Leaving Retirement: Age-Graded Relative Risks of Transitioning Back to Work or Dying

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Abstract: Demographic research has documented the age-graded risk of transitioning back to work after a period of retirement; however, few studies have disaggregated this risk into the different forms work takes in later life. Moreover, research has yet to explore the age-graded risk of re-retiring after returning to work. This research uses the 1992-2006 Health and Retirement Study to first examine the age-grade risks of transitioning to full time work, part time work, and mortality from full retirement. Second, this research documents the age-graded duration of reemployment, and the age-graded risk of re-retiring. Results from multi-decrement life tables indicate reemployment both occurs more frequently and last longer than previously estimated. The gender differences in risk of reemployment are modest with the exception that women are at greater risk of returning to part time, whereas men are at greater risk of returning to full time work. Additionally, retirees from service industries are at greater risk of transitioning to full time work, part time work, and mortality, suggesting retirement is a more permanent feature in the life course of retirees from goods producing industries. Finally, the results suggest Social Security benefits play a part in reducing transitions from full retirement in later ages.

INTRODUCTION

Recent demographic scholarship has focused on the frequency, duration, and age of retirement, as well as of remaining retired (Skoog and Ciecka 2010; Warner, Hayward et al. Forthcoming). That research highlights the impermanence of retirement in the normative life course. However, as of yet, it remains unclear as to whether the risk of transitioning out of full retirement is consistent across full- time and part time- work, and in particular, whether these risks vary by gender and industry of career employment. Even less is known about the patterns of work and risk of exit among those who return to work after retirement. To explore these questions, the research presented here first uses hazard ratios and multiple-decrement life tables to assess the relative age-graded risk of leaving full retirement to full time work, part time work, and death. Second, because changes to the gender composition- and industrial composition- of the labor force may be driving factors behind the emergence of new patterns of latter life work, multiple-decrement life tables are presented by gender and by industry of career employment to compare differences across these groups. Third, life tables are again used to explore the age-graded risk of leaving work after people return from retirement.

BACKGROUND

The Changing Nature of Work

Over the past 50 years, there have been considerable changes to the structure of work in the United States. The non-agrarian economy has shifted from being fairly balanced between goods- and service-producing, to one that is primarily service producing. As shown in figure 1, in 1919, 52.6 percent of all non-farm employees were in service producing industries, by 2002 this had reached 81.8 percent, and the Department of Labor's preliminary report suggests this had reached 82.7 percent in 2010 (U.S. Census Bureau 2004; Bureau of Labor Statistics 2011). The gender composition of the labor force has also changed: women made up only 34% of the labor force in 1960, but by 2007 this number had reached 46% (Wise 2010). Taken together, this suggests that the form of work in the United States look very differently than it did 50 years ago, but so to do the people who are working.

[Figure 1 About Here]

While these macrostructural changes have recast the context within which work is done, at an individual level, several policy changes have altered the incentives for work in later life. These policy changes have transformed the opportunities and risks of retirement as wells as for working after initial retirement. Enacted in 1965, Medicare provides health insurance coverage to the majority of adults ages 65 and older (Social Security Administration 2010). This coverage provides workers with an opportunity for continued coverage after retirement and therefore reduces the cost of retirement.

The passage of the Employee Retirement Income Security Act (ERISA) in 1974, hastened the shift from defined benefit (DB) pension plans to defined contribution (DC) pension plans in the U.S. (Howard 1997; Even and Macpherson 2007). While DB plans typically offer fixed annuities to beneficiaries for the duration of their lives, DC plans effectively pay out of tax-protected savings plans which can run out or be spent down earlier (Hardy and Shuey 2000; O'Rand and Shuey 2007). This places increased economic risks on DC plan recipients and beneficiaries may postpone retirement to increase pension savings, or may reverse their retirement to shore up their financial circumstances.

In 2000, the earnings test for Social Security was eliminated, allowing workers to continue employment beyond the age of eligibility for full benefits without penalty to their Social Security benefits (Clark and Quinn 2002; Quadagno and Street 2006). This change not only allows individuals to retire later, but also to return to work without penalty to their Social Security benefits. Also beginning in 2000,[2] the age for full Social Security eligibility began to gradually rise from 65 and will be 67 for those born after 1959 (Ozawa 1984; Social Security Administration 2010). While this presumably induces workers to delay initial retirement, it is unclear how it may impact retirement reversals. On one hand, if people are indeed working later, they may be less likely to reverse their retirement once they do retiree. However, if people are not working later, without a public pension they may find themselves in a more precarious economic position, thereby prompting a greater need to return to work.

As a result of the combination of the aforementioned macrostructural changes, changes to public policy, and increased life expectancy and improved health in later life (Burkhauser and Rovba 2009), people are spending longer in retirement. Indeed, while retirees averaged 13 years in retirement in 1965, by 2003 the average duration for retirement was 18 years (Wise 2010). However, in addition to extending the time spent in retirement there is evidence that these changes have also produced increased heterogeneity in the "retirement life course" (Warner, Hayward et al. Forthcoming). Whereas

[2] These changes were enacted as part of the 1983 amendments to the Social Security Act (Public Law 98-21) (Quinn and Burkhauser 1983).

the normative conception of retirement was once that of an abrupt transition from work to leisure,[3] over the past twenty years, new pathways to full labor force exit have emerged (Han and Moen 1999). One of the initially documented emergent patterns of work was for workers to use part time work as a bridge between full time career work and full retirement. These so called "bridge jobs" increasingly became a feature of work in later life, with estimates suggesting that as many as 90% of workers who retired prior to age 60 used them, as did 20% of workers between the ages of 66 and 67 (Ruhm 1990). These jobs frequently paid less than full time career work, but often in exchange for reduced responsibilities or stress. Since these jobs serve as a stopgap between full time work and retirement, they are, by definition short lived.

