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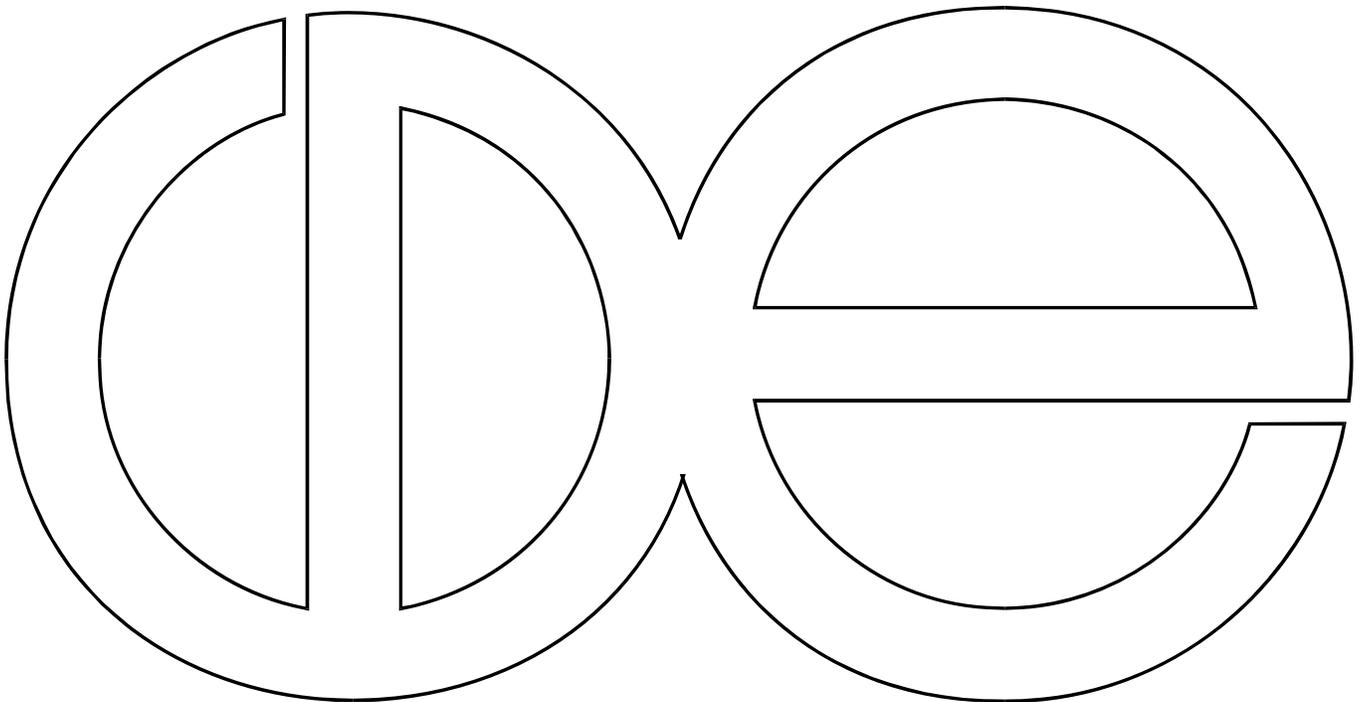
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# Precarious Employment, Bad Jobs, Labor Unions, and Early Retirement

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# Precarious Employment, Bad Jobs, Labor Unions, and Early Retirement

**Abstract**

*Objectives:* We examined the extent to which involuntary job loss, exposure to "bad jobs," and employment in non-unionized jobs across the life course are associated with the risk of early retirement.

*Methods:* Using data from the Wisconsin Longitudinal Study, a large (N = 8,609) sample of men and women who graduated from high school in 1957, we estimated discrete-time event history models for the transition to first retirement through age 65. We estimated models separately by sex.

*Results:* We found that experience of involuntary job loss, exposure to bad jobs, and not belonging to a labor union are associated with a lower risk of retiring before age 65. These relationships are stronger for men than for women and are mediated to some extent by pre-retirement differences in pension eligibility, wealth, job characteristics, and health.

*Discussion:* Results provide some support for hypotheses derived from theories of cumulative stratification suggesting that earlier employment experiences should influence retirement outcomes indirectly through later-life characteristics. However, the fact that mid-life employment experiences remain associated with earlier retirement, net of more temporally proximate correlates highlights the need for further theorization and empirical evaluation of the mechanisms through which increasingly common employment experiences influence the age at which older Americans retire.

Changes in the nature of employment in the U.S. since the mid-1970s are well documented, with particular attention paid to increasing employment insecurity, growth in jobs that do not provide pension or health insurance benefits, and decline in unionized jobs (e.g., Kalleberg, 2000, 2009; Kalleberg, Reskin, & Hudson, 2000; Loveman & Tilly, 1988). A number of studies have demonstrated that exposure to precarious employment and "bad jobs" has negative implications for various outcomes including earnings, wealth, and health. Yet this work has focused primarily on young adulthood and midlife, despite compelling theoretical reasons to believe that employment experiences across the life course may have important implications for understanding individual variation in experiences at older ages (O'Rand, 1996a, 1996b; O'Rand & Henretta, 1999).

Theories of "cumulative stratification" provide insights into the ways in which experiences and exposures across the life course influence outcomes later in life. In short, this perspective suggests that differentials in well-being and employment circumstances within a cohort will increase over time as initial levels of advantage (or disadvantage) experienced by individuals interact with later opportunities and experiences (Dannefer, 1987; O'Rand, 1996a, 1996b; O'Rand & Henretta, 1999). In this way, employment experiences such as involuntary job loss and lack of pension and health care coverage may play an important role in shaping the distribution of financial resources, health, and other dimensions of well-being at older ages. The fact that these characteristics are also well-established predictors of retirement timing suggests that earlier employment experiences may be an important indirect source of variation in age of retirement.

