

Forecasting Retirement Needs and Retirement Wealth

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Part II

Facing the Challenges of Retirement

Chapter 6

Women on the Verge of Retirement: Predictors of Retiree Wellbeing

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and James F. Moore

The economic status of Americans age 65 and over has risen for several decades. On average, members of this age group—which used to be the nation's poorest—are now at least as well off economically as younger people (U.S. Senate 1991). However, pockets of poverty remain. In particular, older women have benefited from rising prosperity, but not to the same degree as older men: currently, women age 65 and over are about twice as likely to live in poverty as compared to men of the same age.¹ Against this backdrop, some surmise that older women's risk of poverty may worsen in the future. Women comprise a disproportionate share of the elderly and are more likely to experience hardship resulting from chronic health problems, widowhood, and lower labor market activity (Ory and Warner 1990). Therefore, as the older population grows and becomes more heavily female, problems associated with aging may intensify for women.

Past researchers seeking to understand why older women fare worse in old age have focused primarily on marital status changes as a cause of poverty. Many studies suggest that widowhood is strongly related to poor economic outcomes; for example, women face a significant probability of falling into poverty following their husband's death.² In addition, women's wealth has been found to decline at widowhood due to the loss of their husbands' pension benefits (Hurd and Wise 1989). Some analysts have examined the effect of divorce, concluding that divorce too is associated with loss of income for older women (Crown et al. 1993).

Our study takes a different tack, exploring the influence of socioeconomic factors on older women's wellbeing. Specifically, we examine how people's work histories, health, and time transfers to family members affect retired women's standing, relative to men's. We separately analyze the wellbeing of older whites from blacks and Hispanics because these factors may

have differential impacts on wellbeing by ethnic group.³ Understanding how these factors contribute to differences in wellbeing between older men and women may have important implications for pension, social security, and labor market policy. If women who work more during their lifetime are less likely to face economic hardship in later life, then the trend toward greater female labor force participation would be anticipated to reduce disparities in later life. If poor health leads to a significant decrease in economic wellbeing, then policies designed to alleviate income loss may be desirable, including larger disability payments and/or job retraining. If women face hardship because they spend time caring for very old parents in poor health, then policies aimed at the long-term health needs of the very old may be crucial. To the extent that these factors are more likely to affect wellbeing for women of a particular ethnicity, potential policy responses might effectively target that group.

Little previous research has explored these determinants of older women's wellbeing, and the few existing studies produce mixed results. For example, Burkhauser et al. (1985) provides weak evidence that poor health reduces wellbeing, but Boskin and Shoven (1988) report no effect. Differences in methodologies make it difficult to compare those studies directly. A handful of older papers indicated that more consistent labor force attachment was positively related to greater income security among older people in decades past,⁴ but little recent work has been done on this subject. Analysis of newer cohorts of women is required, particularly given the massive changes in women's labor supply over the last several decades. Intrafamily transfers have been identified by some researchers as potentially burdensome to people in late middle age,⁵ but the published literature has no recent empirical work on this relationship.

Our goal therefore is to examine women's economic wellbeing at the end of their work lives, and to show which factors appear to be associated with women's relatively poor economic status in old age. We use the Health and Retirement Study (HRS), reporting a rich variety of data on people in late middle age, to evaluate the relative contributions of three factors believed to influence women's wellbeing in retirement. These three factors are women's lifetime labor market attachment, women's health status and history, and women's family responsibilities including transfers of time to family members.

Methodology

An examination of the determinants of economic wellbeing requires us to define economic status and then specify models appropriate for estimating its determinants. In this section, we describe the variables employed to measure wellbeing and its determinants, along with the strengths and weaknesses of each of these measures.

Measuring Wellbeing

Existing studies have focused on two approaches to measure wellbeing: using income-based measures, and using wealth-based measures. *Income* is comprised of labor earnings, income from interest and dividends, and transfer payments. *Wealth* consists of financial assets, housing value, and the present discounted value of future annuity payments, like social security and private pensions.

Income- and wealth-based measures of wellbeing each have distinct strengths and weaknesses.⁶ Analysts often prefer to use income, inasmuch it is relatively easy to measure and interpret and is readily gathered in household surveys. But if one thinks of wellbeing as reflecting consumption, income is an imperfect measure. For example, income overstates wellbeing if taxes and work-related expenses that reduce consumption are not subtracted; conversely, income understates wellbeing to the extent that owner-occupied housing provides consumption flows not reflected in income measures. A different criticism of income-based measures of wellbeing is that they exclude payments made in kind, such as food stamps and housing subsidies. A final issue is that income-based measures of wellbeing must take into account family size, so many experts develop "equivalence scales," in order to make income comparisons across different-sized families scaled by family size. This approach is implicit in the widely used federal government poverty line, used by most empirical researchers on economic wellbeing in the United States.⁷

These limitations imply to some that wealth-based measures would more closely reflect a family's available consumption, favoring these over income-based measures. This is most sensible when a measured wealth figure acknowledges the value of a respondent's future social security and pension payments, as well as the value of net housing and financial assets. For instance, an older person with little cash income might hold a sizable investment portfolio that she continually reinvested instead of converting the returns to income. In this case, her cash income would be low, but her command over consumable resources would be high. Nevertheless, most national surveys do not collect good data on wealth from respondents. Fortunately, the Health and Retirement Survey contains the necessary elements for this analysis, as will be detailed below. There are some remaining issues to be settled, however, even if wealth measures are available. One is that wealth-based measures of wellbeing require the analyst to make judgments regarding the value of different types of assets. For instance, housing could be included in a measure of wealth or, alternatively, might be excluded if it is assumed that the owner faces substantial costs in accessing the net equity. Differences in family size also may present problems when examining wealth, raising questions about an appropriate equivalence scale similar to those raised above.

