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Back to Work: Expectations and Realizations of Work after Retirement

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Abstract

This paper analyzes a puzzling aspect of retirement behavior known as "unretirement." Nearly 50 percent of retirees follow a nontraditional retirement path that involves partial retirement or unretirement, and at least 26 percent of retirees later unretire. I explore two possible explanations: 1) unretirement transitions result from failures in planning or financial shocks; and 2) unretirement transitions are anticipated prior to retirement, reflecting a more complex retirement process. I show that unretirement was anticipated for the vast majority of those returning to work, and is not a result of financial shocks, poor planning or low wealth accumulation.

I. Introduction

Retirement marks a sharp reduction or cessation of lifetime work effort. Yet, a curious fact about retirement behavior is that many people later reverse their retirement decision and return to work. Many have speculated that economic shocks are a likely cause. Indeed, rates of return on many financial assets are uncertain, health care expenses may increase unexpectedly, and no one knows the evolution of his health or life span. Information shocks are also possible, if after retiring some individuals learn they did not save enough [1] or discover they do not like retirement as much as anticipated. An alternative explanation is that "unretirement" transitions are planned. For example, Diamond and Hausman (1984) note that the social security earnings test could generate planned unretirement, at least in theory. More generally, unretirement could be part of a multi-stage retirement process; an intentional way of transitioning gradually out of the labor force, much like partial retirement.

The welfare implications of these two explanations are quite different, and the retirement literature offers little guidance as to which is the more likely reason. Even though unretirement could be optimal in a theoretical life cycle model, whether on account of uncertainty or some predictable force, many empirical analyses assume retirement is an absorbing state. Of those that relax this assumption (Berkovec and Stern 1991; Blau 1994; French 2005; Rust and Phelan 1997), only Blau (1994) and Rust and Phelan (1997) examine whether their models can predict observed re-entry rates. Although many authors have noted the existence of so-called reverse transitions in the data, rarely has unretirement been the

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[1]A growing literature has examined whether such shocks can explain the seemingly "irrational" drops in consumption spending after retirement known as the retirement-consumption puzzle (Banks, Blundell, and Tanner 1998; Haider and Stephens 2004; Hurd and Rohwedder 2003; Smith 2004).

object of direct study, perhaps because unretirement transitions were often thought to be relatively uncommon (see for example, Reimers and Honig 1993; Rust and Phelan 1997).

In this paper, I present evidence from the Health and Retirement Study (HRS) that unretirement transitions are not uncommon. Under a narrow definition of retirement, 26 percent of retirees reverse their retirement decision, and as many as 35 percent of the youngest retirees do so. Under a broader definition, nearly 40 percent of retirees reverse their retirement decision, and as many as 53 percent of the youngest retirees do so. Drawing on unique expectations data in the HRS, I show that 82 percent of those later observed to unretire expected to work during retirement. I reinforce this finding by showing that information known prior to retirement predicts subsequent unretirement nearly as well as ex-ante and ex-post information combined. For the minority of unretirees who deviated from their pre-retirement expectation of not working, there is little evidence that financial shocks played a significant role. If anything, the data point to preference shocks—some individuals apparently found retirement less satisfying than anticipated. Perhaps surprisingly, unfulfilled work expectations were much more common than unfulfilled leisure expectations. In this regard, the evidence points to two potential causal factors: the arrival of *positive* news about financial position at retirement for some and the arrival of negative news about health (i.e., health shocks) for others.

Finally, I show that unretirement is similar to partial retirement in terms of the jobs held and the characteristics of the individuals who choose these non-traditional retirement paths. The prevalence of unretirement, as well as partial retirement, underscores the rising importance of multi-stage retirement transitions, not only as the outcome of uncertain realizations of the budget constraint after retirement, but also possibly through dynamic preferences for leisure.

II. The Empirical Importance of Unretirement

A. Definitions of Retirement and Unretirement

I use two definitions of retirement. Under the first definition an individual is classified as *fully retired* if 1) he reports not working for pay; and 2) he describes himself as retired. An individual is classified as *partially retired* if 1) she works part time (defined as working fewer than 35 hours per week or fewer than 36 weeks per year); and 2) she describes herself as retired. Under the second definition, only information about hours is used; an individual is classified as *fully retired* if he reports not working for pay and *partially retired* if she works part time.

While both definitions make use of objective information about hours of work, the first definition also uses subjective information about retirement status. The reason for this is that subjective retirement status enables one to separate the retired from the unemployed and disabled. This distinction is important: unretirement is intriguing to the extent it follows retirement; indeed, there is nothing surprising about re-entry by the unemployed, and unemployment transitions—which represent job exits, not labor force exits—are not usually accompanied by other singular behaviors that mark retirement as a major lifecycle event, such as pension claiming. To compare the two definitions, Table 1 shows the percent distribution of job leavers across subjective states within each objective hours category.

Among those exiting a job between ages 50-54, only 43 percent say they are retired and 20 percent are unemployed (defined as not working and searching for a job during the last four weeks). Among those exiting at ages 62-64, 95 percent say they are retired and only 1.6 percent are unemployed. Thus, at younger ages, a substantial portion of job exits are not labor force exits, whereas by age 62 nearly all job exits are labor force exits.

Table 1 also shows that nonworkers who call themselves retired are substantially more likely to engage in the behaviors that characterize retirement. For example, 33.9 percent of nonworkers who said they were retired began receiving pension income after leaving their job compared to just 5.2 percent of unemployed nonworkers. Nonworkers who said they were retired were significantly older than the unemployed (60.0 v. 56.7), one-third as likely to be working in a later wave, and conditional upon working in a later wave less than half as likely to be working full-time.[2] A drawback of incorporating subjective information is that respondents may apply different interpretations to the word “retirement;” for example, if some respondents are reluctant to describe themselves as retired, then some unemployment transitions may in fact be retirement transitions. On balance, the definition combining objective and subjective information is my preferred definition; however, all analyses are presented under both definitions.

Unretirement is defined as any of three possible transitions: 1) full retirement to full-time employment; 2) full retirement to part-time employment/partial retirement; and 3) partial retirement to full-time employment. It is also useful to define partial retirement transitions which here refer to direct transitions from full-time work to partial retirement. Transitions are identified on the basis of wave-to-wave changes in labor force status.[3] Appendix 1 discusses additional issues associated with identifying transitions, provides details about the procedure used to impute missing transition dates, and describes sample restrictions.

B. An Overview of Retirement Paths

I start with an overview of the different retirement paths followed by the original HRS cohort members (b. 1931-1941) and their spouses, who were first interviewed in 1992 and re-interviewed every other year through 2002. Table 2 shows the retirement paths chosen by HRS respondents who first retired after 1992 and who are observed for at least six years following their first retirement. Row 1 shows that 52.2 percent of retirees under the combined hours and self-reported retirement definition and 40.4 percent under the hours-only definition transitioned to full retirement and remained fully retired during the following six or more years. This suggests that retirement is an absorbing state for at most half of retirees, whereas the other half takes a path involving partial retirement and/or unretirement. Rows 2 and 3 show that under the hours/self-report definition, 12.9 percent of retirees fully

[2]Similarly, among those who transitioned to part-time work and said they were retired, 37.2 percent claimed a pension, compared to just 4.9 percent of those who transitioned to part-time work and said they were not retired. Part-time workers who said they were not retired are younger on average than their partially retired counterparts (57.5 v. 60.2) and more than twice as likely to return to work in a later wave.

[3]As Blau (1994) has noted, wave-to-wave transition measures miss short unretirement spells that occur between waves, and whose importance is debatable. Using the detailed between-wave job history information to identify short unretirement spells in the HRS, I found that while about 5 percent of retirees re-enter and exit the labor force between waves, their spells were of very short duration and associated with extremely low annual earnings. To avoid overstating the importance of unretirement, these very short spells are not included in the analysis. Additional details are given in the Appendix 1.

retired then later returned to part-time work, whereas half as many (6.3 percent) returned to full-time work after fully retiring. Another 7.2 percent (row 6) initially partially retired then resumed full-time work. Summing rows 2, 3, and 6 yields a total of 26.4 percent of retirees who ever unretired following their initial retirement. Under the hours-only definition, the percentages for rows 2, 3, and 6 are 13.0, 10.8, and 16.0 respectively, totaling 39.8 percent. The larger figure under the hours-only definition reflects the counting of unemployed workers among the retired. Nevertheless, under both definitions people who unretire represent over half of those who follow a non-traditional retirement path.

