BACK TO WORK: EXPECTATIONS AND REALIZATIONS OF WORK AFTER RETIREMENT

Nicole Maestas
RAND

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Abstract

This paper analyzes a puzzling aspect of retirement behavior known as "unretirement," in which retirees appear to reverse their retirement decisions and return to work. I explore two possible explanations: 1) unretirement transitions are largely unexpected, resulting from failures in planning or financial shocks; and 2) unretirement transitions are an expected part of a more complex retirement process. Using data from the Health and Retirement Study, I show that nearly one-half of retirees follow a nontraditional retirement path that involves partial retirement or unretirement, and that 24 percent of retirees later unretire. The unretirement rate rises as high as 36 percent among the youngest retirees. Using data on expectations and realizations of work during retirement, I show that unretirement was anticipated for the vast majority (80 percent) of those returning to work. Most retirees formed accurate expectations about working after retirement, and only nine percent expected not to work but in fact did so. If anything, expectations err on the side of excessive pessimism about retirement rather than uninformed optimism. In short, the evidence suggests unretirement is not predominantly a response to negative shocks arriving after retirement, but instead represents an alternative retirement path, much like partial retirement.

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1. 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. In a simple life-cycle model with no uncertainty, retirement is an absorbing state and "unretirement" would not be rational. But it could be rational in a life-cycle model with uncertainty, which raises the question of whether unretirement results from economic shocks arriving after retirement.

Certainly, the retirement decision is made under substantial uncertainty about the future. No one knows his life span or the evolution of his health status, rates of return on many types of financial assets are uncertain, and medical expenses and health insurance premiums may increase by unexpected amounts. Those who failed to save enough for retirement might experience informational shocks upon realizing their retirement resources are inadequate. Indeed, 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 et al., 1998, Haider and Stephens, 2004, Hurd and Rohwedder, 2003, Smith, 2004).

While it seems plausible that retirees might react to these kinds of shocks by returning to the labor force, there is an alternative explanation that has little to do with uncertainty. What if unretirement is not so much a reversal of an earlier decision, but one phase in a multi-phase retirement *process*? If so, then unretirement may be an intentional way of transitioning gradually out of the labor force, just like partial retirement. If an individual plans to work after retirement, it may be inconsequential whether he transitions directly to his post-retirement job (i.e., partially retires) or takes a break between jobs (i.e., unretires). In other words, what if instead of merely choosing a retirement date, individuals choose an entire retirement transition path?

The implications of these two competing explanations are quite different. If unretirement results from economic shocks, then we might be concerned for the welfare of older Americans. If unretirement reflects a multi-stage retirement process, we might be concerned for our retirement models, which often have simplistic specifications of the retirement decision. A straightforward way of testing which hypothesis has merit is to analyze the extent to which unretirement transitions are expected or unexpected. I do this using longitudinal data on expectations and realizations of work after retirement from the first five waves of the Health and Retirement Study (HRS). Although I am not the first to analyze post-retirement labor supply, this paper offers new evidence about unretirement transitions per se, and is the first to address the extent to which uncertainty influences patterns of labor force participation among older workers.

I start by showing that nearly one-half of retirees follow a "nontraditional" retirement path that involves partial retirement or unretirement. Unretirement rates are substantial: 24 percent of all retirees reverse their retirement decision, and 36 percent of the youngest retirees do so. The average unretirement spell lasts about four years, and unretirement jobs share many of the same characteristics of "bridge jobs" (see e.g., Ruhm (1990)).

Consistent with the hypothesis that unretirement transitions are largely planned, I find that 80 percent of those later observed to unretire anticipated working during retirement. As a percentage of all retirees, only 9 percent did not anticipate working during retirement but were later observed to unretire. The rest either had accurate expectations about working during retirement, or anticipated working but never did so. This suggests that expectations tend to err on the side of excessive pessimism about retirement rather than uninformed optimism. Consistent with this evidence, unretirement is not associated with poor retirement planning, or low income

or wealth. Unretirement rates respond little to large changes in financial variables, which suggests these changes were mostly anticipated before retirement. In sum, I find little evidence that unretirement is predominantly a response to negative shocks arriving after retirement, and conclude that unretirement signals the empirical importance of multi-stage retirement transitions, much like partial retirement.

2. Research Design and Sample Construction

Sample Definition

I use the longitudinal aspect of the HRS to carefully date respondents' transitions in and out of the labor force over time; however, I use variation across respondents to analyze unretirement transitions. I do this because very few respondents experienced more than one unretirement spell during the survey period (ruling out the use of within-individual variation), and several innovative variables measuring expectations and stated preferences were asked only in the first survey wave.

A drawback is of course the possibility of unobserved heterogeneity. I compensate by taking advantage of unusual variables that may control for aspects of the unobserved heterogeneity, and which offer the possibility of insights into the heterogeneity itself (an impossibility in a fixed effects model). My use of longitudinal information adds value by allowing me to account for the timing of events; that is, rather than treating responses given in the same interview as contemporaneous, I use the dates of retirement and unretirement transitions in combination with the survey interview dates to distinguish whether a particular response is measured before or after a given transition.

In order to capture as many transitions as possible, I constrain my analysis to 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 who may be of any age. Respondents are re-interviewed every two years; therefore the first five waves yield data over the period 1992 through 2000. I exclude respondents whom do not give interviews in all five waves in order to achieve an observation period long enough to observe both retirement *and* subsequent unretirement. This reduces my sample from 12,652 responding in Wave 1 to 8,741.[1] I include only those respondents who in Wave 1 are working for pay (either full- or part-time) *and* who do not report themselves to be retired (either partly or completely). By omitting those who make any mention of retirement, I reduce the risk of contaminating the sample with individuals who have previously retired and are in the midst of an unretirement spell at the baseline interview. If these cases were left in the sample, they could bias down the estimated unretirement rate since they would enter the denominator of those observed to retire (i.e., their second retirement), but they would be less likely to ever enter the numerator (i.e., unretire a second time). Imposing these criteria further reduces the sample to 5,533 observations. I drop another 187 respondents who were working and not retired at baseline, yet who in a later wave report having retired before 1992, as well as 37 respondents who report retirement dates implying retirement ages younger than 50. My final sample size is 5,310 observations.

Although the baseline HRS cross-section is a nationally representative probability sample, the sub-sample of 5,310 respondents who have not yet initiated a retirement transition by 1992 may not be. To understand the nature of any selectivity, Appendix Table 1 shows results from a probit model of the probability of not having retired by 1992.[2] My analysis sample is somewhat younger, better educated, has fewer women and fewer blacks, and includes more married individuals than the full HRS sample. There is no difference in the propensity to

[1] This corresponds to an approximate attrition rate of eight percent between survey waves.

[2] Note the model addresses selectivity induced by omitting those who began their retirement process prior to the HRS but does not address selectivity induced by sample attrition.

experience shocks in the last 20 years, however my sample has fewer people who report a short planning horizon of only "the next few months" or "next year."

Defining Retirement

Because individuals may have different notions of what it means to be fully retired or partially retired, I use objective information about labor force participation in combination with an individual's subjective assessment of retirement status. I classify an individual as *completely retired* if 1) he reports not working for pay;[3] and 2) he reports retirement on the subjective retirement status or employment status questions.[4] By including the subjective information, I can exclude the unemployed and disabled from my retirement definition. This is a nontrivial issue since only 60 percent of those who were not working for pay in Wave 2 gave their subjective status as retired; the remaining 40 percent said they were unemployed, disabled, or "not in the labor force." Although the fraction of nonworkers who say they are retired grows over time, even by Wave 5, only 83% of nonworkers say they are retired. I classify an individual as *partially retired* if 1) she reports working for pay; 2) she works part-time, defined as working fewer than 35 hours per week or fewer than 36 weeks per year; and 3) she reports retirement on the subjective retirement status or employment status questions. If she makes no mention of retirement, then she is considered to be working part-time, rather than partially retired. Under these definitions, 48.4 percent of my sample retired by 2000. Of this group, 70.5 percent retired fully, and 29.5 retired partially.

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[3] The survey question reads, "Are you doing any work for pay at the present time?"

[4] The subjective retirement status questions read, "At this time, do you consider yourself to be completely retired, partly retired, or not retired at all?" The employment status questions read, "Now I'm going to ask you some questions about your current employment situation. Are you working now, temporarily laid off, unemployed and looking for work, disabled and unable to work, retired, a homemaker, or what?" I draw on the RAND HRS data files, in which the subjective retirement status questions are renamed RwSAYRET and the employment status questions are renamed RwRETEMP (where w stands for wave number). These variables are combined to create the comprehensive labor force status variable called RwLBRF. See the RAND HRS codebook and documentation (St. Clair 2003) for further details.

