HAS INCREASED LABOR FORCE ATTACHMENT IMPROVED THE PROSPECTS FOR WOMEN'S PENSION INCOME?

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William E. Even
Department of Economics
Miami University
Oxford, OH 45056
email: evenwe@muohio.edu
phone: 513-529-2865

David A. Macpherson
Department of Economics
Florida State University
Tallahassee, FL 32306
email: dmacpher@mailer.fsu.edu
phone: 850-644-3586

I. Introduction.

Over the past 30 years, there has been substantial change in the income distribution of the elderly (those 65 years of age or older). For example, between 1966 and 1995, the poverty rate for the U.S. population as a whole fell only slightly from 14.7 to 13.8 percent. At the same time, the poverty rate among the elderly fell from 28.5 to 10.5 percent [Baugher and Lamison-White (1996)]. Some explanations for the improved income of the elderly include increased pre-retirement earnings of successive cohorts of retirees; increased generosity of the Social Security system; and improved pension coverage.

While there has been substantial progress, concerns are rising about the prospects for the future for several reasons. First, the retirement of the baby boom generation will test the financial viability of the Social Security system. Recent estimates by the Social Security Trustees suggest that Social Security expenditures will begin to exceed income in 2014, and the trust fund will be depleted in 2034.[1] Second, personal savings rates declined markedly over the past decade and recently turned negative.[2] Finally, pension coverage rates in the U.S. working population have been relatively stagnant over the past 20 years. The combination of these facts has led several researchers to conclude that many people in the U.S. are not saving enough to maintain consumption after retirement.[3]

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[1] See Social Security Administration, 1999 OASDI Trustees Report. These statistics are based on the intermediate assumptions.

[2] See, for example, Engen, Gale and Uccello (1999). It is important to note, however, that while personal savings rates fell over the past decade, the ratio of net worth to disposable income rose. The explanation for the opposite trends is that savings rate calculations do not include capital gains whereas net worth calculations do.

[3] Bernheim (1993) presents evidence that households are saving too little to maintain their standard of living at retirement. Supporting evidence is provided by Banks, Blundell, and Tanner (1998) who shows that there is a significant decline in consumption at retirement. However, Engen, Gale and Uccello (1999) question the conclusions of the earlier studies. Based on their model of savings behavior, they find that the undersaving problem is not as large as others have suggested.

Historically, elderly women's total income and pension income has been significantly lower than men's. For example, EBRI (1997) reports that of people over age 65 in 1995, pension income averaged $1737 among women and $5272 among men. As women's pension coverage, labor force attachment and earnings rise relative to men's, this gap should diminish.

Although there are several reasons to be somewhat pessimistic about future retirement income adequacy, an important source of optimism is women's growing labor force attachment and pension coverage. Blau (1998) provides some evidence on how women's labor market attachment has risen. For example, the labor force participation rate of women aged 25 to 64 rose from 49 to 72 percent between 1970 and 1995, and the female-male wage ratio rose from .60 to .73 between 1979 and 1994. O'Neill (1993) provides further evidence of the rising female-male wage ratio and demonstrates that increases in labor market experience (attachment) are an important source of the change. Finally, Even and Macpherson [1994, forthcoming (a)] show that, among workers, the gender gap in pension coverage has diminished over time and the most important reason that women have lower pension income than men is that they have less labor market experience and lower earnings.

This study examines the prospects for rising pension income among women. In section 2, a review of recent trends in pension coverage are provided. It clearly demonstrates that the gender gap in pension coverage has diminished over the past 20 years. It also shows that, among retirees, women have much lower pension coverage and benefits than men. In section 3, we use data from the Health and Retirement Survey (HRS) and the Survey of Consumer Finances (SCF) to project the pension coverage and benefits of people that are likely to be retiring over the next 20 years. Comparing projections of future retirement income with that of current retirees provides several reasons for optimism. Both men and women are projected to have higher levels

of pension income than current retirees, and women's benefits are projected to rise relative to men's. The largest gender difference in pension benefit levels is between married men and women. Since married women are likely to benefit from their husbands' pension coverage, gender differences in family pension income measures are relatively low. In section 4, we provide projections of pension income for widows and widowers. Compared to current widows, women are projected to be substantially better off in the future -- particularly if retirees choose a survivor option in their pensions. While the gender gap in pension benefits is projected to narrow over time, our projections point to a substantial gap for the future. In section 5, we examine why women's pension coverage and projected benefit levels are lower than men's. The answer is that, while women's labor force attachment and earnings have grown over time, gender differences in earnings and labor market experience continue to generate substantial sex differences in pension benefit levels.

II. Pension Coverage and Benefits.

To provide some indication of how the gender gap in pension coverage and income has changed over the past 20 years, we use information from the March Current Population Surveys (CPS). The March CPS provides data on people's pension income and coverage for the year prior to the survey.[4] Since our later projections of pension income are for people aged 40 to 60 at the time of the survey, we present coverage statistics for that age group. We also provide coverage statistics for a younger age group (25 to 39) for completeness.

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[4] Interviewer instructions reveal that pension income is to include: (1) Company or union pension income; (2) Federal government civil service retirement income. (3) U.S. military retirement; (4) State or Local government pension; (5) U.S. Railroad retirement; (6) Regular payments from annuities or paid up insurance policies; or (7) regular payments from IRA or KEOGH accounts.

A. The working age population.

In table 1, several statistics relevant to pension coverage are presented. The employment rate is the percentage of people employed; the employee coverage rate is the percentage of employees that are included in a employer-sponsored pension plan; the population coverage rate is the percentage of people (employed or not) included in an employer-sponsored pension plan; and the population family coverage rate is the percentage of people that are included in a pension or have a spouse included in a pension plan.

Between 1979 and 1997, the gender gap in population coverage rates has diminished substantially. Among 40 to 60 year olds, the percentage covered fell from 56.4 to 50.7 among men while it rose from 28.1 to 38.4 among women. The result is that the gender gap in coverage among 40 to 60 year olds fell from 28.3 to 12.3 percentage points. A similar trend is observed among the 25 to 39 year old population. The percentage covered fell from 52.6 to 43.5 among men but rose from 29.5 to 34.1 among women. The result is that the gender gap in coverage fell from 23.1 to 9.4.

The gender gap in coverage rates is substantially larger in the population as a whole than among employees. For example, in 1997 the gender gap in coverage among employees was 6.1 and 3.6 percentage points among the 40 to 60 and 25 to 39 year old populations. The reason is that women have lower employment rates than men, though the difference has narrowed over time. For example, among the 40 to 60 year old population, the gender difference in employment rates fell from 28.2 to 13.5 percentage points between 1979 and 1997. Among the younger population, the gap in employment rates fell from 23.6 to 14.1 percentage points.

If pension coverage is measured at the family level, the gender gap in coverage narrows substantially. Among married couples, there is no gender gap in coverage since if either spouse has a pension they are both counted as having family coverage. Hence, sex differences in coverage among unmarried people are the only source of any gender difference in family coverage. Among the 40 to 60 year old population, the gender gap in family coverage fell from 6.9 to 3.5 percentage points between 1979 and 1997. In the 25 to 39 year old population, the gender gap in family coverage has been close to zero over the past 20 years.

B. The Retired Population: Pension Coverage.

While there has been substantial improvement in the pension coverage of women relative to men in the working age population, we find little evidence of this trend among the retired population. In table 2, pension coverage rates are reported for people age 65 and over that were not employed in the year prior to the March CPS. For 1979 through 1987, the CPS questions do not allow for separation of disability, survivor, and pension income. Beyond 1987, pension income can be separated from disability or survivor income. To provide a consistent measure of coverage across time, we present a broad measure of coverage that includes all three types of benefits for 1979 through 1997. For 1988 and beyond, we also present a narrow measure based on pension income only. A person is defined as having coverage if they report any pension (survivor or disability) income.

Over the past 20 years, retiree pension coverage rates rose by nearly identical amounts for men and women leaving the gender gap essentially unchanged. The broad measure of coverage (pension income plus survivor or disability benefits) indicates that coverage rates rose by

approximately 10 percentage points for both men and women. Male coverage rates rose from 41.2 to 50.6 percent and female coverage rose from 18.2 to 28.1 percent. This implies that the gender gap in pension coverage was virtually unchanged over the past 20 years falling from 23.0 to 22.5 over the period. The size of this gap in coverage is higher than that found among 40 to 60 year olds.