Table 2 also illustrates the empirical importance of partial retirement. Some 28.6 (35.8) percent of retirees under the hours/self-report (hours-only) definition transitioned directly from work to partial retirement,[4] whereas another 12.9 (13.0) percent entered partial retirement after an initial spell of full retirement. In total, 41.5 (48.8) percent of retirees chose a retirement path involving a spell of partial retirement, which falls between Gustman and Steinmeier's (1984b) estimate of one-third and Ruhm's (1990) estimate of one-half.[5]

C. Retirement Paths Featuring Unretirement

Table 3 shows the percent ever unretiring for the entire sample and various demographic subgroups, while varying the length of the post-retirement observation period and the definition of retirement. The first set of columns restricts the sample to those observed at least two years after their initial retirement, whereas the second set of columns restricts the sample to those observed at least six years after their initial retirement. The figures are lower in the first set of columns, reflecting a downward bias due to censoring: the denominator includes many recent retirees who have not yet had an opportunity to unretire. The figures are highest in the last set of columns, where the percent ever unretiring is computed for the subset of respondents observed the longest, at least six years after their first retirement. Focusing on the last column, the first row shows that over a period of at least six years, 26.4 percent of retirees return to work under the hours/self-report definition and 39.7 percent return to work under the hours-only definition.[6]

It is difficult to directly compare this estimate to other estimates in the literature owing to differences in the definition of retirement and in the length of the observation period. My estimate under the combined hours and self-reported retirement definition is close to Ruhm's (1990) estimate of 25.4 percent in the older Retirement History Survey (RHS) cohort (b. 1905-1911).[7] This is surprising given the two-decade difference between the cohorts, and would appear to suggest little change over time in the likelihood of unretirement; however, Ruhm's estimate includes unemployed workers who transition to second careers at relatively

[4]About 5 percent of reported retirement transitions under the combined hours and self-reported retirement definition are from part-time work to partial retirement. While it is possible that these are true retirements, it is also possible that these represent response errors.

[5]Although the two papers use the same data; Ruhm's definition of retirement is quite broad, potentially including transitions to second careers by individuals in their 40s. In contrast, Gustman and Steinmeier consider only transitions to partial retirement from full-time jobs held at age 55.

[6]Note this is not an estimate of those who return to work after six years of retirement; rather it is an estimate of the percent ever unretiring among those who are observed for at least six years after retirement; they may have unretired at any time during the observation period.

[7]Ruhm reports unretirement estimates separately for the partially retired (26.1 percent) and fully retired (24.9 percent). I have taken a weighted average of Ruhm's separate estimates to construct a single estimate that is comparable to those presented here.

young ages, and is probably more appropriately compared to my estimate of 39.7 percent under the hours-only definition, which also includes older unemployed workers. Thus, a comparison of my estimates with Ruhm's suggests that the percent ever unretiring has risen dramatically over time.[8] Blau (1994) also examined quarterly employment transitions in the RHS panel and found that 25.7 percent of non-employment spells ended in re-entry, and 22.6 percent of part-time employment spells ended in a transition to full-time work. As with Ruhm's analysis, transitions out of unemployment as well as retirement are included, implying that the percentage re-entering from retirement only would have been lower. Support for this assertion comes from Rust (1990), who tracked employment sequences over 10 years of RHS data and found that 19 percent of sequences involved re-entry after an initial self-report of retirement whereas 29 percent involved re-entry after a spell of either unemployment or self-reported retirement.[9]

Table 3 also reveals some variation in unretirement patterns by demographic characteristics, and these patterns are mostly consistent across retirement definitions. Men are much more likely to ever unretire than women, and Hispanics are least likely to unretire compared to blacks and whites, who are similar in this respect. The likelihood of ever unretiring does not vary by education, which signals that unretirement may not be strongly correlated with low wealth accumulation or poor planning.

The most striking differences arise with respect to age of first retirement. Those retiring in their early 50s are quite likely to return to work; this likelihood declines for those who first retire in their late 50s, then flattens out for those who first retire in their early 60s.[10] The likelihood of returning to work at younger ages is higher under the hours-only definition of retirement than under the combined hours/self-report definition because the former includes the unemployed, but the two definitions converge by age 65-66 since as shown in Table 1, nearly all job exits are labor force exits by about age 62. There is some evidence of a spike in the likelihood of ever unretiring for those first retiring at age 63, but this likely reflects sampling variability.[11] One explanation for the high unretirement rates among early retirees is the interaction between employer defined benefit pension incentives, legal impediments to claiming a pension while remaining a regular salaried employee, and employer minimum hours requirements. Those incentivized to begin claiming their pension at the plan's early retirement age must also separate from their jobs, and if they wish to continue doing paid work, must generally seek employment elsewhere.[12]

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[8]The observation periods underlying the two sets of estimates are similar. Ruhm's estimates are based on an 8-year observation period following first retirement, whereas mine are based on an average observation period of 7.7 years (a minimum of 6 and a maximum of 10 years).

[9]Other estimates of unretirement rates in the literature are much smaller, owing primarily to the use of short observation periods, but also possibly to the fact that most were computed for older cohorts. For example, Gustman and Steinmeier (1984a) estimated a 16.6 percent unretirement rate (based on self-reported retirement status) over a two-year period in the RHS; Berkovec and Stern (1991) reported one-year unretirement rates (based on work hours) ranging between 6.3 to 13.2 percent depending on age in the National Longitudinal Study of Older Men (NLS) (b. 1907-1921); Diamond and Hausman (1984) reported two-year re-entry rates of retired workers in the NLS of 9.6 to 17.6 percent depending on age; and Benitez-Silva (2000) found that about 12.6 percent of nonworkers (not necessarily retirees) in the HRS re-entered the labor force within 24 months.

[10]An age gradient was also noted by Berkovec and Stern (1991) in the older NLS cohort, by Ruhm (1990) in the RHS cohort, and by Benitez-Silva (2000) in the HRS cohort.

[11]Because the HRS panel starts out relatively young (ages 51-61), only small numbers of respondents are observed for several years following a first retirement at age 63 or later.

D. Retirement Survival Curves

It is also of interest to know how quickly retirees return to the workforce following retirement. Figure 1 shows nonparametric retirement survival curves by gender and for each definition of retirement. The slope of minus the log survival curve gives the unretirement hazard rate, which is the probability of returning to work (or increasing labor supply in the case of partial retirement) conditional on having retired and not yet returned to work.[13] Under the combined hours/self-report definition of retirement, the shape of the survival curve implies that for both men and women, the unretirement hazard initially rises, peaks around two years after retirement, then steadily declines; the hazard rate is everywhere higher for men. Under the hours-only definition, the survival curves imply larger re-entry hazards and the peak at two years is more pronounced; the hazard rate for men is similar to that for women, although the peak is more pronounced for women.

Figure 2 shows survival curves by age of first retirement. Under the hours/self-report definition, the survival curves imply a bigger re-entry hazard during the first five years after retirement for younger retirees than for older retirees, suggesting a somewhat different retirement process for the youngest retirees. For example, retirees in their early 50s are about 20 percent more likely than older retirees to have retired involuntarily and consequently may maintain interest in returning to the labor force for a longer period following retirement than do older retirees. Under the hours-only definition, the survival curve drops off even more sharply at the two-year mark for younger retirees, which is not surprising given the presence of unemployed workers in this sample. Also of note is that under the hours/self-report definition, the unretirement hazard following retirement at ages 62-64 is *lower* than the hazard following retirement at ages 65 and older in the first three years. This could reflect heterogeneity in preferences for work, but may also in part reflect the elimination of the Social Security earnings test at the normal retirement age beginning in 2000.[14]

III. Expectations and Realizations of Work after Retirement

A. Theoretical Framework

In a standard dynamic retirement model, individuals form expectations about the future using currently available information and exit the labor force when the expected value of leisure exceeds the expected value of further work. In this setting, optimal unretirement could arise through two channels. The first is through forces that evolve in a predetermined fashion, such as temporary work disincentives from the Social Security earnings test and private pension programs, or dynamic preferences for leisure. One example of the latter is a psychological “burnout” and “recovery” process. If burnout affects the value of leisure, mounting job burnout could prompt retirement, while receding burnout after retirement (i.e.,

[12]Until the passage of the Pension Protection Act of 2006, it was not legal for an individual to be simultaneously a regular employee and pensioner of the same firm unless they had reached their pension plan's normal retirement age. Although the Pension Protection Act established the legality of in-service pension payments under certain circumstances, it is not yet clear to what extent employers will make this option available.

