,711		14,297	

NOTE: Observations at the person-year level for a sample from the Health and Retirement Study, original HRS cohort, from 1992-2010. Coeff., coefficiant. S.E., standard error. The sample consists of those observed for at least two waves between ages 50-69 and initially employed or self-employed and who live in an MSA or μSA and for whom self-reports or imputations exist for all the variables in the regression. The table reports marginal effects estimated from a weighted multinomial logit (using survey weights to make the sample nationally representative) with five job transitions observed based on recall data from one birthday to the next (stay in current job, involuntary exit to new job, voluntary exit to new job, involuntary exit to retirement, voluntary exit to employment). The table also reports standard errors clustered at the person level, with statistical significance denoted by *** (1% level), ** (5% level), and * (10% level). The unemployment rate is measured at the MSA or μSA level. See the text for more information about control variables.

Table 4

Multinomial Logit Marginal Effects: Outcome = Involuntary Exit to Retirement

	(A) Full sample		(B) Males		(C) Females		(D) Skilled		(E) Semi-skilled		(F) Unskilled	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Unemployment rate	0.0006	0.0002***	0.0008	0.0003**	0.0003	0.0003	0.0007	0.0005	0.0005	0.0006	0.0006	0.0003**
Ages												
50-55	–0.0018	0.0031	–0.0079	0.0055	0.0012	0.0041	–0.0047	0.0061	–0.0065	0.0057	0.0054	0.0051
56-59	–0.0006	0.0027	–0.0028	0.0038	0.0005	0.0038	0.0012	0.0041	–0.0049	0.0051	0.0021	0.0047
60-61	0.0044	0.0028	0.0064	0.0037*	0.0018	0.0041	0.0074	0.0042*	–0.0071	0.0057	0.0114	0.0049**
62	0.0069	0.0031**	0.0040	0.0045	0.0085	0.0044*	0.0066	0.0047	0.0017	0.0063	0.0129	0.0054**
63-64	0.0054	0.0028*	0.0064	0.0038*	0.0041	0.0042	0.0071	0.0043*	–0.0002	0.0055	0.0096	0.0050*
65	0.0053	0.0036	0.0030	0.0055	0.0067	0.0049	0.0004	0.0063	0.0010	0.0073	0.0129	0.0059**
66	0.0029	0.0037	0.0029	0.0051	0.0023	0.0054	0.0014	0.0060	–0.0020	0.0077	0.0097	0.0061
Male	–0.0011	0.0016					0.0001	0.0024	–0.0021	0.0036	–0.0016	0.0026
Education												
Less than high school	0.0027	0.0018	0.0034	0.0028	0.0016	0.0024	–0.0013	0.0053	–0.0042	0.0050	0.0068	0.0026***
Some college	0.0004	0.0017	0.0023	0.0026	–0.0012	0.0024	0.0005	0.0026	–0.0001	0.0030	0.0016	0.0033
Black	0.0009	0.0020	0.0038	0.0031	–0.0013	0.0025	0.0076	0.0029***	–0.0164	0.0073**	0.0020	0.0028
Labor type												
Unskilled	–0.0046	0.0018***	–0.0059	0.0029**	–0.0032	0.0023						
Skilled	–0.0022	0.0020	–0.0016	0.0033	–0.0032	0.0028						
Industry												
Mining	0.0050	0.0029*	0.0069	0.0036*	–0.0094	0.0084	0.0072	0.0059	–0.0084	0.0158	0.0044	0.0034
Manufacturing	0.0055	0.0018***	0.0039	0.0026	0.0077	0.0025***	0.0032	0.0030	0.0102	0.0037***	0.0043	0.0028
Professional	–0.0086	0.0021***	–0.0078	0.0038**	–0.0090	0.0025***	–0.0078	0.0028***	–0.0117	0.0041***	–0.0075	0.0036**
Married	–0.0023	0.0016	–0.0039	0.0028	–0.0018	0.0020	–0.0014	0.0025	–0.0005	0.0032	–0.0040	0.0027
Union member	0.0005	0.0005	0.0009	0.0007	0.0001	0.0006	0.0001	0.0008	0.0004	0.0010	0.0009	0.0007
Employee decides promotion	0.0016	0.0006***	0.0023	0.0008***	0.0008	0.0008	0.0013	0.0006**	0.0028	0.0014**	0.0011	0.0012
Size of work location												
< 5 employees	–0.0031	0.0035	–0.0030	0.0047	–0.0031	0.0053	–0.0027	0.0057	–0.0069	0.0075	0.0000	0.0053
5 to 14 employees	0.0015	0.0042	0.0017	0.0059	0.0011	0.0061	0.0073	0.0052	–0.0039	0.0087	–0.0005	0.0078
15 to 24 employees	0.0047	0.0036	0.0023	0.0052	0.0072	0.0050	0.0083	0.0052	–0.0036	0.0090	0.0068	0.0055
25 to 99 employees	0.0001	0.0023	–0.0090	0.0043**	0.0045	0.0029	0.0011	0.0036	–0.0025	0.0044	0.0010	0.0039
100 to 499 employees	–0.0003	0.0017	0.0005	0.0025	–0.0011	0.0024	0.0016	0.0026	–0.0070	0.0035**	0.0035	0.0029
Financial wealth												
1st quintile	–0.0010	0.0021	0.0025	0.0031	–0.0044	0.0029	–0.0032	0.0038	–0.0040	0.0042	0.0028	0.0037
2nd quintile	–0.0035	0.0023	–0.0010	0.0035	–0.0058	0.0030*	–0.0061	0.0040	–0.0060	0.0044	0.0000	0.0039
3rd quintile	0.0019	0.0022	0.0050	0.0031	–0.0007	0.0031	0.0015	0.0029	–0.0061	0.0045	0.0096	0.0040**
4th quintile	0.0003	0.0023	0.0001	0.0034	0.0000	0.0031	–0.0002	0.0030	–0.0043	0.0045	0.0053	0.0045
Health												
Excellent	–0.0064	0.0022***	–0.0077	0.0035**	–0.0053	0.0029*	–0.0053	0.0033	–0.0128	0.0047***	–0.0010	0.0035
Very good	–0.0029	0.0017*	–0.0036	0.0024	–0.0025	0.0023	0.0012	0.0025	–0.0055	0.0035	–0.0058	0.0030*
Fair	0.0025	0.0021	–0.0002	0.0036	0.0046	0.0027*	0.0066	0.0042	0.0021	0.0045	0.0011	0.0030
Poor	0.0090	0.0036**	0.0052	0.0054	0.0124	0.0048***	–0.1988	0.0219***	0.0150	0.0079*	0.0109	0.0047**
Pension type												
DC	–0.0066	0.0020***	–0.0053	0.0030*	–0.0077	0.0028***	–0.0016	0.0028	–0.0097	0.0045**	–0.0100	0.0037***
DB	–0.0026	0.0020	–0.0043	0.0031	–0.0006	0.0026	–0.0080	0.0036**	0.0063	0.0037*	–0.0053	0.0035
DB and DC	–0.0004	0.0022	0.0023	0.0033	–0.0028	0.0031	0.0009	0.0029	–0.0059	0.0049	0.0028	0.0041
Tenure	–0.0002	0.0001***	–0.0001	0.0001	–0.0003	0.0001**	–0.0001	0.0001	–0.0002	0.0002	–0.0002	0.0001*
Marginal effect of unemployment rate at percentiles of the distribution												
Unemployment rate (p10)	0.0006	0.0002***	0.0007	0.0002***	0.0003	0.0003	0.0006	0.0004	0.0005	0.0005	0.0006	0.0002**
Unemployment rate (p25)	0.0006	0.0002***	0.0007	0.0003***	0.0003	0.0003	0.0006	0.0004	0.0005	0.0005	0.0006	0.0003**
Unemployment rate (p50)	0.0006	0.0002***	0.0008	0.0003**	0.0003	0.0003	0.0007	0.0005	0.0005	0.0005	0.0006	0.0003**
Unemployment rate (p75)	0.0006	0.0002**	0.0008	0.0003**	0.0003	0.0003	0.0007	0.0006	0.0005	0.0006	0.0006	0.0003**
Unemployment rate (p90)	0.0006	0.0003**	0.0009	0.0004**	0.0003	0.0004	0.0008	0.0007	0.0005	0.0006	0.0007	0.0004*
N	34,895		15,327		19,568		10,884		9,711		14,297	

