

Back to Work: Expectations and Realizations of Work After Retirement

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Project #: UM03-15

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RAND

July 2004

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Acknowledgements

This work was supported by a grant from the Social Security Administration through the Michigan Retirement Research Center (Grant # 10-P96362-5). The opinions and conclusions are solely those of the authors and should not be considered as representing the opinions or policy of the Social Security Administration or any agency of the Federal Government.

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Abstract

This paper analyzes labor force re-entry after retirement in an effort to understand whether these “unretirement” transitions are largely unexpected (perhaps resulting from failures in planning or unexpected financial shocks) or planned (perhaps representing a more complex retirement process). Nearly one-half of retirees follow a nontraditional retirement path that involves partial retirement and/or unretirement, and the unretirement rate among those observed at least five years after their first retirement is 24 percent. The unretirement rate is even higher among those retiring at younger ages (as high as 36 percent among those retiring at ages 51-52). I find that unretirement was anticipated for all but nine percent of retirees. If anything, expectations err on the side of excessive pessimism about the future rather than unwarranted optimism. Unretirement appears to be qualitatively similar to partial retirement and there is some evidence of a substantial correlation in the post-retirement labor supply transitions of married couples.

Authors' Acknowledgment

I thank Alan Gustman for helpful discussions and the Michigan Retirement Research Consortium for financial support. I also thank Qiufei Ma for excellent research assistance. Email: maestas@rand.org

1. Introduction

The standard model of retirement behavior is the life-cycle model. In its simplest form, workers make a one-time retirement decision under perfect certainty about the future, choosing to fully exit the workforce when the marginal cost of working an additional period just equals the marginal benefit. The marginal benefit of work typically includes accruals to retirement pensions, while the marginal cost captures the value of foregone leisure, which might depend on age and health status. The model assumes individuals enter retirement once and for all, and defines retirement as complete withdrawal from the labor force. Yet, as this paper will document, full retirement is an absorbing state for only half of retirees. The other half passes through partial retirement on the way to full retirement, and/or exhibits reversals in the intensity of labor supply. This latter phenomenon, which I refer to as “unretirement,” is the subject of this paper.

Researchers have long noted a number of empirical departures from the life-cycle model, and much research effort has been devoted to extending the basic model. For example, the option value model arose to incorporate more forward-looking behavior in the case where employer pension incentives create more than one locally optimal retirement date. But even in this model, unretirement is not rational; if there is more than one locally optimal retirement date, the individual will still choose a single, globally optimal retirement date.

Although unretirement may not be rational in a model in which individuals have perfect foresight, it may be rational in a model of decision making under uncertainty. For example, uncertainty about future expenses, interest income, or even preferences for retirement leisure, could lead an individual to return to the labor force if he or she realizes a negative shock in the period after retirement.¹ As retirement models have grown more complex, tractability has demanded that researchers trade simplicity in one realm for complexity in another. It is common to include uncertainty in earnings, health status, and mortality, but relatively uncommon to incorporate rate of return risk or health expenditure risk. As a result, many models do not allow for the kinds of shocks that might plausibly cause an individual to return to work. For example,

¹ The popular press is full of many such anecdotal accounts by retirees. For example, see “Retirement Dreams Deferred,” *The News Observer*, March 23, 2003; “Relaxing Can Wait, As Retirees Flood Job Market,” *The Christian Science Monitor*, August 21, 2003; and “Retiree Returns to Early Shift But This Time at Half the Pay,” *The Wall Street Journal*, March 5, 2003.

negative earnings shocks may influence transitions out of the labor force, but do not necessarily explain re-entry by those not in the labor force.

In thinking about uncertainty, it is useful to distinguish information that is unknowable before retirement and information that is knowable, but not obtained. For example, no one knows with certainty the evolution of his or her health status, let alone date of death. Similarly, rates of return on many kinds of assets are uncertain and large financial losses may occur with positive probability. It is also possible that preferences for leisure might change unexpectedly after retirement. Some may find retirement less enjoyable than they expected and re-enter the workforce, or they may find that leisure time spent with one's spouse is less enjoyable than anticipated. These types of information are largely unknowable.

On the other hand, people may retire lacking information about things they *could have* known about but failed to learn beforehand, and the information then comes as a surprise after retirement. Research in behavioral economics suggests people procrastinate costly activities when payoffs are not immediate (Rabin, 1999). To the extent procrastination can explain why some people arrive at retirement without having saved enough, it might also explain why people fail to undertake other aspects of retirement planning as well. Many aspects of retirement require substantial planning. For those retiring before the Medicare-eligible age of 65, maintaining health insurance can be costly, and if not planned for, could come as a surprise. For those retiring at or after age 65, the out-of-pocket expenses associated with Medicare coverage may be substantially higher than the typical employer-provided health plan. People similarly may not anticipate the added cost of long-term care insurance (should they choose to buy it) or long-term care itself. Even those who carefully research insurance options before retirement may be surprised by sharp increases in premiums after retirement. In short, there is ample scope for financial and informational shocks after retirement.

Alternatively, unretirement may be another facet of partial retirement, largely planned and viewed as a means of transitioning out of a full-time career job to a position of reduced responsibility and labor force attachment. Indeed partial retirement is often rationalized as a way for older workers to reduce their hours in discrete steps when they may be constrained by their employers to work full time. Still others may seek post-retirement employment in order to achieve a broader social network, keep active, and engage the mind. Others may take on work they perceive as fun compared to their career jobs or treat retirement as an opportunity to change

jobs. If an individual plans to work after retirement, it may be inconsequential whether he transitions straight into his post-retirement job or takes a break between jobs. In this case, unretirement is qualitatively similar to partial retirement. If individuals choose a retirement process, rather than a single retirement date, then retirement models with a single dichotomous dependent variable are potentially incorrectly specified for nearly half of all retirees. The possibility that the retirement process itself is more complex suggests that our understanding of retirement will grow more refined with further study.

A first step in understanding unretirement is to learn whether it stems from uncertainty about the future or whether it is planned. The distinction matters for both estimation of retirement models and policies relating to the elderly. If retirement is a response to uncertainty, research attention should be given to modeling those financial risks most likely to cause unretirement, such as rate of return risk or medical expense risk. Policymakers should consider strategies to help older households hedge the most important sources of risk, and minimize avoidable risks. In contrast, if unretirement is planned, then our research must continue to push toward richer specifications of the outcome variable in retirement models, and policymakers may wish to readdress policies that discourage post-retirement labor supply, such as the Social Security earnings test for early retirees.

This paper marshals a variety of evidence from the first five waves of the Health and Retirement Study (HRS) to understand the nature of unretirement transitions. The approach is descriptive in an attempt to inform the future direction of retirement modeling. My goal is to describe the prevalence of unretirement, when it is most likely to occur, how long it lasts, what kinds of jobs are taken, and whether it appears to be planned or unplanned. Although I am not the first to analyze unretirement behavior, this study offers substantially more detail about the determinants of unretirement transitions than previous papers. The most extensive study to date is by Ruhm (1990), who used the Retirement History Survey (RHS). The RHS was based on a cohort of individuals born in 1906-1911, and will be an important point of comparison with this study based on the HRS cohort born in 1931-1941. More recently, Benitez-Silva and Heiland (2003) analyzed labor force transitions among those age 50 and older in the first three waves of the HRS. Their analysis offers a general overview of transitions in and out of the labor force by older workers, without focusing specifically on retirement transitions per se. This paper complements their work by focusing explicitly on retirees, offering a longer view of the often

multi-stage retirement processes followed by retirees, and attempting to shed light on the question of whether unretirement transitions are unexpected or anticipated.

I find that nearly one-half of retirees follow a nontraditional retirement path that involves partial retirement and/or unretirement. The unretirement rate among those observed for at least five years after their first retirement is 24 percent. Remarkably, this rate is nearly identical to that reported by Ruhm (1990) in his study of the RHS cohort—a cohort nearly two decades older than the HRS cohort. I find that the unretirement rate is even higher among those retiring at younger ages (as high as 36 percent among those retiring at ages 51-52). Analyses of nonparametric “unretirement” hazard rates reveals that the hazard of unretirement is greatest in the second year after retirement. The average unretirement spell lasts about four years, and unretirement jobs share many of the same characteristics as “bridge jobs” (see e.g., Ruhm (1990)).