[13]The survival curve is shown in continuous time since month and year of retirement and unretirement are used instead of labor force status at discrete two-year intervals.

[14]The earnings test was maintained between ages 62 and the normal retirement age, and eliminated thereafter. The normal retirement age increases with year of birth for cohorts born after 1937.

recovery) could render work relatively attractive again.[15] The second channel operates through uncertainty, whereby the arrival of new information after retirement (e.g., with respect to health, finances, or satisfaction with retirement) could cause an individual to update his expectations, re-optimize, and ultimately depart from his expected labor supply path.

This framework suggests a simple way of testing whether stochastic events are an important impetus of unretirement. If an individual's expectation about work after retirement equals his realization, then it must be true that no new information arrived in the interim that caused him to revise his plan. In this case, knowledge of the pre-retirement information set will accurately predict whether the individual will unretire after retirement. If on the other hand, his expectation does not equal his realization, then the individual must have received new information that caused him to revise his plan, and the pre-retirement information set is not a good predictor of whether he or she will unretire after retirement. In the next section, I use elicited expectations combined with subsequent realizations to infer the extent to which unexpected information has arrived in the period between expectation and realization, and whether this new information is predominantly positive or negative.

B. Do Expectations Match Realizations?

At their baseline interview in 1992, working respondents were asked the following question about their expectations of work during retirement: “Some people want to stop paid work entirely when they retire, while others would like to continue doing some paid work. What about you?” Table 4 presents a cross-tabulation of this question against an indicator of whether or not the respondent realized work at some point after retirement, separately for the two definitions of retirement.[16] Summing the cell percentages across the two diagonal cells shows that 57.7 (62.1) percent of retirees under the hours/self-report (hours-only) definition fulfilled their pre-retirement expectation: 20.5 (17.0) percent expected to work and realized work, and 37.2 (45.1) percent did not expect to work and did not realize work. Summing the cell percentages in the two off-diagonal cells shows that 42.4 (37.9) percent of retirees did not realize their pre-retirement expectation. However, this group is dominated by those who did not realize their expectation of working; just 8.4 (10.1) percent expected not to work but in fact did.[17]

Under the framework of a dynamic lifecycle model, this pattern suggests that the majority of respondents did not experience an economic or informational shock after retirement sufficient to cause a revision of their pre-retirement plans. Of the remaining 42.4 (37.9) percent who did receive new information, the pattern suggests that if the shocks were financial in nature, they were predominantly positive.[18] Examples might include news of unexpected investment gains, or the realization that retirement resources were more than adequate to meet retirement needs. However, the pattern is also consistent with the onset of

[15] See Maestas and Li (2007) for a formal presentation of a burnout/recovery process in a retirement model.

[16] Here I count both partial retirement and unretirement as work realizations since the expectations question does not distinguish one from the other.

[17] Because the work expectations survey question requires a yes-no answer, it is somewhat of a crude measure; those who expect to work with a probability between 0 and 1 are forced to choose an extreme value. This means that testing for rational expectations at the aggregate level could be hampered by the imprecision with which expectations are elicited.

health shocks that may have prevented some from executing their work plans (and which may or may not have had financial implications depending on insurance coverage), or limited their ability to respond to any financial shocks that might have occurred. It is also possible that some of this group searched for and failed to attain jobs. The probability of realizing work conditional upon expecting to work is just 52.3 (61.8) percent, which is consistent with low documented job attainment rates among older job seekers (Maestas and Li, 2006). Similarly, both positive and negative interpretations are possible regarding the minority who received information after retirement causing them to re-optimize in favor of work: some may have received negative financial information, but it is also possible that they received an unexpected job offer in excess of their reservation wage, or realized they did not enjoy retirement as much as expected.

The probability of having expected to work conditional upon having later realized work is also notable: 81.7 (81.7) percent of those who worked after retirement said (before retirement) that they expected to work during retirement. If I separate partial retirees and unretirees, the figure is the same in both groups, underscoring the similarity of the two retirement paths. This piece of evidence strongly suggests that the vast majority of unretirement transitions were intended prior to retirement, just like partial retirement transitions. For comparison, 62.4 (62.1) percent of those who did not work during retirement (either unretirement or partial retirement) had previously said they expected to work (t-statistic for difference = -8.0). Although this figure is significantly lower than that for those who did work, it is nevertheless somewhat high and again raises the related question of what barriers prevent work expectations from being realized among retirees?

To help sort among potential explanations, Table 5 compares pre-/post-retirement changes in wealth, health and perceptions for respondents in each of these four groups using the hours/self-report definition of retirement (the patterns under the hours-only definition are similar). To ensure that the changes are measured prior to potential unretirement transitions, the pre-/post retirement changes are measured using the survey waves immediately before and after the retirement date. Among those who did not realize their leisure expectation (col. 1), the 25th, 50th, and 75th percentiles of the distribution of percent changes in net worth[19] were -22.8, 4.0, and 44.6 percent compared to -20.6, 6.5, and 50.7 percent among those who did realize their leisure expectation (col. 2). The distributions are surprisingly similar, with those at the bottom of both groups experiencing significant losses in net worth and those at the top of both groups seeing dramatic gains. The distribution of changes in stock values is also similar across the two groups; the median percent change is identical across the two

[18]This is likely an upper bound on the importance of uncertainty. Since expectations are measured at one point in time, it is not possible to measure exactly when these individuals changed their plans about work after retirement. In some cases, new information could have arrived after 1992 and before retirement, and thus would have been incorporated into expectations prior to retirement, not after.

[19]Net worth is the sum of all assets including checking, savings and money market accounts, certificates of deposit, government savings bonds, treasury bills, stocks, mutual funds, bonds, IRA and Keogh accounts, housing, other real estate, collections, and vehicles, less mortgages, other home loans and all other debt. Pension wealth from Social Security and employer pension plans are not included. Respondents who reported receiving a lump sum distribution from their employer pension plan at retirement (n=50) are omitted from the table because 1) their account balances are not included in net worth before retirement but would be picked up after retirement, which would generate a spurious increase in net worth that was just a result of portfolio reallocation; and 2) such distributions will have been anticipated.

groups (0.0), and the percent change at the 75th percentile is positive and large in both groups.

If anything, differences in wealth changes are more apparent between those who did and did not realize an expectation of working during retirement, especially at the top of the distribution. For example, among those who did not realize a work expectation, net worth rose by 63.7 percent at the 75th percentile. It rose by a somewhat lower, yet still large amount, 55.5 percent, among those who realized their work expectation. A natural explanation for this pattern is the unprecedented performance of the stock market during the sample period.[20] In their study of consumption changes at retirement, Ameriks, Caplin and Leahy (2002) found that households expected sharper decreases in consumption than were actually realized, and the authors attributed much of the gap between expectations and realizations to stock market participation.[21] However, the HRS data do not point to unexpected stock market gains as an important reason for unfulfilled work expectations. The group that did not fulfill their work expectation experienced half the increase in stock values (20.3 percent) of the group that did (42.0 percent).[22] These patterns suggest two findings: 1) declines in net worth are not a major reason for unretirement; and 2) the receipt of positive financial shocks may play a role in explaining unfulfilled work expectations, but they most likely did not operate through the stock market.

Additional insight comes from comparing respondents' ex-ante and ex-post perceptions about retirement. Prior to retirement, respondents were asked whether they were worried about “not having enough income to get by” during retirement or about “not doing anything productive or useful” during retirement.[23] Retired respondents were asked a follow-up question asking if they were actually bothered by not having enough income or not being productive. [24] This information is available for respondents who retired between 1992 and 1996.

For the group with unfilled leisure expectations, there is virtually no change in the percent worried about income ex-ante and ex-post (38.0 v. 37.9), but there is a significant rise in the percent bothered by not being productive (21.4 v. 33.8). The pattern is reversed for the group that fulfilled their leisure expectation: they experienced a sharp decline in worries about income after retirement (42.5 v. 27.5), and no change in worries about being productive (22.4 v. 22.3). This pattern suggests that to the extent uncertainty generates unplanned unretirements, it operates through preference shocks, not income shocks.