Our approach in this study is to construct and examine several measures of wellbeing, so that our results may be compared to earlier work and examined for sensitivity to measurement concepts. First, we use three different income-based measures to establish a household's level of wellbeing: its level of income, its poverty status, and its income-to-needs ratio. These measures have been widely used in prior studies,⁸ though these do not examine older respondents in the HRS. Levels of income are directly observable in our data. Poverty status is a dichotomous variable indicating whether income is above or below the official poverty line set by the government. The poverty line is meant to measure the minimum level of income needed to purchase a subsistence level of goods and services and is adjusted for family composition. The income-to-needs ratio represents the ratio of the level of income to the poverty line, for a family of a particular composition. Although the equivalence scale built into the official definition of poverty is controversial, we use it because it is the most common method of adjusting for family composition. Finally, we examine pretax income, since the public release version of the HRS does not include state-level IDs with which to impute state taxes.

We also use wellbeing measures that rely on projected retirement income. That is, we compute respondents' expected future social security and pension benefits, and value anticipated assets at retirement age (taken here to be age 62). Then we value annual household income as of that point, measured as the annuitized value of wealth obtained by converting the stock of an individual's wealth into a flow of funds.⁹ This projected retirement income measure represents the annual payments that a given level of wealth would yield if it was drawn down to zero over an individual's (or family's) remaining life expectancy.¹⁰ We examine projected retirement income directly, along with the ratio between projected retirement income and the poverty line (analogous to the income-to-needs ratio) and projected poverty status in retirement.

One important question pertains to the distinction between an individual's resources and his or her family's resources. Income and wealth in the HRS are considered to be household-based measures, making it impossible to attribute resources to each individual member within a household. This issue is important in the present analysis because resources separately available to husbands and wives from pooled income or wealth cannot be separately allocated. As a result, our analysis assumes that they are consumed jointly. Therefore differences in measured wellbeing by sex can only result from measured differences in the wellbeing of nonmarried men and women. We explore the empirical effects of this implication of the data below.

Statistical Specifications

To examine the relationship between wellbeing and its potential determinants holding other factors constant, multivariate techniques are re-

quired. We devise and estimate models of the following form for older men and women in the HRS, following Blau and Graham (1990), who examine wealth accumulation among young persons.

$$WB_{ige} = WH_{ige}b_{1ge} + H_{ige}b_{2ge} + T_{ige}b_{3ge} + X_{ige}b_{4ge} + S_{ige}b_{5ge} + u_{ige} \quad (1)$$

where

$$i = 1, \dots, N, \quad g = f, m, \quad e = w, nw.$$

In this equation, WB represents a continuous measure of economic wellbeing; WH captures work history; H represents measures of health status; T represents time transfers to family members; X represents demographic characteristics of the individual (including marital status); S represents characteristics of the respondent's spouse for those respondents who are married;¹¹ u represents an error term; the subscript i indexes individuals (N indicates the sample size); the subscript g indexes sex (m for male, f for female); and the subscript indexes ethnic group (w for white, nw for nonwhite, either black or Hispanic).¹² Details on all variables appear below. As indicated by the subscripts, these models are estimated separately by ethnic/sex groups so that results can be compared across groups.¹³

For dichotomous measures of wellbeing like poverty status, we estimate Probit models:

$$\text{Prob}(WB_{ige} = 1) = f(WH_{ige}b_{1ge} + H_{ige}b_{2ge} + T_{ige}b_{3ge} + X_{ige}b_{4ge} + S_{ige}b_{5ge}) \quad (2)$$

where

$$i = 1, \dots, N, \quad g = f, m, \quad e = w, nw.$$

All variables are defined as above except that WB equals 1 if income or projected retirement income falls below the poverty line and 0 otherwise. These models are estimated separately for white and nonwhite men and women, so that results may be compared across demographic groups.

In both sets of equations, the coefficients b_1 , b_2 , and b_3 represent, respectively, the effects of work history, health status, and transfers on economic wellbeing within a given ethnic/sex group. If b_1 is statistically significantly greater than zero, then we would conclude that there is a positive association between work history and wellbeing. If b_2 is significantly less than zero, then we would conclude that poor health is negatively associated with wellbeing. If b_3 is significantly less than zero, then those who spend time taking care of parents or children are more likely to experience economic hardship.

A potential statistical problem might bias the coefficient estimates if there are variables omitted from the X vector that are correlated with both wellbeing and work history, health status and/or intrafamily transfers. A possible solution for this problem is to control on the respondent's earnings: that is,

people who earn more on their jobs during their work lives may be less likely to experience economic hardship and, for example, may be in better health due to greater resources available to obtain good medical care. However, including earnings as an explanatory variable is itself problematic since earnings are a component of many wellbeing measures. In other words, including earnings would be analogous to regressing one variable on itself and would introduce endogeneity. We suggest, however, that our approach to modeling wellbeing obviates this statistical concern. This is because we include the most important determinants of earnings, namely human capital variables such as education and labor market experience (Willis 1986). Since the specifications represented in equations (1) and (2) include these characteristics, our models may be interpreted as a reduced form of a system of equations where the structural equation includes earnings. Earnings are therefore implicitly controlled for, so potential omitted variable bias is avoided.

An additional statistical problem may result from the specification of work history characteristics, since respondent wellbeing (particularly current wellbeing) is likely to be influenced by one's current employment status. Thus, those people who withdraw from the labor force later may be better off because their earnings are greater, other things equal. Current employment status, for this reason, should not be used in a model of older people's economic wellbeing since those with few resources may be more likely to work.¹⁴ One possible solution to this problem would be to specify a model of the labor force participation decision along with the model of economic wellbeing, and to estimate the system of equations jointly. Instead, acknowledging the difficulty of estimating simultaneous structural models of retirement behavior, we instead exclude measures of current employment status. Therefore we interpret results as a reduced form specification of a general structural retirement model.¹⁵

A related problem would arise if the number of total years worked in the labor market were included as an explanatory variable in the wellbeing equation. Clearly a worker who retires earlier will have worked fewer years, all else held constant. To the extent that economic status affects the decision to retire, the number of years spent in the labor market will be endogenous as well. We therefore create measures of early work history, prior to the age of 50. Because relatively few workers have retired by this age for economic reasons, this variable should be exogenous to current wellbeing.

Another issue encountered here involves the distinction raised earlier between the economic wellbeing of married versus nonmarried men and women. Because the wellbeing of married men and women is identical by construction, differences in wellbeing and its correlates by sex may be detected only by comparing nonmarried individuals. Our equations (1) and (2) include all men and women, controlling for differences in spouse's characteristics so as to take advantage of the larger sample sizes and thus obtain precise estimates of the coefficients. But at the same time these

equations impose a restriction that the nonmarried and married persons' parameters are identical. To test the effect of this assumption, we also estimate equations (1) and (2) for the subsample of nonmarried men and women. Because of the considerably smaller size of this subsample, whites and nonwhites are pooled when estimating these models.

