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WEALTH IN THE HEALTH AND  
RETIREMENT STUDY

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### **ABSTRACT**

Together, pensions, social security and health insurance account for half of the wealth held by all households in the Health and Retirement Study (HRS), for 60 percent of total wealth of HRS households who are in the 45th to 55th wealth percentiles, and even for 48 percent of wealth for those in the 90th to 95th wealth percentiles. The HRS surveys households aged 51 to 61 in 1992, and obtains pension plan descriptions from respondents' employers. Pension accrual profiles, income and wealth distributions by type, wealth-income ratios and accrued wealth by pension status are also explored.

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## **I. Introduction**

The purpose of this paper is to evaluate the importance of pension and social security wealth in influencing the economic security of a cohort of people on the edge of retirement. The data set we analyze is the Health and Retirement Study (HRS), a nationally representative data set which carefully measures income and wealth for respondents who are ages 51 to 61 in 1992.<sup>1</sup> A contribution of this study is that we use matched employer provided pension data to estimate the contribution of pensions to wealth and to income within the HRS sample. Estimates of social security wealth are also included, but they are based on self reported earnings histories.

The analysis shows the overwhelming importance of pensions and social security in the wealth and income of the HRS population. After correcting for some imperfections in the data, the wealth equivalents of pensions and social security together amount to almost half of the wealth held by all households. Moreover, together pensions and social security account for well over sixty percent of total wealth for households who are in the 45th to 55th percentile of wealth holders. In addition, pension and social security accrual are found to account for about nine percent of income, where income is not only measured conventionally to include earnings and returns to a variety of assets, but also includes accrual of pension value and social security value. The study also includes the value of employer provided health insurance in income, and retiree health insurance in wealth. Thus our measure of income includes important elements of total compensation.

In our data, total wealth exceeds ten times earnings. This finding suggests that households

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<sup>1</sup>The HRS is a panel study of a nationally representative population base with at least one spouse who was born from 1931 to 1941. The first wave of the survey, fielded in 1992, includes 12,652 individuals. We identify 7607 households with usable records for the present study.

may be better prepared for retirement than some studies have suggested. For a single male, this implies that wealth accumulation to around age 56 may generate enough income in retirement to replace at least two thirds of earnings, and for a couple, their wealth could be sufficient to replace at least half of earnings, and probably more.<sup>2</sup>

For the Health and Retirement Study (HRS) population, about half of the surveyed age-eligible population had a pension, and two thirds of households are covered by a pension from a current or past job.<sup>3</sup> Pension wealth measured from employer provided plan descriptions accounts for over a fifth of all household wealth and almost a fifth of the wealth of the median ten percent of households.<sup>4</sup> As a share of total wealth, pensions are just slightly less important than social security.

Pension wealth also proves to be quite unevenly distributed, accounting for 7 percent of wealth for those in the bottom quarter of wealth holders, 18 percent of wealth for the median ten percent of households ordered by their wealth holding, and 31 percent of wealth for those in the 75th to 95th percentile of households arrayed by wealth. There are major differences in

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<sup>2</sup>Of course, this will depend on mortality experience as well as investment earnings.

<sup>3</sup>In the HRS sample of households where the financially knowledgeable member responded to the survey, we count 6170 individuals as having been covered by either a current or past pension that was not cashed out or lost upon leaving. In 1992 four fifths of those who were covered by a pension or by social security from their own work had not yet retired. These and other descriptive numbers are reported in Gustman, Mitchell and Steinmeier (1995a and b). The numbers (raw counts) of households by marital status and probability of pension coverage in our sample are as follows: single males = 741;.519, single females = 1631;.418, married males = 5234;.618, married females = 5234;.357).

<sup>4</sup>In an innovative study using employer provided pension plan descriptions from the Survey of Consumer Finances, McDermid, Clark and Allen (1989) found higher shares of pension wealth in total wealth than we do here. However, their estimates of total wealth do not include social security wealth.

retirement wealth between households with and without pensions. Households with a pension average \$573,090 in total wealth, while those without a pension average \$337,233.

As wide as these wealth differences are, they are narrower than the differences in income between those with and without pensions. These findings are in contrast to the findings in some other studies that non-pension, non-social security wealth is positively correlated with pension coverage. They are consistent with the possibility that pension wealth is substituted for other forms of wealth.

Pension accrual, social security benefit accrual and health insurance account for about 13 percent of income. Pension accrual rates are especially volatile for the Health and Retirement Study population. For workers covered by defined benefit plans, in the year before reaching early retirement age, pension accrual may be as important as earnings in total compensation.

The share of social security in total wealth is only slightly greater than the share of pensions.<sup>5</sup> However, the effect of social security on the distribution of wealth is equalizing, while pension wealth is an increasing share of wealth as wealth rises. Moving up the wealth distribution, the share of total wealth due to pensions increases as the share of total wealth due to

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<sup>5</sup>Another major innovation in the HRS is the inclusion of earnings histories and benefit payments obtained for each respondent from the Social Security Administration. This study does not use the social security earnings histories. The present agreement with the Social Security Administration does not permit the social security data collected for HRS participants to be used together with employer provided pension plan descriptions. Accordingly, we had to estimate social security wealth from self reported but incomplete earnings histories provided by respondents. We will describe the construction of our estimate of social security wealth below. For estimates of social security wealth in the HRS based on matched earnings records from the Social Security Administration, see Mitchell, Olson and Steinmeier (1996). In the aggregate, our estimates of social security wealth using self reported earnings histories are seen below to be about 13 percent higher than the estimates obtained by Mitchell, Olson and Steinmeier. This means that our estimates of social security wealth overstate their share of total wealth by about 3 percentage points.

social security falls. Together, pensions and social security account for half or more of wealth for households in all but the top decile of the wealth distribution.

This study justifies all of the effort by Tom Juster and his colleagues to collect pension data in the Survey of Consumer Finances, and pension and social security data in the Health and Retirement Study.<sup>6</sup> Our findings suggest that those who ignore pensions and social security when studying the income and wealth of the population do so at their peril.<sup>7</sup>

This paper relies for its estimates of pension wealth on employer provided pension plan descriptions of defined benefit (DB) plans and defined contribution (DC) plans provided by the

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<sup>6</sup>Richard Curtin collected firm provided pension plan descriptions for the Survey of Consumer Finances and supervised their coding and analysis. Robert Peticolas collected the pension information for the HRS and supervised its coding. Tom Juster directed both surveys.

<sup>7</sup>Until pension plan descriptions from employers were included in surveys of income and wealth, studies of savings and wealth determination and distribution found it extremely difficult to calculate reliable estimates of pension wealth and pension income, especially in surveys which included many people who remained at work. Many studies of savings and wealth determination did not include pensions and social security. See, for example, Diamond and Hausman (1984), Avery and Kennickell (1991), U.S. Congressional Budget Office (1993), Bernheim and Scholtz (1993), Kennickell and Starr-McCluer (1996). Some studies of income and wealth include pensions by focusing on the retired population. See, for example, Grad (1994), and Poterba, Venti and Wise (1994). As will be seen in the concluding section of this paper, our findings as to the importance of pensions and social security in total wealth and income for the HRS population, which includes many who have not yet retired, are consistent with the findings in these studies for recent generations of retirees.

Some surveys, including those based on the Health and Retirement Study, obtain information about pensions by asking the respondents about their plans. These data are quite informative, including detailed descriptions from the covered individual, or from the spouse. Frequently, however, the plan descriptions are incomplete. They are most valuable when used in concert with information from employer provided pension plan descriptions. Thus it is of interest to compare our findings with those from studies based on respondent provided pension plan descriptions, such as in Smith (1995a). We make such a comparison in the concluding section. Pension data obtained from the respondents to the Health and Retirement Study have also been analyzed by McGarry and Davenport (1996).

HRS.<sup>8</sup> Eventually, more accurate estimates of pension values will be obtained by combining the information from the employer provided plan descriptions with information obtained from the respondents.<sup>9</sup> Until then, these first order estimates of pension values and other components of wealth provide a good indication of the size of assets and income from pensions, social security and other components of income and wealth.<sup>10</sup>

Section II of the study discusses preparation of the data. Estimates of the role of pension and social security wealth in the distribution of wealth, and of pension and social security accrual in the distribution of income, are reported for the HRS sample in Section III. Section IV analyzes

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<sup>8</sup>A defined benefit pension plan determines the yearly benefit a worker will receive on retiring by using a formula which depends on the employee's earnings, years of service, and retirement age. A very simple DB plan might pay benefits equal to 1% of final salary times the number of years worked at the company. In contrast, a defined contribution pension plan establishes an account which is held in each covered worker's name, and benefits accrue according to a contribution formula which determines how much is deposited in the account in each year (plus investment earnings or losses). At retirement, benefit payments depend on the cumulated value of contribution amounts, as well as investment income from the accumulated funds. Under a DB plan, pension payments do not depend on pension fund returns, since when investment returns are lower than expected, the employer is ultimately responsible for covering the shortfall (along with a government insurance fund, if the firm goes bankrupt). There are many varieties of defined contribution plans including 401(K) plans, profit sharing, stock ownership, and money purchase plans, where payment may be in a lump sum or may take the form of an annuity (Turner and Beller 1992). Workers can, and often do, have both DB and DC plans. For descriptive statistics on these plans, see Gustman, Mitchell and Steinmeier, 1995 a and b).

<sup>9</sup>Estimates of the value of financial and other assets reported here have been reported previously (e.g., Smith 1995a and b, Moon and Juster, 1995, Gustman and Juster, 1996), and are based on the innovative methodology applied in the HRS which results in a substantial improvement in the quality of the information on these assets.

<sup>10</sup>The amounts reported in defined contribution plans are estimated from the earnings history and from the plan description. For defined contribution plans with required contributions, we use the mandated rate as the rate of contribution. When a DC plan has a voluntary component, we use a five percent contribution rate, which is the average rate found by Samwick and Skinner (1995) in data from the Survey of Consumer Finances.

incentives for retirement, again using employer provided pension plan descriptions. Section V concludes the paper.

## **II. The Data**

This section explores issues in the construction of the components of income and wealth for the respondents in the HRS.

### **Pensions**

HRS respondents who reported that they had a pension in their current job were asked the name and address of their employer. The survey staff of the Institute for Social Research (ISR) then contacted these employers to try to obtain pension plan Summary Plan Descriptions (which are publicly available documents).<sup>11</sup> In cases where that did not work, a backup plan was used whereby the records at the Department of Labor were searched for the Summary Plan Descriptions. Of the 5,713 individuals who indicated they were covered by a pension on the HRS, this strategy resulted in plan descriptions being gathered for 3,834 individuals, or about 67% of those who indicated that they were covered. A program to evaluate these pensions under various sets of assumptions has been developed at ISR, and is being adapted for use on personal computers. Because the program is not complete, this paper uses a program for evaluating pensions developed by Gustman and Steinmeier (1989, 1996).

In valuing the defined benefit plans, we have cleaned isolated errors in the coded Summary Plan Descriptions.<sup>12</sup> We also have departed from some of the assumptions made by the coders,

<sup>11</sup>The HRS is one of three surveys to have collected pension plan descriptions from employers. The others are the Survey of Consumer Finances (SCF) and the National Longitudinal Survey of Mature Women (NLS-MW). Neither the SCF nor the NLS-MW incorporates the bracketing technique for reporting of assets used in the HRS to obtain substantially improved estimates of the value of financial and other assets.



and in particular, have assumed in a number of cases that dollar amounts reported in the surveys will increase as wages grow. Other problems are not so obvious.<sup>13</sup> Some have to do with segments of the benefit formulas that cover different employment periods, but then fall silent about benefits for employment into the future, when in fact they probably meant to apply the most recent formula to the future years. With regard to other problems, the answer may not be in the SPD. In some cases the error produces a plan that clearly has properties that are not feasible; for example, when a very sharp decline in plan value on becoming eligible for early retirement seems to be due to an obvious coding error, or when the solution looks reasonably obvious but cannot be confirmed. In such cases, we have adopted a correction in the formula.

For defined benefit plans, the employer-provided plan descriptions make it possible to calculate benefit amounts relatively accurately. The asset value of the pension is simply the discounted value of these benefits to early retirement age, prorated on the basis of work to date. So if a person is 57, will qualify for early retirement at 62, and has been with the firm for 15 years, three quarters of the pension wealth that will eventually be accumulated will have been

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<sup>12</sup>A number of errors and anomalies have been identified, and the plan descriptions have been altered from those originally coded in order to correct the errors. Many of the errors result in pension accrual profiles that are discontinuous in unreasonable ways, have negative slopes and in other ways appear to be unreasonable. In some cases the source of the error is obvious, for example, a decimal is moved. For some cases the error is obvious, but the cure is not. A plan description might prescribe a benefit for a worker employed in 1989, a higher benefit for a worker employed in 1990, and a still higher benefit for a worker employed in 1991. But the description may fall silent for work in 1988, the last year the respondent worked.

<sup>13</sup>A number of plans were identified as having 10 year vesting although private pension law requires shorter vesting. In some cases the plans are public plans. But some of the plan descriptions are quite old and go back to a period when the vesting could exceed ten years.

accumulated based on work to date.<sup>14</sup> We prorate pension wealth to put it on equal footing with the other wealth reported, which represents savings to date. Otherwise to put other assets in the same time frame as pension wealth, if we used full pension wealth as of the date of retirement, we would have to project savings to that same date.<sup>15</sup>

For defined contribution plans, we also use the employer provided pension formula to estimate the value of the pension. The total attributed to the defined contribution plan is the sum of employer contributions plus mandatory contributions made by the individual. For plans with mandatory contributions, the amounts of these contributions are used. When there are voluntary contributions, as in Samwick and Skinner (1995), the amounts in the defined contribution plans assume that individuals contribute up to a maximum of 5 percent whether or not there is matching. That is on top of any mandatory contribution. The firm does whatever the plan prescribes for a voluntary contribution of 5 percent on the part of the respondent. If the plan has a maximum contribution of less than 5 percent, the individual is assume to contribute only the

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<sup>14</sup>More specifically, the retirement age used in prorating the projected value of DB plans is taken to be lowest of the ages specified in any DB component to the retirement plan. The projected value is based on service and earnings projected to the early retirement age, that is, the age the respondent will be eligible for early retirement benefits. The prorated share of the projected value of the pension takes the fraction of the projected value equal to the fraction of years from date of hire to early retirement date that have been worked as of 1992. For anyone in the sample who is still working beyond the early retirement age, the pension value is increased accordingly. Variation in the value of DB plans with different ages of retirement is explored in Section IV.

<sup>15</sup>Because we provide pension wealth on the basis of work to date, our findings as to pension wealth accrued to date are not very sensitive to the date we take for retirement. We prorate pension wealth from the early retirement date. But if we had prorated pension wealth from a later date, like normal retirement age or the retirement age expected by the individual, then while total pension wealth rises with additional work until normal retirement age, the fraction of pension wealth earned to date falls since a smaller fraction of the number of years that will ultimately be worked has been worked to date.

maximum amount. For the rare plans where the minimum contribution is above 5 percent, the individual is assumed not to contribute. Similar assumptions are adopted for 401(k), profit sharing and other defined contribution plans.

In the case of old plans, that is plans from previous jobs, we count an individual as covered by a pension where the individual indicates that he or she was included in the pension, but exclude those who indicate they received a cash settlement when they left, or lost their benefits. We have not counted any old plans where the individual is also covered by a pension on the current job. The older the plan the less likely that hotdecking from the SPD collected in 1992 will provide an accurate indication of the plan value. For this reason our estimates understate the value of pensions held on previous jobs.

Appendix A indicates the match rates for employer provided pensions by firm size and respondent reported plan type. When a pension match is not available for an individual who indicates he is covered by a pension, we impute a plan to the individual. Imputations use a match based on occupation, industry, full-time/part -time status, government vs. private employment, and earnings level. Thus either a defined benefit or a defined contribution plan may be attributed to the individual. In the case of old plans, we impute a pension plan from the list of current plans on the basis of the characteristics mentioned above.

As will be seen in Section IV below, this approach to imputation is somewhat biased, but the bias is likely to be less than 4 percentage points. The sample of pensions obtained from employers contains a higher fraction of DB plans than the fraction of DB plans reported by respondents. We have not reweighted the data to correct for the disproportionate representation

of defined benefit plans.<sup>16</sup>

The analysis to follow also makes a number of descriptive calculations focusing on the role of pensions. We compare wealth for those with and without pensions, and compute asset values, by family status, race, education, union and veteran's status.

In valuing the pension asset, there is a consideration which was first made prominent by Ippolito (1985). Should a defined benefit pension be valued as though the worker were going to leave the job today (the legal value), or should it be valued as the prorated share based on work to date of the value the pension would have if the worker were to stay until the date he expects to retire (the projected value)? The difference in these two values can be quite large. In previous work on the subject, we have calculated that for an average pension-covered individual, the difference can equal a year's worth of wages (Gustman and Steinmeier, 1989, p. 66). Further, question of whether to choose the legal or the projected value does not appear to have a determinate answer; rather, the answer depends on the purpose of the valuation. Below we present distributions of wealth and income primarily using the projected value of the pension, but we also compare findings as to projected pension values with values obtained using the legal liability definition.

In addition to reporting computed values of pension wealth, it is also of interest to report pension accrual, the difference between the pension wealth computed at the beginning and end of the year, allowing for mortality in the intervening year. In this paper we equate pension accrual

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<sup>16</sup>One strategy we will employ in the future is to compare HRS respondent's reports of plan type with firm reports of plan type for those where respondent and employer provided pension descriptions are available. Knowing the difference one could then use the individual reports of plan type to impute type of plan for those without a matched employer plan.

with pension income.

### **Assumptions Made In Calculating the Pension Wealth**

In computing pension wealth for those who are currently covered by a pension, we benchmark the benefit based on the worker's current annual earnings in 1992. We assume that wages in the future for each of these covered individuals increase with the overall growth of wages, but given the respondent's age, we do not add any premium for increasing tenure.<sup>17</sup> Job tenure is reported in the HRS.

For purposes of simulation we use a 4% cost of living increase, 5% nominal wage growth, and 6.3% nominal interest rate, the intermediate assumptions adopted by the Social Security Administration (Board of Trustees, 1995). Thus real wage growth is 1 percent, and the real interest rate is 2.3%, which also is the return assumed on assets invested in DC plans. The life table used is a projected life table from the Social Security actuaries used to analyze the funding status of social security under the intermediate funding assumptions (see Mitchell, Olson and Steinmeier, 1996).

### **Social Security**

For the present study, we were not able to use the matched descriptions of social security covered earnings history and benefits that HRS has obtained from the Social Security Administration. This is because the Memorandum of Understanding currently in force between the HRS and the Social Security Administration prohibits using the social security earnings and benefit data together with the detailed pension plan descriptions. In particular, researchers cannot

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<sup>17</sup>For an analysis of wage growth among older workers, see Gustman and Steinmeier (1985).

calculate the present value of HRS respondents' pensions using the employer record, and in the same computer file calculate the present value of the social security benefit based on the earnings record obtained from SSA and attribute that to the HRS respondent. Negotiations are in progress to relax this restriction, but here we have chosen to use the employer provided pension plan descriptions, and to estimate social security wealth from the self reported HRS respondent's earnings history. Also we do not have access to the detailed battery of questions included in wave III of the HRS that asks about covered earnings history. Therefore we use only the earnings reports from HRS respondents in wave I on their current job (section F), last job if not currently employed (section G), and previous job (section H). We also consider any other past jobs that were reported by the respondent because they offered a pension.

To estimate a respondent's covered earnings history, we assume that all males in the HRS worked in jobs covered by social security from the time of leaving school until the time that the first job reported to the HRS began. For single women, we assume that they also worked in jobs covered by social security since leaving school. For married women, however, we assume they were covered only for the length of the period they report working on their current job, last job and any previous job reported. The anchor for projecting the wage is the latest wage reported in each job to the HRS.<sup>18</sup>

Previous analysis of the social security earnings records of HRS respondents shows that married men averaged a total of 125 covered quarters through 1991, married women averaged 72 covered quarters, nonmarried men averaged 115 covered quarters, and nonmarried women

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<sup>18</sup>The earnings function used to project earnings in earlier years assumes only economy wide wage growth, but ignores wage growth due to tenure and experience. As a result, we are overstating earnings at younger ages.

average 85 covered quarters (Mitchell, Olson and Steinmeier, 1996, Table 1). Even though the procedure of matching only the years for which work is explicitly reported for married women will understate their covered work history, we do not expect this procedure to result in too large an error in the value of social security in married households. The reason is, in accordance with rules affecting dual beneficiaries, the wife is assumed in our algorithm to be eligible for half the benefit her husband is entitled to. Moreover, in most households, when the husband dies, the widow receives the benefit her husband was entitled to; even if she worked, the benefit she receives based on her husband's record is larger than that based on her own work history. In the case of unmarried women, we knew we would be overstating the value of social security benefits, and expected also to overstate them for men, since men do suffer some interruption in their work history. In most cases this is likely to be mitigated when the average indexed monthly wage is calculated and only the high 35 years of indexed earnings are counted. As will be seen below, the values of social security wealth calculated using respondents' reports of partial reported earnings histories and the assumption that men and single women worked fully from time of leaving school to beginning the earliest reported job on the survey, overstates by about 13 percent the values obtained by Mitchell, Olson and Steinmeier (1996) using Social Security Administrative Records.