Among those who expected to work after retirement, the group that did not fulfill its work expectation experienced a larger relative decline in worries about both income and

[20]According to the National Bureau of Economic Research, the economic expansion of the 1990s began in March 1991 and ended in March 2001 (Hall et al. 2001).
[21]Ameriks, Caplin and Leahy (2002) analyzed data for TIAA-CREF participants in January 2000 and January 2001.
[22]Under the hours-only definition, the median change in stock values was zero for both groups.
[23]In Waves 1-3, respondents who did not report being completely retired were asked: “Now for things that some people say are bad about retirement. Please tell me if they worry you a lot, somewhat, a little, or not at all: Not having enough income to get by.” Also listed was “Not doing anything productive or useful.” In Wave 1, the first part of the question was slightly different: “Now for things that worry some people about retirement. Please tell me …”
[24]In Waves 1-3, retired respondents were asked a variant of the same question: “Now for things that some people say are bad about retirement. Please tell me if, during your retirement, they have bothered you a lot, somewhat, a little, or not at all: Not having enough income to get by.” Also listed was “Not doing anything productive or useful.”

productivity ex-post, suggesting that realized retirement turned out better than expected, both in terms of finances and enjoyment of retirement leisure.[25] Interestingly, ex-ante worries about both income and productivity were generally higher among the groups that expected to work than among those that expected leisure. This is indirect evidence that measured expectations incorporate private knowledge about financial adequacy and taste for retirement leisure.

Health plays an important role in facilitating the realization of work expectations after retirement. The group that did not fulfill its work expectation was much more likely to experience a health shock (27.3 percent) compared to the group that did work (17.5 percent). Given an expectation of leisure, there are at most small differences between those who realized and did not realize their leisure expectation in terms of the percent experiencing a health shock. Generally, the percentages with a spouse who experienced a health shock, who lost health insurance coverage after retirement, and who lost coverage conditional upon having reported before retirement that their employer offered retiree benefits appear roughly similar across all groups. Thus, unexpected medical expenses or lost health insurance coverage do not appear to be associated with unplanned unretirement.

On balance, the expectations data suggest four key findings: 1) most unretirements were planned prior to retirement; 2) when realizations diverged from prior expectations, individuals were more likely to have failed to realize an expectation of working after retirement rather than an expectation of not working; 3) among those who did not realize work expectations, the evidence points to the arrival of positive news about financial position after retirement (though not driven by stock market gains) and/or negative news about health; 4) among the minority who did not realize leisure expectations, the evidence points to the arrival of negative news about preferences for retirement leisure, rather than negative news about financial position.

C. The Predictability of Unretirement

If unretirement transitions are mostly anticipated, then in a model explaining unretirement, variables describing the post-retirement information set should add little predictive power once variables describing the pre-retirement information set are included. The same should be true in a model of partial retirement, since the partial retirement transition is made prior to realization of the post-retirement information set. Thus, the partial retirement case offers a useful benchmark against which to judge the case of unretirement.

These insights suggest a straightforward estimation framework to test the predictability of unretirement. I adopt the perspective that individuals first decide whether to retire, then conditional upon the decision to leave their jobs, they select one of three retirement paths: retire fully and never return to work, transition directly to a part-time job (partial retirement) then retire fully, or take a break from work and return at a later point (unretirement). This decision framework readily translates to a multinomial logit model over choices defined by full retirement, partial retirement, and unretirement, and can be estimated for those observed

[25]Such an interpretation is not without precedence: Mastrogiacomo (2003) found that older Dutch households were overly pessimistic about their financial situation in comparisons of ex-ante expectations and ex-post realizations.

to retire.[26] I assess the relative importance of the pre- and post-retirement information sets by first estimating the model of retirement path choice using only pre-retirement information, then re-estimating the model with both the pre- and post-retirement information sets.[27] Specifically, if *r* denotes individual *i*'s retirement date, then let *r-1* denote the survey wave prior to retirement and *r+1* the survey wave after retirement. Individual *i* chooses retirement path $y_i = k$, where $k = 1,2,3$, at time *r* conditional upon the pre-retirement information set $X_{i,r-1}$ with probability:

$$P(y_{i,r}=k|X_{i,r-1})=\frac{e^{X'_{i,r-1}\beta_{k,r-1}}}{\sum_j e^{X'_{i,r-1}\beta_{j,r-1}}} \quad (1)$$

The probability of choosing retirement path $y_i = k$ at time *r* conditional upon both the preretirement information set $X_{i,r-1}$ and the post-retirement information set $X_{i,r+1}$ is:

$$P(y_{i,r}=k|X_{i,r-1},X_{i,r+1})=\frac{e^{X'_{i,r-1}\beta_{k,r-1}+X'_{i,r+1}\beta_{k,r+1}}}{\sum_j e^{X'_{i,r-1}\beta_{j,r-1}+X'_{i,r+1}\beta_{j,r+1}}} \quad (2)$$

If the retirement path choice is indeed made at time *r*, then information available at *r+1*, should have little effect on the choice of retirement path. If, on the other hand, individuals revise their initial retirement path choice as new information arrives, then information available at *r+1* may affect the retirement path choice, which would be more appropriately characterized as a series of sequential choices rather than a single decision. This is simply a test of whether the $\beta_{k,r+1}$ are equal to zero. Another convenient aspect of this approach is that it is easy to test whether $\beta_k = \beta_j$ for $k \neq j$; in other words, I can assess the degree of similarity between the partial retirement and unretirement paths.

Table 6 shows multinomial logit coefficients for the specification in equation 2, which includes both pre- and post-retirement information, under both definitions of retirement. The probabilities of choosing partial retirement or unretirement are expressed relative to the base category of full retirement.[28] Descriptive statistics for all variables included in the models are shown in Appendix Table 1. The specifications include pre-retirement demographics (gender, race, marital status, education, and a flexible function in age at first retirement allowing for slope and intercept changes at the Social Security early retirement age) and health status (self-reported fair/poor health and number of diagnosed chronic health conditions), as well as variables measuring pre-retirement financial resources, occupation, work expectation, and perceptions about retirement.

[26] In principle one could estimate a full multinomial logit model in which the alternative of not retiring is also modeled. Omitting the no-retirement alternative is akin to assuming that IIA holds in the expanded choice set, or that the odds of choosing unretirement over partial retirement, for example, are not affected by the presence or absence of the no-retirement alternative. This route is not pursued here because the concept of a pre- and post-retirement information set is not well defined for an individual who has not yet retired.

[27] In neither model does a generalized Hausman test reject IIA.

[28] About 20 percent of partial retirees later unretired to full-time work. In this model, they are classified as having chosen partial retirement.

If unretirement arises because of negative financial shocks, greater retirement resources should have a protective effect, reducing the probability of unretirement. Surprisingly, preretirement (log) income is weakly *positively* associated with both partial retirement and unretirement, contrary to what one would expect if work after retirement were predominantly associated with low socioeconomic status. Net worth is negatively correlated with both partial retirement and unretirement but its coefficients are not statistically different from zero. Those entitled to an employer-provided pension are significantly less likely to choose partial retirement compared to either full retirement or unretirement.[29] This pattern is likely a reflection of federal pension laws that prohibited regular employees from simultaneously receiving a salary and pension income from the same firm during this time period. The patterns by occupational group also point to a positive correlation between unretirement and retirement resources. Those in managerial/professional specialty occupations are significantly more likely to choose partial retirement or unretirement over full retirement than are operators and laborers (the reference group), or those in service occupations.

Respondents with a short financial planning horizon (the next few months or next year) were statistically no more likely to choose partial retirement or unretirement over full retirement, suggesting that choosing a retirement path that involves work after retirement is not related to inadequate retirement planning. Similarly, those who reported in the period prior to retirement that they were worried about having enough income during retirement were no more likely to choose partial retirement or unretirement. On the other hand, pre-retirement expectations of work during retirement are highly predictive of choosing partial retirement or unretirement over full retirement. If partial retirement were for planners and unretirement for those who experienced shocks, the expectations variable should be more predictive of partial retirement and less predictive of unretirement. However, the expectations variable is highly predictive of *both* partial retirement and unretirement (t-statistics of 5.7 and 5.3, respectively in the model based on the hours/self-report definition), and the coefficients are not statistically different from one another. The coefficients under the hours/self-report definition imply that an affirmative work expectation increases the probability of unretirement by 9 percentage points or 50 percent, and the probability of partial retirement by 12 percentage points or 44 percent. The hours-only definition yields similar marginal effects.