Restricting the definition of coverage to exclude those receiving survivor or disability benefits widens the measured gender gap in coverage. For example, in 1997 the gender gap in coverage is 22.5 percentage points with the broad measure of coverage but 27.4 percentage points using the narrow measure. Part of the reason is that women are more likely than men to have a deceased spouse and receive a survivor benefit. Based on March CPS estimates, among retirees aged 65 and over, 15.7 percent of men are widowers and 46.0 percent of women are widows. In addition, the percentage of widows receiving a survivor benefits is 13.8 percent, whereas the percentage for widowers is only 0.5 percent. The fact that widows are more likely to receive a survivor annuity than men can be explained by two facts. First, because men have higher coverage rates than women, widows are more likely to have a spouse that was covered by a pension. Second, TIAA-CREF (1996) reports that male annuitants are more likely than female annuitants to choose a survivor benefit when they annuitize.

Family pension coverage rates are also presented in table 2. Not surprisingly, the gender gap in family coverage rates is less than the gap in individual coverage. In 1997, the gender gap in family coverage among retirees was 12.1 percentage points using the broad measure of coverage (pension, survivor or disability benefits) and 17.0 percentage points using the narrow measure (pension benefits only).

The evidence presented thus far suggests that the gender gap in pension coverage has been stable among retirees but has narrowed among the working age population. There are at least two explanations for why these facts are not contradictory. First, a reduction in the gender gap in coverage among the working age population has lagged effects on the gap in coverage among retirees. While women's labor force attachment and pension coverage has grown over time, it may not have occurred early enough to impact the current cohort of retirees. Second, coverage among the working age population does not always lead to coverage among a retiree. A worker may be covered by a pension and never receive a pension benefit as a retiree. For example, the worker may never vest in the pension plan or may take a lump sum distribution that would not be counted in the March CPS data. Moreover, it is possible that prior pension coverage among women is less likely to translate into a pension benefit at retirement because of their more intermittent labor force attachment.

While the March CPS data provides a good measure of how pension coverage has changed over time, it has a shortcoming. Measuring pension income or coverage among retirees is complicated by the fact that pension benefits can be paid out as either a life annuity or a lump sum distribution (LSD). The March CPS data generally misses pension income when a worker receives a LSD at retirement.

Most defined benefit plans pay benefits in the form of a life annuity. Most defined contribution plans pay the employee in the form of a lump sum distribution (LSD) or in a predetermined number of payments. However, a minority of defined contribution plans allow employees to convert their account into a life annuity at retirement. For example, the U.S. Department of Labor (1993) reports that 30 percent of savings and thrift plans at large and

medium size firms provided a lifetime annuity option at retirement; 52 percent provided the option of a series of periodic installments; and 99 percent provided the option to take a LSD.

Given the rising prevalence of defined contribution (DC) plans over time, the omission of LSDs will become increasingly problematic. The size of the problem is revealed by Schieber (1995) who reports that in 1990 employer sponsored pension plans paid out $243.3 billion in benefits, LSDs accounted for $125.8 billion of the total and $43 billion of the LSDs were "normal distributions" to people eligible to begin receiving retirement benefits.

To adjust for the fact that some people receive pension benefits as a LSD, we use data from the Health and Pension Benefits Supplement to the September 1994 Current Population Survey which provides information on pensions for people over 40 years of age. We restrict the sample to those age 65 and over who are not employed at the time of the survey. The questions in the September 1994 CPS allow us to construct two measures of pension coverage. The first measure counts anyone "receiving a retirement benefit payable for life" from one or more pension plans as covered by a pension.[5] The second measure includes anyone receiving a benefit payable for life as well as those who received a prior LSD (or fixed series of payments) that was "saved for retirement". We count a LSD as saved for retirement if some portion of the LSD was used to purchase a private annuity, rolled into an IRA or another pension plan, put into a savings account, used to start or purchase a business, pay off a mortgage or debt, or received after age 59.[6,7]

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[5] The interviewer instructions for the supplement do not make it clear whether a person who purchases a private annuity contract with a LSD from a pension should be counted as a person receiving a pension benefit payable for life.

[6] When multiple uses of an LSD are reported, it is not possible to determine what fraction was devoted toward each use. However, relatively few retirees report multiple uses of an LSD.

[7] The reason we choose age 59 is that, according to IRS regulations, if a worker receives an LSD before age 59.5, a 10 percent tax penalty is imposed on the distribution.

Table 3 presents pension coverage statistics by gender and marital status for retirees age 65 and older in the September 1994 CPS.[8] Focusing first on the percentage of retirees receiving a pension benefit payable for life (a life annuity), there are substantial differences in coverage rates by gender and marital status. The percentage of people receiving a life annuity from their own pension (i.e. not a survivor annuity) is 40.9 for men but only 15.6 for women. The gender gap in coverage is largest among married people (26.4 percentage points) and the widowed (21.7). The gap is relatively small among single people (9.5 percentage points).

Adding people that saved a LSD for retirement increases the measured coverage rates only slightly. For men, the coverage rate increases from 40.9 to 45.2 percent. For women, it increases from 15.6 to 18.8 percent. For each of the subgroups examined, adding these people to the group with pension coverage increases coverage by 2 to 5 percentage points and does not alter the qualitative nature of the patterns observed with the more restrictive measure.

Family coverage rates are presented for the population as a whole and married couples at the bottom of table 3. As in our earlier analysis, a married person is defined as having family coverage if either spouse is covered by a pension. A widowed person is defined as having family coverage if he or she has pension income, or a survivor benefit from a deceased spouse's pension. For single people, family coverage is identical to single coverage except that it will also count single people receiving survivor benefits as covered.

The gender gap in family coverage rates is nearly 18.4 percentage points lower than the gap in individual coverage rates. The reason is that the family measure of coverage essentially eliminates the gender gap in coverage rates among married people, and the gap in widowed coverage rates is reduced substantially by inclusion of survivor benefits.[9] Survivor benefits from

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[8] In this study, a person is defined as a "retiree" over he/she is not currently employed.

[9] The family coverage rates for men and women are not exactly equal in table 3 because the sample restrictions do

pensions are much more likely for women than men. Based on the September data, we estimate that adding survivor benefits causes pension coverage to increase by 17.9 percentage points among women, but only 3.9 percentage points among men.

Compared to the March CPS estimates of pension coverage for 1992, the level of coverage is approximately 10 percentage points lower among men and 5 percentage points lower among women.

C. The Retired Population: Pension Income.

The September 1994 CPS is also used to estimate pension income levels by sex. In our estimates of individual pension income, all LSDs saved for retirement are converted into an annual benefit level by compounding (or discounting) the value of the LSD to age 65 and estimating the annual income that would be generated if a single life annuity had been purchased beginning at age 65.[10] For widows and widowers, individual pension income includes income from their own pensions, but excludes survivor benefits from their deceased spouses' pensions. For family pension income, the value of a spouse's pension income or survivor benefit is added to individual pension income.

In table 4, summary statistics on the level of pension income reveal that for all retirees, the average annual pension benefit is $6,204 for men and $1,404 for women. Hence, the average woman's pension incomes is 22.6 percent of the average man's. Among retirees receiving pension income the gender gap in pension coverage is much smaller. Men receive an

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not generate the husband and wife of each married couple. For example, if a 58 year old woman is married to a 68 year old retired man, the man will be included in the married male sample but his wife will not be included in the married woman sample.

[10] The annuity rates are based on a nominal interest rate of 6.5% and sex neutral mortality assumptions from the 1994 group annuity mortality table provided by the Society of Actuaries. At age 65, we estimate that $100 would purchase a single life annuity of $9.63 per year.

average of $13,735 and women receive an average of $7,491. Thus, among retirees receiving a pension benefit, women receive 54.5 percent as much pension income as men.

The gender gap in pension income is larger among married and widowed than single retirees. Whereas single women receive an average pension income that is 51.4 percent of that received by single men, widowed women receive only 25.2 percent as much as widowed men, and married women receive only 21.4 percent as much as married men. Regardless of marital status, however, the ratio of female to male pension income is higher among those receiving income than among the population as a whole.

Not surprisingly, the gender gap in pension income is reduced when family pension income measures are used. While women have on average only 22.6 percent as much pension income among men using the individual pension income measure, they have 73.9 percent as much income using the family measure. This is due to the fact that switching to the family measure of pension income for married and widowed retirees has a larger positive effect on the incomes of women than men.

In summary, there is a substantial gender gap in pension coverage and income among current retirees. The fact that the gender gap is largest among married and widowed retirees is perhaps not surprising given that married women have traditionally had lower labor force participation rates than single women. The size of the gender gap in pension coverage and income is substantially lower when calculations are based on a family measure. Many married women have access to pension income from a spouse, and a significant share of widows receive survivor benefits.