NOTE: Observations at the person-year level for a sample from the Health and Retirement Study, original HRS cohort, from 1992-2010. Coeff., coefficiant. S.E., standard error. The sample consists of those observed for at least two waves between ages 50-69 and initially employed or self-employed and who live in an MSA or μSA and for whom self-reports or imputations exist for all the variables in the regression. The table reports marginal effects estimated from a weighted multinomial logit (using survey weights to make the sample nationally representative) with five job transitions observed based on recall data from one birthday to the next (stay in current job, involuntary exit to new job, voluntary exit to new job, involuntary exit to retirement, voluntary exit to employment). The table also reports standard errors clustered at the person level, with statistical significance denoted by *** (1% level), ** (5% level), and * (10% level). The unemployment rate is measured at the MSA or μSA level. See the text for more information about control variables.

Table 5

Multinomial Logit Marginal Effects: Outcome = Voluntary Exit to Retirement

	(A) Full sample		(B) Males		(C) Females		(D) Skilled		(E) Semi-skilled		(F) Unskilled	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Unemployment rate	–0.0034	0.0007***	–0.0036	0.0011***	–0.0033	0.001***	–0.0039	0.0015**	–0.0063	0.0015***	–0.0017	0.0010*
Ages												
50-55	–0.0685	0.0069***	–0.0880	0.0112***	–0.0600	0.0089***	–0.0903	0.0124***	–0.0542	0.0122***	–0.0634	0.0112***
56-59	–0.0536	0.0057***	–0.0610	0.0087***	–0.0511	0.0075***	–0.0427	0.0093***	–0.0509	0.0102***	–0.0695	0.0098***
60-61	–0.0074	0.0055	–0.0087	0.0082	–0.0099	0.0075	–0.0168	0.0094*	–0.0104	0.0100	0.0020	0.0091
62	0.0323	0.0058***	0.0406	0.0083***	0.0210	0.0082**	0.0241	0.0101**	0.0248	0.0106**	0.0445	0.0096***
63-64	0.0155	0.0055***	0.0076	0.0082	0.0190	0.0074***	0.0102	0.0094	0.0095	0.0097	0.0239	0.0092***
65	0.0255	0.0067***	0.0287	0.0099***	0.0212	0.0092**	0.0298	0.0114***	0.0190	0.0120	0.0261	0.0115**
66	0.0190	0.0072***	0.0215	0.0104**	0.0163	0.0099*	0.0243	0.0120**	0.0232	0.0126*	0.0097	0.0125
Male	–0.0165	0.0036***					–0.0188	0.0059***	–0.0135	0.0071*	–0.0147	0.0058**
Education												
Less than high school	0.0132	0.0042***	0.0101	0.0060*	0.0149	0.0059**	0.0111	0.0141	0.0059	0.0094	0.0143	0.0055***
Some college	–0.0074	0.0036**	–0.0048	0.0053	–0.0089	0.0050*	–0.0077	0.0066	–0.0087	0.0058	–0.0091	0.0067
Black	–0.0028	0.0042	0.0014	0.0071	–0.0057	0.0053	0.0188	0.0081**	0.0002	0.0091	–0.0117	0.0060*
Labor type												
Unskilled	0.0068	0.0040*	0.0041	0.0067	0.0067	0.0052						
Skilled	–0.0074	0.0043*	–0.0090	0.0076	–0.0055	0.0054						
Industry												
Mining	0.0002	0.0070	0.0019	0.0080	–0.0037	0.0180	0.0019	0.0148	–0.0025	0.0221	–0.0030	0.0093
Manufacturing	0.0099	0.0042**	0.0035	0.0057	0.0166	0.0064***	0.0024	0.0087	0.0224	0.0075***	0.0085	0.0065
Professional	0.0001	0.0039	–0.0069	0.0066	0.0059	0.0049	–0.0121	0.0071*	0.0076	0.0066	0.0019	0.0067