A better understanding of linkages between earlier employment experiences and retirement timing is particularly important in the context of conflict between the long-term trend toward

earlier retirement and growing efforts to promote extended labor force participation at older ages. Although the modal age of retirement in the U.S. is now 62 (Warner, Hayward, & Hardy, 2010), public and private policy efforts have increasingly sought to encourage and facilitate extended labor force attachment at older ages in response to concerns about projected labor force shortages, loss of skilled workers, difficulties in financing pay-as-you go public pension and health care systems, and ensuring the financial well-being of older Americans (Burtless and Quinn, 2002; Morton, Foster, and Sedlar, 2005; Munnell and Sass, 2008).

Theories of cumulative stratification suggest several, potentially offsetting, ways in which precarious employment and exposure to bad jobs across the life course may influence the likelihood of early retirement. On one hand, the experience of job loss or exposure to bad jobs may reduce the likelihood of retiring early via lower wealth accumulation and limited pension benefits. On the other hand, these same employment experiences might contribute to early retirement via poor health and lower commitment to work in late midlife. The fact that labor force changes since the mid-1970s have disproportionately affected women (Kalleberg, Reskin, & Hudson, 2000) highlights the importance of examining whether these posited indirect influences on retirement timing differ by gender.

In this paper, we use detailed employment history data from the Wisconsin Longitudinal Study (WLS) to examine how exposure to precarious employment, bad jobs, and not belonging to a labor union across the life course are related to the risk of early retirement (prior to age 65). We also assess the extent to which these relationships are mediated by established correlates of retirement timing (such as pension benefits, wealth, and health) and examine the extent to which linkages between employment history and early retirement differ by gender.

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**Background**

*The changing nature of employment*

A key feature of changes in the nature and quality of employment since the mid-1970s is declining job security (Hacker, 2008). Kalleberg (2009:5) argues that layoffs have become a basic component of employers' restructuring strategies over the past thirty years and that precarious employment has spread from unskilled, less educated segments of the labor force to all sectors of the economy. Involuntary job loss is a widely-studied indicator of employment insecurity and recent research shows that the proportion of employees who experience involuntary job loss in a given three-year period has fluctuated between 9-13% since the early 1980s (Farber, 2005). Estimates from the Bureau of Labor Statistics indicate that more than 30 million involuntary job losses occurred between the early 1980s and 2004 (Kalleberg, 2009:2).

Closely related to the increase in precarious employment is growth in "bad jobs." The quality of jobs can be evaluated in a variety of ways, but bad jobs are frequently defined as those that do not offer private pension plans or health insurance benefits and are characterized by low wages (Hacker, 2008; Kalleberg, Reskin, & Hudson, 2000; Mishel, Bernstein, & Allegretto, 2007). Recent studies show that 21% of employed Americans did not have private health insurance coverage in 2008 (Turner, Boudreaux, & Lynch, 2009) and that half did not have private pension coverage in 2004 (Munnell & Perun, 2006). In their tabulations of data from the 1995 Current Population Survey, Kalleberg, Reskin, & Hudson (2000) show that 60% of American workers had a job that was bad on at least one indicator (no pension, no health insurance, or low wages) and that 1 in 7 had a job that was bad on all three indicators.

A third widely-studied component of changes in the nature of employment is decline in unionized jobs. The proportion of employees in labor unions fell from .28 in 1970 to .12 in 2007

(Statistical Abstract of the United States, 1980 and 2009 volumes). Because unionized jobs are more likely to provide employment security, benefits, and higher pay, declining union membership is closely related to the increase in precarious employment and bad jobs (Kalleberg, Reskin, & Hudson, 2000).

Explanations of these changes have emphasized increasing global competition, technological change, deregulation, the ability to outsource low-skill work to low-wage countries, and the shift from manufacturing to service and information industries, all of which have prompted employers to seek more flexible employment relations (Hacker, 2008; Hipple & Stewart, 1996; Tilly, 1996). This flexibility has been achieved by moving from long-term employment to an increased reliance on nonstandard work arrangements, including temporary/fixed-term employment and part-time employment, which allow for reductions in the cost of providing benefits and facilitate the expansion or contraction of employee numbers in response to shifting demand (Farber & Levy, 2000; Hipple & Stewart, 1996; Kalleberg, 2009; Tilly, 1996).

*Relationships between midlife employment experiences and early retirement*
Theories of cumulative stratification suggest several reasons to expect that the quality of employment across the life course has important implications for when older Americans retire. Of particular importance is evidence that precarious employment, job loss, and employment in bad jobs are negatively associated with various dimensions of well-being, including earnings (Farber, 2005; Stevens, 1997), wealth (Chan & Stevens, 2001), physical health (Strully, 2009), and psychological health (Burgard, Brand, & House, 2007; Grzywacz & Dooley, 2003). Involuntary job loss has also been linked to reductions in subsequent labor force participation and a higher likelihood of subsequent employment in part-time jobs (Farber, 2005).

Because financial well-being, health, and employment circumstances are also well-established correlates of retirement age, processes of cumulative stratification provide an important link between earlier employment experiences and the timing of retirement. Understanding this link is particularly important in light of growing efforts to reverse the long-term trend toward earlier retirement and prolong labor force attachment at older ages. Efforts to project the retirement behavior of the baby boom cohort, to respond to concerns about the loss of skilled, older workers and pressures on social security, and to ensure the financial well-being of older Americans will benefit from an understanding of the extent to which exposure to increasingly common employment experiences across the life course is associated with the likelihood of early retirement.

Hypothesized relationships are mixed. On one hand, earlier exposure to precarious employment and bad jobs may reduce the likelihood of early retirement by limiting the financial capacity to retire. We posit that involuntary job loss and employment in bad jobs will contribute to a lower likelihood of early retirement via a limited private pension coverage and lower wealth accumulation (Crystal & Shea, 1990; O'Rand and Shuey, 2007). We also expect the risk of early retirement to be lower among those who did not belong to a labor union and are thus less likely to be eligible for employer-provided pension benefits or to face the institutionalized incentives for early retirement present in many unionized jobs (Hardy, Hazelrigg, and Quadagno, 1996). This scenario is consistent with recent evidence that the long-term trend toward earlier retirement has slowed or reversed (Friedberg, 2007) and that the economic feasibility of early retirement is declining. Indeed, recent projections suggest that about one-third of the early baby boom cohort (born 1946-1954) will not be able to maintain their pre-retirement standard of living even if they work full-time until age 65 (Munnell, Golub-Sass, & Webb, 2007) and attitudinal survey data

indicate that increasing proportions of Americans approaching retirement cite economic necessity as a reason for their plans to continue working beyond current peak ages of retirement (AARP, 2004; Merrill Lynch, 2006).