I find that unretirement was anticipated for all but nine percent of retirees. If anything, expectations err on the side of excessive pessimism about the future rather than uninformed optimism. These results accord with Hurd and Rohwedder’s (2003) finding that post-retirement drops in consumption were fully anticipated by HRS respondents. Furthermore, unretirement is not associated with poor retirement planning or inadequate retirement resources. Unretirement rates respond little to large changes in financial variables, which suggests these changes were largely anticipated before retirement. Unretirement appears to be qualitatively similar to partial retirement and there is some evidence of a substantial correlation in the post-retirement labor supply transitions of married couples.²

2. Measuring Retirement Transitions

I use the first five waves of the Health and Retirement Study (HRS) to examine retirement transitions. I take advantage of the panel aspect of the data to observe transitions in and out of the labor force. 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. Over the survey waves, respondents are asked separate questions about whether

² This is consistent with labor force transition patterns noted by Blau (1998) and Benitez-Silva and Heiland (2003).

they consider themselves retired, and whether they are currently working for pay. At no point are they directly asked about unretirement, so unretirement must be inferred from the pattern of answers to the questions about retirement and labor supply. Although this would seem straightforward, the HRS is a complicated survey and respondents often give contradictory answers over time. I therefore begin by describing in some detail how I construct my sample, and define and date transitions in and out of retirement.

Defining Retirement

Because individuals may harbor different notions of what it means to be fully retired or partially retired, it is useful to consider an individual's subjective assessment of retirement status in combination with objective information about labor force participation. I classify an individual as *completely retired* if 1) he is not working for pay; and 2) he reports *either* partial or complete retirement on the subjective retirement status or employment status questions.³ That is even though a respondent may indicate partial retirement on the subjective retirement status question, he will be classified as completely retired if he does not report working for pay. The reason for this is to avoid heterogeneity in individual definitions of complete and partial retirement. I classify an individual as *partially retired* if 1) she reports working for pay; 2) she works part-time, where this is defined as working fewer than 35 hours per week or fewer than 36 weeks per year; and 3) she reports either partial or complete 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. An individual who is not working for pay and who makes no mention of retirement is classified as unemployed.⁴

³The subjective retirement status questions are K1 in wave 1; GA123, GB83, and GC41 in wave 2; and G134 in waves 3, 4, and 5. The employment status questions are F1A-F1G in wave 1; FA1 in wave 2; and G1 in waves 3, 4, and 5. I draw on the RAND HRS data files, in which the subjective retirement status questions are renamed RxSAYRET and the employment status questions are called RxRETEMP, where x stands for wave number. These variables are combined with others to create the comprehensive labor force status variable called RxLBRF. RxLBRF is generally superior to either RxSAYRET or RxRETEMP used alone since it uses more information in its construction. See the RAND HRS codebook and documentation (St. Clair 2003) for further details.

⁴In the current release of the RAND HRS data files, those not working but looking for full-time work are automatically coded as unemployed (and therefore not retired) on RxLBRF even though some mention partial retirement on the RxSAYRET variable. Since my interest is in excluding any individual who started the retirement process prior to the beginning of the HRS, I recoded RxLBRF so that when an individual makes any mention of retirement, whether looking for work or not, he or she is considered retired.

Sample Definition

In an ideal sample we would observe all respondents in the period prior to initial retirement. This would enable us to take pre-retirement measures of retirement expectations, health, wealth, and other variables, then observe changes in these variables after retirement and prior to any unretirement. In a random cross-section of the population (such as the HRS), some individuals will have already begun their retirement process. In the HRS, it is straightforward to identify and exclude those who report themselves retired at the baseline interview. It is less straightforward to identify those who may have retired previously but who are once again working at the baseline interview (i.e., they may have already unretired). To minimize the possibility that my sample includes individuals who are mid-process, I take several steps. First, I exclude individuals who do not give interviews in all five waves. While this reduces my sample by 31 percent (from 12,652 responding in Wave 1 to 8,741 responding in all waves),⁵ I take this step in order to omit individuals who drop out of the HRS after retiring. If these cases were left in the sample, they could create a downward bias in the estimated unretirement rate since they would enter the denominator of those observed to retire, but would never have the opportunity to enter the numerator.

Second, I select only those individuals in the original HRS cohort (whether age-eligible or spouse) 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) on the subjective retirement status or employment status questions. 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 currently unretired. These criteria further reduce the sample by 37 percent, bringing it down to 5,533 observations.

Third, because it is still possible that some such individuals will fail to make any reference to a previous retirement at the Wave 1 interview, I further exclude 187 respondents who were working and made no mention of retirement at the initial interview, but in later a wave reported retirement at a date that preceded the initial interview. A typical example involves a respondent reporting ‘not retired’ at each interview in 1992, 1994, and 1996, reporting ‘retired’ at the interviews in 1998 and 2000, but giving a retirement year of 1990 when asked his date of

⁵ This corresponds to an approximate attrition rate of eight percent between survey waves.

retirement in 1998 and 2000. It is difficult to tell whether this is simply a data error, a mistake by the respondent, reflects the possibility that an individual's definition of retirement may have changed over time, or indicates a retirement process that began prior to the 1992 interview. Finally, I drop 37 observations who report retirement at ages younger than 50 since so-called retirement among those in their 30's and 40's is beyond the scope of this paper. Applying these restrictions yields a working sample of 5,310 observations. Appendix Table 1 summarizes the sequential effect of these restrictions on the sample size.

Although the baseline HRS cross-section is a nationally representative probability sample, the sub-sample of 5,310 respondents who have not yet initiated any kind of retirement by 1992 may not be. To get a handle on the nature of any selectivity, Appendix Table 2 shows results from a simple probit estimation of the probability of not having retired by 1992.⁶ My analysis sample is 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 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."

Dating Retirements

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 some 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.⁷ 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

⁶ Note that this table addresses selectivity induced by omitting those who began their retirement process prior to the HRS but does not address selectivity induced by sample attrition.

⁷ The HRS does not ask for an exact day of retirement.

between the ending date of the previous interview and December 31 of that year. Complete retirement dates for some 22 observations (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.⁸ 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 172 observations (6.2 percent of retired observations) were constructed in this way.

Defining and Dating Unretirements

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.

Although respondents are not asked directly about unretirement, whenever they report working they are asked when they started their current job. 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. This approach does not work in all cases since the

⁸ It is necessary to 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.

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 status. This is the case for 79 unretired individuals (21 percent). Nearly all of these are those who partially retired, then later returned to full-time employment. Combining those who reported their initial hire date with those for whom the start date of the current job is missing, yields a total of 125 unretired observations for which a valid unretirement date is missing (33 percent).

I impute missing unretirement dates following the approach used to impute missing retirement dates. I first check 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. 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 current state. 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 give the same retirement status as in the previous wave.

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 follows a non-traditional path that involves partial retirement and/or a return to the labor force. The second row shows that nearly 12 percent of retirees fully retire then return to part-time work within five years. 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.⁹ Including row 2, those who unretire into partial retirement, raises the estimate to 44.1 percent. This estimate falls between that reported by Gustman and Steinmeier (1984) of one-third and that reported by Ruhm (1990) of one-half.¹⁰ Some 10.5 percent of all retirees are still partially retired after five or more years (row 4), whereas 12.7 percent moved to partial retirement for a period of time then exited to full retirement within five or more years (row 5). Another 9.1 percent transitioned to partial retirement then returned to full-time work (row 6).

Three of the six retirement paths in Table 1 lead to unretirement, 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 highlights that there is more than one way to measure unretirement. The first column shows the unretirement rate without controlling for the observation period, whereas the second column shows the rate for everyone observed at least one year since initial retirement. At any point in time, there are a number of people who have only recently retired, and thus have not yet had the opportunity to unretire. Including these recent retirees in the denominator of the

⁹ 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.

¹⁰ 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.

unretirement rate, biases the rate downward. The effect of this downward bias is readily noted in the table; the rates reported in the first column are always lower than the rates reported in the next columns. 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 interpretation of the rate reported in the first row of the last column is that over a period of at least five years, 24 percent of retirees have returned to work.¹¹ It makes intuitive sense that the rate is highest in this case, since as more time has passed since retirement, retirees will have had more opportunities to return to work. While it might seem that a relatively longer window is conceptually superior to a shorter window, there is a tradeoff with sample size. Because the HRS panel is still relatively short, many recent retirees are excluded from measures that condition on being observed in the sample at least five years from first retirement. In analyses of associations with other variables, I therefore focus on estimates for those who have been retired at least three years.

My estimate of 24.2 percent is remarkably close to Ruhm's (1990) estimate of 25.4 percent in the older RHS cohort.¹² This is surprising given the two-decade difference between the cohorts, and suggests little change over time in unretirement trends.¹³ 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 individuals observed over 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);¹⁴ and Benitez-Silva and Heiland (2003) find that about 12.6 percent of nonworkers (not necessarily retirees) in the HRS re-entered the labor force within 24 months.

¹¹ Note this is not an estimate of those who return to work after five years of retirement.

¹² 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.

¹³ 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.

¹⁴ The NLS cohort was born during 1907-21 and thus lies between the RHS and HRS cohorts.