Not only are the pathways to final retirement becoming more varied (Han and Moen 1999; Flippen and Tienda 2000), retirement is also becoming less of an absorbing state; that is, it is becoming more common for workers to exit full retirement and subsequently return to the labor force (Ruhm 1990; Hayward, Hardy et al. 1994). Estimates vary considerably as to the percentage of the population that reverses their retirement: from 2% (Hinterlong 2008) and to 53% (Maestas 2010), although the larger reports tend to include both bridge jobs and retirement reversals in their samples (Pleau 2010). People return to work after retirement for many of the same reasons that shape their initial retirement decisions. These included changes in health, economic well being, and insurance coverage (Skoog and Ciecka 2010), as well discovering a preference for work over leisure (Maestas 2010). Postretirement jobs differ from full time career employment in several ways. Notably, current estimates indicate that if people are to return to work at all, this tends to be within a couple of years of their initial retirement and they work for just a few years before retiring again (Hayward, Hardy et al. 1994; Hardy 2006; Pleau 2010).

Gender and Returning to Work

Across the life course, there are well documented differences in patterns of work between men and women (Padavic and Reskin 2002). These differences tend to persist into later life as well. Women remain more likely to have intermittent work histories prior to retirement, are less likely to enter into either full- or partial- retirement, and tend to be older when they do retire (Ruhm 1990; Han and Moen 1999; Hogan and Perrucci 2007). Women are also more likely to be partially employed in later life, use bridge jobs prior to full retirement, and less likely to self-identify as being retired (Cahill, Giandrea et al. 2006; Burr and Mutchler 2007).

[3] For a review of the history of retirement in the United States, see Atchley (1982).

Research on gender differences in work after retirement, however, is equivocal. Hardy (1991) found that women were less likely to work after retirement, whereas Han and Moen (1999) found no differences in men and women's postretirement work. Although there are numerous differences in the samples from which these estimates are drawn,[4] of particular interest is that there are nine years separating the data sources used for these two studies (1986 versus 1994-995). If this discrepancy is in fact a result of changing times, rather than an artifact of sample selection, this could indicate decreasing heterogeneity between men and women in postretirement employment behavior. There is additional evidence that gendered patterns of work are converging; since the early 1980s single-employer career work has declined among men, whereas year-round full time employment among women has been increasing (Padavic and Reskin 2002; Munnell and Sass 2008).

Taken together, this research suggests that (a) men and women may enter into initial retirement via differ pathways and at different ages, (b) women and men may be similar in the overall rates of returning to work, but (c) the form of work may differ across men and women – with women more likely to return to part time work, but less likely to return to full time.

Industry and Returning to Work

There are well documented links between industry of career work and retirement behavior. In general, workers in goods producing industries retire earlier than those in service producing industries. Both push- and pull- factors are hypothesized to underlie this relationship. On one hand, goods producing jobs are less satisfying and therefore workers in these industries are selecting into retirement. On the other hand, goods producing jobs are more deleterious and therefore workers in these jobs are being pushed into retirement via poor health (Mitchell, Levine et al. 1988). Moreover, in addition to retirement, older workers from goods producing industries are more likely to be in any type of non-work status in later life (Flippen and Tienda 2000).

However, it remains unclear whether there are differences in working after retirement between retirees from goods producing- and service producing- industries. On one hand, if goods producing workers are retiring because they are dissatisfied with their work, they may seek out new employment in service industries. On the other hand, if they are retiring because poor health prohibits them from continued work, it is unlikely that they will reverse their retirement decisions.

Current Study

[4] One particularly notable distinction is that data in Hardy (1991) comes from a sample in Florida, whereas the data used in Hand and Moen (1999) comes from a sample of "upper tier" companies in upstate New York.

While recent scholarship has documented the age-graded risks of returning to work from full cessation of work in later life (Warner, Hayward et al. Forthcoming), prior studies have found that returning to full time work and returning to part time work are indeed distinct states (Hayward, Hardy et al. 1994; Kail 2010). This leaves fairly basic demographic questions about the risks of reversing retirement unanswered. For instance, is the relative risk of transitioning to part time work similar to returning to full time work? Further, are the relative risks of making these transitions similar across genders and industrial sectors? Moreover, amongst those that reenter, does the average duration of reemployment change as people get older?

The research presented here advances our understanding of working after retirement in several ways. First, much of the research on postretirement employment confounds those who ease into retirement via bridge jobs with those who return to work after a period of retirement (Maestas 2010; Pleau 2010). This is problematic if the processes which lead to gradual retirement are different than those that lead to a decision to return to work after a period of retirement (Cahill, Giandrea et al. 2007). Second, because changes to the gender composition- and industrial composition- of the labor force are key macrostructural explanations for the emergence of new patterns of work in later life, this research considers how the risk of returning to work after retirement varies across these two groups. Third, because the risks of returning to work is unlikely monotonic with age, this work presents age-graded risks of reversing retirement across several labor force options, and compares those to the risk of mortality. Finally, as far as I know, this research is the first to explore the risks of re-retiring after postretirement employment.

