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Pre-Retirement Lump-Sum Pension Distributions and Retirement Income Security:Evidence from the Health and Retirement Study[1]

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Abstract

This paper uses data from the 1992 and 1998 Waves of the Health and Retirement Study (HRS) to examine the extent of retirement wealth erosion from pre-retirement lump-sum distributions. There is little evidence that spent distributions have resulted in significant pension leakage. If spent distributions had been rolled over into a tax-qualified plan instead, they would have represented in present value between 5 and 11 percent of pension and Social Security wealth for the median household that spent a distribution. However, one-quarter of the households that spent distributions—which is 2.25 percent of all households age 51 to 61—could have increased their pension and Social Security wealth by 25 percent or more had the distributions been rolled over into a tax-qualified plan. On the one hand, this suggests that policies that enforce rollovers might not raise the retirement income security of the average American household currently entering retirement or that of the typical household that spent a distribution. On the other, this study was based on a national sample of individuals 51 to 61 years old in 1992. While these data have significant advantages over those used in previous studies, the resulting policy statements are most accurately applied to individuals and households of roughly the same age. If younger individuals have lower propensities toward saving, view pension assets as less dedicated toward retirement, or have greater access to funds (say, through defined contribution plans), then this analysis may underestimate the erosion to retirement income security for younger cohorts.

Introduction

An important issue in the design of pension systems is the extent to which workers have access to pension assets upon job change. The federal tax code discourages such cash settlements before retirement or disability in a number of ways. First, pensions enjoy the benefits of tax deferral. Contributions are tax-deductible and accrue at the pre-tax interest rate. Contributions and interest are not taxed until withdrawal. However, all pre-retirement lump-sum distributions not rolled over into a tax-qualified plan, such as an Individual Retirement Account (IRA) or other pension, are taxed as ordinary income in the year of receipt. Individuals who spend lump-sum distributions forego the benefits of tax deferral. This opportunity cost rises with the individual's marginal tax rate. Second, the Tax Reform Act of 1986 (TRA86) established a 10 percent excise tax on distributions to workers under 55 not rolled into a tax-qualified plan (Chang 1996).

Despite these tax incentives to preserve pension assets until retirement, there is great concern by policy makers that workers will use lump-sum distributions to finance current consumption rather than retirement income. This will result in significant leakage of assets from the pension system. Concern is greatest for young workers who have high job mobility but may find retirement a distant prospect.

While there is a large literature that describes the determinants of the disposition of lump-sum distributions, little is known about the extent to which spent distributions erode retirement wealth. The current paper provides some evidence on this key policy issue. Specifically, it uses detailed retrospective information on employment histories, pensions, demographics, and wealth in the 1992 and 1998 Waves of the Health and Retirement Study (HRS) to quantify the extent of retirement wealth erosion from pre-retirement lump-sum distributions. There is little evidence that spent distributions have resulted in significant pension leakage. If spent lump-sum

distributions had been rolled over into a tax-qualified plan instead, they would have represented in present value between 5 and 11 percent of pension and Social Security wealth for the median household that spent a distribution. However, one-quarter of the households that spent distributions—which is 2.25 percent of all households age 51 to 61—could have increased their pension and Social Security wealth by 25 percent or more had the distributions been rolled over into a tax-qualified plan.

On the one hand, this suggests that policies that enforce rollovers might not raise the retirement income security of the average American household currently entering retirement or that of the typical household that spent a distribution. On the other, this study was based on a national sample of individuals 51 to 61 years old in 1992 from the HRS. These data have significant advantages over those used in previous studies. However, the HRS respondents look more like old-style workers. They are more likely to have worked in manufacturing, have higher rates of unionization, and greater coverage by defined benefit plans than the typical workers of today. In fact, over one-half of all lump-sum distributions received by HRS individuals came from defined benefit plans. Therefore, resulting policy statements are most accurately applied to individuals and households of roughly the same age. If younger individuals have lower propensities toward saving, view pension assets as less dedicated toward retirement, or have greater access to funds (say, through defined contribution plans), then this analysis may underestimate the erosion to retirement income security for younger cohorts.

The paper is organized as follows. The second section discusses findings from the previous literature. The third section gives descriptive statistics from the HRS while the fourth section presents estimates of pension erosion. There is a brief conclusion.

Previous Literature

There has been great interest in lump-sum distributions. Descriptive and multivariate analyses include, among others, Fernandez (1992), Atkins (1986), Piacentini (1990), Andrews

(1985, 1991) Employee Benefit Research Institute (1989), Gelbach (1995), Chang (1996), Bassett, Fleming, and Rodrigues (1998), Poterba, Venti, and Wise (1998b), Sabelhaus and Weiner (1999), Burman, Coe, and Gale (1999a, 1999b), and Purcell (2000). The primary data source for these studies has been the employee benefits supplement of the Current Population Survey (CPS).[2] A consistent profile of distribution receipt and disposition has emerged out of these studies. Younger, more educated, lower-income, female, and unmarried workers have been more likely to have received a lump-sum distribution. Older, more educated, and male workers were more likely to have received larger distributions. Furthermore, there appears to be a significant correlation between the size of the distribution and its disposition: smaller distributions were more likely to have been consumed, larger ones more likely saved.

A number of recent papers have used a new data source on distributions: the Health and Retirement Study (HRS). The HRS is a longitudinal study of a sample of individuals age 51 to 61 in 1992. These individuals and spouses (regardless of age) were included in the study. There were a total of 12,652 individuals in the first Wave that constituted 7,607 households. Each Wave contained detailed information on employment, income, assets, debts, and pensions. Poterba, Venti, and Wise (1998b) used retrospective information on distributions from past jobs that was asked in Wave 1.[3] Their descriptive and linear probability analyses of individual characteristics and distributions broadly replicated what had been found in previous studies with the CPS.[4] In addition, they estimated linear probability models of the rollover decision. The explanatory variables included the size of the distribution, education, and 1992 income. They found that the probability of a rollover increased monotonically and significantly with size of the distribution and income, and was hump-shaped in educational attainment. Engelhardt (1999) also examined the determinants of disposition in the HRS. Overall, his results were quite similar to Poterba, Venti, and Wise (1998b). In addition, he found that earnings and industry at the time of severance have some power in explaining disposition of pension assets upon job change. In

addition, the reason for job termination was an important determinant of the disposition. Having been laid off, left work to care for a family member, quit, and moved are all associated with a lower likelihood of having made a tax-qualified rollover. Though somewhat speculative, the evidence suggested that pension assets have been used to buffer economic shocks to the household. Finally, Hurd, Lillard, and Panis (1998) examined job changes in Waves 1-3 of the HRS. They estimated probit models of the decision to roll over versus cash out and found results similar to those of previous studies with respect to demographics and income, as well as some evidence that workers with short time horizons and higher mortality risk were less likely to have rolled over.

Descriptive Analysis

To measure the extent of retirement wealth erosion, a sample of households from the 1992 HRS (Wave 1) was drawn. Each household contained at least one individual who either reported having left a job with a defined contribution (DC) plan, and thus was assumed to have had access to pension assets, or reported having received a lump-sum distribution from a defined benefit (DB) plan. The final sample consisted of 1,282 households, all of which had access to pension assets upon job change at least once prior to retirement. Appendix A gives a detailed description of pension information in the HRS and the sample construction.

Table 1 shows the disposition and size of pre-retirement distributions for the sample. These figures are weighted by the HRS sampling weights. Column (1), panel A, shows the percent of all recipients by disposition. Most recipients cashed out upon job termination. Only 26.7 percent of distributions were rolled into an IRA or left to accumulate in the employer's plan. A total of 67.6 percent were received as a cash settlement, on which ordinary income tax and, when appropriate, penalty were paid. If the pension was cashed out, the individual was asked about the use of the pension. There were four possible answers: spent, saved or invested, paid bills or debt, and other.[5] One-half of those who cashed out spent their distribution, about one-

quarter saved or invested, and about one-eighth paid off debt. About one-sixth of those who cashed out reported other as the use. If one assumes that other indicates uses that effectively were spending (i.e., does not include uses that increased non-pension assets or decreased non-pension debts), then 43.9 percent (33.62+10.24) of all recipients and 64.8 percent (43.9/67.6) of those who cashed out spent their distributions.

Columns (2) and (3) display statistics for recipients who reported DC and DB plans, respectively. Recipients with all other plan types are shown in column (3). Recipients with DC plans were more likely to have rolled their pension into an IRA and less likely to have received an after-tax cash settlement than recipients with other plans. However, upon receipt of a cash settlement, they were less likely to have saved or reduced debt than recipients who had other plans.

To evaluate the long-term effect of distributions on retirement income adequacy, it is important to know the extent to which cash settlements are put to "wealth-preserving" uses. The most common way to preserve wealth is through an IRA rollover. However, if the key policy concern is that pension distributions not be used for pre-retirement consumption, then an examination of IRA rollovers may be too narrow. For instance, workers may choose to pay taxes and penalties on a lump-sum distribution and invest in a non-pension asset or pay off debt. Under this interpretation, and tax considerations aside, unspent after-tax cash settlements represent shifts in the composition of the respondent's wealth portfolio, but do not constitute changes in total wealth. These funds are preserved and potentially could provide for income or consumption in retirement.

There are a number of caveats with this framework of "wealth preservation." First, it assumes that the assets purchased with distributions will be a good store of value until retirement (e.g., purchase of a house) and that the debt retired was incurred in the process of wealth accumulation, such as asset acquisition (e.g., paying down mortgage debt). It also has some

strong implicit assumptions about asset fungibility. Clearly, if the debt that was retired had financed previous consumption (e.g., credit card debt), then paying down debt with a distribution is not wealth preserving. This is especially the case for any borrowing done in anticipation of a distribution. If an individual took a vacation upon having received a distribution, that distribution is considered spent under the definition above. However, if the same individual borrowed to pay for the vacation in anticipation of the distribution and then used the distribution to pay off the debt, then the distribution is considered preserved. Both scenarios have the same economic consequences, but are measured differently. To the extent that paying down debt is not truly "saving," the figures in Table 1 will overstate the amount of wealth preservation.