Table 2 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.¹⁵ 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. Unmarried retirees appear somewhat more likely to return to work than married retirees, but the difference is notable only among the sample of those observed at least five years. Not surprisingly, those who are only partly retired are more likely to unretire (defined in this case as moving to full-time work) than those who are fully retired. 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.¹⁶ In the sample of those observed at least five years, fully 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. On the other hand, the data also reveal that younger retirees are no more likely to have an employer pension than older retirees, and the median earliest retirement age (ERA) on these plans is age 55 in all age groups until the age group 59-60, when the median ERA shifts to age 58.¹⁷ Thus, the discontinuity in unretirement rates does not match the discontinuity in the median ERA.

4. Hazard Rates

The unretirement rates in Table 2 give a sense of 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 more

¹⁵ 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.

¹⁶ 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 and Heiland (2003) in the HRS cohort.

¹⁷ The "early retirement age" is the self-reported earliest age at which the respondent could begin receiving benefits from his or her employer pension.

likely to return to work shortly after retiring rather than several years later? To answer this question, I turn to hazard rates, which are commonly used to analyze retirement transitions. Most familiar is the retirement hazard, which gives the probability of retiring conditional on being in the labor force and not having yet retired. Analogously, I construct the *unretirement* hazard, which is simply 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. The profiles also suggest that unretirement is not predominantly a response to financial shocks. If this were the case, we might see a flat profile over time.¹⁸

Figure 2 shows the hazard rate by age of unretirement (as opposed to age of retirement in Table 2). In analyses of retirement, the hazard rate is most often shown by age; however it is a less informative metric for the unretirement hazard, since it does not control for the age at which an individual retired, or equivalently, time since retirement. Nevertheless, bearing in mind that unretirement is most likely in the second year of retirement, the age hazard may still reveal interesting lifecycle patterns. Notably, the figure shows a large spike in the unretirement hazard profile for men at ages 57 and 58. This spike roughly corresponds with retirements that occurred on average at ages 55 and 56, retirement ages that are once again suggestive of a connection with early retirement incentives in employer pension plans. The figure for men also reveals higher hazard rates for men in their early 50's than for men in their 60's, which is consistent with the evidence in Table 2 that unretirement is more likely among younger retirees. The pattern for women is less informative, showing only a tendency toward a declining hazard with age.

¹⁸ This pattern does not rule out all financial shocks, since it could be consistent with informational shocks arising shortly after retirement as individual's become aware of their true state of retirement preparedness.

5. Correlates of Unretirement

I next turn to a detailed examination of the factors correlated with unretirement. I consider pre-retirement measures of planning and resources to assess whether subsequent unretirement relates to poor planning, or insufficient retirement assets. I also examine retirement preferences before and after retirement, looking for evidence of unexpected changes in tastes for retirement leisure. Similarly, reasons for retirement may help gauge whether unretirement appears to be planned, and retirement resources in the wave following retirement may help assess whether individuals who returned to work recently experienced financial changes.

Retirement Plans

The first panel of Table 3 shows several measures of retirement planning, nearly all of which were evaluated at the baseline interview prior to retirement. There are only small differences between the groups with respect to retirement planning. Individuals with short planning horizons (next few months or the next year) are slightly more common among unretirees, as are those who had given retirement little or no thought as of the first survey wave¹⁹; however, the T-ratios in the third column show these are not significant differences. Similarly, 55.4 percent of future unretirees reported *before* retirement that they worried (a lot or somewhat) about not having enough income in retirement compared to 51.0 percent of those who did not return to work after retirement.²⁰ Jumping ahead to the fifth panel of Table 3, when respondents were asked this same question *after* retirement (but before unretirement), there are sharp differences between the groups. Those who subsequently unretire are more likely to report being bothered by “not having enough income to get by” (46.4 versus 38.6 percent).²¹ Although this seems consistent with the hypothesis that retirement brings negative shocks, respondents in both groups are more pessimistic about retirement before they retire than after they retire, and pessimism drops more for the group that stays home than it does for the group that returns to

¹⁹ Respondents were asked: “How much have you thought about retirement? A lot, some, a little or hardly at all?”

²⁰ 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 ...”

²¹ 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.”

work. This suggests that realized retirement exceeds expectations for many retirees, bringing positive rather than negative information shocks to the newly retired.

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 they planned to keep working in retirement compared to 68.2 percent of those who didn't return to work.²² The fact that 80 percent of unretirees expected to work during retirement strongly suggests that unretirement is not simply a response to negative shocks. Moreover, the fact that so many of those who in 1992 expected to return to work did not in fact do so again indicates that any post-retirement shocks were positive. 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. Finally, although future unretirees experienced more large unexpected expenses and events over the past 20 years, and report being somewhat more likely to move after retirement, in neither case is the group difference statistically significant. In sum, while future unretirees show a tendency toward less planning activity, the differences are not large and suggest that future unretirees are not significantly less prepared for retirement. Furthermore, expectations prior to retirement appear to err on the side of excessive pessimism rather than uninformed optimism.

Pre-Retirement Resources

The second panel of Table 3 makes comparisons of retirement resources prior to retirement. Contrary to expectations, average earnings in the wave before retirement are significantly *higher* among those who later return to work.²³ Furthermore, total income and net worth are similar across the groups. Thus, going into retirement, the groups are of similar financial status, with future unretirees being better off in terms of current earnings. It does not appear to be the case that those who go back to work were less financially prepared at the time of retirement, 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 were significantly less likely to hold stock in the wave before

²² 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?"

²³ This was also noted by Benitez-Silva and Heiland (2003).

retirement (37.5 versus 42.8 percent), and the average value of their stockholdings was significantly lower—\$24,693 compared to \$47,810.²⁴ Since all retirements in my sample occur during a period of unprecedented growth in the stock market,²⁵ it is possible that those with greater exposure to the stock market found themselves in an unexpectedly stronger financial position at retirement. This could account for the finding that many who expected to work did not actually do so. Consistent with this possibility, Ameriks, Caplin and Leahy (2002) found that households expected sharper decreases in consumption after retirement than were actually realized. They attributed much of the gap between expectations and realizations to participation in the stock market.²⁶

Future unretirees were also significantly more likely to have been self-employed in the wave prior to retirement (17.9 percent compared to 12.5 percent). This could reflect greater workforce attachment among the self-employed, or could be the effect of greater exposure to financial risk through their businesses.²⁷ Future unretirees were more likely to work for an employer that offered retiree health insurance, but less likely to have an employer pension plan. In neither case were the group differences statistically significant.²⁸ Among those with a pension plan, rates of defined benefit pension plan coverage and associated early and normal retirement ages were similar across the groups. This is somewhat surprising given the higher rates of unretirement for those who retired around the median early retirement age for pension plan participants.²⁹ However, as noted earlier, the discontinuity in unretirement rates for those retiring in their early 50's compared to those retiring in their late 50's does not match the discontinuity in the median early retirement age among pension holders.

²⁴ Respondents with zero stock holdings are included in the average.

²⁵ 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).

²⁶ Ameriks, Caplin and Leahy (2002) analyzed data for TIAA-CREF participants in January 2000 and January 2001.

²⁷ See Benitez-Silva and Heiland (2003) for a more detailed treatment of transitions in and out of self-employment.

²⁸ 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 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.

²⁹ In contrast, Ruhm (1990) and Benitez-Silva and Heiland (2003) find that unretirement is less likely among pensioners, and Benitez-Silva and Heiland (2003) also find that labor force re-entry is less likely among those with health insurance.

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 usually 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 insignificant. While this would seem to distinguish unretirement from partial retirement, in analyses not shown here I also find little association between wanting to reduce work hours and choosing a retirement path that includes partial retirement.

One of the more striking 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.³⁰ 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.

There is no evidence that future unretirees place greater value on work,³¹ and similarly there is little difference between the groups in whether they worried (a lot or somewhat) about “not doing anything productive or useful” in retirement.³²

³⁰ 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?”

³¹ Respondents were asked: “Some people think of their work as important mainly because of the money. Others think of the money as less important than the work itself. What about you? (Do you think of work as important mainly because of the money, or of money as less important than the work itself?)”

³² 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 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 ...”

Reasons for Retirement and Retirement Satisfaction

The fourth panel of Table 3 compares reasons given for retirement in the wave immediately following retirement. Not surprisingly, those who report feeling forced to retire are more likely to return to work (36.3 versus 30.0 percent),³³ but there are few differences between the groups 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.³⁴

The fifth panel reveals unretirees are somewhat less likely to describe retirement as “very satisfying” (62.6 versus 68.8 percent) though the difference is not statistically significant,³⁵ and more likely to feel their retirement years are “not as good” as their pre-retirement years.³⁶ The difference is sizeable (18.8 versus 12.4 percent), though once again not statistically significant.