On the other hand, exposure to precarious employment and bad jobs is expected to promote early retirement via poor health and more marginal labor force attachment. Earlier studies have found that unstable careers and spells of unemployment across the life course are associated with earlier retirement for men via higher rates of disability as well as weaker attachment to work and a lower likelihood of engaging in rewarding work (Hayward, Friedman, & Chen, 1998). Exposure to involuntary job loss and bad jobs across the life course may also be associated with a higher likelihood of experiencing unforeseen events such as health decline or late-career job loss that result in relatively early, and perhaps involuntary, retirement (Chan & Stevens, 1999).

The rise in precarious employment and the spread of bad jobs has been particularly pronounced among women (Kalleberg Reskin, & Hudson, 2000), suggesting that there may be important gender differences in relationships between earlier work experiences and retirement timing. Again, theoretical expectations are ambiguous. The effect of earlier employment experiences may be particularly strong for women who are more likely to experience career interruptions during prime childbearing years that can result in shorter employment tenure and a higher likelihood of employment in part-time, non-standard jobs that do not provide pension and health insurance benefits (O'Rand, 1988). Alternatively, it is possible that earlier employment experiences are less relevant for women whose retirement decisions may be more sensitive than men's to family circumstances such as caregiving obligations and to the characteristics and circumstances of their spouses (Szinovacz and DeViney, 2000).

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Our objective in this paper is to extend our understanding of linkages between work experiences across the life course and early retirement using data from the Wisconsin Longitudinal Study (WLS). In particular, we examine how exposure to precarious employment, bad jobs, and not belonging to a labor union across the life course are related to the risk of early retirement (prior to age 65) and assess the extent to which these relationships are mediated by established correlates of retirement timing. In doing so, we make three important empirical and theoretical contributions. First, the WLS contains rich life history data for one of the first cohorts to approach retirement after facing increased exposure to precarious employment and bad jobs for a large proportion of their working lives, making it a uniquely valuable source of insight into the long-term effects of the changing nature of employment over the past three decades. Second, the WLS data allow for improvement on earlier studies on linkages between work experiences and variation in retirement outcomes (e.g., Hayward, 1986; Hayward, Friedman, & Chen, 1998; Hayward et al., 1989; O'Rand & Henretta, 1982; O'Rand & Landerman, 1984) which are limited by their reliance on older surveys such as the National Longitudinal Surveys of the late 1960s, their focus on men, and their consideration of relatively limited aspects of work histories (e.g., characteristics of longest job). Finally, we extend recent life course theorization by evaluating hypotheses about the ways in which processes of cumulative stratification influence early retirement, one important aspect of the increasingly heterogeneous retirement process (e.g., O'Rand, 1996a, 1996b; O'Rand & Henretta, 1999).

**Data and Methods**

*Sample*

The Wisconsin Longitudinal Study (WLS) is a long-term study of a random sample of 10,317 men and women who were first interviewed prior to graduating from Wisconsin high schools in

1957 and reinterviewed in 1975, 1993, and 2004. Several features of the WLS make it ideal for our purposes. First, it provides detailed information on almost all jobs that respondents have held between ages 36 and 65, allowing us to measure work histories in far greater detail than in previous studies. Second, the WLS graduates were 35 years old in 1975, making this survey a rich source of information on the employment histories of one of the first cohorts exposed to the rise in precarious employment and bad jobs and the decline in union membership from early career through peak retirement ages. Third, the WLS cohort is one of the first in which significant numbers of women have worked throughout the life course, allowing us to examine gender differences in relationships between earlier work experiences and retirement.

Our analyses are based on data collected in the 1993 survey (conducted in 1992-94 with a response rate of 87%) and the 2004 survey (conducted in 2003-05 with a response rate of 85%). We excluded 1,593 members (15%) of the original cohort who did not participate in either the 1993 phone interview (when they were 54 years old) or the 2004 phone interview (when they were 65 years old) and six respondents who either had missing information on age or were several years older than the rest of the Class of 1957 graduates. These restrictions leave us with a base sample of 8,718 individuals. Auxiliary analyses indicate that those with only a high school degree were more likely to be among the 1,593 who were excluded due to refusal to participate in either survey (n = 1,048) or death prior to the 1993 survey (n = 545). Our results may thus be biased to the extent that relationships between unobserved earlier work experiences and retirement outcomes are systematically different for these missing cases.

It is also clear that the likelihood of being censored in 1993 due either to refusal to participate in the 2004 survey (n = 879) or to death between 1993 and 2004 (n = 578) was somewhat higher among those with less education and longer exposure to bad jobs. Because we

have no information about these individuals' experiences after the 1993 interview (other than year and month of death for those who died), we censor these observations in the year of the 1993 survey. To assess the potential impact of this attrition, we estimated auxiliary models based on different assumptions about the unobserved experiences of this group subsequent to the 1993 survey. In particular, we assumed that (a) all retired in the year following the 1993 survey, (b) all retired in 2004 (for those lost to follow-up) or in the year of death (for those who died), (c) all retired halfway between the 1993 survey year and either the year of the 2004 survey or the year of death, and (d) none retired prior to 2004 or year of death. In all cases, we assume that values of independent variables remained constant from 1993 until the year of retirement or censoring. In all but one scenario, estimated coefficients for indicators of precarious employment, exposure to bad jobs, and not belonging to a labor union were robust to these alternative treatments of data missing due to attrition following the 1993 survey. We note the one exception below when discussing the results.