Finally, because lifetime job changes are not random with respect to desired consumption, saving, and limitations on intertemporal choice, such as borrowing constraints, there is no convincing way to isolate the causal effects of lump-sum distributions on consumption and saving behavior. That is, households that saved distributions may have differed from households that spent distributions in ways that were systematically related to consumption and saving behavior. For example, "savers" may have had differentially better access to credit markets and debt-financed purchases whereas "spenders" may have had to equity-finance purchases and used their distributions as the equity source. The retrospective information on distributions in HRS (described in Appendix A) is the most detailed to date, but not detailed enough to account for such differences across households.

Panel B in Table 1 gives summary statistics by the type of rollover: tax-qualified and wealth preserving. Tax-qualified rollovers are distributions rolled to an IRA, transferred to a new employer, or converted to an annuity. None triggers federal income tax or penalties. Wealth-preserving rollovers include tax-qualified rollovers and after-tax cash settlements that were reported saved/invested or used to pay bills/debts. From column (1), only 28 percent of all recipients had tax-qualified rollovers. However, 51.7 percent had wealth-preserving rollovers.

Based on these figures, 23.7 percent of recipients had an after-tax cash settlement that was used to increase assets or reduce debts, and from panel A it is clear that most was for asset accumulation. This is surprising, because such portfolio reallocations come at the cost of the penalty tax and the present value of the loss of tax deferral (until retirement) on the distribution. Only individuals with a high marginal value of wealth (i.e., who had severe portfolio misallocations or were borrowing-constrained) rationally would have settled after-tax and preserved wealth.

As described above, it has been documented well by previous authors that larger distributions were more likely to have been saved than smaller distributions. Columns (4) through (6) show the mean distribution by disposition. The median is in square brackets. All figures are in real 1992 dollars.[6] In the bottom row in panel A, the mean and median distributions for all uses were $29,880 and $11,081, respectively. In comparison, the mean and median distributions for those recipients who rolled over to an IRA were significantly larger: $59,136 and $16,584, respectively. All after-tax cash settlements had a mean and median of $17,753 and $8,920, respectively. Within this category, settlements that were saved/invested were much larger than those that were spent or paid bills/debts.

Because larger distributions were more likely to have been saved, columns (7) through column (9) give the percent of all distributions by type of disposition as a measure of incidence. These dollar-weighted frequencies cast a more favorable picture of the preservation of pension wealth upon job change. In panel B, 55 percent of all distributions were tax-qualified rollovers, and 71.8 percent were wealth-preserving rollovers. Therefore, even though only about half of the recipients had wealth-preserving rollovers, almost 72 percent of the pre-retirement distribution dollars were saved. These results are similar to those found in Fernandez (1992), Poterba, Venti, and Wise (1998b), Bassett, Fleming, and Rodrigues (1998) and Chang (1996), among others.

Distributions and Retirement Wealth Erosion

The primary policy concern is that lump-sum distributions consumed prior to retirement may erode retirement income security. While undoubtedly true, previous studies have provided no evidence that this is quantitatively important. This is primarily because data sources used in those studies, such as the CPS, lacked information on Social Security, pension, and other wealth needed to measure impact of the leakage of pension assets on household wealth.

With its detailed information on pensions, Social Security wealth, lifetime earnings, demographics, and non-pension wealth, the HRS offers a unique opportunity to estimate how much spent lump-sum distributions have decreased retirement resources. The HRS has a number of advantages. First, it contains detailed data on household financial and housing wealth. Arguably, they are as good or better than the SIPP data. Second, the study obtained detailed information from the respondent on private pensions on current and past jobs.[7] Third, respondents were asked permission to link their survey responses to administrative earnings histories and benefits records from the Social Security Administration (SSA). These data are made available to researchers through a restricted-access data agreement. With detailed financial, housing, pension, and Social Security wealth, the HRS is the only household survey to give complete coverage of the household portfolio. Finally, the survey was well timed. Because they were 51 to 61 in 1992, the households were clustered around that critical age of 55, after which the law permits pension cash-outs without penalty.

The primary disadvantage is that the HRS only covers one birth cohort (i.e., those born 1931-41). The HRS respondents look more like old-style workers. They are more likely to have worked in manufacturing, have higher rates of unionization, and greater coverage by defined benefit plans than the typical workers of today (Gustman and Steinmeier 1999). In fact, over one-half of all lump-sum distributions received by HRS individuals came from defined benefit plans. Therefore, the estimated retirement wealth erosion may not apply to younger cohorts who

have had greater exposure to defined contribution plans and greater access to pension assets upon job change. This is discussed in more detail in the conclusion.

This section exploits the HRS wealth data and addresses important two questions. First, are households that spent distributions less wealthy going into retirement than those that did not? Second, how much more in retirement resources would households that spent distributions have had had they rolled over their distributions?

Are "Spenders" Currently Less Wealthy than "Savers"?

It is clear from the previous literature that individuals who rolled over distributions differed *at the time of termination* from those who spent them. In particular, "spenders" were younger; less educated, earned less, and had lower job tenure and smaller distributions. Unfortunately, the HRS did not ask retrospective questions about personal wealth at the time of termination. So, it is not known if spenders were systematically less wealthy than savers, and, therefore, the extent to which the disposition decision was related to lifetime wealth. However, the detailed data on present household wealth in the HRS can be used to assess a related question: whether those who spent distributions in the past are *currently* less wealthy (i.e., in 1992) than those who rolled over.

Panel A of Table 2 shows mean current wealth of households that ever spent a distribution versus those that saved all distributions. Standard deviations and medians are in parentheses and square brackets, respectively. Pension wealth is the present value (in 1992) of the household's claims to assets in DB and DC plans and the present value of any annuitized pensions, calculated from the self-reported pension information in Wave 1 by Venti and Wise (2000). It does not include the value of any lump-sum distributions that were rolled into an IRA. Surprisingly, spenders had *more* current pension wealth than savers: about $8,900 and $4,200 more at the mean and median, respectively. However, these differences were not statistically significant based on the *p*-values in columns (3) and (4).

A unique feature of the HRS is that respondents were asked permission to link their survey responses to administrative earnings histories and benefits records from the Social Security Administration. This has allowed for the construction of various measures of Social Security wealth for each survey household. The measure used came from two sources. For individuals with matched Social Security earnings histories, Social Security wealth came from the restricted access Earnings and Benefits File (EBF) for the 1992 HRS (Wave 1) from the Institute for Social Research at the University of Michigan. The calculation of the Social Security Wealth in the EBF is described in Mitchell, Olson, and Steinmeier (1996). For individuals without matched Social Security earnings histories, Social Security wealth was imputed using self-reported information on earnings histories in the 1992 and 1996 HRS (waves 1 and 3) following the method in Gustman and Steinmeier (1999). Spenders have about $15,000 and $24,000 less in Social Security wealth than savers at the mean and median, respectively. Both differences are statistically significant. However, when retirement resources are measured as the sum of current pension and Social Security wealth, there is no statistically significant difference between the groups.

The differences in mean and median non-housing wealth are large, about $60,000 and $13,000, respectively, and statistically significant. In contrast, the two groups look similar in terms of housing wealth. The differences in housing wealth are statistically significant (at around the 10 percent level of significance) but economically small. The last measure in panel *A* is total wealth, defined as the sum of Social Security, pension, non-housing, and housing wealth. Overall, spenders are substantially less wealthy than savers. Even at the median, households that spent distributions have almost $63,000 less in wealth than households that saved distributions.

Panel B compares the lifetime earnings of the two groups measured by the Social Security Average Indexed Monthly Earnings (AIME). Households that spent distributions had lower AIME by $232 and $290 per month, or $2,784 and $3,480 per year, at the mean and

median, respectively. These differences are statistically significant and economically important.

The analysis in Table 2 suggests that savers were wealthier than spenders in 1992. However, there may be other factors that account for this relationship and confound this result. To account for these potential factors, the analysis is expanded to a multivariate framework. Specifically, let W be a measure of household wealth in 1992, then standard life-cycle models of consumption and saving (e.g., Browning and Lusardi 1996) imply that

$$W = f(Y^{Permanent}, X), \tag{1}$$

or that wealth is a function of permanent income, $Y^{Permanent}$, and demographic characteristics, X. The econometric specification chosen was

$$W_i = b'X_i + g_1 AIME_i + g_2 AIME_i^2 + g_3 AIME_i^3 + dD_i^{Spent} + u_i, \tag{2}$$

which is consistent with (1), and linear in the parameters b, g_1, g_2, g_3, and d. Here, permanent income, $Y^{Permanent}$, is modeled flexibly as a cubic function of lifetime earnings as measured by the Social Security Average Indexed Monthly Earnings (AIME), taken from the restricted-access data.[8] The vector of demographics includes the standard controls for head's and spouse's age, education, race, religion, and health status, respectively, that have been shown to explain wealth in the previous literature.[9] Descriptive statistics for all variables are given in Appendix B. The key variable in the model is D^{Spent}, a dummy variable that is 1 if the household spent any distribution and 0 otherwise. If spenders currently are less wealthy than savers, conditional on permanent income and demographics, then $d < 0$.

Table 3 presents parameter estimates from equation (2) using a number of different measures of wealth as the dependent variable, W. The t-statistics are shown in parentheses. Column (1) uses the sum of pension, IRA, Keogh, and Social Security wealth as the dependent variable. The least squares estimates in column (1) imply that conditional on permanent income and demographics, spenders have $23,444 less of this broad measure of "pension" (public and

private) wealth than savers on average, and this difference is statistically significant.[10] To see the link between Tables 2 and 3, note that panel A of Table 2 showed that the unconditional mean pension, IRA, Keogh, and Social Security wealth of spenders was $257,148 and that of savers was $296,033. This implied a difference of $38,885 (=296,033-257,148) between the groups. But from column (1) of Table 3, the *conditional* mean difference between the groups was $23,444. Thus, the conditional mean difference (of $23,444) is 60 percent of the unconditional mean difference between the groups (of $38,885), so that controlling for the other factors in the multivariate analysis cuts down the difference in wealth holdings between the two groups by 40 percent.