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.³⁷ These results combined with the evidence that future unretirees worried more about not having enough retirement income before they retired, may point to unretirees being more risk averse or pessimistic than others, causing them to both worry more and return to work in higher numbers. Capital income is somewhat higher for future unretirees (though not significantly so). Employer pension income is somewhat lower for future unretirees, but the difference is insignificant. 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

³³ 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?”

³⁴ 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.”

³⁵ Respondents were asked: “All in all, would you say that your retirement has turned out to be very satisfying, moderately satisfying, or not at all satisfying?”

³⁶ 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?”

³⁷ 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.

were eligible to claim Social Security benefits, their benefits would be reduced in accordance with the Social Security earnings test. As was the case before retirement, net worth is similar across groups in the wave after retirement (not shown).

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 complementarities in the leisure time of spouses may partially determine post-retirement movements in and out of the labor force, just as been noted in a number of papers analyzing the first 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 ability or reduce its desirability. The correlation in health status 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.

Changes in Retirement Resources and Preferences

To further address the question of whether unretirement is related to changes in finances and preferences at retirement, Table 4 compares unretirement rates for groups of retirees that experienced positive changes, negative changes, or no change at all. I consider changes that occurred between the waves right before and right after retirement (but before any subsequent unretirement), and for income, wealth and expenditure variables, I consider large changes of 25 percent or more. For the most part, it is not possible to know which changes were unanticipated.

Consistent with my earlier findings that unretirees had higher pre-retirement earnings and higher post-retirement total income (Table 3), those who experienced a 25 percent or greater increase in total income or capital income were much more likely to go back to work than were those who experienced a 25 percent or greater decrease. Yet again, this is the opposite of what we would expect if unretirees were responding to negative income shocks. Those who saw a 25 percent or greater decline in net worth were only slightly more likely to unretire as those who saw a 25 percent or greater increase (19.7 versus 18.7 percent). Similarly, there are small differences in the unretirement rates of those whose stock values fell by 25 percent or more and

those whose stock values increased by 25 percent or more. That there is little response to changes in these economic variables once again points to the potential importance of non-economic variables. However, it is worth noting that there are a significant number of imputed observations on the wealth and income variables in the HRS, and that the imputations are done on a cross-sectional basis, not over time; thus there is greater degree of noise in the differenced income variables.³⁸

The most striking figures in Table 4 relate to spousal employment. Among those whose spouse exited the labor force, the unretirement rate was 16.3 percent; it was 17.5 percent among those whose spouse made no change, and fully 24.8 percent among those whose spouse entered the labor force. This strongly suggests that unretirement by married individuals is the outcome of a joint planning process, rather than simply a response to shocks.

Individuals acquiring new health conditions were somewhat less likely to go back to work than were those who saw no change in health (16.1 versus 18.4 percent), and there is little difference in the probability of returning to work for those whose spouse acquired a new health condition compared to those whose spouse had no change in health. Similarly, there is little variation in unretirement rates for groups experiencing large changes in own out-of-pocket medical expenses, though the pattern is strangely non-monotonic across the categories. Interestingly, unretirement rates are a bit larger for those who saw spousal medical expenses increase by 25 percent or more relative to those who saw spousal medical expenses drop by 25 percent or more (18.0 versus 16.8 percent), but again the pattern is non-monotonic across the categories. The lack of strong differences by changes in medical expenses is surprising given the rising cost of health care and the reduction in employer provided retiree health insurance coverage during the 1990s (Kaiser Family Foundation, 2002). One explanation for this is that 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. Like the income and wealth variables, they are imputed on a cross-sectional basis only, which imparts added noise to the differenced variables.

Finally, those who became more worried about having enough income in retirement or about productivity in retirement, were much more likely to go back to work than were those

³⁸ These results accord with Forni (1999) who found that retirement plans were unresponsive to wealth shocks in the HRS.

whose worries decreased.³⁹ Although suggestive of unretirement being related to preference shocks, Table 8 will show that these differences fall away in a probit model of unretirement that accounts for pre-retirement expectations about work and changes in total income and health.

6. Characteristics of Post-Retirement Jobs

In this section I turn to a comparison of the pre- and post-retirement jobs of individuals returning to work. In many respects, unretirement jobs are similar to bridge jobs, involving fewer work hours and lower wages. For example, Table 5 shows the mean hourly wage on pre-retirement jobs was \$21.11 per hour compared to just \$12.55 per hour on post-retirement jobs. Annual earnings are significantly lower, averaging \$42,045 before retirement and \$9,592 after retirement. Before retirement, only 12.9 percent of respondents worked part time, whereas after retirement, nearly half (49.3 percent) worked part time. Overall, about half of those returning to work took full time jobs, but this figure includes partial retirees whose only unretirement option is full-time work. Among those transitioning out of full retirement, 72 percent chose part-time jobs. Hours worked per week average 42.2 on pre-retirement jobs, dropping to 29.9 on post-retirement jobs. Weeks worked per year fall from 49.8 to 42.4 on average. Self-employment is more likely on post-retirement jobs than on pre-retirement jobs, and may reflect a tendency for some white-collar workers to return to their former firms as consultants. Health insurance rates fall from 66.4 percent on pre-retirement jobs to 45.5 percent on post-retirement jobs, reflecting the fact that most unretirees in the sample have not yet reached the Medicare eligibility age of 65. Post-retirement jobs are less likely to be stressful, or require “lots of physical effort,” stooping, kneeling, or heavy lifting.

Consistent with Ruhm (1990), Table 5 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 57.7 percent change industries and 52 percent change occupations.⁴⁰ Overall, the results in Table 5 should be viewed with caution, as there are nontrivial numbers of missing values on the variables measuring post-retirement job

³⁹These results should be interpreted with caution since the two variables measuring “bad things” about retirement have valid data in only the second and third waves of the survey, and thus the unretirement rates are computed over a much smaller subsample than in the other cases.

⁴⁰These figures were calculated over disaggregated 3-digit industry and occupational codes rather than the aggregated categories shown in Table 5.

characteristics. Table 6 complements Table 5 by showing points in the distribution of weeks and hours worked by unretirees, rather than just the distribution means. It also breaks the distribution out by full- and part-time workers.

Finally, it is also of interest to obtain an estimate of how long the average person works in a post-retirement job. Since many individuals have not yet exited their post-retirement jobs, observed job tenure is right censored. To obtain an estimate of the uncensored mean, I estimate a censored normal regression 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.

7. Models of Unretirement

In this section I consider three sets of simple empirical models. The first model examines expectations and realizations of work during retirement to gain further insight into whether unretirement is planned or unplanned. The second model is a static discrete choice model of the probability of unretirement. The model is estimated for retirees only and abstracts from the retirement decision. Its purpose is to isolate the most important correlates of unretirement apart from the initial decision to retire. Finally, the third model considers the entire retirement process by estimating the probability an individual chooses a particular retirement path. This model enables me to test whether the partial retirement is qualitatively similar to unretirement.

Expectations and Realizations

To measure expectations of work in retirement, I use responses from a survey question about plans to stop working in retirement.⁴¹ The question was asked prior to retirement at the baseline interview in 1992 and is a useful measure of plans and preferences for work during retirement. To measure work realizations, I count both unretirements and partial retirements. To assess whether an individual was overly optimistic, pessimistic or accurate in his or her expectations, I subtract expectations from realizations so that values of -1 indicate those who were overly pessimistic (they expected to work but did not in fact do so), values of 0 indicate

⁴¹ 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?”

individuals whose expectations were accurate, and values of 1 indicate individuals who were overly optimistic (they expected *not* to work, but they in fact did so).

Overall, 70 percent of all retirees said they planned to work in retirement, whereas only 43 percent actually undertook work. In comparing expectations and realizations for the same individual, 36 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). Over half the sample (55 percent) reported accurate expectations. This echoes earlier results from Table 3 that suggest post-retirement surprises tend to be positive. Thus, for all but 9 percent of retirees, unretirement is anticipated.