Once respondents report retirement on either the subjective retirement status question or the employment status question, they are asked when they retired. In most cases, respondents gave both their month and year of retirement. However, in about 6 percent of cases, year of retirement was obtained but month was not, or neither month nor year was obtained. In these cases it was necessary to impute some aspect of the retirement date.[5] I describe my imputation method in the Data Appendix.

Defining Unretirement

Although all HRS respondents are asked whether they consider themselves retired, working respondents are not asked whether they have previously retired. Some may describe themselves as both working and retired in different parts of the survey, but others may not. Therefore, it is necessary to infer unretirement behavior by examining patterns of labor force participation and withdrawal across survey waves. I define three types of wave-to-wave transitions from retirement to unretirement: 1) complete retirement to full-time employment; 2) complete retirement to partial retirement; and 3) partial retirement to full-time employment. As defined above, individuals who are completely retired may not also be working for pay, and those who are partially retired are working no more than part time.

Once a respondent reports retirement, I check his or her labor force status in all subsequent waves for any of the three transitions from retirement to unretirement. Then, once I encounter an unretirement transition, I use the start date of the current job as the date of unretirement.[6] Combining those who reported their initial hire date with those for whom the start

[5] The HRS does not ask for an exact day of retirement.

[6] This approach does not work in all cases since the survey instrument instructs individuals to give the date of initial hire by the current employer. Thus, for those who either never left their employer (as in transitions from partial retirement to full-time employment) or who returned to their former employer we have available only the date of initial hire (which naturally precedes the retirement date), not the date of the most recent change in labor force

date of the current job is missing, yields a total of 126 unretired observations for which a valid unretirement date is missing (33 percent). I describe my procedure to impute these missing unretirement dates in the Data Appendix.

3. Retirement Paths Leading to Unretirement

I start with an overview of the different paths to retirement followed by HRS cohort respondents. Table 1 shows the percent of retired respondents following six mutually exclusive retirement paths. The first column gives the distribution of respondents across the different paths for those observed at least three years after their first retirement, while the second and third columns repeat the distribution for those observed for at least four and five years respectively after their first retirement. The first row reveals that just over half of retirees transitioned from work to full retirement (i.e., no work) and remain fully retired three to five years later. In other words, about half of retirees follow the "traditional" retirement path, whereas the other half takes a path involving partial retirement and/or unretirement. The second row shows that nearly 12 percent of retirees fully retire then return to part-time work within five years, whereas many fewer return to full-time work after fully retiring (3.3 percent). Summing rows 4-6, nearly one-third of retirees (32.3 percent) transition through partial retirement.[7] Including row 2, those who unretire into partial retirement, raises the estimate of partial retirement to 44.1 percent, which falls between that reported by Gustman and Steinmeier (1984) of one-third and that reported by

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status. This is the case for 79 unretired individuals, nearly all of who partially retired, and then later returned to full-time employment with the same employer.

[7] About 5 percent of reported retirements are transitions 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. In all analyses that follow, these observations remain in the sample.

Ruhm (1990) of one-half.[8] Three of the six retirement paths lead to unretirement (rows 2, 3 and 6), accounting for 24.2 percent of retirees observed for at least five years.

Table 2 examines unretirement patterns in greater detail, showing unretirement rates for the entire sample of retirees and various subgroups. The table columns highlight that there is more than one way to measure unretirement. The first column shows unretirement rates without controlling for the observation period, whereas the second column shows the rate for everyone observed at least one year since initial retirement. The rates are lower in the first column, reflecting downward bias arising from the fact that the denominator includes many recent retirees who have not yet had an opportunity to unretire. The rates are highest in the last column, where the unretirement rate is computed for the subset of respondents observed at least five years after their first retirement.

The first row of the last column shows that over a period of at least five years, 24.2 percent of retirees have returned to work.[9] This estimate is remarkably close to Ruhm's (1990) estimate of 25.4 percent in the older RHS cohort.[10] This is surprising given the two-decade difference between the cohorts, and suggests little change over time in unretirement trends.[11] Several other papers have reported unretirement rates in the course of describing retirement transitions, but the rates are much lower than those reported here due to the inclusion of

[8] The discrepancy between the two papers is surprising since they use the same data. Potential explanations include differences in the definition of partial retirement and differences in the observation period.

[9] Note this is *not* an estimate of those who return to work after five years of retirement; rather it is an estimate of the unretirement rate among those who are observed for at least five years after retirement; they may have unretired at any time during the observation period.

[10] 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.

[11] There are two notable differences between Ruhm's estimates and those reported here. First, Ruhm's estimates are based on an 8-year observation period following first retirement, whereas mine are conditioned on an average observation period of 6 years (a minimum of 5 and a maximum of 8 years); this would tend to increase his estimates slightly relative to mine. Second, his RHS sample is somewhat older than my HRS sample (60-65 in 1971 compared to 51-61 in 1992); this would tend to decrease his estimates slightly relative to mine. On balance, the differences are offsetting and neither is likely to be large.

individuals observed only a short period of time after retirement. For example, Rust (1990) finds that about 18 percent of retirement sequences include a reversal in status in the RHS; Berkovec and Stern (1991) report one-year unretirement rates ranging between 6.3 to 13.2 percent depending on age in the National Longitudinal Study of Mature Men (NLS);[12] and Benitez-Silva (2003) finds that about 12.6 percent of nonworkers (not necessarily retirees) in the HRS re-entered the labor force within 24 months.

Table 2 also reveals variation in unretirement rates by demographic characteristics. Men have somewhat higher rates than women, and Hispanics are least likely to unretire. Blacks are more likely than whites to unretire in all samples except those observed at least five years after retirement.[13] More educated retirees are more likely to return to work, which suggests that unretirement is not exclusively driven by low wealth accumulation or poor planning.

The most interesting differences arise with respect to age of retirement. Unretirement rates are very high among those who retire in their early 50's, and decline steadily with age. For example, among those observed at least three years, 31.1 percent of those who retired at ages 51-52 returned to work, whereas only 16.7 percent of those who retired at ages 65-66 did so.[14] In the sample of those observed at least five years, 36.1 percent of the youngest retirees returned to work. Of further interest is that in all samples, unretirement rates are very high and of similar magnitude for those who retire between ages 51 and 56, but at ages 57 and older, they drop off sharply. One possible explanation is that these early retirements might be driven by private pension incentives, rather than preferences for retirement leisure, in which case these retirees might be more inclined to seek other employment after retiring from their pension-providing job.

[12] The NLS cohort was born during 1907-21 and thus lies between the RHS and HRS cohorts.

[13] Because the sample of those observed at least five years contains only 112 black retirees, the black-white crossover could be an artifact of sampling variation.

[14] This pattern is consistent with that noted by Berkovec and Stern (1991) in the older NLS cohort, with Ruhm (1990) in the RHS cohort, and with Benitez-Silva (2000) in the HRS cohort.

4. Hazard Rates

While the unretirement rates in Table 2 show how likely a retiree is to ever return to work, it is also of interest to understand the timing of unretirement. For example, is a retiree most likely to return to work shortly after retiring or several years later? To answer this question, I turn to nonparametric hazard rates. The more familiar retirement hazard gives the probability of retirement conditional on not having yet retired; here I construct the *unretirement* hazard, 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. Figure 1 shows nonparametric, discrete hazard rates for men and women by years since first retirement. For both men and women, the profile initially rises then steadily declines. For men, the hazard rate peaks in the second year after retirement, at about 5.6 percent. For women, the lower peak of 4.8 percent is spread over the second and third years after retirement. The declining hazard after the second and third years is suggestive of state dependence (the longer a retiree has been out of the workforce, the less likely he or she is to return to work), but is also consistent with the presence of unobserved heterogeneity. Most importantly, the profiles suggest that unretirement is not predominantly a response to financial shocks, since if this were the case we might see a flat profile over time.[15]

5. Correlates of Unretirement

I next turn to a descriptive examination of the factors correlated with unretirement. In particular, I examine the association between unretirement and measures of retirement planning, pre-retirement resources, pre-retirement preferences, reasons for retirement, satisfaction with retirement, and post-retirement resources. I discuss each in turn.

[15] This pattern does not rule out all financial shocks, since it could be consistent with informational shocks arising shortly after retirement as individuals become aware of their true state of retirement preparedness.

