

# **IDENTIFYING LOCAL DIFFERENCES IN RETIREMENT PATTERNS**

Leora Friedberg, Michael Owyang, and Anthony Webb

CRR WP 2008-18

Released: December 2008

Date Submitted: October 2008

Center for Retirement Research at Boston College

Hovey House

140 Commonwealth Avenue

Chestnut Hill, MA 02467

Tel: 617-552-1762 Fax: 617-552-0191

The research reported herein was pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Retirement Research Consortium (RRC). The findings and conclusions expressed are solely those of the authors and do not represent the views of SSA, any agency of the Federal Government, the RRC, the Federal Reserve Bank of St. Louis, the Federal Reserve System, or Boston College. We would like to thank Natalia Kolesnikova, Alicia Munnell, and Till von Wachter for helpful comments and Kristie Engemann, Shoghik Hovnanisyan, Dan Muldoon, and Wei Sun for excellent research assistance.

© 2008, by Leora Friedberg, Michael Owyang, and Anthony Webb. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

### ***About the Center for Retirement Research***

The *Center for Retirement Research at Boston College*, part of a consortium that includes parallel centers at the University of Michigan and the National Bureau of Economic Research, was established in 1998 through a grant from the Social Security Administration. The Center's mission is to produce first-class research and forge a strong link between the academic community and decision makers in the public and private sectors around an issue of critical importance to the nation's future. To achieve this mission, the Center sponsors a wide variety of research projects, transmits new findings to a broad audience, trains new scholars, and broadens access to valuable data sources.

### **Center for Retirement Research at Boston College**

Hovey House  
140 Commonwealth Avenue  
Chestnut Hill, MA 02467  
phone: 617-552-1762 fax: 617-552-0191  
e-mail: [crr@bc.edu](mailto:crr@bc.edu)  
[www.bc.edu/crr](http://www.bc.edu/crr)

### ***Affiliated Institutions:***

The Brookings Institution  
Massachusetts Institute of Technology  
Syracuse University  
Urban Institute

## **Abstract**

The ability to retire at an age and in a manner of one's choosing depends on one's ability to retain or find employment at older ages, which depends in turn on local labor market conditions. We investigate how local labor markets affect retirement transitions. We match households from the Health and Retirement Study to MSA unemployment rates and estimate multinomial logit regressions on annual job transitions.

We find that the MSA unemployment rate has large and statistically significant effects on job transitions. The estimated effects are stronger for men than women and tend to be stronger for semi-skilled workers. The unemployment rate has a negative effect on the likelihood of voluntary exit to either a new job (especially part-time) or retirement, and a positive effect on involuntary exit to retirement. A one percentage point increase in the MSA unemployment rate raises the likelihood of voluntary exit to a new job by 8.5%, reduces the likelihood of voluntary exit to retirement by 1.9%, and raises the likelihood of involuntary exit to retirement by 5.7%. Thus, high unemployment rates raises involuntary exits and constrains the ability of others to transition into retirement in a manner of their choosing.

## **I. Introduction**

Postponing retirement is frequently touted as a solution to numerous concerns related to well-being in old age – including inadequate retirement saving, post-retirement gaps in health insurance coverage, and underfunding of Social Security and Medicare. Moreover, at least half of workers state a desire to undertake a gradual transition from a full-time career job into retirement (U.S. GAO 2001, Hutchens 2007). However, 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 has come to depend increasingly on their ability to find employment at older ages, which depends on local labor market conditions.

This paper investigates how local labor market and other economic conditions affect retirement transitions, a question that has been overlooked in much of the retirement literature. In particular, local unemployment rates will affect both involuntary exits from jobs and the opportunity after either voluntary or involuntary exits to find bridge jobs that allow phased retirement. To study this, we use data from the Health and Retirement Study, which is the first data set to offer both a lengthy panel, so that we observe high-frequency transitions over a long period, and also rich local identifiers on a restricted basis.<sup>1</sup> We will estimate multinomial logits to explain job transitions for aging workers in the Health and Retirement Study (HRS). The multinomial logit approach recognizes the richness of retirement transitions while maintaining a parsimonious and flexible estimation approach.

The paper makes contributions to both the retirement and local effects literatures. The recent local effects literature has concentrated on identifying differences in business cycles across locations (Owyang et al 2005; Owyang et al forthcoming) but it has paid less attention to how

---

<sup>1</sup> The HRS geographic identifiers are available to qualified researchers on conditions that prevent identification of particular MSAs.

those differences influence local labor market outcomes of groups of workers. Retirement-age workers rarely consider moving to other labor markets, so there is little concern about an important source of bias that arises when looking at local labor markets of younger workers (Topel 1986). Moreover, the importance of retirement timing in affecting national savings behavior, the fiscal balance of major social insurance programs, and the well-being of the elderly make this a crucial group to consider.

## **II. BACKGROUND**

While labor economists have focused on the unemployment rate as a key local characteristic of interest, studies of retirement have generally ignored local labor markets until recently. While retirement models have grown extraordinarily complex, the richness arises in modeling individual budget constraints and preferences, rather than local conditions. To give an example of what can be learned by considering these concerns jointly, recent work by Black, Kolesnikova, and Taylor (2008) 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.

There are a few exceptions among recent studies of retirement that have directly or indirectly considered local labor markets. Chan and Stevens (2001, 2004) set the stage for consideration of local labor markets 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 examine the role of local labor market conditions. Black and Liang (2005) studied the impact on older workers of shocks to the steel and coal industries in particular counties and shocks to cities with high levels of

manufacturing. Their empirical approach emphasized natural experiments rather than estimation of retirement models, in part because their data from the U.S. Census and Social Security Administration lack the rich set of covariates available in the HRS.

Some very recent work suggests that state-level economic conditions influence retirement, which underlines the importance of moving the focus to local conditions. von Wachter (2007) analyzed labor force participation of older males in response to state- and 1-digit-industry-level wage and employment shocks in the 1970s and 1980s. He used data from the Current Population Survey, which has some but not all of the covariates available in the HRS and a very short panel. Complementary work by Munnell et al (2008) used data from the CPS from 1977-2007 and from the HRS to examine the role of state-level conditions. We employ a richer econometric framework than these papers in order to evaluate how local conditions influence various aspects of retirement transitions. Lastly, Haardt (2006) used British panel data to estimate a hazard model explaining, in separate specifications, exit from the labor force and return to the labor force. Although his emphasis is on individual-level variables, he finds significant effects of the regional unemployment rate.

### **III. EMPIRICAL STRATEGY**

Our approach involves estimation of a multinomial logit 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, Gustman and Steinmeier 1986). 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, etc). This also allows us to consider both voluntary and involuntary job exit, a distinction that has been

overlooked in much of the retirement literature but can be usefully informed by consideration of local employment conditions.

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

- stay in the beginning-of-the-year job
- leave that job involuntarily to another job
- leave that job voluntarily to another job
- leave that job involuntarily to retirement
- leave that job voluntarily to retirement.

Ignoring for now 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

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

This specification will yield coefficient estimates for each covariate  $x_i$  that are specific to each outcome  $k$ . 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 frontier of the structural retirement literature (e.g., Rust and Phelan 1997, Gustman and Steinmeier 2005, French 2005), we do not specify underlying preferences, model features of job outcomes that are not chosen, or capture the full dynamics involved in the evolution of retirement benefits. 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 will control parsimoniously for public and private pension characteristics associated with the gains to delaying retirement (Coile and Gruber 2007, Friedberg and Webb 2005). We will also control for other characteristics of the initial job and of the individual, as described in the next section, and we allow for arbitrary correlation of the error term for observations that occur for the same individuals over time.

#### **IV. DATA**

The HRS is a detailed longitudinal survey of over 7,600 households with a member born between 1931 and 1941. The HRS began in 1992 and surveys people every two years. We use data from the first seven waves through 2004.<sup>2</sup>

The HRS asks about the precise timing of job transitions. It also provides enormous detail about covariates which are important in explaining retirement and may be correlated with local factors – like job characteristics, health, marital status, and assets. Subject to the individual’s consent, the HRS also obtains detailed information about pensions from employers and about earnings from Social Security, and this is made available to researchers on a restricted basis. Lastly, the HRS reports data on the state, county, and zip code at which each individual was interviewed at each wave, also on a restricted basis; the latter data enable us to assign individuals to local labor markets.

We define the individual’s location as the Core Based Statistical Area (CBSA) in which he was interviewed.<sup>3</sup> The U.S. Census Bureau has defined 940 CBSAs for the country. A CBSA

---

<sup>2</sup> Where possible, we make use of the RAND HRS data file, a cleaned version of the original. We have not incorporated cohorts entering into the HRS in 1998 or 2004.