The first column of Table 7 shows marginal effects from probit estimation of the probability an individual says he or she plans to work in retirement. The second column shows marginal effects from a probit model of the probability an individual actually undertook work during retirement, and the last column presents coefficients from an ordered probit model of the difference between work realizations and work expectations. Those who were younger at baseline were much more likely to say they expected to work after retirement (col 1), which could reflect cohort effects, but more likely captures simple lifecycle effects (older individuals are in my sample only if they have not yet chosen to fully retire, partially retire, or retire and unretire). Consistent with their expectations, younger individuals were more likely to realize work during retirement (col 2), and consequently age has no significant relationship with optimism or pessimism. Men are 13 percentage points more likely than women to expect to work during retirement, about 5 percentage points more likely to actually work, and as a result significantly more likely to have been overly pessimistic. Interestingly, married respondents were about 7 percentage points less likely to expect to work in retirement and more likely to have been overly optimistic in this expectation. Education appears unrelated to work expectations and realizations, as does having a short planning horizon (next few months or the next year). Those who report having given retirement little or no thought as of the first survey wave were 9.5 percentage points more likely to expect to work in retirement but were overly pessimistic in this expectation. This is interesting because it suggests that those who have expended little effort on retirement planning to have incorporated this knowledge into their retirement expectations. Similarly, those who reported that they worried (a lot or somewhat) about not having enough income in retirement were 10.5 percentage points more likely to expect

to work during retirement, but were in fact overly pessimistic in this expectation. Individuals who reported that they experienced large unexpected expenses or events in the last 20 years were nearly 9 percentage points more likely to expect to work after retirement and show a tendency toward being overly pessimistic, though the effect is not significant. Interestingly, earnings at baseline are positively related to work realizations, but do not relate to work expectations. Though counter intuitive, this echoes earlier results from Table 3. Similarly, total income is unrelated to both expectations and realizations.

The self-employed are overly optimistic, being less likely to expect to work and more likely to realize work. This is consistent with the possibility that the self-employed experience greater exposure to financial risk through their businesses. Net worth and stock ownership in the wave prior to retirement are unrelated to both work expectations and realizations, which suggests that the stock market in the 1990s had less of a role in reducing unretirement probabilities for stockholders than suggested by Table 3. Those with employer pensions were less likely to expect to work, and also less likely to undertake work. In that pension holders show no tendency toward being overly pessimistic or optimistic, the fixed nature of future pension income seems to aid in the formation of realistic expectations. Those who place greater value on work are nearly 5 percentage points more likely to expect to work and 6.4 percentage points more likely to actually work. Those who reported that they worried (a lot or somewhat) about “not doing anything productive or useful” in retirement were 11 percentage points likely to expect to work, but were overly pessimistic in this assessment.

Table 8 probes more deeply into work realizations, focusing only on unretirement transitions, and examining changes in the household economic environment before and after retirement (but before unretirement). Demographic characteristics have little impact on the likelihood of unretirement. Plans to work in retirement increase the probability of unretirement by 7 percentage points, which on a base of 22 percent, amounts to a 31 percent increase in the probability of unretirement. Among married couples (col 2), plans to work in retirement increase the probability of unretirement by nearly 11 percentage points, which amounts to a 50 percent increase in the probability of unretirement. Controlling for work expectations, being self-employed has no statistically significant relationship to unretirement as it did in the tabulations in Table 3. Table 8 shows further evidence that unretirement is unrelated to pension coverage. Similarly, the variables measuring retirement preferences, reasons, and satisfaction have no

effect on the probability of unretirement. I test for the effect of shocks to retirement preferences by measuring the *change* in reported worries about having enough income in retirement and worries about productivity in retirement measured both before and after retirement. In neither case do preference shocks appear to matter as was suggested by Table 4.

The results in Table 8 also show that variables measuring a 25 percent or greater drop in net worth, capital income, and stock values, have little impact on the probability of unretirement. This casts further doubt on the hypothesis advanced earlier that unretirement might be driven by better than expected market returns. There is also little effect of a 25 percent or greater increase in own out-of-pocket medical expenses before and after retirement. Since the model controls for any corresponding changes in health, it does not appear that unexpected changes in out-of-pocket medical care costs, apart from related health effects, cause retirees to return to the labor force; however this result should be interpreted with caution since the variables measuring out-of-pocket expense are heavily imputed. Nevertheless, the result may have some validity since losing health insurance coverage after retirement is also unrelated to subsequent unretirement. Counter intuitively, a 25 percent or greater drop in total income after retirement *reduces* the probability of unretirement by 7.5 percentage points, or by 34 percent. This finding echoes Table 4. Rather intuitively, incurring a health shock decreases the probability of unretirement by 7.3 percentage points or 33 percent.⁴² In the model for married couples, a health shock incurred by one's spouse has little impact on one's own unretirement probability. Entry into the labor force by one's spouse increases the probability of unretirement by nearly 9 percentage points or 40 percent; although economically large, the effect is not statistically significant. Interacting the spouse's labor force transition with the variable measuring whether the respondent enjoys spending leisure time with his or her spouse has no additional impact on unretirement (not shown).

Retirement Paths

The model presented in Table 9 is designed to test whether unretirement is qualitatively similar to partial retirement. If so, this is one last piece of evidence in favor of the hypothesis that unretirement is mostly planned, since as defined here, partial retirement involves a transition directly from work to partial retirement with no period of full retirement in between. I estimate a

⁴² Health shocks are measured by the change in the number of chronic disease conditions ever had by a respondent before and after retirement.

multinomial logit model where the dependent variable takes on four categories, each representing a distinct retirement process: 1) partial retirement; 2) full retirement with subsequent unretirement; 3) full retirement with no subsequent unretirement; and 4) no retirement by the year 2000. Using partial retirement as the base category, the third column gives relative risk ratios (odds ratios) for unretirement versus partial retirement. Almost no variables have relative risk ratios that are significantly different from 1. The exceptions are the age coefficients, which indicate that the odds of unretirement relative to partial retirement are less than one-third for a one-year increase in age. Similarly the odds of unretirement relative to partial retirement are significantly less for those with an additional health condition; this may be due to a need to retain continuous health insurance coverage. Overall, it appears that partial retirement and unretirement are qualitatively similar with little evidence that returns to the labor force are differentially related to poor planning, retirement preferences, job stress, and economic resources prior to retirement. Still, one important qualification to this statement is that the odds ratio for work expectations is on the margin of significance (a p-value of .057), and points to the possibility that for those who said they did not plan to work in retirement, the odds of choosing unretirement are much greater than the odds of choosing partial retirement.

In comparisons of partial retirement and full retirement, work expectations increase the relative odds 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 greater odds of not having retired by the year 2000, whereas expectations of work in retirement is associated with greater odds 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 who report having given retirement little or no thought have much greater odds of not having retired by 2000. This suggests that many individuals do not devote time to thinking about retirement until they are nearer to their target retirement age.

8. Conclusions

Despite countless news articles to the contrary, the evidence presented in this paper overwhelmingly supports the hypothesis that unretirement transitions are mostly anticipated prior to retirement. In comparisons of expectations and realizations, I find that over half (55 percent)

of HRS respondents had accurate expectations of work 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. In other words, unretirement was anticipated for all but nine percent of retirees. If anything, expectations err on the side of excessive pessimism about the future rather than uninformed optimism. These results accord with Hurd and Rohwedder's (2003) finding that post-retirement drops in consumption were fully anticipated by HRS respondents, and with similar evidence offered by Forni (1999) and Mastrogiacomo (2003).

I find that unretirement is not associated with poor retirement planning or inadequate retirement resources. Compared to those who do not go back to work, unretirees have higher earnings prior to retirement, higher total income after retirement, and similar wealth levels before and after retirement. Unretirement is not associated with preferences for reduced hours on the pre-retirement job, worries about having enough income in retirement, worries about being productive in retirement, or feeling less satisfied with retirement. Those with employer pensions are no less likely to unretire than others, though there is evidence that pension holders formed more accurate expectations about work in retirement. Indeed, the fixed nature of pension income may help individuals form more accurate expectations.

I find little responsiveness to changes in financial variables, which suggests that these changes were largely anticipated before retirement. Specifically, large drops in net worth, capital income and stock values have little effect on unretirement rates. Large drops in total income are counter-intuitively associated with *reduced* probabilities of unretirement. Losing health insurance after retirement has no effect on the probability of unretirement after work expectations are controlled for, and those with access to retiree health insurance are no more likely to unretire than those without. Finally, I find no evidence that unretirement is systematically related to preference shocks—that is, finding retirement more worrisome than anticipated.

For the most part, unretirement is qualitatively similar to partial retirement. There are two notable differences between unretirees and partial retirees. First, those in worse health are more likely to choose a retirement path involving partial retirement rather than one involving unretirement. This might reflect their need to maintain continuous health insurance coverage during retirement. Second, although just on the margin of statistical significance, those who said

they did not plan to work in retirement were more likely to unretire than partially retire, which suggests that unretirement remains an option for the small subset of individuals who are overly optimistic about their readiness for retirement. Those who were self-employed prior to retirement were more likely to have been in this subgroup, which may reflect their greater exposure to financial risk through their businesses. There is evidence of a potentially strong correlation in the post-retirement labor supply of spouses. Labor force entry by one's spouse raises one's probability of unretirement by 40 percent; nevertheless, the estimate lacks precision and should be interpreted with caution.