Before turning to the results, we note that interpretation of findings requires some care. The form of the model suggests that parameter estimates indicate a causal relationship between the relevant righthand variable and economic wellbeing. Such an interpretation would be incorrect if any of the right hand side variables are endogenous. For example, wealthier respondents who have access to better quality medical care might be in better health. In this case, a positive relationship would be observed between health and wellbeing that would not be causal; improving women's health relative to men through active federal policies, for example, might not reduce the gap in wellbeing under these circumstances. To the extent that such endogeneity exists, the results presented here can only be interpreted as descriptive, expressing relationships between variables without indicating causality. Statistical techniques that can examine the scope of this problem are left to future work.

Predicting Wellbeing

Parameter estimates from these models are used to derive predictions regarding women's wellbeing at the end of their worklives, associated with differences in work history, health status, and intrafamily transfers. For instance, we know that female labor force participation rates for women have risen continuously over the past several decades. As a result older women will have work histories that converge, over time, to the patterns exhibited by older men. We use our regression results to simulate how older women's wellbeing would change if their work histories were to become identical to those of older men. Similar analyses are conducted for health status and intrafamily transfers.

Methodologically, the difference in wellbeing between older men and women is decomposed into the portion due to differences in characteristics and the portion due to differences in returns to those characteristics between the two groups.¹⁶ More specifically, we compute:

$$\overline{WB}^m - \overline{WB}^f = \sum_{i=1}^k \beta_i^m * (\overline{X}_i^m - \overline{X}_i^f) + \sum_{i=1}^k \overline{X}_i^f * (\beta_i^m - \beta_i^f),$$

where WB represents a particular measure of economic wellbeing; b represents the vector of regression coefficients estimated from equation (1) above; \overline{X} represents a vector of mean characteristics, f and m represent men and women respectively; and k indexes characteristics. The first expression

on the right-hand side of this equation is said to represent the “explained” part of the differential in wellbeing because it is attributed to the different characteristics of men and women.¹⁷ The second expression is said to represent the “unexplained” part of the differential because it produces differences in wellbeing even if men and women had the same characteristics.¹⁸

Our simulation strategy determines the percentage reduction in the gap in wellbeing between men and women that would occur if both had identical characteristics. Formally, this involves estimating

$$\frac{\sum_{j=1}^k \beta_j^m * (\bar{X}_j^m - \bar{X}_j^f)}{WB^m - WB^f} * 100 .$$

This expression represents the gap in wellbeing that can be “explained” by differences in characteristics as a percentage of the size of the gap. Analogous statistics are estimated for each measure of wellbeing and by ethnic group as well as for nonmarried men and women.

Empirical Context

The dataset employed in this research is wave 1 of the Health and Retirement Study (HRS) (see Chapter 1). Respondents answered 90-minute interviews on four main subject areas: work and pensions, health and functioning status, family structure and transfers, and economic status. This data source is ideally suited to the present research because it contains a wide array of information regarding respondents’ income, wealth, work history, health status, and intrafamily transfers of time as well as their demographic characteristics. Full information in all of these areas is available for women, in contrast to many previous data collection efforts such as the Retirement History Survey. By explicit design, the HRS oversamples blacks and Hispanics at twice their proportional rate in the population. This was done to permit extensive examination of groups previously understudied, so that findings can be of benefit to diverse racial and ethnic groups. Throughout our analyses of older women’s wellbeing, we devote careful attention to key differences between whites and nonwhites (both black and Hispanic).¹⁹

Measures of Wellbeing

We begin by examining wellbeing measures that rely on current income and projected retirement income. In the HRS, respondent income included earnings, unemployment compensation, social security, private pensions, and interest and dividends; thus was provided a complete picture of total household current income. These current income data are used to create a household’s current poverty status and income-to-needs ratio, by merging federal definitions of the poverty line for families of different sizes and

composition in 1992, the year the Wave 1 HRS survey was conducted. Projected wellbeing measures required projecting expected retirement income to age 62. A unique aspect of the HRS is that administrative records on earnings histories and employer-supplied pensions were obtained from respondents furnishing appropriate signed consent forms.²⁰ Thus projected social security payments are devised based on the workers' earnings histories from the Social Security Administration regarding their future benefit levels, and expected pension benefits are derived from the Pension Provider Survey.²¹ Therefore retirement benefits are measured with an unusually high degree of precision for this nationally representative sample. For married couples, expected benefits of both respondents are summed to obtain a measure of projected social security benefits for the family. The final source of projected retirement income is income from assets.²² Here we convert asset values to an annuitized flow of funds, separately examining the influence of including or excluding the value of owner-occupied housing. Although families may not actually translate their assets into cash in this manner, this approach is useful in representing the flow of resources over which the family could have command if it so chose. This approach is therefore consistent with wealth-based measures of wellbeing, as described earlier.

Determinants of Wellbeing

Three sets of determinants of wellbeing are considered in the analysis to follow: work history, health history and status, and intrafamily transfers of time. The HRS contains detailed information on each of these factors. Survey responses regarding each respondent's work history include the length of time spent on a current or most recent job, and the number of years spent in the next most recent job that lasted five or more years. From this information, we construct three alternative measures of a respondent's work history. We create two different dummy variables, indicating whether or not a respondent worked at all before age 50, and the second indicating whether any jobs were held for longer than five years. We then create a measure of the length of time spent on the worker's longest job before age 50 that represents the maximum value of the available job duration measures. These measures are all based on the respondent's work history before age 50 to avoid potential endogeneity biases, as described above.

Each respondent is asked his or her health status and history as well. Several different objective measures are available, including reported physical limitations and incidence of specific illnesses. A respondent's physical limitations are measured using the reported level of difficulty of completing given tasks, ranging from running a mile, to picking up a dime from a table, to getting dressed without help. Many of these limitations are correlated, so including the entire set of them is superfluous. Instead, we select a subset that is intended to cover a range of limitations from relatively mild to more

severe. These measures include the ability to run one mile, walk several blocks, or carry a 10-pound bag with little or no difficulty. We also examine the effects on wellbeing of specific health problems experienced by HRS respondents either currently or in the past. These illnesses include cancer, heart problems, high blood pressure, arthritis, lung disease, and diabetes.