The potential social security benefit amount is calculated using generic rules after 1977, as applicable to the relevant cohort. Once the benefit amounts are calculated, the value of the asset stream is obtained by discounting the benefit amounts in different years, allowing for the intervening mortality. This is not quite as simple as it at first appears, since for a family we must calculate whether the spouses are better off taking benefits on their own accounts or as spouses, and survivor benefits must also be included in the asset values. Consistent with the social security

rules, the spouse is credited with the highest benefit to which she is entitled.

When we calculate the accrual rate of social security, in contrast with the method used for pensions, we use a legal liability concept. Social security accrual is calculated by differencing social security wealth accumulated through the beginning versus the end of the year, on the assumption that there would be no further covered work in the future. That is the same method used in Mitchell, Olson and Steinmeier (1996) is used here. By conforming with their methodology we can measure the error in our findings from having to use the constructed earnings histories rather than the SSA of covered employment. That measurement error is discussed below.

The accrual rate we report is in the present value of social security benefits. We do not take account of social security taxes.

### **Health Insurance**

The value of health insurance is a difficult concept to measure and so has frequently not been included in discussions of retiree income and wealth. Because the costs of health insurance have increased so much in recent years, and therefore the value of the insurance has risen so much, it is useful to investigate how the value of health insurance affects measures of the distributions of income and wealth.

With regard to income, it is clear that it is not the cost of the insurance that should be counted, but rather the value of the employer's share of the cost. The employee's share of the cost is part of the employee's wage, and hence to count the entire cost of the insurance would be double-counting the employee's share. For the purposes of this study, we build on work that the Census has already done in the area of imputing the employers' share of health insurance costs.



Beginning 1992, the Census has included on the March Current Population Survey a variable measuring the employers' share of health insurance costs. This variable is based on the National Medical Care Expenditure Survey (NMCES).<sup>19</sup>

To estimate the amount of the employers' contributions to health insurance for individuals in the HRS, we match individuals in the 1992 CPS with individuals with health insurance in the HRS on the basis of the variables described in step 2 of footnote 18. Contributions are reduced by 777/2606 after the individual becomes eligible for Medicare (GAO, 1989).

The employer's contribution to current health insurance should certainly be included as income, but should it be added to household assets? The answer is that unless a calculation of wealth is to include potential wealth from human capital, which our estimates of wealth do not,

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<sup>19</sup> The construction of this variable is described in the publication *Measuring the Effect of Benefits and Taxes on Income and Poverty: 1979 to 1991* (Census, 1993, p. B-3):

(1) An enhanced NMCES data file was prepared by adding two variables not on the original file (total annual earnings and usual hours per week) by statistically matching NMCES and CPS using the appropriate demographic and economic variables available from both sources. The match made it possible to assign earnings and full-time/part-time variables to the NMCES file.

(2) The enhanced NMCES file was used to estimate a model that related employer contributions to a set of explanatory variables which were also available on the CPS file. These variables included type of plan (family or individual), proportion of cost paid for by employer (part or all), earnings, type of worker (full-time or part-time), industry, occupation, sector (private or government), region, residence, age, race, marital status, and education.

(3) The model was run on the March CPS file to obtain estimates of the amount of employer contributions for each worker whose employer paid all or part of the cost of his or her health plan. The model was run as deflating 1991 earnings to 1977 dollars. The estimates produced by this model were then inflated to 1991 estimates by multiplying the 1977 level estimates by the 1977 to 1991 change in employer contributions per covered worker.

(4) For those persons who worked for the Federal government in 1991, the amount of employer contribution was calculated using administrative data. Separate calculations were made for postal and non-postal employees.

the contribution to current health insurance does not have any asset value, any more than the current wage has asset value. What does have asset value is the promise of the employer to contribute to the cost of health insurance after the individual retires (retiree health insurance). The calculation of the asset value of retiree health insurance is more complicated than the calculation of the income value of the employers' contribution to current health insurance, but the two calculations share many of the same features.

When a retiree reaches 65, Medicare becomes the first payer for retirees. This means that employer contributions to health insurance go down, since they no longer have to cover what Medicare picks up. The GAO (1989) reports that employer contributions to retiree health insurance are only 30% as large for retirees over 65 years old as they are for retirees under 65. The cost estimates for payments after 65 adjust for the reduction in benefit payments as employers pay only for medigap insurance.<sup>20</sup>

Having calculated the employer contributions to retiree health insurance, it is a relatively simple matter to take the present discounted value of the future contributions and arrive at an asset value for the commitment of the firm to maintain its contributions to the health insurance plan. For those employees who have not completed the age and/or service requirements for retiree health insurance but who will be eligible if they continue working, a similar ambiguity arises as for the pension plans. On a legal basis, the current value of the retiree health insurance asset is zero because retiree health insurance is not vested prior to retirement, and in many cases, not even after retirement. On a projected basis, the value is the value of the asset, prorated

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<sup>20</sup>Gustman and Steinmeier (1994) include the wealth equivalent of employer provided health insurance in the opportunity set affecting the worker's retirement decision.

according to the percent of the age and/or service requirement attained. In this latter case, there should also be an income amount imputed to be the increase in the value of the prospective retiree health insurance asset from working this year.

Below the income measure for employer provided health insurance includes an estimate of the increase in the present value of the retiree health benefit plus the current employer contribution toward health insurance in the current year. The wealth equivalent includes only the share of the present value of retiree health benefits accrued on the basis of work to date.

### **Financial Assets And Housing**

Yet another advantage of using the HRS in this study is its high quality information on financial assets. A typical survey question on assets is of the form "If you sold all of your stocks and mutual funds and paid off anything you owed on them, how much would you have?" It appears that many respondents, when confronted with such a question, interpret the question as requiring a precise answer. Hence, they reply "I don't know." For these "don't know" responses (and for the refusals as well), the HRS employed an "unfolding" technique. If the respondent answers that he didn't know the amount of assets, there is a followup question "Would it amount to \$25,000 or more?" If the respondent answered yes to this question, he or she received a second followup question "Would it be \$100,000?" If the answer to the first question was no, the second question was "Would it be \$5,000?" In principle, this unfolding could go on indefinitely, but as a practical matter no more than two unfolding questions were asked for any particular asset category, mostly to keep the interviews from becoming too long and to keep from annoying the

respondents too much.<sup>21</sup>

The differences of the imputations (random assignments drawn from the valid data cases that fall into the same bracket) from ones that would been made in the absence of the bracket data can only be described as enormous. Relative to valid cases, refusal households have triple the mean amount of business and farm equity, triple the amount of real estate equity, about 50% larger IRS or Keogh accounts, and more than three times the amount of stock. The use of these unfolding techniques on the HRS gives a much clearer picture of the components of net worth, and the comparable importance of pensions and health insurance, than could be obtained from other surveys.

Smith (1996) questions the fluctuations in asset amounts between waves of the survey. Hurd and McFadden (1996) have raised questions about the sensitivity of these estimates to the anchor -- i.e., the initial value presented to the respondent in a question asking if a certain type of asset holding exceed the specified amount . Investigation of brackets has suggested to the designers of the HRS that the bracket amounts used in HRS 1 were not optimal; bracket amounts were subsequently changed for later waves of the survey. Despite all of these problems, for this investigation of the importance of pensions and social security in wealth and income of HRS

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<sup>21</sup>The unfolding techniques have been examined in Juster and Smith (1994). Their conclusions are:

- (1) Most respondents who cannot or will not provide an estimate of the value of a net worth component are willing to respond to the bracket question.
- (2) The proportion of people willing to respond to the bracket questions is much higher for respondents who reply "don't know" to the original question about the amount (about 90%) than for respondents who refused to answer the question (about 50%).
- (3) Respondents who report either that they don't know or who refuse to answer a question about the value of a net worth component are very different from respondents who provide valid responses to the amount question, and the differences cannot be accounted for by differences in some measurable characteristic of the respondent.

respondents, our findings use only the data from wave 1 of the HRS and make no adjustment for the anchoring problem.

### **Earnings**

Earnings in 1991 of HRS respondents are explored in a set of more or less standard questions. Since these questions do not differ significantly from similar questions in other surveys, we simply note that earnings are the primary component of most HRS respondents' income in 1991. Hence the variation in earnings is the principle source of the variation in incomes.

### **Measuring Observations For Households**

Several of the income measures and most of the wealth measures in the HRS were collected at the household level rather than for individuals. Because of this, the analysis of wealth and income patterns in the HRS must be cast in a household framework. For couples, the interviewer asked which member of the couple was most knowledgeable about finances, and that individual was designated as the primary respondent; usually that person's partner was designated as the secondary respondent. The primary respondent answered the sections of the HRS questionnaire having to do with housing, income, assets, and insurance. For 284 households, interviews were only obtained with the primary respondent. The primary respondent did give some information about the partner, such as the age, gender, race, and income. This made it possible to "hot deck" the missing spouse from other cases in the survey by finding another respondent who was a member of a couple and who had the same age, gender, race, approximately the same individual income, and approximately the same family income. For 95 households in the HRS, interviews were obtained only with the secondary respondent. These

households must be dropped from the analysis because none of the financial sections of the questionnaire were asked, leaving 7607 households in the analysis.

Household income measures also include labor earnings, income from assets, government transfer income, and so forth. Asset measures include housing wealth, business assets, financial assets, and retirement assets (IRA's and Keogh's). All of these are included in the calculations below.

In tabulations to follow we present total household income and wealth calculated separately for single households and couple households. Single households are further broken down into males and females. In most cases we also present findings arrayed by household income and wealth percentiles (5%, 10%, 25%, 50%, 75%, 90%, and 95%). Statistics reported using weighted data include the weighted percentage of nonzero amounts, the weighted average of the nonzero amounts, the overall weighted average, and the percentile breaks for such variables as total assets, housing wealth, business assets, financial assets, retirement assets, and the value of retiree health insurance (both total household and by male/female), and analogous quantities for the income quantities.

### **III. Pensions And Other Sources of Income and Wealth**

#### **A. Income By Type**

Total annual income among households in Wave 1 of the HRS is reported in Table 1 (all figures are in \$1991). While we will continue to call the reported figures income, they are closer to compensation since they include accruals from pensions and from social security, as well as the value of health insurance provided by the employer. The first column reports the mean values of income by type for each household. We have chosen to include all households. The reader

should be aware that these figures mix together retired households and those that continue to work. Column 2 indicates the fraction of income accounted for by the indicated category. Column 3 presents the value of income by type for the households having the median 10 percent of total income, i.e., for households falling between the forty fifth and fifty fifth percentiles in terms of total income.<sup>22</sup> Column 4 indicates the fraction of total income accounted for by these categories for those falling into the middle ten percent of households.

Line 1 of Table 1 indicates that on average, all HRS households received \$48,203 in income in 1992. Income for the median 10 percent of households was \$36,006. The difference reflects the well known skewness of the income distribution, where those in the upper part of the distribution receive a disproportionate share.

### **Earnings<sup>23</sup>**

Line 2 in Table 1 reports the most important source of income, earnings. On average, earnings total \$35,313 per year in HRS households, accounting for 73 percent of total household income. For the median 10 percent of HRS households, earnings were an even more important source of income, accounting for 78 percent of total income. It should be recalled that only about a fifth of HRS wave 1 households are retired (Gustman, Mitchell and Steinmeier, 1995a).

Columns 1 and 2 in Table 2 report the fraction of families receiving income by type and

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<sup>22</sup>The concept of the median 10 percent of families arrayed by wealth or income is a bit awkward to deal with. However, it is not appropriate to focus only on the median family because we are interested in the distribution of wealth or income for the median group, and the family with median income or wealth may not have a representative distribution among various categories of wealth or income.

<sup>23</sup>Earnings include wages, salaries, bonuses, overtime, tips, income from professional trade and practice, income from second jobs and income from the military reserve.

the average value of income by type for those receiving the indicated source of income. For purposes of comparison, the last column again reports the average amount of income by type across all households.

From Table 2 it can be seen that 84 percent of households received earnings, averaging \$42,063 per household receiving earnings.

### **Pension Contributions**

For those with a defined contribution (DC) plan, the pension contribution is the amount the employer deposits in the plan. For those with a defined benefit (DB) pension, the pension contribution is the accrual rate from working one more year, where pension accrual is calculated on a projected liability basis.<sup>24</sup> The figures on pension contribution in Tables 1 and 2 represent only the increment in the real present value of the pension from additional work. In order to avoid double counting of income and wealth from the same source, pension income is not in our calculation of income for those whose pensions are in pay status. The pension income from interest on tax free balances, the income equivalent arising from the fact that the lump sum promised under a pension is coming closer in time, as well as any pension incomes from plans that are in pay status, also are not included in the pension contribution category. In this sense, the pension contribution reported here understates what pension income would be if it were reported using the same criteria as some other categories of asset income. Similarly, we do not report the rental value of housing realized by those who live in their own homes as income, or unrealized capital gains on stocks or other holdings.

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<sup>24</sup>For pensions at various ages, the accrual is the difference between the currently available pension and the pension available one year hence. This represents the accrual from this year's work.



As seen in line 3 of Table 1, on average the pension contribution is \$2,767 per household. This amounts to 6 percent of household income and to 8 percent of average household earnings. For the median 10 percent of households, amounts to \$1,062, but accounts for 3 percent of total household income. As seen in Table 2, of the 50 percent of households with income from pension accrual, the average accrual per household is \$5,569.

### **Social Security**

The average HRS household accrues social security benefits at a rate of \$1,517 per year, accounting for 3 percent of income. Accrual is measured as the difference in wealth from working an additional year, and assumes that in all future years outside the calculation there are zero recorded earnings.<sup>25</sup> For the median 10 percent of households, pension benefit accrual accounts for \$1,356 per year, or about 4 percent of household income. According to Table 2, 57 percent of households continue to accrue credits under social security, averaging \$2,665 per household that is still accruing benefits.

### **Health Insurance Contributions By Employers**

The average value of the health insurance contribution by employers among HRS employees is \$1,775 per household, or 4 percent of average household income. This benefit is received by 51 percent of households, averaging \$3,464 per household that receives the benefit. Health insurance contributions average \$1,655 for the median 10 percent of households arrayed by income, which amounts to 5 percent of household income.

### **Pensions, Social Security and Health Insurance**

Altogether pension accrual, social security benefit accrual and health insurance

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<sup>25</sup>To remind the reader, we do not take the payroll tax into account in this calculation.

contributions account for 13 percent of average income. For the median 10 percent of households, pensions, social security and health insurance together account for 12 percent of household income.

### **Income From Transfers<sup>26</sup>**

Income from transfers amounts to 2 percent of average HRS household income, or \$941 per household. For the median 10 percent of households, the figure is \$958, which accounts for 3 percent of the income of the median 10 percent of families. Altogether, 20 percent of HRS households receive transfer income, averaging \$4,650 per recipient household.

### **Asset Income<sup>27</sup>**

For the HRS households, 47 percent have asset income, with households with asset income averaging \$11,262 per year, and asset income to all households accounting for 11 percent of household income, or \$5,304 per household. The figure is half that for the median 10 percent of income recipients among households. The median households receive \$2,516 per household in asset income, amounting to 7 percent of their household income.

### **Other Income<sup>28</sup>**

Other sources amount to 1 percent of income, \$586 per household.

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<sup>26</sup>Transfers include unemployment insurance, workers compensation, veterans benefits SSI and welfare.

<sup>27</sup>Asset income includes business income, rent, dividends, interest, and income from trust funds and royalties. We have checked the totals obtained here against results obtained by Juster and Gustman (1996) and by Venti and Wise (1996). The totals and individual items are consistent.

<sup>28</sup>Other income includes alimony, child support, regular support from friends and relatives, and other income sources.

## **B. Total Net Wealth by Type**

Table 3 reports on the level of total net wealth, that is total assets net of liabilities, by type owned by households in 1992.<sup>29</sup> The first column reports the source of wealth. Column 2 indicates average wealth by category, while column 3 presents the fraction of wealth represented by wealth in each category. Columns 4 and 5 present the same figures for households falling within the median 10 percent of all households.

On average, row 1 of Table 3 indicates that all HRS households own \$499,187 in net wealth in 1992. Wealth for the median 10 percent of households is \$339,725. About 99 percent of HRS households reported some wealth value.

### **Total Wealth Versus Total Income**

One way to assess the reported magnitudes of wealth is to compare average wealth with average earnings, or with average income net of pensions, social security and health insurance. Average wealth in the HRS totals 14 times annual earnings and 12 times income net of pension accrual, social security benefit accrual and health insurance. Using the life tables and interest rate returns underlying our wealth estimates, at age 62 a single male can replace two thirds of income with wealth of ten times income. A couple can replace half of income if the same expenditure is maintained even after one spouse dies, and a larger fraction if consumption of a surviving spouse is reduced below the consumption of the couple. And HRS respondents average 56, and will accrue pension benefits over years until retirement. Thus wealth accumulated by the respondents to the HRS appears to be substantial.

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<sup>29</sup>Notice that in reporting wealth we have not included the capitalized value of future earnings. This leads to an understatement of full expected wealth on the part of the household.

## **Pension Wealth**

The importance of pension wealth to HRS respondents is very clear. As seen in row 2 of Table 3, on average pension wealth is \$116,012 per household, which accounts for 23 percent of all wealth among households, including households with no pension. For the median household, pensions average \$60,102, which accounts for 18 percent of total wealth. This suggests that pensions are distributed more unevenly than total wealth. Table 4 indicates that among all households, 64 percent have some pension wealth, worth \$181,926 to those with pension wealth.

## **Wealth Value of Social Security**

Only slightly more important than pensions in this survey is social security. As would be expected, 96 percent of all households are expected to receive social security benefits (see Table 4).<sup>30</sup> The present value of social security wealth for all households averages \$133,662. Thus social security wealth on average totals 27 percent of household wealth, only slightly more than pensions. With such a large fraction of households covered by social security, Table 4 shows that average social security wealth is not much higher for covered HRS households at \$138,878, than for all households.

To provide an indication of how close our calculations come to estimating social security

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<sup>30</sup> Note once again that these figures for social security wealth are based on past earnings history reported by the respondent rather than on reported covered earnings from the Social Security Administration. In the case of men and single women, we assumed that they worked continuously since leaving school. According to the social security records for the sample provided by Mitchell, Olson and Steinmeier (1996, Table 1), however, even from age 30 forward, men averaged ten to twelve percent of years with zero reported social security earnings, and additional but unspecified years with earnings that may on average be overstated by our procedure of projecting wages backward from the earliest job reported in the HRS. In addition, as noted earlier, we have estimated earnings at younger ages assuming that earnings increase each year by the rate of economy wide wage growth in earnings, but have not included increases in wages with tenure and experience. The effect is that we overstate earnings at younger ages.

wealth using the covered earnings histories, we need to skip ahead into the next set of tables which include findings for couples and singles. For couples we estimate average social security wealth of \$162,610. For married men, as of 1992 Mitchell, Olson and Steinmeier (1996, Table 3), using social security earnings histories, estimated couple's benefits of \$148,198 when focusing on men, and \$161,780 when focusing on women. (The HRS men are married to younger women, some of whom are out of the sample age range, while the women are married to older men, some of whom are out of the sample age range, which accounts for the higher social security wealth figure when focusing on women.) Therefore compared to the \$155,000 average of their estimates, our present estimates are only slightly high (by about 5 percent). For single men, we estimate social security wealth in 1992 of \$75,164. Using the HRS earnings records, Mitchell, Olson and Steinmeier (1996) estimate social security wealth of \$67,777. Thus for single men we are high by about 11 percent. For single women, our estimate of social security wealth is high by about 38 percent since we estimate social security wealth of \$69,703, while they estimate social security wealth of \$50,678. Because single women accumulated 85 total quarters on average, and we assume they worked full time since leaving school, or 140 quarters, it is not surprising that here we overstate their social security wealth. All told then, our estimates of social security wealth overstate the figures from Mitchell, Olson and Steinmeier by about 13 percent.

### **House Value<sup>31</sup>**

Average house value for HRS households is \$78,826 per household, accounting for 16

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<sup>31</sup>House value includes ranch, farm, home on partly-owned ranch, mobile home site, mobile home, mobile home and site, house/apartment, first mortgage, second mortgage, third mortgage, home equity line of credit, second home, mortgage on second home, and net value of motor home.

percent of total assets. House value for the median 10 percent of households is \$67,716, accounting for 20 percent of total wealth for this group. For the 80 percent of households who own a home, the average value of housing assets is \$98,456.

### **Business Assets<sup>32</sup>**

Business assets account for the same fraction of average wealth as housing assets, 16 percent. Overall, business assets amount to \$78,951 per household. Average business assets for the median 10 percent of households arrayed by wealth amount to \$14,511, which when compared to mean assets suggests that the distribution of business assets is highly unequal. With 32 percent of all households reporting they own business assets, the average value for those with business assets is \$250,198.

### **Financial Assets<sup>33</sup>**

The average level of financial assets is \$42,140 over all households, accounting for 8 percent of assets held by households. With 88 percent of households reporting having some financial assets, average holdings by those with financial assets are \$47,709. The median 10 percent of households has \$19,274 in assets, accounting for 6 percent of total assets held by the median 10 percent of wealth holders.

### **Retirement Assets<sup>34</sup>**

Overall, 42 percent of households report having some retirement assets. On average

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<sup>32</sup>Business assets include real estate and business assets.

<sup>33</sup>Financial assets include stocks and mutual funds, checking and savings accounts, CDs, government savings bonds or treasury bills, other bonds or bond funds, and are net of debts.

