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# 11 Pensions and the Distribution of Wealth

Kathleen McGarry and Andrew Davenport

Over the past few decades, the financial status of the elderly improved dramatically. Poverty rates for those aged 65 or over fell from 25 percent in 1970 to 14 percent in 1994. These gains are attributed in large part to increases in the generosity of the social security program. Yet, despite the inclusiveness of the social security system and the progressivity of the benefit schedule, some subgroups of the elderly continue to face disproportionately high risks of poverty. Unmarried women, for example, had a poverty rate of 22 percent in 1994, while the poverty rate for married women was 5 percent. Similarly, the poverty rate for elderly blacks is close to three times that for elderly whites (31 vs. 12 percent).

Social security is just one component of retirement income, and given the structure of benefits, differences across individuals in the level of social security wealth are likely to be small in comparison to differences in the other components of total wealth. For example, despite large differences in lifetime income, the difference in mean social security benefits between retired blacks and retired whites is about $100 a month (Social Security Administration 1990). Given average life expectancies for the two groups at age 65 (for males), and a real interest rate of 3 percent, the difference in social security wealth is just $35,000. The large differences in economic well-being within the elderly population therefore stem from differences in the other modes of savings.

Recently, much has been written about differences in net worth and savings behavior between different groups of elderly individuals (Smith 1995).[1] Less

1. Throughout the paper we will use the term "net worth" to denote nonpension, non–social security (and non–human capital) wealth.

well studied are differences in pension wealth and the interaction of pensions and individual wealth. In this paper we use data from the Health and Retirement Survey (HRS) to focus on differences in pension wealth for various subgroups of the retirement age population. We ask how pensions affect the distribution of wealth in the population. If individuals who have claims to pensions save less on their own as a result, then the inclusion of pension wealth with other assets may reduce inequality. Conversely, if a pension is just one component of a good job, then those with pensions will also have higher income and higher wealth than those without, and the inclusion of pension wealth may exacerbate wealth inequalities. We compare the distribution of net worth to the distribution of private wealth (net worth plus pension wealth). We find that the addition of pension wealth broadly reduces inequality but affects different subgroups of the population to different degrees: single men fare better with the inclusion of pension wealth, while single women fare worse. The differences by race are small.

Section 11.1 gives an overview of the pension data available in the HRS and discusses the assumptions we use to calculate pension wealth. Section 11.2 presents some broad descriptive characteristics of pension plans and patterns of ownership in our sample, section 11.3 analyzes the pension wealth of individuals, and section 11.4 focuses on the distribution of household pension wealth in comparison with net worth. Section 11.5 concludes.

## 11.1 Data

The Health and Retirement Survey is a nationally representative sample of the population born between 1931 and 1941 and their spouses or partners. At the time of the first interview in 1992, respondents were approximately aged 51–61. They were therefore approaching retirement age or recently retired. This sample is potentially more useful for analyzing the prevalence of pensions than random samples drawn from the entire population; older workers are more likely to be vested in a pension plan than are younger workers, they are more likely to be participating in an available plan, and they are more likely to be contemplating retirement. For these reasons they are also perhaps more knowledgeable about the characteristics of their pension plans.

The survey provides information on important economic measures such as the components of income and wealth, measures of health status, information about the current job, and details of pension plans. A more detailed description of the survey is contained in Juster and Suzman (1995). Here the aspects of the survey related to the calculation of pension wealth will be described. We devote much time to explaining the assumptions used in our calculations in the hope that they will attract attention to the rich data requirements and perhaps begin a discussion of the standard assumptions that should be used with these data.

The data on the value of pensions come from three sections in the survey.

The first section asks about up to three pension plans on the current job. The definition of pensions in the HRS is broad.

> Now I'd like to ask about pension or retirement plans on your job *sponsored by your employer or union.* This includes not only basic pension or retirement plans, but also tax-deferred plans like thrift, savings, 401k, deferred profit-sharing, or stock ownership plans. [Emphasis in original]

For each of these plans workers are asked whether the plan is a defined contribution (DC) plan, a defined benefit (DB) plan, or a plan that combines aspects of both DC and DB plans. The survey then branches to ask questions particular to the type of pension. DC plan holders are asked for the current balance in their accounts, the amount of money they contribute to the account, and the amount of their employers' contributions. The structure of DB plans results in more elaborate questioning schemes. Great care is taken in the survey to uncover the important nuances of the plans. Respondents with DB plans are asked first to report the age at which they expect to begin receiving a pension and the amount they expect to receive, either as a specific payment or as a percentage of final salary (expected final salary is also reported). In addition to benefits at this age, respondents are asked to report the earliest age at which they could receive full (unreduced) benefits and the amount of full benefits, as well as the age at which they can first receive any benefit and the reduction relative to full benefits.[2] As a first step to understanding the distribution of pension wealth, our analysis focuses on the value of pension wealth at the age at which respondents *expect* to receive benefits.[3]

For those not currently working, a subsequent section of the survey asks about pensions on the last job. In this section respondents are asked whether they had a DC or DB plan and, accordingly, the amount in a DC account when they left the employer, whether they are currently receiving benefits from a DB plan, or when they expect to receive benefits. For those currently receiving benefits the amount is obtained, as well as the date at which they started receiving the pension, and whether the pension was ever adjusted for inflation. For those who are not yet receiving benefits, the survey asks at what age they expect to receive benefits and how much their benefit will be. Questions about the earliest age at which pensions could be received are also asked, but neither the amount nor the age at which they qualify for full benefits was obtained.

A final section asks an identical set of questions for (up to three) past jobs

2. It is not clear in any of these questions whether the amount is in current or future dollars. We assume future income is reported in future dollars.

3. We choose to examine pension wealth based on the "expected age" in part to impose consistency between participants in DC plans, who were asked only about the age at which they expect to begin drawing benefits, and those in DB plans, and in part because this age provides the best approximation of the resources eventually available to the individual. Individuals may opt to collect benefits at ages that do not maximize pension wealth for a variety of reasons, such as the need to make the decision jointly with a spouse or because of health concerns. If pension wealth differs across sectors of the population for these reasons, that difference, in and of itself, is interesting.

that lasted five or more years. This section is asked both for those who are currently working and for those who are no longer employed.

From these three sections a complete pension history can be constructed. We calculate pension wealth for both DB and DC plans at the age at which the individual expects to begin receiving benefits and discount that value to current dollars. We therefore ignore any possibility that the worker separates from the firm before the expected retirement date or that the characteristics of the plan change during that time. We do not subtract a worker's own contributions from either DB or DC plans, although these amounts are known. Because we seek to analyze the portion of wealth "tied up" in pensions and not to comment on the relative compensation levels across individuals or firms, we believe this procedure is valid.