*Variables*

Retirement timing: In both the 1993 and 2004 surveys, respondents were asked whether they considered themselves to be partly retired, completely retired, or not retired at all. Those who were partly or completely retired were asked the month and year in which they retired. For 178 respondents who did not report retirement status in either survey, or reported being retired but did not provide a date of retirement, we used other sources of information to determine retirement timing. Reports of retirement as a reason for leaving specific employment spells and information on age of initial receipt of private pension benefits and social security benefits enabled us to construct measures of retirement experience and timing for 159 of those with missing data on self-stated retirement. We excluded the remaining 19 (0.02% of the total sample)

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who provided no usable information on retirement. We also excluded 90 respondents whose reported retirement age was younger than their age in 1975, most (89%) of whom were women with very young reported ages of retirement (the mean age of retirement for this group was 26). Our final analytical sample is thus 8,609 (i.e., 8,718 - 19 - 90 = 8,609) or 88% of the 9,730 sample members who survived to the 1993 survey.

We began by constructing a data file consisting of person-year records in which each respondent contributed one observation per year from 1975 through the year of first self-stated retirement or the 2004 survey, whichever came first. As noted above, those who did not participate in the 2004 survey were censored in the year of the 1993 survey. By constructing these person-year data, we were able to easily incorporate time-varying information on pension eligibility, job characteristics, family circumstances, and health status collected in the 1993 and 2004 surveys and to flexibly specify the baseline hazard of retirement in discrete-time event history models.

Mid-life employment experiences: We constructed five measures of mid-life work experience that reflect exposure to precarious employment, "bad" jobs, and non-union jobs. Except for the measure of non-union jobs, these variables were constructed from the employment history data collected at age 54 in the 1993 survey and at age 65 in the 2004 survey. Employment histories in the WLS surveys are comprised of multiple employment spells – uninterrupted periods of time working for the same employer, including self-employment. These data provide detailed information on jobs held by graduates between 1975 and 2004, including the years that respondents started and stopped working for that employer; the reason for ending that employment spell; whether they worked full- or part-time; the industry and occupation when they began working for that employer; health insurance coverage; and pension coverage.

Our measure of exposure to precarious employment is a time-varying indicator of whether graduates ever left a job involuntarily prior to first retirement. Based on open-ended responses to questions asking the reason for ending each employment spell, we define involuntary job loss as cases in which the reported reason was business closing, downsizing, relocation, termination, or lay-off. This dichotomous indicator is equal to zero in all person-years prior to the first year in which an involuntary job exit was reported (if any) and equal to one in that year and all subsequent years. To operationalize exposure to bad jobs, we constructed time-varying indicators of the cumulative proportion of working years since 1975 spent in jobs that (a) did not offer private pension plans, (b) did not offer health insurance coverage, and (c) were characterized by low earnings. The employment history module allows us to identify respondents' employment status in each year between ages 36 and 65 and whether or not their employer offered a company-sponsored pension plan and health insurance. The employment history module did not collect retrospective reports of earnings for each employment spell but we were able to use time-varying information about respondents' occupations to characterize the typical earnings of people who hold those occupations with a measure that Hauser and Warren (1997) refer to as occupational earnings. For each of these three indicators of "bad jobs," we calculated annual measures of cumulative exposure by dividing the cumulative number of years employed in a bad job (since age 35) by the cumulative number of years employed since age 35. To facilitate the interpretation of regression coefficients, we standardized these three measures of bad jobs separately for men and women to have a mean of zero and standard deviation of one.

Due to the limited information on labor union membership available in the surveys, our measure of not belonging to a union is not truly a time-varying variable. It is constant with a value of zero for those who reported union membership in 1975, constant with a value of one for

those who did not report union membership in either 1975 or 1993, and changes from a value of one to a value of zero in 1993 for those who reported union membership in 1993 but not in 1975.

Correlates of retirement timing: Drawing on theories of cumulative stratification, we attempt to evaluate pathways through which earlier exposure to precarious employment, bad jobs, and non-unionized jobs may be associated with retirement outcomes by including time-varying measures of financial well-being, job characteristics, employment status, and health.

We measured financial well-being as private pension eligibility and wealth. Pension eligibility is a time-varying dichotomous indicator that distinguishes those who are eligible for private pension benefits at a given age from those who are either not yet eligible or not covered by an employer-sponsored pension plan. Wealth is a time-constant indicator of respondents' percentile rank in the within-sample distribution of net worth at the time of the 1993 survey. Net worth in the WLS is constructed as the reported value of home equity, real estate, business or farm, motor vehicles, savings, and investments owned by the respondent and his/her spouse minus their reported debt. Because available information on net worth refers only to the time of the 1993 and 2004 surveys, it is impossible to construct time-varying measures without making untestable assumptions about how wealth changes over time. We therefore make the simplest assumption of no change over time in respondents' relative position in the within-sample distribution of net worth.

Job characteristics include time-varying indicators of occupational sector of the current or last job (private sector, public sector, self-employed), employment status (full-time, part-time, not employed), occupational socioeconomic standing, and duration of the current (non-) employment spell. Occupational socioeconomic standing is measured as the standardized value

of occupational education – the percent of persons in each occupation in the 1990 Census who completed one year of college or more (see Hauser & Warren, 1997 for details).

Health status is measured using time-varying indicators of four serious illnesses or health events after age 35. These measures are constructed from information in the 2004 survey on the diagnosis of diabetes, cancer, heart problems, and stroke and are equal to zero in person-years prior to the experience of these health problems and equal to one in the year of diagnosis and all subsequent years. Because the 1993 survey did not ascertain the year of diagnosis, we assume that these health events occurred mid-way between 1975 and the 1993 survey for the small number of graduates who reported the diagnosis in 1993 but did not respond to the 2004 survey. Among the 1,457 respondents censored at the time of the 1993 survey, 75 reported a diagnosis of diabetes, 77 reported heart trouble, and 33 reported cancer. The 1993 survey did not ask about experience of stroke so we set this variable equal to zero for those who did not respond to the 1993 survey. We also set all variables equal to zero for 558 respondents who did not respond to the part of the 1993 survey that was conducted by mail (which contained the questions on these health events).