Retirement Plans

The first panel of Table 3 shows several measures of retirement planning, all of which were evaluated *before* retirement (at the baseline interview in most cases). Surprisingly, unretirees are no more likely to have short planning horizons (next few months or the next year), to have given retirement little thought,[16] or to have worried about retirement income before retiring.[17] However, future unretirees rated themselves significantly more likely to be working full time at age 65 (22.9 versus 17.3 percent), and 80 percent of future unretirees said *before retirement* that they *intended to work* during retirement, compared to 68.2 percent of those who did not unretire.[18] The finding that 80 percent of unretirees expected to work during retirement strongly suggests that unretirement is not predominantly a response to negative shocks arriving after retirement. Moreover, the finding that 68 percent of those who did not in fact return to work had planned to do so suggests that any post-retirement shocks might have been positive shocks. This result is supported by Mastrogiacomo (2003) who found older Dutch households were overly pessimistic about their financial situation in comparisons of ex-ante expectations and ex-post realizations.

In sum, there is little descriptive evidence that unretirement stems from planning failures, but some evidence that unretirement transitions tend to be anticipated prior to retirement. Furthermore, retirement expectations appear to err on the side of excessive pessimism about retirement rather than uninformed optimism.

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[16] Respondents were asked: "How much have you thought about retirement? A lot, some, a little or hardly at all?"

[17] 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." In wave 1, the first part of the question was slightly different: "Now for things that worry some people about retirement. Please tell me …"

[18] Respondents were asked: "Some people want to stop paid work entirely when they retire, while others would like to continue doing some paid work. What about you?"

Pre-Retirement Resources

The second panel of Table 3 compares pre-retirement resources for the two groups. Interestingly, average earnings in the wave before retirement are significantly *higher* among those who later unretire ($42,393 v. $36,509),[19] and total income and net worth are quite similar across the groups. Thus, on the cusp of retirement the groups are of similar financial status, with future unretirees being better off in terms of final salary. The data do not suggest that those who unretire were less financially prepared at the time of retirement (and consequently more vulnerable to shocks), and may hint at the importance of non-economic reasons for unretirement.

Even though pre-retirement net worth is similar across the groups, portfolio composition differs; future unretirees had significantly lower stock holdings in the wave before retirement — $24,693 compared to $47,810.[20] Since all retirements in my sample occur during a period of unprecedented growth in the stock market,[21] it is possible that those with greater exposure to the stock market found themselves in an unexpectedly strong financial position at retirement. 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.[22]

Finally, in the wave before retirement future unretirees were no less likely to work for an employer offering retiree health insurance or to have a defined benefit pension plan,[23] which

[19] This was also noted by Benitez-Silva (2000).

[20] Respondents with zero stock holdings are included in the average.

[21] According to the National Bureau of Economic Research, the economic expansion of the 1990's began in March 1991 and ended in March 2001; it is the longest expansion on record (Hall et al., 2001).

[22] Ameriks, Caplin and Leahy (2002) analyzed data for TIAA-CREF participants in January 2000 and January 2001.

[23] Because my sample is composed of retirees, rates of pension coverage are higher than average. For example, 60 percent of non-retired workers reported having an employer pension (of any type) at wave 1, whereas 66 percent

adds further evidence that unretirement transitions are not predominantly related to resource constraints.[24]

Pre-Retirement Preferences

Prior to retirement, respondents were asked a number of questions about their preferences. One explanation for partial retirement is that older workers desire to reduce their hours gradually, but are constrained to work full-time in their current jobs. To bypass this constraint, they move directly from their career jobs to "bridge jobs," at which they typically work fewer hours and earn a lower hourly wage (Ruhm, 1990). The third panel of Table 3 shows unretirees are no more likely to say in the wave prior to retirement that they *want* to reduce their hours on their current job. They report being slightly less *able* to reduce hours on their current job, but the difference is statistically insignificant.

One of the more interesting aspects of Table 3 is that unretirees are significantly more likely to report *less* enjoyment from leisure time spent with their spouse than those who remain retired; 82.1 percent of those who go back to work say leisure time with their spouse is extremely or very enjoyable, compared to 87.7 percent of those who remain at home.[25] Respondents are asked this question only in the first survey wave so it is not possible to evaluate whether preferences for joint leisure change before and after retirement. Nonetheless, it is clear that many respondents are well aware of their preferences for joint leisure before they retire, and thus may enter retirement with the option of returning to work in mind.

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of those who retire by the fifth wave of the survey reported having an employer pension at wave 1. Among those who do not retire by the fifth wave, 55 percent reported having an employer pension at wave 1.

[24] In contrast, Ruhm (1990) and Benitez-Silva (2000) find that unretirement is less likely among pensioners, and Benitez-Silva (2000) also finds that labor force re-entry is less likely among those with health insurance.

[25] Respondents were asked: "Generally speaking, would you say that the time you spend together with your (husband/wife/partner) is extremely enjoyable, very enjoyable, somewhat enjoyable, or not too enjoyable?"

Reasons for Retirement and Retirement Satisfaction

The fourth panel of Table 3 compares reasons for retirement across the two groups (evaluated in the wave immediately following retirement). Not surprisingly, those who report feeling "forced" to retire are more likely to later return to work (36.3 versus 30.0 percent),[26] but there are few differences with respect to other reasons such as retiring because of poor health, retiring to "do other things," and retiring to spend more time with family.[27] The fifth panel examines differences in retirement satisfaction. Although unretirees are somewhat less likely to describe retirement as "very satisfying" (62.6 versus 68.8 percent) and somewhat more likely to feel their retirement years are "not as good" as their pre-retirement years (18.8 versus 12.4 percent),[28] these differences are not statistically significant. On the other hand, there are sharp differences between the groups in their likelihood of reporting in the wave immediately following retirement that they are bothered by "not having enough income to get by" (46.4 versus 38.6 percent).[29] Although this seems to support the hypothesis that retirement brings negative shocks, the longitudinal pattern in responses suggests otherwise: respondents in *both* groups were much more pessimistic about having enough retirement income before they retired than after. For example, 55 percent of future unretirees were worried about retirement income before retirement (panel 1), but only 38.6 percent were actually bothered by not having enough income after retirement. Similarly, 51 percent of those who never unretired were worried before

[26] Respondents were asked: "Thinking back to the time you (partly/completely) retired, was that something you wanted to do or something you felt you were forced into?"

[27] Respondents were asked: "I'm going to read you a list of reasons why some people retire. Please tell me whether, for you, these were very important reasons for retirement, moderately important, somewhat important, or not important at all: [1] Poor health; [2] Wanted to do other things; [3] Wanted to spend more time with my family."

[28] Respondents were asked: "Thinking about your retirement years compared to the years just before you retired, would you say the retirement years have been better, about the same, or not as good?"

[29] 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."

retirement (panel 1), but only 46.4 percent were actually bothered by not having enough income after retirement. In other words, the longitudinal pattern suggests that realized retirement exceeds expectations for many retirees, bringing positive rather than negative information shocks to the newly retired.

Resources After Retirement

Finally, I examine retirement resources in the wave immediately after retirement. Just as earnings were higher for future unretirees in the wave before retirement, total income is also higher among future unretirees right after retirement.[30] Employer pension income is somewhat lower for future unretirees, but the difference is statistically insignificant.[31] As was the case before retirement, net worth is similar across groups in the wave after retirement.

Some 53.3 percent of unretirees report that their spouse is employed compared to just 45.2 percent of those who stay at home. This is consistent with the evidence that those who enjoy spending leisure time with their spouse are more likely to stay at home, and suggests that complementarities in spousal leisure may impact post-retirement transitions, just as has been noted in a number of papers analyzing the initial retirement transition (see e.g., Gustman and Steinmeier, 2002, Maestas, 2001).

In the period after retirement, annual out-of-pocket medical expenses are lower among future unretirees, and they and their spouses tend to be in better health. This could be partly due to an age effect (unretirees are younger), but may also be because health conditions limit work

[30] In this analysis I exclude 54 cases for which there is no survey interview between retirement and unretirement in order to measure household resources after retirement but prior to unretirement. This disproportionately excludes respondents who return to work shortly after retiring.

[31] On the other hand, Social Security income is significantly lower for future unretirees, but this could in part reflect the fact that they are younger on average and thus less likely to be eligible for Social Security; furthermore, if they were eligible to claim Social Security benefits, their benefits would be reduced in accordance with the Social Security earnings test.

ability or reduce its desirability. The correlation in spousal health statuses among unretirees likely reflects complementarities in leisure time; retirement is less desirable when one's spouse works, and one's spouse is more likely to work when in better health.

6. Characteristics of Post-Retirement Jobs

A simple way of testing whether unretirement differs from partial retirement is to examine the characteristics of jobs held before and after retirement. In Table 4, I compare pre- and post-retirement jobs on a number of dimensions for the sample of unretirees. Much like bridge jobs, unretirement jobs involve lower hourly wages than pre-retirement jobs ($12.57 v. $21.11), fewer hours worked per week (30.1 v. 42.2), and fewer weeks worked per year (41.8 v. 49.8). Consequently, annual earnings are significantly lower ($10,192 v. $42,045). Whereas only 12.9 percent of respondents worked part time before retirement, nearly half (48.7 percent) worked part time after retirement. Self-employment is more likely on post-retirement jobs than on pre-retirement jobs, and individuals are much less likely to have employer-provided health insurance coverage. Post-retirement jobs are also less stressful and require less physical effort.