To convert the flow from a DB plan into a stock of wealth we use age-specific life tables.[4] We assume a 3 percent real rate of return and 4 percent inflation. Because we do not know whether pensions on the *current* job are indexed for inflation, we treat only government pensions as indexed. In calculating pension wealth from past jobs we treat a pension as being defined in real terms if the respondent answers yes to the question, "Are the benefits adjusted for changes in the cost of living?" By this method 46 percent of pensions from past jobs are indexed.[5] The large number of workers who claim that their pensions adjust for inflation contradicts results of past studies. Kotlikoff and Smith find that approximately 3 percent of pension recipients are in plans that provide automatic adjustments for inflation (1983, 274). Quinn (1982) reports data from Munnell and Connolly (1979) that only 6 percent of private pension plans contain built-in provisions for inflation adjustments.[6]

For DC plans we assume that wages grow with inflation but are flat in real terms.[7] We add employer and employee contributions in each year to the current balance and discount back to the current period.

An important omission in the HRS wave 1 data is the failure to determine

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4. It is not obvious whether age-specific or age-, race-, and sex-specific life tables are preferred. Using separate life expectancies by sex implies that males and females with identical pension plans retiring at the same age will have different values of pension wealth. Because women live longer than men on average, ceteris paribus the value of pension wealth for women will be higher than that for men if detailed life tables are used. By a similar argument, the pension wealth of blacks will be lowered relative to whites if a life table that differs by race is used. Smith (1995) uses life tables by age, race, and sex, while Gustman et al. (1997) use those controlling for age alone. An earlier version of this paper (McGarry and Davenport 1996) used age-, race-, and sex-specific tables. We note the differences between the two calculations at several points in the paper.

5. A second question asks whether benefits had ever been adjusted for inflation. Of those who answered no to the first question, 13 percent said that their pensions had been adjusted at least once. We do not alter our calculations based on this second response.

6. We expect that the difference comes from the wording of the question. The HRS asks whether benefits are adjusted, not whether the adjustment is automatic. Pensions without cost-of-living adjustment clauses are often adjusted on an ad hoc basis (Allen, Clark, and Sumner 1986).

7. Wage regressions point to a flattening of the wage profile with age. Murphy and Welch (1990) show wages beginning to fall after about 25 years of experience, corresponding to an age similar to that of the HRS respondents.

whether the reported pension benefit would be paid to the worker's widow(er) should he or she die.[8] We expect that some reported benefits would be calculated based on single life, and some using joint survivorship.[9] Because we have no way to impute this information, we calculate two measures of pension wealth. Under the assumption that pensions are single life, we use the survival probabilities appropriate for the owner of the pension. For joint and survivor pensions, we use the survival probabilities of the couple. On average, for all married individuals, pension wealth is 20 percent greater if we assume that the reported benefits are from a joint life policy than if they are from a single life policy (benefits for unmarried individuals are unchanged). For the sake of brevity we report only the single life values in this paper. The conclusions are qualitatively unchanged if we use joint life values for couples, although the difference in pension wealth between married and single individuals is, of course, increased.

Much of our work in calculating pension wealth dealt with the handling of missing values. The HRS went to great effort to reduce the number of missing values. For many of the questions in the survey, including those used to calculate pension wealth, a respondent who could not report an exact answer was permitted to provide a categorical response based on a specified list of possible categories printed on a "range card." For example, a respondent who had a DC plan, but who did not know the exact balance, could report that it was between $2,501 and $10,000, or $10,001 and $50,000, and so forth. In cases where respondents used the range card we impute an exact value with the mean over the valid responses in that interval. If the datum was completely missing (i.e., no information on range was available), we used regression procedures to impute a value.[10]

The entire HRS sample consists of 12,652 individuals, including age-ineligible spouses. For our discussion of individual pension coverage and pension wealth, we eliminate those who were not born between 1931 and 1941 and who are therefore not part of the population representative sample. However, when comparing pension wealth and net worth on a household level, we include the pension wealth of age-ineligible spouses. In addition to imposing the age restriction, we eliminate those who are self-employed (446), because their behavior and choices with respect to pensions are likely to differ from

8. Wave 2 of the HRS will obtain this information for those currently receiving benefits. Hence, it will be possible to calculate accurately pension wealth for all but those currently employed.

9. Turner (1988) reports that in 1978 (post-ERISA, but pre-REACT) only about 40 percent of those with pensions had joint and survivor plans. More recent calculations, based on those first receiving benefits in 1989, place the percentage with survivorship benefits at 66 percent (Turner and Beller 1992).

10. For many of the pension variables there are a large number of missing values; in some cases close to half of the respondents were unable to report a value. Those with missing values on the pension variables are typically worse off than those who report values and have less generous pensions. Failure to impute values therefore leads to incorrect inference about the characteristics of pensions. The appendix provides details of the imputation methods, including a table of the number of observations with imputed values.

**Table 11.1                     Distribution of Pension Holdings**

| Sample | Covered by Pension (%) (1) | Percentage of Each Type of Plan[a] | | |
| --- | --- | --- | --- | --- |
| | | DB Only (2) | DC Only (3) | Both (4) |
| Entire sample ($n = 8,330$) | 66 | 31 | 16 | 17 |
| Ever worked[b] ($n = 6,429$) | 78 | 36 | 18 | 22 |
| Currently working ($n = 5,438$) | 79 | 34 | 19 | 24 |
| On current job ($n = 5,438$) | 67 | 28 | 20 | 18 |
| Males ($n = 3,674$) | 82 | 39 | 16 | 26 |
| Females ($n = 4,656$) | 52 | 24 | 15 | 11 |
| Whites ($n = 5,826$) | 69 | 31 | 16 | 20 |
| Nonwhites ($n = 2,489$) | 54 | 28 | 14 | 10 |
| All households ($n = 7,122$) | 78 | 32 | 14 | 30 |

[a]Percentages in cols. (2), (3), and (4) do not sum to col. (1) due to missing values. Approximately 2 percent report that they do not know what type of plan they have.
[b]"Ever worked" is defined as either working currently or ever having held a job for five or more years.

those who work for someone else,[11] and those with missing information on pension status (48). With these restrictions our sample consists of 8,330 individuals.

## 11.2   Characteristics of Pensions

Differences in pension wealth across the population stem from differences in who is covered by pensions, in the generosity of pension plans as measured by the dollar value of benefits, and in the age at which benefits are payable. In this section we present summaries of these characteristics for the entire sample and then focus on differences between subgroups of the population.