Unretirement and partial retirement are empirically important phenomena. Nearly one-half of retirees follow a non-traditional path that involves partial retirement and/or a return to the labor force. 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). In short, the evidence presented here would favor richer specifications of the outcome variable in retirement models, with modeling of jointly determined transitions for married couples. The empirical importance of nontraditional retirement patterns, especially among younger retirees, suggests that policymakers may wish to readdress policies that create disincentives for work after retirement, such as the Social Security earnings test for early retirees.

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Figure 1. Unretirement Hazard Rates by Years Since Retirement

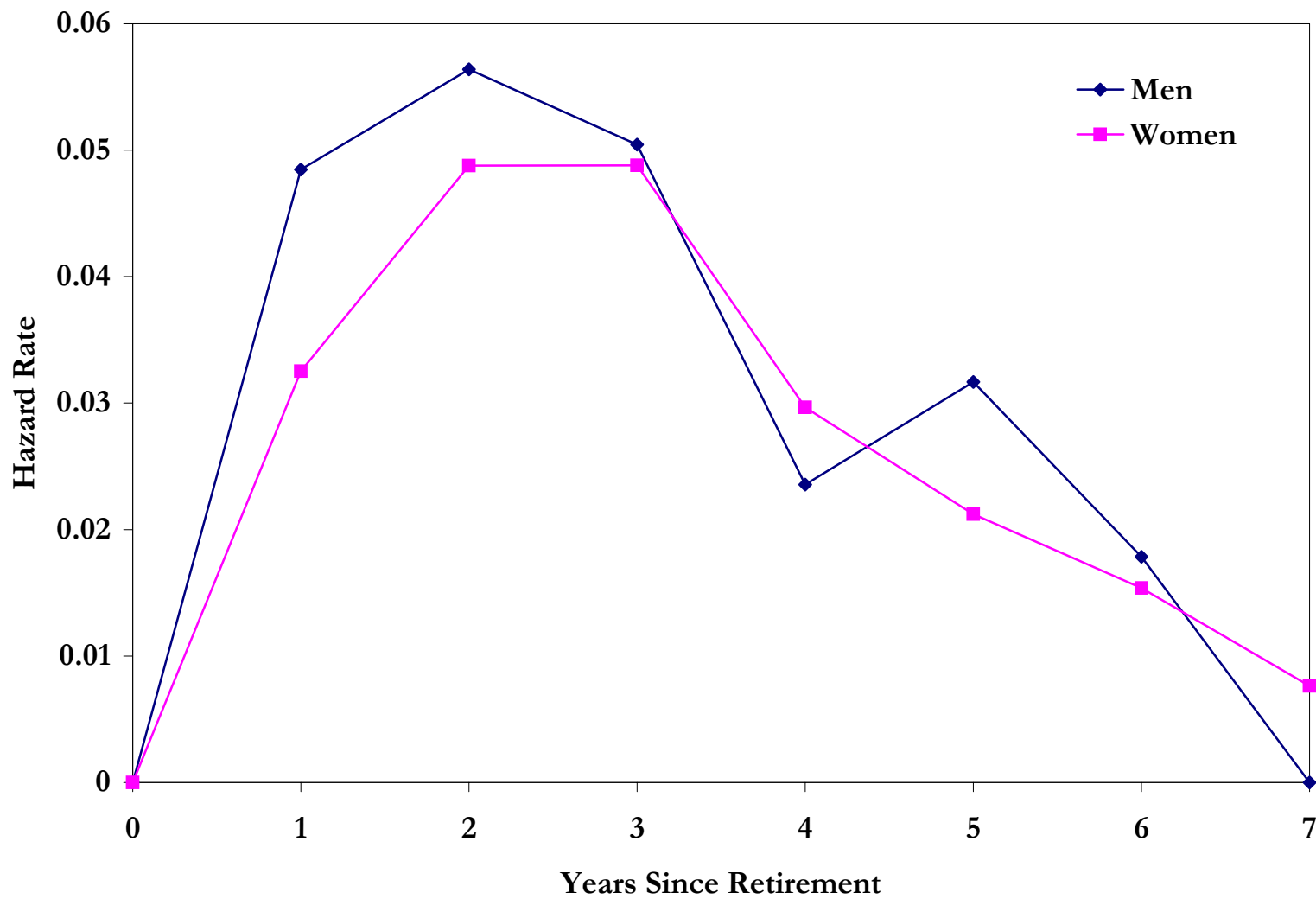


Figure 2. Unretirement Hazard Rates by Age

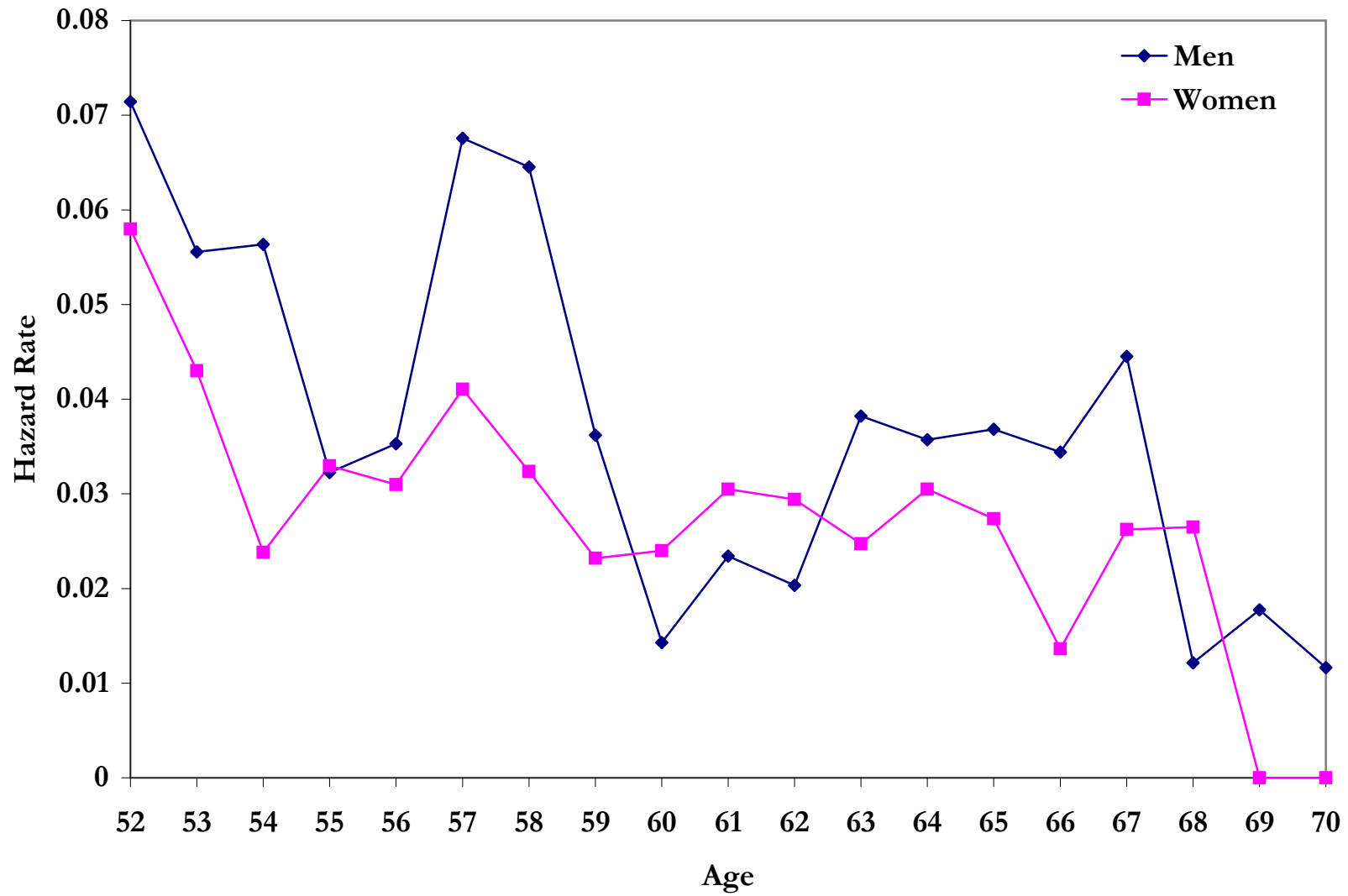


Table 1. Retirement Paths

	Time Since First Retirement		
	3+ Years	4+ Years	5+ Years
1. Any Work --> Full Retirement --> Full Retirement	54.6	53.1	52.5
2. Any Work --> Full Retirement --> Part-Time Work	9.6	10.6	11.8
3. Any Work --> Full Retirement --> Full-Time Work	3.7	3.9	3.3
4. Any Work --> Partial Retirement --> Partial Retirement	14.1	12.4	10.5
5. Any Work --> Partial Retirement --> Full Retirement	11.0	12.2	12.7
6. Any Work --> Partial Retirement --> Full-Time Work	7.0	7.8	9.1
Number of observations	1599	1258	859

Notes: Retirement path categories are mutually exclusive. Column headings denote alternate sample definitions in which respondents are observed for at least 3, 4 or 5 years after their first retirement. Any work refers to either part-time or full-time work.

