Extended Abstract

MARRIAGE AND THE RETIREMENT LIFE COURSE:
Working Life Table Estimates for the U.S. Population over age 50, by Sex and Marital Status*

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The leading edge of the baby-boom cohort reached eligibility for early-retirement Social Security benefits in 2008, commencing the rapid swelling of America's retired population over the next few decades. Yet, there is scant recent evidence on older Americans' retirement life course—the timing of labor force withdrawal and the expectation of life in retirement, defined by the interplay of labor force behavior and mortality experiences—at the population level (Sullivan 2005; Warner, Hayward, and Hardy 2008). Prior nationally representative empirical studies addressing the age-graded regularity and permanency of retirement in combination with mortality patterns are limited in their assessment for several reasons including a reliance net-change indexed by labor force participation rates, a failure to distinguish between alternative pathways out of the labor force, and a lack of attention to compositional changes in the population of older Americans.

One particularly important compositional change for understanding the population-level retirement life course is the increase in marital instability, as many more men and women are currently entering and projected to enter their later years divorced or never-married, without the legal protections of marriage, than in the past. As the traditional predictors of work and retirement behavior—wealth and health— are related to marriage (Warner and Hofmeister 2006), shifts in the marital status composition of the older population should be consequential for the organization of the retirement life course. Marriage differences in the retirement life course will likely be especially pronounced for women given their reliance on the spousal entitlement provisions of private and public pension systems (Harrington Meyer, Wolf and Himes 2006). However, given the absence of prior research, the implication of changes in marital status for the constellation of transitions and roles that constitute the retirement life course is uncertain. For example, we do not know the answers to very basic questions about marital status differences in the end of working life:

- *How many years can people expect to work for pay and be out of the labor force over their lifetime? Does this vary by marital status?*
- *How many people remain in the labor force at a given age and to what extent does labor force participation depend on marital status?*
- *How "crisp" is the end of the work career across martial statuses? That is, do most people exit once or do a considerable number exit and reenter multiple times irrespective of marital status? Or, is this experience more or less common for one group or another?*

In the present study, we advance our understanding of and the importance of marriage for older American's work and retirement behavior by estimating sex- and marital status-specific Markov-based multistate life tables to examine the labor force behavior of the population over age 50. This approach summarizes the *average* lifetime labor force experiences of a synthetic cohort of individuals who are subject to existing labor force conditions and allows us to offer answers to the questions posed above.

Data and Measures

We use panel data from the 1992-2004 *Health and Retirement Study* to examine working life among persons over 50 years of age. The *HRS* is a nationally representative survey of the non-institutionalized population born before 1947, with oversamples of Blacks, Hispanics and residents of Florida. Spouses of age-eligible respondents were interviewed regardless of their

own age eligibility. Respondents and their spouses are reinterviewed every two years, on average.

Analytic Sample

In the present analysis, we pool seven waves of data from 1992 to 2004 to construct a file of person-intervals to observe labor force and mortality transitions among the population over age 50. To increase the density of transitions available for our analysis, we include both respondents and their age-eligible spouses in our analytic sample. As we observe the occurrence of an event between interviews, we assume that all transitions occur at the midpoint of the interval. We adjust the data using time-varying individual-level weights to account for panel attrition and retain the nationally representative quality of the data.

Due to a small number of events and data sparseness, we restrict our sample to respondents less than 100 years of age. Within these restrictions, missing data are of minimal concern because estimation of the multistate life tables requires a limited set of variables (i.e., labor force status, vital status, age, sex and race). Our analytic sample contains 24,954 persons, who contribute 95,130 person-intervals. Approximately, 56.7% of the respondents are female and they contribute 57.2% of person-intervals. The average person- interval is about 1.90 years. Our data is representative of the U.S. population in terms of both labor force participation rates and total life expectancies (calculations and Tables not shown).

Measures

Dependent Variables

This study focuses on movement between labor force states, where transitions are identified by changes in reported labor force status between interview waves. Consistent with the Bureau of Labor Statistics, we classify respondents as *in the labor force* if they report working for pay, or that they are unemployed and looking for work. Among those not working for pay, we classify them based on their self-report of labor force status combined with self-report information about how their health affects their ability to work for pay. Respondents are considered to be *work-disabled* if they identify as disabled or if they identity as retired but indicate that a health condition prevents them from "working altogether." The remaining respondents are considered *retired* and included those who report being retired without a health condition that limits their ability to work, as well as those who indicate being a homemaker or unemployed and not looking for work. Respondents are identified as *deceased* based on information provided by interviews with pre-identified proxies or a probabilistic positive match with the National Death Index in 1995, 2000, 2002, or 2004. Comparing labor force status between interviews, we create seven dummy variables coded 1 when a respondent changes labor force states via a given transition and coded 0 when no change is observed. Respondents who experience movement via a non-focal transition are censored. These variables are *In the Labor Force* (1) *to Retired*, (2) *to Work-Disabled or (3) to Dead*, (4) *Retired to* (4) *In the Labor Force*, (5) *to Dead* , and *Work-Disabled to* (6) *In the Labor Force* and (7) *to Dead*.[1]

[1] Note that in the first (1993) AHEAD interview, respondents were only asked if they were working for pay; the Rand HRS Data file backfills labor force information using respondent reports of when they last worked for pay, retired or became disabled to make Wave 1 labor force status classifications. However, the labor force status for a number of AHEAD respondents (n = 3113) remains unknown for the first interview. We used an ad hoc strategy to assign labor force status to these respondents based on reports of functional limitations.