Married	0.0066	0.0036*	–0.0082	0.0063	0.0117	0.0043***	0.0146	0.0063**	0.0064	0.0062	0.0018	0.0058
Union member	–0.0067	0.0009***	–0.0049	0.0013***	–0.0074	0.0011***	–0.0061	0.0015***	–0.0093	0.0015***	–0.0050	0.0014***
Employee decides promotion	–0.0064	0.0009***	–0.0030	0.0014**	–0.0096	0.0013***	–0.0035	0.0013***	–0.0104	0.0015***	–0.0071	0.0018***
Size of work location												
< 5 employees	–0.0131	0.0074*	–0.0125	0.0102	–0.0105	0.0105	–0.0136	0.0116	–0.0120	0.0143	–0.0097	0.0124
5 to 14 employees	–0.0191	0.0094**	–0.0079	0.0134	–0.0294	0.0129**	0.0008	0.0149	–0.0139	0.0179	–0.0384	0.0153**
15 to 24 employees	–0.0129	0.0088	–0.0049	0.0113	–0.0214	0.0135	–0.0170	0.0158	–0.0038	0.0171	–0.0145	0.0133
25 to 99 employees	–0.0209	0.0047***	–0.0189	0.0077**	–0.0210	0.0060***	–0.0183	0.0081**	–0.0164	0.0085*	–0.0261	0.0078***
100 to 499 employees	–0.0187	0.0033***	–0.0131	0.0050***	–0.0233	0.0045***	–0.0148	0.0055***	–0.0124	0.0061**	–0.0253	0.0055***
Financial wealth												
1st quintile	–0.0147	0.0049***	–0.0173	0.0076**	–0.0131	0.0065**	–0.0295	0.0109***	–0.0175	0.0087**	–0.0104	0.0076
2nd quintile	–0.0044	0.0048	0.0026	0.0069	–0.0090	0.0066	–0.0069	0.0094	–0.0089	0.0089	–0.0009	0.0075
3rd quintile	0.0051	0.0046	0.0099	0.0065	0.0002	0.0065	0.0084	0.0078	0.0042	0.0079	0.0018	0.0081
4th quintile	0.0092	0.0047**	0.0045	0.0070	0.0113	0.0064*	0.0112	0.0075	0.0062	0.0081	0.0059	0.0089
Health												
Excellent	–0.0168	0.0047	–0.0140	0.0068**	–0.0196	0.0064***	–0.0102	0.0073	–0.0182	0.0084**	–0.0231	0.0088***
Very good	–0.0036	0.0036	0.0020	0.0052	–0.0094	0.0049*	–0.0010	0.0061	–0.0051	0.0066	–0.0044	0.0060
Fair	0.0250	0.0045***	0.0220	0.0068***	0.0253	0.0060***	0.0181	0.0091**	0.0228	0.0090**	0.0295	0.0067***
Poor	0.0600	0.0091***	0.0410	0.0145***	0.0705	0.0121***	0.0394	0.0209*	0.0821	0.0178***	0.0612	0.0125***
Pension type												
DC	–0.0146	0.0042***	–0.0124	0.0064*	–0.0134	0.0056**	–0.0146	0.0078*	–0.0036	0.0073	–0.0201	0.0068***
DB	0.0156	0.0041***	0.0270	0.0063***	0.0080	0.0054	0.0279	0.0067***	0.0089	0.0079	0.0082	0.0069
DB and DC	0.0264	0.0045***	0.0298	0.0066***	0.0261	0.0061***	0.0212	0.0076***	0.0320	0.0076***	0.0347	0.0077***
Tenure	0.0004	0.0001***	0.0009	0.0002***	–0.0003	0.0002	0.0005	0.0002**	0.0001	0.0003	0.0004	0.0002*
Marginal effect of unemployment rate at percentiles of the distribution												
Unemployment rate (p10)	–0.0037	0.0009***	–0.0039	0.0013***	–0.0035	0.0012***	–0.0043	0.0019**	–0.0074	0.0020***	–0.0017	0.0011
Unemployment rate (p25)	–0.0036	0.0008***	–0.0037	0.0012***	–0.0034	0.0011***	–0.0041	0.0017**	–0.0070	0.0018***	–0.0017	0.0010*
Unemployment rate (p50)	–0.0034	0.0008***	–0.0036	0.0011***	–0.0033	0.0010***	–0.0039	0.0016**	–0.0064	0.0015***	–0.0017	0.0010*
Unemployment rate (p75)	–0.0033	0.0007***	–0.0034	0.0010***	–0.0032	0.0009***	–0.0037	0.0014***	–0.0058	0.0013***	–0.0017	0.0010*
Unemployment rate (p90)	–0.0031	0.0006***	–0.0032	0.0008***	–0.0030	0.0008***	–0.0035	0.0012***	–0.0052	0.0009***	–0.0017	0.0009*
N	34,895		15,327		19,568		10,884		9,711		14,297	