Table 11.1 shows that in our sample of 8,330 individuals whose pension status is known, 66 percent report that they are covered by a pension. Our measure of pension holdings includes pensions from any job, not just on the current job. Individuals may therefore have two or more plans and may have plans from different employers. In fact, 25 percent of the sample have pensions that are not from their most recent jobs (current jobs if working). Many studies of pensions, in particular those based on firm-level data, miss this portion of pension wealth. Including all plans, 31 percent of the sample have DB plans only, 16 percent have DC plans only, and 17 percent are in plans that are a

11. The HRS specifically excluded Keogh plans in the question on pensions and asked about them in a later section of the survey. If we do not count Keoghs, only 7 percent of self-employed workers report having a pension.

combination of the two types or have at least one of each type of plan.[12] Among those who have ever worked, the rate of pension coverage increases to 78 percent. Current workers have the highest coverage rate at 79 percent. Some portion of the 79 percent may have pensions from previous jobs. Coverage falls when we look only at pensions from the current job, and there is a noticeable change in the proportion of DB plans relative to DC plans. This pattern is consistent with recent trends toward DC plans; older plans from past jobs are more likely to be DB plans than are plans on a current job.

These results show somewhat higher rates of coverage than do other studies. Bloom and Freeman (1992) use the 1992 Current Population Survey and determine that 57 percent of all workers are covered by pension plans on their jobs, a figure significantly lower than our 67 percent. Even and Macpherson (1990) report coverage rates of 53 and 36 percent among employed men and women. Our greater coverage can be explained by the age of the HRS sample. Individuals in their 50s are more likely to be participating in pensions than are younger workers, both because of vesting requirements and because of recent trends in pension availability. Even and Macpherson (1994b) calculate coverage rates of 49.2 percent for male workers aged 21–35 in 1988, but 69 percent for those aged 36–55. In a second paper that compares pension coverage for male and female workers in a 37–54-year-old cohort (Even and Macpherson 1994a), the authors find rates of pension coverage of 73 percent for men and 58 percent for women. Our sample is drawn from a somewhat older population, and we therefore expect higher rates for both male and female workers.

In our sample, men have coverage rates that are 30 percentage points higher than those for women. This difference is smaller than the gap of 41 percentage points found by Even and Macpherson (1994a) using the Newly Entitled Beneficiary Survey. In the distribution of types of plans, women are much less likely than men to have DB plans only, or to have two different types of plans. DB plans are typically thought of as accompanying blue-collar occupations, in which women are underrepresented. The difference in the percentages with both DB and DC plans can be similarly explained if these DC plans are supplements to a main DB plan. The difference in dual plans may also be due to the weaker attachment to the labor force of women, making it unlikely that they would qualify for pensions from two employers.[13] We do not explore the determinants of the difference here.

We also find that nonwhites are less likely than whites to have pension coverage, but the distribution of types of plans is more similar for whites and nonwhites than for men and women.

In the last row of the table we combine observations for spouses. A house-

12. For approximately 2 percent of the sample the type of plan is missing. We do not impute this variable.

13. Only 17 percent of women have pension coverage from a prior job, compared to 36 percent of men.

Table 11.2    Means of Selected Variables by Pension Status

| Variable | All (1) | Covered by Pension (2) | Type of Plan[a] | | |
| --- | --- | --- | --- | --- | --- |
| | | | DB Only (3) | DC Only (4) | Both (5) |
| Age | 55.9 | 55.80 | 56.02 | 55.68 | 55.51 |
| | (0.035) | (0.044) | (0.064) | (0.089) | (0.085) |
| Sex (1 = male) | 0.44 | 0.56 | 0.56 | 0.45 | 0.65 |
| | (0.005) | (0.007) | (0.010) | (0.014) | (0.013) |
| Nonwhite | 0.21 | 0.17 | 0.19 | 0.19 | 0.12 |
| | (0.004) | (0.005) | (0.008) | (0.011) | (0.009) |
| Years of schooling | 12.21 | 12.90 | 12.79 | 12.43 | 13.70 |
| | (0.033) | (0.037) | (0.054) | (0.072) | (0.065) |
| Currently working | 0.67 | 0.80 | 0.73 | 0.82 | 0.92 |
| | (0.005) | (0.005) | (0.009) | (0.011) | (0.007) |
| Earnings (if > 0) | 28,717 | 32,506 | 28,705 | 29,393 | 41,798 |
| | (412) | (502) | (456) | (1,437) | (999) |
| Years on current job | 16.84 | 17.60 | 17.40 | 17.04 | 18.61 |
| (working) | (0.166) | (0.185) | (0.283) | (0.376) | (0.336) |
| Household wealth | 200,913 | 211,281 | 206,225 | 203,360 | 231,087 |
| | (4,409) | (5,559) | (8,071) | (12,181) | (10,026) |
| No. of observations | 8,378 | 5,299 | 2,530 | 1,263 | 1,344 |

*Note:* Numbers in parentheses are standard errors.

[a]Numbers of observations in cols. (3), (4), and (5) do not sum to col. (2) due to missing values on type of pension. Observations in some cells differ due to missing values.

hold is considered to have a pension if either spouse reports pension coverage. "DB only" implies that at least one spouse has a DB plan and neither spouse has a DC plan; similarly, "DC only" implies that at least one has a DC plan and no one has a DB plan. "Both" means at least one of each type. The percentage of households with at least one pension (78 percent) is equal to the percentage of those who ever worked and have a pension.

Table 11.2 highlights the differences between those with pension plans and the entire population and compares the characteristics of pension holders across types of plans. Those with pensions are significantly more likely to be male than the overall survey population, 0.56 compared to 0.44. Pension eligibles have an additional 0.8 years of schooling relative to the population, higher earnings (among those with nonzero earnings), and longer tenure. Family wealth is slightly higher for those with pensions, likely as the result of a lifetime of higher earnings. This table provides a first indication that including pension wealth in the calculation of total wealth may not greatly reduce inequality.

There are also differences based on type of plan. Consistent with table 11.1, those with DB plans are more likely to be male than are DC holders. They also have lower earnings (conditional on working) than those with DC plans. Again consistent with the differences in table 11.1, individuals with DB plans are less

**Table 11.3A        Details of Defined Benefit Plans**

| Characteristic | Mean | 25th Percentile | Median | 75th Percentile |
|---|---|---|---|---|
| Expected benefit | | | | |
| Age[a] | 61.6 (0.17) | 60 | 62 | 65 |
| Yearly benefit | 14,146 (504) | 5,400 | 12,000 | 20,400 |
| Earnings | 34,233 (787) | 22,256 | 32,000 | 42,000 |
| Earliest benefit | | | | |
| Age[b] | 58.1 (0.20) | 55 | 59 | 62 |
| Yearly benefit | 10,650 (438) | 3,108 | 7,800 | 16,000 |
| Full benefit | | | | |
| Age[c] | 60.2 (0.19) | 56 | 62 | 64 |
| Yearly benefit | 13,702 (533) | 4,896 | 10,800 | 20,000 |

*Note:* The sample consists of only those individuals providing a value for each variable in the table. Characteristics are reported for primary plan on current job only.