A Hausman test of equality between the full sets of coefficients for partial retirement and unretirement indicates that their magnitudes are statistically different (under both retirement definitions); however, careful examination of the coefficient estimates reveals that in most cases they point to qualitatively similar effects, suggesting that unretirement and partial retirement are more alike than not.

The last set of coefficients in Table 6 shows the coefficients for elements of the post-retirement information set, specifically variables measuring changes in net worth, health, medical expenses, health insurance, and perceptions measured between the waves preceding and following retirement. It is impossible to identify whether the changes were anticipated

[29]In contrast, Ruhm (1990) and Benitez-Silva (2000) find that unretirement is less likely among pensioners.

or unanticipated by respondents; however, some component of the variation will certainly reflect unanticipated changes. The test applied here is two-fold: If unretirement is a response to financial information received after retirement, then the addition of such variables should add predictive power to the model. Moreover, the variables should primarily affect the choice of unretirement rather than partial retirement, since partial retirement here is by definition chosen at the time of retirement.

Owing to measurement error in net worth, stockholdings, and medical expenses, I use dummy variables indicating large changes of 25 percent or more. The coefficient estimates in both models show that conditional upon choosing to retire, there is no relationship between retirement path choice and experiencing a 25 percent or greater drop in (non-housing) net worth[30] or stock holdings, a 25 percent or greater increase in out-of-pocket medical expenses, or losing health insurance (conditional on one's employer offering retiree health insurance). For partial retirement, this is the expected outcome since partial retirement transitions are determined at the time of retirement; on the other hand, the intention to unretire may be formed either at the time of retirement, or at some later time after the revelation of post-retirement information. The evidence suggests that the former is the dominant explanation; post-retirement financial status has little differential effect on the choice of unretirement.

As indicated by the expectations data presented in Table 5, changes in perceptions about retirement income and being productive during retirement play an intriguing role. Becoming more or less worried about income after retirement has no statistically significant impact on the choice of unretirement relative to full retirement, whereas becoming more bothered by not being productive yields a marginally significant increase in the probability of unretirement in both models. In contrast, becoming more worried about income significantly raises the probability of partial retirement, whereas becoming less worried significantly lowers the probability of partial retirement. The fact that these changes affect the partial retirement decision, suggests some slippage in the timing of the underlying shifts in perceptions relative to the timing of the retirement transition. Changes in perceptions about productivity have no detectable impact on the probability of partial retirement.

Experiencing a health shock (a change in the number of diagnosed chronic health conditions) renders both partial retirement and unretirement statistically less likely, and more so for unretirement.[31] In other words, individuals do not unretire to pay for unexpected medical bills, most likely because the health shock that causes the rise in out-of-pocket spending may limit work capability. If anything, health shocks may be a major reason why individuals do not fulfill expectations of working after retirement.

Although many elements of the post-retirement information set do not individually affect the choice of retirement path, they may in combination. Indeed, a formal Likelihood Ratio Test

[30]For a small number of cases with negative net worth in the period prior to retirement, the percent change in net worth is calculated as: pctchg_networth=(networth(t+2)-networth(t))/abs(networth(t)).

[31]Again, the fact that a post-retirement health shock is correlated with the retirement decision suggests slippage in the timing of the health shocks; some measured health shocks may actually precede the partial retirement transition because the dates of health shocks are unknown; in the absence of dating, it is impossible to know whether a given health shock occurred before or after retirement. This is not the case for unretirement transitions since they occur later.

of the model with and without the post-retirement information set (equation 2 versus equation 1) confirms that equation 2 is statistically preferred. However, in terms of the model's ability to correctly predict observed outcomes, little is gained. Under the hours/self-report definition, the addition of the post-retirement information set raises the percent of observations correctly predicted from 42 to 44 percent. Under the hours-only definition, the addition of the post-retirement information set reduces the percent of observations correctly predicted from 50 to 46 percent.[32]

In sum, the models offer little support for the hypothesis that unretirement is predominantly a response to financial shocks arriving shortly after retirement, however there is some evidence that shocks to preferences for retirement leisure (for example, discovering retirement to be less enjoyable than expected) cause some to return to the labor force. Although interesting, shocks of this nature are clearly of less concern from the perspective of policy. Rather, the substantial predictive power of work expectations confirms that most individuals have formed their intentions about partial retirement and unretirement prior to retiring. If anything, work expectations are more likely to go unfulfilled than leisure expectations. In fact, negative health shocks play central roles in preventing some from fulfilling their post-retirement work expectations. This is an issue of substantial policy interest if those who plan to work after retirement hope to shore up retirement resources.

IV. Characteristics of Post-Retirement Jobs

The preceding analyses point to a similarity between partial retirement and unretirement in terms of the characteristics and motivation of people who choose these retirement paths. In this final section, I examine the extent to which the jobs themselves are similar. Table 7 presents a comparison of the characteristics of pre-retirement, partial retirement and unretirement jobs, where unretirement jobs are split by part time or full time. Recall that by definition, partial retirement jobs are part-time jobs. The table is based on the hours/self-report definition of retirement, but the figures produced under the hours-only definition are similar, except as noted.

Consistent with evidence from prior studies of bridge jobs, the median hourly wage on partial retirement ($10.3) and unretirement jobs ($8.4 part-time, $9.0 full-time) is significantly lower than the median wage earned on pre-retirement jobs ($15.2). At the median, partial retirement jobs replace just over half of pre-retirement annual earnings, whereas full-time unretirement jobs replace 30 percent and part-time unretirement jobs replace only 7.6 percent. The median replacement rates calculated under the hours-only definition are significantly higher: 75 percent for partial retirement jobs, 62 percent for full-time unretirement jobs, and 10.3 percent for part-time unretirement jobs. This reflects the compositional difference in the sample of retirees under the two definitions; the addition of the unemployed to the retiree sample under the hours-only definition both lowers median

[32]I first computed the predicted probabilities of partial retirement and unretirement and their standard errors for all observations, then classified observations in which the predicted probability of partial retirement was statistically greater than the predicted probability of unretirement as having a predicted value of partial retirement. Then I tabulated the percent of observations with observed partial retirement that had a predicted value of partial retirement. A similar approach was used to construct the percent of observations with observed unretirement that had a predicted value of unretirement. Summing these two percents gives the percent of partial retirement and unretirement observations correctly predicted by the model.

pre-retirement earnings (from $15.2 to $13.6) and raises median post-retirement earnings for partial retirees (from $10.3 to $10.9) and full-time reentrants (from $9.0 to $10.3). Median post-retirement earnings are slightly lower for part-time re-entrants under the hours-only definition (from $8.4 to $8.0).

Employer-provided health insurance coverage rates are significantly lower on post-retirement jobs than on pre-retirement jobs. Those with part-time unretirement jobs are least likely to have employer-provided health insurance coverage (35.5 percent), less than half of those with full-time unretirement jobs (48.3 percent) have employer-provided health insurance coverage. The coverage rate for partial retirement jobs (44.2 percent) is in a similar range, and all are substantially lower than the rate for pre-retirement jobs (63.9 percent). Stress reduction appears to be an important motivation for choosing a non-traditional retirement path among those who are not yet ready to leave the labor force permanently. Pre-retirement jobs are most stressful (62.7 percent), followed by full-time unretirement jobs (40.1 percent), partial retirement jobs (33.9 percent), and part-time unretirement jobs (23.8 percent). There are less obvious differences in physical requirements across job types, though part-time positions (both partial retirement and part-time unretirement jobs) appear to be moderately less physically demanding.

The distribution of jobs across industries is similar for partial retirement and unretirement jobs, and relative to pre-retirement jobs, there is a notable shift out of the manufacturing sector and into the services sector, especially for part-time positions.[33] Similarly, there is a parallel shift out of managerial/professional specialty occupations and into sales/admin support and services positions. Finally, about 61 percent of unretirees changed occupations compared to just 34 percent of partial retirees (not shown), and this is reflected in the fact that the occupational distribution of partial retirement jobs is more similar to the occupational distribution of preretirement jobs. [34] If, as these figures suggest, partial retirement jobs are more closely related to the pre-retirement career than unretirement jobs, they may be easier to obtain without taking time out of the labor force to engage in search or skill building. This could also explain the wage differential between the two types.