<sup>3</sup> We experimented with an alternative of using Combined Statistical Areas (CSAs) where appropriate and obtained substantially similar results. CSAs are groups of CBSAs with substantial commuting ties.

comprises 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. OMB 2006). These CBSAs are divided into 363 Metropolitan Statistical Areas (MSAs) with core areas of at least 50,000, and 577 smaller Micropolitan Statistical Areas (mSAs).<sup>4</sup>

We select our sample as follows. Beginning with 12,652 individuals in the 1992 HRS, we keep 11,314 of them who also appear in Wave 2, so we observe at least one transition for each. We drop 272 under age 50 or above age 69 in 1992, leaving 11,042. We drop a further 1,069 who lived outside a MSA or mSA, and 8 whose work status was unknown, leaving 9,965 whose labor force transitions were observed for up to twelve years, from 1992 to 2004.

We used the recall data on job transitions to convert person-wave observations into 76,521 person-year observations, with each individual's status measured from one birthday to the next.<sup>5</sup> Of these, 42,186 were working at the first birthday that we observe in the HRS, and we focus on the 33,778 of those who worked for someone else, as transitions from self-employment to retirement are quite different. Lastly, we drop those whose employment status at the end of the year is unknown and those for whom we cannot match an unemployment rate or obtain financial data – resulting in a final sample of 33,715. These person-year observations on workers include information on employment status at the next birthday: whether the person was working for the same employer, working for a different employer, or not working.<sup>6</sup>

---

<sup>4</sup> As of the 2000 Census, 82.6% of the population lived in MSAs, 10.3% in mSAs, and 7.1% in neither.

<sup>5</sup> The initial number of person-year observations is 86,145, and then observations from the final wave with less than one year remaining until the end of the survey period (so we observe their status at  $t$  but not  $t+1$ ) are dropped.

<sup>6</sup> In contrast to our annual approach, Gustman and Steinmeier (2001) tracked individuals by wave (over two years), which reduces 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.

The HRS is intended to be nationally representative, subject to oversampling of minorities and residents of Florida.<sup>7</sup> Most mSAs 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 changed MSA between one birthday and the next.

Our key geographic variable is the MSA-specific unemployment rate. We use unemployment rates for the period 1990-2004 obtained from the U.S. Bureau of Labor Statistics. In addition, we control for gender, marital status, race, education (3 categories), self-reported health (5 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 (6 categories), industry (4 categories), occupation (3 categories),<sup>8</sup> whether the individual has responsibility for pay and promotion (a key indicator of management jobs), and union membership. We also include information on employer-provided pensions. We use self-reported information on pension type (defined benefit, defined contribution, both, none) and an indicator for being older than the DB full retirement age.<sup>9</sup> Lastly, in other specifications we tried controlling for an individual's Social Security incentives.<sup>10</sup>

---

<sup>7</sup> We find that after inclusion of sample weights, the sample is indeed broadly nationally representative.

<sup>8</sup> 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 semiskilled, and all others as unskilled.

<sup>9</sup> While Gustman and Steinmeier (1999) showed that individuals report this 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; therefore, it is reasonable to consider both measures.

<sup>10</sup> 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 waiting to retire until SSW reaches its peak, as in Coile and

To give an idea of how the sample moves through the transitions that we focus on, we note that, between turning 55 and turning 56, 88.2% of the sample (defined as people who are in a job at the beginning of the period) stays in the same job, while 2.9% lose their job involuntarily and take another job, 4.1% leave their job voluntarily and take another job, while 1.0% and 3.8% have the same types of exits, respectively, but retire. At age 60, staying in the job occurs at almost the same rate, 86.5%, while this declines to 84.7% at age 61 and 77.7% at age 62. Involuntary and voluntary job exits to another job both decline gradually as the sample ages, while involuntary job exit to retirement remains roughly steady. Meanwhile, voluntary job exit to retirement rises to 6.6% at age 60, 9.7% at age 61, and 15.0% at age 62. In considering part-time transitions as well, roughly one-third of transitions out of full-time work at age 55 are into part-time work (defined as less than 30 hours per week) and two-thirds are into retirement. This ratio remains remarkably steady at older ages, while the frequency of the transitions out of full-time work rises.

## **IV. Empirical Results**

### **A. Interpretation of Multinomial Logit Results**

In Tables 1 and 2, we report relative risk ratios and clustered standard errors obtained from weighted multinomial logit estimation of birthday-to-birthday job transitions.<sup>11</sup> Within each table across the columns, we report results for the entire sample and a few subsamples (men and women; workers starting out in skilled, semi-skilled and unskilled jobs). Moreover, each table

---

Gruber 2007) are reported for respondents who gave permission to match to Social Security records and 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 Institute for Social Research. In preliminary analysis at 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 ISR and report final results without Social Security controls.

<sup>11</sup> We employ sample weights so that the results are nationally representative.

has several parts, each corresponding to the effects of the covariates on one of the several transitions out of the initial job that we distinguish:

Table 1

- Involuntary exit to a new job (Table 1-A)
- Voluntary exit to a new job (1-B)
- Involuntary exit to retirement (1-C)
- Voluntary exit to retirement (1-D)

Table 2

- Involuntary exit to a new job (2-A)
- Voluntary exit to a new full-time job (2-B')
- Voluntary exit to a new part-time job (2-B'')
- Involuntary exit to retirement (2-C)
- Voluntary exit to retirement (2-D)

Thus, the joint estimation of a single multinomial logit specification for all transitions is reported in the same column across Tables 1A-1D and Tables 2A-2D.

The first column in each table reports results for the entire sample. The second and third columns in Table 1 split the sample into men and women, while the last three columns in each table split the sample into skilled, semi-skilled, and unskilled workers. These results will show whether local labor market conditions have different effects on different types of workers.

The tables report the estimated effects of each covariate in the form of relative risk ratios (RRR). The RRR is a transformation of the estimated logit coefficient and captures the marginal effect of the covariate on the likelihood of a particular job transition occurring relative to the likelihood of the base outcome (staying in the job) occurring. If the RRR takes a value equal to *one*, then the right-hand side variable *does not alter* the likelihood of that particular job transition occurring relative to staying in the job. If the RRR takes a value that is *smaller than one*, then the variable *reduces* the likelihood of the job transition occurring relative to staying in the job by the percentage of  $RRR-1$ , and if the RRR takes a value *greater than one*, it *raises* the likelihood relative to staying in the job. The standard errors are transformed as well to correspond to the

relative risk ratios and can be compared with RRR-1 using the critical values for z-statistics; so, if, upon computing RRR-1 and dividing by the transformed standard error reported in the table, one obtains a value that is roughly two, then that RRR is statistically significant at roughly the 95% confidence level.

Before discussing the impact of particular variables, we note that we tried estimating multinomial logits on a small number of outcomes, investigating various combinations of the five outcomes listed above. However, likelihood ratio tests strongly reject the equality of coefficients across different combinations of outcomes (including combining involuntary or voluntary exits to new jobs, involuntary exits to new jobs or to retirement, and voluntary exits to new jobs or to retirement).

### **B. Impact of the Local Unemployment Rate**

We find that the MSA unemployment rate has large and statistically significant effects on many of the job transitions we consider. These effects arise in the full sample, but at the disaggregated level they are stronger for men than for women. The unemployment rate has differential effects by the skill level of the worker's initial job, often (though not always) being stronger for semi-skilled and unskilled workers.

For the full sample in the first column of all tables, the MSA unemployment rate has negative effects on the likelihood of voluntary exit to either a new job (outcome B, statistically significant) or to retirement (outcome D, a little short of statistical significance) and a positive effect on involuntary exit to retirement (outcome C, statistically significant), relative to staying in the job. Thus, high unemployment discourages voluntary exits, perhaps reflecting not only the difficulty an older worker faces in finding a new job during bad times (outcome B) but also an unwillingness to leave a job and then face a search for another when nothing has been lined up

(outcome D). It is not surprising, then, that the effect of high unemployment is to increase the combination of involuntary exit and full retirement, as finding a new job after layoff is particularly difficult in this age group (Chan and Stevens 2001, 2004).

The magnitudes of the estimated effects of local unemployment are relatively important in size. For voluntary exit to a new job (outcome B), the RRR is 0.915, so a 1 percentage point increase in the MSA unemployment rate (from 3% to 4%, say, which is a smaller difference than is observed between the peak and trough of a typical business cycle) reduces the likelihood of this event by  $1-0.915$ , or 8.5%. Further, a 1 percentage point increase in the local unemployment rate reduces the likelihood of voluntary exit to retirement (outcome D) by 1.9% , and it raises the likelihood of an involuntary exit to retirement (outcome C) by 5.7%.