*Models*

We examine relationships between earlier work experiences and retirement through age 65 by estimating discrete-time event history models using logistic regression. These models can be expressed generally as:

$$\ln[p_{it}/1\text{-}p_{it}] = \alpha + X_{it\text{-}1}\beta + Y_{it\text{-}1}\gamma + \varepsilon_{it} \tag{1}$$

$$\ln[p_{it}/1\text{-}p_{it}] = \alpha + X_{it\text{-}1}\beta + Y_{it\text{-}1}\gamma + Z_{it\text{-}1}\delta + \varepsilon_{it}, \tag{2}$$

where $p_{it}$ is the probability that the $i^{th}$ respondent retires at age t, conditional on being not retired at age t-1. $X_{it\text{-}1}$ includes age, a time-invariant measure of educational attainment (high school

graduate, some college, bachelor's degree, and graduate or professional degree), and a time-varying indicator of marital status (married, divorced/separated, widowed, and never married). $Y_{it-1}$ includes the five employment experience measures of central interest. The subscript t-1 indicates that independent variables are lagged one year. Two exceptions are age and pension eligibility, both of which are measured in year t. By including the correlates of retirement timing described above ($Z_{it-1}$ in Model 2), we can evaluate the extent to which relationships between earlier employment experiences and retirement timing change after controlling for factors posited to delay retirement (lower wealth, lack of pension eligibility, shorter employment tenure, and self-employment) and factors posited to promote early retirement (lower occupational status, limited labor force attachment, and health problems). We estimate the two models separately for men and women in light of the posited gender differences described above.

Based on the results of preliminary descriptive analyses, we specify the baseline hazard of retirement using a linear term in combination with age-specific dummy variables between ages 60 and 65. As in other studies using different data and different methods, we find that the risk of retirement rises through age 60, increases rapidly to a peak at age 62, and declines subsequently. We do not see a second peak at age 65 because age in a given person-year refers to respondents' birthday in that calendar year and many of those coded as age 65 had not yet reached their 65th birthday by the survey date.

**Results**

Table 1 describes the analytic sample by sex in two ways. Columns 1 and 2 describe the characteristics of individuals (observed in the year prior to retirement or censoring) and columns 3 and 4 present summary statistics for all person-year observations. Individual data show that 64% of both men and women had retired by the time of the 2004 survey (when they were 63-65

years old). The measures of mid-life work experiences indicate that the proportion of working years that women spent in jobs without private pension coverage (.43), without health insurance coverage (.35), and with low earnings (.64) is substantially higher than for men. The proportion with experience of involuntary job loss is similar for men (.20) and women (.17) but women are more likely to not report belonging to a labor union (.82 vs. .67 for men). Other measures indicate that men are more highly educated; less likely to be divorced or widowed; more likely to be eligible for private pension benefits; more likely to be self-employed; much less likely to be employed part-time or not working; have higher net worth and longer employment tenure; and are similar to women in terms of occupational socioeconomic standing and health problems.

[Table 1 about here]

Table 2 presents exponentiated coefficients (odds ratios) estimated from two discrete-time event history models for the transition to retirement through age 65. Looking at the results for Model 1, it is clear that our measures of exposure to increasingly common employment experiences are associated with a significantly lower risk of retirement (or equivalently, a lower probability of retiring by age 65). This is especially true for men, with four of the five employment history measures negatively associated with the risk of retirement. Specifically, the odds of retirement in a given year are 37% lower for men with earlier experience of involuntary job loss, 24% lower for those who spent more time (one standard deviation above the mean) employed in jobs that did not provide private pension plans, 8% lower for those who spent more time employed in jobs characterized by low earnings, and 32% lower for those who did not belong to a labor union. The proportion of working years spent in jobs that do not provide health insurance coverage is not significantly related to the risk of retirement.

In Model 2, measures of net worth, pension eligibility, occupational sector, spell duration, occupational socioeconomic standing, employment status, and health problems are all significantly related to the risk of retirement in expected ways. More importantly, the inclusion of these temporally proximate correlates of retirement attenuates, but does not eliminate, the statistically significant relationships between earlier employment experiences and the risk of retirement. Furthermore, longer exposure to jobs without health insurance benefits is now associated with earlier retirement, a relationship that emerged after controlling for self-employment, a strong predictor of both limited access to health care across the life course and later retirement. One plausible explanation for this finding is that those with limited health insurance coverage across the life course may need to take another (post-retirement) job that provides health insurance until becoming eligible for Medicare. However, supplementary analyses reveal that this is not the case. In most cases, early retirement for this group is followed by self-employment.

In only one case were the results presented in Table 2 sensitive to the inclusion of imputed observations for men who did not respond to the 2004 survey. When we assumed that none of these men retired and were censored at the year of the 2004 survey or the year of their death, coefficients for involuntary job exit and not belonging to a union were no longer significantly different from zero. When we make less extreme assumptions about the unobserved behavior of this group, the results are very similar to those presented in Table 2. We are thus inclined to believe that our results are reasonably robust to non-random loss to follow-up and death.

For women, like men, experience of involuntary job loss and not belonging to a labor union are both associated with a lower likelihood of early retirement in Model 1, but the other measures of employment experience are unrelated to the risk of retirement. After controlling for

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established correlates of retirement timing in Model 2, the relationship between employment in non-unionized jobs and later retirement is unchanged but the coefficient for experience of involuntary job loss is no longer significantly different from zero. Results of auxiliary models show that later retirement among women who left a job involuntarily primarily reflects their relatively short employment duration at the time of retirement. In no case were these results sensitive to the inclusion of imputed observations for women who did not respond to the 2004 survey.