Because the distribution of total wealth and its components are highly right-skewed, such that the mean greatly exceeds the median, column (2) presents parameter estimates based on median regression, as in standard in the literature.[11] Conditional on permanent income and demographics, spenders had $7,936 less than savers, but this difference was not statistically significant. The difference in the unconditional medians from Table 2 was $24,725, so that, again, controlling for the additional factors substantially reduced the between group differences in wealth holdings.

Columns (3) through 6 in Table 3 repeat the analysis in columns (1) and 2, but with other non-housing and total wealth as the dependent variables, respectively. The pattern of the results is similar. Spenders are less wealthy than savers, even controlling for permanent income and demographics. However, the magnitudes of these differences are much less than those in Table 2.

The analysis in Tables 2 and 3 was based on data from Wave 1 (1992) of the HRS, when the households were between the ages of 51 and 61. Many of the relatively younger households in this sample (say, in their early 50s) may have 10 to 15 years left in the labor force before retirement. Hence, one could argue that even though spenders may be less wealthy than savers in

1992, spenders may expect to make up that difference by the time of retirement, and, indeed, they have adequate time to do so. Tables 4 and 5 explore this hypothesis.

First, one way in which spenders may compensate for the lower wealth levels found in Tables 2 and 3 is to work longer. In Wave 1 (1992) of the HRS, respondents were asked questions about their expectations about retirement (in section K of the questionnaire).[12] Specifically, respondents were asked about when they expected to retire.[13] The question sought to elicit a specific calendar year or age, although some individuals responded they would "never" retire. Based on the responses to this question, the following econometric model was estimated

$$\begin{aligned} Expected\,Years\,of\,Work_i = {} & \beta' X_i + \gamma_1 AIME_i + \gamma_2 AIME_i^2 + \gamma_3 AIME_i^3 + \delta D_i^{Spent} + \\ & \alpha_1 W_i^{AllPension} + \alpha_2 W_i^{OtherNon-Housing} + \alpha_3 W_i^{Housing} + u_i \end{aligned} \tag{3}$$

where expected years of work are a function of the same variables in equation (2), namely permanent income and demographics, as well as all pension wealth (measured as the sum of pension, IRA, Keogh, and Social Security wealth), housing wealth, and other non-housing wealth. The sum of these three wealth measures comprises total household wealth. If spenders intended to work longer, then, conditional on permanent income, demographics, and current wealth, $\delta > 0$.

Parameter estimates for this model are shown in the first two columns of Table 4. The dependent variable measures the expected number of years of work remaining until retirement. Obviously, this number cannot be less than zero. In addition, individuals in 478 of the 1,230 households in the sub-sample indicated they would "never" retire. Because there is no way to know when these individuals actually will retire, the dependent variable in column (1) was coded so that these individuals would retire in calendar year 2029. This means that these individuals (who were 51 to 61 in 1992) would work until they were 88 to 98 years old. Therefore, the dependent variable is limited, so that the parameters were estimated using the 2-limit Tobit maximum likelihood estimator. The parameter estimates in column (1) indicate that conditional

on permanent income, demographics, and current wealth, spenders do not intend to work longer than savers. However, the coding of those who would "never" retire to retire in calendar year 2029 was somewhat arbitrary and probably highly unrealistic. Therefore, in column (2), I excluded those households with individuals that said they would never retire and re-estimated the parameters in equation (3). Now, conditional on permanent income, demographics, and current wealth, spenders expect to work 0.78 of a year (or about nine months) longer than savers. This effect is statistically significant.

Second, respondents were asked about whether they expected their standard of living (relative to that in 1992) to change upon retirement.[14] Based on the responses to this question, an ordinal index of the expected change in living standard at retirement was constructed (this is described in Appendix A) and this was used as the dependent variable in the following econometric model

$$\begin{aligned} \textit{Index of Change in Living Standards}_i = {} & \beta' X_i + \gamma_1 AIME_i + \gamma_2 AIME_i^2 + \gamma_3 AIME_i^3 + \\ & \delta D_i^{Spent} + \alpha_1 W_i^{AllPension} + \alpha_2 W_i^{OtherNon-Housing} + \\ & \alpha_3 W_i^{Housing} + u_i, \end{aligned} \tag{4}$$

where the explanatory variables are the same as in equation (3). A higher level of the index means a greater expected increase in living standards. If spenders intend to catch up to savers by retirement, then, conditional on permanent income, demographics, and current wealth, $\delta > 0$. The parameter estimates for this model are shown in column (3) of Table 4. Because the dependent variable is ordinal, the ordered probit maximum likelihood estimator was used.[15] The estimates in indicate that, conditional on permanent income, demographics, and current wealth, spenders do not expect to have a differentially greater increase in living standards at retirement than savers.

Third, another way in which spenders may compensate for the lower wealth levels found in Tables 2 and 3 is to accumulate more savings in the time remaining until retirement.

Specifically, respondents were asked about how much they expected to have accumulated in savings by the time of retirement.[16] This was used as the dependent variable in the following econometric model

$$\begin{aligned} Expected\ Savings_i = {} & b'X_i + g_1 AIME_i + g_2 AIME_i^2 + g_3 AIME_i^3 + \\ & dD_i^{Spent} + a_1 W_i^{AllPension} + a_2 W_i^{OtherNon-Housing} + a_3 W_i^{Housing} + u_i, \end{aligned} \tag{5}$$

where the explanatory variables are the same as in equation (3) and the dependent variable is measured in 1992 dollars. If spenders intend to catch up to savers by retirement, then, conditional on permanent income, demographics, and current wealth, $d > 0$. Ordinary least squares parameter estimates for this model are shown in column (4) of Table 4. The estimates indicate that, conditional on permanent income, demographics, and current wealth, spenders expected to have accumulated $8,509 more savings at retirement than spenders, but this is not statistically significant. Because the distribution of savings is highly right-skewed, such that the mean greatly exceeds the median, column (5) presents parameter estimates based on median regression.[17] Now, conditional on permanent income, demographics, and current wealth, spenders expected to have accumulated $3,545 *less* than savers before retirement, but, again, this difference was not statistically significant.

The results in Tables 2 and 3 suggest that spenders are less wealthy than savers, and those in Table 4 indicate that spenders did not intend to make up this difference by the time of retirement by saving more. There is at least some evidence that suggest spenders may have intended to work longer. Importantly, because the decisions to spend, save, and work are likely functions of many unobserved household characteristics, many of which also affect saving behavior, the specifications in equations (2) through (5) have some potentially critical endogeneity issues. Consequently, these results cannot be viewed as causal, but rather as speculative. Viewed in the best light, they are suggestive that there might be differences in wealth between spenders and savers, and that those are likely to persist into retirement.[18]

Since the original version of this paper, subsequent Waves of the HRS (beyond Wave 1 in 1992) have been released for public use. Even if spenders were less wealthy than savers and expected themselves to remain so as of 1992, one could use the longitudinal feature of the HRS to determine if this *actually* transpired. Table 5 presents mean current wealth of households that ever spent a distribution versus those that saved all distributions for Wave 4 of the HRS, administered in 1998, and the most recent Wave for which wealth data have been released for public use.[19] The figures are expressed in real 1992 dollars to facilitate comparison with Table 2 for 1992 (Wave 1). Standard deviations and medians are in parentheses and square brackets, respectively. Unfortunately, pension wealth is not available for 1998, and the restricted-access data agreement under which this research was conducted prohibits linking administrative earnings histories and benefits records from the Social Security Administration to the HRS Wave 4 wealth data. Therefore, it was not possible to replicate all of the wealth measures from Table 2 in Table 5.

Overall, Table 5 indicates that even by 1998, when the households were 57 to 67 years old, spenders remain less wealthy than savers, although the statistical significance of the between-group differences is somewhat weakened.[20] As in Table 2 for 1992, savers have economically and statistically significantly greater IRA and Keogh wealth than spenders in 1998. The difference in mean non-housing wealth is large, almost $200,000, but the difference in medians is only about $8,200, and not statistically significant. The two groups continue to look similar in terms of housing wealth. The differences in housing wealth are economically relatively small, not statistically significant at the mean, but statistically significant at the median. The last and broadest measure in Table 5 is total non-pension wealth, defined as the sum of IRA, Keogh, other non-housing, and housing wealth. Again, spenders are substantially less wealthy than savers. Even at the median, households that spent distributions have about $52,000 less in wealth than households that saved distributions. Therefore, it appears that the differences in wealth

between the two groups persist into retirement. Spenders do not appear to catch up.

Measuring Erosion

How much more in retirement resources would households that spent distributions have had had they rolled over their distributions? Erosion of retirement resources is measured by *PVS*, the household's "present value of spent lump-sum distributions." It is the amount of wealth that all spent lump-sum distributions would have grown to today had they been rolled over to a tax-qualified plan and invested rather than cashed out and spent. The "present" is 1992. Specifically, for unmarried individuals in the sample, *PVS* was calculated as follows. First, for each past job with a spent distribution, the present investment value of that distribution was calculated. This required knowing the year and amount of the distribution (given in the HRS) and the periodic real rate of return. Based on historical returns in Ibbotson Associates (1997), annual real rates of return were calculated for three investment strategies: 100 percent investment in corporate bonds; 50 percent in corporate bonds and 50 percent in stocks; and, 100 percent in stocks. For married couples, *PVS* was calculated for the individual and spouse and then summed.