The effects of the local unemployment rate are stronger for men than for women. For the sample of men only (column 2), the value of each RRR is farther from one than for women, and statistical significance is greater. For the sample of women only (column 3), the effects are less pronounced but remain significant for outcome B and close to significant for outcome C, while disappearing for outcome D. To summarize the statistically significant effects, a 1 percentage point increase in the local unemployment rate reduces the likelihood of voluntary exit to a new job (outcome B) by 9.6% for men and 7.4% for women; raises the likelihood of involuntary exit to retirement (outcome C) by 6.4% for men; and reduces the likelihood of voluntary exit to retirement (outcome D) by 4.4% for men. These differences may arise because husbands' jobs are more remunerative on average and perhaps because husbands lead wives in making joint retirement decisions.

The effects of local labor market conditions also vary considerably by worker skill levels, as the unemployment rate may have different effects on skill-specific labor markets. Stronger

effects tend to arise for semiskilled workers, though this pattern changes a little later when we consider transitions to part-time versus full-time work. A 1-percentage point increase in the MSA unemployment rate has a similar effect on the likelihood of voluntary exit to a new job (outcome B), but it is a little stronger for both semi-skilled (9.0%, significant) and unskilled (8.9%, significant) workers than it is for skilled workers (7.5%, close to significant). The positive effect of a 1 percentage point gain in the unemployment rate on involuntary exit to retirement (outcome C) is also significant for only semi-skilled (6.5%) and unskilled (4.7%) workers, while it is larger but a little short of significance for skilled workers (9.3%). Lastly, the effect on voluntary exit to retirement (outcome D) is only notable for semi-skilled workers (4.7%), being both smaller and insignificant for skilled and unskilled workers.

Table 2 reports results for multinomial logit estimates that distinguish between voluntary exits to full-time versus part-time jobs (outcomes B' and B'', respectively), in order to demonstrate effects on phased retirement options. In the aggregate sample, the effect of a 1 percentage point gain in the unemployment rate on any voluntary exit to another job (outcome B) was 8.5%; the breakdown in Table 2 reveals a smaller (though still significant) effect for voluntary moves to full-time jobs (7.0%) and an even larger effect for voluntary moves to part-time jobs (12.5%). Also, as above, the effect for full-time jobs is magnified for semi-skilled and unskilled workers (8.0% for both for full-time jobs). However, the effect on part-time jobs is largest for skilled workers (19.8%), while remaining large for semi-skilled (10.3%) and unskilled workers (10.7%).

### **C. Impact of Other Variables**

When we compared the multinomial logit results with and without controlling for the MSA unemployment rate, we found remarkably 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 socio-economic characteristics.

Other statistically significant variables include the following. First, consider individual non-job characteristics. When the sample as a whole is considered in Column 1, being male raises the likelihood of moving to another job via either involuntary or voluntary exits (outcomes A and B), while reducing the likelihood of moving into retirement via either (outcome C and D), showing that men both work longer and take bridge jobs more frequently than women. 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 1. Blue collar industries (agriculture/mining/construction, manufacturing/transport) tend to generate significantly more involuntary quits in total as well as more voluntary quits to retirement, and white collar industries (professional services/public administration) generate significantly fewer involuntary quits. 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 exit 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 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).

## **V. CONCLUSIONS**

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, which is the first data set to offer both a lengthy panel and also rich local identifiers on a restricted basis. We estimate a multinomial logit model that distinguishes flexibly among several paths which workers take to retirement.

We find that the local unemployment rate has statistically significant and relatively important effects on retirement transitions. 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. Further analysis shows that these effects are significant for moves to both full and part-time jobs but are especially large for the latter. A higher unemployment rate also has a significant effect in raising the likelihood of involuntary exit to

retirement. This reflects combined effects on the probability of being laid off and of finding new work afterwards.

The magnitudes of the estimated effects of local unemployment are relatively important in size. A one percentage point increase in the MSA unemployment rate (from 3% to 4%, say, which is a smaller difference than is observed between the peak and trough of a typical business cycle) reduces the likelihood of voluntary exit to a new job 8.5%, and reduces it by 12.5% when the voluntary exits are to part-time jobs. It also reduces the likelihood of voluntary exit to retirement by 1.9%, while it raises the likelihood of involuntary exit to retirement by 5.7%.

Moreover, the effects of local labor market conditions are stronger for men than for women, perhaps because husbands' jobs are more remunerative on average and perhaps because husbands lead wives in making joint retirement decisions. The effects also tend to be stronger for semi-skilled and unskilled workers.

Our findings that local labor markets influence retirement transitions, and especially phased retirement, have particular importance as we enter a new recession – one that has eroded retirement portfolios and housing equity as well as tightening labor markets. The extent to which these effects differ across local labor markets is useful information when considering countercyclical policy responses by both the federal and state governments.

## REFERENCES

- Black, Dan, Natalia Kolesnikova and Lowell J. Taylor. 2008. "Why Do So Few Women Work in New York (and So Many in Minneapolis)? Labor Supply of Married Women Across U.S. Cities." Federal Reserve Bank of St. Louis Working Paper 2007-043C, May.
- Black, Dan, and Xiaoli Liang. 2005. "Local Labor Market Conditions and Retirement Behavior." Boston College Center for Retirement Research Working Paper 2005-08.
- Chan, Sewin, and Ann Huff Stevens. 2001. "Job Loss and Employment Patterns of Older Workers." *Journal of Labor Economics*, 19 (2), pp. 484-521.
- Chan, Sewin, and Ann Huff Stevens. 2004. "How Does Job Loss Affect the Timing of Retirement?" B.E. Press *Contributions to Economic Analysis and Policy*, 3 (1).
- Chan, Sewin, and Ann Huff Stevens. 2008. "What You Don't Know Can't Help You: Pension Knowledge and Retirement Decision-Making." *Review of Economics and Statistics*, 90 (2), pp.253-266.
- Coile, Courtney, and Jonathan Gruber. "Future Social Security Entitlements and the Retirement Decision." *Review of Economics and Statistics* 89 (2), pp. 234-246.
- Friedberg, Leora, and Michael Owyang. 2005. "Explaining the Evolution of Pension Structure and Job Tenure." Federal Reserve Bank of St. Louis Economics Working Paper 2002-022D, November.
- Friedberg, Leora, and Anthony Webb. 2005. "Retirement and the Evolution of Pension Structure." *Journal of Human Resources* 40 (2), pp. 281-308.
- Gustman, Alan, and Thomas Steinmeier. 1999. "What People Don't Know About Their Pensions and Social Security: An Analysis Using Linked Data from the Health and Retirement Study." National Bureau of Economic Research Working Paper No. 7368.
- Gustman, Alan, and Thomas Steinmeier. 2001. "Retirement and Wealth." *Social Security Bulletin* 64 (2) 2001-2002, pp. 66-91.
- Gustman, Alan, and Thomas Steinmeier. 2005. "The Social Security Early Retirement Age in a Structural Model of Retirement and Wealth." *Journal of Public Economics* 89 (2-3), pp. 441-463.
- Haardt, David. 2006. "Transitions Out Of and Back To Employment Among Older Men and Women in the UK." Institute for Social and Economic Research Working Paper 2006-20.
- Hutchens, Robert. 2007. "Phased Retirement: Problems and Prospects." *Issue in Brief* 8. Center for Retirement Research at Boston College.

- French, Eric. 2005. "The Effects of Health, Wealth, and Wages on Labor Supply and Retirement Behavior." *Review of Economic Studies* 72 (2), pp. 395-427.
- Munnell, Alicia, Mauricio Soto, Robert Triest and Natalia Zhivan. 2008. "How Much Do State Economic and Other Characteristics Affect Retirement Behavior?" Manuscript, Boston College Center for Retirement Research.
- Owyang, Michael T., Jeremy M. Piger, and Howard J. Wall. 2005. "Business Cycle Phases in U.S. States." *Review of Economics and Statistics* 87(4), pp. 604-16.
- Owyang, Michael T., Jeremy M. Piger, Howard J. Wall, and Christopher H. Wheeler. Forthcoming. "The Economic Performance of Cities: A Markov-Switching Approach." *Journal of Urban Economics*.
- Rust, John, and Christopher Phelan. 1997. "How Social Security and Medicare Affect Retirement Behavior in a World with Incomplete Markets." *Econometrica* 65(4), pp. 781-832.
- Ruhm, Christopher. 1990. "Bridge Jobs and Partial Retirement." *Journal of Labor Economics*, 8 (4), pp. 482-501.
- Topel, Robert H. 1986. "Local Labor Markets." *The Journal of Political Economy* 94 (3, Part 2), pp. S111-S143.
- U.S. General Accounting Office. 2001. *Older Workers: Demographic Trends Pose Challenges for Employers and Workers*. General Accounting Office Report GAO 02-85. Washington, DC: US General Accounting Office.
- U.S Office of Management and Budget. 2006. *Update of Statistical Area Definitions and Guidance on Their Uses*. OMB Bulletin No. 07-01.
- von Wachter, Till. 2007. "The Effect of Economic Conditions on the Employment of Workers Nearing Retirement Age." Boston College Center for Retirement Research Working Paper 2007-25.