NOTE: Observations at the person-year level for a sample from the Health and Retirement Study, original HRS cohort, from 1992-2010. Coeff., coefficiant. S.E., standard error. The sample consists of those observed for at least two waves between ages 50-69 and initially employed or self-employed and who live in an MSA or μSA and for whom self-reports or imputations exist for all the variables in the regression. The table reports marginal effects estimated from a weighted multinomial logit (using survey weights to make the sample nationally representative) with five job transitions observed based on recall data from one birthday to the next (stay in current job, involuntary exit to new job, voluntary exit to new job, involuntary exit to retirement, voluntary exit to employment). The table also reports standard errors clustered at the person level, with statistical significance denoted by *** (1% level), ** (5% level), and * (10% level). The unemployment rate is measured at the MSA or μSA level. See the text for more information about control variables.

Impact of the Local Unemployment Rate

We find that the local (MSA or μSA) unemployment rate has large and statistically significant effects on the job transitions we consider. These effects arise in the full sample, and at the disaggregated level they are somewhat similar for men and women and for workers of different skill levels; for some transitions they are stronger for semi-skilled than for skilled or unskilled workers. We tried to estimate multinomial logits on a smaller number of outcomes by investigating various combinations of the five outcomes listed in the boxed insert. However, likelihood ratio tests strongly reject the equality of coefficients across different combinations of outcomes (including involuntary plus voluntary exits to new jobs, involuntary exits to new jobs plus involuntary exits to retirement, and voluntary exits to new jobs plus voluntary exits to retirement). We also tried a greater number of outcomes by distinguishing between new jobs with full-time hours and those with part-time hours; we did not find that the unemployment rate had a significantly different effect on the likelihood of moving into a full-time or a part-time job regardless of whether the transition was voluntary or involuntary.

For the full sample (shown in column (A) of all tables), the MSA unemployment rate has significant negative effects on the likelihood of voluntary exit to either a new job (Table 3) or to retirement (Table 5) and positive effects, though small, on involuntary exits to both a new job (Table 2) and to retirement (Table 4). Interestingly, a higher local unemployment rate also raises the propensity to stay in the current job (Table 1), showing that older workers are insulated from the effects of business cycles and also choose to delay retirement, perhaps because of wealth effects or increased uncertainty about retirement resources.[18] These effects are all statistically significant at the 1 percent level, except for involuntary exits to a new job, where the effect is significant at the 10 percent level. It is not surprising that high unemployment raises involuntary exits, and it is interesting to note that the resulting job transition is just as likely to involve a new job as to involve retirement, though Chan and Stevens (2001, 2004) emphasize the retirement channel.

The magnitudes of the estimated effects of local unemployment are relatively important in size. For voluntary exit to a new job (Table 3), the marginal effect is –0.0027, so a 1-percentage-point increase in the MSA unemployment rate from the mean of 5.4 percent reduces the likelihood of this event by 0.27 percentage points, a 6.9 percent reduction for those turning age 56. Similarly, a 1-percentage-point increase in the local unemployment rate reduces the likelihood of a voluntary exit to retirement (Table 5) by 0.34 percentage points, while it raises the likelihood of staying in the same job (Table 1) by 0.49 percentage points.