The HRS also collects data on transfers of time to parents and grandchildren. A discrete measure is used indicating whether any time is spent with a parent or grandchild over the past twelve months. In addition, we use a continuous measure of the amount of time spent, for those with a positive time transfer, and zero otherwise.

Empirical Results of Wellbeing Analysis

Evidence on the determinants of measures of wellbeing is taken up next. In each case, the unit of analysis is age-eligible respondents to the HRS (those respondents and spouses between the age of 51 and 61), weighted to represent the national population from which the probability sample was drawn.

Measures of current and projected future economic wellbeing by demographic group are reported in Table 1. The results reinforce the view that older women are substantially worse off financially relative to older men. For example, older white men have a median household current income about 20 percent greater than white women. This difference is not entirely driven by differences in household composition since the median income-to-needs ratio is 15 percent greater for men relative to women. The female poverty rate among whites is 1.5 times that of men in this sample as well. For nonwhites, the median family income gap is similar at 16 percent, but the lower absolute income levels of nonwhites imply that both poverty rates based on current income are much higher than for whites.

Table 1 also reports statistics regarding projected retirement income, and here the results show a substantial drop in family income for men and women of all ethnic groups.²³ Projected income declines are on the order of about one-quarter to one-third across all demographic groups, but the likelihood of being poor is much larger for nonwhites than for whites. This may suggest that the bottom part of the white income distribution is somewhat protected from income loss, though women less well than men; by contrast, projected poverty rates for nonwhite men rise to 32 percent and for women to 44 percent.

A striking result in Table 1 is that the sex difference in retiree wellbeing is anticipated to be considerably smaller than the white / nonwhite difference. For instance, although white women are projected to be almost twice as likely than white men to live in poverty, nonwhite women are seven times more likely. Below we examine the factors associated with these differences in detail.

Current and future measures of wellbeing by marital status are given in

TABLE 1: Measures of Wellbeing by Race and Sex¹

	<i>White</i>		<i>Nonwhite</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
<i>Based on current income</i>				
Median family income	49,000	40,580	30,855	24,652
Median income-to-needs ratio (%)	4.63	4.04	2.67	2.14
% in poverty	4.3	6.9	16.9	22.7
Number of observations	3,373	3,600	1,216	1,564
<i>Based on projected retirement income²</i>				
Projected median retirement income	31,682	27,685	16,485	12,484
Projected median retirement income, excl. annualized value of housing wealth	27,104	23,471	14,193	10,270
Projected median income-to-needs ratio (%)	3.21	2.97	1.43	1.13
Projected median income-to-needs ratio excl. annualized value of housing wealth	2.77	2.49	1.24	0.95
Projected % in poverty	6.7	11.3	32.2	43.8
Projected % in poverty, excluding annualized value of housing wealth	8.8	14.9	37.4	50.2
Number of observations ³	3,216	3,451	1,091	1,416

Source: Authors' calculations.

Notes: ¹ All dollar figures in 1992 dollars. Estimates are weighted to provide nationally representative statistics.

² For retirement at age 62.

³ Means for some variables are estimated from fewer observations due to missing data.

Table 2. Though we would anticipate that married men's and women's wellbeing would be equivalent on average, our results here indicate that average household income for married women is somewhat below the average household income for married men. The discrepancy is due to the sampling structure of the HRS. In particular, age-eligible respondents are between 51 and 61 years old, and in the United States, men tend to marry women who are younger they are. Therefore HRS respondent males will tend to be married to women at least four years younger than they are—who are more likely to be working—while age-eligible HRS respondent women will tend to have older retired husbands. This finding reinforces the notion that we need to control for spouse's characteristics when married men and women are included the analysis, as represented by equations (1) and (2).

This consideration is not relevant, of course, for single men and women, where we note that unmarried women have one quarter less current income than unmarried men, and the gap rises to over one-third after they reach retirement age. The table also makes clear that unmarried men and women are considerably less well off than those who are married, even after control-

TABLE 2: Measures of Wellbeing by Marital Status and Sex¹

	<i>Married</i>		<i>Nonmarried</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
<i>Based on current income</i>				
Median family income	49,500	45,000	25,300	20,000
Median income-to-needs ratio (%)	4.42	4.22	2.74	2.13
% in poverty	4.1	5.0	17.8	22.5
Number of observations	3,668	3,442	921	1,722
<i>Based on projected retirement income²</i>				
Projected median retirement income	30,775	30,564	12,580	8,819
Projected median retirement income, excl. annualized value of housing wealth	26,536	26,118	10,864	6,864
Projected median income-to-needs ratio (%)	2.94	3.12	1.53	1.00
Projected median income-to-needs ratio excl. annualized value of housing wealth	2.54	2.67	1.33	0.79
Projected % in poverty	6.9	5.9	30.3	44.8
Projected % in poverty, excluding annuitized value of housing wealth	9.4	8.4	33.5	52.3
Number of observations ³	3,437	3,242	870	1,625

Source: Authors' calculations.

Notes: See Table 1.

ling for household size in measures like the income-to-needs ratio. Current poverty rates for this cohort on the verge of retirement are 18–23 percent for the nonmarried group, four to five times higher than among their married counterparts. Projected poverty differences after retirement rise, with unmarried persons facing poverty rates of 30–45 percent, or up to nine times higher than the married members of the cohort.

Components of household income are displayed by race in Table 3, and by marital status in Table 4. Evaluated at the mean or the median, earnings represent the largest component of household income at the time the respondents are first observed. Values of the other components of income are virtually uniformly equal to zero, even though means are occasionally substantial. This indicates that distributions of non-earned income are highly skewed, for all marital groups and both ethnic groups explored. Thus the mean of income from capital (like interest and dividends), from pensions and annuities, and from other family members is nontrivial, though medians are tiny indeed. In the two largest income categories, earnings and capital income, men receive more than women, on average. Among the nonmarried, women receive larger flows of income from other family members and from pensions and annuities. This latter finding is consistent with survivor benefits paid to widows through social security.