[a]Expected benefit age is defined by the question "At what age do you expect to start receiving benefits from this plan?"

[b]Earliest benefit is defined by "What is the earliest age at which you could leave this employer and start receiving pension benefits?"

[c]Full benefit age is defined by "What is the earliest age at which you would be eligible to receive full or unreduced pension benefits from this job?"

**Table 11.3B        Details of Defined Contribution Plans**

| Characteristic | Mean | 25th Percentile | Median | 75th Percentile |
|---|---|---|---|---|
| Expected age of receipt[a] | 63.11 (0.13) | 62 | 62 | 65 |
| Earnings (if nonzero) | 37,959 (2,941) | 19,000 | 28,000 | 41,000 |
| Balance in account | 35,022 (3,231) | 3,000 | 10,000 | 29,000 |
| Employee contribution (% of salary) | 5.5 (0.70) | 1.8 | 3.6 | 6.3 |
| Employer contribution (% of salary) | 6.9 (1.00) | 1.9 | 5.0 | 8.2 |
| Employee contribution ($) | 1,988 (181) | 406 | 1,186 | 2,496 |
| Employer contribution ($) | 1,888 (206) | 364 | 925 | 2,000 |

*Note:* Characteristics reported for primary plan on current job only.

[a]Expected age is defined by the question "At what age do you expect to start receiving *any* benefits from this plan?"

likely to be working than those with DC plans. Individuals with both plans appear to be the best off financially. They are the most likely to be male, have the greatest levels of schooling, wealth, earnings, and tenure, and are the most likely to be employed.

The generosity of pension plans depends not only on the benefit to which the worker is entitled but also on the age at which he can first collect any benefits, the age at which he can collect full benefits, and the magnitudes of the benefits. Table 11.3A summarizes these characteristics for individuals with DB plans, and table 11.3B presents similar descriptive characteristics for DC

plans. The figures reported in both tables 11.3A and 11.3B are based on a sample of individuals with reported (nonimputed) values for each variable in the table.

The mean age at which individuals in DB plans *expect* to begin receiving benefits is 61.6, the median age is 62, and the 25th and 75th quartiles are ages 60 and 65. The expected yearly benefit is $14,146, compared to mean earnings of $34,233, implying a "replacement rate" of 41 percent of current earnings. On average, the *earliest* age at which individuals can collect benefits is 58.1. Benefits calculated with this retirement date are substantially reduced relative to benefits at the expected retirement age, averaging just $10,650, or 75 percent of the expected level. Median benefits fall somewhat more sharply.

The mean age at which an individual is first eligible for full benefits is *less* than the mean expected age of drawing benefits, 60.2 versus 61.6. Apparently many individuals expect to work longer than is necessary to qualify for unreduced benefits.

The distribution of retirement ages differs only slightly for men and women (not shown). The mean (median) expected age for men is 61.2 (62) compared to 62.2 (62) for women. A difference in ages at which men and women qualify for benefits is intuitive in that on average women have less tenure than men of the same age and may need to work to a slightly older age before becoming entitled to benefits. However, given the tendency for wives to retire with their husbands, and for husbands to be older than wives, the greater expected retirement age for women is somewhat surprising. Earnings, yearly benefits, and replacement rates for women are lower than for men. This difference may point to a future change in the retirement patterns of women as a greater number have sufficient commitment to the labor force to qualify for their own pensions. Expected earnings are $39,779 for men and $25,194 for women. Pension benefits average $17,194 and $9,181, respectively.

Racial differences are smaller than differences by sex. There are no significant differences in the age variables by race, although expected benefits and earnings do differ. The mean values for earnings are $34,869 for whites and $30,476 for nonwhites. Benefits for the two groups are $14,370 and $12,797, indicating similar replacement rates.

In DC plans (table 11.3B), the mean age at expected pension receipt is 63.1, slightly higher than for DB workers; the percentiles are also slightly higher. Contributions to DC accounts by firms, as a percentage of yearly earnings or as an absolute measure, are quite similar to individual contributions. The mean individual contribution is $1,988 per year (including zeros), compared to a mean salary of $37,959. The mean employer contribution is $1,888.

## 11.3   Individual Differences in Pension Wealth

A primary goal of this paper is to compare pension wealth across segments of the population and, in particular, to compare the pension holdings of males

and females and of whites and nonwhites. In addition to sex differences, the literature on pensions has paid particular attention to differences between union and nonunion workers, and between public and private sector workers. Column (1) of table 11.4 presents the fraction of individuals with pension coverage by each of these characteristics, as well as by schooling level, health status, and income and wealth quartiles. Columns (2) through (4) report the distribution of pension wealth conditional on having a pension.

The first row of the table presents the statistics for the entire sample. Mean pension wealth for the 66 percent of the sample with a pension is $109,596. The median is just over half as large, indicating the skewness of the distribution.[14]

Subsequent rows divide the sample along observable characteristics. We look first at differences by marital status and sex. In the literature on wage determination, married men are consistently found to have higher wages than unmarried men. We see the same pattern with pensions; married men have pensions that are 50 percent higher at the mean than for the sample as a whole and 19 percent higher than for unmarried men.[15] Coverage rates are lower for women than for men, but even conditional on coverage, women have significantly lower pension wealth, less than half that held by married men.[16] Racial differences are as expected: nonwhites are 15 percentage points less likely to be covered by a pension than are whites and have pension wealth that is 83 percent that of whites.[17]

Those who are currently working are much more likely to have a pension than those who are not employed, but conditional on having a pension, the differences in pension wealth are small, with those who are not working having slightly richer plans. It is likely that those with generous plans are the ones who could most afford to retire by the survey date.

Differences by schooling also show the expected patterns. Those with schooling beyond a college degree are twice as likely to have pension coverage as those with fewer than 12 years of schooling, and they have over three times more pension wealth. Because more schooled individuals are likely to also have greater income and net worth, this large difference in pension wealth will add to the inequality of the income and wealth distributions.

14. We remind the reader that these calculations assume that all reported DB benefits are based on single life. Because some fraction of the sample will have joint and survivor plans, our results should be viewed as lower bounds on the amount of pension wealth. Reversing our assumption and calculating pension wealth as if all plans were joint survivorship plans leads to mean pension wealth of $123,134. All of this increase comes through increases in the pension wealth of married couples; the pension wealth of singles is assumed to be single life in both cases.

15. The relative advantage of men is reduced when sex- and race-specific life tables are used. In that case, married males have pension wealth that is 32 percent higher than the mean for the entire sample.

16. If sex- and race-specific life tables are used, pension wealth for men is lower and that for women greater. The mean values for married men and women are 140,326 and 71,792.