DATA AND METHODS

Data

The data source for the following analyses is the core sample of the RAND Health and Retirement Study Data File (HRS) (Health and Retirement Study 2008; RAND Center for the Study of Aging 2008). The HRS is a nationally representative sample on the non-institutionalized population, conducted by the University of Michigan and funded by the National Institute of Aging (grant number NIA U01AG009740). The HRS core sample includes12,600 people between 51 and 61 (plus their spouses, independent of age) who were initially interviewed in 1992 (Juster and Suzman 1995). Follow-ups were done every two years, for a total of 8 waves through 2006. For this study, the sample was limited to

individuals that were between 51 and 86 years old[5] and who were fully retired (defined as averaging zero hours of work per week over the previous year and self indentifying as being retired).[6] Additionally, because this research is focused on returning to work after retirement, those who transitioned to unemployment were excluded from the sample. Because of the panel structure of this data, the unit of analysis is person period, and there are 15,097 observations nested within 5,723 individuals. Selected characteristics of the sample are presented in appendix A. Moreover, because this research relies on transitions between statuses (i.e. changes across waves), only seven of the eight waves of data are used to calculate differences between waves.

This projects looks at the risks of leaving full time retirement in wave$_t$ and transitioning to four new statuses in wave$_{t+1}$. People who worked, on average, at least 35 hours per week and 36 weeks per year were coded as being in *full time work*. People who averaged fewer than 35 hours of work per week or who worked fewer than 36 weeks in the prior year were coded as being in *part time work.* Individuals were coded as having experienced *mortality* if they died in the subsequent wave, and similarly, were coded as having experienced *non-mortal attrition* if they dropped from the sample in the subsequent wave from causes other than death.

Industry of career employment is measured as the industry in which respondents had worked the longest upon initial retirement. In the HRS data, individuals could select from thirteen different industry codes. [7] These codes were dichotomized into *Goods Producing* industries and *Services Producing* industries based on the North American Industry Classification System (NAICS) reported by the Bureau of Labor Statistics (Bureau of Labor Statistics 2008). Because this variable is measured at initial retirement, it is treated as a time invariant measure in these analyses. Because 157 people were missing on the initial industrial code measure, this portion of the analysis is based on 14,677 observations nested in 5,566 people.

Analysis Plan

[5] Only 17 cases in the core HRS sample were older than 85 and this does not provide adequate cell size.
[6] Limiting the sample to those who were retired results in a liberal demarcation between users of bridge jobs and those who "unretired." Cahill, Giandrea and Quin (2007) use two waves of retirement as the necessary condition for unretirement. However, because the people in the sample used here already self-identify as retired, it is unlikely that they are looking to ease into retirement.
[7] Good producing industries include: (1) Agricultural, Forestry, Fishing, and Hunting; (2) Mining and Construction; (3) Non-durable manufacturing; and (4) Durable manufacturing. Service industries include: (1) Transportation; (2) Wholesale; (3) Retail; (4) Finance, Insurance, and Real Estate; (5) Business and Repair Services; (6) Personal Services; (7) Entertainment and Recreational Services; (8) Professional and Related Services; and (9) Public Administration.

The analyses proceeded in four steps. First, age-specific hazard ratios were calculated in Stata version 9 to look at the age-specific rates of exit from full retirement to each of four transition states.[8] Second, multi-decrement life tables were calculated using the HRS microdata to show the proportion of individuals experiencing exit (in this case leaving retirement) at $time_{t+1}$, as well as the cumulative probability of remaining retired throughout the period of observation. Third, step two was repeated, broken down by gender and by industry of career employment. Finally, among those who return to work, multi-state life tables were calculated to assess the age-specific odds of transitioning back to work or experiencing mortality, and were supplemented by calculating the age-conditional average length of reemployment.

The probability of any event (i.e. age-specific failure rate) is calculated as:

$$_nq_x = \frac{_nd_x}{N_x}$$

where x is the period (age group), $_nd_x$ is the number of transitions for a specific transition type at period x, and N_x is the risk set for age group x.

The cumulative survival function is calculated with the Kaplan Meir Estimator as:

$$S_0 = 1$$

since everyone survives the initial observation, and:

$$S_1 = P_0$$

since the cumulative survival rate at the first period is equal to the one minus the failure rate at the first period. After the first period, the survival rate is the product of the cumulative survivable prior period (x-1) and the survival rate for the current period (x) or:

$$S_x = \prod_{h=0}^{x-1} P_h$$

[8] Because so few people in this sample experience non-mortal attrition, those people are not presented in these figures.

where ${}_nP_x$ is the survival rate and is calculated as $1 - {}_nq_x$.

RESULTS

From Full Time Retirement

Figure 2 presents the unadjusted hazard ratios of transitioning out of fulltime retirement via full time work and part time work. This figure shows that the age-specific odds of transitioning from full retirement back to full time work are very different than the odds of transition back to part time work. For instance, whereas the hazard of transitioning to full time work is below 0.002 until after the age of early eligibility for Social Security, the hazards of transitioning to part time work generally increase between ages 51 and 66. Similarly, while the age-specific hazard of transitioning to full time work quickly approaches zero after the age of eligibility for full Social Security benefits, the hazards remain much higher for part time work. These patterns are largely replicated across genders, as shown in figure 3. However, until the mid- to late- 60s, the risk of transitioning to part time work is greater among women than men, but men are generally at greater risk than women for transitioning back to full time work. The general pattern shown in figure 2 is also present across industries of longest employment, as presented in figure 4. Here retirees from service producing industries generally have larger odds than retirees from service producing industries of transitioning to part time work, although the relationship between industry of career employment and the transition to full time work is less clear

To summarize the patterns shown in figures 2, 3, and 4, the risks of transitioning to work increase through partial- and full- Social Security eligibility. After full Social Security eligibility, however, the risks of transitioning to full time work drop off, whereas the risks of transitioning to part time remain higher. In general, women are at greater risk for returning to part time work, whereas men are at greater risk of transitioning to full time work. In addition, relative to retirees from service producing industries, retirees from service producing industries are at greater risks of returning to part time work.