TABLE 3: Current Income Components by Race and Sex: Mean/Median¹

	<i>White</i>		<i>Nonwhite</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
Family earnings	45,456/38,200	34,196/26,250	29,600/25,000	19,862/24,000
Capital income (interest, dividends, etc.)	7,628/200	6,622/180	2,414/100	1,580/0
Disability benefits	666/0	648/0	674/0	501/0
Income from pensions and annuities	2,546/0	4090/0	1,548/0	2,426/0
SSI or other welfare program	156/0	149/0	418/0	588/0
Unemployment/worker's compensation	399/0	308/0	488/0	353/0
Other sources of income	163/0	250/0	90/0	182/0
Income from other family members (besides spouse)	3,559/0	4,153/0	4,062/0	6,358/0
Total family income	61,875/49,000	51,114/40,580	42,368/39,918	33,617/30,855

Source: Authors' calculations.

Notes:

¹ All dollar figures in 1992 dollars.

² Estimates obtained from reported income and income imputed by the Institute for Survey Research at the University of Michigan. Estimates are weighted to provide nationally representative statistics.

TABLE 4: Current Income Components by Marital Status and Sex: Mean/Median¹

	<i>Married</i>		<i>Nonmarried</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
Family earnings	45,271/39,000	37,281/30,500	25,259/16,744	15,010/11,013
Capital income (interest, dividends, etc.)	6,807/50	6,775/100	4,012/0	1,736/0
Disability benefits	642/0	725/0	774/0	359/0
Income from pensions and annuities	2,458/0	4,708/0	1,581/0	1,649/0
SSI or other welfare program	146/0	138/0	539/0	570/0
Unemployment/worker's compensation	455/0	387/0	296/0	192/0
Other sources of income	139/0	129/0	164/0	428/0
Income from other family members (besides spouse)	3,918/0	4,203/0	2,796/0	6,056/0
Total family income	62,529/49,500	56,482/45,000	39,337/25,300	26,902/20,000

Source: Authors' calculations.

Notes: See Table 3.

Descriptive statistics regarding the components of projected retirement income appear by race in Table 5, and by marital status in Table 6. When households are differentiated by race (Table 5), projected social security benefits are roughly equivalent by sex. The differences that emerge in projected wellbeing of men and women occur because men are more likely to live in households with greater projected pension benefits and asset holdings (and, hence, larger projected annuity flows from assets). As expected, these differences are compounded when nonmarried men and women are compared (Table 6). Older women's households are projected to receive lower amounts of income in virtually every category across demographic groups. In most cases, mean as well as median values reported in Tables 5 and 6 are either very small or zero for all components besides housing. Even evaluated at the mean, the value of owner-occupied housing represents around a quarter to a third of total net worth for this cohort on the verge of retirement.²⁴ With the exception of owner-occupied housing, asset values in each category are uniformly higher for nonmarried men than for nonmarried women.

Using conventional tests of significance, there appears to be no difference in overall net worth between men and women regardless of race, evaluated at either means or medians. When we focus on nonmarried men and women only, however, we see that median values of net worth are roughly similar, but the mean value is almost twice as high for men as for women. These findings indicate that the distribution of net worth for nonmarried men is more heavily skewed than it is for women; that is, there are more very wealthy nonmarried men than nonmarried women. Strikingly, differences in net worth are far greater between whites and nonwhites than they are between men and women. Evaluated at the median, for example, white men have more than three times the assets of nonwhite men.

In Tables 7 and 8 we report values of the three sets of factors of most interest to our study, namely health, work history, and family transfers. When we compare averages of each variable by race, marital status, and sex, it is clear that these three factors differ dramatically across groups. The first block of each table reports the percentage of respondents who report they are able to perform certain activities. Men report many fewer physical limitations than women, as measured by indicators of the ability to run one mile, walk several blocks, or carry a 10-pound bag with little or no difficulty. Although 95 percent of white men can carry a 10-pound bag (such as a bag of groceries, as worded in the survey), only 83 percent of white women can do so. Among nonmarried respondents, 94 percent of men but only 76 percent of the women can perform this task with little or no difficulty. Across measures and holding sex constant, whites and married respondents appear to have fewer limitations than nonwhites and those who are not married.

These physical limitation patterns are also correlated with health differences by sex, as is evident from the second panel of Tables 7 and 8. Here we see that women and nonwhites report a higher prevalence of many serious

TABLE 5: Projected Retirement Income and Wealth Components by Race and Sex: Mean / Median¹

	<i>White</i>		<i>Nonwhite</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
<i>Projected retirement income</i>				
Annual social security benefit	12,562/13,340	11,126/12,319	9,283/9,199	7,345/6,432
Annual pension benefit	10,607/4,483	8,774/3,362	6,554/1,714	5,334/0
Annuity value of asset holdings (incl. housing)	19,826/8,030	17,609/7,703	6,111/2,447	6,234/2,159
Annuity value of asset holdings (excl. housing)	15,209/3,600	13,094/3,224	3,647/242	3,971/128
<i>Current asset holdings</i>				
Home	106,485/53,000	71,324/53,000	36,501/22,000	33,519/19,000
Other real estate	64,583/0	53,878/0	22,951/0	30,174/0
Vehicle	17,842/10,000	15,335/9,000	9,473/5,000	7,047/2,500
Liquid assets (checking/savings account, etc.)	26,585/7,000	26,214/7,000	8,131/800	6,731/200
Stocks	25,339/0	25,574/0	3,346/0	4,940/0
Bonds	3,740/0	3,225/0	139/0	582/0
IRA	23,872/0	24,544/0	5,484/0	5,855/0
Business	63,595/0	46,374/0	12,994/0	10,308/0
Other assets	11,547/0	11,552	2,117/0	2,148/0
Amount of debt	3,808/0	3,166	3,120/0	2,136/0
Mean current net worth	304,741	274,856	98,015	99,169
Median current net worth	132,750	129,250	39,075	34,000

Source: Authors' calculations.

Notes: See Table 3.