Table 1 B: Relative Risk Ratio

		Dependent Variable: Voluntary Exit to a New Job											
		Both sexes		Men Only		Women Only		White Collar		Pink Collar		Blue Collar	
		RRR	Robust s.e. RRR	Robust s.e. RRR	Robust s.e. RRR	Robust s.e. RRR	Robust s.e. RRR	Robust s.e. RRR	Robust s.e. RRR	Robust s.e. RRR	Robust s.e. RRR	Robust s.e. RRR	Robust s.e.
<b>Local labor market variables</b>													
Percentage unemployment rate		<b>0.9153</b>	0.0196	<b>0.9038</b>	0.0281	<b>0.9257</b>	0.0269	<b>0.9247</b>	0.0414	<b>0.9103</b>	0.0377	<b>0.9121</b>	0.0257
<b>Socio-Economic Variables</b>													
Male		<b>1.2496</b>	0.1118					1.2053	0.1869	<b>1.6153</b>	0.2955	1.1225	0.1494
Married		0.9909	0.0913	1.2867	0.2263	0.9290	0.1052	1.0188	0.1826	0.9373	0.1627	0.9930	0.1347
Black		0.8638	0.1009	0.8293	0.1621	0.9169	0.1339	1.3762	0.2981	0.9887	0.2721	<b>0.6709</b>	0.1036
Education													
Less than high school		<b>0.6450</b>	0.0802	<b>0.5429</b>	0.0941	0.7676	0.1332	<b>0.3702</b>	0.1827	<b>0.5288</b>	0.1692	<b>0.7008</b>	0.1024
Some college		<b>1.2563</b>	0.1183	1.0879	0.1528	<b>1.3961</b>	0.1762	1.1485	0.2206	1.2387	0.2024	1.2461	0.1830
Self-reported health													
Excellent		1.0915	0.1184	0.9824	0.1482	1.2741	0.1959	1.1522	0.2102	0.9385	0.2168	1.2351	0.2152
Very good		0.9726	0.0927	<b>0.7849</b>	0.1068	<b>1.2561</b>	0.1651	0.8929	0.1659	1.0960	0.2053	0.9808	0.1394
Fair		1.0787	0.1398	1.1752	0.2097	0.9766	0.1825	0.9316	0.2765	1.2325	0.3058	1.0980	0.1933
Poor		0.6434	0.2566	0.7360	0.3675	0.5251	0.3452	0.8171	0.5119	1.3214	0.9154	0.3708	0.2282
Industry													
Agriculture, mining, con:		0.9287	0.1493	0.9381	0.1686	1.0084	0.4710	0.7296	0.2643	<b>2.2990</b>	1.0107	0.8700	0.1703
Manufacturing, transpor		<b>0.6976</b>	0.0825	<b>0.5668</b>	0.0931	0.9606	0.1587	<b>0.5943</b>	0.1513	<b>0.6511</b>	0.1507	<b>0.7329</b>	0.1327
Professional services, pu		0.8535	0.0852	0.9492	0.1451	0.8227	0.1100	0.9493	0.1583	0.7973	0.1644	0.7822	0.1346
Occupation													
Managerial and professi		1.0080	0.1158	<b>0.7308</b>	0.1333	1.2726	0.1869						
Other, excluding sales a		<b>1.2541</b>	0.1336	1.0599	0.1777	<b>1.2734</b>	0.1745						
Plant size													
less than 5 employees		0.7898	0.2639	0.6865	0.3139	0.8627	0.4177	0.3695	0.3801	1.1112	0.6220	0.9894	0.4221
5-14		1.1429	0.2045	1.1337	0.2887	1.0581	0.2686	1.0868	0.3645	0.8249	0.3037	1.3799	0.3545
15-24		<b>1.3828</b>	0.2135	1.3794	0.3001	1.3456	0.2961	1.4510	0.4159	1.2870	0.3828	1.3966	0.3323
25-99		1.0816	0.1063	<b>1.3539</b>	0.1859	0.8222	0.1147	1.0890	0.1975	0.7978	0.1439	<b>1.3123</b>	0.2004
100-499		1.1559	0.1030	1.1773	0.1533	1.1098	0.1358	<b>1.2527</b>	0.1956	0.9400	0.1614	<b>1.2669</b>	0.1746
Union member		1.0143	0.0274	1.0113	0.0375	1.0304	0.0396	1.0635	0.0540	0.9342	0.0534	1.0311	0.0408
Has pay and promotion responsibility		0.9586	0.0258	0.9586	0.0342	0.9633	0.0406	0.9720	0.0361	0.9897	0.0575	<b>0.9065</b>	0.0413
Self reported pension type													
Defined contribution		<b>0.5865</b>	0.0608	0.6048	0.0858	<b>0.5742</b>	0.0887	<b>0.6822</b>	0.1252	<b>0.5301</b>	0.1023	<b>0.5452</b>	0.0946
Defined benefit		<b>0.5351</b>	0.0635	0.5832	0.0944	<b>0.4763</b>	0.0856	<b>0.5391</b>	0.1081	<b>0.4995</b>	0.1161	<b>0.5785</b>	0.1134
Both		<b>0.5588</b>	0.0813	0.5305	0.1033	0.6180	0.1352	<b>0.5660</b>	0.1262	<b>0.4305</b>	0.1446	0.7001	0.1714
At or over defined benefit pension ful retirement age		1.2657	0.3191	1.1999	0.3691	1.2474	0.5523	0.9294	0.4094	1.1775	0.7117	1.6384	0.5867
Years tenure in current job		<b>0.9696</b>	0.0049	<b>0.9805</b>	0.0063	<b>0.9518</b>	0.0079	<b>0.9683</b>	0.0082	<b>0.9541</b>	0.0109	<b>0.9787</b>	0.0080
Financial wealth													
81th-100th percentile		1.0208	0.1190	0.8935	0.1518	1.1335	0.1837	0.9005	0.2033	0.8864	0.2103	1.2365	0.2124
61th-80th percentile		1.1620	0.1280	1.0226	0.1623	1.2799	0.1980	1.0467	0.2317	1.2438	0.2611	1.2295	0.2078
21st-40th percentile		1.0125	0.1162	1.2669	0.2010	0.7631	0.1287	0.9133	0.1777	1.0241	0.2184	1.0867	0.2068
1st-20th percentile		<b>0.7696</b>	0.0977	0.9502	0.1691	<b>0.6163</b>	0.1127	0.6744	0.1314	0.6965	0.1807	1.0273	0.2252