<sup>34</sup>Retirement assets include Keoghs and IRAs.

retirement assets amount to \$19,613 over all households and account for 4 percent of total assets. Among households with retirement assets, these assets are worth \$46,716 per household. For the median ten percent of all wealth holders, retirement assets average \$10,948 and account for 3 percent of household wealth.

### **Asset Value of Retiree Health Insurance**

The average asset value expected due to employer provided retiree health insurance amounts to 2 percent of household assets, or \$7,600 per household. Only 32 percent of HRS households have assets from retiree health insurance, amounting to \$23,841 per household with such benefits. For the median 10 percent of wealth holders, retiree health benefits average \$7,771, which is also 2 percent of household assets.<sup>35</sup>

### **Other Assets<sup>36</sup>**

Another 4 percent of total assets falls in the other category and amount to \$22,383 on average for the sample.

## **C. Pensions and The Distributions of Incomes And Wealth by Type Among Couples and Singles**

The distribution of total income among HRS couples and singles in 1992 is reported in Table 5. On average, all couples received \$58,895 in income in 1992. Columns 3 and 4 report income components for male and female members of couple households for those components

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<sup>35</sup>Note that the wealth measure of the health insurance variable is based only on the present value of retiree health insurance. The income measure of health insurance also includes the value of employer provided health insurance covered as part of ongoing compensation for continuing work.

<sup>36</sup>Other assets include vehicles and other assets.

which can be decomposed in that way. Assets and social security benefits are attributed to the full household. Columns 5 and 6 report the analogous results for single males and females.

Singles have lower incomes than couples on a per capita basis.<sup>37</sup> Average income for all singles is \$25,225, which is 43 percent of average income for couples. Income for the median 10 percent of singles is \$17,855, which is 38 percent of the income for the median 10 percent of couples of \$47,492, so that more income is concentrated in the upper tail for singles. For single males, average income is \$34,094, while for single females it is \$21,064.

Pension contributions accrue to 37 percent of single males, which is below the 41 percent of male partners with pension contributions. The average pension contribution for male singles of \$1,876 is below the pension contribution of \$2,076 for men in couples. Female singles average pension contribution is \$1,571, with 36 percent of female singles reporting pension contributions. Both figures are in excess of those for female partners in couples, where 31 percent report pension contributions, amounting to \$1,202 when averaged across all couples. Pension contributions for male singles average 8 percent ( $1,876/24,738$ ) of total earnings, while the figure for female singles is 10 percent ( $1,571/15,072$ ) of total earnings. For couples, the pension contribution for the male partner averaged 7 percent ( $2,076/31,118$ ) of the men's earnings, while the pension contribution of the female partner averaged 10 percent ( $1,202/12,177$ ) of the women's earnings.

The distribution of total assets among singles and couples in 1992 is reported in Table 6. On average, all couples own \$610,749 in assets in 1992. Asset value for the median 10 percent of

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<sup>37</sup>See Smith (1995b) for a very informative discussion of the income and wealth of singles and couples.



asset holders who are couples is \$440,285. Assets held by all singles average \$259,424, or 42 percent of the assets held by couples. Thus on a per capita basis, singles hold fewer assets than couples. Single males hold significantly more assets than single females, \$359,122 for single males verses \$212,641 for single females.

On average pension wealth is \$141,278 for all HRS couples, with 72.5 percent of couples reporting assets in the form of a pension. This amounts to 23 percent ( $141,278/610,749$ ) of all assets for couples. The median amount of pension wealth accrued to date from current work by the median 10 percent of wealth holders among all couples is \$96,567.

Among all HRS couples, 62 percent report pension assets from a male partner, averaging \$113,078, and 36 percent of couples report pension assets due to a female partner, averaging \$28,199 among all couples. Thus 80 percent of pension assets held by couples are due to the male earner.

Among all singles, 45 percent have pension wealth. This is a much smaller ratio than the 73 percent figure found for couples. Among all singles, pension values average \$61,713. Thus HRS singles average 44 percent of the pension wealth owned by couples. The ratio of pension wealth to total wealth held by singles of 24 percent is similar to the 23 percent ratio of pension wealth to total wealth held by couples.

Among all HRS single males, 52 percent report pension wealth, well below the 62 percent figure reported for male partners in couples. For single males, pension assets average \$111,570, below but close to the average value for male partners in couples of \$113,078. Among female singles, 42 percent report having pension assets, which is above the 36 percent figure reported for the pension assets due to a female partner in couples. For single women, pension assets average

\$38,318, compared to \$28,199 for the female partners with pensions in couples.

#### **D. Income and Assets By Pension Status, Race, Education, Union Status and Veterans Status**

Table 7 reports income and wealth by subgroups in the population that are of special interest. In the first two rows of the table it can be seen that income and wealth differ substantially between households in which a member is covered by a pension and households with no pension. Incomes are more than twice as high on average in pension households. When households with pensions are identified and are ordered by income, and average income is computed for the median ten percent of households, and the same is done for households without pensions, the income differences are more than three to one in favor of households with pensions. Average wealth is seventy percent higher in households with pensions than in nonpension households. When households with and without pensions are ordered according to wealth, the average assets for the median 10 percent of households with pensions is 2.8 times the average assets for the median ten percent of households without pensions.

It is instructive to compare both income and wealth differences between households with and without pensions. Because medians reorder households when rankings are based on income as opposed to wealth, we prefer to look at means. The ratio of mean income in households with pensions to those without is 2.05 to 1. The ratio of total mean wealth is 1.7 to 1. In a simple life cycle model with no precautionary, bequest or other motive for savings, if individuals treated pension wealth the same as other wealth, there would be perfect substitution between pension

wealth and other wealth, and the wealth ratios would be the same as the income ratios.<sup>38</sup> In a model in which pensions added to total wealth accumulation, i.e., in which there was not a perfect offset, then the ratio of total wealth between those with and without pensions would be higher than the ratio of incomes. The fact that wealth ratios between those with and without pensions are lower than income ratios suggests that substitution between pension wealth and other wealth may be substantial, although it would be premature to argue that any offset between pension and other wealth is greater than one to one.

Moreover, nonpension-nonsocial security wealth for households with pensions is 3.5 times that of households without pensions. That is, *nonpension-nonsocial security wealth differences* are proportionately greater than income differences between households with and without pensions, but *total wealth differences* are smaller. Thus analysis based only on the relation of

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<sup>38</sup>We do not mean to suggest that the simple life cycle model is the appropriate model to use in predicting how wealth will vary with higher incomes; these simple comparisons are only very roughly suggestive. Many other complications should be taken into account before making judgements on the basis of a comparison between income and wealth differences for those with and without pensions. Among the considerations not taken into account in the simple comparisons are the following: For a number of reasons, those with and without pensions may retire at different times. On the one hand, pension incentives may encourage earlier retirement. On the other hand, other things the same, those with pensions may have a stronger taste for work than those without pensions, and that taste difference may be correlated with date of retirement. Transitory incomes may affect the comparisons. There may be systematic unmeasured differences in the jobs held by those with and without pensions. Income growth may differ between those with and without pensions. For all of these reasons, a measure of full-earnings, based on a concept of lifetime earnings adjusted for realizations of various outcomes that are uncertain *ex ante*, should be used in these comparisons, instead of measures of current income. Moreover, social security is nondiscretionary, so that total wealth may be higher than many low income families would prefer if they were free to dissave and to consume. Also, housing wealth may not be transformed willingly into other forms of consumption. Clearly, the question of how total wealth varies with income and pension coverage deserves a much closer examination, in the context of a more realistic model that includes careful measurement of pension and social security wealth, than we can produce by simply comparing income and wealth for those with and without pensions. For a related discussion and a list of additional issues, see Gale (1995).

nonpension wealth differences between those with and without pensions might suggest that pension coverage leads to proportionately higher total wealth accumulation, rather than to proportionately lower total wealth accumulation, as the more comprehensive wealth data suggest.

The next comparison made in Table 7 is by schooling. The schooling level for the household is defined as the highest level achieved by either spouse. The ratios of income and wealth between the highest and lowest education categories are at least 3.7 to one.

Following that is a comparison by race. Whites and others have twice the household income of other Hispanics, and almost twice the household income of Blacks. Average wealth for Whites and other households is twice as high as it is for Black and Hispanic households. When the median 10 percent of households are identified within each group and compared, the differences in wealth are more than two to one in favor of Whites and others.

Next we consider whether a household has either partner who is a union member.<sup>39</sup> Average incomes are very close between union and nonunion households, but when households with median income are identified within each group, the average income for the median group is one third higher for union households, reflecting the more equal distribution of incomes among union households. Union households have about 8 percent more wealth than nonunion households on average, but the differences in wealth between the medians are much wider, with the median of union household wealth being over a third higher than the median for nonunion

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<sup>39</sup>Union jobs are not identified in section H, previous job. They are identified in Section F, current job, and Section G, last job for those with no current job. That means we may be missing some union members who were on long term union jobs, but retired from them a number of years ago.

households. Notice that thirty one percent of the households in the HRS have a union member. This high number is the result of two things. The union measure identifies households in which either partner is a member of a union, and so should be higher than the average rate of unionization in the population. In addition, the 1931-41 birth cohort is more likely to be unionized than are younger cohorts. In 1992, union membership among the employed is 25 percent for men and 19 percent for women in the HRS (Gustman, Mitchell and Steinmeier, 1995b).

The final set of results presents something of a puzzle. For the HRS cohort we find that both the incomes and wealth of households with a veteran is higher than the income and wealth for households without a veteran. The HRS cohort, born from 1931 to 1941, largely was too young for the Korean War, and too old for Vietnam. Their experience may be different from those who were of draft age during the Vietnam era, where veterans exhibited lower incomes than nonveterans. Nevertheless, it is noteworthy that we find such a large income difference in favor of households with veterans in them.

Table 8 focuses on pensions. It reports the fraction of income and wealth due to pensions for these different population groups.

Among households with pensions, the pension accounts for 7 percent of average income and 29 percent of average wealth. The comparable numbers are lower for median households at 4 percent and 25 percent respectively.

Pensions grow in importance as a source of income and as a source of wealth with the level of schooling. On average for college graduates the share of pensions in income and wealth is two thirds bigger than the share of pensions in income and wealth for those with less than a high

school education. For median families within these schooling categories, the share of total income represented by pensions is five times as large for families with a college education as for those with less than high school, while the comparable differences in share of wealth represented by pensions among median households is more than three to one.

For Blacks the share of average wealth represented by pensions is higher than for Whites and others.<sup>40</sup> Although the share of incomes represented by pensions are similar between Hispanics and Whites and others, the share of average wealth represented by pensions is much lower for Hispanics. Looking at the figures for households with median wealth, the share of wealth represented by pensions is lower for Hispanics than is the share of pensions in wealth for the median White and Other households, and for the median Black households.

The share of average incomes represented by pension accrual is similar for veterans and nonveterans. The share of wealth in the form of pensions is clearly higher for veterans than for nonveterans.

## **E. Pensions, Social Security and Health Insurance In The Distribution of Income and Wealth In the Health and Retirement Study**

### **1. The Distribution of Income**

Table 9 reports the distribution of income in the HRS. Percentiles are reported in column 1, where households are ordered on the basis of total income. Column 2 indicates the average value of income in each percentile category. In column 3 we report average earnings to facilitate analysis for those in the bottom 5 percent of the income distribution who have negative incomes.

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<sup>40</sup>Remember that the absolute value of total wealth for Blacks is half that for Whites and others.

Column 4 reports the lower bracket limit for the percentile category. As is widely known, there is considerable skewness in the distribution of income in the U.S., and this is clearly seen in the data in Table 9. The gini coefficient for the distribution of income among households is .5026.<sup>41</sup> Also reflecting the skewness of the distribution of income among households, the average income for the median 10 percent of households is \$36,006, which is about three fourths of the average income of all households. Negative incomes for the bottom five percent of households reflects negative accrual on some assets, including business losses, pensions and social security. Thus those in the very bottom of the income distribution may have higher assets than one might at first expect.<sup>42</sup>

### **Pensions and the Income Distribution**

Table 10 focuses on the distribution of pension accruals within the distribution of household income. Again the first column of the table indicates the percentile category in the income distribution. The fraction of households with a pension is reported in column 2. In column 3 the data report on average pension accrual for those with a pension, while in column 4 the data report the average pension accrual for all households in the percentile category. In column 5 the data indicate the percent of income accounted for by pension accrual. Over 70 percent of those in the top half of the income distribution have a pension. Pension accruals range

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<sup>41</sup>Because some respondents have negative incomes, use of gini coefficients is not entirely appropriate here. Comparisons between means and medians, and consideration of the amounts found in the brackets at different percentiles of the distribution provide the clearest indication of the skewness of the distribution.

<sup>42</sup>There also are other seeming anomalies. For example, transfers are high for those with high incomes. There are twenty observations with income greater than \$100,000 and transfers greater than \$8,000. Almost all have veteran's benefits in the \$20,000 to \$40,000 range.

from \$19,594 for the average household in the top fifth of the income distribution down to -\$540 for those in the bottom five percent of the income distribution.<sup>43</sup>

The last column of Table 10 shows that except for the lowest five percent of income recipients, pension accrual increases as a share of income, rising to 9 percent of income for the top 5 percent of income recipients. For those in the bottom five percent of the income distribution some families have both negative income and negative pension accrual, producing a large positive ratio of pension accrual to income.

### **Social Security and the Income Distribution**

The structure of Table 11 is similar to that of Table 10, but it reports on the importance of social security accrual as a fraction of total income. As noted above, social security accrual is calculated on a legal liability basis, comparing what would be received if the respondent worked

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<sup>43</sup>The large negative numbers for the one hundredth of a percent of the sample with a pension in the bottom five percent of the income distribution reflects two things. First, the income percentile and the wage used in computing the pension are calculated from different measures which may diverge, and in rare circumstances may substantially diverge. In calculating incomes, earnings in 1991-92 are used. To fall in the bottom five percent of the income distribution, those earnings must be low. But pensions are computed based on the reported wage, which for the 1992 survey year may be high. The wage must be high if it is associated with a pension of high enough value to accrue a negative \$46,975 on average. The negative accrual in the pension in turn must reflect the effect of the individual having passed the retirement age, and in the case of the \$46,975 figure, probably the normal retirement age. That is, the individual is losing one year of a highly valued pension from continuing at work, is listed as receiving earnings that are very low despite the high wage, and is not accruing future pension value at nearly a high enough rate to make up for the foregone pension. These negative pension accrual figures may also reflect the collection of an older plan than the one actually in operation in 1992. Older plans may not credit work after having reached retirement age to the extent that the courts and law now requires such work to be credited. As seen below in Table 21, the accrual rate for the sample DB plans averages -2.5 percent after the individual qualifies for normal retirement, and for the bottom quartile averages -9.4 percent. In plans in place in 1983 collected by the Survey of Consumer Finances, the bottom quartile averaged an accrual rate of -17 percent after normal retirement age (Gustman and Steinmeier, 1989, Table 11).



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WEALTH IN THE HEALTH AND  
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### **ABSTRACT**

Together, pensions, social security and health insurance account for half of the wealth held by all households in the Health and Retirement Study (HRS), for 60 percent of total wealth of HRS households who are in the 45th to 55th wealth percentiles, and even for 48 percent of wealth for those in the 90th to 95th wealth percentiles. The HRS surveys households aged 51 to 61 in 1992, and obtains pension plan descriptions from respondents' employers. Pension accrual profiles, income and wealth distributions by type, wealth-income ratios and accrued wealth by pension status are also explored.

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## **I. Introduction**

The purpose of this paper is to evaluate the importance of pension and social security wealth in influencing the economic security of a cohort of people on the edge of retirement. The data set we analyze is the Health and Retirement Study (HRS), a nationally representative data set which carefully measures income and wealth for respondents who are ages 51 to 61 in 1992.<sup>1</sup> A contribution of this study is that we use matched employer provided pension data to estimate the contribution of pensions to wealth and to income within the HRS sample. Estimates of social security wealth are also included, but they are based on self reported earnings histories.

The analysis shows the overwhelming importance of pensions and social security in the wealth and income of the HRS population. After correcting for some imperfections in the data, the wealth equivalents of pensions and social security together amount to almost half of the wealth held by all households. Moreover, together pensions and social security account for well over sixty percent of total wealth for households who are in the 45th to 55th percentile of wealth holders. In addition, pension and social security accrual are found to account for about nine percent of income, where income is not only measured conventionally to include earnings and returns to a variety of assets, but also includes accrual of pension value and social security value. The study also includes the value of employer provided health insurance in income, and retiree health insurance in wealth. Thus our measure of income includes important elements of total compensation.

In our data, total wealth exceeds ten times earnings. This finding suggests that households

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<sup>1</sup>The HRS is a panel study of a nationally representative population base with at least one spouse who was born from 1931 to 1941. The first wave of the survey, fielded in 1992, includes 12,652 individuals. We identify 7607 households with usable records for the present study.

may be better prepared for retirement than some studies have suggested. For a single male, this implies that wealth accumulation to around age 56 may generate enough income in retirement to replace at least two thirds of earnings, and for a couple, their wealth could be sufficient to replace at least half of earnings, and probably more.<sup>2</sup>

For the Health and Retirement Study (HRS) population, about half of the surveyed age-eligible population had a pension, and two thirds of households are covered by a pension from a current or past job.<sup>3</sup> Pension wealth measured from employer provided plan descriptions accounts for over a fifth of all household wealth and almost a fifth of the wealth of the median ten percent of households.<sup>4</sup> As a share of total wealth, pensions are just slightly less important than social security.

Pension wealth also proves to be quite unevenly distributed, accounting for 7 percent of wealth for those in the bottom quarter of wealth holders, 18 percent of wealth for the median ten percent of households ordered by their wealth holding, and 31 percent of wealth for those in the 75th to 95th percentile of households arrayed by wealth. There are major differences in

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<sup>2</sup>Of course, this will depend on mortality experience as well as investment earnings.

<sup>3</sup>In the HRS sample of households where the financially knowledgeable member responded to the survey, we count 6170 individuals as having been covered by either a current or past pension that was not cashed out or lost upon leaving. In 1992 four fifths of those who were covered by a pension or by social security from their own work had not yet retired. These and other descriptive numbers are reported in Gustman, Mitchell and Steinmeier (1995a and b). The numbers (raw counts) of households by marital status and probability of pension coverage in our sample are as follows: single males = 741;.519, single females = 1631;.418, married males = 5234;.618, married females = 5234;.357).

<sup>4</sup>In an innovative study using employer provided pension plan descriptions from the Survey of Consumer Finances, McDermid, Clark and Allen (1989) found higher shares of pension wealth in total wealth than we do here. However, their estimates of total wealth do not include social security wealth.

retirement wealth between households with and without pensions. Households with a pension average \$573,090 in total wealth, while those without a pension average \$337,233.

As wide as these wealth differences are, they are narrower than the differences in income between those with and without pensions. These findings are in contrast to the findings in some other studies that non-pension, non-social security wealth is positively correlated with pension coverage. They are consistent with the possibility that pension wealth is substituted for other forms of wealth.

Pension accrual, social security benefit accrual and health insurance account for about 13 percent of income. Pension accrual rates are especially volatile for the Health and Retirement Study population. For workers covered by defined benefit plans, in the year before reaching early retirement age, pension accrual may be as important as earnings in total compensation.

The share of social security in total wealth is only slightly greater than the share of pensions.<sup>5</sup> However, the effect of social security on the distribution of wealth is equalizing, while pension wealth is an increasing share of wealth as wealth rises. Moving up the wealth distribution, the share of total wealth due to pensions increases as the share of total wealth due to

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<sup>5</sup>Another major innovation in the HRS is the inclusion of earnings histories and benefit payments obtained for each respondent from the Social Security Administration. This study does not use the social security earnings histories. The present agreement with the Social Security Administration does not permit the social security data collected for HRS participants to be used together with employer provided pension plan descriptions. Accordingly, we had to estimate social security wealth from self reported but incomplete earnings histories provided by respondents. We will describe the construction of our estimate of social security wealth below. For estimates of social security wealth in the HRS based on matched earnings records from the Social Security Administration, see Mitchell, Olson and Steinmeier (1996). In the aggregate, our estimates of social security wealth using self reported earnings histories are seen below to be about 13 percent higher than the estimates obtained by Mitchell, Olson and Steinmeier. This means that our estimates of social security wealth overstate their share of total wealth by about 3 percentage points.

social security falls. Together, pensions and social security account for half or more of wealth for households in all but the top decile of the wealth distribution.

This study justifies all of the effort by Tom Juster and his colleagues to collect pension data in the Survey of Consumer Finances, and pension and social security data in the Health and Retirement Study.<sup>6</sup> Our findings suggest that those who ignore pensions and social security when studying the income and wealth of the population do so at their peril.<sup>7</sup>

This paper relies for its estimates of pension wealth on employer provided pension plan descriptions of defined benefit (DB) plans and defined contribution (DC) plans provided by the

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<sup>6</sup>Richard Curtin collected firm provided pension plan descriptions for the Survey of Consumer Finances and supervised their coding and analysis. Robert Peticolas collected the pension information for the HRS and supervised its coding. Tom Juster directed both surveys.