17. If race-specific life tables are used, nonwhites have pension wealth that is 78 percent that of whites.

**Table 11.4          Pension Ownership and Pension Wealth**

| Characteristic | Covered by Pension (%) (1) | Statistics over Positive Values | | |
| --- | --- | --- | --- | --- |
| | | Median (2) | Mean (3) | Standard Error (4) |
| All | 66 | 62,889 | 109,596 | 2,295 |
| Married*Sex | | | | |
| Married male | 86 | 94,301 | 148,366 | 3,724 |
| Single male | 69 | 79,137 | 124,719 | 6,975 |
| Married female | 51 | 40,418 | 68,327 | 3,839 |
| Single female | 55 | 42,784 | 63,674 | 3,035 |
| Race | | | | |
| White | 69 | 67,061 | 114,437 | 2,782 |
| Nonwhite | 54 | 55,532 | 86,971 | 3,273 |
| Work status | | | | |
| Working | 79 | 63,174 | 106,360 | 2,314 |
| Not working | 39 | 66,476 | 123,371 | 6,900 |
| Schooling | | | | |
| Less than high school | 46 | 42,248 | 66,688 | 3,316 |
| High school graduate | 66 | 50,739 | 85,643 | 3,330 |
| Some college | 74 | 66,848 | 114,536 | 4,745 |
| College graduate | 80 | 95,844 | 150,790 | 8,667 |
| Graduate school | 90 | 147,656 | 199,892 | 8,374 |
| Health status | | | | |
| Poor | 43 | 39,793 | 68,872 | 6,122 |
| Fair | 52 | 47,848 | 78,745 | 4,742 |
| Good | 66 | 57,120 | 101,022 | 4,771 |
| Very good | 71 | 71,605 | 113,261 | 3,794 |
| Excellent | 74 | 81,581 | 134,517 | 5,093 |
| Household wealth | | | | |
| Lowest quartile | 44 | 31,301 | 56,532 | 3,670 |
| 2d quartile | 68 | 52,643 | 82,078 | 4,178 |
| 3d quartile | 74 | 76,206 | 115,746 | 3,604 |
| 4th quartile | 72 | 95,947 | 153,936 | 5,466 |
| *Among those employed* | | | | |
| Union status | | | | |
| Union | 93 | 79,441 | 109,726 | 3,091 |
| Nonunion | 74 | 53,531 | 104,737 | 3,137 |
| Sector | | | | |
| Private | 71 | 59,349 | 101,806 | 2,279 |
| Public | 91 | 139,245 | 159,456 | 10,430 |
| Household income | | | | |
| Lowest quartile | 54 | 28,370 | 43,110 | 4,009 |
| 2d quartile | 73 | 43,826 | 53,253 | 2,372 |
| 3d quartile | 82 | 60,649 | 91,856 | 3,011 |
| 4th quartile | 89 | 102,229 | 158,981 | 4,999 |

Much has been written about the correlation between health and wealth. Recently, the HRS has provided a good deal of information on the relationship; wealthier individuals are found to be in significantly better health than the less wealthy as measured by subjective health status (Smith 1995), by subjective probabilities of survival (Hurd and McGarry 1995), or by limitations with respect to activities of daily living (McGarry 1998). Here we see that the difference is also present for pension wealth. Seventy-four percent of those in excellent health have pensions, compared to 43 percent whose self-reported health is poor, a difference of 31 percentage points. Differences in the mean values are large, with healthier individuals having approximately twice the pension wealth of those in poor health.

Differences in pension wealth by wealth quartile are large. Moving from the lowest to the highest wealth quartile increases the probability of coverage by 28 percentage points and increases mean pension wealth by three times.

Among those currently employed, union workers have greater pension coverage than nonunion workers, and greater pension wealth than nonunion workers throughout most of the distribution, although the means for the two groups are similar. Government workers have more coverage and greater benefits than nongovernment employees. Pension wealth also increases sharply with total income.[18]

## 11.4 Distribution of Household Wealth

Inequalities in the distribution of net worth are well known. In this section we compare the distribution of pension wealth to the distribution of net worth and examine the fraction of private wealth comprised by pensions. The discussion thus far has used the individual as the unit of analysis. Because pensions "belong" to an individual this focus is appropriate. However, household net worth is not so easily assigned an owner. Therefore, in order to compare pension wealth to net worth, we aggregate pensions of husbands and wives to create a household total. This aggregation subsumes variation within the household. Comparing pension holdings of husbands and wives we find that in 48 percent of married households both spouses report having a pension, in 37 percent only the husband has pension wealth, in 10 percent neither spouse has a pension, and in just 6 percent of households only the wife has a pension.[19] There is also a positive and significant correlation (0.16) between pension wealth of spouses, although men are likely to have higher pensions. Seventy-eight percent of husbands have pension wealth greater than that of their wives. The median difference between pension wealth of the husband and that of the wife is $51,465.

18. To avoid contaminating the relationship with differences in retirement patterns, income quartiles are measured only for those currently working.

19. These numbers refer to married couples, not to all households as is reported in table 11.1. Married individuals are more likely to have pensions than nonmarried.

**Table 11.5**　　　　　**Comparison of Means of Household Pension Wealth and Net Worth**

| Characteristic | Pension Wealth (1) | Net Worth (2) | Private Wealth (1) + (2) | Pension/ Private Wealth (1)/[(1) + (2)] |
|---|---|---|---|---|
| All households | 92,691 | 159,796 | 252,486 | 0.34 |
| Marital status*Sex | | | | |
| Married couple | 123,835 | 190,046 | 313,882 | 0.38 |
| Single male | 83,705 | 127,855 | 211,560 | 0.33 |
| Single female | 28,549 | 107,456 | 136,006 | 0.26 |
| Race (male in couple) | | | | |
| White | 129,630 | 206,330 | 335,960 | 0.38 |
| Nonwhite | 68,420 | 75,663 | 144,083 | 0.34 |
| Schooling (male in couple) | | | | |
| Less than high school | 40,945 | 74,257 | 115,202 | 0.25 |
| High school graduate | 79,977 | 152,059 | 232,037 | 0.35 |
| Some college | 110,123 | 173,062 | 283,186 | 0.42 |
| College graduate | 156,640 | 317,629 | 474,269 | 0.38 |
| Graduate school | 229,267 | 315,096 | 544,363 | 0.46 |
| Health status | | | | |
| Poor | 31,152 | 58,806 | 89,958 | 0.21 |
| Fair | 50,069 | 102,650 | 152,719 | 0.26 |
| Good | 93,348 | 151,120 | 244,468 | 0.35 |
| Very good | 111,514 | 199,972 | 311,485 | 0.37 |
| Excellent | 133,776 | 219,167 | 352,943 | 0.43 |
| Household income | | | | |
| Lowest quartile | 21,640 | 68,572 | 90,212 | 0.18 |
| 2d quartile | 56,975 | 115,926 | 172,901 | 0.38 |
| 3d quartile | 107,414 | 168,279 | 275,693 | 0.41 |
| 4th quartile | 209,547 | 319,737 | 529,284 | 0.43 |
| Household wealth | | | | |
| Lowest quartile | 23,458 | 738 | 24,196 | 0.36 |
| 2d quartile | 68,670 | 51,662 | 120,332 | 0.38 |
| 3d quartile | 125,807 | 138,446 | 264,253 | 0.36 |
| 4th quartile | 171,982 | 533,629 | 705,611 | 0.24 |