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
<u>Gender</u>						
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
<u>Race/Ethnicity</u>						
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
<u>Education</u>						
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
<u>Marital Status</u>						
Married	14.6	16.3	18.3	19.9	22.0	23.7
Not Married	13.6	15.8	18.2	21.8	23.8	26.5
<u>Retirement Status</u>						
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
<u>Retirement Age</u>						
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 labeled "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
<i>Retirement Planning (Pre-Retirement)</i>			
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
<i>Retirement Resources (Pre-Retirement)</i>			
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
<i>Retirement Preferences (Pre-Retirement)</i>			
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
<i>Retirement Reasons (Post-Retirement)</i>			
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
<i>Retirement Satisfaction (Post-Retirement)</i>			
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 Enough Income	38.6	46.4	-2.20
Bothered by Not Being Productive	31.6	36.8	-1.52
<i>Retirement Resources (Post-Retirement)</i>			
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
Number of Health Conditions	1.4	1.2	2.75
Spouse's Number of Health Conditions	1.3	1.1	2.47

Notes: Full sample includes only retirees observed for at least three years after retirement (n=1534). 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. Unretirement Rates by Changes in Retirement Resources and Preferences

	Worsened by 25% or more	No Change (within +/- 25%)	Improved by 25% or more
<i><u>Retirement Resources</u></i>			
Total Income	13.5	20.7	21.4
Capital Income	15.4	17.5	19.0
Net Worth	19.7	16.0	18.7
Value of Stock Holdings	16.1	19.9	18.1
Spousal Employment	16.3	17.5	24.8
Own No. Health Conditions	16.1	18.4	--
Spouse's No. Health Conditions	18.1	17.8	--
Own OOP Medical Expenses	18.3	13.5	18.5
Spouse's OOP Medical Expenses	18.0	22.0	16.8
Health Insurance Coverage	19.4	17.5	17.5
<i><u>Retirement Preferences</u></i>			
Worries about Having Enough Income in Retirement	26.8	20.0	21.5
Worries about Productivity in Retirement	27.7	20.4	19.3

Notes: Pre-Retirement observations are made in survey wave prior to reported retirement date. Post-Retirement observations are made in survey wave after reported retirement date (but before any reported unretirement date). In the case of spousal employment, 'worsened' refers to spouse stopped working, whereas 'improved' means spouse started working. In the case of health conditions, 'worsened' refers to an increase of one health condition ever had. There is no 'improved' category since one cannot undo conditions 'ever had.' In the case of health insurance coverage, 'worsened' means the individual lost coverage, whereas 'improved' means the individual gained coverage. Finally, in the case of the retirement preferences variables, 'worsened' means the individual became more worried whereas 'improved' means the individual became less worried. Sample includes only retirees observed for at least three years after retirement (n=1534). All dollar amounts in 2000\$. The two questions about retirement preferences are included in all waves of the survey but have valid observations only in the first three waves, thus only 1096 observations contribute to these estimates.

Table 5. Comparison of Pre- and Post-Retirement Jobs of Unretirees

Job Characteristics	Pre-Retirement Job	Post-Retirement Job
Hourly Wage	\$21.11	\$12.55
Annual Earnings	\$42,045	\$9,592
Part-Time Job	12.9	49.3
Hours Worked	42.2	29.9
Weeks Worked	49.8	42.4
Self-Employed	16.0	24.9
Health Insurance	66.4	45.5
Job is Stressful	63.6	33.1
Job Requires "Lots of Physical Effort"	17.1	13.7
Job Requires Stooping/Kneeling	11.2	11.3
Job Requires Good Eyesight	61.7	65.1
Job Requires Heavy Lifting	7.9	3.8
<u>Industry</u>		
Ag/Forestry/Mining/Construction	10.7	12.9
Manufacturing	28.1	12.8
Wholesale/Retail	12.2	12.0
Services	49.1	62.2
<u>Occupation</u>		
Managerial/Professional Specialty	37.0	26.6
Sales/Admin Support	26.5	31.7
Services	10.4	18.3
Precision Production/Craft/Repair	15.9	15.2
Operators/Laborers	10.2	8.2

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 6. Distribution of Weeks and Hours Worked by Unretirees

	Mean	P25	P50	P75	P99	N
<u>All</u>						
Usual Hours per Week	30	16	32	40	70	280
Usual Weeks per Year	42	36	52	52	52	274
<u>Part-Time Workers</u>						
Usual Hours per Week	18	9	17	25	48	145
Usual Weeks per Year	35	20	40	52	52	137
<u>Full-Time Workers</u>						
Usual Hours per Week	41	38	40	43	80	135
Usual Weeks per Year	49	50	52	52	52	137

Notes: A person is classified as working part time if he or she works fewer than 35 hours per week or fewer than 36 weeks per year. The observations at any given point in the two distributions do not necessarily pertain to the same respondent.

Table 7. Expectations and Realizations of Working in Retirement

	Expects to Work in Retirement (Probit)	Realizes Work in Retirement (Probit)	Realization- Expectation (Ordered Probit)
Age (in 1992)	-0.168 (0.074)	-0.136 (0.077)	0.077 (0.192)
Age Squared	0.002 (0.001)	0.001 (0.001)	-0.001 (0.002)
Male	0.130 (0.027)	0.053 (0.028)	-0.145 (0.069)
Black	0.064 (0.033)	-0.020 (0.041)	-0.128 (0.102)
Hispanic	-0.034 (0.059)	-0.012 (0.060)	0.084 (0.159)
Other	0.032 (0.135)	-0.002 (0.105)	-0.106 (0.283)
Married	-0.072 (0.031)	0.023 (0.035)	0.194 (0.089)
Low Education (<=12 years)	0.012 (0.027)	-0.047 (0.028)	-0.099 (0.066)
Short Planning Horizon	-0.014 (0.030)	-0.009 (0.033)	0.004 (0.077)
Has Given Retirement Little or No Thought	0.095 (0.029)	0.018 (0.031)	-0.148 (0.073)
Worries About Not Having Enough Income	0.105 (0.026)	0.038 (0.028)	-0.143 (0.067)
Large Unexpected Expenses/Events Last 20 Yrs	0.086 (0.027)	0.061 (0.030)	-0.040 (0.069)
Earnings (000)	-0.00001 (0.00053)	0.00115 (0.00054)	0.00168 (0.00109)
Total Income (000)	0.00018 (0.00023)	-0.00009 (0.00017)	-0.00026 (0.00038)
Self-Employed	0.032 (0.050)	0.142 (0.050)	0.253 (0.110)
Net Worth (000)	0.00001 (0.00002)	0.00003 (0.00003)	0.00003 (0.00006)
Owns Stock	-0.014 (0.029)	-0.003 (0.029)	0.020 (0.069)
Has Employer Pension	-0.070 (0.033)	-0.118 (0.038)	-0.091 (0.087)
Employer Offers Retiree Health Insurance	0.060 (0.035)	-0.045 (0.037)	-0.186 (0.095)
Places High Value on Work	0.048 (0.028)	0.064 (0.029)	0.057 (0.067)
Worries about Not Being Productive	0.110 (0.027)	-0.022 (0.029)	-0.252 (0.066)
Wants to Reduce Hours	0.025 (0.034)	-0.015 (0.036)	-0.072 (0.089)
Mean Dependent Variable	70.3	43.8	--
Number of observations	1667	1803	1667
Pseudo R-Squared	0.0994	0.0533	0.0315

Notes: All variables are measured prior to first retirement. Sample is all individuals observed at least 2 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. Expectations are measured prior to retirement. Model includes 6 dummy variables for missing values on planning horizon and preference variables (4 of 6 are insignificant).