<sup>7</sup>Until pension plan descriptions from employers were included in surveys of income and wealth, studies of savings and wealth determination and distribution found it extremely difficult to calculate reliable estimates of pension wealth and pension income, especially in surveys which included many people who remained at work. Many studies of savings and wealth determination did not include pensions and social security. See, for example, Diamond and Hausman (1984), Avery and Kennickell (1991), U.S. Congressional Budget Office (1993), Bernheim and Scholtz (1993), Kennickell and Starr-McCluer (1996). Some studies of income and wealth include pensions by focusing on the retired population. See, for example, Grad (1994), and Poterba, Venti and Wise (1994). As will be seen in the concluding section of this paper, our findings as to the importance of pensions and social security in total wealth and income for the HRS population, which includes many who have not yet retired, are consistent with the findings in these studies for recent generations of retirees.

Some surveys, including those based on the Health and Retirement Study, obtain information about pensions by asking the respondents about their plans. These data are quite informative, including detailed descriptions from the covered individual, or from the spouse. Frequently, however, the plan descriptions are incomplete. They are most valuable when used in concert with information from employer provided pension plan descriptions. Thus it is of interest to compare our findings with those from studies based on respondent provided pension plan descriptions, such as in Smith (1995a). We make such a comparison in the concluding section. Pension data obtained from the respondents to the Health and Retirement Study have also been analyzed by McGarry and Davenport (1996).

HRS.<sup>8</sup> Eventually, more accurate estimates of pension values will be obtained by combining the information from the employer provided plan descriptions with information obtained from the respondents.<sup>9</sup> Until then, these first order estimates of pension values and other components of wealth provide a good indication of the size of assets and income from pensions, social security and other components of income and wealth.<sup>10</sup>

Section II of the study discusses preparation of the data. Estimates of the role of pension and social security wealth in the distribution of wealth, and of pension and social security accrual in the distribution of income, are reported for the HRS sample in Section III. Section IV analyzes

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<sup>8</sup>A defined benefit pension plan determines the yearly benefit a worker will receive on retiring by using a formula which depends on the employee's earnings, years of service, and retirement age. A very simple DB plan might pay benefits equal to 1% of final salary times the number of years worked at the company. In contrast, a defined contribution pension plan establishes an account which is held in each covered worker's name, and benefits accrue according to a contribution formula which determines how much is deposited in the account in each year (plus investment earnings or losses). At retirement, benefit payments depend on the cumulated value of contribution amounts, as well as investment income from the accumulated funds. Under a DB plan, pension payments do not depend on pension fund returns, since when investment returns are lower than expected, the employer is ultimately responsible for covering the shortfall (along with a government insurance fund, if the firm goes bankrupt). There are many varieties of defined contribution plans including 401(K) plans, profit sharing, stock ownership, and money purchase plans, where payment may be in a lump sum or may take the form of an annuity (Turner and Beller 1992). Workers can, and often do, have both DB and DC plans. For descriptive statistics on these plans, see Gustman, Mitchell and Steinmeier, 1995 a and b).

<sup>9</sup>Estimates of the value of financial and other assets reported here have been reported previously (e.g., Smith 1995a and b, Moon and Juster, 1995, Gustman and Juster, 1996), and are based on the innovative methodology applied in the HRS which results in a substantial improvement in the quality of the information on these assets.

<sup>10</sup>The amounts reported in defined contribution plans are estimated from the earnings history and from the plan description. For defined contribution plans with required contributions, we use the mandated rate as the rate of contribution. When a DC plan has a voluntary component, we use a five percent contribution rate, which is the average rate found by Samwick and Skinner (1995) in data from the Survey of Consumer Finances.

incentives for retirement, again using employer provided pension plan descriptions. Section V concludes the paper.

## **II. The Data**

This section explores issues in the construction of the components of income and wealth for the respondents in the HRS.

### **Pensions**

HRS respondents who reported that they had a pension in their current job were asked the name and address of their employer. The survey staff of the Institute for Social Research (ISR) then contacted these employers to try to obtain pension plan Summary Plan Descriptions (which are publicly available documents).<sup>11</sup> In cases where that did not work, a backup plan was used whereby the records at the Department of Labor were searched for the Summary Plan Descriptions. Of the 5,713 individuals who indicated they were covered by a pension on the HRS, this strategy resulted in plan descriptions being gathered for 3,834 individuals, or about 67% of those who indicated that they were covered. A program to evaluate these pensions under various sets of assumptions has been developed at ISR, and is being adapted for use on personal computers. Because the program is not complete, this paper uses a program for evaluating pensions developed by Gustman and Steinmeier (1989, 1996).

In valuing the defined benefit plans, we have cleaned isolated errors in the coded Summary Plan Descriptions.<sup>12</sup> We also have departed from some of the assumptions made by the coders,

<sup>11</sup>The HRS is one of three surveys to have collected pension plan descriptions from employers. The others are the Survey of Consumer Finances (SCF) and the National Longitudinal Survey of Mature Women (NLS-MW). Neither the SCF nor the NLS-MW incorporates the bracketing technique for reporting of assets used in the HRS to obtain substantially improved estimates of the value of financial and other assets.



and in particular, have assumed in a number of cases that dollar amounts reported in the surveys will increase as wages grow. Other problems are not so obvious.<sup>13</sup> Some have to do with segments of the benefit formulas that cover different employment periods, but then fall silent about benefits for employment into the future, when in fact they probably meant to apply the most recent formula to the future years. With regard to other problems, the answer may not be in the SPD. In some cases the error produces a plan that clearly has properties that are not feasible; for example, when a very sharp decline in plan value on becoming eligible for early retirement seems to be due to an obvious coding error, or when the solution looks reasonably obvious but cannot be confirmed. In such cases, we have adopted a correction in the formula.

For defined benefit plans, the employer-provided plan descriptions make it possible to calculate benefit amounts relatively accurately. The asset value of the pension is simply the discounted value of these benefits to early retirement age, prorated on the basis of work to date. So if a person is 57, will qualify for early retirement at 62, and has been with the firm for 15 years, three quarters of the pension wealth that will eventually be accumulated will have been

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<sup>12</sup>A number of errors and anomalies have been identified, and the plan descriptions have been altered from those originally coded in order to correct the errors. Many of the errors result in pension accrual profiles that are discontinuous in unreasonable ways, have negative slopes and in other ways appear to be unreasonable. In some cases the source of the error is obvious, for example, a decimal is moved. For some cases the error is obvious, but the cure is not. A plan description might prescribe a benefit for a worker employed in 1989, a higher benefit for a worker employed in 1990, and a still higher benefit for a worker employed in 1991. But the description may fall silent for work in 1988, the last year the respondent worked.

<sup>13</sup>A number of plans were identified as having 10 year vesting although private pension law requires shorter vesting. In some cases the plans are public plans. But some of the plan descriptions are quite old and go back to a period when the vesting could exceed ten years.

accumulated based on work to date.<sup>14</sup> We prorate pension wealth to put it on equal footing with the other wealth reported, which represents savings to date. Otherwise to put other assets in the same time frame as pension wealth, if we used full pension wealth as of the date of retirement, we would have to project savings to that same date.<sup>15</sup>

For defined contribution plans, we also use the employer provided pension formula to estimate the value of the pension. The total attributed to the defined contribution plan is the sum of employer contributions plus mandatory contributions made by the individual. For plans with mandatory contributions, the amounts of these contributions are used. When there are voluntary contributions, as in Samwick and Skinner (1995), the amounts in the defined contribution plans assume that individuals contribute up to a maximum of 5 percent whether or not there is matching. That is on top of any mandatory contribution. The firm does whatever the plan prescribes for a voluntary contribution of 5 percent on the part of the respondent. If the plan has a maximum contribution of less than 5 percent, the individual is assume to contribute only the

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<sup>14</sup>More specifically, the retirement age used in prorating the projected value of DB plans is taken to be lowest of the ages specified in any DB component to the retirement plan. The projected value is based on service and earnings projected to the early retirement age, that is, the age the respondent will be eligible for early retirement benefits. The prorated share of the projected value of the pension takes the fraction of the projected value equal to the fraction of years from date of hire to early retirement date that have been worked as of 1992. For anyone in the sample who is still working beyond the early retirement age, the pension value is increased accordingly. Variation in the value of DB plans with different ages of retirement is explored in Section IV.

<sup>15</sup>Because we provide pension wealth on the basis of work to date, our findings as to pension wealth accrued to date are not very sensitive to the date we take for retirement. We prorate pension wealth from the early retirement date. But if we had prorated pension wealth from a later date, like normal retirement age or the retirement age expected by the individual, then while total pension wealth rises with additional work until normal retirement age, the fraction of pension wealth earned to date falls since a smaller fraction of the number of years that will ultimately be worked has been worked to date.

maximum amount. For the rare plans where the minimum contribution is above 5 percent, the individual is assumed not to contribute. Similar assumptions are adopted for 401(k), profit sharing and other defined contribution plans.

In the case of old plans, that is plans from previous jobs, we count an individual as covered by a pension where the individual indicates that he or she was included in the pension, but exclude those who indicate they received a cash settlement when they left, or lost their benefits. We have not counted any old plans where the individual is also covered by a pension on the current job. The older the plan the less likely that hotdecking from the SPD collected in 1992 will provide an accurate indication of the plan value. For this reason our estimates understate the value of pensions held on previous jobs.

Appendix A indicates the match rates for employer provided pensions by firm size and respondent reported plan type. When a pension match is not available for an individual who indicates he is covered by a pension, we impute a plan to the individual. Imputations use a match based on occupation, industry, full-time/part -time status, government vs. private employment, and earnings level. Thus either a defined benefit or a defined contribution plan may be attributed to the individual. In the case of old plans, we impute a pension plan from the list of current plans on the basis of the characteristics mentioned above.

As will be seen in Section IV below, this approach to imputation is somewhat biased, but the bias is likely to be less than 4 percentage points. The sample of pensions obtained from employers contains a higher fraction of DB plans than the fraction of DB plans reported by respondents. We have not reweighted the data to correct for the disproportionate representation

of defined benefit plans.<sup>16</sup>

The analysis to follow also makes a number of descriptive calculations focusing on the role of pensions. We compare wealth for those with and without pensions, and compute asset values, by family status, race, education, union and veteran's status.

In valuing the pension asset, there is a consideration which was first made prominent by Ippolito (1985). Should a defined benefit pension be valued as though the worker were going to leave the job today (the legal value), or should it be valued as the prorated share based on work to date of the value the pension would have if the worker were to stay until the date he expects to retire (the projected value)? The difference in these two values can be quite large. In previous work on the subject, we have calculated that for an average pension-covered individual, the difference can equal a year's worth of wages (Gustman and Steinmeier, 1989, p. 66). Further, question of whether to choose the legal or the projected value does not appear to have a determinate answer; rather, the answer depends on the purpose of the valuation. Below we present distributions of wealth and income primarily using the projected value of the pension, but we also compare findings as to projected pension values with values obtained using the legal liability definition.

In addition to reporting computed values of pension wealth, it is also of interest to report pension accrual, the difference between the pension wealth computed at the beginning and end of the year, allowing for mortality in the intervening year. In this paper we equate pension accrual

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<sup>16</sup>One strategy we will employ in the future is to compare HRS respondent's reports of plan type with firm reports of plan type for those where respondent and employer provided pension descriptions are available. Knowing the difference one could then use the individual reports of plan type to impute type of plan for those without a matched employer plan.

with pension income.

### **Assumptions Made In Calculating the Pension Wealth**

In computing pension wealth for those who are currently covered by a pension, we benchmark the benefit based on the worker's current annual earnings in 1992. We assume that wages in the future for each of these covered individuals increase with the overall growth of wages, but given the respondent's age, we do not add any premium for increasing tenure.<sup>17</sup> Job tenure is reported in the HRS.

For purposes of simulation we use a 4% cost of living increase, 5% nominal wage growth, and 6.3% nominal interest rate, the intermediate assumptions adopted by the Social Security Administration (Board of Trustees, 1995). Thus real wage growth is 1 percent, and the real interest rate is 2.3%, which also is the return assumed on assets invested in DC plans. The life table used is a projected life table from the Social Security actuaries used to analyze the funding status of social security under the intermediate funding assumptions (see Mitchell, Olson and Steinmeier, 1996).

### **Social Security**

For the present study, we were not able to use the matched descriptions of social security covered earnings history and benefits that HRS has obtained from the Social Security Administration. This is because the Memorandum of Understanding currently in force between the HRS and the Social Security Administration prohibits using the social security earnings and benefit data together with the detailed pension plan descriptions. In particular, researchers cannot

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<sup>17</sup>For an analysis of wage growth among older workers, see Gustman and Steinmeier (1985).

calculate the present value of HRS respondents' pensions using the employer record, and in the same computer file calculate the present value of the social security benefit based on the earnings record obtained from SSA and attribute that to the HRS respondent. Negotiations are in progress to relax this restriction, but here we have chosen to use the employer provided pension plan descriptions, and to estimate social security wealth from the self reported HRS respondent's earnings history. Also we do not have access to the detailed battery of questions included in wave III of the HRS that asks about covered earnings history. Therefore we use only the earnings reports from HRS respondents in wave I on their current job (section F), last job if not currently employed (section G), and previous job (section H). We also consider any other past jobs that were reported by the respondent because they offered a pension.

To estimate a respondent's covered earnings history, we assume that all males in the HRS worked in jobs covered by social security from the time of leaving school until the time that the first job reported to the HRS began. For single women, we assume that they also worked in jobs covered by social security since leaving school. For married women, however, we assume they were covered only for the length of the period they report working on their current job, last job and any previous job reported. The anchor for projecting the wage is the latest wage reported in each job to the HRS.<sup>18</sup>

Previous analysis of the social security earnings records of HRS respondents shows that married men averaged a total of 125 covered quarters through 1991, married women averaged 72 covered quarters, nonmarried men averaged 115 covered quarters, and nonmarried women

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<sup>18</sup>The earnings function used to project earnings in earlier years assumes only economy wide wage growth, but ignores wage growth due to tenure and experience. As a result, we are overstating earnings at younger ages.

average 85 covered quarters (Mitchell, Olson and Steinmeier, 1996, Table 1). Even though the procedure of matching only the years for which work is explicitly reported for married women will understate their covered work history, we do not expect this procedure to result in too large an error in the value of social security in married households. The reason is, in accordance with rules affecting dual beneficiaries, the wife is assumed in our algorithm to be eligible for half the benefit her husband is entitled to. Moreover, in most households, when the husband dies, the widow receives the benefit her husband was entitled to; even if she worked, the benefit she receives based on her husband's record is larger than that based on her own work history. In the case of unmarried women, we knew we would be overstating the value of social security benefits, and expected also to overstate them for men, since men do suffer some interruption in their work history. In most cases this is likely to be mitigated when the average indexed monthly wage is calculated and only the high 35 years of indexed earnings are counted. As will be seen below, the values of social security wealth calculated using respondents' reports of partial reported earnings histories and the assumption that men and single women worked fully from time of leaving school to beginning the earliest reported job on the survey, overstates by about 13 percent the values obtained by Mitchell, Olson and Steinmeier (1996) using Social Security Administrative Records.

The potential social security benefit amount is calculated using generic rules after 1977, as applicable to the relevant cohort. Once the benefit amounts are calculated, the value of the asset stream is obtained by discounting the benefit amounts in different years, allowing for the intervening mortality. This is not quite as simple as it at first appears, since for a family we must calculate whether the spouses are better off taking benefits on their own accounts or as spouses, and survivor benefits must also be included in the asset values. Consistent with the social security

rules, the spouse is credited with the highest benefit to which she is entitled.

When we calculate the accrual rate of social security, in contrast with the method used for pensions, we use a legal liability concept. Social security accrual is calculated by differencing social security wealth accumulated through the beginning versus the end of the year, on the assumption that there would be no further covered work in the future. That is the same method used in Mitchell, Olson and Steinmeier (1996) is used here. By conforming with their methodology we can measure the error in our findings from having to use the constructed earnings histories rather than the SSA of covered employment. That measurement error is discussed below.

The accrual rate we report is in the present value of social security benefits. We do not take account of social security taxes.

### **Health Insurance**

The value of health insurance is a difficult concept to measure and so has frequently not been included in discussions of retiree income and wealth. Because the costs of health insurance have increased so much in recent years, and therefore the value of the insurance has risen so much, it is useful to investigate how the value of health insurance affects measures of the distributions of income and wealth.

With regard to income, it is clear that it is not the cost of the insurance that should be counted, but rather the value of the employer's share of the cost. The employee's share of the cost is part of the employee's wage, and hence to count the entire cost of the insurance would be double-counting the employee's share. For the purposes of this study, we build on work that the Census has already done in the area of imputing the employers' share of health insurance costs.



Beginning 1992, the Census has included on the March Current Population Survey a variable measuring the employers' share of health insurance costs. This variable is based on the National Medical Care Expenditure Survey (NMCES).<sup>19</sup>

To estimate the amount of the employers' contributions to health insurance for individuals in the HRS, we match individuals in the 1992 CPS with individuals with health insurance in the HRS on the basis of the variables described in step 2 of footnote 18. Contributions are reduced by 777/2606 after the individual becomes eligible for Medicare (GAO, 1989).

The employer's contribution to current health insurance should certainly be included as income, but should it be added to household assets? The answer is that unless a calculation of wealth is to include potential wealth from human capital, which our estimates of wealth do not,

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<sup>19</sup> The construction of this variable is described in the publication *Measuring the Effect of Benefits and Taxes on Income and Poverty: 1979 to 1991* (Census, 1993, p. B-3):

(1) An enhanced NMCES data file was prepared by adding two variables not on the original file (total annual earnings and usual hours per week) by statistically matching NMCES and CPS using the appropriate demographic and economic variables available from both sources. The match made it possible to assign earnings and full-time/part-time variables to the NMCES file.

(2) The enhanced NMCES file was used to estimate a model that related employer contributions to a set of explanatory variables which were also available on the CPS file. These variables included type of plan (family or individual), proportion of cost paid for by employer (part or all), earnings, type of worker (full-time or part-time), industry, occupation, sector (private or government), region, residence, age, race, marital status, and education.

(3) The model was run on the March CPS file to obtain estimates of the amount of employer contributions for each worker whose employer paid all or part of the cost of his or her health plan. The model was run as deflating 1991 earnings to 1977 dollars. The estimates produced by this model were then inflated to 1991 estimates by multiplying the 1977 level estimates by the 1977 to 1991 change in employer contributions per covered worker.

(4) For those persons who worked for the Federal government in 1991, the amount of employer contribution was calculated using administrative data. Separate calculations were made for postal and non-postal employees.

the contribution to current health insurance does not have any asset value, any more than the current wage has asset value. What does have asset value is the promise of the employer to contribute to the cost of health insurance after the individual retires (retiree health insurance). The calculation of the asset value of retiree health insurance is more complicated than the calculation of the income value of the employers' contribution to current health insurance, but the two calculations share many of the same features.

When a retiree reaches 65, Medicare becomes the first payer for retirees. This means that employer contributions to health insurance go down, since they no longer have to cover what Medicare picks up. The GAO (1989) reports that employer contributions to retiree health insurance are only 30% as large for retirees over 65 years old as they are for retirees under 65. The cost estimates for payments after 65 adjust for the reduction in benefit payments as employers pay only for medigap insurance.<sup>20</sup>

Having calculated the employer contributions to retiree health insurance, it is a relatively simple matter to take the present discounted value of the future contributions and arrive at an asset value for the commitment of the firm to maintain its contributions to the health insurance plan. For those employees who have not completed the age and/or service requirements for retiree health insurance but who will be eligible if they continue working, a similar ambiguity arises as for the pension plans. On a legal basis, the current value of the retiree health insurance asset is zero because retiree health insurance is not vested prior to retirement, and in many cases, not even after retirement. On a projected basis, the value is the value of the asset, prorated

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<sup>20</sup>Gustman and Steinmeier (1994) include the wealth equivalent of employer provided health insurance in the opportunity set affecting the worker's retirement decision.

according to the percent of the age and/or service requirement attained. In this latter case, there should also be an income amount imputed to be the increase in the value of the prospective retiree health insurance asset from working this year.

Below the income measure for employer provided health insurance includes an estimate of the increase in the present value of the retiree health benefit plus the current employer contribution toward health insurance in the current year. The wealth equivalent includes only the share of the present value of retiree health benefits accrued on the basis of work to date.

### **Financial Assets And Housing**

Yet another advantage of using the HRS in this study is its high quality information on financial assets. A typical survey question on assets is of the form "If you sold all of your stocks and mutual funds and paid off anything you owed on them, how much would you have?" It appears that many respondents, when confronted with such a question, interpret the question as requiring a precise answer. Hence, they reply "I don't know." For these "don't know" responses (and for the refusals as well), the HRS employed an "unfolding" technique. If the respondent answers that he didn't know the amount of assets, there is a followup question "Would it amount to \$25,000 or more?" If the respondent answered yes to this question, he or she received a second followup question "Would it be \$100,000?" If the answer to the first question was no, the second question was "Would it be \$5,000?" In principle, this unfolding could go on indefinitely, but as a practical matter no more than two unfolding questions were asked for any particular asset category, mostly to keep the interviews from becoming too long and to keep from annoying the

respondents too much.<sup>21</sup>

The differences of the imputations (random assignments drawn from the valid data cases that fall into the same bracket) from ones that would been made in the absence of the bracket data can only be described as enormous. Relative to valid cases, refusal households have triple the mean amount of business and farm equity, triple the amount of real estate equity, about 50% larger IRS or Keogh accounts, and more than three times the amount of stock. The use of these unfolding techniques on the HRS gives a much clearer picture of the components of net worth, and the comparable importance of pensions and health insurance, than could be obtained from other surveys.