In sum, the descriptive evidence suggests many similarities between unretirement and partial retirement jobs, but also interesting differences. In particular, the data suggest that those who can find post-retirement jobs relatively easily transition directly to partial retirement, whereas those who must spend more time searching (or perhaps re-tooling skills) pass through a period of retirement before starting their post-retirement jobs. This is suggested by the fact that those who unretire are more likely to have changed occupations than those who transitioned directly to partial retirement.

V. Conclusions

Unretirement and partial retirement are empirically important phenomena. About one-half of retirees follows a nontraditional path that involves partial retirement and/or unretirement. Of

[33]A similar shift was noted by Reimers and Honig (1993).
[34]These figures were calculated over disaggregated 3-digit industry and occupational codes rather than the aggregated categories shown in Table 7.

retirees, 26.4 percent of those observed for at least six years after their first retirement return to work at some point during the interval, most commonly about two years after retirement. The unretirement rate is even higher among younger retirees (as high as 35 percent among those retiring at ages 53-54). Under a broader definition of retirement based only on changes in hours, as many as 39.7 percent of all retirees return to work over the same observation period, and 53.1 percent of the youngest retirees return to work. The body of evidence presented here strongly supports the hypothesis that unretirement transitions are mostly anticipated prior to retirement, and thus for most people are not a response to financial shocks experienced after retirement, or a result of poor planning or low wealth accumulation.

In support of this conclusion, I present four key pieces of evidence: First, about 82 percent of unretirement transitions were intended prior to retirement. In support of this finding, I show that information received after retirement adds little explanatory power to a model of retirement path choice after controlling for information available prior to retirement. In fact, the probability of unretirement is unresponsive to large declines in net worth or increases in out-of-pocket medical expenses occurring after retirement. Second, comparing pre-retirement expectations with post-retirement realizations of work, I find that when realizations diverged from expectations (in about 42 percent of cases), individuals were more likely to have failed to fulfill an expectation of working rather than an expectation of leisure. Third, among those with unfulfilled work expectations, the evidence points to the arrival of *positive* news about financial position after retirement (though not driven by the stock market gains) and/or negative news about health. These results complement evidence from studies of consumption behavior that suggest actual retirement turns out better than expected for most people (Forni 1999 ; Hurd and Rohwedder 2003; Mastrogiacomo 2003). Fourth, among the minority with unfulfilled expectations of leisure, the evidence points to the arrival of negative news about preferences for retirement leisure, rather than negative news about financial position.

In sum, unretirement appears to be part of an alternative type of retirement path, for most people intended prior to retirement, and similar in many respects to partial retirement.

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Appendix 1

Data

Sample Definition

I use the longitudinal structure of the HRS to carefully track and date respondents' transitions in and out of the labor force over time. My analysis sample is composed of

members of the initial HRS cohort, who were first interviewed in 1992 when they were between the ages of 51 and 61, and their spouses. Respondents are re-interviewed every two years; therefore the first six waves yield data over the period 1992 through 2002. To be included in the sample, respondents must be present in at least the first two survey waves and working for pay (either full or part time) in Wave 1. To reduce the risk of contaminating the sample with individuals whose retirement processes began prior to 1992, I drop those working respondents who in Wave 1 also describe themselves as retired (either partially or fully) (2701 observations), or who later report a first retirement date that precedes their baseline interview in 1992 (301 observations). I drop 49 respondents who report retirement dates implying retirement ages younger than 50. My final sample size is 7,335 observations.

Identifying Retirement/Unretirement Transitions

Transitions between states are identified by wave-to-wave changes in respondents' employment or retirement status according to the definitions described in Section IIA. When a transition is identified to have occurred between waves, the date (in months) of the transition given by the respondent is recorded. When a respondent is observed to be retired in two sequential waves, it is assumed that no unretirement spell occurred. In actuality, about five percent of retirees re-enter the labor force and exit between waves. Although strictly speaking these are unretirement spells, analysis reveals that 50 percent of them last less than six months, and 75 percent last less than one year. Perhaps more relevant than their duration is that annual earnings in the calendar year between interviews are zero for at least half of these respondents, and less than $2,000 for 75 percent of them. The estimated prevalence of unretirement transitions (under the hours/self-report definition) would rise by about 5 percentage points (from 26 percent to 31 percent) if these short spells were included; however, given their somewhat trivial nature, I do not include them to avoid overstating the importance of unretirement. Perhaps most importantly, the shape of the unretirement survival curve is robust to their inclusion. All results of the multinomial logit models are also robust to their inclusion, although standard errors are a bit larger in some instances, suggesting that the short spells mostly add noise rather than systematic variation.

Procedure for Imputing Missing Retirement Dates

When the respondent gave the year of retirement but not the month, I assumed the following: 1) if the individual retired in the same year as the interview, I imputed the month of retirement to be the midpoint between January 1 of that year and the ending date of the interview; 2) if the individual retired in the calendar year between the current and previous interviews, I assume the individual retired in June of the indicated year; 3) if the individual retired in the year of the previous interview (and did not report retirement at the previous interview), then I impute the month of retirement to be the midpoint between the ending date of the previous interview and December 31 of that year. Complete retirement dates for less than 1 percent of retired observations were constructed in this fashion.

When retired respondents failed to give either year or month of retirement, I attempted to use the date their last job ended from a different part of the survey. I also scanned later waves looking for a retirement date that fell between the interview date at which retirement was first reported and the date of the preceding interview, but found no valid dates. To be

deemed valid, dates from later waves must have rationalized the reported labor force pattern, since a date reported in a later wave may pertain to a second retirement following a period of unretirement. When neither the year of retirement nor the year the last job ended was available, I used the fact that the respondent must have retired at some point between the last survey wave (at which she reported herself to be working) and the current survey wave (at which she reports herself to be either partially or fully retired). In these cases, I chose the midpoint between the two interview dates as the imputed retirement date. Complete retirement dates for 6.2 percent of retired observations were constructed in this way.

Procedure for Imputing Missing Unretirement Dates

I impute missing unretirement dates following the approach used to impute missing retirement dates. I first checked the previous wave and all later waves for a job start date that fell between the interview date at which unretirement was first reported and the prior interview (logically, unretirement must have occurred within this two-year period). Valid unretirement dates were found for only 16 sample observations at this stage. For the remainder of missing dates, I imputed the unretirement date to be the midpoint between the interview date at which unretirement was first reported and the previous interview date. Some 110 unretirement dates were imputed in this fashion.

References

Ameriks, John; Caplin, Andrew; Leahy, John. Working Paper 8735. National Bureau of Economic Research; 2002. Retirement Consumption: Insights from a Survey.

Banks, James; Blundell, Richard; Tanner, Sarah. Is There a Retirement-Savings Puzzle? American Economic Review. 1998; 88(4):769–88.

Benitez-Silva, Hugo. Micro Determinants of Labor Force Status among Older Americans. Working Paper 00-07; Stony Brook, NY. State University of New York at Stony Brook, Department of Economics; 2000.

Berkovec, James; Stern, Steven. Job Exit Behavior of Older Men. Econometrica. 1991; 59(1):189–210.

Blau, David M. Labor Force Dynamics of Older Men. Econometrica. 1994; 62(1):117–56. [PubMed: 12290260]

Diamond, Peter A.; Hausman, Jerry A. The Retirement and Unemployment Behavior of Older Men. In: Aaron, Henry J.; Burtless, Gary, editors. Retirement and Economic Behavior. Washington, D.C.: Brookings Institution; 1984. p. 97-129.

Forni, Lorenzo. Ricerche Quantitative Per La Politica Economica. Rome: Bank of Italy; 1999. An Analysis of Retirement Expectations and Realizations: Evidence From the US Health and Retirement Survey.

French, Eric. The Effects of Health, Wealth, and Wages on Labor Supply and Retirement Behavior. Review of Economic Studies. 2005; 72(2):395–427.

Gustman, Alan L.; Steinmeier, Thomas L. Modeling the Retirement Process for Policy Evaluation and Research. Monthly Labor Review. 1984a; 107(7):26–33.

Gustman, Alan L.; Steinmeier, Thomas L. Partial Retirement and the Analysis of Retirement Behavior. Industrial and Labor Relations Review. 1984b; 37(3):403–15.

Haider, Steven; Stephens, Melvin. Working Paper w10257. National Bureau of Economic Research; 2004. Is There a Retirement-Consumption Puzzle? Evidence Using Subjective Retirement Expectations.

Hall, Robert; Feldstein, Martin; Bernanke, Ben; Frankel, Jeffrey; Gordon, Robert; Zarnowitz, Victor. Technical Report. National Bureau of Economic Research, Business Cycle Dating Committee; 2001. The Business Cycle Peak of March 2001.