TABLE 6: Projected Retirement Income and Wealth Components by Marital Status and Sex: Mean/Median¹

	<i>Married</i>		<i>Nonmarried</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
<i>Projected retirement income</i>				
Annual social security benefit	13,133/13,678	12,777/13,199	6,244/6,240	4,603/4,704
Annual pension benefit	10,398/4,912	9,928/4,603	6,088/0	3,388/0
Annuity value of asset holdings (incl. housing)	17,266/7,082	18,123/7,720	11,910/2,323	6,252/1,954
Annuity value of asset holdings (excl. housing)	12,875/2,785	13,457/3,150	9,459/611	3,902/175
<i>Current asset holdings</i>				
Home	69,501/51,000	72,530/55,000	33,056/0	34,578/8,000
Other real estate	58,319/0	60,636/0	34,561/0	18,840/0
Vehicles	16,876/10,000	16,726/10,000	10,639/3,500	5,028/2,000
Liquid assets (checking/savings account)	22,572/5,500	25,477/6,900	18,202/0	9,993/500
Stocks	21,026/0	24,298/0	13,473/0	9,383/0
Bonds	2,745/0	2,779/0	2,944/0	1,717/0
IRA	21,324/0	24,822/0	9,742/0	7,015/0
Business	55,053/0	50,180/0	30,804/0	6,011/0
Other assets	8,748/0	10,474	10,243/0	5,164/0
Amount of debt	3,951/0	2,946/0	2,327/0	2,669/0
Mean current net worth	272,215	284,977	161,338	95,059
Median current net worth	120,000	129,900	34,000	29,800

Source: Authors' calculations.

Notes: See Table 3.

TABLE 7: Characteristics of HRS Sample by Race and Sex¹

	White		Nonwhite	
	Men	Women	Men	Women
<i>Physical limitations (%)</i>				
Able to run 1 mile with little or no difficulty	38.4	23.7	44.7	28.6
Able to walk several blocks with little or no difficulty	88.8	85.5	83.0	78.9
Able to carry a 10-pound bag with little or no difficulty	95.4	83.4	88.3	74.6
<i>Illnesses (%)</i>				
Have had cancer	3.2	8.3	3.0	5.5
Have heart problems	15.5	10.5	13.0	11.7
Have high blood pressure	12.3	12.9	17.5	25.0
Have arthritis	31.0	43.8	30.0	45.7
Have lung disease	8.5	8.7	4.9	7.8
Have diabetes	6.5	5.6	11.4	14.6
<i>Work history</i>				
Ever worked before age 50 (%)	96.0	84.4	89.9	78.2
Ever held job lasting longer than 5 years before age 50 (%)	90.2	65.0	80.4	62.6
Length of longest job held before age 50 (yrs.)	17.0	8.7	12.9	8.8
<i>Family transfers</i>				
Spent time caring for grandchildren in past year (%)	22.8	33.1	20.6	30.1
Hours spent caring for grandchildren in past year ²	388	725	601	1,199
Spent time caring for parents/in-laws in past year (%)	4.5	6.0	3.8	5.9
Hours spent caring for parents/in-laws in past year ²	479	920	394	980
<i>Number of observations³</i>	3,382	3,632	1,221	1,590

Source: Authors' calculations.

Notes:

¹ Estimates are weighted averages to provide nationally representative statistics.

² Conditional on spending some time caring for grandchildren/parents.

³ Means for some variables are estimated from fewer observations due to missing data.

TABLE 8: Characteristics of HRS Sample by Marital Status and Sex¹

	<i>Married</i>		<i>Nonmarried</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
<i>Physical limitations (%)</i>				
Able to run 1 mile with little or no difficulty	40.2	25.9	36.9	22.1
Able to walk several blocks with little or no difficulty	88.8	86.0	83.4	79.6
Able to carry a 10-pound bag with little or no difficulty	95.3	95.3	93.5	76.4
<i>Illnesses (%)</i>				
Have had cancer	3.2	7.4	2.7	8.4
Have heart problems	14.8	10.0	16.0	12.5
Have high blood pressure	12.8	13.2	15.3	20.6
Have arthritis	30.3	42.1	33.2	48.8
Have lung disease	7.5	7.3	9.3	11.2
Have diabetes	7.2	6.6	8.6	9.6
<i>Work history</i>				
Ever worked before age 50 (%)	95.8	83.5	90.9	82.0
Ever held job lasting longer than 5 years before age 50 (%)	90.1	63.2	80.7	67.4
Length of longest job held before age 50 (yrs.)	16.7	8.4	14.0	9.4
<i>Family transfers</i>				
Spent time caring for grandchildren in past year (%)	25.7	35.7	8.2	25.1
Hours spent caring for grandchildren in past year ²	420	782	465	938
Spent time caring for parents/in-laws in past year (%)	4.9	6.2	2.2	5.4
Hours spent caring for parents/in-laws in past year ²	428	855	835	1,139
<i>Number of observations³</i>	<i>3,681</i>	<i>3,498</i>	<i>922</i>	<i>1,724</i>

Source: Authors' calculations.

Notes: See Table 7.

diseases and health problems: for instance, older women are half again as likely as men to report they have arthritis. Women are considerably more likely to have had cancer as well. Among nonmarried respondents, for example, 8 percent of women compared to 3 percent of men reported having had cancer. In contrast, however, men are more likely to report heart problems than women. Differences by race and marital status can be observed as well: in particular, nonwhite and nonmarried respondents are considerably more likely to report high blood pressure and diabetes than white and married respondents.

A third dimension along which we expect older men and women to differ is with respect to work histories. This is confirmed in the third panel of Tables 7 and 8, where we see that almost all (90 percent) of the white men worked on a job lasting at least 5 years before the age of 50, but only two-thirds of white women worked on a job lasting that long. Corresponding figures were somewhat lower for nonwhite men — 80 percent, but similar for nonwhite women — 63 percent. More striking are the results about the longest job people held prior to age 50. Men averaged 13–17 years, while women of both ethnic groups averaged only 9 years. On average, married women had longest job tenures of one year less than their nonmarried counterparts (8 versus 9 years), but similar percentages had ever worked prior to age 50 (82 and 84 percent).