Smith (1996) questions the fluctuations in asset amounts between waves of the survey. Hurd and McFadden (1996) have raised questions about the sensitivity of these estimates to the anchor -- i.e., the initial value presented to the respondent in a question asking if a certain type of asset holding exceed the specified amount . Investigation of brackets has suggested to the designers of the HRS that the bracket amounts used in HRS 1 were not optimal; bracket amounts were subsequently changed for later waves of the survey. Despite all of these problems, for this investigation of the importance of pensions and social security in wealth and income of HRS

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<sup>21</sup>The unfolding techniques have been examined in Juster and Smith (1994). Their conclusions are:

- (1) Most respondents who cannot or will not provide an estimate of the value of a net worth component are willing to respond to the bracket question.
- (2) The proportion of people willing to respond to the bracket questions is much higher for respondents who reply "don't know" to the original question about the amount (about 90%) than for respondents who refused to answer the question (about 50%).
- (3) Respondents who report either that they don't know or who refuse to answer a question about the value of a net worth component are very different from respondents who provide valid responses to the amount question, and the differences cannot be accounted for by differences in some measurable characteristic of the respondent.

respondents, our findings use only the data from wave 1 of the HRS and make no adjustment for the anchoring problem.

### **Earnings**

Earnings in 1991 of HRS respondents are explored in a set of more or less standard questions. Since these questions do not differ significantly from similar questions in other surveys, we simply note that earnings are the primary component of most HRS respondents' income in 1991. Hence the variation in earnings is the principle source of the variation in incomes.

### **Measuring Observations For Households**

Several of the income measures and most of the wealth measures in the HRS were collected at the household level rather than for individuals. Because of this, the analysis of wealth and income patterns in the HRS must be cast in a household framework. For couples, the interviewer asked which member of the couple was most knowledgeable about finances, and that individual was designated as the primary respondent; usually that person's partner was designated as the secondary respondent. The primary respondent answered the sections of the HRS questionnaire having to do with housing, income, assets, and insurance. For 284 households, interviews were only obtained with the primary respondent. The primary respondent did give some information about the partner, such as the age, gender, race, and income. This made it possible to "hot deck" the missing spouse from other cases in the survey by finding another respondent who was a member of a couple and who had the same age, gender, race, approximately the same individual income, and approximately the same family income. For 95 households in the HRS, interviews were obtained only with the secondary respondent. These

households must be dropped from the analysis because none of the financial sections of the questionnaire were asked, leaving 7607 households in the analysis.

Household income measures also include labor earnings, income from assets, government transfer income, and so forth. Asset measures include housing wealth, business assets, financial assets, and retirement assets (IRA's and Keogh's). All of these are included in the calculations below.

In tabulations to follow we present total household income and wealth calculated separately for single households and couple households. Single households are further broken down into males and females. In most cases we also present findings arrayed by household income and wealth percentiles (5%, 10%, 25%, 50%, 75%, 90%, and 95%). Statistics reported using weighted data include the weighted percentage of nonzero amounts, the weighted average of the nonzero amounts, the overall weighted average, and the percentile breaks for such variables as total assets, housing wealth, business assets, financial assets, retirement assets, and the value of retiree health insurance (both total household and by male/female), and analogous quantities for the income quantities.

### **III. Pensions And Other Sources of Income and Wealth**

#### **A. Income By Type**

Total annual income among households in Wave 1 of the HRS is reported in Table 1 (all figures are in \$1991). While we will continue to call the reported figures income, they are closer to compensation since they include accruals from pensions and from social security, as well as the value of health insurance provided by the employer. The first column reports the mean values of income by type for each household. We have chosen to include all households. The reader

should be aware that these figures mix together retired households and those that continue to work. Column 2 indicates the fraction of income accounted for by the indicated category. Column 3 presents the value of income by type for the households having the median 10 percent of total income, i.e., for households falling between the forty fifth and fifty fifth percentiles in terms of total income.<sup>22</sup> Column 4 indicates the fraction of total income accounted for by these categories for those falling into the middle ten percent of households.

Line 1 of Table 1 indicates that on average, all HRS households received \$48,203 in income in 1992. Income for the median 10 percent of households was \$36,006. The difference reflects the well known skewness of the income distribution, where those in the upper part of the distribution receive a disproportionate share.

### **Earnings<sup>23</sup>**

Line 2 in Table 1 reports the most important source of income, earnings. On average, earnings total \$35,313 per year in HRS households, accounting for 73 percent of total household income. For the median 10 percent of HRS households, earnings were an even more important source of income, accounting for 78 percent of total income. It should be recalled that only about a fifth of HRS wave 1 households are retired (Gustman, Mitchell and Steinmeier, 1995a).

Columns 1 and 2 in Table 2 report the fraction of families receiving income by type and

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<sup>22</sup>The concept of the median 10 percent of families arrayed by wealth or income is a bit awkward to deal with. However, it is not appropriate to focus only on the median family because we are interested in the distribution of wealth or income for the median group, and the family with median income or wealth may not have a representative distribution among various categories of wealth or income.

<sup>23</sup>Earnings include wages, salaries, bonuses, overtime, tips, income from professional trade and practice, income from second jobs and income from the military reserve.

the average value of income by type for those receiving the indicated source of income. For purposes of comparison, the last column again reports the average amount of income by type across all households.

From Table 2 it can be seen that 84 percent of households received earnings, averaging \$42,063 per household receiving earnings.

### **Pension Contributions**

For those with a defined contribution (DC) plan, the pension contribution is the amount the employer deposits in the plan. For those with a defined benefit (DB) pension, the pension contribution is the accrual rate from working one more year, where pension accrual is calculated on a projected liability basis.<sup>24</sup> The figures on pension contribution in Tables 1 and 2 represent only the increment in the real present value of the pension from additional work. In order to avoid double counting of income and wealth from the same source, pension income is not in our calculation of income for those whose pensions are in pay status. The pension income from interest on tax free balances, the income equivalent arising from the fact that the lump sum promised under a pension is coming closer in time, as well as any pension incomes from plans that are in pay status, also are not included in the pension contribution category. In this sense, the pension contribution reported here understates what pension income would be if it were reported using the same criteria as some other categories of asset income. Similarly, we do not report the rental value of housing realized by those who live in their own homes as income, or unrealized capital gains on stocks or other holdings.

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<sup>24</sup>For pensions at various ages, the accrual is the difference between the currently available pension and the pension available one year hence. This represents the accrual from this year's work.



As seen in line 3 of Table 1, on average the pension contribution is \$2,767 per household. This amounts to 6 percent of household income and to 8 percent of average household earnings. For the median 10 percent of households, amounts to \$1,062, but accounts for 3 percent of total household income. As seen in Table 2, of the 50 percent of households with income from pension accrual, the average accrual per household is \$5,569.

### **Social Security**

The average HRS household accrues social security benefits at a rate of \$1,517 per year, accounting for 3 percent of income. Accrual is measured as the difference in wealth from working an additional year, and assumes that in all future years outside the calculation there are zero recorded earnings.<sup>25</sup> For the median 10 percent of households, pension benefit accrual accounts for \$1,356 per year, or about 4 percent of household income. According to Table 2, 57 percent of households continue to accrue credits under social security, averaging \$2,665 per household that is still accruing benefits.

### **Health Insurance Contributions By Employers**

The average value of the health insurance contribution by employers among HRS employees is \$1,775 per household, or 4 percent of average household income. This benefit is received by 51 percent of households, averaging \$3,464 per household that receives the benefit. Health insurance contributions average \$1,655 for the median 10 percent of households arrayed by income, which amounts to 5 percent of household income.

### **Pensions, Social Security and Health Insurance**

Altogether pension accrual, social security benefit accrual and health insurance

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<sup>25</sup>To remind the reader, we do not take the payroll tax into account in this calculation.

contributions account for 13 percent of average income. For the median 10 percent of households, pensions, social security and health insurance together account for 12 percent of household income.

### **Income From Transfers<sup>26</sup>**

Income from transfers amounts to 2 percent of average HRS household income, or \$941 per household. For the median 10 percent of households, the figure is \$958, which accounts for 3 percent of the income of the median 10 percent of families. Altogether, 20 percent of HRS households receive transfer income, averaging \$4,650 per recipient household.

### **Asset Income<sup>27</sup>**

For the HRS households, 47 percent have asset income, with households with asset income averaging \$11,262 per year, and asset income to all households accounting for 11 percent of household income, or \$5,304 per household. The figure is half that for the median 10 percent of income recipients among households. The median households receive \$2,516 per household in asset income, amounting to 7 percent of their household income.

### **Other Income<sup>28</sup>**

Other sources amount to 1 percent of income, \$586 per household.

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<sup>26</sup>Transfers include unemployment insurance, workers compensation, veterans benefits SSI and welfare.

<sup>27</sup>Asset income includes business income, rent, dividends, interest, and income from trust funds and royalties. We have checked the totals obtained here against results obtained by Juster and Gustman (1996) and by Venti and Wise (1996). The totals and individual items are consistent.

<sup>28</sup>Other income includes alimony, child support, regular support from friends and relatives, and other income sources.

## **B. Total Net Wealth by Type**

Table 3 reports on the level of total net wealth, that is total assets net of liabilities, by type owned by households in 1992.<sup>29</sup> The first column reports the source of wealth. Column 2 indicates average wealth by category, while column 3 presents the fraction of wealth represented by wealth in each category. Columns 4 and 5 present the same figures for households falling within the median 10 percent of all households.

On average, row 1 of Table 3 indicates that all HRS households own \$499,187 in net wealth in 1992. Wealth for the median 10 percent of households is \$339,725. About 99 percent of HRS households reported some wealth value.

### **Total Wealth Versus Total Income**

One way to assess the reported magnitudes of wealth is to compare average wealth with average earnings, or with average income net of pensions, social security and health insurance. Average wealth in the HRS totals 14 times annual earnings and 12 times income net of pension accrual, social security benefit accrual and health insurance. Using the life tables and interest rate returns underlying our wealth estimates, at age 62 a single male can replace two thirds of income with wealth of ten times income. A couple can replace half of income if the same expenditure is maintained even after one spouse dies, and a larger fraction if consumption of a surviving spouse is reduced below the consumption of the couple. And HRS respondents average 56, and will accrue pension benefits over years until retirement. Thus wealth accumulated by the respondents to the HRS appears to be substantial.

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<sup>29</sup>Notice that in reporting wealth we have not included the capitalized value of future earnings. This leads to an understatement of full expected wealth on the part of the household.

## **Pension Wealth**

The importance of pension wealth to HRS respondents is very clear. As seen in row 2 of Table 3, on average pension wealth is \$116,012 per household, which accounts for 23 percent of all wealth among households, including households with no pension. For the median household, pensions average \$60,102, which accounts for 18 percent of total wealth. This suggests that pensions are distributed more unevenly than total wealth. Table 4 indicates that among all households, 64 percent have some pension wealth, worth \$181,926 to those with pension wealth.

## **Wealth Value of Social Security**

Only slightly more important than pensions in this survey is social security. As would be expected, 96 percent of all households are expected to receive social security benefits (see Table 4).<sup>30</sup> The present value of social security wealth for all households averages \$133,662. Thus social security wealth on average totals 27 percent of household wealth, only slightly more than pensions. With such a large fraction of households covered by social security, Table 4 shows that average social security wealth is not much higher for covered HRS households at \$138,878, than for all households.

To provide an indication of how close our calculations come to estimating social security

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<sup>30</sup> Note once again that these figures for social security wealth are based on past earnings history reported by the respondent rather than on reported covered earnings from the Social Security Administration. In the case of men and single women, we assumed that they worked continuously since leaving school. According to the social security records for the sample provided by Mitchell, Olson and Steinmeier (1996, Table 1), however, even from age 30 forward, men averaged ten to twelve percent of years with zero reported social security earnings, and additional but unspecified years with earnings that may on average be overstated by our procedure of projecting wages backward from the earliest job reported in the HRS. In addition, as noted earlier, we have estimated earnings at younger ages assuming that earnings increase each year by the rate of economy wide wage growth in earnings, but have not included increases in wages with tenure and experience. The effect is that we overstate earnings at younger ages.

wealth using the covered earnings histories, we need to skip ahead into the next set of tables which include findings for couples and singles. For couples we estimate average social security wealth of \$162,610. For married men, as of 1992 Mitchell, Olson and Steinmeier (1996, Table 3), using social security earnings histories, estimated couple's benefits of \$148,198 when focusing on men, and \$161,780 when focusing on women. (The HRS men are married to younger women, some of whom are out of the sample age range, while the women are married to older men, some of whom are out of the sample age range, which accounts for the higher social security wealth figure when focusing on women.) Therefore compared to the \$155,000 average of their estimates, our present estimates are only slightly high (by about 5 percent). For single men, we estimate social security wealth in 1992 of \$75,164. Using the HRS earnings records, Mitchell, Olson and Steinmeier (1996) estimate social security wealth of \$67,777. Thus for single men we are high by about 11 percent. For single women, our estimate of social security wealth is high by about 38 percent since we estimate social security wealth of \$69,703, while they estimate social security wealth of \$50,678. Because single women accumulated 85 total quarters on average, and we assume they worked full time since leaving school, or 140 quarters, it is not surprising that here we overstate their social security wealth. All told then, our estimates of social security wealth overstate the figures from Mitchell, Olson and Steinmeier by about 13 percent.

### **House Value<sup>31</sup>**

Average house value for HRS households is \$78,826 per household, accounting for 16

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<sup>31</sup>House value includes ranch, farm, home on partly-owned ranch, mobile home site, mobile home, mobile home and site, house/apartment, first mortgage, second mortgage, third mortgage, home equity line of credit, second home, mortgage on second home, and net value of motor home.

percent of total assets. House value for the median 10 percent of households is \$67,716, accounting for 20 percent of total wealth for this group. For the 80 percent of households who own a home, the average value of housing assets is \$98,456.

### **Business Assets<sup>32</sup>**

Business assets account for the same fraction of average wealth as housing assets, 16 percent. Overall, business assets amount to \$78,951 per household. Average business assets for the median 10 percent of households arrayed by wealth amount to \$14,511, which when compared to mean assets suggests that the distribution of business assets is highly unequal. With 32 percent of all households reporting they own business assets, the average value for those with business assets is \$250,198.

### **Financial Assets<sup>33</sup>**

The average level of financial assets is \$42,140 over all households, accounting for 8 percent of assets held by households. With 88 percent of households reporting having some financial assets, average holdings by those with financial assets are \$47,709. The median 10 percent of households has \$19,274 in assets, accounting for 6 percent of total assets held by the median 10 percent of wealth holders.

### **Retirement Assets<sup>34</sup>**

Overall, 42 percent of households report having some retirement assets. On average

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<sup>32</sup>Business assets include real estate and business assets.

<sup>33</sup>Financial assets include stocks and mutual funds, checking and savings accounts, CDs, government savings bonds or treasury bills, other bonds or bond funds, and are net of debts.

<sup>34</sup>Retirement assets include Keoghs and IRAs.

retirement assets amount to \$19,613 over all households and account for 4 percent of total assets. Among households with retirement assets, these assets are worth \$46,716 per household. For the median ten percent of all wealth holders, retirement assets average \$10,948 and account for 3 percent of household wealth.

### **Asset Value of Retiree Health Insurance**

The average asset value expected due to employer provided retiree health insurance amounts to 2 percent of household assets, or \$7,600 per household. Only 32 percent of HRS households have assets from retiree health insurance, amounting to \$23,841 per household with such benefits. For the median 10 percent of wealth holders, retiree health benefits average \$7,771, which is also 2 percent of household assets.<sup>35</sup>

### **Other Assets<sup>36</sup>**

Another 4 percent of total assets falls in the other category and amount to \$22,383 on average for the sample.

## **C. Pensions and The Distributions of Incomes And Wealth by Type Among Couples and Singles**

The distribution of total income among HRS couples and singles in 1992 is reported in Table 5. On average, all couples received \$58,895 in income in 1992. Columns 3 and 4 report income components for male and female members of couple households for those components

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<sup>35</sup>Note that the wealth measure of the health insurance variable is based only on the present value of retiree health insurance. The income measure of health insurance also includes the value of employer provided health insurance covered as part of ongoing compensation for continuing work.

<sup>36</sup>Other assets include vehicles and other assets.

which can be decomposed in that way. Assets and social security benefits are attributed to the full household. Columns 5 and 6 report the analogous results for single males and females.

Singles have lower incomes than couples on a per capita basis.<sup>37</sup> Average income for all singles is \$25,225, which is 43 percent of average income for couples. Income for the median 10 percent of singles is \$17,855, which is 38 percent of the income for the median 10 percent of couples of \$47,492, so that more income is concentrated in the upper tail for singles. For single males, average income is \$34,094, while for single females it is \$21,064.

Pension contributions accrue to 37 percent of single males, which is below the 41 percent of male partners with pension contributions. The average pension contribution for male singles of \$1,876 is below the pension contribution of \$2,076 for men in couples. Female singles average pension contribution is \$1,571, with 36 percent of female singles reporting pension contributions. Both figures are in excess of those for female partners in couples, where 31 percent report pension contributions, amounting to \$1,202 when averaged across all couples. Pension contributions for male singles average 8 percent ( $1,876/24,738$ ) of total earnings, while the figure for female singles is 10 percent ( $1,571/15,072$ ) of total earnings. For couples, the pension contribution for the male partner averaged 7 percent ( $2,076/31,118$ ) of the men's earnings, while the pension contribution of the female partner averaged 10 percent ( $1,202/12,177$ ) of the women's earnings.

The distribution of total assets among singles and couples in 1992 is reported in Table 6. On average, all couples own \$610,749 in assets in 1992. Asset value for the median 10 percent of

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<sup>37</sup>See Smith (1995b) for a very informative discussion of the income and wealth of singles and couples.



asset holders who are couples is \$440,285. Assets held by all singles average \$259,424, or 42 percent of the assets held by couples. Thus on a per capita basis, singles hold fewer assets than couples. Single males hold significantly more assets than single females, \$359,122 for single males versus \$212,641 for single females.

On average pension wealth is \$141,278 for all HRS couples, with 72.5 percent of couples reporting assets in the form of a pension. This amounts to 23 percent ( $141,278/610,749$ ) of all assets for couples. The median amount of pension wealth accrued to date from current work by the median 10 percent of wealth holders among all couples is \$96,567.

Among all HRS couples, 62 percent report pension assets from a male partner, averaging \$113,078, and 36 percent of couples report pension assets due to a female partner, averaging \$28,199 among all couples. Thus 80 percent of pension assets held by couples are due to the male earner.

Among all singles, 45 percent have pension wealth. This is a much smaller ratio than the 73 percent figure found for couples. Among all singles, pension values average \$61,713. Thus HRS singles average 44 percent of the pension wealth owned by couples. The ratio of pension wealth to total wealth held by singles of 24 percent is similar to the 23 percent ratio of pension wealth to total wealth held by couples.

Among all HRS single males, 52 percent report pension wealth, well below the 62 percent figure reported for male partners in couples. For single males, pension assets average \$111,570, below but close to the average value for male partners in couples of \$113,078. Among female singles, 42 percent report having pension assets, which is above the 36 percent figure reported for the pension assets due to a female partner in couples. For single women, pension assets average

\$38,318, compared to \$28,199 for the female partners with pensions in couples.

#### **D. Income and Assets By Pension Status, Race, Education, Union Status and Veterans Status**

Table 7 reports income and wealth by subgroups in the population that are of special interest. In the first two rows of the table it can be seen that income and wealth differ substantially between households in which a member is covered by a pension and households with no pension. Incomes are more than twice as high on average in pension households. When households with pensions are identified and are ordered by income, and average income is computed for the median ten percent of households, and the same is done for households without pensions, the income differences are more than three to one in favor of households with pensions. Average wealth is seventy percent higher in households with pensions than in nonpension households. When households with and without pensions are ordered according to wealth, the average assets for the median 10 percent of households with pensions is 2.8 times the average assets for the median ten percent of households without pensions.

It is instructive to compare both income and wealth differences between households with and without pensions. Because medians reorder households when rankings are based on income as opposed to wealth, we prefer to look at means. The ratio of mean income in households with pensions to those without is 2.05 to 1. The ratio of total mean wealth is 1.7 to 1. In a simple life cycle model with no precautionary, bequest or other motive for savings, if individuals treated pension wealth the same as other wealth, there would be perfect substitution between pension

wealth and other wealth, and the wealth ratios would be the same as the income ratios.<sup>38</sup> In a model in which pensions added to total wealth accumulation, i.e., in which there was not a perfect offset, then the ratio of total wealth between those with and without pensions would be higher than the ratio of incomes. The fact that wealth ratios between those with and without pensions are lower than income ratios suggests that substitution between pension wealth and other wealth may be substantial, although it would be premature to argue that any offset between pension and other wealth is greater than one to one.