We can put this further in perspective by evaluating the effects of the Great Recession based on our model estimates. We account for nonlinearities by calculating predicted transitions at two different unemployment rates representing the peak of the business cycle in 2007 and the trough of the recession in 2010. We find evidence of small nonlinearities, with a decrease in estimated marginal effects of 10 to 20 percent when the unemployment rate doubles.[19] Our estimates show that the increase in the unemployment rate from a low of 4.6 percent to a high of 9.6 percent resulted in a predicted increase in involuntary exits to new jobs and to retirement of 0.29 and 0.32 percentage points, respectively, and a predicted decrease in voluntary exits to new jobs and to retirement of 1.14 and 1.59 percentage points, respectively.

The remaining table columns show whether responses are heterogeneous for different types of workers. The effects of the local unemployment rate are similar for men (column (B)) and women (column (C)), except that men are somewhat more likely to stay in their current job in response to a higher unemployment rate (with a 1-percentage-point increase raising the likelihood of staying by 0.57 percentage points for men and by 0.44 points for women). In addition, involuntary exits for women are more likely to lead to a new job and for men are more likely to lead to retirement. These differences may arise because men's jobs are more remunerative on average, facilitating retirement, and perhaps because husbands lead wives in making joint retirement decisions.

The effects of local labor market conditions also vary in some ways by worker skill levels, as the unemployment rate may have different effects on skill-specific labor markets.[20] Stronger effects arise for semi-skilled workers by altering voluntary exits to retirement, while for other transitions the effect of the unemployment rate is similar across workers in different occupations.[21] A 1-percentage-point increase in the local unemployment rate raises the likelihood of staying in the current job by 0.48 for skilled workers, 0.86 for semi-skilled workers, and 0.31 for unskilled workers, while it reduces the likelihood of voluntary exits to retirement by 0.39, 0.63, and 0.17 percentage points, respectively.

Impact of Other Variables

When we compared the multinomial logit results with and without controlling for the MSA unemployment rate, we found very small differences in estimated effects of other variables. Thus, the effect of the unemployment rate is quite uniform across individuals who vary considerably in their socioeconomic characteristics.

Other statistically significant variables include the following. First, consider individual non-job characteristics. For the sample as a whole in column (A), men have statistically significant but relatively small differences in their job transitions, with the largest difference being a 1.6-percentage-point reduction in the likelihood of voluntary exits to retirement. Education has little effect on involuntary exits, while higher educational attainment is associated with an increased likelihood of voluntary exit to another job rather than to retirement (so educated workers voluntarily work longer in bridge jobs). Health has little association with taking a new job versus staying in the same job, but excellent health substantially reduces the likelihood of exiting to retirement (either involuntarily or voluntarily), while poor health substantially raises it, relative to staying in the same job.

Next, consider job characteristics, again for the sample as a whole in column (A). Blue-collar industries (agriculture/mining/construction [noted "mining" on the tables] and manufacturing/transport [noted "manufacturing" on the tables]) generate significantly more involuntary exits in total as well as more voluntary exits to retirement. White-collar industries (professional services/public administration [noted "professional" on the tables]) generate significantly fewer involuntary exits. Also, semi-skilled occupations (sales/clerical) are most likely to experience involuntary exits to retirement.

Previous research shows that employer-provided pensions can have substantial effects on the timing and manner of exits from career jobs. Here, we find that having any type of pension

reduces the likelihood of involuntary exits, as pensioned jobs are probably more stable, while it also reduces the likelihood of voluntary exits to another job. This finding is consistent with evidence in Friedberg and Owyang (2005) that workers with any type of pension have longer tenure in jobs, with greater effects for workers with defined benefit pensions than for workers with only defined contribution pensions. Meanwhile, workers with defined benefit pensions are substantially more likely to exit voluntarily to retirement, especially when they are older than the plan's normal retirement age; conversely, workers with defined contribution plans are less likely to voluntarily retire, as in Friedberg and Webb (2005).

CONCLUSION

The ability of employees to exit the labor force at an age and in a manner of their choosing depends on their ability to find employment at older ages, which depends in turn on local labor market conditions. Thus, we investigate how local labor market conditions affect retirement transitions, a question that has until recently been overlooked in the retirement literature. To study this, we use data from the HRS, the first dataset to offer both a lengthy panel and rich local identifiers on a restricted basis. This level of detail allows us to estimate a multinomial logit model that distinguishes among the multifaceted paths that workers take to retirement.

We find that the local unemployment rate has statistically significant and important effects on retirement transitions. Interestingly, a higher MSA unemployment rate significantly reduces the likelihood of voluntary exits from a job, probably reflecting the corresponding difficulty of finding a new job at older ages and possible wealth effects of recessions. A higher unemployment rate also has significant but relatively small effects in terms of raising the likelihood of involuntary exits, generating about equal movements to new jobs and to retirement.

The magnitudes of the estimated effects of local unemployment are important in size. A 1-percentage-point increase in the MSA unemployment rate reduces the likelihood of voluntary exit to a new job by 6.9 percent. It also reduces the likelihood of voluntary exit to retirement by 8.3 percent, while it raises the likelihood of involuntary exit to retirement by 5.5 percent. Our findings that local labor markets influence retirement transitions, and especially phased retirement, are particularly interesting as we emerge from a severe recession that has eroded retirement portfolios. These findings shed light on how the recession's impact on labor markets will in turn affect the retirement patterns of the Baby Boom generation. ■

NOTES

[1] The HRS geographic identifiers are available to qualified researchers under conditions that prevent identification of particular MSAs. The HRS, with its focus on older workers, does not allow a broad analysis of local labor markets and prime-age workers; most studies on prime-age workers (for example, Sullivan and von Wachter, 2009, and Couch and Placzek, 2010) have used unemployment records from a single state.