The final panel in Tables 7 and 8 describes respondents' time transfers to parents and/or grandchildren. As expected, older HRS women are considerably more likely to make such transfers; also, those women who do so spend considerably more time in this activity than men. Transfers to grandchildren are also considerably more likely than transfers to parents. Among the women, for example, one third provide care for their grandchildren, but only 6 percent provide care for their parents. By contrast, about one-fifth of the men cared for their grandchildren, but 4–5 percent cared for their parents. A substantial difference is evident by marital status: only 8 percent of nonmarried men spent time caring for grandchildren, whereas a full 25 percent of nonmarried women took care of their grandchildren (among both sexes, nonmarried persons afforded relatively little care for their parents). Of course many currently nonmarried persons have previously been married.

Multivariate Statistical Findings

Taken as a whole, the statistics presented thus far suggest that (1) older women on the verge of retirement are in worse health than men in several but not all dimensions; (2) these women have had weaker labor force attachment over their lifetimes than men; and (3) these women spend more time than men caring for other family members. These observed differences be-

tween men and women may help explain sex-based differences in wellbeing, and in this section we use multivariate techniques presented above to explore these links.

Before presenting the results, however, we first split the sample by poverty status and sex, and compute summary statistics of health status, work history, and intrafamily transfers for each subgroup. The purpose of this exercise is to determine whether there are any simple correlations between each of these characteristics and economic wellbeing. The results, appearing in Table 9, indicate the anticipated patterns. Men and women who are in poverty are uniformly in poorer health, have weaker labor market histories, and, among those that care for parents and/or grandchildren, contribute more time to this activity.

In order to make our presentation more accessible, parameter estimates of multivariate models of wellbeing are relegated to the Appendix. Here we simply note that the parameter estimates obtained from these models are used to decompose the gap in economic wellbeing into the fraction explained by health, work history, and intrafamily transfers. Following equation (3), we determine the fraction of the difference in wellbeing by sex/ethnic group and report the results in Tables 10A–C. For simplicity, results are derived using male coefficients but we note that results obtained using female coefficients are qualitatively similar.

The results of this exercise lead us to conclude that work history patterns are strongly related to observed differences in wellbeing experienced by older men and women in the HRS sample. Focusing first on whites (Table 10A), we see that the gap in current family income would be diminished by 25 percent, if women had the same labor market history as men. Similarly, observed differences in current poverty rates and the income-to-needs ratio would have been cut by 34–44 percent. Differences in health by sex also explain a sizable portion of the sex difference in current wellbeing among whites, but intrafamily time transfers apparently play no consistent role. Thus health differences are associated with about a 20–25 percent difference in wellbeing between white men and women, irrespective of the measure of wellbeing employed. The estimated effects of time transfers are somewhat erratic, with differences by sex explaining virtually none of the difference in log family income, about 13 percent of the difference in income-to-needs, and actually indicate that more women would fall into poverty if the difference in time transfers between white men and women were eliminated. This final statistic may indicate endogeneity in these transfer measures; those respondents who spend time caring for family members are the ones who can afford to do so.

A parallel analysis for nonwhite men and women appears in Table 10B, with similar but not identical findings. Labor market history explains roughly 26–40 percent of the income gap between men and women, as for whites.

TABLE 9: Characteristics of HRS Sample by Poverty Status and Sex¹

	Men		Women	
	<i>In Poverty</i>	<i>Not in Poverty</i>	<i>In Poverty</i>	<i>Not in Poverty</i>
<i>Health measures (%)</i>				
Able to run 1 mile with little or no difficulty	24.8	40.6	18.5	25.5
Able to walk several blocks with little or no difficulty	66.6	89.2	63.8	86.4
Able to carry a 10-pound bag with little or no difficulty	76.0	93.1	61.2	83.8
Have had cancer	5.8	3.0	6.9	7.8
Have heart problems	23.2	14.4	18.8	9.8
Have high blood pressure	20.5	12.7	24.2	14.5
Have arthritis	39.7	30.2	59.2	42.4
Have lung disease	18.3	7.1	14.7	7.8
Have diabetes	10.5	7.2	15.4	6.6
<i>Labor market history measures</i>				
Ever worked before age 50 (%)	84.5	95.6	68.7	84.7
Held job lasting longer than 5 years before age 50 (%)	71.6	89.5	45.1	66.7
Length of longest job held before age 50 (yrs.)	11.4	16.5	5.5	9.1
<i>Intrafamily transfers</i>				
Spent time caring for grandchildren in past year (%)	13.8	23.1	30.3	32.7
Hours spent caring for grandchildren in past year ²	475	422	1,255	772
Spent time caring for parents/in-laws in past year (%)	3.7	4.4	5.0	6.1
Hours spent caring for parents/in-laws in past year ²	988	435	1,730	857
<i>Number of observations³</i>	380	4,222	648	4,574

Source: Authors' calculations.

Notes: See Table 7.

More different however is the key role of health problems, which now explain an equally large share of the gap. Finally, time devoted to caring for parents and grandchildren does not predict gaps in wellbeing, as was true for whites. In fact, the negative sign indicates that the gap would possibly increase if men and women spent the same amount of time caring for family members.

We repeat the analysis for nonmarried men and women separately in

TABLE 10: Decomposition of Differences in Current Measures of Wellbeing

<i>Measure of Current Wellbeing</i>	<i>% of Differential Explained</i>		
	<i>Log Family Income</i>	<i>Income-to-Needs Ratio</i>	<i>Probability of Being in Poverty¹</i>
<i>A. Between White Men and Women</i>			
Health history and status	18.5	24.2	21.5
Labor market history	25.4	43.5	33.5
Transfers of time to family	1.0	12.7	-20.6
<i>B. Between Nonwhite Men and Women</i>			
Health history and status	32.9	36.7	43.2
Labor market history	25.6	22.7	41.0
Transfers of time to family	-6.0	-1.0	-25.3
<i>C. Between Unmarried Men and Women</i>			
Health history and status	34.4	20.6	57.7
Labor market history	35.4	16.4	82.2
Transfers of time to family	-3.1	20.0	-55.0

Source: Authors' calculations.

Notes: ¹ Coefficients estimated from linear probability model using male coefficients.

Table 10C, of special interest because of the particular vulnerability to poverty. Of course, the sample size is reduced, which in turn cuts the precision of the estimated parameters. But here too, we find that labor market attachment and health factors play the key role in explaining differences in current economic wellbeing. These results further confirm that intrafamily transfers do not provide a particularly powerful explanation for differences in wellbeing between men and women.