Moreover, nonpension-nonsocial security wealth for households with pensions is 3.5 times that of households without pensions. That is, *nonpension-nonsocial security wealth differences* are proportionately greater than income differences between households with and without pensions, but *total wealth differences* are smaller. Thus analysis based only on the relation of

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<sup>38</sup>We do not mean to suggest that the simple life cycle model is the appropriate model to use in predicting how wealth will vary with higher incomes; these simple comparisons are only very roughly suggestive. Many other complications should be taken into account before making judgements on the basis of a comparison between income and wealth differences for those with and without pensions. Among the considerations not taken into account in the simple comparisons are the following: For a number of reasons, those with and without pensions may retire at different times. On the one hand, pension incentives may encourage earlier retirement. On the other hand, other things the same, those with pensions may have a stronger taste for work than those without pensions, and that taste difference may be correlated with date of retirement. Transitory incomes may affect the comparisons. There may be systematic unmeasured differences in the jobs held by those with and without pensions. Income growth may differ between those with and without pensions. For all of these reasons, a measure of full-earnings, based on a concept of lifetime earnings adjusted for realizations of various outcomes that are uncertain *ex ante*, should be used in these comparisons, instead of measures of current income. Moreover, social security is nondiscretionary, so that total wealth may be higher than many low income families would prefer if they were free to dissave and to consume. Also, housing wealth may not be transformed willingly into other forms of consumption. Clearly, the question of how total wealth varies with income and pension coverage deserves a much closer examination, in the context of a more realistic model that includes careful measurement of pension and social security wealth, than we can produce by simply comparing income and wealth for those with and without pensions. For a related discussion and a list of additional issues, see Gale (1995).

nonpension wealth differences between those with and without pensions might suggest that pension coverage leads to proportionately higher total wealth accumulation, rather than to proportionately lower total wealth accumulation, as the more comprehensive wealth data suggest.

The next comparison made in Table 7 is by schooling. The schooling level for the household is defined as the highest level achieved by either spouse. The ratios of income and wealth between the highest and lowest education categories are at least 3.7 to one.

Following that is a comparison by race. Whites and others have twice the household income of other Hispanics, and almost twice the household income of Blacks. Average wealth for Whites and other households is twice as high as it is for Black and Hispanic households. When the median 10 percent of households are identified within each group and compared, the differences in wealth are more than two to one in favor of Whites and others.

Next we consider whether a household has either partner who is a union member.<sup>39</sup> Average incomes are very close between union and nonunion households, but when households with median income are identified within each group, the average income for the median group is one third higher for union households, reflecting the more equal distribution of incomes among union households. Union households have about 8 percent more wealth than nonunion households on average, but the differences in wealth between the medians are much wider, with the median of union household wealth being over a third higher than the median for nonunion

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<sup>39</sup>Union jobs are not identified in section H, previous job. They are identified in Section F, current job, and Section G, last job for those with no current job. That means we may be missing some union members who were on long term union jobs, but retired from them a number of years ago.

households. Notice that thirty one percent of the households in the HRS have a union member. This high number is the result of two things. The union measure identifies households in which either partner is a member of a union, and so should be higher than the average rate of unionization in the population. In addition, the 1931-41 birth cohort is more likely to be unionized than are younger cohorts. In 1992, union membership among the employed is 25 percent for men and 19 percent for women in the HRS (Gustman, Mitchell and Steinmeier, 1995b).

The final set of results presents something of a puzzle. For the HRS cohort we find that both the incomes and wealth of households with a veteran is higher than the income and wealth for households without a veteran. The HRS cohort, born from 1931 to 1941, largely was too young for the Korean War, and too old for Vietnam. Their experience may be different from those who were of draft age during the Vietnam era, where veterans exhibited lower incomes than nonveterans. Nevertheless, it is noteworthy that we find such a large income difference in favor of households with veterans in them.

Table 8 focuses on pensions. It reports the fraction of income and wealth due to pensions for these different population groups.

Among households with pensions, the pension accounts for 7 percent of average income and 29 percent of average wealth. The comparable numbers are lower for median households at 4 percent and 25 percent respectively.

Pensions grow in importance as a source of income and as a source of wealth with the level of schooling. On average for college graduates the share of pensions in income and wealth is two thirds bigger than the share of pensions in income and wealth for those with less than a high

school education. For median families within these schooling categories, the share of total income represented by pensions is five times as large for families with a college education as for those with less than high school, while the comparable differences in share of wealth represented by pensions among median households is more than three to one.

For Blacks the share of average wealth represented by pensions is higher than for Whites and others.<sup>40</sup> Although the share of incomes represented by pensions are similar between Hispanics and Whites and others, the share of average wealth represented by pensions is much lower for Hispanics. Looking at the figures for households with median wealth, the share of wealth represented by pensions is lower for Hispanics than is the share of pensions in wealth for the median White and Other households, and for the median Black households.

The share of average incomes represented by pension accrual is similar for veterans and nonveterans. The share of wealth in the form of pensions is clearly higher for veterans than for nonveterans.

## **E. Pensions, Social Security and Health Insurance In The Distribution of Income and Wealth In the Health and Retirement Study**

### **1. The Distribution of Income**

Table 9 reports the distribution of income in the HRS. Percentiles are reported in column 1, where households are ordered on the basis of total income. Column 2 indicates the average value of income in each percentile category. In column 3 we report average earnings to facilitate analysis for those in the bottom 5 percent of the income distribution who have negative incomes.

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<sup>40</sup>Remember that the absolute value of total wealth for Blacks is half that for Whites and others.

Column 4 reports the lower bracket limit for the percentile category. As is widely known, there is considerable skewness in the distribution of income in the U.S., and this is clearly seen in the data in Table 9. The gini coefficient for the distribution of income among households is .5026.<sup>41</sup> Also reflecting the skewness of the distribution of income among households, the average income for the median 10 percent of households is \$36,006, which is about three fourths of the average income of all households. Negative incomes for the bottom five percent of households reflects negative accrual on some assets, including business losses, pensions and social security. Thus those in the very bottom of the income distribution may have higher assets than one might at first expect.<sup>42</sup>

### **Pensions and the Income Distribution**

Table 10 focuses on the distribution of pension accruals within the distribution of household income. Again the first column of the table indicates the percentile category in the income distribution. The fraction of households with a pension is reported in column 2. In column 3 the data report on average pension accrual for those with a pension, while in column 4 the data report the average pension accrual for all households in the percentile category. In column 5 the data indicate the percent of income accounted for by pension accrual. Over 70 percent of those in the top half of the income distribution have a pension. Pension accruals range

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<sup>41</sup>Because some respondents have negative incomes, use of gini coefficients is not entirely appropriate here. Comparisons between means and medians, and consideration of the amounts found in the brackets at different percentiles of the distribution provide the clearest indication of the skewness of the distribution.

<sup>42</sup>There also are other seeming anomalies. For example, transfers are high for those with high incomes. There are twenty observations with income greater than \$100,000 and transfers greater than \$8,000. Almost all have veteran's benefits in the \$20,000 to \$40,000 range.

from \$19,594 for the average household in the top fifth of the income distribution down to -\$540 for those in the bottom five percent of the income distribution.<sup>43</sup>

The last column of Table 10 shows that except for the lowest five percent of income recipients, pension accrual increases as a share of income, rising to 9 percent of income for the top 5 percent of income recipients. For those in the bottom five percent of the income distribution some families have both negative income and negative pension accrual, producing a large positive ratio of pension accrual to income.

### **Social Security and the Income Distribution**

The structure of Table 11 is similar to that of Table 10, but it reports on the importance of social security accrual as a fraction of total income. As noted above, social security accrual is calculated on a legal liability basis, comparing what would be received if the respondent worked

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<sup>43</sup>The large negative numbers for the one hundredth of a percent of the sample with a pension in the bottom five percent of the income distribution reflects two things. First, the income percentile and the wage used in computing the pension are calculated from different measures which may diverge, and in rare circumstances may substantially diverge. In calculating incomes, earnings in 1991-92 are used. To fall in the bottom five percent of the income distribution, those earnings must be low. But pensions are computed based on the reported wage, which for the 1992 survey year may be high. The wage must be high if it is associated with a pension of high enough value to accrue a negative \$46,975 on average. The negative accrual in the pension in turn must reflect the effect of the individual having passed the retirement age, and in the case of the \$46,975 figure, probably the normal retirement age. That is, the individual is losing one year of a highly valued pension from continuing at work, is listed as receiving earnings that are very low despite the high wage, and is not accruing future pension value at nearly a high enough rate to make up for the foregone pension. These negative pension accrual figures may also reflect the collection of an older plan than the one actually in operation in 1992. Older plans may not credit work after having reached retirement age to the extent that the courts and law now requires such work to be credited. As seen below in Table 21, the accrual rate for the sample DB plans averages -2.5 percent after the individual qualifies for normal retirement, and for the bottom quartile averages -9.4 percent. In plans in place in 1983 collected by the Survey of Consumer Finances, the bottom quartile averaged an accrual rate of -17 percent after normal retirement age (Gustman and Steinmeier, 1989, Table 11).



until 1992 versus 1991 and then left paid employment. Because social security benefits are calculated on the basis of the high 35 years of earnings, in both calculations, zeros are added in for average indexed monthly earnings after ceasing to work. The negative social security accruals for a small number of cases in the bottom 5 percent of the income distribution probably represent households where one member is outside the age range of the HRS, most likely couples with an older husband. That alone is not sufficient to land the household in the bottom 5 percent of income recipients. Some negative asset or pension accrual is also probably involved.

### **Employer Provided Health Benefits and the Income Distribution**

Table 12 reports similar results for the value of employer provided health benefits. (Medicare is not counted here.) Among the three quarters of the households with highest incomes, the majority has employer provided health benefits. As seen in the last column, the share of income accounted for by employer provided benefits declines as income rises from the fifth percentile of income households on up. Employer provided health benefits are worth only about 4 percent of income on average, but for those from the 5th to 20th percentile, they are worth about 12 percent of income. By the time we hit the top ten percent of the income distribution, employer provided benefits are worth only two percent of income.

## **2. The Distribution of Wealth**

The distribution of net wealth in the HRS is reported in Table 13. The median wealth of households is \$339,751, which closely corresponds to the average value of assets for the middle ten percent of households of \$339,725. Households in the upper 5 percent average more than 7 times the wealth of the median household. The bottom 5 percent of households has less than

\$10,000 in wealth, or less than 3 percent of the wealth of the median wealth holder.<sup>44</sup>

### **Pensions and the Wealth Distribution**

Table 14 reports on the importance of pension wealth within the overall distribution of wealth. In all brackets from the 25th percentile upward, at least 65 percent of households have pension wealth. From the 50th to 95th percentile, over 80 percent of households have pension wealth. For those in the 25th to 50th percentile, pension wealth for the two thirds of households with a pension averages \$55,557. For those in the third quarter of the wealth distribution, for the 83 percent of households with a pension, the pension is worth \$133,346. While only 4 percent of those in the bottom five percent of the wealth distribution have pensions, and those with a pension have a plan worth \$27,855, for the 65 percent of households in the top 5 percent of the wealth distribution who have a pension, their pensions are worth \$732,861 on average.

The last column of Table 14 shows that, except for the extreme upper and lower 5 percent of wealth holders, the share of pension wealth in total assets rises as total assets rise. For those in the 75th to 95th percentiles, pensions account for almost a third of total assets. For those in the 5th to 10th percentiles, pensions account for only 2 percent of total assets. In between, pensions increase steadily as a share of total wealth, accounting for 18 percent of total assets for the median 10 percent of all households. However, pensions account for 13 percent of assets for

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<sup>44</sup>A number of the households falling within the bottom five or ten percent of wealth holders have high assets in particular categories. For example there are 7 observations with less than 7 thousand dollars in total wealth, but more than 25 thousand dollars in business assets. All of them have negative total assets. Four of them listed large negative financial assets (debts) that have more than offset the business assets. Three of them had large negative housing assets, which were either mortgages or home equity lines of credit which substantially exceeded the value of the house. The worst case by far was an observation which listed business assets of \$2,625,000, and a third mortgage of \$3,500,000.

those in the bottom 5 percent of the wealth distribution, where a number of families have negative wealth, and pensions account of 19 percent of the total wealth of those in the top 5 percent of wealth holders.

### **Social Security and the Asset Distribution**

Table 15 reports on the importance of social security wealth to those in different percentiles of the wealth distribution. As noted above, social security wealth accounts for 27 percent of average wealth, and 43 percent of wealth for the median 10 percent of wealth holders. Reflecting the progressive benefit formula, social security wealth accounts for a declining portion of wealth as average wealth increases, falling from over 100 percent of net wealth for the bottom five percent of households (counting those with negative wealth), and falling smoothly as one proceeds up the wealth distribution to 7 percent of wealth for the top five percent of the distribution.

### **Retiree Health Benefits From Employers and the Asset Distribution**

Table 16 reports similar results for the wealth value of retiree health benefits provided by private employers. Over a third of the median ten percent of the population is entitled to retiree health benefits worth about 2.3 percent of their total wealth. Fewer than 10 percent of the bottom quarter of the wealth distribution is entitled to retiree health benefits from their employers. For those in the top quarter of the wealth distribution, employer provided retiree health insurance, although worth \$10,587, accounting for less than half a percent of their total wealth. Thus for most of the distribution, the share of wealth accounted for by retiree health benefits is low, peaking roughly in the middle of the distribution.

### **Summarizing the Distribution of Pension Wealth, Social Security Wealth, and Wealth**

## **From Employer Provided Retiree Health Insurance**

If one wishes to understand the distribution of pension wealth, social security wealth and the wealth equivalent of retiree health benefits in the context of the current distribution of wealth, the Tables reported above provide the required information. While the share of total wealth represented by pensions increases with the place of the individual in the wealth distribution, the share of wealth represented by social security declines. Together, pensions and social security account for more than half of total wealth for all but those in the top ten percent of the wealth distribution.

Figures 1 and 2 picture the variation in the shares of pension wealth, social security wealth, wealth from retiree health insurance benefits and all other wealth among those in different segments of the wealth distribution. The two middle bars in each figure represent the wealth distribution of the middle fifty percent of the population. The four bars at either end of the distributions cover the highest and lowest five percent segments of the population, i.e., the top and bottom deciles. In Figure 1, the relationships are shown in dollar amounts, emphasizing the major differences in total wealth from the bottom to the top of the wealth distribution. Because the shares of wealth for the lower end of the distribution are obscured when the same dollar scale is used for those at both ends of the wealth distribution, Figure 2 presents the percentage distribution of wealth for those in different parts of the wealth distribution. These findings make it very clear that the share of pensions grows with increasing wealth as the share of social security wealth declines with increasing wealth. The exception is the top five percent of the wealth distribution.

Table 17 collects results on the total shares of income and wealth due to pensions, social

security and health insurance. These three sources contribute 13 percent of income on average, while on average they account for 52 percent of wealth. When households are arrayed by income, 11 percent of income for the median ten percent of households consists of pension and social security accrual and health insurance. When households are arrayed by wealth, 63 percent of the wealth of the median ten percent of households is comprised of pensions, social security and retiree health benefits. The share of wealth due to pensions, social security and retiree health insurance is 68 percent for those in the 25th to 50th percentile; 60 percent for those in the 50th to 75th percentile; and 48 percent for those in the 90th to 95th percentile.

One might also wish to summarize the distributions of wealth, pensions, social security and the wealth equivalent of retiree health insurance, independently of the other elements constituting wealth. The inequality of the distributions of each of these elements of wealth may be summarized by the appropriate gini coefficient. The gini coefficient for the distribution of all wealth among households is .5001. Pension wealth is less equally distributed with a gini coefficient of .7067. Social security wealth, in contrast, is more equally distributed and has a gini of .2630. For retiree health insurance, the gini coefficient is .7788, indicating an even less equal distribution than pensions.

#### **F. Legal vs. Projected Method of Evaluating Pensions.**

Throughout the discussion so far, we have assumed that pensions are measured by the projected liability method. That is, the estimates assume that the individual will remain with the firm until qualifying for early retirement benefits, and that the proper way to measure the liability at the current time is to prorate the ultimate tenure at the firm, crediting the individual with a fraction of the liability that will be realized at retirement which is equal to the ratio of tenure to

date divided by tenure accrued at retirement.

Table 18 presents estimates of pension wealth values that assume that the reporting period is the last period of employment at the firm, and compares them to the pension wealth estimates based on the projected liability method. The effect is to reduce the value of benefits under defined benefit plans since if employment is terminated, these benefits are calculated for those with defined benefit plans using the current wage and service accrued to date, rather than the projected wage and tenure at retirement, adjusted by the proportion of ultimate tenure accrued to date.<sup>45</sup> Defined contribution benefits have been calculated throughout on a legal liability basis.

From Table 18 it can be seen that the mean pension wealth measures based on the legal or projected methods differ by only about 6 percent. There are two reasons for this. First, some people have passed the early retirement age, in which case the rates of pension accrual under the legal and projected methods come together. Second, even though there are sharp spikes at the moment of attaining eligibility for early retirement, the pension wealth values calculated with the two different methods approach each other as the individual approaches the early retirement age.

The mean pension accrual computed on a legal liability basis, \$3,579, is 29 percent larger than the mean pension accrual computed on a projected liability basis, \$2,767. The pension accrual rates computed for the median ten percent of households arrayed by income are very close.

With regard to pension wealth, as expected higher values are obtained on a projected liability basis. The means are \$116,012 when pension wealth is calculated on a projected liability

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<sup>45</sup>For further discussions of the legal and projected liability method, and for comparisons of pension values under each method in the 1983 Survey of Consumer Finances, see Gustman and Steinmeier (1989). See also McGill et al. (1996).

basis, and \$109,144 on a legal liability basis. For the median 10 percent of households, the figures are \$60,102 and \$53,051 on a projected and legal liability basis respectively.

#### **IV. Incentives For Retirement**

Tables 19 to 22 report the pension values by age and the characteristics of pensions that affect the incentive to retire. These data are restricted to age eligibles for whom an employer provided plan description was available, and who began their job before age 50.

Table 19 reports the distribution of plan early and normal retirement ages for defined benefit plans that were matched with the HRS sample. Average early retirement age is 54.4, and average normal retirement age is 61. The modal and median early retirement age is 55, but given their ages of entry, over a quarter of the sample with DB plans could retire before age 55. Only 6 percent have an early retirement age above 60. Forty percent face a normal retirement age of 65, with 14 percent having normal retirement at age 62, over 20 percent with normal retirement at age 60, and over a fifth having a normal retirement age below 60.

Table 20 reports pension value by age, pension value in 1992, and pension value at the early retirement age and normal retirement age for those respondents with a matched plan. The pension values reported in Table 20 are the full values of the pension at the indicated ages or dates. That is, in contrast to the earlier tables, pension values are not prorated on the basis of work to date as a fraction of time from date of hire until retirement. Means, standard deviations, and values separating quartiles are reported. At the early retirement age, the average pension value is \$159,000 for defined benefit plans. At the normal retirement age, the average respondent with a DB plan has a pension worth \$204,000.<sup>46</sup> These values are higher than the wealth

equivalents of pensions reported for the whole population since they pertain only to covered individuals.

For those with defined contribution plans, the plans are valued on the basis of amounts accrued to the indicated age or date. The mean value of the DC plans in 1992 is significantly below the comparable values for DB plans. One reason for the difference is that the cumulative earnings paid to date to those covered by DC plans are about twenty percent lower than are the cumulative earnings paid to those covered by DB plans.

As noted earlier, the sample of plans is not representative of the distribution of all plans. Appendix Table 1 shows the distribution of plan matches by respondent reports of plan coverage and plan type. Both weighted and unweighted results are reported. It is clear from these data that the fraction of employer plan descriptions that were matched were much higher for employees of large firms, and also were much higher for those who were covered by a defined benefit, rather than a defined contribution plan. At the extremes, looking at the raw counts, a person who reported a defined benefit or combination plan and working in a firm with over 500 employees had a 77 percent chance of a pension match. A person with a DC plan only in a similarly sized firm had a 66 percent chance of a pension match. A person with a DB or combination plan in a firm with 24 to 99 employees had a 52 percent chance of having the employer plan matched, while the figure for a person with a DC plan only in the same sized firm was 32 percent.

It is possible to make a crude calculation of the upper limit of the effect of oversampling

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<sup>46</sup>Pension values associated with DB plans include the value of any plan that has a defined benefit component. Thus the amounts shown include the sum of defined benefit plus defined contribution components for those whose plans include elements from each plan type.



DB plans on the value of pension wealth estimated above. In the self reported information on plan types, when asked what type of pension they had, of those who reported, 68 percent (weighted) of HRS respondents indicated they were covered by some type of DB plan, with the rest covered exclusively by a 401(k) or other DC plan. For this group, at age 65, on average DB plans are worth 15.5% of the cumulative earnings. On average, at age 65 DC plans are worth 9.2 percent of the cumulative earnings. But 76 percent (weighted) of respondents with a matched pension are treated as being covered by a DB plan. If respondents are reporting the correct mix of plan types, so that the proper mix includes 68 percent DB and mixed plans and 32 percent DC only plans, and we have used a mix of 76 percent DB and mixed plans and 24 percent DC only plans, then if earnings were the same, and if we randomly assigned employer plans to respondents, we would overstate the value of average pensions in retirement by about 3.7 percent  $(.76*.155+.24*.092)/(.68*.155+.32*.092)$ . Since pensions were assigned to respondents without an employer provided plan on a number of characteristics so as to reduce this bias, 3.7 percent is an upper limit estimate.