In the next section, we measure pension coverage and project pension income for workers aged 40-60 to determine the extent to which women's rising labor force participation will reduce the gender gap in pension coverage and income in the future.

III. Projected Pension Coverage and Income Among 40-60 Year Olds.

A. Coverage Rates.

Our analysis of pension benefit levels relies on Wave I of the Health and Retirement Survey (HRS) and the 1992 Survey of Consumer Finances (SCF). Wave I of the HRS was started in 1992 and surveyed persons born between 1931 and 1941 regarding their health, retirement and economic status. The sample includes 12,652 people in 7,702 households. Our analysis of the HRS restricts the sample to "age-eligible" respondents (i.e. those born between 1931 and 1941) regardless of their employment status. In both the SCF and HRS, weights are used in the estimation of all statistics to make the samples representative of the U.S. population.

The analysis of the SCF restricts the sample to people aged 40-60 during the survey year (i.e. those born between 1932 and 1952). For the analysis on pension benefits, we impute benefit levels for those that indicated they had a pension but did not provide all of the necessary information for projecting benefits at age 65.

In the HRS and SCF, information is provided on pension coverage from current and past jobs. For current jobs, both data sets indicate the type of plan(s) that the worker has, the number of years in the plan, and other information that we use to forecast future retirement income at age 65. Our forecasts require assumptions on wage growth, interest rates, and inflation rates. For

defined benefit plans, we estimate the annual benefit the worker will receive for a retirement at age 65. For defined contribution plans, we estimate the account balance that the worker will have accumulated by age 65 if contributions continue at their current rate and estimate the annual benefit that would result if a single life annuity was purchased at age 65 with the account balance.

For people not currently employed, we convert the value of any pension that they accumulated in the past into an equivalent age 65 annuity. For example, if a person ceased employment at age 58 and had a defined contribution plan, we compound the balance forward to age 65 (in 1992 dollars) and use an annuitization factor to compute the size of the life annuity that could have been purchased at age 65. If the person had a defined benefit plan, we compute the cost of the annuity they are receiving (or will receive) in 1992 dollars, and then convert this into an equivalent age 65 annuity using the method described for defined contribution plans. Further details on the pension benefit calculations and the assumptions on interest rates, wage growth, and annuitization factors are provided in the data appendix.

Estimated pension coverage rates for the HRS and SCF are provided in table 5. As noted earlier, our sub-sample of the HRS data includes people aged 51-61 and our sub-sample of the SCF includes those aged 40-60. Two measures of coverage are presented. The first measure, referred to as "current coverage" counts only those people who are currently employed and enrolled in a pension plan as covered. This definition is identical to the measure of population coverage generated from the March CPS data and allows for a comparison of coverage statistics across data sets. The second measure, referred to as "lifetime coverage" expands the first by also

counting as covered anyone that is receiving or expecting to receive a pension benefit from a past employer.[11]

To provide a comparison of coverage rates across data sets, current coverage rates are presented for the March 1992 CPS, the HRS, and the SCF. In the HRS and CPS, the sample is restricted to 51 to 61 year olds. In the SCF, the sample is 51 to 60 year olds.

The current coverage rates in the three data sets are very similar. For men, the coverage rates range from 43.3 in HRS to 46.7 in the SCF. For women, the coverage rates range from 30.1 in the HRS to 32.0 in the SCF. For both men and women, the March CPS coverage rates are between the coverage rates found in the HRS and SCF.[12]

Measures of the gap in current coverage rates are remarkably similar across data sets. Among 51 to 61 (60 in the SCF) year olds, the gender gap in coverage ranges from 13.2 to 14.7 percentage points. Combined with the time series data on coverage from the March CPS, the trend in current population coverage rates would lead one to believe that the gender gap in pension income should be narrowing over time. However, as described below, our projections suggest fairly little progress on this front.

While convergence in the gender gap in current coverage rates will contribute to improvement in women's retirement income relative to men's, current and past pension coverage will determine the level of pension income at retirement. Measures of lifetime pension coverage reveal a much larger gender gap. In the HRS data, lifetime coverage rates are 63.6 and 41.7 for men and women. In the SCF, the lifetime coverage rates are 60.0 and 42.1. The implied gender gap in lifetime coverage rates are 21.9 and 17.9 percentage points in the HRS and SCF,

[11] If a person received a LSD from a prior pension and saved it for retirement, they are counted as covered by a pension. For more details on how LSDs are treated, see the data appendix.

[12] We also compared population coverage rates for 40 to 60 year olds in the SCF and CPS. For women, the current population coverage rates are 35.1 in the SCF and 37.2 in the CPS. The corresponding statistics for men are 48.7 in the SCF and 51.1 in the CPS 35.1 and 37.2.

respectively. This is nearly 50 percent higher than the gender gap in current coverage rates. This suggests that, among 51 to 61 year olds, men are more likely to be receiving or expect to receive a pension benefit from a past job.

B. PROJECTED RETIREMENT INCOME.

In table 6, projections of annual retirement income are summarized. The mean projected income is provided, by sex, for all people and for those expecting or receiving a pension benefit. Projections are also given by marital status. The median level of pension income is also presented for those expecting or receiving a pension benefit. Below the income estimates for each sex, female benefit levels are expressed as a percentage of male levels. In reviewing the estimates, it is important to recall that the projections assume that anyone employed and included by a pension at the time of the survey is assumed to continue working and accumulating pension assets until age 65. Also, for people covered by past pensions that were not previously spent, it is assumed that the pension assets are allowed to compound until age 65 at which point a single life annuity is purchased.

The projected level of pension benefits in the HRS and SCF data is higher than that found in the September 1994 CPS, and the gender gap in benefits is smaller. In the September 1994 CPS, mean pension income among people over age 65 was measured at $6,204 for men and $1,404 for women. The corresponding statistics are $15,805 for men and $5,113 for women in the HRS; and $20,550 for men and $7,086 for women in the SCF.

The fact that projected pension income is higher for 40 to 60 year olds than current retirees is expected for a few reasons. First, many pensions are fixed in nominal terms. As a

consequence, even if older retirees had the same pension coverage and contributed the same percentage of income to their pensions as younger retirees, their nominal benefits will be lower. Thus, averaging pension benefits across people 65 and over is likely to include some people whose benefits have been significantly eroded in real terms. A second reason for higher projected benefits among future retirees is that pension coverage and real income has risen over time. Both will contribute to higher pension income.

While earlier evidence suggests that the gender gap in pension coverage rates is shrinking fairly quickly among 40 to 60 year olds, our projections suggest rather modest convergence in pension benefit levels. For example, among retirees in the September 1994 CPS, we find that women's benefits as percentage of men's was 22.6 percent (table 3). The statistic is 32.4 percent among 51-61 year olds in the HRS, and 34.5 percent among 40-60 year olds in the SCF.

The fact that the gender gap in projected pension benefits is narrowing only slightly is perhaps surprising given the fairly sizable decline in the gender gap in pension coverage rates. However, the following illustrative example suggests that the two trends are fairly consistent with each other. Among the retirees in the September 1994 CPS, the ratio of female to male coverage rates was .38. The ratio is .66 in the HRS sample. This represents an increase in the female-male coverage ratio of 74 percent (.66/.38-1). If, among people with a pension, the female-male ratio of benefit levels remains unchanged as new workers gain coverage, the ratio of female to male benefits should be 74 percent higher in the HRS than among the retirees in the September 1994 CPS. However, comparing the female-male ratio of benefit levels in the two data sets reveals an increase from .226 to .345, which is only a 53 percent increase in the benefit ratio.

The reason that the female-male benefit ratio has not risen as quickly as the coverage ratio is that, among workers with pensions, female benefits are rising slower than men's. In fact, among people with a pension, women's benefits expressed as a percentage of men's averaged 54.5 percent among the retirees in the September 1994 CPS, 49.6 percent among the 51-61 year olds in the HRS, and 49.2 percent among the 40-60 year olds in the SCF.

A conclusion to be drawn from the above is that, while the gender gap in coverage rates is narrowing, the gender gap in pension benefits among people with pensions is relatively stagnant. This latter fact may seem surprising given that women's labor force participation and earnings have risen relative to men's over time. Both of these facts should have contributed to a greater increase in benefit levels among women. However, one reason that the gap in benefits among covered workers may be rising is that, as more women are covered by pensions, the average number of years in the pension among covered workers could actually fall. For example, suppose that in the past relatively few women had pension coverage, but those that had coverage had very strong labor force attachment and accumulated many years in their pension plan. As more women receive pension coverage, the new women may have less labor force attachment and fewer years in the pension than their predecessors. As a consequence, an increase in pension coverage rates could actually lead to a decrease in the average number of years in the pension among women covered by pensions.