[Figure 2 About Here]

Table 1 shows the average length of retirement by transitioned to state. Those who leave retirement for full time work are retired for an average of 3.61 years before reversing their retirement. The average amount of time spent in retirement before transitioning to part time work is 4.23 years. Finally, on average, those who die during the observation window spend an average of 5 years in retirement prior to mortality. Note, however, that because this last figure excludes (a) the mortality of those who return to

work, and (b) those who outlive the period of observation, it is much lower than the average life expectancy after retirement provided in comprehensive life histories. In fact, the final row of table 1 shows the average time in retirement for all of those who no experience any transition (i.e. are right censored; *n*= 3,861).

[Table 1 About Here]

Table 1 also shows that the duration of retirement is indeed often different between men and women. First, relative to men, women were retired for 0.2 fewer years before transitioning to full time work and 0.36 years fewer before transitioning to part time work – however these differences represent less than five months of difference. Among those who die in this sample, women die 0.71 years earlier. This finding is notable because of the large literature on later mortality among women relative to men (for review see Idler 2003). Moreover, this difference cannot be explained away by age differences within the sample; the mean age for men in this sample is 65.47, whereas women are, on average, slightly younger at 63.6 years old. At baseline (i.e. first year of retirement), these differences are even larger; the mean age for women is 58.5 compared to 61.61 for men. While a larger proportion of women are right censored, this difference is small (0.025), and by itself is likely insufficient to account for the earlier mortality of women. Although unexplored here, the difference likely resides in the ways in which women who self identify as fully retired differ from women who do not. Specifically, women are more likely to consider themselves out of the labor force and less likely to consider themselves retired when they transition out of work in later life (Szinovacz and DeViney 1999; Flippen and Tienda 2000). Therefore, there may be something unique about those that do consider themselves retired.

While the differences in duration of retirement between men and women were relatively small, the differences between retirees from goods- and service- producing industries are even smaller. In fact, for each of the transitions, the differences between retirees from goods- and service- producing industries never exceed 3 months. Thus, the number of years prior to transitioning out of retirement is generally similar between men and women, and between retirees from goods producing and service producing industries.

Table 2 presents two key sets of summary statistics calculated from multi-decrement life tables. The first is the proportion of transitions from full time retirement by exit type and by age group. For both part time- and full time- work, the proportion of individuals who transition from full time retirement is highest at the youngest ages and then declines as people age. Although very few people leave full retirement for full time work after age 65, people continue to transition to part time work. Even at ages as old as 71-75, 2.9% of the sample is at risk for returning to part time work. Finally, the frequency of exit

due to mortality follows a polynomial function: it is higher at ages 51-55, becomes fairly stable from ages 56-70, and then rapidly increases. The initial increase likely represents the mortality of those who retired early because they were very sick – leaving a more robust population. The latter increase is presumably a function of normal age-graded mortality.

[Table 2 About Here]

Turning to the cumulative survival rates, there is a 0.10 probability of transitioning to full time work by age 85, although the bulk of the risk occur prior to age 65. In terms of the transition to part time work, there is a 70% chance of surviving until age 85. Similarly there is a 67% chance of surviving retirement relative to dying. Overall, 38% of the sample survives initial retirement and most of those who do not either transition to part time work or die; few fail to survive on account of transitioning to full time work.

While table 1 suggests that the gendered- and industrial- differences in timing before transitioning to various states are relatively small, it did not addresses whether there are different rates of transitions between men and women, and between those from goods producing- and service producing- industries. To this end, table 3 presents multi-decrement life tables of transitions from full retirement by gender. In terms of the number of events by age group, with the notable exception of death, it appears that in most other ways, men and women are quite similar. In fact, half of the non-death cells wherein men and women differ by at least 0.01 are at ages 51-55. Men have experience 0.03 more events of transitions to full time work, whereas women experience 0.032 more events of transitions to part time work. The two additional work cells wherein men and women by more than 0.01 is regarding part time work; at ages 66-70 men make an additional 0.015 transitions but at ages 76-80 women make 0.019 additional transitions.

Looking at differences in cumulative survival by gender paints a similar picture. At each age, the cumulative survival rate for full time work is greater for women at every age and this difference increases as people age. Similarly, the cumulative survival rate for part time work is greater for men – although this gap narrows as people age. This suggests that the type of work men and women are likely to transition to from retirement is very different. Whereas the cumulative risks of transitioning to full time work is greater for men than for women, the reverse is true of part time work. This finding is generally consistent with previous research on gender differences in later life labor force behavior (Burr and Mutchler 2007), but it also emphasizes the importance of disaggregating work into its different forms when considering post-retirement employment. Finally, for the transition to death, men have greater risk of dying at each age, and this effect accumulates as people get older. This, of course, is concordant with the widely replicated results than men die earlier than women (Idler 2003).

[Table 3 About Here]

To summarize table 3, there are very few gender differences in terms of number of returning to work events. While there are differences in survival rates regarding exiting retirement back to work, these differences are modest – never exceeding 5%. Indeed, according to the data present in Appendix A, across their retirement life course, men and women appear very similar: 15.60% of men and 15.50% women transition to part time work at some point during the waves of observation, and 4.56% of men and 3.29% of women make the transition to full time work.