Consistent with Ruhm's (1990) analysis of bridge jobs, Table 4 also reveals a fair amount of industry shifting after retirement. Most notably, individuals shift out of manufacturing jobs and into service industries. There is a similar occupational shift out of managerial jobs and into sales, administrative support, and services positions. Some 58.5 percent change industries and 54.6 percent change occupations.[32]

Finally, it is also of interest to estimate the average job tenure of unretirement positions. Since many individuals have not yet exited their unretirement jobs, observed job tenure is right censored. To obtain an estimate of the uncensored mean, I estimate a censored normal regression

[32] These figures were calculated over disaggregated 3-digit industry and occupational codes rather than the aggregated categories shown in Table 4.

model with no covariates. The model indicates that individuals hold their post-retirement jobs for an average of 4.1 years. Though not fully comparable, this is in the neighborhood of the 5.2 year span that Ruhm (1990) calculated for time spent in partial retirement. In sum, the descriptive evidence suggests many similarities between unretirement and partial retirement jobs.

7. Models of Unretirement

In this section I consider three empirical models. The first compares expectations and realizations of work during retirement to gain insight into expectations formation, and to assess whether individuals make systematic forecasting errors. The second model tests the effect of work expectations versus changes in household economic variables on the probability of unretirement. This model offers a direct test of the two competing hypotheses about unretirement. Finally, the third model considers the entire retirement process (in particular the possibility that retirement and unretirement are jointly determined) by estimating the probability an individual chooses a particular retirement path. The paths include partial retirement, full retirement, full retirement and subsequent unretirement, and no retirement. I estimate this model as a multinomial logit model with partial retirement as the reference group; this enables me to examine whether work expectations and other variables differentially affect the probabilities of unretirement and partial retirement. If not, then this test would suggest that unretirement is similar to partial retirement.

Expectations and Realizations

To measure expectations of work in retirement, I use responses to the survey question about plans to continue doing paid work during retirement.[33] The question was asked prior to

[33] Respondents were asked: "Some people want to stop paid work entirely when they retire, while others would like to continue doing some paid work. What about you?

retirement at the baseline interview in 1992. Since the survey question does not distinguish unretirement from partial retirement, I count both as work realizations in this part of the analysis. To assess whether an individual was overly optimistic, pessimistic or accurate in his or her expectations, I create a new variable equal to the work realization minus the work expectation. Since the expectation and realization variables are both dummy variables, values of -1 indicate overly pessimistic expectations (the individual expected to work but *did not* in fact do so), values of 0 indicate accurate expectations, and values of 1 indicate overly optimistic expectations (the individual expected *not* to work but in fact did so). Table 5 shows the percent of retirees falling in each category. Overall, 34 percent of retirees were overly pessimistic about working in retirement (they thought they would but in fact did not), whereas less than 9 percent were overly optimistic (they thought they would *not* work but in fact did). Remarkably, over half the sample (57 percent) reported accurate expectations. This pattern echoes the results from Table 3, which suggest post-retirement surprises tend to be positive. The accuracy of work expectations varies somewhat by demographic group, with whites, those with higher education, and younger retirees being most accurate. However, these same groups also tend toward overly optimistic expectations relative to the other groups. Not surprisingly, expectations are more accurate when elicited closer to retirement.[34]

Column 1 of Table 6 shows marginal effects from a probit model of the probability an individual expects to work during retirement. The model includes demographic variables and health status, several variables measuring retirement planning and preferences, and several variables measuring retirement resources. Because work expectations were asked in Wave 1 only, all covariates are measured at Wave 1 as well. The marginal effects for the retirement

[34] This result is consistent with findings in Rohwedder and Kleinjans (2004) who find individuals become more informed about their expected financial situation in retirement as they approach their target retirement date.

planning variables generally suggest that individuals incorporate self-knowledge about the extent to which they have planned for retirement and/or worry about retirement into their expectations. For example, those who have given retirement little or no thought are 8.6 percentage points more likely to expect to work during retirement. Similarly, those who are worried about not having enough income or about not being productive are respectively 9.1 and 11.9 percentage points more likely to expect to work during retirement. An exception to this pattern arises for individuals with short planning horizons, who are no more likely to expect to work during retirement.

Turning to the economic variables, those who experienced shocks over the past 20 years are 6.9 percentage points more likely to expect to work during retirement. This suggests that as individuals approach retirement, they may make work plans if they judge their finances to be below targeted levels. The other economic variables (income, net worth, stock ownership, pension ownership, and retiree health insurance) have only small and statistically insignificant effects on work expectations, a finding which points to the potential importance of non-economic reasons for working during retirement.

The second column of Table 6 shows marginal effects from a probit model of the probability an individual actually undertook work during retirement (by way of either unretirement or partial retirement), and the third column presents coefficients from an ordered probit model of the difference between work realizations and work expectations, (as before taking values of –1 (pessimistic), 0 (accurate), and 1 (optimistic)). In column 3, negative coefficients indicate a tendency toward pessimism, whereas positive coefficients indicate a tendency toward optimism. The results for column 3 suggest surprisingly few systematic relationships between the propensity to make forecast errors and the demographic, planning, and

economic variables. Most significant are the findings that those who worried (a lot or somewhat) about "not doing anything productive or useful" during retirement tend to err on the side of excessive pessimism, whereas those who were older at baseline or self-employed tend to err on the side of excessive optimism. Looking across columns shows how these relationships arise: those who worried about productivity were more likely to expect to work in retirement (col. 1), but were no more likely to realize work in retirement (col. 2), and thus were overly pessimistic in their expectation (col. 3).[35] In contrast, the self-employed were overly optimistic on account of being no more likely than wage and salary workers to expect to work, but 16.7 percentage points more likely to realize work. Finally, it is surprising to note that stock ownership is unrelated to both work expectations and realizations, and suggests that the stock market in the 1990s played less of a role in reducing unretirement probabilities for stockholders than suggested by the descriptive patterns in Table 3.

Unretirement

I next take advantage of the expectations data to test whether unretirement transitions are anticipated or unanticipated. Table 7 shows marginal effects from a probit model of the probability of unretirement as a function of work expectations, demographic characteristics and health, retirement resources, retirement reasons, retirement satisfaction and changes in the household economic environment after retirement. The model is estimated once for the entire sample of retirees observed at least three years past retirement, then again for the subsample of married individuals in order to assess the importance of spousal characteristics.

[35] A word of caution: the entries in columns 1 and 2 are marginal effects, where as the entries in column 3 are ordered probit coefficients. Although columns 1 and 2 are comparable, column 3 can be compared with the others on the basis of sign and statistical significance only.

The marginal effects in column 1 reveal that few of the demographic variables have any affect on the probability of unretirement. Two exceptions are gender and health status. Men are six percentage points more likely than women to unretire, and the effect is even stronger in the sample of married persons (10.3 percentage points). Health has a very strong effect on the probability of unretirement, with those in fair or poor health being 12.8 percentage points less likely to unretire.

Surprisingly, pre-retirement measures of retirement resources such as income, wealth, an employer pension, and access to retiree health insurance have little measurable effect on unretirement. If unretirement were a response to negative financial shocks, greater retirement resources should have a protective effect, reducing the probability of unretirement. Among the retirement planning variables, pre-retirement plans to work in retirement increase the probability of unretirement by 6.4 percentage points, which on a base of 22 percent amounts to a 29 percent increase in the probability of unretirement. Among married persons, plans to work in retirement increase the probability of unretirement by nearly 10 percentage points, which amounts to a 45 percent increase in the probability of unretirement. This is strong evidence in favor of the hypothesis that unretirement transitions are largely anticipated. Consistent with this finding, pre-retirement worries about retirement income have an independent effect on the probability of unretirement (apart from their effect through work expectations themselves; see Table 6), increasing the likelihood of unretirement by 6.3 percentage points. This offers further evidence that most individuals are aware of the adequacy of their retirement resources before retirement and incorporate this information into their choice of retirement path.

Table 7 also reveals no systematic effect of preferences for reduced hours on the pre-retirement job, or reasons for retirement such as feeling forced to retire. Similarly, measures of

retirement satisfaction have no statistically significant effect on the probability of unretirement, which suggests realized retirement is no worse than expected.