Table 6 also provides projected benefit levels by marital status. This breakdown is useful because the growth in labor force attachment among women has been more pronounced among married than single women.[13] The gender gap in pension benefit levels is larger among married

[13] See, for example, Even and Macpherson [forthcoming (b)] and Blau (1998). These studies show that labor force three measures of labor market attachment (labor force participation rates, average weekly hours, and the probability of continuing in the labor force from one year to the next) have risen more rapidly among married than single women.

than single women. Even and Macpherson [forthcoming (b)] demonstrate the growth in labor force attachment over time has been more pronounced among married than single women. Projections of pension income are provided separately for single and married women in table 6. The female-male ratio of benefits is lower among single than married women in the September 1994 CPS, the HRS and the SCF. Comparing across the three data sets points to an increase in married women's pension benefits relative to married men over time. However, the changes are relatively modest (21.4 percent in the September 1994 CPS; 28.9 percent in the HRS; and 26.8 percent in the SCF). Among single people, the female-male ratio is 51.4 percent in the September 1994 CPS, 44.1 percent in the HRS, and 71.0 in the SCF. The reason the benefit ratio for single people is so much higher in the SCF is that single women's benefit levels are higher and single men's benefits are lower than in the HRS.

Table 6 also presents projections of family pension income. For single people, these projections are identical to individual income projections. For married people, it represents the sum of the projected benefits for both spouses. Not surprisingly, the projected female-male benefit ratio is substantially higher with a measure of family pension income. Combining married and single women, the female-male benefit ratio is 77.7 percent in the HRS and 84.3 percent in the SCF.

IV. PROJECTED PENSION INCOME FOR WIDOWS AND WIDOWERS.

Among the elderly, widows have a higher than average poverty rate. HUD (1990) and Hurd and Wise (1989) point out several of the reasons for this. First, Social Security benefits fall when a spouse dies. Second, depending on the type of pension, pension benefits may drop.

Finally, there are frequently large medical expenses incurred prior to a spouse's death, and this can reduce income from private savings.

Rising pension coverage among women may reduce the impact of widowhood on the transition poverty. However, an equally important issue is the type of pension benefit is elected by spouses. As described by EBRI (1997), the Employee Retirement Income Security Act of 1974 (ERISA) and the Retirement Equity Act of 1984 (REA) impose several requirements on preretirement and postretirement death benefits. Nevertheless, plans have a good deal of latitude in designing the form of death benefits.

There are separate regulations governing death benefits for pre- and post-retirement death. Since our projections assume that people remain employed at age 65, our focus will be on the rules as they relate to a post-retirement death.[14] First, as noted by McGill et al. (1996, p.236), the law requires that all defined benefit plans provide a joint and survivor annuity that pays the participant's surviving spouse an income for life equal to at least 50 percent, but not more than 100 percent, of the amount received when both spouses are living. Also, the participant in the plan must have the opportunity to elect, with the spouse's consent, a single life annuity.

In defined contribution plans, workers may elect to receive their retirement benefit as a lump sum, installment payments over a fixed number of years, or a life annuity. If a life annuity option is available, a joint and survivor option must be provided to married couples, though a single life-annuity can be elected if the spouse agrees.[15] It is worth noting, however, that only a

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[14] Details on laws relating to pre-retirement deaths can be found in EBRI (1997) and McGill et al. (1996).

[15] As with defined benefit plans, the joint and survivor option must provide a surviving spouse with at least 50 percent but no more than 100 percent of the annuity received when both spouses are living.

minority (30 percent according to McGill et al. 1996) of defined contribution plans provide an annuity option.

Among retirees with defined benefit plans, Turner and Beller (1989, table D5) estimate that 76 percent of married men elect a payment option that provided some degree of survivor protection.[16] The evidence also suggests that the election of a survivor option increased since passage of the REA in 1984 when spousal consent was required if the survivor option was declined.

The issue of survivor benefits in defined contribution plans is more complicated since, as mentioned above, relatively few defined contribution plans offer annuity options at retirement. Nevertheless, a person could use a lump sum distribution from a defined contribution to purchase an annuity in the private insurance market. Brown (1999) estimates that 48 percent of households expect to annuitize at least some portion of their defined contribution account balances. TIAA-CREF (1999) reports that annuitization rates among TIAA-CREF members retiring at age 62 during the years 1994 through 1996 were slightly over 50 percent for both men and women. TIAA-CREF (1996) reports that, among members choosing a life annuity in 1994, 74 percent of men and 66 percent of women chose an annuity with a survivor option. Combining these statistics suggests that approximately one third of TIAA-CREF members choose a joint and survivor annuity. While TIAA-CREF members are not necessarily representative of the population of defined contribution plan members, it does suggest that a fairly significant fraction of defined contribution members choose a joint and survivor annuity.

Brown and Poterba (1999) reveal that, partly because of adverse selection problems inherent in life annuities, the premiums charged for life annuities exceed the expected present

[16] Survivor protection includes either a joint and survivor annuity (69.3 percent) or a life certain annuity (6.9 percent).

value of the payments -- particularly for those with below average life expectancy. As a consequence, many people will decline the life annuity option and try to "self-annuitize" by drawing down their account balances over their life time. There is no good evidence on how quickly people draw down their account balance. Nevertheless, it would seem reasonable that married couples would attempt to spread the balance over the remainder of their expected life.

Given the lack of available information on the type of survivor annuity that will be chosen by married people, we simulate what would occur if married people elect different annuity options. Our earlier projections of benefits assumed that everyone chooses a single life annuity. In this section, we consider how the choice of different annuity options affects the level of family pension income before and after the death of a spouse. We consider three types of annuities: a single life annuity; a joint and survivor annuity with a 50 percent survivor benefit; and a joint and survivor annuity with a 100 percent survivor benefit. In the case of the joint and survivor annuities, if either spouse dies, the remaining spouse receives some percentage of the benefit received when both were living. For example, with a 50 percent survivor benefit, if the pension pays an annual benefit of $20,000 when both spouses are living, the benefit would be cut to $10,000 if either of the spouses dies.[17]

In cases where a person does not choose a joint and survivor annuity, the remainder of the account balance can be bequeathed to the surviving spouse at retirement. If those that choose not to purchase an annuity attempt to "self-annuitize" by drawing their account balance down over their expected life time, it is reasonable to assume that the stream of benefits available to a surviving spouse would be similar to that provided by a joint and survivor annuity. It is not

[17] Other types of annuity options are available. For example, a contingent annuity could specify that the size of the survivor benefit depends on which spouse dies. We do not consider the consequences of electing this type of annuity.

obvious, however, what type of annuity they would attempt to emulate given the uncertainties of life expectancy. We do not address this issue. Rather, we present the level of benefits that would be available if couples self annuitize in ways that match different types of privately purchased annuities.

To compute annuity payouts under alternative joint and survivor options, we compute annuitization factors using the methods described in Brown and Poterba (1999). We use sex neutral mortality rates for annuitants and use the same interest rate assumptions used in calculating the single life annuity rates. For each person, we assume that retirement occurs at age 65 at which point a joint and survivor annuity is purchased. The price of the joint and survivor annuity depends upon the spouse's age. The younger the spouse, the higher the price paid for a given joint and survivor annuity.

In table 7, a comparison is provided of the annual benefits that would be provided with various annuity types. The benchmark is the annual benefit that a single life annuity would generate if purchased with a lump sum at age 65. Our estimate is that $100 would purchase a single life annuity of $9.63 per year at age 65. If the person's spouse is also age 65, switching to a joint and 50 percent survivor annuity would not reduce the annual benefit when both spouses are living, but would generate a 50 percent lower benefit if either spouse dies.[18] As the spouses age drops below 65, the reduction for purchasing a joint and 50 percent survivor annuity rises.

In table 8, we present projected benefit levels for married men and women under alternative annuitization assumptions. Estimates are provided for the level of benefits when

[18] The fact that there is no reduction when switching from a single life to a joint and 50 percent survivor annuity may be surprising. It is easy to see why this is the case, however, when it is recognized that, if the husband and wife are the same age, the couple could replicate a joint and 50 percent survivor annuity that provides $100 when both spouses are living by purchasing two single life annuities that generate $50 each. Since the joint and 50 percent survivor annuity is essentially the same as two single life annuities of $50, this is equivalent to the cost of a $100 single life annuity.

both spouses are living ("joint benefits") and for the case where one the person's spouse has died ("survivor benefits"). If both spouses are living, choosing a joint a survivor annuity could either increase or decrease the annual benefit depending upon the spouse's age.