Table 8. Probit Model of Unretirement

	All	Married Couples
Age (in 1992)	-0.005 (0.190)	-0.026 (0.196)
Age Squared	0.000 (0.002)	0.000 (0.002)
Retirement Age	-0.056 (0.185)	-0.036 (0.191)
Retirement Age Squared	0.000 (0.002)	0.000 (0.002)
Male	0.057 (0.029)	0.078 (0.031)
Married	-0.030 (0.038)	
Low Education (<=12 years)	-0.011 (0.030)	-0.024 (0.033)
Short Planning Horizon	-0.008 (0.033)	0.001 (0.037)
Has Given Retirement Little or No Thought	0.027 (0.033)	0.012 (0.036)
Plans to Keep Working in Retirement	0.077 (0.032)	0.109 (0.035)
Large Unexpected Expenses/Events Last 20 Yrs	0.012 (0.030)	0.009 (0.033)
Self-Employed	0.069 (0.058)	0.079 (0.063)
Has Employer Pension	0.052 (0.036)	0.052 (0.039)
Places High Value on Work	0.011 (0.031)	-0.001 (0.034)
Wanted to Reduce Hours	-0.009 (0.038)	-0.011 (0.042)
Felt Forced to Retire	0.036 (0.034)	0.023 (0.037)
Retired for Health Reasons	-0.027 (0.052)	-0.013 (0.057)
Retired to Do Other Things	0.019 (0.045)	-0.011 (0.049)
Retired for Family Reasons	-0.008 (0.045)	-0.004 (0.049)
Very Satisfied with Retirement	0.009 (0.050)	-0.021 (0.054)
Retirement Years Worse than Pre-Retirement Years	0.088 (0.068)	0.121 (0.075)
Becomes More Worried about Income in Ret.	0.007 (0.045)	-0.015 (0.047)
Becomes More Worried about Productivity in Ret.	0.024 (0.038)	0.057 (0.044)
Capital Income Drops by 25%+	-0.011 (0.033)	-0.021 (0.034)
Net Worth Drops by 25%+	0.024 (0.034)	0.041 (0.039)
Stock Values Drop by 25%+	-0.030 (0.035)	-0.019 (0.038)
Total Income Drops by 25%+	-0.075 (0.028)	-0.085 (0.030)
Health Worsens	-0.073 (0.029)	-0.071 (0.033)
OOP Medical Expenses Jump by 25%+	-0.005 (0.027)	-0.014 (0.030)
Lost Health Insurance After Retirement	0.017 (0.036)	0.011 (0.040)
Spouse Exits Labor Force		-0.019 (0.039)
Spouse Enters Labor Force		0.088 (0.089)
Spouse Health Worsens		0.021 (0.036)
Sousal OOP Medical Expenses Jump by 25%+		0.016 (0.030)
Observations	1053	845

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. Models also includes dummies for retirement year and race. Unretirement is significantly more likely in 1993 and 1994 (relative to 1992). All race dummies are insignificant. Model also includes 9 dummy variables for missing values on planning and preference variables (7 or 9 are insignificant.)

Table 9. Multinomial Logit of Retirement Path Choice

	Fully Retire		Fully Retire then Unretire		Continue Working	
	RRR	St. Err.	RRR	St. Err.	RRR	St. Err.
All (obs=1728)						
Age (in 1992)	1.151	0.642	0.272	0.138	1.082	0.545
Age Squared	0.999	0.005	1.012	0.005	0.996	0.005
Male	0.949	0.180	0.797	0.228	0.743	0.153
Black	1.206	0.332	1.950	0.692	1.354	0.384
Hispanic	0.822	0.357	0.534	0.381	0.877	0.415
Other	0.757	0.438	0.000	0.000	1.234	0.712
Married	0.981	0.215	1.150	0.382	1.498	0.363
Low Education (<=12 years)	1.197	0.213	1.083	0.303	0.873	0.167
Short Planning Horizon	0.996	0.226	0.981	0.303	1.217	0.288
Has Given Retirement Little or No Thought	1.353	0.268	0.856	0.261	2.122	0.426
Worries About Not Having Enough Income	0.843	0.152	1.080	0.271	1.113	0.213
Prob. Works FT at 65	0.998	0.003	0.999	0.005	1.013	0.003
Plans to Keep Working in Retirement	0.434	0.085	0.569	0.169	0.632	0.133
Large Unexpected Expenses/Events Last 20 Yrs	0.825	0.152	0.929	0.259	0.821	0.160
Places High Value on Work	0.667	0.119	0.798	0.216	0.879	0.166
Worries about Not Being Productive	1.074	0.214	1.086	0.320	1.064	0.225
Wants to Reduce Hours	0.913	0.186	1.291	0.367	0.663	0.146
Job is Stressful	1.066	0.198	1.206	0.352	0.793	0.157
Earnings (000)	0.993	0.006	1.006	0.008	0.998	0.007
Total Income (000)	0.995	0.003	0.994	0.005	0.993	0.004
Net Worth (000)	1.000	0.000	1.000	0.000	0.999	0.000
Owns Stock	1.264	0.234	0.782	0.217	1.358	0.278
Has Employer Pension	0.852	0.257	0.807	0.329	0.492	0.152
Employer offers Retiree Health Insurance	0.989	0.213	1.239	0.393	0.757	0.174
No. of Health Conditions	1.003	0.090	0.746	0.102	0.755	0.075
Married Couples (obs=1326)						
Age (in 1992)	0.943	0.567	0.270	0.154	1.084	0.636
Age Squared	1.001	0.005	1.012	0.005	0.996	0.005
Male	0.634	0.173	0.801	0.293	0.387	0.116
Black	0.800	0.285	1.124	0.505	0.840	0.313
Hispanic	0.679	0.338	0.427	0.372	0.788	0.400
Other	1.158	0.906	0.000	0.000	2.080	1.789
Low Education (<=12 years)	1.308	0.274	1.164	0.369	1.134	0.252
Short Planning Horizon	1.065	0.295	1.198	0.433	1.296	0.387
Has Given Retirement Little or No Thought	1.517	0.354	0.867	0.316	1.719	0.404
Worries About Not Having Enough Income	0.766	0.159	0.877	0.257	1.189	0.264
Prob. Works FT at 65	0.996	0.004	0.996	0.007	1.013	0.004
Plans to Keep Working in Retirement	0.434	0.098	0.674	0.229	0.601	0.147
Large Unexpected Expenses/Events Last 20 Yrs	0.789	0.173	1.032	0.341	0.683	0.160
Places High Value on Work	0.710	0.145	0.820	0.262	0.883	0.195
Worries about Not Being Productive	1.208	0.281	1.150	0.405	1.012	0.258
Wants to Reduce Hours	0.638	0.148	0.969	0.312	0.496	0.121
Job is Stressful	1.109	0.241	1.267	0.429	0.683	0.156
Earnings (000)	0.992	0.006	1.004	0.008	0.999	0.008
Total Income (000)	0.997	0.003	0.997	0.005	0.996	0.005
Net Worth (000)	1.000	0.000	1.000	0.000	0.999	0.000
Owns Stock	1.269	0.269	0.700	0.216	1.206	0.283
Has Employer Pension	1.161	0.422	1.210	0.603	0.612	0.221
Employer offers Retiree Health Insurance	0.885	0.225	0.924	0.332	0.695	0.189
No. of Health Conditions	1.085	0.117	0.776	0.123	0.791	0.094
Spouse's No. of Health Conditions	0.946	0.096	0.988	0.137	0.943	0.106
Age Difference	0.994	0.022	0.965	0.032	1.029	0.024
Spouse Works (in 1992)	0.371	0.263	0.674	0.611	0.463	0.337
Enjoys Spending Leisure Time with Spouse	0.455	0.293	0.432	0.367	0.394	0.266
Interaction: Spouse Works & Enjoys Leisure	2.140	1.587	1.355	1.303	1.612	1.232

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.

Appendix Table 1. Effect of Sample Restrictions on Sample Size

Sample Criteria	Observations	% Reduction
In Wave 1	12,652	
AND Responding to Waves 2-5	8,741	30.9
AND Working and Not Retired in Wave 1	5,533	36.7
AND Valid Retirement Date if Retirement Observed	5,310	4.0

Notes: About 31 percent of the sample is lost to attrition over the five waves. This corresponds to an approximate between-wave attrition rate of about 8 percent. I do not bring into my sample new spouses added to the survey after Wave 1. Further detail about the specific variables used at each step is given in the text describing this table.

Appendix Table 2. Probit Model of Probability Not Retired by 1992

	Marginal Effect	Mean of Covariates
Age in 1992	-0.035 (0.001)	55.3
Female	-0.025 (0.011)	0.498
Black	-0.050 (0.018)	0.080
Hispanic	0.033 (0.023)	0.045
Other	0.042 (0.042)	0.020
Married	-0.050 (0.015)	0.818
Educ<=12	-0.039 (0.012)	0.562
Shocks Last 20 Yrs	0.001 (0.013)	0.312
Missing Shocks	0.021 (0.086)	0.003
Short Planning Horizon	-0.052 (0.014)	0.236
Missing Horizon	0.106 (0.020)	0.051
Observed Prob of Being in Sample	0.731	
Predicted Prob of Being in Sample	0.765	
Pseudo R ²	0.147	
Number of Obs.	7190	

Notes: Standard errors are clustered at the household level. Standard errors 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)]?"