[Table 2 about here]

To provide a better sense of the substantive magnitude of the estimated differences with respect to earlier employment experiences, we used predicted probabilities from Model 2 to construct life table measures of the age-specific cumulative proportions ever retired. For illustrative purposes, we compare hypothetical men and women who did not belong to a labor union, experienced involuntary job loss at age 50, and were one standard deviation above the mean on the three measures of exposure to bad jobs (group A) with men and women who possessed none of these characteristics (group B). Figure 1 presents the cumulative proportions ever retired by age for these two groups of men and women, assuming mean or modal values for other variables in Model 2 (i.e., high school graduates, continuously married, employed in the private sector, working full-time, not yet eligible for private pension benefits, no health problems, and mean values of employment spell duration, net worth, and occupational education). The cumulative probability of retirement by age 65 for men who experienced involuntary job loss, were exposed to bad jobs across the working life course, and did not belong to a labor union was 14 percentage points lower than that of men without such experiences. The corresponding difference for women was 7 percentage points. Differences between the two

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groups increase with age as the age-constant differences in the risk of retirement compound over time. This divergence is accelerated by the experience of involuntary job loss at the arbitrarily chosen age of 50 for those in group A. The larger differences for men reflect the stronger link between involuntary job loss and exposure to bad jobs across the life course and earlier retirement in Model 2 for men which more than offset the slightly stronger relationship between not belonging to a labor union and later retirement for women. Taken as a whole, these results highlight the significance of increasingly common employment experiences across the life course for understanding variation in the likelihood of early retirement, especially among men.

[Figure 1 about here]

**Discussion**

Despite the well-documented increase in exposure to precarious employment, bad jobs, and non-union jobs, linkages between these employment experiences and retirement outcomes have yet to be examined. In this paper, we used uniquely rich data collected across the lives of a large cohort of older American men and women to evaluate these relationships. We found that experience of involuntary job exit, exposure to jobs that do not provide pension benefits, exposure to low paying jobs, and not belonging to a labor union are all associated with a lower likelihood of early retirement. These relationships appear to be stronger for men than for women.

Consistent with hypotheses based on theories of cumulative stratification, these relationships were attenuated when we controlled for established temporally-proximate correlates of retirement timing. Private pension eligibility and occupational sector, in particular, played an important role in explaining linkages between earlier employment experiences and the risk of retirement through age 65. However, employment experiences across the life course remained significantly related to men's risk of early retirement net of pension eligibility, net worth,

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employment circumstances, and health. Four out of the five measures of men's employment experiences across the life course remained significantly associated with a lower risk of early retirement, while exposure to jobs that did not provide health insurance coverage was associated with a higher likelihood of early retirement. For women, not belonging to a labor union remained significantly associated with a lower risk of early retirement. In sum, we find that exposure to precarious employment and bad jobs are associated with a lower likelihood of early retirement, especially for men. Part, but not all, of that relationship can be attributed to the fact that those with precarious employment and bad jobs are less likely to be eligible for private pension benefits, more likely to be self-employed, and have shorter employment duration as they approach typical retirement ages.

Gender differences in the meaning of work and career may account for the relatively limited linkages between women's earlier work experiences and their retirement timing. The WLS respondents belong to a transitional cohort between earlier cohorts of women who derived their identity primarily from family roles and later cohorts who have derived their identity from both work and family roles (Goldin, 2006). We suspect that women's retirement timing may be more sensitive to their husbands' characteristics than to their own employment history but the absence of time-varying information on spouses' characteristics prevents us from examining this possibility. It will be important to reexamine gender differences in younger cohorts characterized by greater symmetry in men's and women's employment experiences across the life course when appropriate data are available.

Our results are particularly interesting in light of increasing interest in promoting extended labor force attachment at older ages, suggesting that exposure to less favorable employment circumstances across the life course may contribute to a lower likelihood of early retirement.

Results are consistent with the hypothesis that changing employment patterns across the life course contribute to increasing heterogeneity in the timing of retirement via the rising proportion of older Americans who approach older ages without sufficient financial resources and benefits to retire early (Moore & Mitchell, 2000). However, our ability to do more than speculate about this possibility is constrained by two important limitations of our study.

The first limitation is that our ability to adequately measure established temporally proximate correlates of retirement timing is constrained by the information available in the survey. Although the WLS does contain information about savings, financial assets, and pension wealth, these measures refer to the time of the survey and are thus not adequate for constructing the truly time-varying indicators of economic well-being needed for our analyses. Careful evaluation of the mechanisms underlying the relationships we have documented is an important task for subsequent research when the necessary detailed information on individual employment, economic, and health characteristics across the life course becomes available. The first large scale study to provide such information will be the NLSY79, whose participants will enter prime retirement ages 10-15 years from now. A second limitation is the fact that the WLS contains only limited information about the life histories of spouses. Spouses' employment experiences across the life course and economic, employment, and health circumstances at older ages may be related to respondents' mid-life employment experiences and retirement timing in ways that would shed light on our findings. For example, the relatively low likelihood of early retirement among men with less favorable employment circumstances in mid-life may reflect their marriage to women with similar employment experiences or perhaps more limited labor force attachment across the life course. We also recognize that exposure to precarious employment and bad jobs across the life course may affect retirement timing in ways that have yet to be adequately theorized. For

example, it may be that exposure to precarious employment and bad jobs across the life course influences preferences for work and leisure, life goals, risk aversion and other characteristics that may affect retirement timing but are not included in the WLS or in most other surveys.

Refining analyses in these ways to further our understanding of linkages between employment experiences across the life course and retirement timing is of potentially great value for understanding variation in the retirement process of the large baby boom cohort. Relative to the WLS cohort and preceding cohorts, the baby boomers were at an earlier career stage when marked changes in the nature of employment emerged in the mid-1970s. A better understanding of the ways in which earlier employment experiences are associated with retirement timing is valuable not only for social scientists, but also individuals contemplating and planning for their own retirement, and for those involved in the formulation of retirement policies. Social scientists have discussed and documented the deinstitutionalization or individualization of retirement, but they have yet to fully explore the ways in which employment experiences across the life course influence retirement outcomes in this new context. As more individuals approach retirement with plans for extended employment, including part-time work or phased retirement, effective planning and preparation may be enhanced by a fuller understanding of the ways in which earlier employment experiences are associated with the likelihood of early retirement. Similarly, the efforts of individual firms and policy makers to implement policies designed to facilitate extended labor force participation will benefit from an understanding, not only of the prevalence and nature of plans for work at older ages, but also of the ways in which individual variation in earlier employment experiences contributes to variation in the risk of early retirement.