[2] Such studies assume some sort of rigidity in wages, with downward rigidity preventing wages from adjusting fully in response to negative labor demand shocks and resulting in employment responses. For many reasons, it is likely that wages are even more downwardly rigid for older workers than for prime-age workers; see von Wachter (2007) for a thorough discussion.

[3] As noted later, we tried to categorize local and industry-specific unemployment rates, similar to von Wachter's approach but at a more detailed industry level; we did not find a significant effect at the industry level. It is possible that von Wachter's state- and industry-specific unemployment rates serve as proxies for local conditions, to the extent that industries cluster locally within states.

[4] Unlike their approach, we focus only on objective measures of work and nonwork. In any case, they used the empirical results incidentally, as their main focus was an analytical equilibrium search model.

[5] Two other articles have analyzed local labor markets in Britain. Haardt (2006) and Disney, Ratcliffe, and Smith (2015) both estimated hazard models and found conflicting results. While Haardt found that the regional unemployment rate significantly reduces women's exits from and returns to the labor force, Disney, Ratcliffe, and Smith (2015) found that the local unemployment rate raises the hazard rate of full withdrawal from the labor force.

[6] The use of CPS data in Coile and Levine (2007, 2011), which allows them to examine business cycles over a long period, necessitates a much simpler focus on retirement transitions. They define retirement as occurring when someone worked at least 13 weeks in the previous year and is out of the labor force in the March survey.

[7] Note that voluntary job exits may be due to factors beyond the individual's control—for example, in case of illness or spousal unemployment—but such exits still reflect labor supply considerations rather than labor demand. In some specifications, we allow $K = 7$ outcomes by considering whether new jobs taken voluntarily involved part-time or full-time hours, but we do not find significantly different effects of the local unemployment rate on this choice. The HRS did not have a large enough sample of people leaving their jobs involuntarily and taking new jobs to statistically distinguish the effect of the local unemployment rate on part-time versus full-time new jobs.

[8] The HRS is administered by the Institute for Social Research (ISR) at the University of Michigan with support from the National Institute on Aging and the SSA. Where possible, we use the RAND HRS data file, a cleaned version of the original. We have not incorporated new cohorts entering the HRS in 1998 or 2004.

[9] Specific reasons reported by respondents for changes in an employment situation that encouraged them to leave are (i) their supervisor or a coworker encouraged their departure, (ii) their wage or hours were reduced, or (iii) they would have been laid off.

[10] The U.S. Census Bureau has defined 940 CBSAs for the country. A CBSA consists of one or more counties or county equivalents that have at least one urban core area of at least 10,000 population, plus adjacent territory that has a high degree of economic and social integration with the core as measured by commuting ties (U.S. Office of Management and Budget, 2006). These CBSAs are divided into 363 MSAs with core areas of at least 50,000 and 577 smaller micropolitan statistical areas (μSAs). As of the 2000 Census, 82.6 percent of the population lived in MSAs, 10.3 percent in μSAs, and 7.1 percent in neither. We experimented with an alternative of using combined statistical areas where appropriate and obtained substantially similar results. Combined statistical areas are groups of CBSAs with substantial commuting ties.

[11] We find that after inclusion of sample weights, the sample is indeed broadly nationally representative.

[12] The HRS provides 13 industry and 17 occupation codes, derived from the 2000 Census industry and occupation codes. Based on previous literature, we group industry codes 1-2 as agriculture/construction/mining, 3-5 as manufacturing, 6-11 as professional services, and 12-13 as nonprofessional services. We group occupation codes 1-2 (managerial, professional) as skilled, 3-4 (sales, clerical) as semi-skilled, and all others as unskilled.

[13] Employer-reported information available in the HRS is more accurate but is available for only about 70 percent of the sample. While Gustman and Steinmeier (2004) showed that individuals report pension information with substantial error, Chan and Stevens (2008) found that retirement responded more to one's beliefs about one's pension type, but also that, as people approached retirement, the accuracy of their information improved.

[14] Social Security earnings records, which can be used to compute Social Security wealth (SSW) and Social Security "peak value" (the discounted gain in SSW available if an individual waits to retire until SSW reaches its peak, as in Coile and Gruber, 2007) are reported for respondents who gave permission to be matched to Social Security records; these records are normally available to qualifying researchers on a restricted basis. However, any use that combines both restricted Social Security and restricted geographic data can only be undertaken onsite at the University of Michigan (ISR). In preliminary analysis at the ISR, we found that SSW peak value had a statistically significant effect on retirement, but including it did not alter estimated effects of the unemployment rate. Therefore, we did not travel again to the ISR and have reported final results without Social Security controls.

[15] We thus do not explain choices prior to the beginning of the survey; this is common to most of the retirement literature. As a consequence, we miss some early retirements, and our sample may be biased by including a disproportionate share of individuals who do not have a propensity to retire early.