Table 1 C: Relative Risk Ratio

		Dependent Variable: Involuntary Exit to a Retirement											
		Both sexes		Men Only		Women Only		White Collar		Pink Collar		Blue Collar	
		RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.
<b>Local labor market variables</b>													
Percentage unemployment rate		<b>1.0565</b>	0.0181	<b>1.0645</b>	0.0256	<b>1.0437</b>	0.0248	<b>1.0930</b>	0.0585	<b>1.0648</b>	0.0341	<b>1.0470</b>	0.0223
Owns home * real house prices													
<b>Socio-Economic Variables</b>													
Male		0.8839	0.1092					1.0134	0.2678	0.8126	0.1782	0.8475	0.1640
Married		0.8410	0.1026	0.7872	0.1715	0.8502	0.1262	0.8175	0.2182	0.9749	0.1904	<b>0.7263</b>	0.1412
Black		1.0728	0.1704	1.3533	0.3321	0.9069	0.1834	<b>1.9478</b>	0.6873	<b>0.4177</b>	0.1831	1.1962	0.2434
Education													
Less than high school		1.1467	0.1612	1.1455	0.2410	1.1132	0.2169	1.1138	0.5524	0.9462	0.2995	1.3216	0.2329
Some college		1.1748	0.1511	1.2477	0.2410	1.0824	0.1877	1.1348	0.3129	1.2137	0.2252	1.2266	0.2738
Self-reported													
Excellent		<b>0.5809</b>	0.0986	<b>0.4951</b>	0.1306	<b>0.6802</b>	0.1502	0.5687	0.2034	<b>0.4367</b>	0.1254	0.8352	0.2139
Very good		0.8040	0.1034	<b>0.7351</b>	0.1358	0.8821	0.1593	1.0609	0.2877	0.7408	0.1601	0.7336	0.1536
Fair		1.3147	0.2125	1.0868	0.2707	<b>1.5304</b>	0.3241	<b>2.0335</b>	0.8014	1.1661	0.3255	1.2550	0.2671
Poor		<b>2.3796</b>	0.6516	1.6445	0.6986	<b>3.6763</b>	1.3531	<b>0.0000</b>	0.0000	<b>3.7041</b>	1.9201	<b>2.5882</b>	0.8629
Industry													
Agriculture, mining, construction		1.6505	0.3379	<b>1.9663</b>	0.4851	0.4916	0.2999	1.8719	0.9079	0.5629	0.5543	1.7484	0.4223
Manufacturing, transport		<b>1.4413</b>	0.1919	1.3922	0.2690	<b>1.5481</b>	0.2836	1.2189	0.4043	<b>1.5149</b>	0.3354	<b>1.5219</b>	0.2978
Professional services, public admin		<b>0.5031</b>	0.0792	<b>0.4843</b>	0.1427	<b>0.5083</b>	0.0946	<b>0.4130</b>	0.1246	<b>0.5167</b>	0.1268	<b>0.5759</b>	0.1514
Occupation													
Managerial and professional		0.7337	0.1163	0.7840	0.1969	<b>0.6771</b>	0.1460						
Other, excluding sales and clerical		<b>0.7065</b>	0.0953	<b>0.6733</b>	0.1480	0.7531	0.1372						
Plant size													
less than 5 employees		0.8599	0.2992	0.7865	0.3525	0.9247	0.5110	1.2673	0.8445	0.2868	0.2758	1.2565	0.6056
5-14		0.8916	0.2105	1.1044	0.3514	0.6502	0.2373	1.6870	0.7224	0.4114	0.2227	0.9280	0.3257
15-24		0.9031	0.2299	0.5131	0.2472	1.4289	0.4244	0.8112	0.4686	1.0620	0.3984	0.7798	0.3401
25-99		<b>0.7464</b>	0.1073	0.7065	0.1557	0.7883	0.1488	0.8657	0.2876	<b>0.6930</b>	0.1592	0.7494	0.1670
100-499		0.8742	0.1102	0.9906	0.1839	0.7867	0.1380	1.1374	0.3152	<b>0.5507</b>	0.1207	1.0886	0.2084
Union member		1.0620	0.0388	1.0694	0.0559	1.0575	0.0541	1.0656	0.0941	1.0450	0.0680	1.0742	0.0571
Has pay and promotion responsibility		<b>1.1129</b>	0.0496	<b>1.1422</b>	0.0689	1.0773	0.0741	<b>1.1482</b>	0.0769	<b>1.2087</b>	0.1191	1.0247	0.0824
Self reported Defined contribution pension type													
Defined benefit		<b>0.4840</b>	0.0759	<b>0.6235</b>	0.1409	<b>0.3772</b>	0.0850	0.7074	0.2172	<b>0.3293</b>	0.0925	<b>0.4744</b>	0.1221
Both		<b>0.6782</b>	0.1091	0.6858	0.1644	0.7207	0.1513	<b>0.3583</b>	0.1341	0.9421	0.2267	0.6550	0.1762
At or over defined benefit pension full retirement age		0.8154	0.1466	1.0702	0.2800	<b>0.6370</b>	0.1602	0.9391	0.2987	<b>0.5079</b>	0.1632	1.1420	0.3433
Years tenure in current job		1.0075	0.3589	1.0961	0.4959	0.8471	0.4905	<b>0.1737</b>	0.1823	2.1112	1.0730	0.8265	0.4434
Financial wealth													
81th-100th percentile		0.8139	0.1258	1.1177	0.2585	<b>0.5963</b>	0.1284	0.6974	0.2917	0.7532	0.1895	0.9021	0.2108
61th-80th percentile		<b>0.6358</b>	0.1081	0.7269	0.1958	<b>0.5578</b>	0.1255	<b>0.4434</b>	0.2090	0.6723	0.1797	<b>0.6494</b>	0.1683
21st-40th percentile		0.9647	0.1515	1.2904	0.2974	0.7403	0.1640	1.0669	0.3439	<b>0.6395</b>	0.1654	1.2437	0.3162
1st-20th percentile		0.9995	0.1692	1.1374	0.2840	0.8736	0.1980	1.0238	0.3302	0.8354	0.2360	1.2142	0.3594

Table 1 D: Relative Risk Ratio

		Dependent Variable: Voluntary Exit to a Retirement											
		Both sexes		Men Only		Women Only		White Collar		Pink Collar		Blue Collar	
		RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.
<b>Local labor market variables</b>													
Percentage unemployment rate		0.9814	0.0112	<b>0.9554</b>	0.0167	1.0041	0.0151	0.9814	0.0254	<b>0.9528</b>	0.0245	0.9897	0.0142
<b>Socio-Economic Variables</b>													
Male		<b>0.7797</b>	0.0473					<b>0.6817</b>	0.0727	0.8604	0.1131	<b>0.8350</b>	0.0751
Married		<b>1.1589</b>	0.0710	0.9414	0.1051	<b>1.2461</b>	0.0906	<b>1.3853</b>	0.1606	1.1795	0.1358	1.0271	0.0938
Black		<b>1.0521</b>	0.0788	1.0010	0.1337	1.0962	0.0990	<b>1.5436</b>	0.2328	1.1501	0.1992	0.8854	0.0848
Education													
Less than high school		<b>1.1680</b>	0.0838	1.1469	0.1209	1.1695	0.1170	1.0966	0.2864	0.9855	0.1710	<b>1.1836</b>	0.1004
Some college		<b>0.9187</b>	0.0579	0.9735	0.0893	0.8788	0.0769	0.9610	0.1181	0.8595	0.0913	0.9092	0.0971
Self-reported													
Excellent		<b>0.7548</b>	0.0594	<b>0.7982</b>	0.0936	<b>0.7176</b>	0.0764	0.8638	0.1178	<b>0.6975</b>	0.1029	<b>0.6837</b>	0.0917
Very good		<b>0.9501</b>	0.0584	1.0370	0.0944	0.8781	0.0735	1.0352	0.1176	0.9436	0.1131	0.8850	0.0843
Fair		<b>1.5885</b>	0.1266	<b>1.5895</b>	0.1869	<b>1.5433</b>	0.1687	1.3334	0.2633	<b>1.5918</b>	0.2713	<b>1.6687</b>	0.1692
Poor		<b>2.6359</b>	0.4461	<b>1.7892</b>	0.4851	<b>3.5143</b>	0.7447	1.5501	0.7114	<b>3.8714</b>	1.4402	<b>2.5098</b>	0.4891
Industry													
Agriculture, mining, construction		<b>1.1452</b>	0.1340	<b>1.2796</b>	0.1761	<b>0.8257</b>	0.2512	1.1962	0.2862	0.8870	0.3685	1.1504	0.1684
Manufacturing, transport		<b>1.1947</b>	0.0850	1.1358	0.1127	<b>1.2677</b>	0.1345	0.9308	0.1501	<b>1.4382</b>	0.1908	<b>1.2482</b>	0.1247
Professional services, public admin		<b>0.9825</b>	0.0668	0.9520	0.1117	1.0134	0.0855	<b>0.7605</b>	0.0999	1.0530	0.1262	1.0914	0.1172
Occupation													
Managerial and professional		<b>1.0261</b>	0.0775	0.9086	0.1231	1.1082	0.1055						
Other, excluding sales and clerical		<b>1.0816</b>	0.0753	1.0102	0.1235	1.0935	0.0978						
Plant size													
less than 5 employees		<b>1.0035</b>	0.1814	0.7394	0.1967	1.3452	0.3284	0.9043	0.2924	0.9354	0.3568	1.1521	0.3121
5-14		<b>0.9663</b>	0.1173	0.8106	0.1417	1.1246	0.1917	1.1127	0.2466	1.2895	0.2698	<b>0.7078</b>	0.1392
15-24		<b>1.1533</b>	0.1298	1.1163	0.1713	1.1746	0.1954	1.0294	0.2149	0.8891	0.2213	<b>1.4340</b>	0.2298
25-99		<b>1.0378</b>	0.0699	0.9369	0.0988	1.1252	0.0997	1.0765	0.1353	0.9998	0.1293	1.0452	0.1078
100-499		<b>1.1182</b>	0.0673	1.0402	0.0936	<b>1.1859</b>	0.0967	1.1850	0.1301	1.0338	0.1212	1.1195	0.1033
Union member		<b>1.0024</b>	0.0149	0.9933	0.0211	1.0132	0.0215	0.9911	0.0275	0.9842	0.0315	1.0151	0.0214
Has pay and promotion responsibility		<b>1.0692</b>	0.0202	<b>1.0889</b>	0.0269	1.0379	0.0299	<b>1.0466</b>	0.0272	1.0083	0.0380	<b>1.1829</b>	0.0506
Self reported Defined contribution		<b>0.6632</b>	0.0503	<b>0.6765</b>	0.0792	<b>0.6818</b>	0.0688	<b>0.6431</b>	0.0975	<b>0.7418</b>	0.1046	<b>0.6371</b>	0.0704
pension type Defined benefit		<b>1.0901</b>	0.0809	1.2753	0.1464	0.9812	0.0990	1.2024	0.1630	0.9769	0.1419	1.0903	0.1237
Both		<b>1.4324</b>	0.1127	<b>1.5156</b>	0.1838	<b>1.4190</b>	0.1481	<b>1.3536</b>	0.1977	<b>1.4418</b>	0.2054	<b>1.6011</b>	0.1973
At or over defined benefit pension ful retirement age		<b>1.2715</b>	0.1477	1.0805	0.1684	<b>1.4911</b>	0.2665	1.2808	0.2393	1.3468	0.3311	1.2068	0.2256
Years tenure in current job		<b>1.0130</b>	0.0024	<b>1.0192</b>	0.0034	1.0054	0.0035	<b>1.0181</b>	0.0040	1.0077	0.0050	<b>1.0110</b>	0.0036
Financial wealth													
81th-100th percentile		<b>0.7778</b>	0.0640	<b>0.7740</b>	0.0989	<b>0.7723</b>	0.0848	<b>0.7166</b>	0.1417	<b>0.6515</b>	0.1045	<b>0.8109</b>	0.0922
61th-80th percentile		<b>0.8914</b>	0.0713	0.9644	0.1144	0.8425	0.0918	1.0259	0.1827	0.8394	0.1263	0.8542	0.0969
21st-40th percentile		<b>1.1110</b>	0.0835	1.2195	0.1325	1.0032	0.1048	<b>1.3884</b>	0.1975	0.9877	0.1362	1.0154	0.1224
1st-20th percentile		<b>1.2429</b>	0.0976	1.1109	0.1317	<b>1.3577</b>	0.1431	<b>1.3919</b>	0.1952	1.2430	0.1761	1.0649	0.1482