Panel A in Table 6 gives the empirical distribution of *PVS* for the sub-sample of 659 households in the 1992 HRS that had a member who spent at least one pre-retirement lump-sum distribution. The figures in columns (1) through (3) reflect the three assumptions about the investment mix just outlined. The mean present value of spent lump-sum distributions was $37,002 if invested solely in bonds. With a higher risk-return investment strategy of 100 percent stocks, this increased to $54,643. Like other measures of wealth, *PVS* is right-skewed, such that the mean greatly exceeds the median. At the median, *PVS* was $17,065 and $23,167 if invested all in bonds and all in stocks, respectively. A total of 69 percent of households in this sub-sample had positive current pension wealth. The remaining 31 percent had none. The tabulations in panel A are replicated for the two subgroups in panels B and C. Interestingly, the empirical distributions of *PVS* are quite similar within subgroups.

Column (4) gives the empirical distribution of current pension wealth. In panel A, mean and median current pension wealth were $96,173 and $22,853, respectively. In addition, column (5) displays "counterfactual" pension wealth. This is sum of current pension wealth and the present value of spent distributions with an investment mix of 50 percent bonds and stocks, respectively. It represents the pension wealth the household would have had currently had it not spent any past distributions and instead rolled them over. Mean and median counterfactual pension wealth were $141,981 and $77,921, respectively.[21]

Measured in absolute terms, it is clear that pension wealth would have been significantly higher for some households had distributions been rolled over. For the households with no current pension wealth (panel C), mean and median pension wealth would have been $48,845 and $21,695, respectively. Based on the 75th percentile, 25 percent of these households would have had $52,724 or more in pension wealth if the distributions had been rolled over.

The results in Tables 4 and 6 can be linked to do an interesting back-of-the-envelope calculation. In column (2) of Table 4, it was estimated that spenders intended to work 0.78 years (or about nine months) longer than savers. Mean and median household income in 1992 for spenders were $46,628 and $38,700, respectively. Therefore, an additional 0.78 years of work would bring an additional $36,370 and $30,186 in income at the mean and median, respectively. Even if *all* of this additional income were saved for retirement, these two figures would represent 79 percent (i.e., 0.79 = 36,370/45,807) of the mean and 142 percent (i.e., 1.42 = 30,186/21,125) of the median present value of spent lump-sum distributions from panel A of Table 6, under the assumption of a 50 percent bonds and 50 percent stocks investment. Because it is highly unrealistic that all of this income will be saved, it appears unlikely that the additional expected nine months of work will be sufficient to make up for the lost pension wealth from spent distributions.

Next, to determine whether the absolute dollar amounts in Table 6 would have

supplemented actual retirement resources significantly, they should be compared to broader measures of household wealth. Therefore, the relative importance of erosion is measured as

$$\frac{PVS}{W}, \tag{6}$$

where the denominator, *W*, is a measure of the household's retirement wealth. Panel A of Table 7 examines *PVS* relative to current pension wealth for the subgroup of households with positive current pension wealth. The empirical distribution is quite dispersed. A sizeable number of households spent distributions that were very small relative to current pension wealth. For example, based on the 25th percentile, 25 percent of these households would have increased their pension wealth by between 7 and 9 percent or less if spent distributions had been rolled over. In contrast, the median household could have augmented its pension wealth by between 25 and 37 percent. Finally, based on the 75th percentile, 25 percent of these households would have increased their current pension wealth by between 90 and 129 percent or more (i.e., at least double). These figures indicate that spenders were a heterogeneous group. Some spent distributions that were a trivial fraction of their lifetime pension accumulations. Others consumed a very large portion of their lifetime pension wealth.

Panel B provides tabulations similar to those in panel A, but for all households with spent distributions. Now, erosion is larger. For the median household, spent distributions represented between 77 and 110 percent of current pension wealth. In fact, for the 31 percent of this sample with no current pension wealth, (6) is undefined. Households in this subgroup spent all of their lifetime pension wealth.

Because current pension wealth is not the only source of income in retirement, Table 8 compares *PVS* relative to three broader measures of household wealth. The first, in panel A, is the sum of current pension and Social Security wealth. Erosion is modest because spenders had significant Social Security wealth (as shown in Table 2). The median household could have

increased its retirement wealth by between 8 and 11 percent had it rolled over. However, for a small fraction of households, having saved the distribution would have significantly increased resources for retirement. For example, 25 percent of the households would have had between 24 and 32 percent or more in retirement wealth, and 10 percent would have had between 59 and 75 percent or more.

Because households could have saved for retirement outside of public and private pensions, panel B uses the sum of Social Security, pension, and non-housing wealth as a measure of retirement wealth. Importantly, non-housing wealth includes IRA and Keogh wealth, which could be significant sources of retirement income. By this metric, spent distributions become less important. The median household with a spent distribution could have increased its retirement wealth by between 5 and 7 percent had it rolled over the distributions. One-quarter of the households would have had between 15 and 21 percent or more in retirement wealth, and one-tenth would have had between 38 and 51 percent or more.

Finally, because housing equity, in principle, can provide resources for retirement, panel C uses total wealth (the sum of Social Security, pension, non-housing, and housing wealth) as a measure of retirement wealth.[22] By this metric, spent distributions become even less important. The median household with a spent distribution could have increased its retirement wealth by between 4.5 and 6.4 percent had it rolled over the distributions. One-quarter of the households would have had between 12.5 and 17 percent or more in retirement wealth, and one-tenth would have had between 28.6 and 41.2 percent or more.

Overall, Table 8 suggests consumed distributions did not result in significant erosion of retirement resources broadly measured for the great majority of households that spent their distributions. However, because of heterogeneity among those that spent distributions, there is a small group of households that could have raised their retirement resources substantially (those in the 75th percentile and higher in Table 8) had they rolled over. However, it should be

emphasized that this subgroup represents only 2.25 percent of all households age 51 to 61.

Table 9 repeats the tabulations in Table 8 by race and education categories for an investment mix of 50 percent bonds and stocks, respectively. Measured in terms of current pension and Social Security wealth (panel A), there was little difference in erosion by race. When wealth was measured more broadly, as in panels B and C, nonwhites had slightly greater erosion than whites. For example, in panel B, columns (1) and 2, the median white household with a spent distribution could have improved retirement resources (excluding housing) by 6.2 percent, whereas the median nonwhite household could have improved by 8.1 percent.

Erosion rose with educational attainment (columns (3) through (7)). For example, in panel A, the median high-school-dropout household with a spent distribution could have improved retirement resources by 6.6 percent compared to 12.5 percent for the median bachelor's-degree household, and 20.2 percent for the median more than college household. Erosion was greatest for the most educated.

Conclusions

There is little evidence from the HRS that pre-retirement lump-sum distributions have caused significant leakage from the pension system. If spent lump-sum distributions had been rolled over into a tax-qualified plan instead, they would have represented in present value between 5 and 11 percent of pension and Social Security wealth for the median household that spent a distribution. However, one-quarter of the households that spent distributions—which is 2.25 percent of all households age 51 to 61—could have increased their pension and Social Security wealth by 25 percent or more had the distributions been rolled over into a tax-qualified plan. This suggests that policies that enforce rollovers might not raise the retirement income security of the average American household currently entering retirement or that of the typical household that spent a distribution.

There is an important caveat to these findings. This study was based on a national sample of individuals 51 to 61 years old in 1992. These data have significant advantages over those used in previous studies. However, the HRS respondents look more like old-style workers. They are more likely to have worked in manufacturing, have higher rates of unionization, and greater coverage by defined benefit plans than the typical workers of today. In fact, over one-half of all lump-sum distributions received by HRS individuals came from defined benefit plans. Therefore, resulting policy statements are most accurately applied to individuals and households of roughly the same age. If younger individuals have lower propensities toward saving, view pension assets as less dedicated toward retirement, or have greater access to funds (say, through DC plans), then analysis from the HRS may underestimate the erosion to retirement income security for younger cohorts.

Finally, the descriptive analysis found in this paper is a crucial step in formulating a model of the long-run implications of lump-sum distributions on the adequacy of retirement income benefits. Poterba (1996), Samwick and Skinner (1996), and Poterba, Venti, and Wise (1998a, 2001) have represented some recent attempts at describing the long-run implications for retirement income benefits of the shift to DC plans, and 401(k)s in particular, accounting for lump-sum distributions. However, neither these previous studies nor this paper produced estimates of a behavioral model that would allow for long-run analysis of changes in pension policy. Such a model should be the ultimate goal of this line of research.

Endnotes

1. This research was sponsored under Contract No. B9374558 by the U.S. Department of Labor. I thank Patricia Anderson, Alan Gustman, Tom Steinmeier, Steve Venti, and, especially, David McCarthy, Joe Piacentini, three referees and the editor, Rosanne Altshuler, for helpful discussions and comments. I thank Steve Venti and Tom Steinmeier for their assistance with the pension and Social Security wealth data used in this study, respectively. All analysis with the HRS restricted-access data was done under agreement in the Department of Economics, Dartmouth College, and the Center for Policy Research, Syracuse University. All errors are my own.

2. This supplement was administered to approximately 27,000 individuals in 1983, 1988, and 1993, respectively. It asked detailed questions about employee benefits, including pensions, pre-retirement lump-sum distributions, and their disposition. Sabelhaus and Weiner (1999) used IRS data.

3. The information on lump-sum distributions in the HRS is discussed in detail in Appendix A of the current paper and in Poterba, Venti, and Wise (1998). A review of the quality of the wealth variables in the HRS can be found in Moon and Juster (1995) and Smith (1995).

4. Korczyk (1998) also used the 1992 HRS and confirmed these patterns.

5. Respondents that cashed out were also asked if they saved or invested their pension in an IRA. Those that indicated so were included in the IRA rollover category. It should be emphasized that it was possible to have indicated multiple uses of distributions. Specifically, respondents who indicated that part was saved/invested and part was rolled over into an IRA were coded by the HRS as having saved/invested. Hence, the percent of dispositions that remained tax-sheltered in Table 1 is understated.