Hurd, Michael; Rohwedder, Susann. Working Paper 9586. National Bureau of Economic Research; 2003. The Retirement-Consumption Puzzle: Anticipated and Actual Declines in Spending at Retirement.

Maestas, Nicole; Li, Xiaoyan. Working Paper 133. Ann Arbor, MI: Michigan Retirement Research Center; 2006. Discouraged Workers? Job Search Outcomes of Older Americans.

Maestas, Nicole; Li, Xiaoyan. Working Paper 166. Ann Arbor, MI: Michigan Retirement Research Center; 2007. Burnout and the Retirement Decision.

Mastrogiacomo, Mauro. Discussion Paper 04-052/3. Amsterdam: Vrije Universiteitte Amsterdam, Tinbergen Institute and Centraal Planbureau; 2003. On Expectations, Realizations and Partial Retirement.

Reimers, Cordelia; Honig, Marjorie. The Perceived Budget Constraint under Social Security: Evidence from Reentry Behavior. Journal of Labor Economics. 1993; 11(1):184–204.

Ruhm, Christopher J. Bridge Jobs and Partial Retirement. Journal of Labor Economics. 1990; 8(4): 482–501.

Rust, John. Behavior of Male Workers at the End of the Life Cycle: An Empirical Analysis of States and Controls. In: Wise, David A., editor. Issues in the Economics of Aging. Chicago: The University of Chicago Press; 1990. p. 317-382.

Rust, John; Phelan, Christopher. How Social Security and Medicare Affect Retirement Behavior in a World of Incomplete Markets. Econometrica. 1997; 65(4):781–831.

Smith, Sarah. Working Paper W04/07. London: Institute for Fiscal Studies; 2004. Can the Retirement Consumption Puzzle Be Solved? Evidence from UK Panel Data.

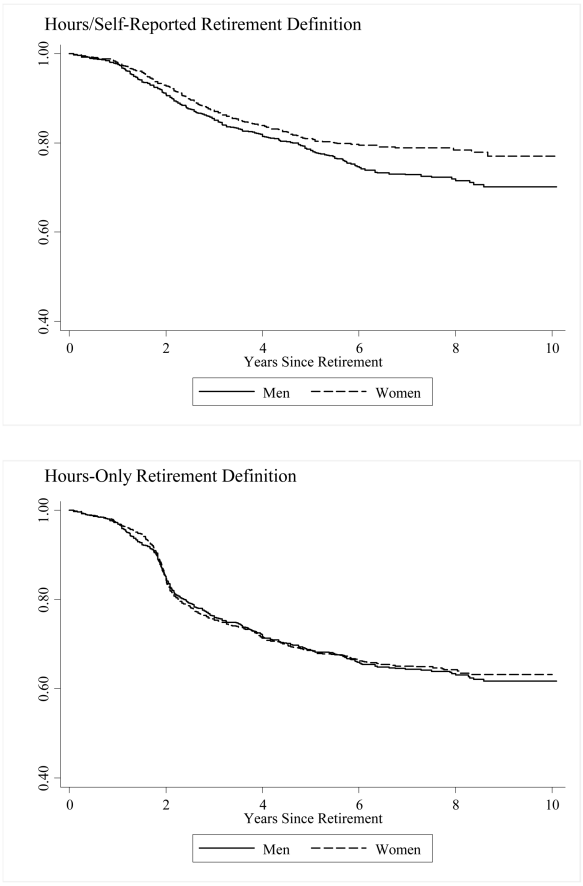

Figure 1. Retirement Survival Curves by Gender and Definition of Retirement

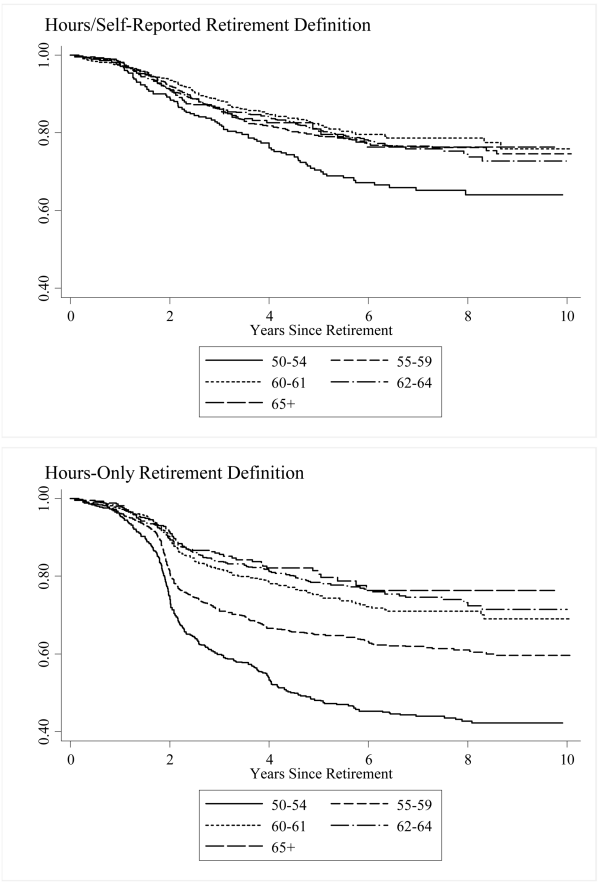

Figure 2. Retirement Survival Curves by Age of First Retirement and Definition of Retirement

Table 2

Retirement paths

	Retirement Status Defined By:	
	Hours and Self-Report	**Hours Only**
1. Work --> Full Retirement --> Full Retirement	52.2	40.4
2. Work --> Full Retirement --> Part-Time Work	12.9	13.0
3. Work --> Full Retirement --> Full-Time Work	6.3	10.8
4. Work --> Partial Retirement --> Partial Retirement	7.7	6.6
5. Work --> Partial Retirement --> Full Retirement	13.7	13.2
6. Work --> Partial Retirement --> Full-Time Work	7.2	16.0
Number of observations	1092	1502

Notes: Retirement path categories are mutually exclusive. Sample is all respondents observed at least six years after their first retirement. Work refers to either part-time or full-time work.

Table 3
Percent ever returning to work rollowing retirement

	Post-Retirement Observation Period			
	At Least Two Years		At Least Six Years	
	Retirement Status Defined By:		Retirement Status Defined By:	
	Hours and Self-Report	Hours Only	Hours and Self-Report	Hours Only
All	20.3	30.7	26.4	39.7
Gender				
Men	22.9	31.9	31.2	41.2
Women	17.4	29.6	21.2	38.5
Race/Ethinicity				
White	20.1	29.9	26.5	39.0
Black	20.5	32.5	27.1	42.4
Hispanic	23.6	40.2	23.8	45.3
Education				
More than 12 Years	20.4	32.2	26.5	42.4
12 Years or Less	20.2	29.7	26.4	37.9
Retirement Status				
Fully Retired	21.1	28.6	26.9	37.0
Partly Retired	18.0	34.8	25.3	44.6
Retirement Age				
53-54	40.6	55.6	34.5	53.1
55-56	28.2	44.4	29.5	47.9
57-58	19.3	32.5	25.1	39.1
59-60	16.6	26.4	23.7	33.7
61-62	17.9	21.9	23.3	27.3
63-64	20.4	22.9	27.0	29.3
65-66	17.6	16.5	24.4	24.4

Table 4
Cross-Tabulation of work expectation and Realization

	Realization			
	Retirement Defined By:			
	Hours and Self-Report		**Hours Only**	
	No Work	**Work**	**No Work**	**Work**
Expectation				
No Work				
Row Percent	71.1	29.0	62.6	37.4
Column Percent	37.6	18.3	37.9	18.4
Cell Percent	20.5	8.4	17.0	10.1
Work				
Row Percent	47.7	52.3	38.2	61.8
Column Percent	62.4	81.7	62.1	81.7
Cell Percent	34.0	37.2	27.8	45.1

Notes: Sample is all respondents observed at least four years after their first retirement.