Table 2 A: Relative Risk Ratio

Dependent Variable: Involuntary Exit to a New Job

	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.
<b>Local labor market variables</b>								
Percentage unemployment rate	0.9850	0.0168	1.0510	0.0391	0.9468	0.0367	0.9758	0.0222
<b>Socio-Economic Variables</b>								
Male	<b>1.4487</b>	0.1463	<b>1.5501</b>	0.2991	<b>1.9750</b>	0.3731	1.0811	0.1607
Married	0.9355	0.1007	0.9576	0.2113	0.8215	0.1687	0.9673	0.1533
Black	0.9150	0.1213	0.9730	0.3682	0.6745	0.2510	0.9440	0.1526
Education								
Less than high school	0.9069	0.1117	0.9019	0.3332	1.0127	0.2770	0.8922	0.1353
Some college	0.9682	0.1040	0.9740	0.2033	0.9726	0.1694	0.9877	0.1822
Self-reported health								
Excellent	0.9649	0.1242	1.2938	0.2987	0.7438	0.1762	0.9165	0.1937
Very good	0.9100	0.0994	0.9826	0.2202	0.8448	0.1629	0.9310	0.1505
Fair	1.0643	0.1492	0.9360	0.3381	1.3900	0.3584	0.9802	0.1867
Poor	0.6859	0.2652	0.2437	0.2568	0.4987	0.5033	0.8456	0.3718
Industry								
Agriculture, mining, construction	<b>1.6059</b>	0.2685	1.3056	0.5667	1.0585	0.5699	<b>1.9873</b>	0.4046
Manufacturing, transport	1.0149	0.1152	0.9892	0.2119	0.8830	0.2006	1.0691	0.1960
Professional services, public admin	<b>0.6339</b>	0.0828	<b>0.4483</b>	0.0990	0.9311	0.2022	0.7236	0.1499
Occupation								
Managerial and professional	0.9426	0.1245						
Other, excluding sales and clerical	0.8186	0.1006						
Plant size								
less than 5 employees	0.3925	0.2095	0.3112	0.3180	<b>0.0000</b>	0.0000	0.7637	0.4932
5-14	<b>1.5998</b>	0.2849	1.4162	0.5130	1.3468	0.4810	<b>1.8684</b>	0.4698
15-24	1.2646	0.2514	1.2703	0.4352	1.2764	0.5130	1.2028	0.3575
25-99	0.9903	0.1163	0.7168	0.1879	1.0455	0.2209	1.1445	0.2015
100-499	1.1471	0.1193	1.1224	0.2229	1.1447	0.2215	1.1674	0.1830
Union member	1.0356	0.0345	1.1479	0.0976	1.1378	0.1082	0.9680	0.0414
Has pay and promotion responsibility	0.9883	0.0293	0.9791	0.0424	1.0231	0.0749	0.9794	0.0541
Self reported pension type								
Defined contribution	<b>0.6986</b>	0.0787	0.8115	0.1656	0.6644	0.1458	<b>0.6277</b>	0.1216
Defined benefit	<b>0.4216</b>	0.0654	<b>0.4081</b>	0.1202	<b>0.3800</b>	0.1274	<b>0.4732</b>	0.1001
Both	<b>0.4594</b>	0.0725	<b>0.4746</b>	0.1255	<b>0.4700</b>	0.1295	<b>0.4375</b>	0.1305
At or over defined benefit pension full retirement age	0.4139	0.1986	0.3127	0.2429	0.7016	0.5294	0.3018	0.2970
Years tenure in current job	<b>0.9636</b>	0.0056	<b>0.9620</b>	0.0108	<b>0.9577</b>	0.0120	<b>0.9705</b>	0.0075
Financial wealth								
81th-100th percentile	0.9654	0.1252	0.9887	0.2611	1.0330	0.2626	0.8678	0.1636
61th-80th percentile	1.2188	0.1577	<b>1.5257</b>	0.3652	1.3428	0.3328	1.0108	0.1979
21st-40th percentile	0.9435	0.1267	0.9850	0.2350	1.0950	0.2613	0.8107	0.1878
1st-20th percentile	0.9809	0.1456	0.8996	0.2276	1.1966	0.3237	1.0114	0.2815