Tables 21 and 22 indicate pension accrual for those with DB and mixed (i.e., both DB and DC) plans covering HRS age eligible respondents who began their job before age 50 and for whom the employer provided a matched plan. Table 21 reports on the increments in the projected present value of the pension by age. The accrual rates decline with age after age 50 as a larger fraction reaches the early retirement age.<sup>47</sup> Notice also that the change in the accrual rate with

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<sup>47</sup>For pensions at various ages, the accrual is the difference between the currently available pension and the pension available one year hence. This represents the accrual from this year's work. In Table 22, where accrual is reported by relation to early and normal retirement age, the accrual is the difference in the pension value in the indicated period, e.g., the year before early retirement age.

age depends on both on the requirements of plans, and also on the age and tenure of workers covered by those plans in the HRS sample.<sup>48</sup>

Table 22 reports on increments in present values of pensions by relation to early and normal retirement age. The figures in Table 21 will smooth spikes in DB plan accrual profiles since those covered by different plans will face different retirement ages. By focusing on the years just before and just after attaining eligibility for early and normal retirement, Table 22 highlights the spikes in the accrual profiles. Column 2 in Table 22 reports on the increment when the covered individual is in the third through first year before qualifying for early retirement benefits, if available, or for three years before normal retirement age if there is no early retirement (Preretirement Years). The next three columns refer to those plans which will provide early retirement benefits. Column 3 refers to the increment in the pension in the year during which the individual qualifies for early retirement benefits (ER Age), column 4 to the increment between early and the year before qualifying for normal retirement age (ER-NR Age), column 5 to the benefit increment in the year just before qualifying for normal retirement benefits (NR Age), and column 6 to the increment in benefits in the three year immediately following qualification for normal retirement benefits. The results are separated between the four fifths of respondents who will be eligible for their plan's early retirement benefits and the one fifth of respondents who will not be eligible for early retirement benefits.

The bottom of Table 22 reports the size of the annual pension accrual relative to annual earnings. These results are also pictured in Figure 3 for those in plans where they are eligible for

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<sup>48</sup>Conceptually, it is also possible to calculate plan accrual rates for a person with a standardized earnings history, so as to isolate the effects of plan provisions, but we do not do that in Table 21 or 22. (See Gustman and Steinmeier, 1989, for related calculations.)

early retirement benefits. The numbers reported in Table 22 for pension accrual before early retirement ages are about a third higher than the comparable values calculated using the 1983 Survey of Consumer Finances (Gustman and Steinmeier, 1989). In the year before early retirement, the HRS pension accrual rate is worth about one year's earnings on average. The same is true at normal retirement age for those who will not be eligible for early retirement benefits. One noteworthy difference between the pensions sampled in the HRS and those in the 1983 SCF is that the increment in pension value after normal retirement age is significantly higher in absolute terms (less negative) in the HRS data than in the SCF data -- that is, in the HRS data there is less negative accrual after normal retirement age. This presumably reflects the changes in law regarding age discrimination, which now requires that after the normal retirement age, the pension be credited on something approaching an actuarially fair basis. In the period of the SCF, firms were free to halt pension accruals for those remaining employed beyond the normal retirement age.

## **V. Conclusions**

This paper has confirmed the overwhelming importance in the Health and Retirement Study of including the wealth equivalent of pensions and social security when analyzing wealth. In the HRS data, the sum of pension and social security wealth is about as important as the total of all other sources of wealth taken together, including housing.

Our findings are comparable to others in terms of the importance of pension and social security wealth, as is shown in Table 23.<sup>49</sup> Two groups of studies are summarized. Studies in the

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<sup>49</sup>There are many differences among the studies, so the comparisons are very crude. For example, the various wealth estimates make different assumptions about life expectancy and cost of living adjustments. Moreover, we prorate pension and social security wealth based on the

top panel compute pensions and social security as a share of total *income* for selected groups in the population that are 65 or older.<sup>50</sup> The set in the bottom panel computes the share of *wealth* represented by pensions and social security, where pension and social security wealth is computed by the authors of the studies on the basis of self reported incomes of those over 65. Our estimates of the share wealth due to pensions based on employer provided pension data are a few percentage points above the shares of pensions in incomes of those 65 to 69 by Grad (1994), or the share of pensions in wealth by Poterba, Venti and Wise (1994), who used data from SIPP. They are close to the estimates of the share of pensions in wealth by Smith (1995a), who used respondent reported data on pensions from the HRS.<sup>51</sup> The estimates of pension wealth for those

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fraction of total work accomplished to date, while Smith (1995a) reports total wealth at retirement. Although the assumptions about interest rates are not far apart, these and other assumptions should be standardized to obtain a clearer understanding of the wealth differences obtained.

<sup>50</sup>For the first set of studies in Table 23, we are comparing shares of incomes for the older populations examined with shares of wealth in our computations. This comparison implicitly assumes that the income from assets at the various points in the retirement period examined in these studies will be roughly proportionate to the shares of wealth in studies that focus on asset equivalents over the full retirement period. But incomes from pensions and social security change over time within the retirement period. See, for example, Gustman and Steinmeier (1993), which finds substantial variation in pension incomes after retirement for a sample from the PSID panel.

<sup>51</sup>McGarry and Davenport (1996) estimate pension wealth from self reported HRS data, but they do not estimate social security wealth. Their mean estimate of pension wealth of \$88,000 for all households is well below the mean of \$116,000 estimated in this study. Over households with nonzero pension wealth they report average wealth of \$152,000 compared to \$182,000 in the present study. There also is a major difference in other wealth beside pensions and social security. They report \$180,000 in nonpension, nonsocial security wealth, while we report an average of \$250,000 per household. Accordingly, while our estimates indicate that pension wealth is 46 percent of other (nonpension, nonsocial security) wealth, McGarry and Davenport find that pension wealth based on self reported data is 49 percent of other wealth on average. Because these calculations are based on many different assumptions, they are only roughly comparable.

in their 70s from Gustman and Juster (1996), are somewhat higher than our estimates for the HRS cohort. Our estimates of social security as a share of total wealth are in line with those from Smith for the HRS, but fall below the estimates in the other studies. The older the cohorts included in the studies, the more important is social security.

It is comforting to note that the overall levels of wealth computed from firm reported HRS pension data and the self reported data in Smith are close to one another. It suggests that researchers may obtain reasonable estimates of pension wealth from self reported pension data. Nevertheless, it is still likely that self reports on pension accruals will prove to be inadequate for analysis of retirement behavior, and possibly also for analyzing savings behavior. This is because analysis of behavior at the micro level requires detailed and precise information on the location of spikes in the accrual profile. Self reports tend to be much less precise as to the location and size of spikes, but the extent to which this is true in the HRS data should be the subject of future research.

While pensions and social security represent half of total wealth on average, our findings also suggest that for households in the middle of the wealth distribution, the share of wealth represented by pensions and social security is even larger. For all but the highest decile of the wealth distribution, pension and social security wealth together account for more than half of wealth. The share of pensions in total wealth rises with place in the wealth distribution as the share of wealth in social security falls, so that even for those in the 90th to 95th percentile, pension and social security wealth together account for 47 percent of wealth.

Our findings on pension wealth by age and by plan type, and pension accrual rates for the respondents with matched pension plan descriptions from their employers, are consistent with

earlier findings based on employer provided data from the 1983 Survey of Consumer Finances. Absolute benefits are higher in the HRS, a survey ten years more recent than the 1983 SCF, but the accrual profiles still look very similar up until normal retirement age.

Our numbers also indicate the importance of pension accrual, social security benefit accrual and health insurance benefits in the incomes of those approaching retirement. It is important to include these major elements of compensation when discussing the level and distribution of income.

The results reported in this paper involve three assumptions that may cause us to overstate the importance of pensions and social security in overall wealth. First, we have had to use the self reported earnings histories in computing social security wealth. Comparing the figures we have calculated with those calculated by Mitchell, Olson and Steinmeier (1996) using covered earnings histories obtained from the Social Security Administration, we estimate that this approach overstates social security wealth by about 13 percent. Second, we have estimated pension wealth without fully correcting the pool of employer provided pension plans for overrepresentation of defined benefit plans. The estimated effect may be to overstate pension wealth by as much as 4 percent. Third we have used only the employer provided plan descriptions in computing wealth from defined contribution plans. Although we have the contribution rate for those cases where contributions are mandatory, in the case of voluntary contributions we have used the average figure from the SCF of a 5 percent contribution rate in those plans where contributions are voluntary. We then have assumed that firms match as called for by the plan.

Even after making allowances for some overstatement of social security and pension wealth in these first pass estimates, it remains the case that pension and social security wealth are

overwhelmingly important in determining the level and distribution of wealth of HRS respondents. Anyone who studies wealth or savings in the HRS and ignores pensions and social security does so at the peril of misstating the underlying behavior of HRS households.

These findings also raise questions about whether current generations of workers are badly underprepared for retirement, as some claim. We have not calculated income replacement rates in retirement for those in the HRS cohort. However, the wealth numbers generated here appear to be sizable once social security and pensions have been taken into account. On average HRS respondents are 56 years old, with average wealth that is more than ten times annual earnings. Even after allowing for the fact that a fifth of the HRS wave 1 participants have already retired, their accumulated assets are substantial enough to replace two thirds of income for single men, and half or more of incomes for couples, depending on how consumption is curtailed after one spouse dies. To be sure, we recognize that heterogeneity in savings patterns is important, and that many people enter retirement with inadequate assets. And of course, many people are heavily dependent on social security, which in the long run will not be financially sustainable at current benefit levels.<sup>52</sup> But on the whole, the population entering retirement may not be in as bad shape as some have led us to believe. Clearly an important next step is to systematically study replacement rates with pension and social security wealth equivalents included.

There are other steps that naturally follow this analysis. One is to integrate the information obtained from employer provided pension plan descriptions with self reported pension data. Because of the incomplete availability of employer provided pension plan descriptions, we

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<sup>52</sup>On the prospects for social security, see Technical Panel (1995). There also is the question of how to treat housing wealth: Will housing wealth become more of a retirement asset as reverse mortgages become more popular?

had to do a significant amount of imputation. Pension values obtained from respondents will provide useful information to supplement the firm reported data. Moreover, the information obtained from the self reported data could be used to significantly improve the imputation of pensions. This is not a simple task because self reported pension data are often reported with error, some of which is systematic. At best, an individual's knowledge of his or her anticipated pension is incomplete. Thus it is not obvious how one should resolve certain conflicts between the employer and respondent's reports.<sup>53</sup> In addition, because respondents are asked to report pension values at retirement age, it is important to adjust the dollar amounts for those in the sample who are using future rather than current dollars.<sup>54</sup> At this stage, none of the programs for computing pension values from employer provided Summary Plan Descriptions separates the defined contribution component in plans which are both DB and DC, so merging respondent reports of DC amounts with employer reported pension plans is not currently possible, and can only be accomplished after a significant amount of reprogramming. Life tables and prorating of

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<sup>53</sup>Consider some of the following issues: (i) If a worker reports a DB plan and the employer reports a DC plan only, or vice versa, what should the researcher do? Suppose the worker has reported a DC balance, but the firm has submitted an SPD for a DB plan only? (ii) If a worker reports a DB and a DC plan, but the firm submits an SPD for a DB plan only, what does one do with the DC plan? Hotdeck it or ignore it? (iii) If the worker says DB and the firm says both DB and DC, does one assume the worker is not participating in the DC, or has failed to report it but is participating? (iv) If a worker claims to have both DB and DC plans, but the firm files no plans, should the DB and DC plans be hotdecked separately, or is it better to hotdeck from joint DB and DC plans? Some of the answers to these questions are contained in the detailed descriptions from the SPDs, which are not always apparent from the coded plan descriptions. For example, some plans are essentially DB, but guarantee a very low minimum return on the contribution of the employee, a return that is so low that it will never be realized. Nevertheless, these plans have been coded as both DB and DC.

<sup>54</sup>Respondents are asked about the wage just before retirement to allow adjustment in responses between present and future dollars.



benefits for those who have not yet retired need to be standardized; life tables which take account of the relation between wealth and mortality should be used, and other assumptions underlying calculations should also be standardized. Nevertheless, combining the information provided by respondents with plan descriptions obtained from employers will probably improve estimates of pension wealth, pension income and incentives from pensions. It will be especially important to obtain the closest estimates possible of the pension accrual profile when conducting retirement studies. If the spikes in the pension accrual profile are not correctly placed, it is likely that any estimates of respondent preferences governing retirement decisions will be poorly estimated.

Those who wish to improve on pension estimates presented here will also have to concern themselves with the imputation methodology and the issue of selection bias. Refining the imputation of pension values for those with missing data requires understanding what determines the likelihood that employees with different plans will have a matched employer provided plan description. It is clear from the frequencies reported in Appendix Table 1 that the probability of matching an employer plan description is much higher in larger firms and for defined benefit plans. A similar analysis will be required to understand the patterns of missing data in the self reported plan descriptions and to correct both sets of data in light of systematic patterns of missing data.

Another source of improvement in these estimates will come when a mechanism can be found to allow researchers to use both the employer provided pension plan descriptions and the social security earnings records in the same study, under a carefully controlled set of restricted access conditions. Not only will estimates of social security benefits be improved, but the information on earnings history will also be useful in computing pension wealth.

For all of these reasons, the estimates presented here provide only a preliminary picture of

the role of pensions and social security in income and wealth determination. Nevertheless, these findings demonstrate that one must take full account of pensions and social security when examining the distribution of income and wealth. This is a lesson that was taught to us by Tom Juster, who has led the way in designing surveys that take full account of pensions and social security in the distribution of income and wealth.

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Table 1: Household Income By Source: HRS 1(\$1991)

Source of Income	Mean For Sample		Value for Median 10% of Households	
	Value (\$)	Percent of Total Income (%)	Value (\$)	Percent of Total Income (%)
Total	48,203	100	36,006	99
Earnings	35,313	73	28,027	78
Pension Accrual	2,767	6	1,062	3
Social Security Accrual	1,517	3	1,356	4
Health Insurance	1,775	4	1,655	5
Transfers	941	2	958	3
Asset Income	5,304	11	2,516	7
Other	586	1	432	1
Unweighted Number of Observations	7,607			

Source: Authors' calculations using HRS Wave 1. Pension accrual is based on SPD data, and is calculated using the projected method from employer provided plan descriptions for DB plans and contributions for DC plans. Social security values are based on the self reported earnings histories and the authors' imputations. Median ten percent of households are those with total incomes in the forty fifth to fifty fifth percentiles. See the text for explanations. All data are weighted by HRS sample weights.

Table 2: Household Income By Source and Value Among Recipients and All Households: HRS 1(\$1991)

Source of Income	Percent With Income From Indicated Source (%)	Average Value of Income Among Recipients (\$)	Average Value of Income Among All Households (\$)
Earnings	84	42,063	35,313
Pension Accrual	50	5,569	2,767
Social Security Accrual	57	2,665	1,517
Health Insurance Contribution	51	3,464	1,775
Transfers	20	4,650	941
Asset Income	47	11,262	5,304

Source: See Table 1. All data are weighted by HRS sample weights.



Table 3: Household Wealth Net of Liabilities By Source: HRS 1(\$1992)

Source of Wealth	Mean For Sample		Value for Median 10% of Households	
	Value (\$)	Percent of Total (%)	Value (\$)	Percent of Total (%)
Total	499,187	100	339,725	100
Pension Value	116,012	23	60,102	18
Social Security Value	133,662	27	144,801	43
House Value	78,826	16	67,716	20
Business Assets	78,951	16	14,511	4
Financial Assets	42,140	8	19,274	6
Retirement Assets	19,613	4	10,948	3
Retiree Health Insurance	7,600	2	7,771	2
Other	22,383	4	14,602	4
Unweighted Number of Observations	7,607			

Source: Authors' calculations using HRS Wave 1. Net wealth is defined as net worth, assets less liabilities. Pension value is based on SPD data, and is calculated using the projected method from employer provided plan descriptions for DB plans and contributions for DC plans. Social security values are based on the self reported earnings histories and the authors' imputations. See the text for explanations. Median ten percent of households are those with total wealth in the forty fifth to fifty fifth percentiles. All data are weighted by HRS sample weights.

Table 4: Household Wealth Net of Liabilities By Source and Value Among Recipients and All Households: HRS 1(\$1992)

Source of Wealth	Percent With Wealth From Indicated Source (%)	Average Value of Wealth Among Recipients (\$)	Average Value of Wealth Among All Households (\$)
Pension Value	64	181,926	116,012
Social Security Value	96	138,878	133,662
House Value	80	98,456	78,826
Business Assets	32	250,198	78,951
Financial Assets	88	47,709	42,140
Retirement Assets	42	46,716	19,613
Retiree Health Insurance	32	23,841	7,600

Source: See Table 3. All data are weighted by HRS sample weights.

Table 5: Household Income by Source, Marital Status and Sex: HRS 1(\$1991)

Source of Income	Couples			Singles	
	Household (\$)	Male (\$)	Female (\$)	Male (\$)	Female (\$)
Total	58,895			34,094	21,064
Earnings	43,296	31,118	12,177	24,738	15,072
Pension Accrual	3,278	2,076	1,202	1,876	1,571
Social Security Accrual	1,873			818	721
Health Insurance	2,248	1,618	630	874	702
Transfers	1,107	945	162	4,812	518
Asset Income	6,508			727	1,734
Other	585			249	746
Unweighted Number of Observations	5,234			741	1,632

Source: See Table 1. All data are weighted by HRS sample weights.

Table 6: Household Net Wealth By Source, Marital Status and Sex: HRS 1(\$1992)

Source of Wealth	Couples			Singles	
	Household (\$)	Male (\$)	Female (\$)	Male (\$)	Female (\$)
Total	610,749			359,122	212,641
Pension Value	141,278	113,078	28,199	111,570	38,318
Social Security Value	162,610			75,164	69,703
House Value	94,818			42,592	45,332
Business Assets	101,603			55,614	18,374
Financial Assets	50,324			35,025	19,638
Retirement Assets	24,592			10,736	8,057
Retiree Health Insurance Value	9,574	7,349	2,225	4,353	2,889
Other	25,950			24,068	48,648
Unweighted Number of Observations	5,234			741	1,632

Source: See Table 3. All data are weighted by HRS sample weights.

Table 7: Household Income and Net Wealth By Pension Status, Race, Education, Union Status and Veterans Status: HRS 1

Category	Unweighted Number of Observations	Average Income (\$)	Income For Median 10% (\$)	Average Wealth (\$)	Wealth For Median 10% (\$)
<i>Pension Status</i>					
With Pension	5,085	57,441	46,368	573,090	421,864
No Pension	2,522	27,960	14,709	337,233	149,277
<i>Education</i>					
Less Than High School	1,680	18,554	12,118	219,567	131,577
High School Graduate	2,519	35,913	30,071	410,395	315,141
Some College	1,653	50,680	44,846	500,480	377,534
College Graduate	1,757	84,062	67,459	821,044	587,014
<i>Race</i>					
White and Other	5,467	52,650	40,690	553,180	383,542
Black	1,424	28,904	19,100	259,550	163,096
Hispanic	716	26,653	16,362	245,239	153,430
<i>Union Status</i>					
Union Member	2,388	49,037	43,268	524,186	418,374
Not Union Member	5,219	47,800	31,895	487,918	298,531
<i>Veterans Status</i>					
Veteran	2,103	67,189	56,069	690,041	529,653
Not Veteran	5,505	40,452	28,071	421,268	268,740

Source: See Tables 1 and 3. Income is in 1991 dollars, wealth in 1992 dollars. All data are weighted by HRS sample weights.

Table 8: Proportion of Household Income and Net Wealth Due To Pensions, By Pension Status, Race, Education, Union Status and Veterans Status: HRS 1

Category	Average Income (%)	Income For Median 10% (%)	Average Wealth (%)	Wealth For Median 10% (%)
<i>Pension Status</i>				
With Pension	7	4	29	25
No Pension	0	0	0	0
<i>Education</i>				
Less Than High School	4	1	16	7
High School Graduate	5	4	22	17
Some College	5	4	23	18
College Graduate	7	5	26	26
<i>Race</i>				
White and Other	6	3	23	19
Black	6	3	28	15
Hispanic	6	2	16	4
<i>Union Status</i>				
Union Member	6	2	31	28
Not Union Member	5	3	20	14
<i>Veterans Status</i>				
Veteran	6	4	28	28
Not Veteran	6	4	20	16

Source: See Tables 1 and 3. All data are weighted by HRS sample weights.

Table 9: Distribution of Household Incomes and Earnings In the HRS Population: HRS 1(\$1991)

Income Percentile	Average Value of Incomes In Percentile Category (\$)	Average Value of Earnings In Percentile Category (\$)	Lower Bracket Income Limit for Percentile Category (\$)
95-100	219,869	145,126	128,027
90-95	110,570	80,303	98,880
75-90	78,471	59,515	63,770
50-75	49,062	38,297	35,656
25-50	25,069	19,014	15,000
10-25	8,677	4,963	3,020
5-10	1,504	421	398
0-5	-113	344	
All	48,203	35,313	
45-55	36,006	28,027	

Source: See Table 1. All income categories are those included in Table 1. All data are weighted by HRS sample weights.

Table 10: Pension Accruals In The Distribution of Household Incomes: HRS 1

Income Percentile	Percent With Pension	Average Accrual Value of Pension For Those With Nonzero Pensions In Percentile Category	Average Accrual Value of Pension For All Households In Percentile Category	Percent of Income Accounted For By Pension Accrual
	(%)	(\$)	(\$)	(%)
95-100	75	26,159	19,594	9
90-95	76	11,448	8,724	8
75-90	78	6,212	4,819	6
50-75	69	2,882	1,996	4
25-50	47	1,346	627	3
10-25	9	-48	-4	-0
5-10	2	-749	-14	-1
0-5	1	-46,975	-540	478
All	50	5,569	2,767	6
45-55	60	1,766	1,062	3

Source: See Table 1. All data are weighted by HRS sample weights.