The level of benefits received from people's own pension is presented under alternative annuitization assumptions. For married men in the HRS, the mean level of benefits drops from $16,535 with a single life annuity, to $16,021 with a joint and 50 percent survivor annuity, to $13,844 with a joint and 100 percent survivor annuity. For women, respective benefit levels are $4,775, 4,954 and $4196. Compared to the projections based on the HRS, the SCF data yields projections that are $5,000 to $6,000 higher for men and $1,000 to $1,200 higher for women, depending on the type of annuity chosen.

The family pension income statistics represent the combined pension incomes of husbands and wives. The reason that the estimates differ for men and women is that we include only age eligible people of a given sex, though the spouse need not be age eligible (i.e. 51 to 61 in the HRS, 40 to 60 in the SCF). For example, in computing family pension income for women, all age eligible women are included, regardless of the husband's age.

For any given annuity assumption in the family pension income calculations, both the husband and wife are assumed to choose the same type of annuity. Focusing on the married couples represented by an age-eligible woman in the HRS, the projected mean value of family pension income is $20,599 with a single life annuity, $20,358 with a joint and 50 percent survivor annuity, and $17,494 with a joint and 100 percent survivor annuity. The SCF estimates are $6,000 to $8,000 higher depending on the annuity option chosen.

In the final panel of table 8, projected pension income is provided for cases where a spouse dies. If the single life annuity is chosen, pension benefits drop to whatever the spouse

was receiving from his or her own pension. If a 50 percent survivor option was chosen, benefits are cut to one-half of the family pension income prior to the death; and with the 100 percent survivor option family pension income is unaffected by the death of the spouse.

The evidence makes it clear that annuity choices have a much greater impact on the pension income of widows than widowers. If a single life annuity is chosen and a spouse dies, male pension income is projected to drop to 76 percent of its original level in the HRS and to 77 percent of its original level in the SCF. For women, the death of a spouse will cause projected pension income to drop to 23 percent of its original level in the HRS; and 22 percent in the SCF. Clearly, the choice of a single life annuity has a much larger impact on women in the event that a spouse dies.

While women are at great risk of losing a large share of the family pension income in the event that a single life annuity is chosen, the risk is smaller for women that expect some pension income. Among women projected to receive income from their own prior pension, the death of a spouse is projected to cause pension income to drop to 45 percent of its value prior to the spouse's death in the HRS; 44 percent in the SCF. This is only slightly less than the benefit level that would be obtained by women with pensions had both spouses elected the joint and 50 percent survivor option. The implication is that as pension income among women grows, the choice of survivor options becomes less vital to widows' well being.

Comparing the HRS and SCF projections for widows to the level of pension income among widows in the 1994 September CPS points toward an improvement over the next 20 years. In the September 1994 CPS, the mean level of pension income among widows was $1,156 excluding survivor benefits, and $2,745 with survivor benefits. Our projections suggest substantially higher levels of pension income for widows even in the worst case scenario in

which everyone chooses a single life annuity. Compared to the $2,745 (including survivor benefits) among widows in 1994, our projections suggest widows would have pension income of $4775 (HRS) or $5974 (SCF) even if everyone chooses a single life annuity. If a joint and 100 percent survivor annuity is chosen, projected income is $17,494 (HRS) and $22,749 (SCF). The fact that the projections are higher for the SCF than the HRS data is consistent with benefit levels increasing across successive cohorts of women.

In summary, the choice of annuity type will have a significant impact on the pension income of widows. However, the size of the effect is reduced by rising pension coverage and income among women. The issue of annuitization will become increasingly important with the shift away from defined benefit and toward defined contribution plans. In defined benefit plans, annuities are the standard form of payment and the majority of married pensions pick a survivor annuity. With defined contribution plans, about one-third of pensioners choose a joint and survivor annuity. When a joint and survivor annuity is not chosen, people may attempt to self annuitize. Self annuitization presents a greater risk to women than men given their longer life expectancy.

V. THE SOURCE OF SEX DIFFERENCES IN PENSION BENEFITS.

While there has been substantial progress in reducing gender differences in pension benefits, a substantial gap remains. In this section, we explore the extent to which differences between men and women in terms of labor market experience and earnings can account for the remaining gender differences in pension coverage and benefits.

In table 9, we present sample means describing pension benefits and labor market characteristics. Compared to men, women have substantially less labor market experience. In the HRS, women have 13.9 years of experience and men have 24.5 years.[19] In the SCF, women average 19.2 years and men average 27.8 years. The fact that women have less labor market experience than men could account for their lower pension coverage and benefit levels.

Among people expecting to receive a pension benefit at retirement, women are projected to have lower earnings at retirement than men. In the HRS, projected income at retirement is $27,735 for women and $50,014 for men. In the SCF, the projections are $36,410 and $61,028.

To quantify the effect of gender differences in earnings and experience on pension benefits, we use standard decomposition methods.[20] In the case of coverage, we estimate a probit model of coverage and use it to determine how much higher women's pension coverage would be if their labor market characteristics were identical to men's. In the coverage equations, we include people's age, education, and years of labor market experience. In the case of projected benefits, we restrict the sample to people expecting a pension benefit and estimate a log-linear equation of benefits as a function of projected salary at retirement, projected years of participation in all pension plans at retirement (HRS) or projected years of experience at retirement (SCF).

The results of the decompositions are presented in table 10. In the case of the decomposition in coverage rates, age and education have virtually no explanatory power. However, years of experience accounts for a large share of the gap. If using the male probit coefficients to predict coverage, women's coverage in the HRS would increase by 14 percentage

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[19] In the HRS, labor market experience is available for up to 4 employers. Hence, if a person switches employers frequently, the experience variable will understate the true level of experience.

[20] The decomposition methods use weighted regression estimates and weighted means.

points if they had the same labor market experience as men. If using the female probit coefficients, the effect in the HRS rises to 20 percentage points. In the SCF, the gender gap in experience accounts for 10 and 17 percentage points, respectively, with male and female coefficients. In both the HRS and SCF, labor market experience accounts for the majority of the gender gap in pension coverage. The estimated effect is much larger when using female coefficients because it appears that women's pension coverage is more sensitive to labor market experience than men's.

The decomposition of the gender gap in benefit levels is also quite revealing. There is a .74 gender gap in the log of benefits in the HRS, and .70 gap in the SCF. In the HRS, between .34 and .40 of this gap can be accounted for by gender differences in projected salary at retirement and years of participation in pension plans. The explained share of the gap is larger when using the male coefficients. In the SCF, between .40 and .54 of the gender gap in log-benefits can be accounted for by projected salary and projected years of experience at retirement.[21] In both data sets, salary differentials are more important than experience differentials in accounting for the gender gap in benefits.

VI. SUMMARY AND CONCLUSIONS.

Elderly women have historically had less income in retirement than men largely because of their lower earnings and labor market attachment. Over the past several decades, women's labor force attachment and earnings have risen relative to men's. This study suggests that elderly women's pension income will rise relative to men's over the next two decades.

[21] Recall that anyone currently employed is assumed to work continuously until retirement at age 65. This will generate an understatement of the gender gap in experience if women are more likely to withdraw from the labor force than men. It will also, however, cause an understatement of the gender gap in benefits.

Using data from the September 1994 Current Population Survey, retired women were shown to have pension benefits that averaged 22.6 percent of men's. The gender gap in benefits was also shown to be much larger among married than single people. This is to be expected given that married women have traditionally had less labor market experience and lower earnings than single women.

Using data on 51 to 61 year olds from the Health and Retirement Survey and 40 to 60 year olds from the Survey of Consumer Finances, projections of future retirement income were generated for people that will be retiring over the next 25 years. Several conclusions can be drawn from the results. First, while the gender gap in pension coverage among current workers had narrowed considerably, the gap in "life time" coverage (i.e. coverage from a current or past pension) is almost 50 percent larger. Second, projections suggest that women's pension income will rise relative to men's over time. While the ratio of female to male pension income is approximately .23 among 1994 retirees, it is projected to rise to between .32 and .35 over the next 25 years.

Gender differences in pension income are much larger among married than single people. Our projections show that this will persist over the next 25 years, and that the gender gap in pension income among married people will show only modest improvement in the near future.

Our study also provided projections of pension income for widows and widowers. Using alternative assumptions regarding annuitization decisions, we showed that choices regarding survivor benefits can have a large impact on widows' pension income. Nevertheless, the growth of women's pension income has substantially reduced the importance of survivor benefits.