While the gender differences in retirement reversals are generally very modest, there are stark contrasts between individuals who spent the majority of their working lives in goods producing industries compared to those who spent most of their years employed in service producing industries. These contrasts are shown in table 4. First, in the two earliest age groups – 51 to 55 and 56 to 60 – 7.5% and 5.2% more services workers die when compared to workers in goods producing industries. This may mean for some workers, there are different mechanisms leading to early retirement. That is, services workers may be more likely to retire early because of poor health, whereas goods producing workers may be retiring early for non-health related reasons – for example, because of generous private retirement provisions. This difference in age-specific mortality is likely underestimated because of different gender compositions of industry specific groups; men comprising 72.24% of the goods producing industry retirees and only 41.19% of the service producing retirees. Notably, after age 60, goods producing workers have slightly higher percentages of death at all ages, but until age 81 (when sample sizes become relatively small) this difference never exceeds 1.5%.

[Table 4 About Here]

There are also differences in transitions to both forms of work prior to age 61. Service industry retirees are 6.6% and 3.1% more likely to transition to full time work in the 51 to 55 and 56 to 60 age groups. At these same ages, 14.1% and 14.4% more retirees from service industries than goods producing retirees transition to part time work. This suggests that early retirement is much more stable for goods producing retirees than service producing retirees. After age 61 (just one year shy of the age for early Social Security benefit withdrawal), at every age group through age 80, when compared to goods producing workers, service workers experience between 1% and 1.56% more transitions to part time work.

The survivals rate show that services workers are at greater risk of exiting full retirement by every mechanism except for non-mortal attrition. The difference in survival rates generally peak at ages 61 to 65: 9.1% different for full time work; 24.18% different for part time work; and 11.6% different for death. Taken together, these findings suggest that the retirement life course is much more heterogeneous for services workers than it is for goods producing workers – at least at earliest ages.

In sum, there are stark differences between retirees from goods producing and service producing industries. Across substantive measures, service producing workers are at greater risk of exiting retirement– a contrast that is most apparent in the transition to part time work. This suggests that retirement is a much more permanent life course feature for retirees from goods producing industries. These results also suggests, however, that the mechanisms leading to initial retirement may differ between these two groups of retirees, with poor health play a larger role in the retirement decisions of retirees from service producing industries.

After Returning to Work

Table 5 presents information about those individuals who transitioned from full retirement to full time- or part time- work. Among this sample, the age-grade risk of transitioning back to retirement is (a) fairly stable between ages 56 and 75, and (b) consistently much larger than the risk of death – presumably because those who are likely to experience mortality are unlikely to have reentered the work force. Additionally, this table shows the average duration of reemployment at initial age of reemployment. Unlike earlier reports that most reemployment is short lived (Hayward, Hardy et al. 1994; Hardy 2006), in this sample those who reenter tend to work more than just a few years. Those who reenter when they are in their early fifties work an average of 5.7 years; those who reenter in their late fifties work an average of 4.5 years; those who reenter in the first half of their sixties work an average of 4.0 years; and those who return to work in the second half of their sixties work an average of 3.5 work. Even those in the oldest age group in this sample – ages 81-85 – worked an average of 2.5 years after returning to work. Thus, reenters are working much longer than had previously been estimated.

[Table 5 About Here]

DISCUSSION

This research was guided by three primary research questions: (1) Do the age-graded risks of transitioning back to work from retirement vary by full time and part time work; (2) Do these risks vary by gender and

by industry of career employment; and (3) What is the pattern of age-graded risk in leaving work after unretiring. Regarding the first question, the experience of unretirement does appear to differ between full time- and part time- work. Individuals tend to return to part time work later- and more often- than they do full time work. One commonality across both labor force statuses is that Social Security appears to play an important role in shaping the age-graded risks of working after retirement. This is apparent in the substantial decline in risk of transitioning to part time work and full time work after becoming eligible for full Social Security benefits. As a whole, however, this research suggests that the pathways back to work from retirement do indeed vary according to the form of work to which one transitions.

Regarding the second question, the results presented here suggest that while the duration of retirement prior to returning to work is relatively stable by gender and industry of career employment, there are differences in surviving retirement. Although the gender differences are generally very modest, the industrial sector differences are much larger, wherein services workers are at greater risk of not surviving retirement –and this holds for both of the measures of labor force status (although not for mortality) after age 60. The much larger retirement survival percentages among goods producing workers indicate that the shift from an industrial economy to a service economy is a key player in the rise of the increasingly heterogeneous life course in general, and reverse retirement specifically.

In regards to the third question, it is notable how stable the age-graded risks of a second retirement are after returning to work – particularly between the ages of 56 and 75. While the risks of exit appear to be largely stable, the duration of reemployment is quite variable, depending upon the age at which people initially reenter. At the youngest ages, reworkers work 5.7 years before retirement. This figure is not only more than twice as long as the oldest workers, it is also considerably longer than was previously estimated (Hayward, Hardy et al. 1994), providing limited evidence that work after initial retirement is comprising a more sizeable component of individuals entire work lives.