6. The All-Items Consumer Price Index (CPI) was used as the price deflator.

7. These data are described in detail in Appendix A. Gustman, Mitchell, Samwick, and Steinmeier (1999) and Gustman and Steinmeier (1999) have provided comprehensive evaluations of this information.

8. Carroll (2000) and Dynan, Skinner, and Zeldes (2000), among others, have found a non-linear relationship between income and wealth in household data. This cubic specification also is not inconsistent with their findings and models.

9. Information on age, race, religion, and education for head (spouse) come from section A of the HRS questionnaire. Specifically, race is measured by a dummy variable that is 1 if the head (spouse) is white and 0 otherwise. Religion is measured by two dummy variables. The first is one if the head (spouse) is Catholic and 0 otherwise; the second is one if the head (spouse) is Jewish and 0 otherwise. Health is based on self-reported health status from section B of the HRS questionnaire. Specifically, the head (spouse) was asked (Question B1) "Would you say your health is excellent, very good, good, fair, or poor?"

The specification includes three dummy variables, for excellent, very good, and good health, with those with fair or poor health as the excluded group.

10 The focus here is on the estimate of the effect of having any spent distribution, and not on the other parameter estimates per se. Also, when viewing the estimates vis-à-vis the previous literature on saving, it must be kept in mind that this is a selected sample, in that it includes only households with lump-sum distributions, and not all households. Nonetheless, the results are not inconsistent with the previous literature. In general, in columns (1) through (6), head's and spouse's education and age are important and statistically significant predictors of wealth. The linear, quadratic, and cubic terms of AIME are jointly significant at the 5 percent level in all the specifications, as theory would predict. The religion dummies are jointly significant in all, and the health dummies in some, of the specifications.

11. The *t*-statistics shown for the median regression estimates in Table 3 are based on bootstrapped standard errors with 125 replications.

12. Lusardi (1999) describes and analyzes these questions in detail.

13. The actual wording was (Question K13) "When do you think you will retire (completely)?" The possible responses were to give a calendar year, an age.

14. The actual wording was (Question K23) "When you [and your (husband/wife/partner)] decide to retire, do you expect your living standards to increase a lot, increase somewhat, stay about the same as now, decline somewhat, or decline a lot?" This question was only asked to those that did not indicate they would "never" retire. Those who indicated they would "never" retire skipped this question.

15. The estimates of the cut-off points in the normal distribution for this model are not shown in Table 4, but are available upon request from the author.

16. The actual wording was (Question K24) "Not counting IRA, Keogh or any pension fund assets that you [and your (husband/wife/partner)] may have, roughly how much savings and reserve funds do you expect to have accumulated by the time you decide to retire?"

17. The *t*-statistics shown for the median regression estimates in Table 3 are based on bootstrapped standard errors with 100 replications.

18. The endogeneity issues are obvious and without solution due to the lack of plausibly exogenous instrumental variables. Nonetheless, I think the results in Tables 3 through 5 are intriguing, and I would like to thank one of the referees for suggesting the estimation of these specifications.

19. As of the writing of this version of the paper, HRS 2000 (Wave 5) was in the field.

20. The tabulations in Table 5 were performed on the sub-sample of 1,142 households in 1998 that remained intact, out of the 1,282 households in 1992 from Table 2. That is, of the 1,282 households in 1992, 140 changed composition due to divorce or widowhood. Because changes in household composition are associated with large changes in wealth

holdings, these households were excluded from the 1998 analysis, as is standard in the literature.

21. The means in columns (2) and (4) sum to that in column (5). But because the median of a sum is not necessarily the sum of the medians, the median in column (5) is not the sum of the medians in columns (2) and (4); this is true for the other percentiles shown as well.

22. In principle, housing equity can finance retirement consumption, although, in practice, the elderly spend down very little housing equity (Venti and Wise 1984; 1989; 1990; 1991).

TABLE A-1:
Empirical Distribution of Recall Length and Age at Which Jobs Were Terminated

	(1)	(2)
Percentile	Recall Length Since 1992 Interview (Years)	Age at Which Job was Terminated
10^{th}	2	30
25^{th}	4	37
50^{th}	9	44
75^{th}	17	50
90^{th}	24	55
Mean	11.4	43.5

APPENDIX B:
Descriptive Statistics for the Samples in Tables 3 and 4

Variable	(1) Full Sample: 1,230 Obs. Mean (Standard Deviation) [Median]	(2) Sub-Sample: 752 Obs. Mean (Standard Deviation) [Median]
Dummy if Spent Any Distributions	0.534	0.547
Head's Education (Years)	13.25 (2.85) [13.00]	13.26 (2.84) [13.00]
Spouse's Education (Years)	12.95 (2.32) [12.00]	12.91 (2.33) [12.00]
Head's Age	56.45 (5.22) [56.00]	55.51 (4.19) [55.00]
Spouse's Age	52.66 (5.85) [53.00]	51.79 (5.92) [53.00]
Dummy if Head is Catholic	0.23	0.23
Dummy if Spouse is Catholic	0.25	0.26
Dummy if Head is Jewish	0.03	0.03
Dummy if Spouse is Jewish	0.03	0.03
Dummy if Head is White	0.84	0.83
Dummy if Spouse is White	0.87	0.88
Dummy if Head is in Excellent Health	0.27	0.28
Dummy if Head is in Very Good Health	0.32	0.32
Dummy if Head is in Good Health	0.27	0.28

APPENDIX B (Continued)

Variable	(1) Full Sample: 1,230 Obs. Mean (Standard Deviation) [Median]	(2) Sub-Sample: 752 Obs. Mean (Standard Deviation) [Median]
Dummy if Spouse is in Excellent Health	0.29	0.29
Dummy if Spouse is in Very Good Health	0.35	0.37
Dummy if Spouse is in Good Health	0.27	0.26
Lifetime Earnings (AIME)	2489.11 (981.10) [2590.12]	2455.82 (1006.22) [2550.00]
Pension, IRA, Keogh, and Social Security Wealth	266,114 (230,288) [212,474]	266,644 (258,350) [201,692]
Other Non-Housing Wealth	177,866 (539,566) [45,500]	142,212 (467,693) [40,000]
Housing Wealth	65,767 (129,389) [50,000]	64,026 (82,903) [49,750]
Total Wealth	509,747 (667,851) [358,254]	472,882 (656,762) [327,281]
Expected Years of Work Until Retirement	11.14 (13.71) [6.50]	7.32 (5.23) [7.00]
Ordinal Index of Expected Change in Living Standard at Retirement	—	1.53 (0.40) [1.43]
Non-Pension Savings Expected by Retirement	—	218,954 (578,204) [85,000]

Note: This appendix table shows descriptive statistics for the explanatory and dependent variables for all the specifications in Tables 3 and 4. Means are shown for all variables; standard deviations (in parentheses), and medians (in square brackets) are shown for continuous variables only. The full sample refers to the 1,230 households used in all specifications in Table 3 and column (1) of Table 4. The sub-sample refers to the 752 households used in the specifications in columns (2) through (5) in Table 4. Definitions for all variables are described in the text or Appendix A. All variables denominated in dollars are measured in real 1992 dollars. The descriptive statistics for spouse's variables are taken over the sub-sample of married households.

Table 1. Disposition and Size of Lump-Sum Distributions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Percent of All Recipients			Mean [Median] Distribution			Percent of Distribution		
Disposition	All Plans	DC Plans	DB Plans	All Plans	DC Plans	DB Plans	All Plans	DC Plans	DB Plans
A. Individual Uses									
IRA Rollover or Left to Accumulate	26.67	38.76	16.80	59,136 [16,584]	41,441 [14,029]	92,496 [23,643]	52.79	62.35	46.73
Transferred to new Employer[a]	0.61	1.35	—	66,888 [28,094]	66,888 [28,094]	—	1.36	3.50	—
Converted to an Annuity[a]	0.67	1.50	—	39,997 [38,152]	39,997 [38,152]	—	0.90	2.33	—
Cash:	67.63	55.58	77.48	17,753 [8,920]	14,086 [7,487]	19,903 [10,156]	40.19	30.40	46.38
Spent	33.62	23.24	42.10	16,931 [8,220]	13,088 [7,328]	18,664 [9,401]	19.05	11.81	23.63
Saved or Invested	15.21	7.28	21.69	25,928 [13,762]	26,650 [16,691]	25,729 [12,698]	13.20	7.53	16.78
Paid Bills or Debts	8.57	3.69	12.55	12,509 [7,725]	9,521 [7,725]	13,227 [7,821]	3.59	1.36	4.99
Other	10.24	21.38	1.14	12,702 [6,106]	11,681 [5,261]	28,285 [11,056]	4.35	9.69	0.97
Other	4.42	2.81	5.72	32,421 [23,213]	13,138 [5,500]	39,128 [31,250]	4.76	1.42	6.89
Total	100.00	100.00	100.00	29,880 [11,081]	25,758 [10,522]	33,248 [11,468]	100.00	100.00	100.00
B. Type of Rollover									
Tax-Qualified	27.95	41.60	16.80	58,843 [17,458]	42,212 [15,478]	92,496 [23,643]	55.05	68.18	46.73
Wealth-Preserving	51.72	52.57	51.04	41,491 [13,429]	37,762 [14,503]	44,630 [12,731]	71.83	77.07	68.51

Note: Figures in columns (1)-(3) and (7)-(9) are percentages. Figures in columns (4)-(6) are means, with medians in square brackets, and are in real 1992 dollars. All figures in the table were calculated using the HRS analysis weights based on the sample of 1,282 individuals described in the text. When weighted, this sample represented 2,713,816 aggregate households.

[a]This category was not listed as a possible response on the questionnaire for those with non-DC plans.