Finally, the model in Table 7 also shows the effect of variables measuring changes around the time of retirement. Surprisingly, a 25 percent or greater drop in (non-housing) net worth (measured as the change in net worth from the survey waves right before and after the date of retirement) has little impact on the probability of unretirement. Although it cannot be said for certain whether these wealth changes were anticipated or unanticipated, the result casts further doubt on the hypothesis that unretirement is primarily a response to wealth shocks. Not surprisingly, experiencing a health shock reduces the probability of unretirement by 6.7 percentage points;[36] however, conditional on health, there is little effect of a 25 percent or greater increase in own out-of-pocket medical expenses. That said, the variables measuring out-of-pocket expenses are heavily imputed, and a finding of no effect is also consistent with the presence of measurement error.[37] In the model for married couples, a health shock incurred by one's spouse has little impact on one's own unretirement probability, nor does a 25 percent or greater increase in spouse's out-of-pocket expenses.

Retirement Paths

Because the results presented thus far strongly suggest that most unretirements are anticipated prior to retirement, I explore the possibility that unretirement is qualitatively similar to partial retirement. A straightforward way of doing this is to estimate a multinomial logit model with four retirement path choices: 1) partial retirement; 2) full retirement with subsequent

[36] Health shocks are measured by the change in the number of chronic disease conditions ever had by a respondent before and after retirement.

[37] The out-of-pocket medical expenses variables, which were taken from the RAND HRS, are heavily imputed, especially in the first two waves of the survey. Moreover, they are imputed on a cross-sectional basis only, which imparts further noise to measures of change over time in medical expenses.

unretirement; 3) full retirement with no subsequent unretirement; and 4) no retirement (by the year 2000). By designating partial retirement as the base category, the relative risk ratios for the unretirement choice will indicate whether there exist systematic differences in the determinants of unretirement and partial retirement. As defined here, partial retirement involves a transition directly from work to partial retirement with no period of full retirement in between. The model also demonstrates how one might conceptualize a simple model in which individuals choose among a set of retirement transition paths, rather than among a set of retirement dates.

The third column of Table 8 gives relative risk ratios for unretirement relative to partial retirement for the full sample (top panel) and the sample of married respondents (bottom panel). Aside from the quadratic age function, no variables have relative risk ratios that are significantly different from 1. Thus there is no evidence that unretirement is differentially related to poor planning or economic resources prior to retirement; the determinants of partial retirement and unretirement appear to be the same. One qualification is that the multinomial logit coefficient for the work expectations variable is just outside the margin of statistical significance (p-value=.069), and points to the possibility that at least some unretirees were less likely than partial retirees to have expected to work during retirement.

In comparisons of partial retirement and full retirement, work expectations increase the relative probability of partial retirement, as does placing greater value on work in and of itself. In comparisons of partial retirement and no retirement, a greater reported probability of working full time at age 65 is associated with a greater relative probability of not having retired by the year 2000, whereas expectations of work in retirement are associated with a greater relative probability of choosing partial retirement. This nicely illustrates the ability of these two variables to distinguish expectations of work until first retirement and expectations of work after first

retirement. Of final interest is that those with higher household income and those with an employer pension have a greater relative probability of choosing partial retirement over continued work in the career job, and those who report having given retirement little or no thought have a much greater relative probability of not having retired by 2000. This latter finding is again consistent with Rohwedder and Kleinjans (2004) who find that retirement knowledge increases as individuals approach their target retirement age.

8. Conclusions

Despite many news articles to the contrary, the evidence presented in this paper strongly supports the hypothesis that unretirement transitions are mostly anticipated prior to retirement. In comparisons of work expectations and realizations, I find that over half (55 percent) of HRS respondents had accurate expectations about working during retirement. Some 36 percent were overly pessimistic—they expected to work but did not in fact do so. Only 9 percent were overly optimistic, expecting not to work but in fact doing so. If anything, expectations err on the side of excessive pessimism about the future rather than uninformed optimism. 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).

In support of this conclusion, I show that unretirement is not associated with poor retirement planning or inadequate retirement resources. For example, those who reported (at baseline) either a short planning horizon or having given retirement little or no thought were no more likely to later unretire. Moreover, simple comparisons of unretirees with those who remain retired reveal that unretirees have higher earnings in the period before retirement, higher total income in the period after retirement, and similar wealth levels both before and after retirement.

In addition, I show that the probability of unretirement is unresponsive to large changes in non-housing net worth or out-of-pocket medical expenses. This suggests that these changes were largely anticipated before retirement.

My analyses show that unretirement is not predominantly a response to economic shocks arriving after retirement, but that it is an alternative retirement path, similar to partial retirement. The jobs held by unretirees have many of the same characteristics as bridge jobs held by partial retirees, and there are few differences in the determinants of partial retirement and unretirement.

Unretirement and partial retirement are empirically important phenomena. Nearly one-half of retirees follow a non-traditional path that involves partial retirement and/or unretirement. Among those who retire, nearly one-quarter of retirees observed for at least five years return to work at some point during the period. The unretirement rate is even higher among younger retirees (as high as 36 percent among those retiring at ages 51-52). The evidence presented here suggests that our usual specification of the retirement decision problem as a decision about a single event misses the fact that for a large fraction of people, the decision problem is more aptly characterized as a decision over a set of alternative retirement transition *paths*. Future research might explore how richer specifications of the outcome variable in retirement models could generate new insights into policy-relevant aspects of retirement behavior.

DATA APPENDIX

Procedure for Imputing 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 one 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, but valid data existed for only one observation. 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.[38] 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 completely 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.

[38] I accept dates from later waves only if they rationalize the reported labor force pattern, since a date reported in a later wave may pertain to a second retirement following a period of unretirement.

Procedure for Imputing 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 falls 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 is first reported and the prior interview. Some 110 unretirement dates were imputed in this fashion.

Although only wave-to-wave transitions may be observed in the HRS, the use of labor force transition dates lends a more precise accounting of the time between transitions. Still, such dates are solicited only with respect to the labor force state reported at the interview. That is if an individual is retired in two adjacent waves, he will be asked his retirement date in the first wave, and, depending on the wave, may or may not be asked his retirement date in the second wave. In no case is he asked whether he undertook any work for pay during the interval between waves. Thus, there is no way of systematically detecting unretirements spells that begin and end entirely between waves. One could consider inferring unretirement whenever the retirement status did not change in adjacent waves but the retirement date did change, but it is impossible to know whether the individual misreported one of the dates, revised his interpretation of his retirement date, or indeed returned to work and left again between waves. Moreover, skip patterns in the later waves of the survey are such that individuals are not asked their retirement date if they gave the same retirement status as in the previous wave.

References

Ameriks, John; Caplin, Andrew and Leahy, John. "Retirement Consumption: Insights from a Survey," National Bureau of Economic Research, Inc, NBER Working Papers: 8735, 2002.

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

Benitez-Silva, Hugo. "Micro Determinants of Labor Force Status among Older Americans," Stony Brook, NY: State University of New York at Stony Brook, 2000.

Berkovec, James and Stern, Steven. "Job Exit Behavior of Older Men." *Econometrica*, 1991, *59*(1), pp. 189-210.

Forni, Lorenzo. "An Analysis of Retirement Expectations and Realizations: Evidence from the Us Health and Retirement Survey," Research Department, Public Finance Division, Bank of Italy, 1999.

Gustman, Alan L and Steinmeier, Thomas L. "Partial Retirement and the Analysis of Retirement Behavior." *Industrial and Labor Relations Review*, 1984, *37*(3), pp. 403-15.

____. "Social Security, Pensions and Retirement Behavior within the Family," National Bureau of Economic Research, Inc, NBER Working Papers: 8772, 2002.

Haider, Steven and Stephens, Melvin. "Is There a Retirement-Consumption Puzzle? Evidence Using Subjective Retirement Expectations," National Bureau of Economic Research, Inc, NBER Working Papers: w10257, 2004.

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

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

Maestas, Nicole. "Labor, Love and Leisure: Complementarity and the Timing of Retirement by Working Couples," UC Berkeley Department of Economics, Berkeley, CA, 2001.

Mastrogiacomo, Mauro. "On Expectations, Realizations and Partial Retirement," Amsterdam: Vrije Universiteit te Amsterdam, Tinbergen Institute and Centraal Planbureau, 2003.

Rohwedder, Susann and Kleinjans, Kristin. "Dynamics of Individual Information About Social Security," RAND, 2004.

Ruhm, Christopher J. "Bridge Jobs and Partial Retirement." *Journal of Labor Economics*, 1990, *8*(4), pp. 482-501.

Rust, John. "Behavior of Male Workers at the End of the Life Cycle: An Empirical Analysis of States and Controls," D. A. Wise, *Issues in the Economics of Aging.* The University of Chicago Press, 1990, pp.317-79.