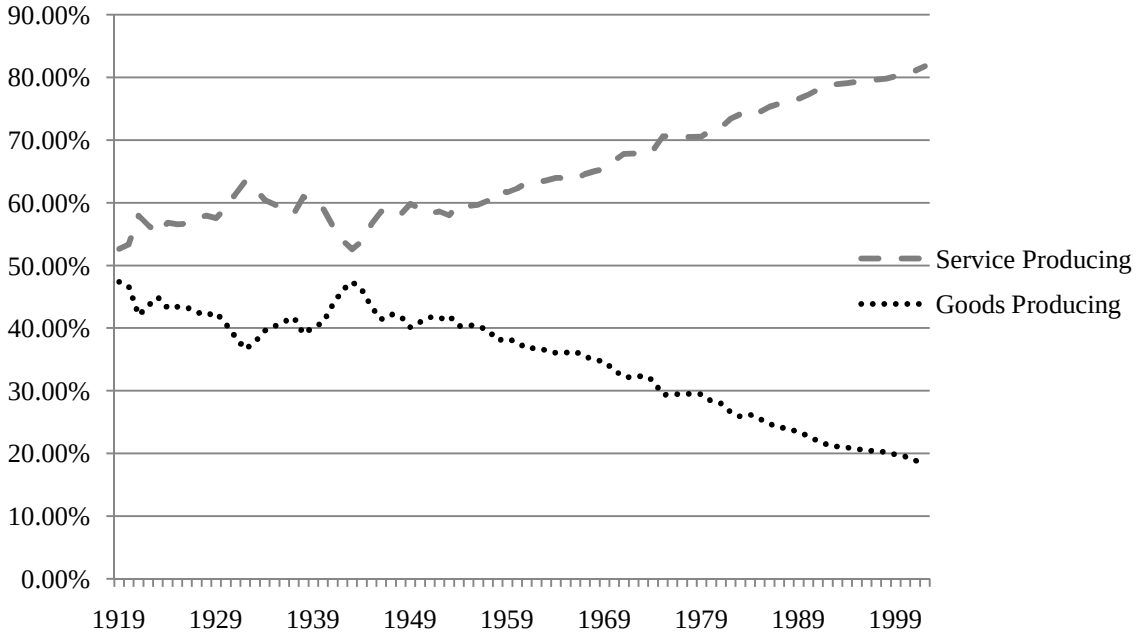
In addition to answering these three questions, this research suggests that Social Security plays an important role in postretirement employment. This is most notable in the transition to part time employment wherein there is a large reduction in the mean number of transition after the age of eligibility for full Social Security benefits. This suggests that as the age of full Social Security has shifted from 65 to 67 a larger number of people are likely to have reversed their retirement at latter ages, and this may be particularly true among women and retirees from service producing industries.

While this research has shed some additional light onto the demography of work in later life – particularly in terms of returning to work – it is limited in several ways. First, because this research relies on survey data, there is a considerable about of right censoring. Second, it is unfortunate that there are insufficient data to: (a) do direct comparison in the change in risk of reverse retirement over time by labor force status; and (b) look at the age-graded risk of exiting work after unretirement across categories of

labor force participation. Hopefully, as policymakers become more aware of the prevalence of reentering – as well as to the different forms returning to work takes – this data will be included in future macrodata collection efforts. Third, this research only focuses on the initial instance of reentering. Some people have several periods of retirement followed by reengaging with the labor force, and any unique characteristic contributed by this behavior is overlooked here. Finally, this research is built upon the idea that work in later life has changed in recent years. As such, it represents an attempt to document current patterns of returning to work after retirement. Although some comparisons are drawn to prior studies, because it this research is based on a single cohort, this study does not actually measure change over time. Hopefully future research will be able to better assess the impact of changes to the gendered- and industrial-compositions of the labor force on post-retirement work.

These limitations aside, this research contributes to the a broader literature on the demography of work in later life by documenting how the risks of returning to work vary by transition state, across genders and industry of career employment, and how the risk of second retirement change as people age. More generally, this work is also consistent with a growing body of research that documents the increased heterogeneity in later life labor force participation, as well as how this heterogeneity varies across particular subpopulations.

Figure 1. Percent of Non-Farm Employees Employed in Goods and Service Producing Industries, 1919-2002