Table 2. 1992 Mean and Median Wealth and Lifetime Earnings for Households that Spent versus Saved Lump-Sum Distributions

	(1)	(2)	(3)	(4)
	All Households that		*p*-value for the Test of the Equality of	
Variable	Spent Any Distributions	Saved All Distributions	Means	Medians
A. Measure of Wealth				
Pension Wealth	96,173	87,237	0.484	0.516
	(186,295)	(218,514)		
	[22,853]	[18,623]		
IRA and Keogh Wealth	17,341	47,770	0.0001	0.0001
	(45,417)	(111,583)		
	[0]	[12,000]		
Pension, IRA, and Keogh Wealth	113,604	135,007	0.126	0.058
	(195,155)	(247,529)		
	[42,114]	[58,959]		
Social Security Wealth	143,544	158,877	0.004	0.0001
	(65,206)	(67,145)		
	[137,097]	[161,011]		
Pension and Social Security Wealth	239,717	246,114	0.444	0.402
	(202,161)	(245,461)		
	[186,747]	[194,077]		
Pension, IRA, Keogh and Social Security Wealth	257,148	293,884	0.014	0.043
	(213,077)	(276,733)		
	[200,339]	[225,064]		
Other Non-Housing Wealth	156,511	216,763	0.078	0.024
	(475,249)	(636,972)		
	[41,000]	[54,000]		
Housing Wealth	63,647	78,855	0.091	0.110
	(176,379)	(94,394)		
	[50,000]	[57,000]		
Total Non-Pension Wealth	237,588	343,388	0.002	0.002
	(514,549)	(711,886)		
	[114,000]	[152,000]		
Total Wealth	477,306	589,502	0.004	0.001
	(603,288)	(818,692)		
	[342,897]	[405,817]		
B. Measure of Lifetime Earnings				
Social Security Average Indexed Monthly Earnings (AIME)	2,345	2,577	0.010	0.017
	(1,117)	(1,128)		
	[2,360]	[2,650]		

Note: Standard deviations are in parentheses and medians in square brackets. All figures are in 1992 dollars and were calculated using the HRS household analysis weights. These statistics were calculated on the subsample of 1282 HRS households, 659 of which spent any lump sum distributions and 623 of which saved all lump sum distributions. When weighted, the subgroup of 659 represented 1,556,433 aggregate households and the subgroup of 623 represented 1,525,737 aggregate households. Pension wealth is the household's present value of claims to pension assets in 1992 based on self-reported pension data and is taken from Venti and Wise (2000). Social Security Wealth is the household's expected present value of claims to Social Security in 1992 and is taken from the HRS Social Security Earnings and Benefits File and Gustman and Steinmeier (1999) as described in the text. Total wealth is the sum of pension, Social Security, non-housing, and housing wealth. Social Security Average Indexed Monthly Earnings (AIME) are from the HRS Social Security Earnings and Benefits File. Other non-housing wealth is non-pension, non-housing wealth in forms other than IRA's and Keogh's. Total non-pension wealth is the sum of other non-housing wealth, housing wealth, and wealth in IRA's and Keogh's. It does not include wealth in the form of pensions or Social Security.

Table 3. Estimates of the Effect of Having Spent a Past Distribution on Current Wealth

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Pension, IRA, Keogh and Social Security Wealth	Pension, IRA, Keogh and Social Security Wealth	Other Non-Housing Wealth	Other Non-Housing Wealth	Total Wealth	Total Wealth
Estimator:	OLS	Median	OLS	Median	OLS	Median
Explanatory Variables:						
Dummy if Spent Any Distributions	-23,444 (2.03)	-7,936 (1.02)	-47,450 (1.61)	-6,508 (1.51)	-86,696 (2.35)	-21,548 (1.80)
Head's Education (Years)	14,780 (6.20)	6,426 (4.53)	21,212 (3.51)	4,378 (4.08)	41,123 (5.42)	19,036 (7.30)
Spouse's Education (Years)	5,363 (1.94)	5,138 (2.46)	7,701 (1.09)	1,850 (1.65)	12,264 (1.39)	13,673 (5.62)
Head's Age	5,043 (4.18)	4,976 (5.99)	4,702 (1.52)	1,553 (2.29)	10,723 (2.79)	8,185 (5.99)
Spouse's Age	634 (0.82)	361 (0.62)	-320 (0.16)	-86 (0.25)	800 (0.32)	-161 (0.20)
Dummy if Head is Catholic	29,639 (1.64)	8,072 (0.94)	39,528 (0.85)	3,458 (0.45)	80,122 (1.39)	52,832 (2.86)
Dummy if Spouse is Catholic	-25,925 (1.31)	-2,311 (0.18)	-94,673 (1.88)	-10,892 (1.27)	-115,808 (1.84)	-25,180 (1.06)
Dummy if Head is Jewish	284,830 (4.40)	8,865 (0.10)	-105,987 (0.63)	-15,414 (0.35)	207,389 (1.01)	114,024 (0.43)
Dummy if Spouse is Jewish	-260,873 (3.55)	22,532 (0.20)	145,564 (0.76)	120,290 (1.36)	-25,940 (0.11)	156,128 (0.58)
Dummy if Head is White	-25,008 (1.07)	-10,947 (1.18)	123,156 (2.06)	8,317 (1.24)	105,617 (1.43)	3,111 (0.14)
Dummy if Spouse is White	13,586 (0.50)	-20,388 (0.96)	-104,555 (1.51)	266 (0.03)	-96,629 (1.12)	-12,423 (0.36)
Dummy if Head is in Excellent Health	11,453 (0.57)	1,538 (0.16)	26,343 (0.53)	31,532 (4.21)	45,323 (0.71)	63,039 (3.26)
Dummy if Head is in Very Good Health	-5,102 (0.27)	-1,343 (0.15)	29,390 (0.62)	5,672 (1.21)	24,233 (0.40)	-2,975 (0.19)
Dummy if Head is in Good Health	-13,359 (0.70)	-6,588 (0.83)	24,001 (0.51)	7,846 (1.43)	-9,129 (0.15)	4,946 (0.34)

Table 3. (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Pension, IRA, Keogh and Social Security Wealth	Pension, IRA, Keogh and Social Security Wealth	Other Non-Housing Wealth	Other Non-Housing Wealth	Total Wealth	Total Wealth
Estimator:	OLS	Median	OLS	Median	OLS	Median
Explanatory Variables:						
Dummy if Spouse is in Excellent Health	1,384 (0.06)	3,897 (0.21)	56,327 (0.93)	6,474 (0.78)	69,423 (0.87)	3,873 (0.16)
Dummy if Spouse is in Very Good Health	-8,359 (0.35)	-11,913 (0.71)	90,836 (1.57)	-916 (0.11)	87,443 (1.14)	-17,772 (0.81)
Dummy if Spouse is in Good Health	-1,405 (0.06)	-4,032 (0.26)	-3,929 (0.07)	-6,311 (1.01)	-11,509 (0.15)	-14,812 (0.70)
Lifetime Earnings (AIME)	-40 (0.70)	-37 (1.03)	71 (0.49)	28 (0.79)	145 (0.80)	50 (0.70)
Lifetime Earnings (AIME) Squared	-0.0016 (0.07)	-0.0014 (0.08)	-0.021 (0.34)	-0.020 (1.13)	-0.033 (0.44)	-0.017 (0.53)
Lifetime Earnings (AIME) Cubed	-0.0000015 (0.50)	0.0000017 (0.69)	0.0000029 (0.38)	0.0000044 (1.60)	0.0000054 (0.57)	0.0000061 (1.53)
Constant	-393,508 (4.64)	-304,783 (6.29)	-586,587 (2.70)	-144,210 (3.04)	-1,079,713 (4.00)	-612,565 (8.25)
R-squared	0.25	0.24	0.05	0.06	0.12	0.20
Number of Observations	1230	1230	1230	1230	1230	1230

Note: This table shows estimates of the parameters from equation (1) on the subsample of 1230 (that had non-missing data for all explanatory variables) of the 1282 HRS households described in the text. The *t*-statistics are shown in parentheses. The *t*-statistics for the median regression estimates are based on bootstrapped standard errors with 125 replications. Pension wealth is the household's present value of claims to pension assets in 1992 based on self-reported pension data and is taken from Venti and Wise (2000). Social Security Wealth is the household's expected present value of claims to Social Security in 1992 and is taken from the HRS Social Security Earnings and Benefits File and Gustman and Steinmeier (1999) as described in the text. Total wealth is the sum of pension, Social Security, non-housing, and housing wealth. Social Security Average Indexed Monthly Earnings (AIME) are from the HRS Social Security Earnings and Benefits File. Other non-housing wealth is non-pension, non-housing wealth in forms other than IRA's and Keogh's. Lifetime earnings are measured by Social Security Average Indexed Monthly Earnings (AIME) and, as such, appear as real 1992 dollars earned per month.