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Table 1: Sample characteristics, by sex

| Variable | Individuals[a] | | Person-years | |
|---|---|---|---|---|
| | Men | Women | Men | Women |
| Retired | | | | |
|   No | 0.36 | 0.36 | 0.97 | 0.97 |
|   Yes | 0.64 | 0.64 | 0.03 | 0.03 |
| *Age* | 58.36 (5.17) | 57.88 (5.69) | 48.68 (7.54) | 48.51 (7.58) |
| *Educational attainment* | | | | |
|   High school | 0.55 | 0.69 | 0.54 | 0.69 |
|   Some college | 0.14 | 0.13 | 0.15 | 0.13 |
|   BA | 0.14 | 0.12 | 0.14 | 0.12 |
|   Graduate/professional degree | 0.17 | 0.06 | 0.17 | 0.06 |
| *Marital status* | | | | |
|   Married | 0.85 | 0.77 | 0.87 | 0.82 |
|   Divorced/separated | 0.09 | 0.13 | 0.08 | 0.11 |
|   Widowed | 0.01 | 0.06 | 0.01 | 0.03 |
|   Never married | 0.05 | 0.04 | 0.05 | 0.05 |
| *Mid-life work experiences* | | | | |
|   Involuntary job exit[b] | 0.20 | 0.17 | 0.11 | 0.09 |
|   Proportion years w/o access to private pension[c] | 0.26 (0.37) | 0.43 (0.42) | 0.27 (0.40) | 0.42 (0.45) |
|   Proportion years w/o access to health insurance[c] | 0.15 (0.30) | 0.35 (0.41) | 0.14 (0.31) | 0.34 (0.43) |
|   Proportion years in low earning occupation[c] | 0.34 (0.42) | 0.64 (0.43) | 0.34 (0.44) | 0.60 (0.46) |
|   Did not belong to a labor union[b] | 0.67 | 0.82 | 0.69 | 0.84 |
| *Net worth in 1993 ($1000)[d]* | 249.75 (264.66) | 190.12 (227.49) | 250.21 (263.99) | 185.90 (221.60) |
| *Eligible for private pension benefits[b]* | 0.46 | 0.28 | 0.12 | 0.08 |
| *Occupational sector of current/last job* | | | | |
|   Private | 0.64 | 0.68 | 0.66 | 0.71 |
|   Public | 0.17 | 0.21 | 0.17 | 0.19 |
|   Self-employed | 0.18 | 0.11 | 0.17 | 0.10 |
| *Occupational education[c,e]* | 59.04 (25.65) | 59.85 (23.06) | 59.92 (25.98) | 59.77 (23.18) |
| *Duration of current employment spell* | 15.14 (12.61) | 9.86 (9.96) | 11.62 (9.84) | 6.56 (7.81) |
| *Employment status* | | | | |
|   Working full-time | 0.86 | 0.57 | 0.91 | 0.57 |
|   Working part-time | 0.08 | 0.26 | 0.03 | 0.21 |
|   Not working | 0.05 | 0.16 | 0.06 | 0.22 |
| *Diagnosed with diabetes[b]* | 0.09 | 0.06 | 0.04 | 0.03 |
| *Diagnosed with heart disease[b]* | 0.06 | 0.02 | 0.02 | 0.01 |
| *Diagnosed with cancer[b]* | 0.05 | 0.07 | 0.02 | 0.03 |
| *Diagnosed with stroke[b]* | 0.01 | 0.01 | 0.00 | 0.01 |
| N | 4,087 | 4,522 | 95,107 | 103,654 |

Notes: Standard deviations of continuous variables are shown in parentheses

a: Observations for individuals are from the year prior to retirement or censoring

b: Proportion for whom the value is 1=yes

c: In regression analyses, these measures are standardized to have mean of zero and standard deviation of one

d: In regression analyses, this measure is transformed to percentile rank. The mean value presented in this table is based on variable that is topcoded at $1,000,000

e: Occupational education is a measure of occupational status equal to the percentage of persons in each occupation in the 1990 Census who completed one year of college or more (see Hauser & Warren, 1997 for details).