*Notes:* Sample consists of households with nonmissing values in all columns and with neither spouse reporting being self-employed on the current job, or on the most recent job if not currently employed. $N = 4,938$. Note that pension wealth is calculated based on the assumption that no pensions are joint and survivorship. Assuming all pensions continue after the pension holder dies increases mean household pension wealth to $110,407.

Table 11.5 reports mean household pension wealth, mean net worth, the sum of the two components (private wealth), and the fraction of private wealth that is due to pensions. It has been observed that low savings rates among some segments of the population may be a result of individuals being "overannuitized" from social security. Low-income workers may be required by social security laws to "save" more than they would like during their lifetimes. The result of this forced savings is that they save little, if anything, elsewhere. Pen-

sions provide a second annuity to most workers. We thus look to see whether low-income/wealth households hold a substantially greater fraction of wealth in pensions than in other assets relative to better-off households.

In the first row, household pension wealth for the entire sample is $92,691.[20] This number is fairly consistent with past studies.[21] The only other study we are aware of that calculates pension wealth using self-reports in the HRS is Smith (1995). He finds mean pension wealth of $104,000 over all households using slightly different assumptions about interest rates, inflation, and survivorship benefits and different life tables. If we assume that all pensions for married individuals are based on their joint life expectancy, our mean pension wealth for the sample increases to $110,407. Gustman et al. (1997) use employer reports of pension benefits for the HRS sample and calculate pension wealth of $116,012, surprisingly similar to our results with employee-reported information. Over nonzero values our household pension wealth values are $137,056 (single life) and $154,134 (joint life), which are similar to the McDermed, Clark, and Allen (1989) estimate from the 1983 Survey of Consumer Finances of $170,703 (converted to 1992 dollars).

The net worth reported in table 11.5 is lower than in some other studies using the HRS. The difference is due to the composition of our sample. We exclude the self-employed from this study of pension wealth. Including those who are self-employed (either currently or in a past job) increases average net worth to $238,336. The change in the medians is smaller, increasing from $72,900 to $81,200 with the inclusion of the self-employed. For comparison with private pensions, we also use reports on expected social security benefits in the HRS to make a rough calculation of social security wealth (not shown). Mean expected social security wealth for the sample is approximately $95,000.[22]

Differences in household pension wealth follow the differences illustrated in table 11.4. Married couples have far more pension wealth than singles, and single females lag greatly behind single men. Note that the difference in net worth between single males and single females is much smaller than the difference in pension wealth. The large fraction of private wealth for single women that is not from pensions may indicate a behavioral response on their part to save more in the absence of pension availability, or it may reflect a lump-sum award at the time of a spouse's death or divorce.[23]

Contrary to evidence of overannuitization presented elsewhere, the ratio of

20. This number is lower than the value for individual pension wealth reported in table 11.4 because table 11.5 includes those with zero pension wealth.

21. An exception is work done with the Retirement History Survey (RHS). Hurd and Shoven (1983) use the 1969 RHS and calculate household pension wealth of $25,403 (converted to 1992 dollars) for a sample with household heads aged 58–63.

22. Gustman et al. (1997) calculate average social security wealth of $116,000.

23. Pension wealth for widows is only $21,570, but their net worth is $104,786 (not shown).

pension wealth to total private wealth is similar for whites (38 percent) and nonwhites (34 percent), although the levels are much greater for whites.[24]

Both pension and nonpension wealth increase with schooling level, but pension wealth increases at a greater rate. Thus the fraction of wealth that is from pensions increases from 25 percent to 46 percent as one moves from the lowest to the highest schooling category.

We might expect unhealthy individuals to have high mortality rates and therefore to wish to have little wealth in an annuity based on average life expectancies. In fact, we see that for those in poor health the fraction of wealth coming from pensions is lower (21 percent) than for those in excellent health (43 percent), although it is also likely that the difference in pension wealth is due to a difference in the jobs held over the individuals' lives.[25]

As in table 11.4, pension wealth increases sharply with household income from $21,640 in the lowest quartile to $209,547 in the highest. Net worth also increases substantially with income quartiles, going from $68,572 to $319,737. Thus the lowest income quartile has only 17 percent of the private wealth (non–social security) of the highest. These patterns are repeated for wealth quartiles.

The differences in pension wealth by sex and marital status shown in table 11.5 are large. We would expect that much of the difference can be attributed to differences in observable characteristics such as occupation, schooling, or lifetime attachment to the labor force. In table 11.6 we control for a number of factors that are likely to be correlated with pension wealth and examine the difference in the probability of being covered by a pension and in the (log) amount of pension wealth conditional on having nonzero wealth.[26] In both cases, even with controls for industry and occupation we continue to see large and significant differences by sex. Men are 6 percentage points more likely to have a pension, and conditional on having a pension, their pension wealth is 42 percent greater than that of women. In table 11.4 the pension wealth of women was less than half that of men. The addition of the other explanatory variables has thus explained a large fraction of the difference. The differences by race are smaller but significantly different from zero. Nonwhites are only 2 percentage points less likely to have a pension than are whites, but the pension wealth of nonwhites is *higher* by 17 percent.

Education beyond a four-year college degree is correlated with a mean increase in pension wealth of 38 percent. Similarly, large differences hold between those in excellent health and those in poor health, although again the differences in the multivariate context are smaller than in the simple cross-

24. We note, however, there is a large difference in the ratio of social security wealth to private wealth for the two groups, with whites having social security wealth equal to 34 percent of private wealth and the figure for nonwhites being 54 percent.

25. Some annuity wealth may be in joint and survivorship plans or in DC accounts, which can be willed to be an heir. No such difference is observed in social security wealth, which is not voluntary.