Source: Statistical Abstract of the United States

Figure 2. Age-Specific Hazard Rates of Transitioning From Full Time Retirement

Figure 3. Age-Specific Hazard Rates of Transitioning From Full Time Retirement

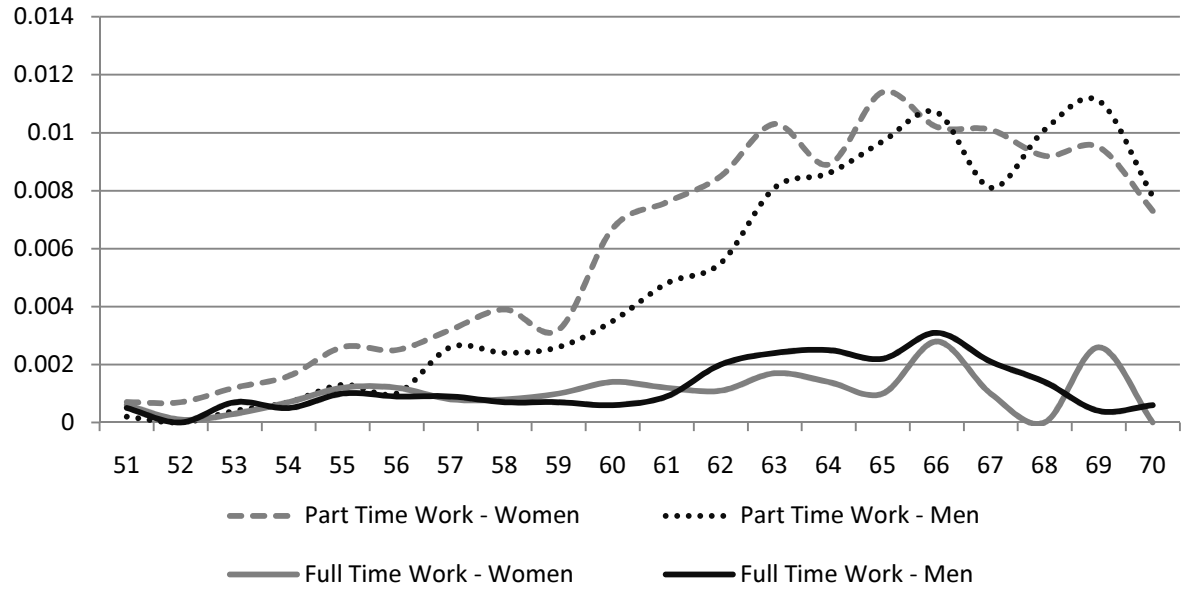


Figure 4. Age-Specific Hazard Rates of Transitioning From Full Time Retirement

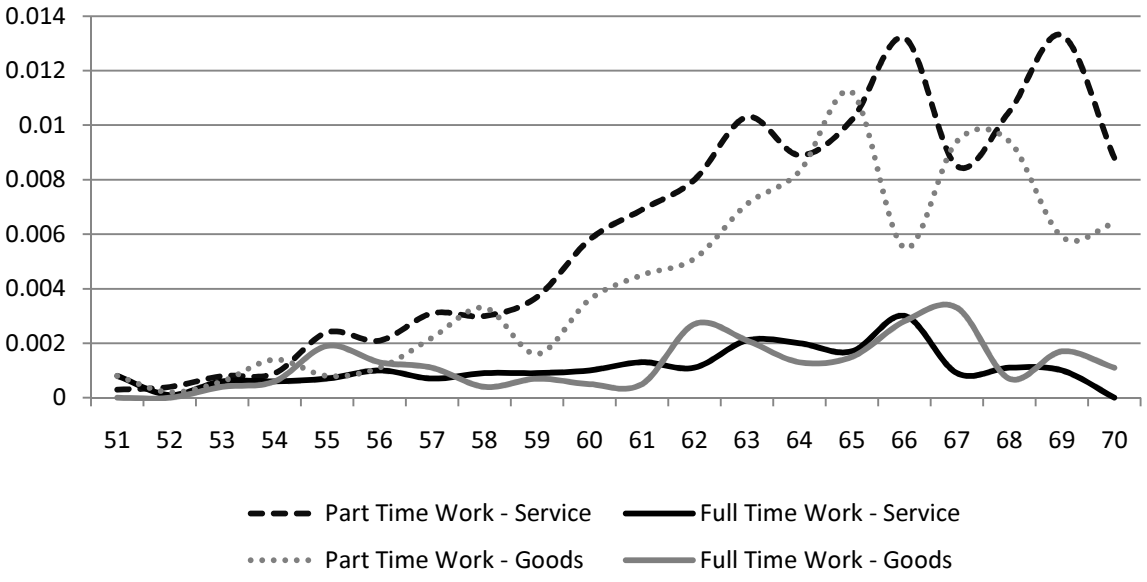


Table 1. Years In Retirement

	Overall		Men		Women		Goods		Service	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Full Time Work	3.61	2.26	3.69	2.37	3.49	2.09	3.74	2.63	3.56	2.09
Part Time Work	4.23	2.60	4.40	2.60	4.04	2.59	4.04	2.35	4.26	2.68
Mortality	4.98	3.15	5.15	3.25	4.64	2.91	5.07	3.13	4.90	3.17
No Exit	5.69	3.51	6.06	3.72	5.35	3.27	5.84	3.68	5.62	3.45

Table 2. Multi-Decrement Life Tables of Transitioning from Full Retirement

		Number of Events					Cumulative Survival				
Age Group	Obs.	Overall	FT	PT	DT	AT	Overall	FT	PT	DT	AT
51-55	740	0.2041	0.0568	0.0905	0.0568	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
56-60	2,403	0.1586	0.0250	0.0857	0.0479	0.0000	0.7959	0.9432	0.9095	0.9432	1.0000
61-65	5,571	0.1305	0.0147	0.0705	0.0447	0.0005	0.6697	0.9197	0.8315	0.8981	1.0000
66-70	4,407	0.1057	0.0084	0.0481	0.0490	0.0002	0.5823	0.9062	0.7728	0.8580	0.9995
71-75	1,618	0.1112	0.0037	0.0290	0.0785	0.0000	0.5208	0.8985	0.7357	0.8159	0.9992
76-80	295	0.0915	0.0000	0.0102	0.0814	0.0000	0.4628	0.8952	0.7143	0.7519	0.9992
81-85	63	0.1746	0.0000	0.0000	0.1746	0.0000	0.4205	0.8952	0.7070	0.6907	0.9992

FT=Full Time Work, PT=Part Time Work, DT=Mortality, and AT=Non-mortal attrition.

Table 3. Multi-Decrement Life Tables of Transitioning from Full Retirement

MEN

		Number of Events					Cumulative Survival				
Age Group	Obs.	Overall	FT	PT	DT	AT	Overall	FT	PT	DT	AT
51-55	295	0.2169	0.0746	0.0712	0.0712	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
56-60	1,071	0.1737	0.0261	0.0840	0.0635	0.0000	0.7831	0.9254	0.9288	0.9288	1.0000
61-65	2,882	0.1440	0.0194	0.0708	0.0534	0.0003	0.6471	0.9012	0.8508	0.8698	1.0000
66-70	2,502	0.1239	0.0100	0.0544	0.0592	0.0004	0.5539	0.8837	0.7905	0.8234	0.9997
71-75	1,112	0.1232	0.0045	0.0306	0.0881	0.0000	0.4853	0.8749	0.7476	0.7747	0.9993
76-80	257	0.0973	0.0000	0.0078	0.0895	0.0000	0.4255	0.8710	0.7247	0.7064	0.9993
81-85	54	0.1852	0.0000	0.0000	0.1852	0.0000	0.3841	0.8710	0.7191	0.6432	0.9993