Finally, our study provided a decompostion of gender differences in benefits and coverage. Our estimates reveal that the majority of any remaining gap in benefits or coverage can

be accounted for by women's lower earnings and labor market experience. While women born in the 1950s and 1960s have made substantial progress in closing the gender gap in earnings and labor market experience, the remaining differences are still responsible for a large difference in future projected pension income.

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Table 1. Employment and Pension Coverage Rates by Sex: 1979-1997.

Source: 1980-1998 March Current Population Surveys.

Year	Employment Rates			Employee Coverage Rate			Population Coverage Rate		
	Men	Women	Gap	Men	Women	Gap	Men	Women	Gap
				25 to 39 Year Olds					
1979	96.1	72.5	23.6	54.7	40.7	14.0	52.6	29.5	23.1
1980	95.4	72.1	23.3	53.9	41.5	12.4	51.4	29.9	21.5
1981	95	73	22.0	52.0	41.1	10.9	49.4	30	19.4
1982	93.4	72.7	20.7	49.3	41.0	8.3	46	29.8	16.2
1983	92.7	73.4	19.3	48.5	41.0	7.5	45	30.1	14.9
1984	94.4	75.2	19.2	47.8	40.8	7.0	45.1	30.7	14.4
1985	94.3	75.4	18.9	47.9	40.2	7.7	45.2	30.3	14.9
1986	94.3	76.9	17.4	46.8	40.1	6.7	44.1	30.8	13.3
1987	94.1	77.3	16.8	43.7	38.8	4.9	41.1	30	11.1
1988	94.9	78.4	16.5	44.4	38.4	6.0	42.1	30.1	12.0
1989	95.3	78.7	16.6	44.5	39.9	4.6	42.4	31.4	11.0
1990	94.9	78.5	16.4	44.9	40.4	4.5	42.6	31.7	10.9
1991	94.1	78.4	15.7	44.3	40.3	4.0	41.7	31.6	10.1
1992	93.7	77.6	16.1	43.9	40.7	3.1	41.1	31.6	9.5
1993	93	77.4	15.6	43.1	40.1	3.1	40.1	31	9.1
1994	93.5	78.5	15.0	45.7	41.5	4.1	42.7	32.6	10.1
1995	93.4	78.8	14.6	45.4	41.5	3.9	42.4	32.7	9.7
1996	93.7	78.8	14.9	46.2	43.3	2.9	43.3	34.1	9.2
1997	93.9	79.8	14.1	46.3	42.7	3.6	43.5	34.1	9.4
Change from 1979 to 1997									
	-2.2	7.3	-9.5	-8.4	2.0	-10.5	-9.1	4.6	-13.7

Table 1. Employment and Pension Coverage Rates by Sex: 1979-1997.

Source: 1980-1998 March Current Population Surveys.

Year	40 to 60 Year Olds								
1979	91	62.8	28.2	62.0	44.7	17.2	56.4	28.1	28.3
1980	90.2	63.6	26.6	61.2	44.8	16.4	55.2	28.5	26.7
1981	90.3	63.6	26.7	61.7	44.8	16.9	55.7	28.5	27.2
1982	89.5	62.9	26.6	60.6	45.2	15.4	54.2	28.4	25.8
1983	89.1	64.6	24.5	60.3	45.4	14.9	53.7	29.3	24.4
1984	88.8	66.4	22.4	58.4	44.7	13.7	51.9	29.7	22.2
1985	89.2	67.4	21.8	59.2	45.4	13.8	52.8	30.6	22.2
1986	90.2	68.3	21.9	58.2	46.1	12.1	52.5	31.5	21.0
1987	90.1	69.9	20.2	57.0	43.8	13.3	51.4	30.6	20.8
1988	90.1	71.9	18.2	56.9	44.4	12.6	51.3	31.9	19.4
1989	90.2	72.1	18.1	57.5	46.7	10.8	51.9	33.7	18.2
1990	90.4	72.8	17.6	56.2	46.2	10.0	50.8	33.6	17.2
1991	89.8	73.6	16.2	57.1	47.7	9.4	51.3	35.1	16.2
1992	89	74	15.0	55.5	49.2	6.3	49.4	36.4	13.0
1993	88.5	74.7	13.8	55.0	48.5	6.6	48.7	36.2	12.5
1994	89.2	75.3	13.9	57.5	49.8	7.7	51.3	37.5	13.8
1995	89	75.4	13.6	56.2	50.4	5.8	50	38	12.0
1996	89.5	75.9	13.6	57.1	50.3	6.8	51.1	38.2	12.9
1997	89.7	76.2	13.5	56.5	50.4	6.1	50.7	38.4	12.3
Change from 1979 to 1997									
	-1.3	13.4	-14.7	-5.5	5.6	-11.1	-5.7	10.3	-16.0

Table 2. Pension Coverage Among People 65 and Over by Sex.
(Source: 1980-1998 March Current Population Surveys.)

Year	Individual Coverage			Household Coverage		
	Men	Women	Gender Gap	Men	Women	Gender Gap
Percent with Disability, Survivor, or Pension Benefit.						
79	41.2	18.2	23.0	44.3	30.4	13.9
80	42.4	18.0	24.4	45.3	30.8	14.5
81	42.5	18.6	23.9	45.7	32.1	13.6
82	43.2	19.2	24.0	46.4	32.3	14.1
83	45.6	20.2	25.4	48.7	33.6	15.1
84	46.5	20.4	26.1	49.3	34.2	15.1
85	46.9	20.7	26.2	49.9	34.9	15.0
86	48.6	21.6	27.0	51.6	36.1	15.5
87	48.9	23.4	25.5	52.0	38.1	13.9
88	53.3	27.2	26.1	56.7	43.0	13.7
89	53.2	28.2	25.0	57.4	43.6	13.8
90	54.5	28.7	25.8	58.4	44.3	14.1
91	55.7	30.1	25.6	59.3	46.1	13.2
92	55.8	30.0	25.8	59.7	46.7	13.0
93	54.7	29.7	25.0	58.8	45.5	13.3
94	50.4	29.2	21.2	54.7	43.7	11.0
95	51.2	28.2	23.0	55.4	42.8	12.6
96	52.0	27.6	24.4	55.9	42.3	13.6
97	50.6	28.1	22.5	54.6	42.5	12.1
		Change from 1979 to 1997				
	9.4	9.9	-0.5	10.3	12.1	-1.8
Percent with Pension Benefit.						
0	50.3	19.2	31.1	53.5	34.6	18.9
89	50.5	19.3	31.2	54.5	34.4	20.1
90	51.7	20.6	31.1	55.5	35.7	19.8
91	53.1	21.8	31.3	56.5	37.2	19.3
92	52.5	21.4	31.1	56.3	37.6	18.7
93	51.8	21.0	30.8	55.6	36.3	19.3
94	49.0	21.7	27.3	52.9	36.0	16.9
95	49.1	21.4	27.7	53.1	35.6	17.5
96	49.8	21.1	28.7	53.5	35.5	18.0
97	49.0	21.6	27.4	52.7	35.7	17.0
		Change from 1988 to 1997				
	-1.3	2.4	-3.7	-0.8	1.1	-1.9

Table 3. Pension Coverage Among Retirees Aged 65 and Over.
(Source: September 1994 Current Population Survey.)

Marital Status	Men	Women	Gap	Sample Size	
				Men	Women
Individual Coverage Excluding LSDs.					
---	40.9	15.6	25.3	6121	9634
Married	42.1	15.7	26.4	4522	3994
Single	33.0	23.6	9.5	722	1132
Widowed	35.1	13.4	21.7	877	4508
Married/Widowed	41.5	14.9	26.6	5399	8502
Individual Coverage Including LSDs.					
---	45.17	18.8	26.4	6121	9634
Married	46.63	19.4	27.2	4522	3994
Single	35.24	26.8	8.4	722	1132
Widowed	38.24	15.5	22.7	877	4508
Married/Widowed	45.9	18.0	27.9	5399	8502
Household coverage Excluding LSDs.					
---	48.47	41.6	6.9	6121	9634
Married	50.42	48.9	1.5	4522	3994
Single	35.43	27.1	8.4	722	1132
Widowed	39.05	31.9	7.2	877	4508
Married/Widowed	49.43	42.9	6.5	5399	8502
Household coverage Including LSDs.					
---	52.9	44.9	8.0	6121	9634
Married	55.1	53.3	1.8	4522	3994
Single	37.6	30.1	7.5	722	1132
Widowed	42.1	33.4	8.7	877	4508
Married/Widowed	54.0	46.2	7.8	5399	8502

Table 4: Pension Income by Sex and Marital Status.
(Source: September 1994 Current Population Survey.)