Smith, Sarah. "Can the Retirement Consumption Puzzle Be Solved? Evidence from Uk Panel Data," Institute for Fiscal Studies, IFS Working Papers: W04/07, 2004, 28 pages.

Figure 1. Unretirement Hazard Rates by Years Since Retirement

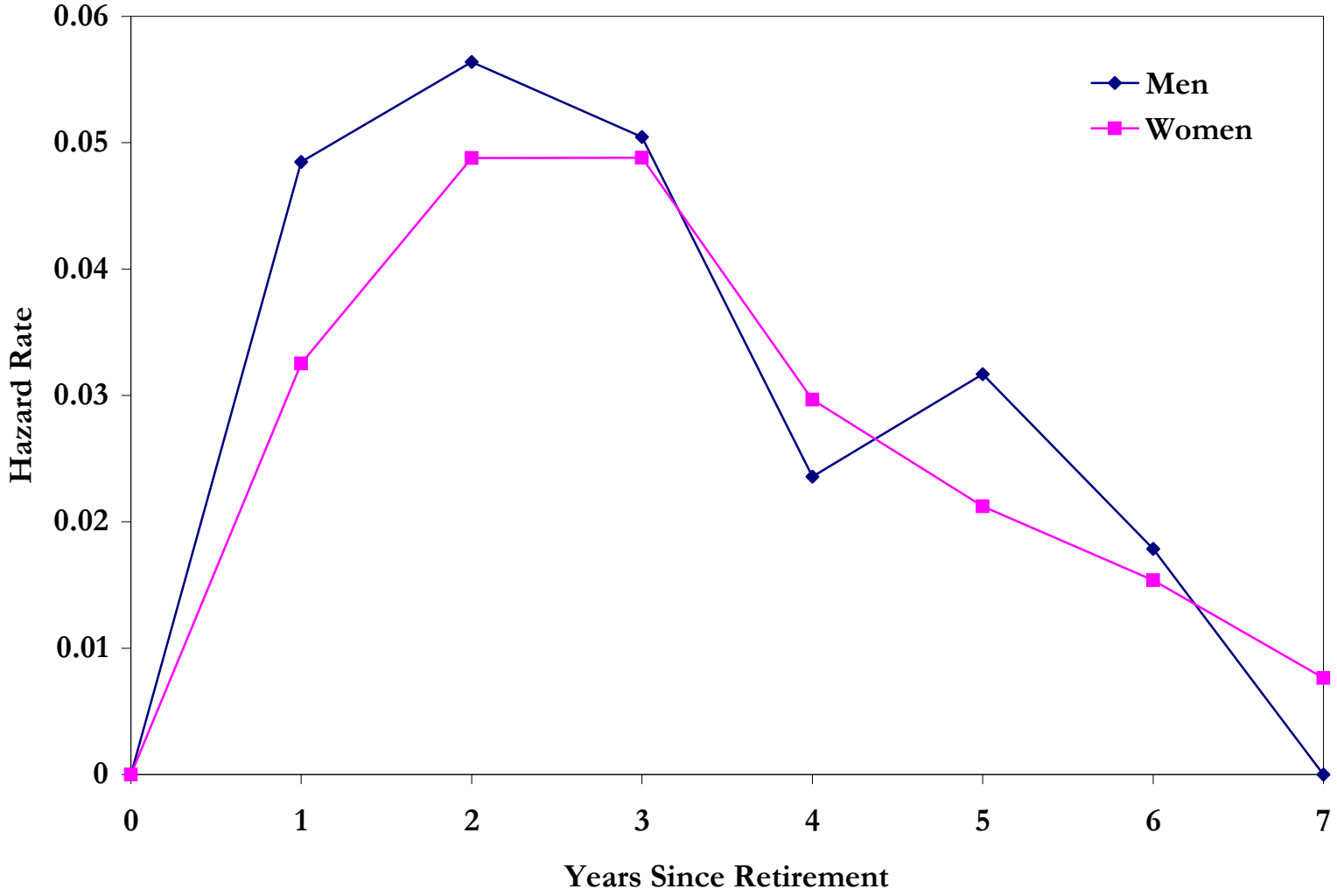

Table 1. Retirement Paths

	Time Since First Retirement	
	3+ Years	5+ Years
1. Any Work --> Full Retirement	54.6	52.5
2. Any Work --> Full Retirement --> Part-Time Work	9.6	11.8
3. Any Work --> Full Retirement --> Full-Time Work	3.7	3.3
4. Any Work --> Partial Retirement	14.1	10.5
5. Any Work --> Partial Retirement --> Full Retirement	11.0	12.7
6. Any Work --> Partial Retirement --> Full-Time Work	7.0	9.1
Number of observations	1599	859

Table 2. Unretirement Rates

		Time Since First Retirement				
	Overall	1+ Years	2+ Years	3+ Years	4+ Years	5+ Years
All	14.4	16.2	18.3	20.2	22.3	24.2
Gender						
Men	15.6	17.4	19.5	21.6	24.4	26.3
Women	13.2	15.0	17.0	18.7	20.0	21.7
Race/Ethnicity						
White	14.2	16.0	18.1	20.1	22.4	24.5
Black	16.9	19.0	20.6	23.4	22.6	22.8
Hispanic	13.6	15.3	16.6	18.4	22.5	22.1
Education						
More than 12 Years	15.1	16.9	18.9	21.3	24.1	25.1
12 Years or Less	13.9	15.7	17.8	19.5	21.0	23.6
Marital Status						
Married	14.6	16.2	18.2	19.8	21.9	23.8
Not Married	13.7	15.9	18.4	21.9	24.2	26.9
Retirement Status						
Fully Retired	13.9	15.7	17.8	19.5	21.5	22.4
Partly Retired	15.7	17.5	19.3	21.9	24.1	28.2
Retirement Age						
51-52	25.4	26.7	28.9	31.1	32.2	36.1
53-54	24.2	24.6	26.7	28.7	30.3	33.8
55-56	25.1	25.7	27.6	28.0	30.3	31.9
57-58	11.7	13.3	14.3	15.9	16.7	17.0
59-60	13.4	14.9	16.3	17.8	19.8	23.1
61-62	12.0	13.8	15.9	17.1	18.5	19.4
63-64	13.0	14.9	16.7	19.8	21.6	23.6
65-66	9.2	10.6	12.4	16.7	23.4	26.8

Notes: Column headings denote alternate sample definitions in which respondents are observed for at least 1, 2, 3, 4 or 5 years after their first retirement. The sample in the column labled "Overall" includes all retired respondents, regardless of time since retirement.

Table 3. Mean Characteristics of Retirees by Unretirement Status

Variable		Subsample Remaining Retired		Subsample Returning to Work	T-Ratio
Retirement Planning (Pre-Retirement)					
Short Planning Horizon		25.0		26.0	-0.35
Has Given Retirement Little or No Thought		27.1		30.0	-0.96
Worries About Not Having Enough Income		51.0		55.4	-1.34
Percent Chance Will Work FT at 65		17.3		22.9	-2.77
Plans to Keep Working in Retirement		68.2		80.0	-4.41
Large Unexpected Expenses/Events in Last 20 Yrs		26.8		30.5	-1.28
Likely to Move After Retirement		25.4		29.5	-1.28
Retirement Resources (Pre-Retirement)					
Earnings	$	36,509	$	42,393	-2.58
Total Income	$	77,133	$	79,706	-0.49
Net Worth	$	356,494	$	354,836	0.05
Owns Stock		42.8		37.5	1.73
Value of Stock Holdings	$	47,810	$	24,693	2.88
Self-Employed		12.5		17.9	-2.24
Retiree Health Insurance		74.5		78.2	-1.10
Has Employer Pension		68.1		65.7	0.78
Main Pension is DB Plan		72.5		71.6	0.26
Early Retirement Age on DB Plan		56.7		57.1	-0.72
Normal Retirement Age on DB Plan		59.7		59.9	-0.32
Retirement Preferences (Pre-Retirement)					
Wants to Reduce Hours		26.2		22.5	1.09
Able to Reduce Hours on Job		26.7		23.9	0.94
Age Difference (R-Spouse's Age)		0.8		1.4	-1.58
Enjoys Spending Leisure Time with Spouse		87.7		82.1	2.09
Places High Value on Work		34.9		35.6	-0.22
Worries about Not Being Productive in Retirement		33.6		33.8	-0.07
Retirement Reasons (Post-Retirement)					
Felt Forced to Retire		30.0		36.3	-1.83
Retired for Health Reasons		25.9		25.1	0.21
Retired To Do Other Things		57.8		56.0	0.38
Retired for Family Reasons		60.4		54.1	1.28
Retirement Satisfaction (Post-Retirement)					
Very Satisfied with Retirement		68.8		62.6	1.32
Retirement Years Worse Than Pre-Retirement Years		12.4		18.8	-1.48
Bothered by Not Having Enough Income		38.6		46.4	-2.20
Bothered by Not Being Productive		31.6		36.8	-1.52
Retirement Resources (Post-Retirement)					
Net Worth	$	414,849	$	414,400	0.01
Total Income	$	60,820	$	73,090	-2.34
Capital Income	$	14,068	$	17,475	-1.17
Employer Pension Income	$	4,330	$	3,506	1.33
Social Security Benefit Income	$	2,368	$	1,475	3.82
Spouse Employed		45.2		53.3	-2.17
OOP Medical Expenses	$	1,745	$	1,391	1.62
Spouse's OOP Medical Expenses	$	2,009	$	1,273	2.89
Fair or Poor Health		21.5		13.3	3.53
Spouse in Fair or Poor Health		15.5		18.1	-0.90

Notes: Full sample includes only retirees observed for at least three years after retirement. All dollar amounts in 2000$. Pre-Retirement indicates observation made in survey wave prior to reported retirement date, except that if the question was not asked in all waves, the wave 1 observation is used. Post-Retirement indicates observation made in survey wave after reported retirement date but before any reported unretirement date.