Table 2: Odds ratios from models of retirement timing, by sex

| Variable | **Men** | | **Women** | |
|---|---|---|---|---|
| | Model 1 | Model 2 | Model 1 | Model 2 |
| *Age* | | | | |
| Linear | 1.25** | 1.18** | 1.20** | 1.18** |
| 60 | 1.36** | 1.27** | 1.33** | 1.24** |
| 61 | 1.43** | 1.42** | 1.24** | 1.18* |
| 62 | 2.86** | 2.52** | 2.44** | 2.13** |
| 63 | 1.53** | 1.42** | 1.35** | 1.18 |
| 64 | 1.13 | 1.11 | 0.89 | 0.79* |
| 65 | 0.93 | 0.85 | 0.68** | 0.58** |
| *Educational attainment[a]* | | | | |
| Some college | 0.94 | 0.95 | 0.92 | 0.87* |
| BA | 0.88 | 0.85* | 0.88 | 0.82** |
| Graduate/professional degree | 0.72** | 0.65** | 0.82* | 0.76** |
| *Marital status[b]* | | | | |
| Divorced/separated | 1.15 | 1.32** | 0.60** | 0.69** |
| Widowed | 0.97 | 1.04 | 0.81* | 0.82* |
| Never married | 1.33** | 1.44** | 0.92 | 1.03 |
| *Mid-life work experiences* | | | | |
| Involuntary job exit[c] | 0.63** | 0.82** | 0.80** | 0.93 |
| Proportion years w/o access to private pension | 0.76** | 0.90** | 0.98 | 1.06 |
| Proportion years w/o access to health insurance | 1.02 | 1.08* | 1.05 | 1.05 |
| Proportion years in low earning occupation | 0.92** | 0.94* | 0.96 | 1.04 |
| Did not belong to a labor union[c] | 0.68** | 0.85** | 0.73** | 0.75** |
| *Net worth in 1993 - percentile rank* | | 1.52** | | 1.85** |
| *Eligible for private pension benefits(c)* | | 2.98** | | 1.89** |
| *Occupational sector(d)* | | | | |
| Public | | 1.46** | | 1.04 |
| Self-employed | | 0.63** | | 0.85* |
| *Duration of current employment spell* | | 1.01** | | 1.01** |
| *Occupational education* | | 0.93* | | 1.06 |
| *Employment Status(e)* | | | | |
| Not working | | 2.63** | | 1.24** |
| Working part-time | | 1.57** | | 1.80** |
| *Diagnosed with diabetes[c]* | | 1.46** | | 1.25** |
| *Diagnosed with heart disease[c]* | | 1.11 | | 1.77** |
| *Diagnosed with cancer[c]* | | 1.38** | | 1.28** |
| *Diagnosed with stroke[c]* | | 2.88** | | 1.38 |
| N | 95,107 | 95,107 | 103,654 | 103,654 |
| df | 18 | 30 | 18 | 30 |
| log-likelihood | -8,918 | -8,546 | -10,596 | -10,419 |
| p value for likelihood ratio test - Model 2 vs. Model 1 | | 0.00 | | 0.00 |

* p < .05, ** p < .01
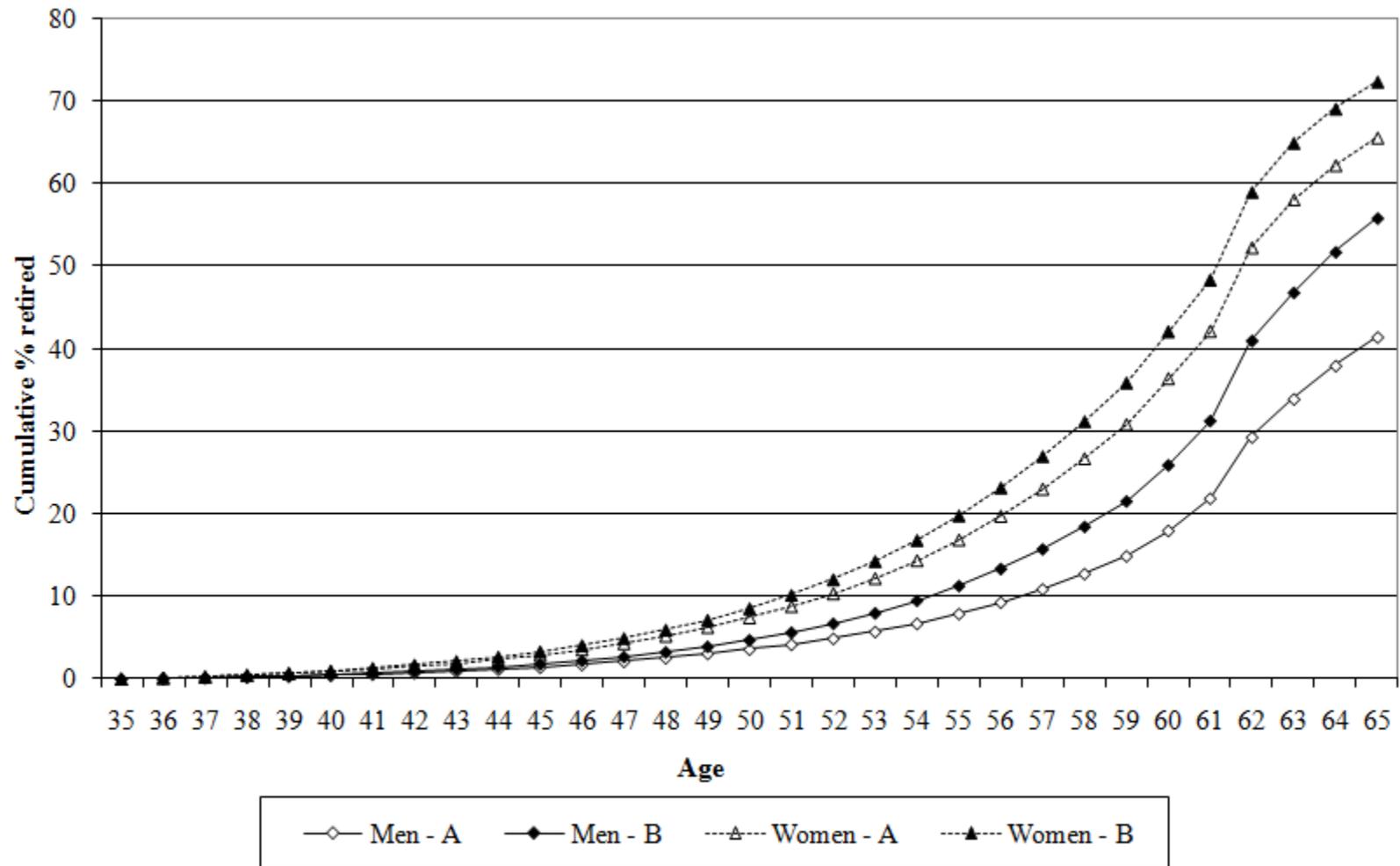Notes:
a: omitted category is high school
b: omitted category is  married
c: omitted category is no
d: omitted category is private sector
e: omitted category is working full-time

Figure 1: Predicted cumulative percent retired, by age, sex, and employment experiences



Note: A refers to those without any of the employment characteristics of interest, B refers to those with all five characteristics (i.e., experienced involuntary job loss at age 50, did not belong to a labor union, and was one standard deviation about the mean in proportion of working years employed in jobs without private pension coverage, without health insurance, and characterized by low wages).

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