Gender	Marital Status	All People	People with Pensions.		Sample Size
		Mean Pension Income	Mean Pension Income	Median Pension Income	
Individual Coverage Including LSDs					
Male	---	$6,204	$13,735	$12,000	6121
Male	Married	$6,460	$13,852	$12,039	4522
Male	Single	$4,962	$14,081	$10,800	722
Male	Widowed	$4,580	$11,975	$8,868	877
Male	Married/Widowed	$6,295	$13,715	$12,000	5399
Female	---	$1,404	$7,491	$5,103	9634
Female	Married	$1,381	$7,118	$4,800	3994
Female	Single	$2,550	$9,518	$7,800	1132
Female	Widowed	$1,156	$7,451	$4,800	4508
Female	Married/Widowed	$1,301	$7,220	$4,800	8502
Female benefits as a percent of male benefits.					
	---	22.6%	54.5%	42.5%	
	Married	21.4%	51.4%	39.9%	
	Single	51.4%	67.6%	72.2%	
	Widowed	25.2%	62.2%	54.1%	
	Married/Widowed	20.7%	52.6%	40.0%	
Household Income Including Annuitized Value of LSDs.					
Male	---	$7,777	$14,706	$12,000	6121
Male	Married	$8,257	$14,976	$12,376	4522
Male	Single	$5,176	$13,754	$10,800	722
Male	Widowed	$4,937	$11,729	$8,352	877
Male	Married/Widowed	$7,386	$14,944	$12,600	5399
Female	---	$5,751	$12,807	$9,409	9634
Female	Married	$7,809	$14,651	$12,120	3994
Female	Single	$2,884	$9,570	$8,878	1132
Female	Widowed	$2,745	$8,212	$7,904	4508
Female	Married/Widowed	$5,640	$13,159	$9,600	8502
Female benefits as a percent of male benefits.					
	---	73.9%	87.1%	78.4%	
	Married	94.6%	97.8%	97.9%	
	Single	55.7%	69.6%	82.2%	
	Widowed	55.6%	70.0%	94.6%	
	Married/Widowed	76.4%	88.1%	76.2%	

Table 5: Pension Coverage in the Health and Retirement Survey and Survey of Consumer Finances.

Marital Status	HRS DATA (51-61 Year Olds)			SCF DATA (51-60 Year Olds)			CPS Data (51-61 Year Olds)		
	Men	Women	Gender Gap	Men	Women		Men	Women	Gender Gap
	Current Coverage: Individuals.								
---	43.3	30.1	13.2	46.7	32.0	14.7	44.3	31.1	13.2
Not Married	33.9	34.6	-0.7	32.5	42.6	-10.1	33.5	37.7	-4.2
Married	45.8	27.7	18.1	50.2	29.0	21.2	47	28	19.0
	Sample Size								
---	4339	4965		6485	6810		7040	7603	
Not Married	881	1691		985	1325		1418	2418	
Married	3458	3274		5500	5485		5622	5185	
	Lifetime Coverage: Individuals.								
Marital Status	**Men**	**Women**	**Gender Gap**	**Men**	**Women**	**Gender Gap**			
---	63.6	41.7	21.9	60	42.1	17.9			
Not Married	52.6	45	7.6	53	50.7	2.3			
Married	66.5	39.9	26.6	61.8	38.5	23.3			
	Lifetime Coverage: Families.								
---	71.3	65.7	5.6	70	68.3	1.7			
Not Married	52.6	45	7.6	53	50.7	2.3			
Married	76.3	76.5	-0.2	74.4	75.6	-1.2			
	Sample Size								
---	4339	4965		6485	6810				
Not Married	881	1691		985	1325				
Married	3458	3274		5500	5485				

Table 6: Projected Pension Income in the HRS and SCF Data.

Gender	Marital Status	All People	People with Pensions		Sample Size
		Mean Pension Income	Mean Pension Income	Median Pension Income	
		Individual Income: HRS Data.			
Male	---	$15,805	$24,502	$19,474	4339
Male	Not Married	$13,071	$24,474	$19,987	881
Male	Married	$16,535	$24,508	$19,367	3458
Female	---	$5,113	$12,145	$12,230	4965
Female	Not Married	$5,761	$12,757	$14,340	1691
Female	Married	$4,775	$11,789	$10,910	3274
		Female Benefits as a Percentage Male Benefits			
	---	32.4%	49.6%	62.8%	
	Not Married	44.1%	52.1%	71.7%	
	Married	28.9%	48.1%	56.3%	
		Individual Income: SCF Data			
Male	---	$20,550	$34,275	$19,488	6485
Male	Not Married	$13,748	$25,934	$16,232	985
Male	Married	$22,313	$36,130	$19,985	5500
Female	---	$7,086	$16,849	$9,157	6810
Female	Not Married	$9,762	$19,253	$13,041	1325
Female	Married	$5,974	$15,533	$7,748	5485
		Female Benefits as a Percentage Male Benefits			
	---	34.5%	49.2%	47.0%	
	Not Married	71.0%	74.2%	80.3%	
	Married	26.8%	43.0%	38.8%	

Table 6: Projected Pension Income in the HRS and SCF Data.

Gender	Marital Status	All People	People with Pensions		Sample Size
		Mean Pension Income	Mean Pension Income	Median Pension Income	
		Household Income: HRS Data			
Male	---	$19,960	$27,743	$20,616	4339
Male	Not Married	$13,071	$24,474	$19,987	881
Male	Married	$21,802	$28,350	$20,808	3458
Female	---	$15,505	$23,273	$17,229	4965
Female	Not Married	$5,761	$12,757	$14,340	1691
Female	Married	$20,599	$26,462	$19,871	3274
		Female Benefits as a Percentage Male Benefits			
	---	77.7%	83.9%	83.6%	
	Not Married	44.1%	52.1%	71.7%	
	Married	94.5%	93.3%	95.5%	
		Household Income:SCF Data.			
Male	---	$25,795	$36,833	$21,449	6485
Male	Not Married	$13,748	$25,934	$16,232	985
Male	Married	$28,918	$38,844	$22,403	5500
Female	---	$21,752	$31,861	$19,340	6810
Female	Not Married	$9,762	$19,253	$13,041	1325
Female	Married	$26,730	$35,374	$21,613	5485
		Female Benefits as a Percentage Male Benefits			
	---	84.3%	86.5%	90.2%	
	Not Married	71.0%	74.2%	80.3%	
	Married	92.4%	91.1%	96.5%	

Table 7. Benefits of Joint and Survivor Annuity Relative to a Single Life Annuity for a 65 Year Old.*

Spouse Age	50% Survivor Benefit	100% Survivor Benefit
55	91.4%	79.5%
56	92.1%	80.1%
57	92.8%	80.7%
58	93.6%	81.4%
59	94.4%	82.0%
60	95.2%	82.7%
61	96.1%	83.4%
62	97.0%	84.0%
63	98.0%	84.7%
64	99.0%	85.4%
65	100.0%	86.1%
66	101.1%	86.7%
67	102.2%	87.4%
68	103.3%	88.0%
69	104.5%	88.7%
70	105.8%	89.4%
71	107.1%	90.0%
72	108.5%	90.6%
73	109.9%	91.2%
74	111.4%	91.8%
75	113.0%	92.4%

* Assumes that annuity is purchased at age 65 and that survivor benefit amount is independent of which spouses dies. See text for further details.

Table 8: Projected Pension Income for Married and Widowed Retirees.

Gender	Income Measure	Single Life Annuity		Joint 50% to Survivor		Joint 100% to Survivor		
		All People	People with Pensions	All People	People with Pensions	All People	People with Pensions	Sample Size
				HRS Data				
Male	Individual	$16,535	$24,508	$16,021	$23,746	$13,844	$20,518	3458
Female	Individual	$4,775	$11,789	$4,954	$12,232	$4,196	$10,359	3274
Female/Male Ratio	Individual	0.29	0.48	0.31	0.52	0.30	0.50	
Male	Family	$21,802	$28,350	$21,556	$28,031	$18,505	$24,063	3458
Female	Family	$20,599	$26,462	$20,358	$26,152	$17,494	$22,473	3274
Female/Male Ratio	Family	0.94	0.93	0.94	0.93	0.95	0.93	
Male	Survivor	$16,535	$24,508	$10,778	$14,016	$18,505	$24,063	3458
Female	Survivor	$4,775	$11,789	$10,179	$13,076	$17,494	$22,473	3274
Female/Male Ratio	Survivor	0.29	0.48	0.94	0.93	0.95	0.93	
				SCF Data				
Male	Individual	$22,313	$36,130	$21,750	$35,219	$18,775	$30,402	5500
Female	Individual	$5,974	$15,533	$6,215	$16,160	$5,259	$13,673	5485
Female/Male Ratio	Individual	0.27	0.43	0.29	0.46	0.28	0.45	
Male	Family	$28,918	$38,844	$28,658	$38,496	$24,610	$33,058	5500
Female	Family	$26,730	$35,374	$26,468	$35,027	$22,749	$30,105	5485
Female/Male Ratio	Family	0.92	0.91	0.92	0.91	0.92	0.91	
Male	Survivor	$22,313	$36,130	$14,329	$19,248	$24,610	$33,058	5500
Female	Survivor	$5,974	$15,533	$13,234	$17,513	$22,749	$30,105	5485
Female/Male Ratio	Survivor	0.27	0.43	0.92	0.91	0.92	0.91	

Table 9. Income, Experience and Projected Pension Income.