Table 4. Mean Characteristics of Pre- and Post-Retirement Jobs of Unretirees

Job Characteristics	Pre-Retirement Job	Post-Retirement Job
Hourly Wage	$21.11	$12.57
Annual Earnings	$42,045	$10,192
Part-Time Job	12.9	48.7
Hours Worked per Week	42.2	30.1
Weeks Worked per Year	49.8	41.8
Self-Employed	16.0	26.9
Health Insurance	66.4	45.1
Job is Stressful	63.6	32.5
Job Requires "Lots of Physical Effort"	17.1	13.6
Job Requires Stooping/Kneeling	11.2	11.6
Job Requires Good Eyesight	61.7	66.5
Job Requires Heavy Lifting	7.9	3.8
Industry		
Ag/Forestry/Mining/Construction	10.7	12.9
Manufacturing	28.1	12.6
Wholesale/Retail	12.2	12.8
Services	49.1	61.7
Occupation		
Managerial/Professional Specialty	37.0	27.3
Sales/Admin Support	26.5	31.3
Services	10.4	17.9
Precision Production/Craft/Repair	15.9	14.8
Operators/Laborers	10.2	8.7

Notes: Occupation and industry classifications based on aggregated 3-digit 1980 U.S. Census Occupation Codes and aggregated 3-digit 1980 Census Standard Industrial Classification Codes. All dollar amounts in 2000$. "Job is Stressful" is a dummy for whether the job is stressful all or most of the time. Similarly, the job requirement variables (i.e., Physical Effort, Sooping, Eyesight, Lifting) are dummies for whether the job has the named characteristic all or most of the time.

Table 5. Expectations and Realizations of Working in Retirement

	Pessimistic Expectations (Expected to Work but Didn't)	Accurate Expectations	Optimistic Expectations (Didn't Expect to Work but Did)
All	34.1	57.3	8.6
Gender			
Men	34.4	57.4	8.2
Women	33.8	57.1	9.1
Race/Ethnicity			
White	33.1	58.1	8.8
Black	40.3	52.3	7.4
Hispanic	43.3	50.0	6.7
Education			
More than 12 Years	29.6	61.0	9.4
12 Years or Less	37.6	54.5	8.0
Marital Status			
Married	32.0	59.6	8.4
Not Married	42.0	48.8	9.2
Retirement Age			
51-61	31.0	58.5	10.5
62 or Older	42.0	48.8	9.2
Distance from Retirement			
Expectations Elicited <3 Yrs From Ret	31.7	59.1	9.3
Expectations Elicited 3+ Yrs From Ret	38.0	54.4	7.5

Notes: Sample is all individuals observed 3 or more years after first retirement. An individual is considered to "work in retirement" if he either transitions directly to partial retirement or unretires.

Table 6. Expectations and Realizations of Working in Retirement

	Expects to Work in Retirement (Probit)	Realizes Work in Retirement (Probit)	Realization-Expectation (Ordered Probit)
Demographics & Health (Pre-Retirement)			
Age (in 1992)	-0.221	-0.057	0.276
	(0.086)	(0.088)	(0.216)
Age Squared	0.002	0.000	-0.003
	(0.001)	(0.001)	(0.002)
Male	0.108	0.072	-0.073
	(0.027)	(0.030)	(0.072)
Black	0.032	-0.002	-0.040
	(0.038)	(0.045)	(0.110)
Hispanic	0.003	-0.014	0.011
	(0.057)	(0.064)	(0.157)
Other	0.006	-0.097	-0.241
	(0.135)	(0.096)	(0.311)
Married	-0.075	-0.034	0.089
	(0.037)	(0.042)	(0.102)
Education <=12 years	0.011	-0.037	-0.087
	(0.030)	(0.032)	(0.072)
Fair or Poor Health	-0.006	-0.116	-0.206
	(0.040)	(0.040)	(0.108)
Retirement Planning (Pre-Retirement)			
Short Planning Horizon	-0.017	0.018	0.064
	(0.030)	(0.034)	(0.080)
Little or No Thought Given to Retirement	0.086	0.028	-0.117
	(0.033)	(0.033)	(0.079)
Worries About Not Having Enough Income	0.091	0.039	-0.118
	(0.029)	(0.032)	(0.078)
Worries About Not Being Productive	0.119	0.002	-0.230
	(0.033)	(0.036)	(0.083)
Places High Value on Work	0.028	0.033	0.028
	(0.029)	(0.031)	(0.072)
Wants to Reduce Hours on Pre-Retirement Job	-0.029	-0.006	0.081
	(0.039)	(0.042)	(0.104)
Retirement Resources (Pre-Retirement)			
Large Unexpected Expenses/Events Last 20 Yrs	0.069	0.088	0.030
	(0.030)	(0.033)	(0.075)
Log Income (Pre-Retirement)	0.013	0.057	0.098
	(0.024)	(0.023)	(0.046)
ASINH Net Worth (Pre-Retirement)	0.000	0.006	0.010
	(0.004)	(0.004)	(0.009)
Owns Stock	-0.004	0.007	-0.005
	(0.031)	(0.032)	(0.076)
Self-Employed	0.038	0.171	0.292
	(0.053)	(0.051)	(0.119)
Employer Pension	-0.025	-0.076	-0.063
	(0.037)	(0.038)	(0.095)
Employer Offers Retiree Health Insurance	-0.029	-0.019	0.038
	(0.043)	(0.046)	(0.115)
Mean Dependent Variable	0.71	0.45	--
Number of observations	1438	1553	1438
Psuedo R-Squared	0.10	0.05	0.03

Notes: All variables are measured at the baseline interview in Wave 1. Dependent variable in second column takes value of one if respondent does any work after retirement, whether he transitions directly to partial retirement or unretires. Sample is all individuals observed at least 3 years after first retirement. Marginal effects are reported for probit models and coefficients are reported for ordered probit model. Standard errors (in parentheses) are clustered at the household level. All models include intercepts and six dummy variables for missing values on planning horizon and preference variables. As an alternative to the logarithmic function, I use the inverse hyperbolic sine function (ASINH), which is defined over nonpositive values. The function is: asinh(z)=ln(z+sqrt(1+z^2)).