Table 5

Pre/post-retirement changes in wealth, health, and perceptions by whether or not work expectation realized

	Expected leisure		Expected work	
	Not Realized (1)	**Realized(2)**	**Not realized(3)**	**Realized(4)**
Wealth Changes Pre/Post Retirement				
Percent Change Net Worth at 50th Percentile	4.0	6.5	6.4	5.1
Percent Change Net Worth at 75th Percentile	44.6	50.7	63.7	55.5
Percent Change Stock Value at 50th Percentile	0.0	0.0	0.0	0.0
Percent Change Stock Value at 75th Percentile	56.8	73.3	20.3	42.0
Changes in Perceptions Pre/Post Retirement (Percentage)				
Ex-Ante Worried about Not Having Enough Income	38.0	42.5	60.6	56.5
Ex-Post Bothered by Not Having Enough Income	37.9	27.5	40.3	43.2
Ex-Ante Worried about Not Being Productive	21.4	22.4	37.9	40.2
Ex-Post Bothered by Not Being Productive	33.8	22.3	30.5	36.9
Health-Related Changes Pre-/Post Retirement (Percentage)				
Health Shock (Respondent)	19.1	23.2	27.3	17.5
Health Shock (Spouse if Married)	20.9	18.3	20.9	20.1
Lost Health Insurance Coverage	17.8	17.1	14.0	14.7
Expected but Lost Health Insurance Coverage	10.2	10.4	5.9	7.9

Notes: Cell entries are the centile value of row characteristic computed for each column, or the percentage of each column with row characteristic, as noted. Sample is all individuals observed 2 or more years after first retirement based on combined hours and self-reported retirement definition. Work after retirement includes partial retirement and unretirement. Pre-/post-retirement changes are measured using survey waves immediately before and after retirement date.

Table 6
Multinomial logit model of retirement path choice

	Model 1		Model 2	
Base Category=Full Retirement	**Partial Retirement**	**Unretirement**	**Partial Retirement**	**Unretirement**
Demographics & Health (Pre-Retirement)				
Retirement Age-62	0.024	-0.068	-0.028	-0.127
	(0.031)	(0.034)	(0.025)	(0.028)
I(Retirement Age>=62)	-0.341	0.153	-0.488	0.087
	(0.201)	(0.228)	(0.194)	(0.210)
Retirement Age × I(Retirement Age>=62)	-0.102	0.020	0.035	0.073
	(0.100)	(0.109)	(0.100)	(0.113)
Male	0.414	0.411	0.468	0.398
	(0.147)	(0.168)	(0.132)	(0.151)
Black	-0.364	0.462	0.020	0.284
	(0.216)	(0.206)	(0.176)	(0.189)
Hispanic	-0.221	0.080	0.050	0.080
	(0.303)	(0.339)	(0.228)	(0.252)
Other	-0.485	-0.360	-0.230	-0.096
	(0.534)	(0.500)	(0.484)	(0.417)
Married	0.175	-0.097	0.179	-0.108
	(0.179)	(0.199)	(0.154)	(0.171)
I(Education <=12 years)	-0.257	0.091	-0.116	0.043
	(0.153)	(0.175)	(0.136)	(0.155)
Fair or Poor Health (Self-Reported)	-0.352	-0.894	-0.494	-0.854
	(0.207)	(0.241)	(0.180)	(0.203)
Number of Health Conditions	-0.099	-0.120	-0.077	-0.131
	(0.065)	(0.077)	(0.058)	(0.064)
Retirement Resources (Pre-Retirement)				
Log Income	0.081	0.076	0.099	0.129
	(0.054)	(0.059)	(0.058)	(0.063)
ASINH Net Worth	-0.059	-0.022	-0.038	-0.031
	(0.056)	(0.061)	(0.046)	(0.049)
Self-Employed	0.544	0.261	0.604	0.267
	(0.234)	(0.279)	(0.186)	(0.230)
Employer Pension	-0.611	-0.135	-0.450	-0.301
	(0.187)	(0.199)	(0.151)	(0.165)
Employer Offers Retiree Health Insurance	-0.214	-0.120	-0.198	-0.323
	(0.199)	(0.233)	(0.176)	(0.193)
Occupation (Pre-Retirement)				
Managerial/Professional Specialty	0.630	0.600	0.709	0.349
	(0.246)	(0.278)	(0.207)	(0.232)
Sales/Admin Support	0.556	0.474	0.574	0.395

	Model 1		Model 2	
Base Category=Full Retirement	**Partial Retirement**	**Unretirement**	**Partial Retirement**	**Unretirement**
	(0.248)	(0.277)	(0.207)	(0.227)
Services	0.433	0.454	0.505	0.054
	(0.274)	(0.305)	(0.221)	(0.252)
Precision Production/Craft/Repair	0.560	0.600	0.405	0.207
	(0.263)	(0.287)	(0.220)	(0.240)
Retirement Planning (Pre-Retirement)				
Short Planning Horizon	0.032	0.168	-0.016	0.064
	(0.170)	(0.175)	(0.144)	(0.157)
Plans to Keep Working in Retirement	0.875	0.993	0.894	0.820
	(0.161)	(0.188)	(0.143)	(0.161)
Worried About Not Having Enough Income	0.332	0.156	0.277	0.340
	(0.164)	(0.204)	(0.151)	(0.179)
Worried About Not Being Productive	0.169	0.351	-0.002	0.514
	(0.169)	(0.206)	(0.150)	(0.173)
Changes in Resources & Perceptions (Post-Retirement)				
Net Worth (Non-Housing) Drops by 25% or More	-0.144	0.069	0.024	0.165
	(0.156)	(0.168)	(0.135)	(0.143)
Stock Value Drops by 25% or More	0.035	-0.001	0.009	-0.008
	(0.177)	(0.202)	(0.162)	(0.181)
Became More Worried about Income	0.661	0.108	0.134	0.162
	(0.298)	(0.345)	(0.232)	(0.256)
Became Less Worried about Income	-0.748	-0.118	-0.556	-0.300
	(0.238)	(0.240)	(0.204)	(0.220)
Became More Worried about Not Being Productive	0.075	0.519	0.242	0.398
	(0.269)	(0.259)	(0.198)	(0.211)
Became Less Worried about Not Being Productive	-0.449	-0.223	-0.184	-0.261
	(0.271)	(0.285)	(0.234)	(0.250)
Health Shock	-0.527	-0.778	-0.639	-0.698
	(0.161)	(0.191)	(0.138)	(0.160)
OOP Medical Expenses Jump by 25% or More	0.051	-0.065	0.056	-0.076
	(0.127)	(0.143)	(0.112)	(0.126)
Lost Health Insurance	0.043	0.174	-0.150	0.273
	(0.196)	(0.207)	(0.170)	(0.171)
Pseudo R-Squared	0.128		0.118	
Number of Observations	1896		2309	

Table 7
Characteristics of pre- and post-retirement jobs

			Unretirement Jobs	
	Pre-Retirement Jobs	**Partial Retirement Jobs**	**Part-Time**	**Full-Time**
Median Hourly Wage ($)	15.2	10.3	8.4	9.0
Median Annual Earnings ($)	28,210.0	10,681.0	2,089.0	7,863.0
Ratio Post/Pre Earnings ×100 (Median)	100.0	56.8	7.6	30.0
Hours Worked per Week	40.2	19.8	18.9	42.2
Weeks Worked per Year	49.4	41.8	36.1	49.6
Percent Self-Employed	19.6	31.6	24.0	27.8
Percent with Employer Health Insurance	63.9	44.2	35.5	48.3
Job Requirements (Percentage)				
Job is Stressful All or Most of Time	62.0	33.9	23.1	39.7
Job Requires "Lots of Physical Effort"	33.7	29.6	27.8	34.2
Job Requires Stooping/Kneeling	23.1	19.9	20.5	23.3
Job Requires Good Eyesight	89.8	86.2	80.2	89.2
Job Requires Heavy Lifting	13.2	10.2	7.7	12.2
Industry (Percent Distribution)				
Ag/Forestry/Mining/Construction	10.5	12.1	12.8	18.4
Manufacturing	23.5	11.2	8.4	15.5
Wholesale/Retail	13.6	18.1	16.1	14.5
Services	52.4	58.6	62.8	51.6
Occupation (Percent Distribution)				
Managerial/Professional Specialty	37.8	32.3	26.7	25.8
Sales/Admin Support	26.1	27.9	29.7	32.6
Precision Production/Craft/Repair	13.6	13.0	12.7	16.6
Operators/Laborers	10.5	9.8	15.6	11.4

Notes: All figures based on combined hours and self-reported retirement definition. Pre-retirement job characteristics are shown for partial retirees and unretirees only. Dollar amounts in 2000 dollars.