	HRS		SCF	
	Men	Women	Men	Women
	Among all people.			
Percent expecting a pension benefit	0.64	0.42	0.60	0.42
Years of experience	24.5	13.9	27.8	19.2
Sample size	4333	4959	6485	6810
	Among people expecting a pension.			
Projected annual benefit	$24,539	$12,659	$34,233	$16,890
Projected annual pay at retirement	$50,014	$27,735	$61,028	$36,410
Projected years in pension plans at retirement	26.3	20.6	--	--
Projected years of experience at retirement			44.2	39.2
Sample size	2334	1840	3430	2206

Table 10. Sources of Gender Gap in Pension Coverage and Projected Benefits.

	HRS		SCF	
	Male Coefficients	Female Coefficients	Male Coefficients	Female Coefficients
Amount of Gender Gap in Coverage Explained by Sex Differences in:				
Age	0.00	0.00	0.00	0.00
Education	0.00	0.01	0.02	0.02
Years of Experience	0.14	0.20	0.10	0.17
Total Explained	0.14	0.22	0.12	0.19
Total Gap in Lifetime Coverage	0.22	0.22	0.18	0.18
Amount of Gender Gap in Projected Pension Benefits Explained by Sex Differences in:				
Projected salary at retirement	0.27	0.23	0.45	0.30
Projected years in pensions at retirement	0.13	0.11	--	--
Projected years of experience at retirement	--	--	0.09	0.11
Total Explained	0.40	0.34	0.54	0.40
Total Gap in Projected Annual Benefits	0.74	0.74	0.70	0.70

Data Appendix: Estimation of Pension Income in the HRS and SCF.

In the HRS and SCF, information is provided on pension coverage from current and past jobs. For current and past jobs, both data sets indicate the type of plan(s) that the worker has, the number of years in the plan, and other information that we use to forecast future retirement income at age 65.

In the case of defined benefit (DB) plans, workers are asked when they expect to retire and the benefits they will receive at retirement. Benefits may be reported as either a percentage of final pay or as an absolute amount. To estimate what benefits are to be received at age 65, we take the following steps. First, we project earnings at retirement by assuming a 1.1 percent annual growth rate in real wages. To translate this into a benefit at age 65, we first compute a "generosity factor" (the percentage of final pay replaced per year of service) by dividing expected benefits at retirement by the product of years in the plan and salary at retirement.[22] We then estimate benefits for an age 65 retirement as the product of the age 65 value of forecast earnings, number of years of service at 65, and the generosity factor.

For defined contribution (DC) plans, information is provided on the current balance in the plan and the amount that the employer and employee contribute. To project the real balance in the pension plan at age 65 in 1992 dollars, the current balance is compounded forward with real interest rates to age 65. The real interest rate is assumed to be equal to the yield on indexed Treasury bills in February 1998 (3.7 percent). Between 1992 and the year that the worker reaches age 65, it is assumed that both employer and employee contributions remain at the same percent of pay and that real salary growth continues at 1.1 percent.

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[22] Our methodology assumes that people report expected benefits in 1992 dollars.

We assume that all workers live to age 65 with certainty and compare benefits in DB and DC plans by converting projected DC balances into a single life annuity that begins at age 65. In the case of benefits that a worker expects to receive from prior pension plans, both the HRS and SCF indicate the type of pension (i.e. DB or DC). However, when a lump sum was received or a person is currently receiving a benefit, only the HRS provides information on the type of pension. In both cases, it is possible to tell whether a person received a lump sum distribution at some point in the past, is currently receiving benefits, or expects to receive benefits in the future. In the HRS, workers receiving lump sums indicate whether they saved or spent it. Only those balances that were saved are counted as benefits from past pensions. Unfortunately, in the SCF, no such information is available. To adjust for this, estimates of the percentage of workers that save lump sum distributions by age of receipt, provided by EBRI (1997), are used to randomly assign workers into categories indicating whether they saved their lump sum distributions. [23] For those with a lump sum that was saved (or we impute was saved), an equivalent age 65 annuity is computed as follows: (1) the lump sum is compounded forward to 1992 assuming historical interest rates;[24] (2) the 1992 balance is compounded forward from 1992 to the year the person reaches age 65 using an assumed real interest rate of 3.7 percent (the rate on indexed Treasury bills); (3) the lump sum is converted into an annuity at age 65.[25] The annuity calculation assumes constant nominal payments and uses an assumed nominal interest rate

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[23] Using table 17.3 of EBRI (1997), we estimated the percentage of workers that used all of their lump sum for either (i) tax qualified saving; (ii) non-tax qualified saving; or (iii) a mix of the two. This is a conservative estimate of the percentage of lump sums saved. The fraction of lump sums saved, by age group, are: 8.3 percent for 16-20 year olds; 21.7 for 21-30 year olds; 35 for 31-40 year olds; 40.2 for 41-50 year olds; 56.8 for 51-60 year olds; 57.6 for 61-64 year olds; and 21.4 for those 65 and over.

[24] Interest rates prior to 1992 (the survey dates in HRS and SCF) are assumed equal to the rates observed on one-year U.S. Treasury bills plus .28 percent. We added .28 percent to the 1 year treasury rate to allow for the fact that returns on pension contributions will likely reflect interest rates on a longer term investment. The .28 percent per year is one-half of the average premium that 5 year bonds paid relative to one year bonds between 1953 and 1992.

[25] When a worker receives cost-of-living adjustments, the real interest rate is used to compute the annuity rate. Otherwise, nominal rates are used.

beyond 1992 equal to that on 10 year Treasury bills in 1992 (7.0 percent) and the mortality table for group annuitants provided by the Society of Actuaries.[26] Using these assumptions, we estimate that a $100 payment at age 65 would buy a life annuity of $9.63 per year.[27]

Separate calculations are required for pension benefits that workers have already received or expect to receive from a past job. For workers that report they are currently receiving benefits, we calculate the age 65 equivalent annuity as follows: First, we compute the present value (in 1992 dollars) of benefits received between the starting age and 65. Second, we compute the lump sum cost of a life annuity starting at age 65 equal to the annual benefit paid by the pension. These two parts are added and then converted into an age 65 life annuity. When the benefits are indexed for inflation, appropriate adjustments are made to reflect the growth in nominal benefits over time.[28]

For workers that expect a future benefit, it may be either a lump sum or an annual benefit. For annual benefits that start before age 65, we estimate the expected present value of the annuity assuming the person lives with certainty to age 65 and has survivor probabilities given by the group annuitant mortality tables beyond age 65. For a person that expects to receive benefits starting after age 65, we estimate the expected present value of the annuity (again accounting for survival probabilities beyond age 65) and discount back to age 65. When

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[26] The source of the mortality rates is Society of Actuaries Group Annuity Valuation Task Force (1996), Table 13. The group annuitant mortality tables provide gender specific mortality rates. We compute an average mortality rate by taking a weighted average of the gender specific mortality rates where the weights represent the predicted fraction of the population of a given gender based on their mortality experience assuming each sex is half of the population at age 65.

[27] It is worth noting that we ignore differences between DB and DC plans in terms of survivor or disability benefits. In DC plans, the survivor has the right to the account balance. In DB plans, the survivor benefit is generally specified according to some formula tied to the worker's years of service and final salary.

[28] Inflation prior to 1992 is measured by historical movements in the Consumer Price Index. Inflation beyond 1992 is assumed equal to 2.7 percent which equals the difference between the nominal yield on 10 year bonds and the real yield on indexed Treasury bills in 1998. When evaluating an annuity that is indexed for inflation, the real interest rate is used instead of the nominal rate.

cost-of-living adjustments are expected with future benefits are adjusted for inflation, appropriate adjustments are made in evaluation of the annuity.