[16] In contrast to our annual approach, Gustman and Steinmeier (2001/2002) tracked individuals by wave (over two years), which reduces the precision in predicting retirement since many important milestones, such as attaining age 62 or 65, or one's normal retirement age, occur on the individual's birthday.

[17] We use sample weights so the results are nationally representative.

[18] With our data it is not possible to compare this estimated effect for older workers with workers younger than age 50.

[19] For the sake of brevity, we have not reported the marginal effects estimated at other points of the distribution of the unemployment rate besides the mean. As an example of the slight nonlinearity, the marginal effect of the unemployment rate on staying in one's job is 0.0049, compared with 0.0054 at the 25th percentile value and 0.0046 at the 75th percentile values of the unemployment rate observed in our sample.

[20] We explored this further by matching workers' two-digit occupation and industry to occupation- and industry-specific unemployment rates by year and location. We had to use more aggregated geographic information and also faced the complication of substantial changes in occupation and industry coding following the 2000 Census, and we did not obtain significant results. As we noted earlier, von Wachter (2007) conducted his analysis at the state and 1-digit-industry level and found significant differences in layoff shocks across industries; it is possible that our local unemployment rates capture important industry-level shocks.

[21] A higher unemployment rate raises the likelihood of involuntary exits to new jobs for skilled and unskilled workers but does not change this likelihood for semi-skilled workers, but these effects are not statistically significant.

REFERENCES

Black, Dan; Kolesnikova, Natalia and Taylor, Lowell J. "Why Do So Few Women Work in New York (and So Many in Minneapolis)? Labor Supply of Married Women Across U.S. Cities." *Journal of Urban Economics*, January 2014, *79*, pp. 59-71; https://doi.org/10.1016/j.jue.2013.03.003.

Black, Dan and Liang, Xiaoli. "Local Labor Market Conditions and Retirement Behavior." Working Paper No. 2005-08, Boston College Center for Retirement Research, May 2005.

Callaway, Brantly. "Job Displacement of Older Workers During the Great Recession: Tight Bounds on Distributional Treatment Effect Parameters Using Panel Data." Unpublished manuscript, Vanderbilt University, October 24, 2015.

Chan, Sewin and Stevens, Ann Huff. "Job Loss and Employment Patterns of Older Workers." *Journal of Labor Economics*, April 2001, *19*(2), pp. 484-521; https://doi.org/10.1086/319568.

Chan, Sewin and Stevens, Ann Huff. "How Does Job Loss Affect the Timing of Retirement?" *B.E. Press Contributions to Economic Analysis and Policy*, May 2004, *3*(1).

Chan, Sewin and Stevens, Ann Huff. "What You Don't Know Can't Help You: Pension Knowledge and Retirement Decision-Making." *Review of Economics and Statistics*, May 2008, *90*(2), pp. 253-66; https://doi.org/10.1162/rest.90.2.253.

Coile, Courtney C. and Gruber, Jonathan. "Future Social Security Entitlements and the Retirement Decision." *Review of Economics and Statistics*, May 2007, *89*(2), pp. 234-46; https://doi.org/10.1162/rest.89.2.234.

Coile, Courtney C. and Levine, Phillip B. "Labor Market Shocks and Retirement: Do Government Programs Matter?" *Journal of Public Economics*, November 2007, *91*(10), pp. 1902-19; https://doi.org/10.1016/j.jpubeco.2007.01.005.

Coile, Courtney C. and Levine, Phillip B. *Reconsidering Retirement: How Losses and Layoffs Affect Older Workers*. Washington, DC: Brookings Institution Press, 2010.

Coile, Courtney C. and Levine, Phillip B. "The Market Crash and Mass Layoffs: How the Current Economic Crisis May Affect Retirement." *B.E. Journal of Economic Analysis and Policy*, January 2011, *11*(1); https://doi.org/10.2202/1935-1682.2568.

Couch, Kenneth and Placzek, Dana. "Earnings Losses of Displaced Workers Revisited." *American Economic Review*, March 2010, *100*(1), pp. 572-89; https://doi.org/10.1257/aer.100.1.572.

Disney, Richard; Ratcliffe, Anita and Smith, Sarah. "Booms, Busts and Retirement Timing." *Economica*, July 2015, *82*(327), pp. 399-419; https://doi.org/10.1111/ecca.12133.

French, Eric and Jones, John B. "The Effects of Health Insurance and Self-Insurance on Retirement Behavior." *Econometrica*, May 2011, *9*(3), pp. 693-732.

Friedberg, Leora and Owyang, Michael T. "Explaining the Evolution of Pension Structure and Job Tenure." Federal Reserve Bank of St. Louis Working Paper No. 2002-022D, November 2005; https://research.stlouisfed.org/wp/2002/2002-022.pdf.

Friedberg, Leora and Webb, Anthony. "Retirement and the Evolution of Pension Structure." *Journal of Human Resources*, Spring 2005, *40*(2), pp. 281-308; https://doi.org/10.3368/jhr.XL.2.281.

Goda, Gopi Shah; Shoven, John B. and Slavov, Sita Nataraj. "Does Stock Market Performance Influence Retirement Intentions?" *Journal of Human Resources*, 2012, *47*(4), pp. 1055-81; https://doi.org/10.3368/jhr.47.4.1055.