Table 2 B: Relative Risk Ratio

Dependent Variable: Voluntary Exit to a New Full-Time Job

		RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.
<b>Local labor market variables</b>									
Percentage unemployment rate		<b>0.9308</b>	0.0218	0.9562	0.0446	<b>0.9196</b>	0.0431	<b>0.9196</b>	0.0299
<b>Socio-Economic Variables</b>									
Male		<b>1.3870</b>	0.1521	1.2918	0.2260	<b>2.0023</b>	0.4345	1.1823	0.1988
Married		0.9675	0.1051	0.8753	0.1693	0.8854	0.1895	1.1177	0.1850
Black		0.9446	0.1293	1.4411	0.3540	1.1344	0.3341	<b>0.7279</b>	0.1340
Education									
	Less than high school	<b>0.7138</b>	0.1030	0.5457	0.2757	0.6540	0.2491	<b>0.7366</b>	0.1256
	Some college	<b>1.4327</b>	0.1607	1.3080	0.3006	<b>1.4590</b>	0.2812	<b>1.3819</b>	0.2449
Self-reported health									
	Excellent	1.2129	0.1589	1.2061	0.2532	1.1572	0.3230	1.2841	0.2738
	Very good	1.0602	0.1239	0.8190	0.1790	<b>1.4859</b>	0.3560	1.0758	0.1824
	Fair	1.1954	0.1880	1.0061	0.3255	<b>1.7702</b>	0.5420	1.1311	0.2412
	Poor	0.4531	0.2716	0.6650	0.5043	1.5277	1.3613	<b>0.1234</b>	0.1260
Industry									
	Agriculture, mining, construction	0.9636	0.1758	0.8145	0.3241	2.2828	1.1972	0.9547	0.2176
	Manufacturing, transport	0.8590	0.1152	0.7210	0.1993	0.8242	0.2065	0.9101	0.1868
	Professional services, public admin	<b>0.8005</b>	0.0941	0.8859	0.1707	0.6872	0.1676	0.7139	0.1483
Occupation									
	Managerial and professional	1.1105	0.1475						
	Other, excluding sales and clerical	<b>1.3150</b>	0.1707						
Plant size									
	less than 5 employees	0.7316	0.3284	0.4796	0.4947	1.0923	0.8533	0.8784	0.4860
	5-14	1.0218	0.2374	0.8426	0.3134	0.7933	0.4134	1.3938	0.4778
	15-24	1.3127	0.2632	1.4228	0.4804	0.9936	0.4176	1.4413	0.4576
	25-99	1.2109	0.1411	1.0272	0.2153	0.8664	0.1966	<b>1.6878</b>	0.3083
	100-499	1.1639	0.1242	1.1083	0.2089	1.0020	0.2003	<b>1.4086</b>	0.2354
Union member		1.0245	0.0325	1.0210	0.0588	0.9887	0.0663	1.0498	0.0492
Has pay and promotion responsibility		<b>0.9469</b>	0.0299	0.9613	0.0408	0.9654	0.0642	<b>0.8936</b>	0.0477
Self reported pension type									
	Defined contribution	<b>0.7541</b>	0.0899	0.7725	0.1644	0.7149	0.1633	0.7548	0.1466
	Defined benefit	<b>0.6136</b>	0.0843	<b>0.5673</b>	0.1280	<b>0.5824</b>	0.1699	0.7042	0.1567
	Both	<b>0.6718</b>	0.1107	<b>0.6465</b>	0.1619	0.5956	0.2227	0.8149	0.2351
At or over defined benefit pension full retirement age		0.9442	0.3272	1.3849	0.6309	0.8215	0.6911	<b>0.3056</b>	0.1908
Years tenure in current job		<b>0.9624</b>	0.0059	<b>0.9565</b>	0.0101	<b>0.9518</b>	0.0130	<b>0.9723</b>	0.0094
Financial wealth									
	81th-100th percentile	1.0582	0.1387	0.9449	0.2313	0.8842	0.2442	1.2928	0.2531
	61th-80th percentile	1.1251	0.1453	1.0983	0.2606	1.0944	0.2812	1.2256	0.2423
	21st-40th percentile	0.9284	0.1279	0.7969	0.1804	1.0886	0.2743	0.9411	0.2208
	1st-20th percentile	<b>0.6839</b>	0.1099	<b>0.6450</b>	0.1508	<b>0.4741</b>	0.1604	0.9679	0.2648

Table 2 B': Relative Risk Ratio

Dependent Variable: Voluntary Exit to a New Part-Time Job

	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.
<b>Local labor market variables</b>								
Percentage unemployment rate	<b>0.8752</b>	0.0355	<b>0.8020</b>	0.0662	0.8969	0.0693	<b>0.8933</b>	0.0500
<b>Socio-Economic Variables</b>								
Male	1.0014	0.1491	0.9594	0.2794	1.0624	0.3317	1.0090	0.2146
Married	1.0571	0.1605	1.6697	0.6048	1.0346	0.2719	0.8170	0.1780
Black	0.7169	0.1529	1.0701	0.4308	0.7592	0.4079	<b>0.5755</b>	0.1577
Education								
Less than high school	<b>0.5252</b>	0.1163	<b>0.0000</b>	0.0000	<b>0.3854</b>	0.1927	<b>0.6288</b>	0.1684
Some college	0.9637	0.1526	0.8204	0.2543	0.9513	0.2480	1.0119	0.2681
Self-reported health								
Excellent	0.8718	0.1648	0.9505	0.3455	0.7395	0.2622	1.1418	0.3310
Very good	0.8227	0.1267	1.0752	0.3388	0.7105	0.2034	0.8158	0.1981
Fair	0.8952	0.2080	0.7543	0.5745	0.6718	0.3054	1.0818	0.3195
Poor	1.0629	0.5725	1.0248	1.1029	1.2039	1.3284	0.9300	0.6861
Industry								
Agriculture, mining, construction	<b>0.8358</b>	0.2433	0.4790	0.4771	2.4547	1.4458	0.6919	0.2483
Manufacturing, transport	0.3271	0.0898	<b>0.2095</b>	0.1405	<b>0.2588</b>	0.1391	<b>0.3570</b>	0.1500
Professional services, public admin	0.9673	0.1663	1.1593	0.3818	0.9591	0.2957	0.8805	0.2539
Occupation								
Managerial and professional	0.8096	0.1547						
Other, excluding sales and clerical	1.1654	0.2063						
Plant size								
less than 5 employees	0.8762	0.4281	<b>0.0000</b>	0.0000	1.1637	0.9113	1.1557	0.7221
5-14	1.3485	0.3544	2.0131	1.0254	0.8847	0.4360	1.2904	0.4897
15-24	<b>1.5132</b>	0.3591	1.6594	0.9030	1.7473	0.7038	1.3294	0.4597
25-99	0.8193	0.1550	1.3588	0.5140	0.6589	0.2122	0.7167	0.2040
100-499	1.1322	0.1826	<b>1.7561</b>	0.5659	0.8385	0.2410	1.0296	0.2542
Union member	0.9852	0.0478	<b>1.2094</b>	0.1321	<b>0.8526</b>	0.0803	0.9820	0.0713
Has pay and promotion responsibility	0.9997	0.0486	0.9954	0.0737	1.0702	0.1156	0.9457	0.0801
Self reported pension type								
Defined contribution	<b>0.2911</b>	0.0613	<b>0.4704</b>	0.1793	<b>0.2507</b>	0.0906	<b>0.1766</b>	0.0740
Defined benefit	<b>0.4056</b>	0.0936	0.5077	0.2195	<b>0.3791</b>	0.1438	<b>0.3679</b>	0.1467
Both	<b>0.3639</b>	0.1049	0.4274	0.2064	<b>0.1783</b>	0.1259	0.4917	0.2256
At or over defined benefit pension full retirement age	<b>2.0072</b>	0.7361	<b>0.0000</b>	0.0000	1.8748	1.5809	<b>5.2005</b>	2.3633
Years tenure in current job	<b>0.9854</b>	0.0085	0.9964	0.0132	<b>0.9582</b>	0.0176	0.9940	0.0149
Financial wealth								
81th-100th percentile	0.9388	0.2087	0.7683	0.3994	0.8857	0.3430	1.0790	0.3654
61th-80th percentile	1.2579	0.2547	0.8624	0.4017	1.5970	0.5518	1.2244	0.3882
21st-40th percentile	1.2206	0.2394	1.2689	0.4845	0.9097	0.3162	1.4099	0.4375
1st-20th percentile	0.9814	0.2103	0.7625	0.2959	1.0979	0.4373	1.1133	0.4112