Table 4. Estimates of the Effect of Having Spent a Past Distribution on Expected Retirement, Living Standards, and Saving

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	Expected Years of Work Until Retirement	Expected Years of Work Until Retirement	Ordinal Index of Expected Change in Living Standard at Retirement	Non-Pension Savings Expected by Retirement	Non-Pension Savings Expected by Retirement
Estimator:	Tobit	Tobit	Ordered Probit	OLS	Median
Dummy if Spent Any Distributions	-0.229 (0.24)	0.780 (2.12)	0.049 (0.63)	8,509 (0.25)	-3,545 (0.48)
Head's Education (Years)	0.207 (1.03)	-0.072 (0.95)	0.007 (0.42)	-5,214 (0.74)	1,997 (1.12)
Spouse's Education (Years)	0.555 (2.44)	0.428 (4.74)	-0.022 (1.13)	9,120 (1.09)	4,986 (2.47)
Head's Age	-0.660 (6.52)	-0.514 (11.01)	-0.016 (1.68)	-11,517 (2.67)	-1,727 (1.84)
Spouse's Age	-0.158 (2.46)	-0.135 (5.37)	0.009 (1.64)	-1800 (0.77)	-337 (0.47)
Pension, IRA, Keogh and Social Security Wealth	-0.000011 (4.41)	-0.0000016 (1.78)	0.00000063 (3.93)	0.385 (0.45)	0.047 (0.61)
Other Non-Housing Wealth	-0.00000045 (0.49)	-0.00000019 (0.39)	0.00000032 (2.77)	0.461 (10.62)	0.290 (2.01)
Housing Wealth	-0.0000077 (2.03)	-0.0000092 (3.24)	-0.000000094 (2.77)	1.389 (5.40)	0.542 (3.54)
Dummy if Head is White	2.552 (1.32)	-0.520 (0.76)	-0.224 (1.27)	9,797 (0.16)	-2,841 (0.28)
Dummy if Spouse is White	-0.568 (0.25)	1.165 (1.37)	-0.0017 (0.01)	3,326 (0.04)	-12,002 (0.64)
Dummy if Head is in Excellent Health	3.558 (2.15)	0.419 (0.65)	0.348 (2.46)	67,496 (1.13)	37,892 (2.42)
Dummy if Head is in Very Good Health	3.029 (1.90)	0.421 (0.68)	0.250 (1.84)	55,252 (0.97)	20,008 (2.07)
Dummy if Head is in Good Health	1.401 (0.88)	-0.076 (0.12)	0.279 (1.97)	69,026 (1.21)	6,199 (0.70)

Table 4 (Continued)

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	Expected Years of Work Until Retirement	Expected Years of Work Until Retirement	Ordinal Index of Expected Change in Living Standard at Retirement	Non-Pension Savings Expected by Retirement	Non-Pension Savings Expected by Retirement
Estimator:	Tobit	Tobit	Ordered Probit	OLS	Median
Explanatory Variables:					
Dummy if Spouse is in Excellent Health	-0.968 (0.47)	1.033 (1.20)	-0.046 (0.26)	-45,408 (0.57)	-4,213 (0.20)
Dummy if Spouse is in Very Good Health	-0.847 (0.43)	1.048 (1.27)	0.035 (0.21)	22,330 (0.29)	1,510 (0.08)
Dummy if Spouse is in Good Health	-0.694 (0.34)	0.488 (0.59)	-0.021 (0.12)	-19,297 (0.25)	-16,886 (1.02)
Lifetime Earnings (AIME)	-0.003 (0.65)	0.006 (3.05)	-0.0014 (2.63)	-212 (1.12)	2 (0.03)
Lifetime Earnings (AIME) Squared	-0.0000006 (0.31)	-0.000002 (2.63)	0.0000005 (2.39)	0.088 (1.05)	-0.012 (0.33)
Lifetime Earnings (AIME) Cubed	0.00000006 (0.27)	0.00000003 (2.37)	-0.00000006 (2.27)	-0.00001 (0.89)	0.0000037 (0.60)
Dummy if Head is Catholic	0.897 (0.61)	0.152 (0.28)	0.067 (0.57)	36,444 (0.73)	-9,739 (1.00)
Dummy if Spouse is Catholic	-0.299 (0.19)	0.394 (0.65)	-0.002 (0.01)	-89,953 (1.60)	10,462 (0.69)
Dummy if Head is Jewish	1.153 (0.21)	-0.111 (0.06)	-0.211 (0.82)	741,308 (4.38)	307,526 (0.67)
Dummy if Spouse is Jewish	2.868 (0.47)	3.071 (1.41)	0.099 (0.33)	-691,245 (3.42)	-15,558 (0.03)
Constant	39.738 (5.56)	31.883 (10.30)	—	714,378 (2.51)	75,593 (1.35)
σ	15.996 [0.389]	4.880 [0.139]	—	—	—
Log-Likelihood	-4225.4	-2088.5	-1155.7	—	—
R-squared	0.02	0.05	0.03	0.39	0.19
Number of Observations	1230	752	752	752	752

Note: *t*-statistics are shown in parentheses. The *t*-statistics for the median regression estimates are based on bootstrapped standard errors with 125 replications. The standard error of the estimate of σ for the Tobit models is shown in square brackets in columns (1) and (2). The estimated cut-off points in the normal distribution are not shown for the ordered probit model in column (3), but are available from the author upon request. The dependent variable in columns (4) and (5), non-pension savings expected by retirement, is measured in real 1992 dollars. The estimates in column (1) were calculated using the sub-sample of 1230 HRS households used in Table 3. As described in the text, the estimates in columns (2)-(5) were calculated using the sub-sample of 752 households that did not report they would never retire in Question K13 and answered Question K24 on accumulated savings by the expected time of retirement, which is the dependent variable in column (5).

Table 5. 1998 Mean and Median Wealth for Households that Spent versus Saved Lump-Sum Distributions

	(1)	(2)	(3)	(4)
	All Households that		*p*-value for the Test of the Equality of	
Measure of Wealth	Spent Any Distributions	Saved All Distributions	Means	Medians
IRA and Keogh Wealth	56,427	79,185	0.018	0.0001
	(167,381)	(157,291)		
	[0]	[15,493]		
Other Non-Housing Wealth	187,755	383,226	0.178	0.200
	(871,505)	(3,344,448)		
	[39,164]	[47,384]		
Housing Wealth	90,671	99,348	0.293	0.001
	(162,517)	(112,382)		
	[61,112]	[76,175]		
Total Non-Pension Wealth	334,652	561,759	0.128	0.006
	(1,015,526)	(3,399,514)		
	[139,439]	[191,514]		

Note: Standard deviations are in parentheses and medians in square brackets. All figures are in 1992 dollars and were calculated using the HRS household analysis weights. These statistics were calculated on the sub-sample of 1,142 intact HRS households in Wave4 (1998) of the 1,282 HRS households in Wave1 (1992) shown in Table 2. Other non-housing wealth is non-pension, non-housing wealth in forms other than IRAs and Keoghs. Total non-pension wealth is the sum of other non-housing wealth, housing wealth, and wealth in IRAs and Keoghs. It does not include wealth in the form of pensions or Social Security.

Table 6. The Present Value of Spent Lump-Sum Distributions and Pension Wealth, 1992 Dollars

	(1)	(2)	(3)	(4)	(5)
	Present Value of Spent Lump-Sum Distributions				
	Investment (in percent):				
Percentile	100 Bonds	50 Bonds, 50 Stocks	100 Stocks	Current Pension Wealth	Counterfactual Pension Wealth
A. All Households with Spent Distributions					
10th	2,583	2,994	2,994	0	7,746
25th	5,714	7,042	7,874	0	22,924
50th	17,065	21,125	23,167	22,853	77,921
75th	42,857	49,339	56,824	119,247	173,009
90th	79,692	100,923	120,748	290,063	350,588
Mean	37,002	45,807	54,643	96,173	141,981
B. Households with Spent Distributions and Positive Current Pension Wealth					
10th	2,615	2,994	3,202	5,000	17,176
25th	5,602	7,048	7,874	18,835	46,600
50th	15,754	18,628	22,993	71,841	116,026
75th	40,079	49,339	56,824	191,930	242,201
90th	82,704	105,401	121225	313,566	411,593
Mean	35,704	44,507	53,354	137,309	181,816
C. Households with Spent Distributions and No Current Pension Wealth					
10th	2,583	2,858	2,953	0	2,858
25th	6,230	6,903	7,874	0	6,903
50th	17,722	21,695	24,660	0	21,695
75th	44,725	52,724	56,939	0	52,724
90th	78,766	96,650	119,992	0	96,650
Mean	40,038	48,845	57,656	0	48,845

Note: All figures are in 1992 dollars and were calculated using the HRS household analysis weights. These statistics were calculated on the subsample of 659 HRS households that ever spent a lump sum distribution. When weighted, this sub-sample represented 1,556,433 aggregate households. A total of 69 percent of these households had positive current pension wealth in 1992 (the households in panel B) and 31 percent had no current pension wealth (the households in panel C). The present value of spent lump-sum distributions is described in the text and is based on historical asset returns from Ibbotson Associates (1997). Current pension wealth is the household's present value of claims to pension assets in 1992 based on self-reported pension data and is taken from Venti and Wise (2000). Counterfactual pension wealth in column (5) is the sum of actual pension wealth and the present value of spent lump-sum distributions assuming an investment mix of 50 percent bonds and 50 percent stocks. It represents the pension wealth the household would have had had it not spent past distributions.

Table 7. The Present Value of Spent Lump-Sum Distributions as a Percentage of Current Pension Wealth

	(1)	(2)	(3)
	Investment (in percent):		
Percentile	100 Bonds	50 Bonds, 50 Stocks	100 Stocks
A. Households with Spent Distributions and Positive Current Pension Wealth			
10th	1.93	2.42	2.70
25th	6.56	8.51	9.19
50th	25.38	32.10	36.92
75th	90.27	110.84	128.54
90th	422.55	508.71	618.42
B. All Households with Spent Distributions			
10th	3.06	3.72	4.09
25th	12.82	15.59	17.59
50th	77.19	95.55	109.60
75th	a	a	a
90th	a	a	a

Note: All figures are percentages and were calculated using the HRS household analysis weights. These statistics were calculated on the subsample of 659 HRS households that ever spent a lump-sum distribution. When weighted, this subsample represented 1,556,433 aggregate households. A total of 69 percent of these households had positive current pension wealth in 1992 (the households in panel A). The present value of spent lump-sum distributions is described in the text and is based on historical asset returns from Ibbotson Associates (1997). Current pension wealth is the household's present value of claims to pension assets in 1992 based on self-reported pension data and is taken from Venti and Wise (2000).

[a]The percentage is undefined because the households in this part of the empirical distribution had no current pension wealth.