26. The means of the regression variables are reported in appendix table 11A.2.

**Table 11.6    Probability of Pension Wealth and Amount**

| Characteristic | Linear Probability of Pension | | Log of Pension Wealth (over positive values) | |
|---|---|---|---|---|
| | Coefficient | Standard Error | Coefficient | Standard Error |
| Demographics | | | | |
|   Age | 0.006 | 0.003 | −0.013 | 0.015 |
|   Sex (1 = male) | 0.062 | 0.023 | 0.416 | 0.092 |
|   Race (1 = nonwhite) | −0.019 | 0.011 | 0.170 | 0.045 |
|   Married | −0.062 | 0.015 | −0.223 | 0.064 |
|   Number of children | 0.005 | 0.003 | −0.016 | 0.014 |
|   Number of children*Sex | −0.007 | 0.004 | 0.004 | 0.018 |
| Schooling | | | | |
|   Less than high school | −0.078 | 0.013 | 0.013 | 0.055 |
|   High school graduate (omitted) | | | | |
|   Some college | 0.017 | 0.013 | 0.093 | 0.051 |
|   College graduate | 0.004 | 0.018 | 0.111 | 0.070 |
|   Graduate school | 0.023 | 0.020 | 0.376 | 0.073 |
| Health status | | | | |
|   Excellent (omitted) | | | | |
|   Very good | 0.000 | 0.012 | −0.060 | 0.048 |
|   Good | 0.023 | 0.013 | −0.164 | 0.050 |
|   Fair | 0.030 | 0.016 | −0.176 | 0.068 |
|   Poor | 0.032 | 0.022 | −0.360 | 0.096 |
| Employment | | | | |
|   Working | 0.381 | 0.199 | −1.108 | 0.908 |
|   Part time | −0.081 | 0.018 | 0.000 | 0.081 |
|   Government | 0.015 | 0.025 | 0.350 | 0.090 |
|   Union | 0.139 | 0.011 | 0.108 | 0.042 |
|   Earnings ($10,000s) | 0.003 | 0.002 | 0.072 | 0.011 |
|   Tenure (current) | 0.000 | 0.000 | 0.007 | 0.002 |
|   Tenure (completed) | 0.011 | 0.001 | 0.041 | 0.005 |
|   Large firm | 0.137 | 0.019 | 0.359 | 0.079 |
|   Had previous job | −0.014 | 0.036 | 0.151 | 0.173 |
|   Hours (current) | 0.001 | 0.001 | 0.006 | 0.003 |
|   Health insurance (current) | 0.196 | 0.021 | 0.209 | 0.108 |
|   Health insurance (retiree) | 0.016 | 0.018 | 0.124 | 0.068 |
| Household income | | | | |
|   Lowest quartile | −0.073 | 0.018 | −0.376 | 0.078 |
|   2d quartile | −0.013 | 0.015 | −0.302 | 0.059 |
|   3d quartile | −0.010 | 0.013 | −0.196 | 0.048 |
|   4th quartile (omitted) | | | | |
| Household wealth | | | | |
|   Lowest quartile | −0.051 | 0.020 | −0.433 | 0.082 |
|   2d quartile | 0.005 | 0.014 | −0.115 | 0.056 |
|   3d quartile | 0.000 | 0.013 | −0.010 | 0.049 |
|   4th quartile (omitted) | | | | |
| No. of observations | 6,212 | | 3,362 | |
| Mean of dependent variable | 0.74 | | 10.92 ($53,000) | |
| $R^2$ | 0.37 | | 0.47 | |

*Note:* Also included are 12 industry and 16 occupation dummy variables, homeownership dummy, age and work status interactions, tenure on the previous job, and dummy variables for missing values on health insurance, prior tenure, earnings, and firm size.

tabulations in table 11.4. Large differences in pension wealth also persist by union status, government employment, firm size, and the presence of health insurance.

In table 11.7 we examine the entire distribution of household net worth, as well as the sum of net worth and pensions. We note how the distribution of resources changes when pension wealth is included. In row 1 of the top panel we report the fraction of the total net worth of the population that is held by each decile of the wealth distribution. If wealth were distributed equally, each decile would own 10 percent of the wealth. We see here a distribution that is far from equal; over 50 percent of the wealth is held by the top 10 percent of the distribution. The top 30 percent holds 80 percent of the wealth. Net worth is negative for the bottom 10 percent.

Rows 2, 3, and 4 show the distribution of households by sex and marital status. The numbers correspond to the percentage of each type of households in each decile (i.e., the rows sum to 100 percent). For example, 3.4 percent of all married couples have wealth that puts them in the lowest 10 percent of the wealth distribution. For single men the value is 13.4, and for single women, 16.9. Certainly, we would expect couples to have higher wealth than singles if we do not control for household size, but within the population of single individuals we see a substantial difference by sex as well.

Rows 5 and 6 report the distribution by race. A huge fraction, 17.7 percent, of the nonwhite population is in the lowest decile, compared to just 5.4 percent of whites. Only 3.4 percent of nonwhites are in the highest decile, compared to 14.0 percent of whites.

We now ask how pensions affect the distribution of wealth. In the second panel we repeat the same exercise but divide the population of households into deciles based on total private wealth (net worth plus pensions). The overall distribution of wealth holdings by decile is similar, although there is some shifting away from the highest decile. The wealth shifted out of the highest decile increases the portion held by the remaining deciles, thus mitigating an overall measure of inequality. The fraction of wealth held by the bottom 30 percent increases from 0.2 percent to 1.2 percent, while the fraction held by the top 30 percent decreases from 81.7 to 76.5 percent.

As is apparent from several of the tables, a single woman is much less likely to have a pension than either a single man or a couple, and conditional on having a pension, its value is much lower. Examining rows 2, 3, and 4 of each panel we see that pension wealth worsens the inequality faced by single women. The percentage of women in the highest decile falls from 5.3 percent in the first panel to 2.9 percent in the second, a fall of close to 50 percent. The percentage of couples in the highest category increases, and the percentage of single men slightly decreases. Comparing the top and bottom 30 percent, the portion of single women in the bottom 30 percent of the wealth distribution increases from 44.2 to 47.1 percent, while the percentage of single men in that portion of the distribution decreases from 44.3 to 40.9 percent. In the top 30