Table 2 C: Relative Risk Ratio

Dependent Variable: Involuntary Exit to a Retirement

	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.
<b>Local labor market variables</b>								
Percentage unemployment rate	<b>1.0565</b>	0.0181	1.0930	0.0586	<b>1.0648</b>	0.0341	<b>1.0470</b>	0.0223
<b>Socio-Economic Variables</b>								
Male	0.8832	0.1091	1.0131	0.2678	0.8104	0.1777	0.8472	0.1639
Married	0.8411	0.1027	0.8182	0.2183	0.9750	0.1904	<b>0.7259</b>	0.1410
Black	1.0723	0.1703	1.9461	0.6867	<b>0.4176</b>	0.1830	1.1955	0.2432
Education								
Less than high school	1.1460	0.1611	1.1132	0.5520	0.9448	0.2991	1.3213	0.2328
Some college	1.1737	0.1510	1.1341	0.3129	1.2118	0.2247	1.2256	0.2736
Self-reported health								
Excellent	<b>0.5804</b>	0.0986	0.5686	0.2033	0.4364	0.1253	0.8348	0.2139
Very good	0.8037	0.1034	1.0612	0.2877	0.7395	0.1598	0.7331	0.1535
Fair	1.3141	0.2124	2.0340	0.8018	<b>1.1637</b>	0.3247	1.2550	0.2671
Poor	<b>2.3811</b>	0.6519	0.0000	0.0000	<b>3.7010</b>	1.9181	<b>2.5908</b>	0.8633
Industry								
Agriculture, mining, construction	1.6500	0.3379	1.8698	0.9070	0.5646	0.5554	1.7464	0.4218
Manufacturing, transport	<b>1.4387</b>	0.1914	1.2176	0.4038	1.5109	0.3342	1.5182	0.2970
Professional services, public admin	<b>0.5032</b>	0.0793	0.4132	0.1246	<b>0.5170</b>	0.1269	<b>0.5762</b>	0.1515
Occupation								
Managerial and professional	0.7334	0.1162						
Other, excluding sales and clerical	<b>0.7065</b>	0.0953						
Plant size								
less than 5 employees	0.8604	0.2993	1.2677	0.8447	0.2874	0.2763	1.2576	0.6061
5-14	0.8925	0.2107	1.6885	0.7229	0.4114	0.2227	0.9282	0.3257
15-24	0.9035	0.2300	0.8115	0.4688	1.0639	0.3993	0.7800	0.3401
25-99	<b>0.7458</b>	0.1073	0.8658	0.2877	0.6926	0.1591	0.7481	0.1667
100-499	0.8743	0.1102	1.1380	0.3155	0.5506	0.1207	1.0881	0.2083
Union member	<b>1.0619</b>	0.0388	1.0657	0.0941	1.0445	0.0680	1.0741	0.0571
Has pay and promotion responsibility	1.1130	0.0496	1.1482	0.0769	<b>1.2090</b>	0.1191	1.0249	0.0824
Self reported pension type								
Defined contribution	<b>0.4837</b>	0.0758	0.7072	0.2171	0.3290	0.0923	<b>0.4740</b>	0.1220
Defined benefit	<b>0.6779</b>	0.1090	0.3582	0.1341	<b>0.9415</b>	0.2265	0.6548	0.1762
Both	0.8151	0.1466	0.9389	0.2986	0.5076	0.1631	1.1417	0.3432
At or over defined benefit pension full retirement age	1.0075	0.3588	0.1736	0.1823	<b>2.1125</b>	1.0731	0.8289	0.4447
Years tenure in current job	0.9917	0.0058	0.9934	0.0120	0.9996	0.0098	0.9851	0.0092
Financial wealth								
81th-100th percentile	0.8137	0.1257	0.6971	0.2917	0.7534	0.1895	0.9015	0.2106
61th-80th percentile	<b>0.6360</b>	0.1081	0.4433	0.2090	<b>0.6733</b>	0.1798	<b>0.6493</b>	0.1683
21st-40th percentile	0.9654	0.1516	1.0677	0.3442	0.6391	0.1653	1.2450	0.3165
1st-20th percentile	1.0004	0.1693	1.0240	0.3303	0.8371	0.2363	1.2143	0.3594

Table 2 D: Relative Risk Ratio

Dependent Variable: Voluntary Exit to a Retirement

		RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.	RRR	Robust s.e.
<b>Local labor market variables</b>									
Percentage unemployment rate		0.9812	0.0112	0.9810	0.0255	0.9528	0.0245	0.9896	0.0142
<b>Socio-Economic Variables</b>									
Male		0.7788	0.0473	0.6814	0.0727	0.8582	0.1128	0.8345	0.0751
Married		1.1592	0.0710	1.3879	0.1609	1.1801	0.1360	1.0260	0.0937
Black		1.0512	0.0787	1.5423	0.2324	1.1493	0.1990	0.8847	0.0848
Education	Less than high school	1.1668	0.0838	1.0929	0.2855	0.9841	0.1708	1.1829	0.1004
	Some college	0.9174	0.0578	0.9594	0.1180	0.8577	0.0912	0.9081	0.0971
Self-reported	Excellent	0.7538	0.0593	0.8630	0.1177	0.6964	0.1028	0.6831	0.0917
	Very good	0.9492	0.0583	1.0359	0.1178	0.9411	0.1128	0.8840	0.0843
	Fair	1.5869	0.1266	1.3329	0.2634	1.5866	0.2704	1.6682	0.1692
	Poor	2.6397	0.4465	1.5515	0.7128	3.8621	1.4366	2.5147	0.4890
Industry	Agriculture, mining, construction	1.1445	0.1339	1.1938	0.2857	0.8881	0.3681	1.1491	0.1684
	Manufacturing, transport	1.1918	0.0849	0.9284	0.1498	1.4360	0.1906	1.2440	0.1244
Occupation	Professional services, public admin	0.9830	0.0669	0.7608	0.1000	1.0543	0.1265	1.0921	0.1174
	Managerial and professional Other, excluding sales and clerical	1.0249 1.0813	0.0775 0.0753						
Plant size	less than 5 employees	1.0039	0.1814	0.9038	0.2921	0.9344	0.3566	1.1522	0.3122
	5-14	0.9673	0.1174	1.1149	0.2472	1.2899	0.2699	0.7077	0.1392
	15-24	1.1542	0.1299	1.0297	0.2150	0.8913	0.2218	1.4342	0.2299
	25-99	1.0364	0.0698	1.0772	0.1353	0.9990	0.1292	1.0417	0.1074
	100-499	1.1181	0.0673	1.1868	0.1303	1.0331	0.1211	1.1183	0.1033
Union member		1.0023	0.0149	0.9914	0.0275	0.9838	0.0315	1.0150	0.0214
Has pay and promotion responsibility		1.0693	0.0202	1.0467	0.0272	1.0086	0.0380	1.1833	0.0507
Self reported pension type	Defined contribution	0.6615	0.0502	0.6415	0.0972	0.7395	0.1043	0.6355	0.0702
	Defined benefit	1.0884	0.0808	1.2006	0.1626	0.9753	0.1416	1.0885	0.1235
	Both	1.4298	0.1124	1.3510	0.1972	1.4384	0.2048	1.5995	0.1970
At or over defined benefit pension full retirement age		1.2733	0.1479	1.2758	0.2385	1.3482	0.3314	1.2146	0.2269
Years tenure in current job		1.0131	0.0024	1.0181	0.0040	1.0077	0.0050	1.0111	0.0036
Financial wealth	81th-100th percentile	0.7775	0.0640	0.7163	0.1417	0.6518	0.1045	0.8103	0.0922
	61th-80th percentile	0.8917	0.0713	1.0251	0.1826	0.8408	0.1264	0.8542	0.0970
	21st-40th percentile	1.1122	0.0836	1.3906	0.1979	0.9870	0.1362	1.0173	0.1226
	1st-20th percentile	1.2444	0.0978	1.3921	0.1953	1.2457	0.1765	1.0654	0.1484

RECENT WORKING PAPERS FROM THE  
CENTER FOR RETIREMENT RESEARCH AT BOSTON COLLEGE

**What Effect Do Time Constraints Have on the Age of Retirement?**

*Leora Friedberg, Wei Sun, Anthony Webb, November 2008*

**Dual-Eligible Medicaid Spending: Are We on the Flat of the Curve?**

*Melissa A. Boyle, Joanna N. Lahey, and Margaret E. Czervionke, November 2008*

**Public Long-Term Care Insurance and the Housing and Living Arrangements of the Elderly: Evidence from Medicare Home Health Benefits**

*Gary V. Engelhardt and Nadia Greenhalgh-Stanley, November 2008*

**The Impact of Changing Earnings Volatility on Retirement Wealth**

*Austin Nichols and Melissa M. Favreault, November 2008*

**The Housing Bubble and Retirement Security**

*Alicia H. Munnell and Mauricio Soto, with the assistance of Jean-Pierre Aubry, November 2008*

**How Much Do State and Economic and Other Characteristics Affect Retirement Behavior?**

*Alicia H. Munnell, Mauricio Soto, Robert K. Triest, and Natalia A. Zhivan, August 2008*

**Will People Be Healthy Enough to Work Longer?**

*Alicia H. Munnell, Mauricio Soto, and Alex Golub-Sass, August 2008*

**An Assessment of Life-Cycle Funds**

*Mauricio Soto, Robert K. Triest, Alex Golub-Sass, and Francesca Golub-Sass, May 2008*

**Participant Perceptions and Decision-Making Concerning Retirement Benefits**

*Colleen E. Medill, February 2008*

**A Micro-Level Analysis of Recent Increases in Labor Participation Among Older Workers**

*Kevin E. Cahill, Michael D. Giandrea, and Joseph F. Quinn, February 2008*

**The Trajectory of Wealth in Retirement**

*David A. Love, Michael G. Palumbo, and Paul A. Smith, February 2008*

*All working papers are available on the Center for Retirement Research website (<http://www.bc.edu/crr>) and can be requested by e-mail ([crr@bc.edu](mailto:crr@bc.edu)) or phone (617-552-1762).*