Table 8. The Present Value of Spent Lump-Sum Distributions as a Percentage of Broader Measures of Wealth

	(1)	(2)	(3)
	Investment (in percent):		
Percentile	100 Bonds	50 Bonds, 50 Stocks	100 Stocks
A. As a Percentage of Social Security and Pension Wealth			
10th	1.16	1.27	1.37
25th	2.87	3.53	3.80
50th	8.13	9.73	11.17
75th	23.73	27.25	32.06
90th	58.91	65.30	74.50
B. As a Percentage of Social Security, Pension, and Non-Housing Wealth			
10th	0.69	0.81	0.97
25th	1.91	2.28	2.54
50th	5.36	6.42	7.27
75th	14.91	17.94	20.47
90th	37.72	44.29	50.72
C. As a Percentage of Total Wealth			
10th	0.63	0.71	0.79
25th	1.62	1.93	2.17
50th	4.52	5.24	6.43
75th	12.53	14.99	17.06
90th	28.64	35.38	41.15

Note: All figures are percentages and were calculated using the HRS household analysis weights. These statistics were calculated on the subsample of 659 HRS households that ever spent a lump-sum distribution. When weighted, this subsample represented 1,556,433 aggregate households. The present value of spent lump-sum distributions is described in the text and is based on historical asset returns from Ibbotson Associates (1997). Current pension wealth is the household's present value of claims to pension assets in 1992 based on self-reported pension data and is taken from Venti and Wise (2000). Social Security Wealth is the household's expected present value of claims to Social Security in 1992 and is taken from the HRS Social Security Earnings and Benefits File and Gustman and Steinmeier (1999) as described in the text. Total wealth is the sum of pension, Social Security, non-housing, and housing wealth.

Table 9. The Present Value of Spent Lump-Sum Distributions as a Percentage of Wealth, by Race and Education

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Investment (in percent): 50 bonds, 50 Stocks						
	Race		Education				
Percentile	White	Nonwhite	High School Dropout	High School Diploma	Some College	Bachelor's Degree	More than College
A. As a Percentage of Social Security and Pension Wealth							
25th	3.54	3.63	2.68	2.56	3.55	4.48	6.97
50th	9.73	9.87	6.60	8.91	9.49	12.45	20.20
75th	26.47	33.76	15.32	23.95	29.06	36.11	32.47
B. As a Percentage of Social Security, Pension, and Non-Housing Wealth							
25th	2.18	2.64	2.06	1.94	2.27	2.66	3.48
50th	6.21	8.13	5.30	6.21	6.61	5.32	10.32
75th	17.74	22.46	13.60	16.16	20.85	18.76	21.48
C. As a Percentage of Total Wealth							
25th	1.88	2.21	1.86	1.76	1.96	2.36	2.71
50th	5.19	7.30	4.78	5.19	5.42	4.75	9.80
75th	14.41	20.38	11.03	12.96	17.23	16.77	18.25

Note: All figures are percentages and were calculated using the HRS household analysis weights. These statistics were calculated on the subsample of 659 HRS households that ever spent a lump-sum distribution. When weighted, this subsample represented 1,556,433 aggregate households. The present value of spent lump-sum distributions is described in the text and is based on historical asset returns from Ibbotson Associates (1997). Current pension wealth is the household's present value of claims to pension assets in 1992 based on self-reported pension data and is taken from Venti and Wise (2000). Social Security Wealth is the household's expected present value of claims to Social Security in 1992 and is taken from the HRS Social Security Earnings and Benefits File and Gustman and Steinmeier (1999) as described in the text. Total wealth is the sum of pension, Social Security, non-housing, and housing wealth. Total wealth is the sum of pension, Social Security, non-housing, and housing wealth. Race and education are that of the individual in the household who received the lump-sum distribution that was spent. If more than one member of the household ever spent a distribution, then the race and education are that of the individual designated the HRS primary respondent.

Appendix A: HRS Description and Sample Construction

HRS pension information is from two sources. The first is self-reported by the individual. It is based on a battery of questions about the individual's pension on the current and previous jobs. Spouses were asked the same questions. The self-reported information includes the type of plan (formula-based (DB), account-based (DC), or combination), early and normal retirement dates, participation in, contributions to, and level of accumulation in the plan, as well as lump-sum distributions from past plans and their disposition. The second is firm-reported. It comes from a pension plan survey administered to all employers of HRS individuals. It does not have individual-level information nor information on lump-sum distributions at the firm, other than eligibility rules described in the Summary Plan Description. Gustman, Mitchell, Samwick, and Steinmeier (1999) discussed the HRS pension data in detail. The current paper only uses self-reported information on pensions.

Pension on the Current Job—Questions about the pension on the current job are from Section F of the survey. The survey asked the individual whether its plan allows for receipt of benefits in the form of a lump-sum payment. However, no questions were asked in Wave1 about whether a lump-sum amount had been distributed from that plan, such as through a loan or hardship withdrawal from a 401(k). Hurd, Lillard, and Panis (1998) used information on lump-sum eligibility on the current job to study disposition behavior across Waves1-3 of the HRS.

Pension on the Last Job—For those individuals who indicated in Section F they were doing no work for pay at the time of the survey, a detailed set of questions was asked about the last job. These questions are in Section G. This information included the start and end dates for the job, industry, occupation, weekly hours worked, earnings at the end date, firm size, earnings at the start date, union status, reason for termination, and whether there had been a pension plan. The

type of plan was asked for those with a pension: formula-based (DB), account-based (DC), or combination.

For those who had a formula-based plan, combination, or did not know, questions were asked about the disposition of those pension assets. The possible responses were expect future benefits, receiving benefits now, received cash settlement, rolled over into an IRA, lost benefits, and other. The amounts of the cash settlement and IRA rollover were asked as well. For those who received a cash settlement, the disposition of the amount was asked: bought durable goods; spent it; saved/invested; paid off debt; and rolled into an IRA.

For those who indicated an account-based plan, questions were asked about the disposition of those pension assets. Possible answers were withdrew the money, rolled over into an IRA, left the money with the firm to accumulate, converted to an annuity, and other. In contrast to the questions for formula-based plans, no additional questions were asked about the disposition of the money for those who withdrew. The exception was for those who responded "other" and volunteered how the money was disposed. This was a very small fraction of the responses.

Pensions on Previous Jobs—The HRS also asked about pensions for jobs that lasted five years or more with the same employer. These questions were asked in Section H for up to three jobs. This information included the start and end dates for the job, industry, occupation, weekly hours worked, earnings at the end date, and whether there had been a pension. In addition, the type of plan was asked: formula-based (DB), account-based (DC), or combination. Unfortunately, questions on union status, firm size, earnings at the start date, and reason for termination were not asked.

The sequence of questions on formula-based pensions on the previous jobs was the same as that for the last job (in Section G). However, the sequence for account-based pensions differed slightly from that described above for the last job. When asked about the disposition of assets,

the possible answers were transferred to a new employer, rolled over into an IRA, left the money with the firm to accumulate, converted to an annuity, and other. There was no specific answer for "withdrew the money." Individuals who withdrew had to have answered "other" and then have given a description. These descriptions subsequently were re-coded in the public use version of the HRS as: cash settlement- spent; cash settlement- saved or invested; cash settlement- paid debts or bills; cash settlement- rolled over into an IRA; and, cash settlement- not ascertainable as to what the individual did with the money.

Employment status at the time of the interview (Question F1, Section F) was used to narrow the sample further. Because of the focus on *pre-retirement* distributions, only previous jobs with pensions from Section H were considered for those who reported "Disabled" or "Retired" to Question F1. In addition, for those who reported "Working Now," only previous jobs with pensions from Section H were considered. Finally, those who reported "Unemployed and Looking for Work" or "Temporarily Laid Off;" "On Sick or Other Leave" were not considered retired, even if they reported they were no doing any work for pay in Question F2. Thus, the last job in Section G and previous jobs in Section H with pensions were considered.

For the purposes of the study, an account-based plan described above is a "defined contribution" plan and a formula-based plan is a "defined benefit" plan. The final sample consisted of 1,282 households, all of whom had at least one individual with access to pension assets upon job change at least once prior to retirement. About 100 of these individuals reported having had access on more than one prior job change.

Ordinal Index of Expected Change in Living Standard at Retirement—In Wave1, respondents were asked about whether they expected their standard of living (relative to that in 1992) to change upon retirement. Specifically, this question was only asked to those that did not indicate they would "never" retire. Those that indicated they would "never" retire skipped this question. The actual wording was (Question K23) "When you [and your (husband/wife/partner)]

decide to retire, do you expect your living standards to increase a lot, increase somewhat, stay about the same as now, decline somewhat, or decline a lot?" The index that was used for the dependent variable for the ordered probit estimation in column (3) of Table 4 was made as follows. First, for each individual, the possible responses were given the following numeric values, so that a larger numeric value indicates a more positive change in living standards at retirement: a 5 for "increase a lot," a 4 for "increase somewhat," a 3 for "stay about the same as now," a 2 for "decline somewhat," and a 1 for "decline a lot." For married couples, each spouse answered this question, so for them, I simply averaged the numeric values, giving each spouse equal weight. A higher level of the index means a greater expected increase in living standards.

Length of Recall for the Retrospective Questions and Distribution of Ages at Which Jobs Were Terminated—Column (1) of Appendix Table A-1 shows the distribution of the length of recall (in years) for the retrospective questions on the previous jobs queried in sections G and H in Wave1 and described above. The mean and median lengths of recall were 11.4 and 9 years, respectively. Selected percentiles of the empirical distribution of recall lengths are shown as well to get a sense of the spread of the distribution. 25 percent of the households recalled jobs (in 1992) that had ended less than or equal to four years earlier, and 75 percent recalled jobs that had ended less than or equal to 17 years earlier. Column (2) shows the distribution of the ages at which jobs were terminated. The mean and median ages were 43.5 and 44 years, respectively. Twenty-five percent of the households recalled jobs (in 1992) that had ended when age 37 or younger, and 75 percent recalled jobs that had ended when age 50 or younger. The youngest age in the sample was for a 61-year-old individual in 1992 that retrospectively reported that in 1952, at the age of 21, he received a distribution.

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