Gustman, Alan and Steinmeier, Thomas. "Retirement Measures in the Health and Retirement Study." *Journal of Human Resources*, January 1995, *30*(1, Suppl.), pp. s57-s83; https://doi.org/10.2307/146278.

Gustman, Alan and Steinmeier, Thomas. "Retirement and Wealth." *Social Security Bulletin*, 2001/2002, *64*(2), pp. 66-91; https://www.ssa.gov/policy/docs/ssb/v64n2/v64n2p66.pdf.

Gustman, Alan and Steinmeier, Thomas. "What People Don't Know About Their Pensions and Social Security," in William Gale, John Shoven, and Mark Warshawsky, eds., *Private Pensions and Public Policies*. Washington, DC: Brookings Institution, 2004, pp. 57-125.

Gustman, Alan and Steinmeier, Thomas. "The Social Security Early Retirement Age in a Structural Model of Retirement and Wealth." *Journal of Public Economics*, February 2005, *89*(2-3), pp. 441-63; https://doi.org/10.1016/j.jpubeco.2004.03.007.

Haardt, David. "Transitions Out Of and Back To Employment Among Older Men and Women in the UK." ISER Working Paper No. 2006-20, Institute for Social and Economic Research, May 2006; https://www.iser.essex.ac.uk/research/publications/working-papers/iser/2006-20.

Hairault, Jean-Olivier; Langot, François and Zylberberg, André. "Equilibrium Unemployment and Retirement." *European Economic Review*, October 2015, *79*, pp. 37-58; https://doi.org/10.1016/j.euroecorev.2015.07.002.

Hutchens, Robert. "Phased Retirement: Problems and Prospects." Center for Retirement Research at Boston College *An Issue in Brief*, February 2007, *8*, pp. 66-91.

Maestas, Nicole. "Back to Work: Expectations and Realizations of Work After Retirement." *Journal of Human Resources*, Summer 2010, *45*(3), pp. 718-48; https://doi.org/10.3368/jhr.45.3.718.

Maestas, Nicole; Mullen, Kathleen J. and Powell, David. "The Effect of Local Labor Demand Conditions on the Labor Supply Outcomes of Older Americans." RAND Working Paper No. WR-1019, September 2013; https://www.rand.org/content/dam/rand/pubs/working_papers/WR1000/WR1019/RAND_WR1019.pdf.

Munnell, Alicia H.; Soto, Mauricio; Triest, Robert and Zhivan Natalia. "How Much Do State Economic and Other Characteristics Affect Retirement Behavior?" Unpublished manuscript, Boston College Center for Retirement Research, September 2008.

Owyang Michael T.; Piger, Jeremy M. and Wall, Howard J. "Discordant City Employment Cycles." *Regional Science and Urban Economics*, March 2013, *43*(2), pp. 367-84; https://doi.org/10.1016/j.regsciurbeco.2012.09.004.

Owyang Michael T.; Piger, Jeremy M.; Wall, Howard J. and Wheeler, Christopher H. "The Economic Performance of Cities: A Markov-Switching Approach." *Journal of Urban Economics*, November 2008, *64*(3), pp. 538-50; https://doi.org/10.1016/j.jue.2008.05.006.

Ozturk, Gulgun Bayaz and Gallo, William T. "Effect of Job Loss on Wealth Accumulation of Older Workers." CUNY School of Public Health at Hunter College, January 2013.

Ruhm, Christopher. "Bridge Jobs and Partial Retirement." *Journal of Labor Economics*, October 1990, *8*(4), pp. 482-501; https://doi.org/10.1086/298231.

Rust, John and Phelan, Christopher. "How Social Security and Medicare Affect Retirement Behavior in a World with Incomplete Markets." *Econometrica*, July 1997, *65*(4), pp. 781-831; https://doi.org/10.2307/2171940.

Sullivan, Daniel and von Wachter, Till. "Job Displacement and Mortality: An Analysis Using Administrative Data." *Quarterly Journal of Economics*, August 2009, *124*(3), pp. 1265-306; https://doi.org/10.1162/qjec.2009.124.3.1265.

Topel, Robert H. "Local Labor Markets." *Journal of Political Economy*, June 1986, *94*(3, Part 2), pp. S111-S143; https://doi.org/10.1086/261401.

U.S. General Accounting Office. *Older Workers: Demographic Trends Pose Challenges for Employers and Workers*. General Accounting Office Report GAO 02-85. Washington, DC: U.S. General Accounting Office, November 2001; http://www.gao.gov/new.items/d0285.pdf.

U.S. Office of Management and Budget. *Updates to Statistical Areas*. OMB Bulletin No. 07-01, December 18, 2006.

von Wachter, Till. "The Effect of Economic Conditions on the Employment of Workers Nearing Retirement Age." Working Paper No. 2007-25, Boston College Center for Retirement Research, December 2007.

Wall, Howard, J. "The Employment Cycles of Neighboring Cities." *Regional Science and Urban Economics*, January 2013, *43*(1), pp. 177-85; https://doi.org/10.1016/j.regsciurbeco.2012.06.008.