Table 11: Social Security Accruals In The Distribution of Households Incomes: HRS 1

Income Percentile	Percent With Social Security	Average Accrual Value of Social Security For Those With Nonzero Social Security In Percentile Category	Average Accrual Value of Social Security For All Households In Percentile Category	Percent of Income Accounted For By Social Security Accrual
	(%)	(\$)	(\$)	(\$)
95-100	68	5,932	4,052	2
90-95	72	4,882	3,515	3
75-90	70	4,119	2,886	4
50-75	72	2,613	1,886	4
25-50	65	1,278	824	3
10-25	32	640	206	2
5-10	7	-662	-45	-3
0-5	1	-920	-12	11
All	57	2,665	1,517	3
45-55	77	1,774	1,356	4

Source: See Table 1. All data are weighted by HRS sample weights.

Table 12: The Value of Employer Provided Current and Retiree Health Insurance In The Distribution of Household Incomes: HRS 1

Income Percentile	Percent With Employer Provided Current and Retiree Health Insurance	Average Value of Health Insurance For Those With Nonzero Health Insurance In Percentile Category	Average Value of Health Insurance For All Households In Percentile Category	Percent of Income Accounted For By Health Insurance
	(%)	(\$)	(\$)	(%)
95-100	66	4,949	3,249	1
90-95	74	4,708	3,480	3
75-90	70	4,306	3,008	4
50-75	63	3,371	2,115	4
25-50	51	2,423	1,223	5
10-25	32	2,906	935	11
5-10	12	1,876	223	15
0-5	1	2,363	19	-17
All	51	3,464	1,775	4
45-55	58	2,849	1,655	5

Source: See Table 1. All data are weighted by HRS sample weights.

Table 13: Distribution of Household Net Wealth In the HRS Population: HRS 1(\$1992)

Wealth Percentile	Average Value of Wealth In Percentile Category (\$)	Lower Bracket Limit for Percentile Category (\$)
95-100	2,543,780	1,397,823
90-95	1,162,428	987,875
75-90	762,738	608,118
50-75	457,376	339,751
25-50	252,119	169,678
10-25	122,965	77,396
5-10	61,322	45,650
0-5	9,248	0
All	499,187	
45-55	339,725	

Source: See Table 3. Net wealth is defined as net worth, assets less liabilities. All assets are those included in Table 3. All data are weighted by HRS sample weights.

Table 14: Pension Wealth Values In The Distribution of Household Net Wealth: HRS 1(\$1992)

Wealth Percentile	Percent With Pension	Average Value of Pension For Those With Nonzero Pensions In Percentile Category	Average Value of Pension For All Households In Percentile Category	Percent of Wealth Accounted For By Pension
	(%)	(\$)	(\$)	(%)
95-100	65	732,861	475,267	19
90-95	82	442,948	363,966	31
75-90	86	278,805	239,727	31
50-75	83	133,346	109,967	24
25-50	67	55,557	36,987	15
10-25	37	22,103	8,100	7
5-10	11	10,775	1,171	2
0-5	4	27,855	1,205	13
All	64	181,926	116,012	23
45-55	76	79,280	60,102	18

Source: See Table 3. Wealth is defined as net worth, assets less liabilities. All assets are those included in Table 3. All data are weighted by HRS sample weights.

Table 15: Social Security In The Distribution of Households Net Wealth: HRS 1(\$1992)

Wealth Percentile	Percent With Social Security	Average Value of Social Security For Those With Nonzero Social Security In Percentile Category	Average Value of Social Security For All Households In Percentile Category	Percent of Assets Accounted For By Social Security
	(%)	(\$)	(\$)	(\$)
95-100	99	185,825	184,399	7
90-95	100	188,506	187,709	16
75-90	100	179,766	178,888	23
50-75	100	158,119	157,649	34
25-50	99	129,542	127,967	51
10-25	99	90,309	89,090	72
5-10	92	56,755	52,380	85
0-5	47	35,384	16,567	179
All	93	138,878	133,622	27
45-55	99	145,620	144,801	43

Source: See Table 3. Net wealth is defined as net worth, assets less liabilities. All assets are those included in Table 3. All data are weighted by HRS sample weights.

Table 16: Retiree Health Insurance In The Distribution of Household Net Wealth: HRS 1(\$1992)

Wealth Percentile	Percent With Retiree Health Insurance	Average Value of Retiree Health Insurance For Those With Nonzero retiree Health Insurance In Percentile Category	Average Value of Retiree Health Insurance For All Households In Percentile Category	Percent of Assets Accounted For By Retiree Health Insurance
	(%)	(\$)	(\$)	(%)
95-100	35	30,628	10,587	0.4
90-95	53	29,905	16,190	1.4
75-90	54	27,403	14,768	1.9
50-75	45	23,273	10,525	2.3
25-50	25	18,316	4,498	1.8
10-25	13	13,762	1,748	1.4
5-10	3	12,677	282	0.5
0-5	1	21,953	266	2.9
All	32	23,684	7,600	1.5
45-55	37	21,082	7,808	2.3

Source: See Table 3. Net wealth is defined as net worth, assets less liabilities. All assets are those included in Table 3. All data are weighted by HRS sample weights.

**Table 17: Household Income and Net Wealth From Pensions, Social Security and Health Insurance by Place in the Distribution: HRS 1**

Income or Wealth Percentile	Percent of Income From Pension Accrual, Social Security Accrual and Health Insurance (%)	Percent of Wealth From Pensions, Social Security and Retiree Health Insurance (%)
95-100	12	26
90-95	14	48
75-90	14	56
50-75	12	60
25-50	11	68
10-25	13	80
5-10	11	88
0-5	472	195
All	13	52
45-55	11	63

Source: See Table 3. All data are weighted by HRS sample weights.

Table 18: Pension Values For HRS Households Based on Projected Vs. Legal Liability Methods:  
HRS 1(\$1992)

Method of Calculating Pension	Pension Accrual		Pension Wealth	
	Mean Among All Households	Within Households with Median Ten Percent of Income	Mean Among All Households	Within Households with Median Ten Percent of Income
	(\$)	(\$)	(\$)	(\$)
Projected Liability Basis	2,767	1,062	116,012	60,102
Legal Liability Basis	3,579	944	109,144	53,051

Source: See Tables 1 and 3. All data are weighted by HRS sample weights.



Table 19: Distribution of Early and Normal Retirement Ages of Defined Benefit Plans: HRS 1

Age	Percent With Early Retirement Age	Percent With Normal Retirement Age
<50	8.9	1.5
50	11.4	3.2
51	1.9	0.2
52	1.7	1
53	1.6	0.6
54	2	0.8
55	45.8	8.4
56	2.6	1.3
57	2.9	1.4
58	2.3	2.4
59	2.5	1.9
60	10	20.6
61	0.8	1.2
62	4.3	13.7
63	0.1	0.4
64	0.3	0.5
65	0.7	40.6
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
>70	0	0.1
average	54.4	61

Source: Authors' calculations using HRS Wave 1. Retirement age calculations are based on SPD data as applied to information provided by HRS respondents on work and earnings history. All data are weighted by HRS sample weights.

Table 20: Pension Wealth Values By Age (In Thousands of 1992 Dollars): HRS 1

Age	50	55	60	65	70	1992	ER Age	NR Age
Defined Benefit								
Mean	99	158	198	209	205	154	159	204
Std. Dev	143	188	209	208	204	188	186	210
First Quartile	15	41	70	86	86	39	46	78
Second Quartile	51	96	150	165	163	94	105	155
Third Quartile	122	214	258	265	261	206	210	261
Number of Observations	1615	1615	1615	1615	1615	1615	1615	1615
Defined Contribution								
Mean	52	72	90	107	123	72		
Std. Dev	55	64	74	83	93	64		
First Quartile	8	20	29	37	45	18		
Second Quartile	29	44	56	69	83	44		
Third Quartile	74	100	120	141	159	100		
Number of Observations	347	347	347	347	347	347		

Source: Authors' calculations using HRS Wave 1. Pension value calculations are based on SPD data as applied to information provided by HRS respondents on work and earnings history, using the projected liability method. All data are weighted by HRS sample weights.

Table 21: Annual Pension Accruals for Defined Benefit Plans By Age (In Thousands of 1992 Dollars): HRS 1

	Age				
	50	55	60	62	65
Mean	10.2	7.5	2	-3.7	-6.2
Std. Dev	31	12.4	10.5	7.9	9.8
First Quartile	2.1	1.6	-1.8	-5.6	-8.7
Second Quartile	5.5	4.6	1.5	-2.2	-4.4
Third Quartile	10.3	9.2	4.6	-0.1	-1.6
No. Obs.	1615	1615	1615	1615	1615

Source: Authors' calculations using HRS Wave 1. Pension accrual calculations use the projected method for DB plans, and are based on SPD data as applied to information provided by HRS respondents on work and earnings history. All data are weighted by HRS sample weights. Reported number of observations are unweighted.

Table 22: Annual Pension Accruals for Defined Benefit Plans By Relation To Early and Normal Retirement Age (In Thousands of 1992 Dollars): HRS 1

	<u>Plans With Early Retirement</u>				<u>Plans w/o</u> <u>ER</u>	After NR Age
	Preretire- ment	ER Age	ER Age-NR Age	NR Age	NR Age	
	Pension Accrual (\$000)					
Mean	8.5	42.7	5.6	5.1	48.5	-1
Std. Dev	8.3	74.4	6.3	40	93.9	4.9
First Quartile	3.3	4.5	2.1	-0.9	7.6	-3
Second Quartile	6.1	13.8	4.7	2.7	19.8	-0.6
Third Quartile	10.6	51.4	8.2	7.3	46.1	1
No. Obs.	1615	1274	1274	1274	341	1615
	Pension/Wage Accrual (%)					
Mean	21.9	102.3	16.5	18.4	117.8	-2.5
Std. Dev	17.7	176.2	9.7	149.6	177.5	17
First Quartile	11.3	18	9	-3.1	33.8	-9.4
Second Quartile	19.2	40.5	17.3	13	54.4	-2.1
Third Quartile	29.4	135.1	24.4	26	164.4	4.6
No. Obs.	1615	1274	1274	1274	341	1615

Source: Authors' calculations using HRS Wave 1. Pension accrual calculations use the projected method for DB plans and the legal liability method for DC plans, and are based on SPD data as applied to information provided by HRS respondents on work and earnings history. All data are weighted by HRS sample weights.

*Preretirement Years*: the third through first year before qualifying for early retirement benefits, if available, or the three years before normal retirement age if there is no early retirement.

*ER Age*: the year during which the individual qualifies for early retirement benefits.

*ER-NR Age*: the years between early and the year before qualifying for normal retirement.

*NR Age*: the year just before qualifying for normal retirement benefits.

*After NR Age*: the three years immediately following qualification for normal retirement benefits.

Table 23: Pensions and Social Security As A Percentage of Total Income or Wealth In Various Studies

Study	Population	Year and Interest Rate	Sources of Income or Wealth Other Than Pensions and Social Security	Pensions as a Percent of Income or Wealth	Social Security as a Percent of Income or Wealth
Mean Income Of Selected Groups Age 65 or Older					
Gustman and Juster (1996, Table 2.2)	AHEAD, age 70 - 74	1992	Earnings, Asset Income, Transfers, Other Income	26	41
Grad (1994, Table VII.2)	CPS age 65 and older	1992	Earnings, Asset Income, Public Assistance, Other	19	40
Grad (1994, Table VII.1)	CPS age 65 to 69	1992	Earnings, Asset Income, Public Assistance, Other	19	31
Mean Wealth <sup>55</sup>					
Present Paper	HRS Firm Reported Pension Data, 51-61	1992 $i = .063$	Business, Financial and Retirement Assets, House Value, Retiree Health Insurance	23	27
Smith (1995a, Table 13)	HRS Respondent Reported Pension	1992, $i = .0675$	Business, Financial and Retirement Assets, House Value	22	26
Poterba, Venti and Wise (1994, Table 1)	SIPP, age 65 - 69	1991, $i = .06$	Financial Assets, Home Equity, Other Property. Other assets include 401(k) balances.	20	32

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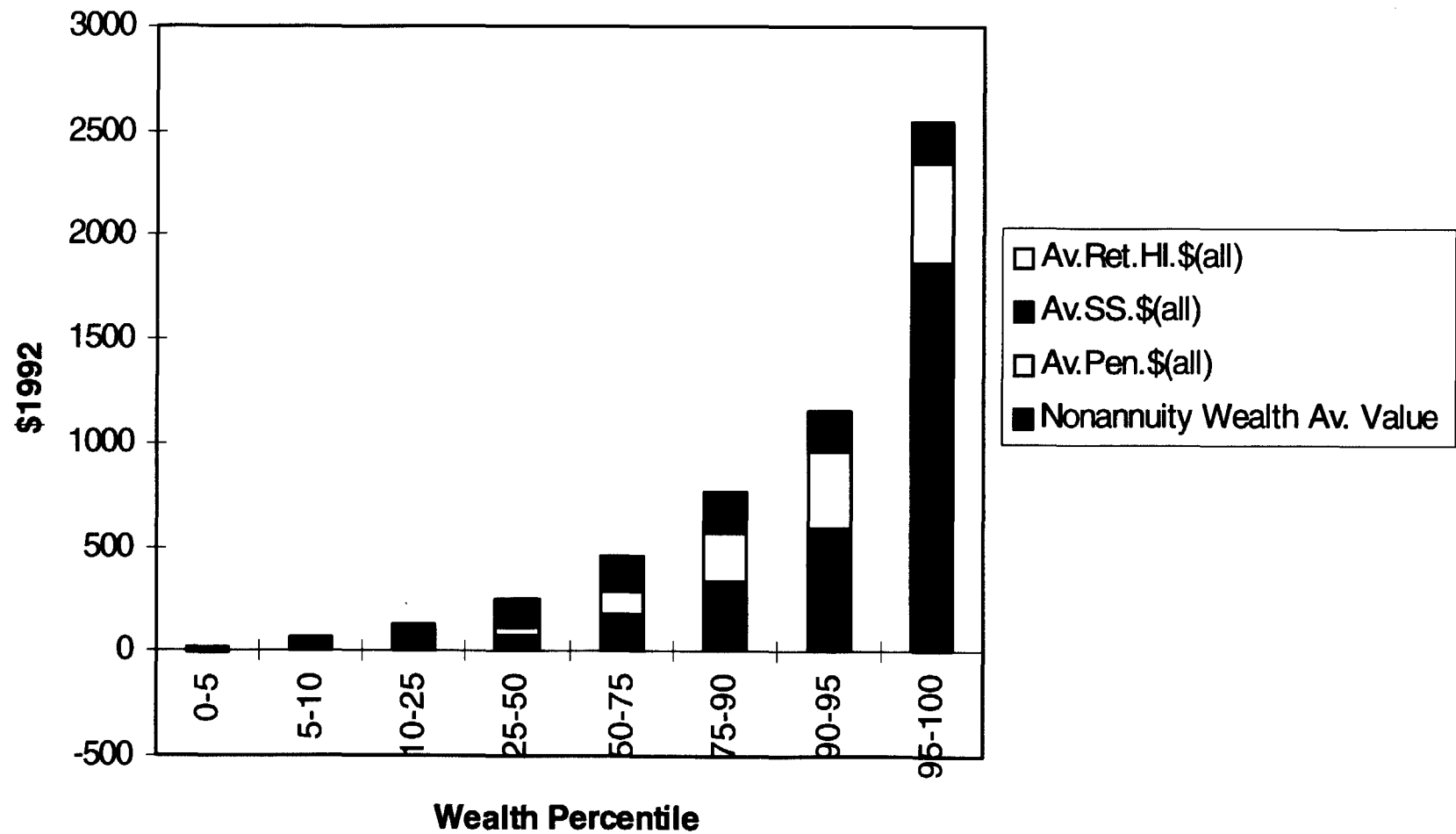
<sup>55</sup>Notice that these wealth measures are only very roughly comparable. They are not standardized for differences in assumptions about cost of living adjustments, life expectancy and other differences in assumptions made during the course of imputation and calculations.

## Appendix 1: Pension Matching Rates By Firm Size, Weighted and Unweighted Results

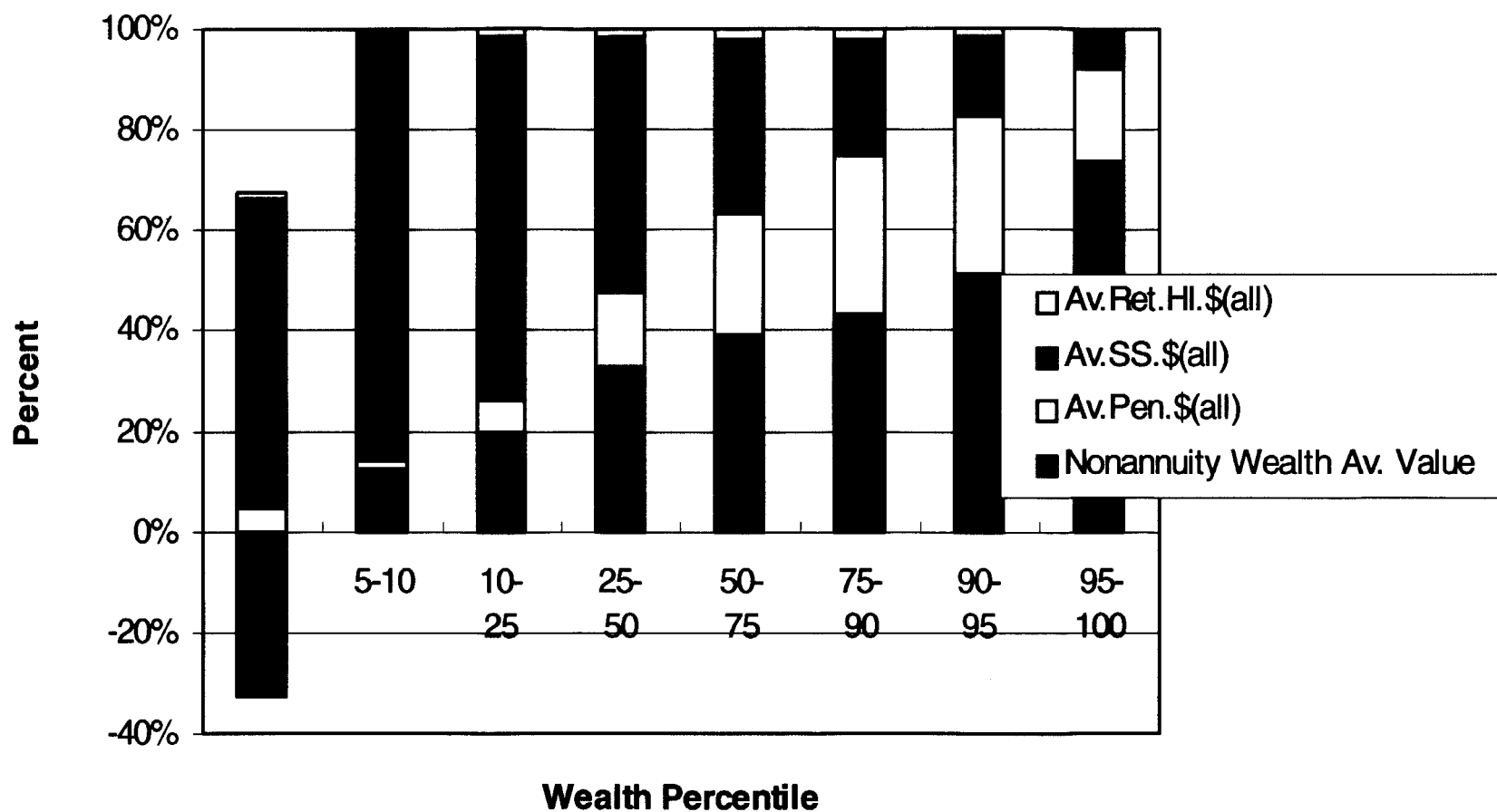
	Firm Size					
	< 24	24-99	100-499	500+	Unknown	All
	Unweighted counts					
No Pension	2238	431	353	672	113	3807
Pension						
SR DB or combo						
Unmatched plan	79	97	147	503	8	834
Matched plan	39	107	303	1683	21	2153
SR DC only						
Unmatched plan	144	139	133	238	13	667
Matched plan	36	65	131	464	7	703
SR Unknown						
Unmatched plan	15	23	35	95	4	172
Matched plan	2	4	14	34	0	54
All Plans						
Unmatched plan	238	259	315	836	25	1673
Matched plan	77	176	448	2181	28	2910

	Weighted counts (00 omitted)					
No Pension	43698128	8569556	6027238	10892398	1754368	70941768
Pension						
SR DB or combo						
Unmatched plan	1782030	2084695	2785766	10214940	153721	17021168
Matched plan	875047	2286421	6636897	33882888	443132	44124408
SR DC only						
Unmatched plan	3168715	3216292	2942495	4730529	287710	14345736
Matched plan	804111	1275550	2771571	9065339	128041	14044617
SR Unknown						
Unmatched plan	300495	468208	546089	1851844	83464	3250099
Matched plan	39536	38233	248553	406774	0	733096
All Plans						
Unmatched plan	5251240	5769193	6274349	16797324	524896	34617004
Matched plan	1718694	3600205	9657022	43354988	571173	58902092

**Figure 1: Household Wealth By Type, By Wealth Percentile:  
\$1992**



**Figure 2: Percentage Distribution of Household Wealth By Type,  
By Wealth Percentile**





**Figure 3: Pension/Earnings Accruals for Early and Normal Retirement Ages**