Independent Variables

Age is specified as continuous measure, calculated as the number of days between the respondent's interview and birth dates divided by 365.25. We also include additional dummies for age 62 and age 65 to capture the increased transitions risks around the eligibility ages of Social Security and many employer-sponsored pensions. Respondents are coded 1 for *Age62* and *Age65* if they will reach this age before their next interview; otherwise respondents are coded 0.

Sex is measured at the first interview and is dummy coded female=1, male=0. *Marital Status* is coded as a series of dummy variables for *Divorced* (=1), *Widowed* (=1), and *Never Married* (=1) based on reported legal status, where *Married* serves as the reference group.

Statistical Procedures

Seven age-specific transitions rates underlie our multistate life table model, where individuals moving from state *i* (e.g., working) to a specific state *j* (e.g., retirement) are censored for transitions to any other state *j* (e.g., *death*) at that age. This is a competing risks framework. We model instantaneous transition rates using a standard discrete-time hazard modeling approach. The specification of age as a continuous measure and the incorporation of higher-order polynomials is analogous to a piecewise constant exponential modeling approach with smoothing. This approach is valuable when faced with sampling error and small sub-populations, where events we do not observe events (particularly transitions to disability or back to the labor force) at every age.

For each of the seven transition rates, we tested for age non-linearities in the functional form of the hazard. We also tested for sex- and sex-and-marital status-non-proportionalities in age for each of the transition rates by incorporating corresponding interaction terms and comparing the difference in the log likelihood ratios between the base and saturated models. Given the pattern of the results, we determined that sex- specific models were warranted. However, sex- and marital status- specific were not warranted as the effect of marital status was age-constant for all hazard transitions except that from retirement to death (which is captured through the inclusion of *age x marital status* interaction terms

The age-specific transition rates for ages 50 to 100 are calculated from these hazard models and serve as the input for single-year population-based multistate working life tables. We generate our sex-and-marital status specific multistate life tables using a SAS® Macro that applies the linear method outlined in Schoen (1988). We initiate the life table with a radix of 100,000 persons allocated across the three living states (in the labor force, work-disabled and retired) at age 50 for each sex-and-marital status group, according to the observed prevalence rate for persons ages 50 to 54.

Selected Findings

Hazard Model Results

In general, the schedule of age-specific risks is largely as expected for men and women (Warner, Hayward, and Hardy 2008), with women facing higher risks of retirement, lower risks of reentry and lower rates of mortality from all three states than men. However, marital status further differentiates these risks and is most consequential for the transition to retirement, where marriage as opposite effects for men and women. Compared to married men, the risk of

retirement is 30% higher for divorced men, 31% higher for widowed men and 8% higher for never-married men at every age. Among women, by contrast, married women have the highest risk of exiting via retirement and the lowest risk of reentry. Compared to married women, the risk of retirement is 28% lower for divorced women, 10% lower for widows and 25% lower for never married women.

Among the other transitions, the pattern of results is similar for men and women. Divorced and widowed men and women have higher risks of becoming work-disabled. Married men and women have the lowest risks of reentry to the labor force at all ages, while the divorced have the highest. As expected, the married also face the lowest risks of dying in each state and the divorced the highest. One interesting differences is that for most transitions widows have risks are largely similar to those of their married counterparts, while widowers are more similar to their divorced counterparts.

Multistate Working Life Results

The implication of these age-specific transition rate schedules for the labor force behavior of the older adults is clear—the later years are mostly non-working years. At age 50, men can expect to spend just 46% and women just 31% of their remaining years working for pay. However, consistent with the differences in the Hazard models, we find significant marital-status differences in the expectation of remaining life.

Married men have the greatest expectation of life in the labor force. At age 50, married men can expect to spend about half of their remaining 28 years in the labor force, 48% in retirement, and just 2% in work-disability. Divorced men have similar relative expectations of remaining life at age 50 in the labor force even though their total life expectancy is a little more than four years less than that of married men. Divorced men can expect to send about 49% of their remaining years in the labor force, 44% retired and 7% in work-disability. Compared to the married, widowers can expect to spend significantly less of their remaining life in the labor force (44%) and in retirement (45%). Never Married men can expect to spend the fewest years in the labor force (41%) and the highest proportion in retirement (52%). Similar to divorced men, widowers and never-married men can expect to spend a substantial portion of their remaining life at age 50 work-disabled.

For women, the expectation of remaining life at age 50 across labor force state is more clearly stratified by their connection to the marital institution, with married women expecting the fewest years in the labor force and the most in retirement compared to divorced and never married women who can expect the largest proportion of remaining life in the labor force and the least in retirement. Married women can expect to spend just 30% of remaining life working and almost 67% in retirement. The retirement life course experiences of widows are similar to those for married women, as widows can expect to spend 34 % of remaining life working and 60% in retirement at age 50. By contrast, divorced and never married women can expect to spend to about 45-46% of remaining life working, but just 49% and 45% in retirement, respectively Unmarried women, similar to unmarried men, can expect to spend two to three more times their remaining life work-disabled as compared to married women.