**Table 11.7**      **Distribution of Household Net Worth and Net Worth Plus Pension Wealth (percentage of total in each decile)**

| | Decile | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| *Net Worth* | | | | | | | | | | |
| 1. Net worth | −0.8 | 0.1 | 0.9 | 2.0 | 3.3 | 5.1 | 7.8 | 10.9 | 17.9 | 52.9 |
| *Household type* | | | | | | | | | | |
| 2. Married | 3.4 | 4.0 | 7.3 | 8.1 | 9.7 | 11.7 | 13.2 | 14.1 | 13.2 | 15.3 |
| 3. Single male | 13.4 | 17.2 | 13.7 | 11.3 | 10.7 | 7.7 | 5.9 | 4.6 | 8.8 | 6.6 |
| 4. Single female | 16.9 | 15.2 | 12.1 | 11.5 | 9.0 | 7.6 | 7.7 | 5.7 | 8.9 | 5.3 |
| 5. White | 5.4 | 6.2 | 8.2 | 8.8 | 9.4 | 10.2 | 12.1 | 11.8 | 13.9 | 14.0 |
| 6. Nonwhite | 17.7 | 16.6 | 13.2 | 11.5 | 10.5 | 10.0 | 6.7 | 6.8 | 3.6 | 3.4 |
| *Net Worth + Pension Wealth* | | | | | | | | | | |
| 1. Total net worth + pensions | −0.4 | 0.3 | 1.3 | 2.6 | 4.3 | 6.5 | 9.1 | 13.0 | 18.7 | 44.8 |
| *Household type* | | | | | | | | | | |
| 2. Married | 2.4 | 4.7 | 6.7 | 8.3 | 9.6 | 11.8 | 12.0 | 13.4 | 14.6 | 16.4 |
| 3. Single male | 16.5 | 13.6 | 10.8 | 10.0 | 7.1 | 11.8 | 8.3 | 7.6 | 8.0 | 6.3 |
| 4. Single female | 17.2 | 15.9 | 14.0 | 12.0 | 11.8 | 6.9 | 8.4 | 6.9 | 3.9 | 2.9 |
| 5. White | 4.9 | 7.0 | 7.9 | 8.8 | 9.7 | 11.5 | 11.2 | 12.2 | 12.7 | 14.0 |
| 6. Nonwhite | 18.9 | 14.9 | 13.5 | 12.0 | 10.4 | 7.2 | 8.2 | 6.8 | 4.9 | 3.3 |

percent, the fraction of women decreases from 19.9 to 13.7 percent, while the fraction of men increases from 20.0 to 21.9 percent.

Changes in the distribution by race are less dramatic. The portion of non-whites in the bottom 30 percent of the distribution is virtually unchanged, moving from 47.5 to 47.3, while the portion in the top 30 percent increases slightly from 13.8 to 15.0 percent.

## 11.5   Conclusion

As this paper demonstrates, there is a substantial amount of heterogeneity in pension holdings. Close to 40 percent of the population has no pension wealth, while those in the highest decile have average pension wealth of over $400,000. As the future of the social security system is brought into question, private pensions and wealth holdings become more important. Understanding the distributions of these assets will aid in determining appropriate policy options for the continued public support of the retired population.

Using the new HRS we find patterns of pension holdings that are consistent with earlier studies: Women have less pension wealth than men, and nonwhites have less pension wealth than whites—although the differences by race are slightly smaller than the differences by sex. In addition, workers in unionized jobs and government employees have greater pension coverage and pension wealth than other workers, and more educated workers have more pension wealth than the less educated. We then examine the ratio of pension wealth to total private wealth for subgroups of the population and find large differences between single women and either single men or married couples in the fraction of total wealth coming from pensions, but much smaller differences by race. We demonstrate the relationship between pension wealth and inequality directly and find that single women in particular fare much worse relative to couples when pension wealth is included in the calculation of total wealth, but there is little change in the relative well-being of whites and nonwhites. The paucity of pension holdings among women suggests that their eventual well-being as widows will depend heavily on the resources left after the death of a spouse. Thus the issue of survivorship benefits for pensions will have important consequences for the eventual poverty rates of widows. This will be investigated in future work.

# Appendix

The construction of pension wealth for an individual required information on several components of the pension plan including, for example, age at which the individual expected to retire, expected benefit (in monetary terms or as a fraction of final salary), final salary, and so forth. In many cases information was available for most, but not all, of these items. Rather than discard any observation with even a single missing data point, we imputed missing values for these questions. The imputations were based on linear regression models with the following regressors: age, race, sex, marital status, tenure on current job (or completed tenure for past jobs), schooling, homeownership, income and wealth (in quartiles), 12 industry dummy variables, and 16 occupation dummy variables. There was also a set of regressors used in a subset of imputation equations. For example, in the equation used to predict firm contributions to DC plans, individual contributions (when known) were used. The $R^2$ for these regressions ranged from a low of 0.14 to a high of 0.76. Excluding observations with imputed values from the calculations in the paper did not alter any of the conclusions but did result in consistently higher estimates for pension wealth.

Table 11A.1 lists the more important variables for which we imputed values, the number of values imputed, and the number of valid responses that were used to estimate the imputation equation.

**Table 11A.1          Impution of Variables**

| Variable Name | Number of Valid Responses | Number of Imputed Responses | $R^2$ |
|---|---|---|---|
| Defined benefit plans | | | |
|    Expected benefit | 1,450 | 1,228 | 0.75 |
|    Age expect to receive benefits | 2,455 | 241 | 0.40 |
| Defined contribution plans | | | |
|    Balance in account | 1,061 | 427 | 0.22 |
|    Individual contribution | 1,263 | 184 | 0.15 |
|    Firm contribution | 886 | 553 | 0.14 |
|    Age expect to receive benefits | 1,061 | 427 | 0.22 |

**Table 11A.2          Means of Regression Variables ($n = 7,837$)**

| Characteristic | Mean | Standard Error |
|---|---|---|
| Demographics | | |
| Age | 55.88 | 0.036 |
| Sex (1 = male) | 0.45 | 0.006 |
| Race (1 = nonwhite) | 0.30 | 0.005 |
| Married | 0.73 | 0.005 |
| Number of children | 3.27 | 0.024 |
| Number of children*Sex | 1.41 | 0.024 |
| Schooling | | |
| Less than high school | 0.29 | 0.005 |
| High school graduate | 0.36 | 0.005 |
| Some college | 0.18 | 0.004 |
| College graduate | 0.08 | 0.003 |
| Graduate school | 0.09 | 0.003 |
| Health status | | |
| Excellent | 0.21 | 0.005 |
| Very good | 0.28 | 0.005 |
| Good | 0.28 | 0.005 |
| Fair | 0.14 | 0.004 |
| Poor | 0.08 | 0.003 |
| Employment | | |
| Working | 0.70 | 0.005 |
| Part time | 0.41 | 0.005 |
| Government | 0.05 | 0.003 |
| Union | 0.25 | 0.005 |
| Earnings | 19,476 | 320 |
| Tenure (current) | 11.68 | 0.144 |
| Tenure (completed) | 2.42 | 0.082 |
| Large firm | 0.43 | 0.006 |
| Had previous job | 0.53 | 0.006 |
| Hours (current) | 40.10 | 0.134 |
| Health insurance | | |
| (current) | 0.393 | 0.006 |
| Health insurance (retiree) | 0.277 | 0.005 |
| Household finances | | |
| Income in 1991 | 47,902 | 483 |
| Wealth in 1991 | 184,748 | 4,389 |

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