Table 7. Probit Model of Unretirement

	All	Married
Demographics & Health (Pre-Retirement)		
Retirement Age	-0.060	-0.057
	(0.083)	(0.084)
Retirement Age Squared	0.000	0.000
	(0.001)	(0.001)
Male	0.057	0.104
	(0.030)	(0.032)
Black	0.029	0.002
	(0.049)	(0.059)
Hispanic	0.027	0.038
	(0.077)	(0.083)
Other	-0.040	-0.058
	(0.101)	(0.083)
Married	-0.048	
	(0.042)	
Education <=12 years	0.010	-0.005
	(0.030)	(0.033)
Fair or Poor Health	-0.129	-0.129
	(0.030)	(0.034)
Retirement Resources (Pre-Retirement)		
Log Income	0.019	0.008
	(0.017)	(0.020)
ASINH Net Worth	0.004	-0.000
	(0.005)	(0.006)
Self-Employed	0.052	0.053
	(0.057)	(0.061)
Employer Pension	0.038	0.046
	(0.039)	(0.040)
Employer Offers Retiree Health Insurance	0.029	0.032
	(0.042)	(0.047)
Large Unexpected Expenses/Events Last 20 Yrs	0.011	0.008
	(0.030)	(0.033)
Retirement Planning (Pre-Retirement)		
Short Planning Horizon	-0.003	0.008
	(0.033)	(0.037)
Little or No Thought Given to Retirement	0.041	0.028
	(0.033)	(0.036)
Plans to Keep Working in Retirement	0.065	0.096
	(0.031)	(0.035)
Worries About Not Having Enough Income	0.058	0.083
	(0.033)	(0.036)
Worries About Not Being Productive	0.022	-0.012
	(0.033)	(0.034)
Enjoys Spending Leisure Time with Spouse		-0.052
		(0.045)
Retirement Reasons (Post-Retirement)		
Wanted to Reduce Hours	-0.012	-0.023
	(0.038)	(0.042)
Felt Forced to Retire	0.013	-0.007
	(0.034)	(0.037)
Retired for Health Reasons	-0.003	0.004
	(0.054)	(0.059)
Retired to Do Other Things	0.006	-0.043
	(0.044)	(0.048)
Retired for Family Reasons	-0.016	0.010
	(0.044)	(0.047)
Retirement Satisfaction (Post-Retirement)		
Very Satisfied with Retirement	0.009	-0.025
	(0.051)	(0.056)
Retirement Years Worse than Pre-Retirement Years	0.080	0.093
	(0.068)	(0.076)
Becomes More Worried about Income in Ret.	0.037	0.029
	(0.052)	(0.057)
Becomes More Worried about Productivity in Ret.	0.029	0.049
	(0.042)	(0.046)
Spouse Working		0.034
		(0.030)
Changes at Retirement		
Net Worth (Non-Housing) Drops by 25% or More	0.044	0.070
	(0.033)	(0.037)
Health Shock	-0.063	-0.067
	(0.030)	(0.032)
OOP Medical Expenses Jump by 25%+	-0.011	-0.015
	(0.027)	(0.029)
Lost Health Insurance After Retirement	0.013	-0.003
	(0.037)	(0.042)
Spouse Has Health Shock		0.013
		(0.036)
Spouse's OOP Medical Expenses Jump by 25%+		0.027
		(0.030)
Number of Observations	1056	831

Notes: Sample is all individuals observed at least 3 years after first retirement. Marginal effects are reported. Standard errors in parentheses. Standard errors are clustered at the household level. Each model also includes an intercept, dummies for retirement year, and nine dummy variables for missing values on planning and preference variables (only one of which is statistically significant). ASINH is the inverse hyperbolic sine function, such that asinh(z)=ln(z+sqrt(1+z^2)).

Table 8. Multinomial Logit Model of Retirement Path Choice (Base Category=Partial Retirement)

All (obs=1718)

	Fully Retire		Fully Retire then Unretire		Continue Working	
	RRR	St. Err.	RRR	St. Err.	RRR	St. Err.
Age (in 1992)	1.156	0.635	0.294	0.146	1.175	0.575
Age Squared	0.999	0.005	1.011	0.005	0.995	0.004
Male	0.879	0.173	0.720	0.216	0.719	0.151
Black	1.150	0.310	1.912	0.691	1.306	0.363
Hispanic	0.797	0.351	0.604	0.429	0.968	0.475
Married	1.104	0.270	1.318	0.495	1.819	0.487
Education <=12 years	1.222	0.220	1.145	0.330	0.891	0.173
Fair or Poor Health	1.055	0.294	0.910	0.414	0.541	0.179
Log Income	0.637	0.150	0.645	0.236	0.522	0.139
Log Earnings	1.064	0.243	1.607	0.602	1.145	0.292
ASINH Net Worth	0.976	0.025	0.991	0.048	0.984	0.027
Employer Pension	0.919	0.282	0.760	0.319	0.480	0.152
Employer Offers Retiree Health Insur	1.024	0.223	1.182	0.374	0.769	0.176
Large Unexpected Expenses/Events Last 20 Yrs	0.803	0.148	0.888	0.245	0.823	0.162
Short Planning Horizon	0.943	0.216	0.951	0.295	1.197	0.282
Little or No Thought Given to Retirement	1.328	0.265	0.934	0.283	2.168	0.439
Worries About Not Having Enough Income	0.824	0.149	1.044	0.270	1.115	0.213
Worries about Not Being Productive	1.084	0.217	1.029	0.308	1.053	0.224
Plans to Keep Working in Retirement	0.441	0.086	0.581	0.173	0.617	0.130
Prob. Works FT at 65	0.997	0.003	1.000	0.005	1.014	0.003
Places High Value on Work	0.663	0.117	0.817	0.218	0.858	0.162
Wants to Reduce Hours	0.930	0.188	1.227	0.347	0.652	0.145
Job is Stressful	1.054	0.195	1.220	0.358	0.772	0.152

Married Respondents (obs=1319)

Age (in 1992)	0.956	0.573	0.273	0.152	1.125	0.654
Age Squared	1.001	0.005	1.012	0.005	0.996	0.005
Male	0.546	0.155	0.671	0.257	0.360	0.112
Black	0.791	0.269	1.118	0.515	0.816	0.295
Hispanic	0.643	0.323	0.501	0.429	0.882	0.454
Education <=12 years	1.356	0.285	1.345	0.431	1.126	0.251
Fair or Poor Health	1.363	0.459	0.961	0.534	0.599	0.228
Log Income	0.655	0.193	0.746	0.329	0.504	0.167
Log Earnings	1.146	0.294	1.817	0.706	1.315	0.379
ASINH Net Worth	0.993	0.036	0.969	0.050	0.985	0.037
Employer Pension	1.327	0.498	1.133	0.584	0.592	0.218
Employer Offers Retiree Health Insur	0.952	0.243	0.866	0.312	0.704	0.189
Large Unexpected Expenses/Events Last 20 Yrs	0.779	0.171	1.012	0.329	0.696	0.166
Short Planning Horizon	0.994	0.274	1.181	0.418	1.297	0.380
Little or No Thought Given to Retirement	1.499	0.353	0.931	0.344	1.698	0.403
Worries About Not Having Enough Income	0.771	0.161	0.881	0.264	1.178	0.261
Worries about Not Being Productive	1.295	0.307	1.125	0.408	1.053	0.273
Plans to Keep Working in Retirement	0.436	0.098	0.709	0.246	0.611	0.150
Prob. Works FT at 65	0.996	0.004	0.996	0.007	1.014	0.004
Places High Value on Work	0.677	0.136	0.839	0.264	0.869	0.188
Wants to Reduce Hours	0.676	0.155	0.912	0.289	0.507	0.126
Job is Stressful	1.056	0.230	1.240	0.427	0.626	0.142
Spouse in Fair or Poor Health	1.300	0.423	1.201	0.560	1.538	0.550
Spouse's Age	1.005	0.021	1.044	0.031	0.969	0.022
Spouse Works (in 1992)	0.851	0.211	1.008	0.357	0.885	0.235
Enjoys Spending Leisure Time with Spouse	0.825	0.270	0.558	0.236	0.599	0.202

Notes: Base category is Partially Retire. All variables are measured at the baseline interview in 1992 prior to first retirement. Sample is all individuals working at baseline interview. See text for detailed sample selection criteria. Relative Risk Ratios (RRR) are reported. Standard errors are clustered at the household level. ASINH is the inverse hyperbolic sine function, such that asinh(z)=ln(z+sqrt(1+z^2)).

Appendix Table 1. Probit Model of Probability Not Retired by 1992

	Marginal Effect	Mean of Covariates
Age in 1992	-0.035	55.3
	(0.001)	
Female	-0.025	0.498
	(0.011)	
Black	-0.050	0.080
	(0.018)	
Hispanic	0.033	0.045
	(0.023)	
Other	0.042	0.020
	(0.042)	
Married	-0.050	0.818
	(0.015)	
Educ<=12	-0.039	0.562
	(0.012)	
Shocks Last 20 Yrs	0.001	0.312
	(0.013)	
Missing Shocks	0.021	0.003
	(0.086)	
Short Planning Horizon	-0.052	0.236
	(0.014)	
Missing Horizon	0.067	0.051
	(0.028)	
Observed Prob of Being in Sample	0.731	
Pedicted Prob of Being in Sample	0.765	
Pseudo R^2	0.147	
Number of Obs.	7233	

Notes: Standard errors clustered at the household level and shown in parentheses. "Shocks Last 20 Yrs" is a dummy variable indicating a yes response to the following question: "Thinking back over the last 20 years, have you had any really large unexpected expenses or events that have made it very difficult for you to meet your financial goals?" "Short Planning Horizon" is a dummy variable denoting planning horizons of "the next few months" or "next year" in response to the following question: "In deciding how much of their (family) income to spend or save, people are likely to think about different financial planning periods. In planning your (family's) saving and spending, which of the time periods listed in the booklet is most important to you [and your (spouse/partner)]?