WOMEN

		Number of Events					Cumulative Survival				
Age Group	Obs.	Overall	FT	PT	DT	AT	Overall	FT	PT	DT	AT
51-55	445	0.1955	0.0449	0.1034	0.0472	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
56-60	1,332	0.1464	0.0240	0.0871	0.0353	0.0000	0.8045	0.9551	0.8966	0.9528	1.0000
61-65	2,689	0.1160	0.0097	0.0703	0.0353	0.0007	0.6867	0.9321	0.8185	0.9192	1.0000
66-70	1,905	0.0819	0.0063	0.0399	0.0357	0.0000	0.6070	0.9231	0.7610	0.8867	0.9993
71-75	506	0.0850	0.0020	0.0257	0.0573	0.0000	0.5573	0.9173	0.7307	0.8551	0.9993
76-80	38	0.0526	0.0000	0.0263	0.0263	0.0000	0.5100	0.9155	0.7119	0.8061	0.9993
81-85	9	0.1111	0.0000	0.0000	0.1111	0.0000	0.4831	0.9155	0.6931	0.7848	0.9993

FT=Full Time Work, PT=Part Time Work, DT=Mortality, and AT=Non-mortal attrition.

Table 4. Multi-Decrement Life Tables of Transitioning from Full Retirement

GOODS PRODUCING INDUSTRIES

		Number of Events					Cumulative Survival				
Age Group	Obs.	Overall	FT	PT	DT	AT	Overall	FT	PT	DT	AT
51-55	213	0.2160	0.0657	0.0845	0.0610	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
56-60	687	0.1587	0.0262	0.0757	0.0553	0.0000	0.7840	0.9343	0.9155	0.9390	1.0000
61-65	1,842	0.1336	0.0147	0.0619	0.0548	0.0011	0.6596	0.9098	0.8462	0.8870	1.0000
66-70	1,456	0.1051	0.0110	0.0385	0.0556	0.0000	0.5715	0.8965	0.7938	0.8384	0.9989
71-75	565	0.1274	0.0071	0.0372	0.0832	0.0000	0.5115	0.8866	0.7633	0.7918	0.9989
76-80	126	0.0873	0.0000	0.0000	0.0873	0.0000	0.4463	0.8803	0.7349	0.7259	0.9989
81-85	34	0.2059	0.0000	0.0000	0.2059	0.0000	0.4073	0.8803	0.7349	0.6625	0.9989

SERVICE PRODUCING INDUSTRIES

		Number of Events					Cumulative Survival				
Age Group	Obs.	Overall	FT	PT	DT	AT	Overall	FT	PT	DT	AT
51-55	515	0.4883	0.1315	0.2254	0.1362	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
56-60	1,667	0.3843	0.0568	0.2198	0.1077	0.0000	0.5117	0.8685	0.7746	0.8638	1.0000
61-65	3,577	0.1292	0.0140	0.0755	0.0397	0.0003	0.3151	0.8192	0.6044	0.7708	1.0000
66-70	2,822	0.1063	0.0071	0.0535	0.0457	0.0004	0.2744	0.8078	0.5588	0.7402	0.9997
71-75	987	0.0993	0.0020	0.0213	0.0760	0.0000	0.2452	0.8021	0.5289	0.7064	0.9994
76-80	158	0.0823	0.0000	0.0127	0.0696	0.0000	0.2209	0.8004	0.5176	0.6527	0.9994
81-85	28	0.1429	0.0000	0.0000	0.1429	0.0000	0.2027	0.8004	0.5111	0.6072	0.9994

FT=Full Time Work, PT=Part Time Work, DT=Mortality, and AT=Non-mortal attrition.

Table 5. Multi-Decrement Life Tables of Transitioning from Work after Retirement

		Proportion of Transitions			Cumulative Survival Probabilities			
Age Group	Obs.	Overall	RT	DT	Overall	RT	DT	Time Until Re-retirement[a]
51-55	67	0.1493	0.1343	0.0149	1.0000	1.0000	1.0000	5.67
56-60	434	0.2189	0.2028	0.0161	0.8507	0.8657	0.9851	4.49
61-65	735	0.2354	0.2286	0.0068	0.6645	0.6901	0.9692	3.96
66-70	826	0.2252	0.2058	0.0194	0.5081	0.5324	0.9626	3.45
71-75	370	0.2324	0.2054	0.0270	0.3937	0.4228	0.9439	2.9
76-80	122	0.2705	0.2459	0.0246	0.3022	0.3360	0.9184	2.83
81-85	38	0.2368	0.1842	0.0526	0.2204	0.2534	0.8959	2.5

RT=Full Retirement; DT=Death. [a] This number is calculated based upon the age at which people are when they first reenter.

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Appendix A. Person Level Sample Characteristics.

	Overall	Men	Women	Goods	Service
Age	64.07	64.86	63.21	64.27	63.92
Age at Retirement	62.07	62.77	61.32	62.22	61.95
Men	51.74%	1.00%	0.00%	72.24%	41.19%
White	82.84%	85.17%	80.34%	84.31%	81.97%
Black	17.16%	14.83%	19.66%	15.69%	18.03%
Hispanic	5.91%	6.75%	5.00%	8.09%	4.90%
Goods	32.86%	46.28%	18.80%	1.00%	0.00%
Service	67.14%	53.72%	81.20%	0.00%	1.00%
Full Time Work	3.95%	4.56%	3.29%	4.31%	3.69%
Part Time Work	15.55%	15.60%	15.50%	13.66%	16.54%
Mortality	13.70%	17.63%	9.49%	16.17%	12.44%
Other Attrition	0.07%	0.07%	0.07%	0.11%	0.05%
Waves of Observation	2.64%	2.76	2.51	4.91	1.94
N=	5,723	2,961	2,762	1,829	3,737