Turning to anticipated future patterns of wellbeing, Table 11 reinforces and extends previous findings. First, we emphasize the fundamentally key role of differences in labor market attachment for whites and nonmarried persons. Thus, if a white woman reached retirement age having had a typical man's lifetime labor force pattern, her retirement income and income relative to needs would be at least equal to or greater than her male counterpart's.²⁵ A nonmarried woman with a labor market history like that of a man would do almost as well. Since nonwhite women tend to be more closely attached to the job market over their lifetimes, the role of labor market differences is relatively smaller, but it remains key: 45 percent of the gap by sex is attributable to these factors. For both ethnic groups, health problems are also a factor driving differences in wellbeing, particularly for men and women whose income is low relative to needs. We again show that time

TABLE 11: Decomposition of Differences in Projected Measures of Wellbeing

<i>Measure of Projected Wellbeing in Retirement</i>	<i>% of Differential Explained</i>		
	<i>Log Family Income</i>	<i>Income-to-Needs Ratio</i>	<i>Probability of Being in Poverty¹</i>
<i>A. Between White Men and Women</i>			
Health history and status	23.7	39.9	25.8
Labor market history	106.8	176.3	74.8
Transfers of time to family	5.9	10.8	3.6
<i>B. Between Nonwhite Men and Women</i>			
Health history and status	27.0	102.6	24.6
Labor market history	44.6	194.3	55.7
Transfers of time to family	-3.2	-9.2	-18.9
<i>C. Between Unmarried Men and Women</i>			
Health history and status	1.1	13.0	15.3
Labor market history	85.8	38.9	100.1
Transfers of time to family	15.0	19.8	10.3

Source: Authors' calculations.

Notes: See Table 10.

transfers to family members are weak predictors of women's relative income and poverty disadvantage.

Conclusions

Researchers seeking to understand causes of poverty among older women have focused, in the main, on marital status changes as a cause of poverty. Here we explore how other factors affect older women's wellbeing, focusing specifically on labor market attachment, health, and transfers of time to family members. Because there is some debate in the literature over how best to measure wellbeing, we use three measures: family income, the ratio of family income to needs, and the poverty line. We compute these as of the date respondents answered the HRS survey, and also at age 62, the modal retirement age in the United States. To obtain projected figures we annuitize retiree wealth by converting people's asset holdings into a cash flow available for consumption needs, along with projected social security and pension benefits. These computations, displayed by sex, ethnic group, and marital status, are then related to people's work histories, health, and intra-family transfers of time. We use multivariate regression estimates to simulate how patterns of wellbeing might change if older women's characteristics were to become more like men's.

Our results show that older women on the verge of retirement have less income, and are projected to have less income when retired, than their male counterparts. Similarly, nonwhites are in worse condition than whites in terms of income, poverty status, and income-to-needs ratios. And nonmarried women have less income now, and their deficit will drop farther in retirement.

We also show that older women are more vulnerable than men because they are in worse health than men in many respects; they had weaker labor force attachment over their lifetimes; and they spend more time than men caring for other family members. These different lifetime experiences translate into wellbeing in interesting ways. First, differences in health and labor market history explain a significant share of differences in the current income of men and women on the verge of retirement. Perhaps one-quarter to one-half of the overall gap in current wellbeing can be explained by each of these factors; taken together, they explain between half to three quarters of the gap. Second, the same two factors are even more important in explaining differences in projected wellbeing in retirement, with labor market histories dominating for whites and nonmarried persons. Thus, from one-half to all of the gap in projected wellbeing can be explained by these two factors alone. Third, transfers of time to family members appear to be a weak predictor of both current and future wellbeing. On the basis of these findings, health problems play an important role for women, and medical advances may not necessarily benefit women relative to men. In that event, the wellbeing gap between older men and women may persist to the extent that men and women experience different health challenges in their later years. On the other hand, it seems reasonable to project a narrowing of differences in economic wellbeing between men and women in the future. As women's labor force attachment continues to increase, future cohorts of women approaching retirement will have accumulated more years of work experience, enhancing their wellbeing relative to men.

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Notes

1. See, e.g., McLanahan et al. (1989); Smolensky et al. (1988); Older Women's League (1995).

2. See Burkhauser et al. (1991); Boskin and Shoven (1988); Burkhauser and Duncan (1989); Holden et al. (1988); and Holden et al. (1986).

3. Although some research has separately examined the wellbeing of women of

different racial/ethnic groups (cf. Torres-Gil, 1986; Markides et al., 1990; Wilson-Ford, 1990), this work has been hindered by small sample sizes in existing datasets, a defect remedied in the present study.

4. See, e.g., O'Rand and Landerman (1984) and Van Velsor and O'Rand (1984).

5. Among these are Stone (1990) and Wood (1991).

6. See, e.g., Palmer et al. (1988); Ruggles (1990); and Moon (1977).

7. For a discussion of equivalence scales see Ruggles (1990) and Nelson (1993). Some analysts extend income-based measures to include the value of in-kind income. A problem with this approach is that there is no agreed-on method to value it. (Some use the cost of providing the benefit, another seeks to determine what an individual would be willing to pay to receive it. Economic theory tells us that the two concepts are not the same.) No consensus exists in the literature, and most economic wellbeing studies of younger persons also focus on cash income, so we follow this approach here when measuring income of older women.

8. See Burkhauser and Duncan (1988), Holden et al. (1988), and Smolensky et al. (1988).

9. Burkhauser et al. (1985), Moon (1977), and Hurd (1989) employ similar measures.

10. Actual consumption patterns through retirement may differ from these projected annuity payments (due to time preferences or bequest motives, for instance), but this measure adequately represents the resources available for consumption over the remainder of the household's life.

11. Components of this vector take on the value zero for those respondents who are not married. These variables must be included because the measures of wellbeing relate to households, not individuals.

12. Separate analyses of Hispanic and black men and women are hampered by sample sizes that are too small to yield robust results.

13. In all cases, F-tests reject the hypothesis that coefficients are equal across groups.

14. The problem is actually worse when using income-based measures of wellbeing since income includes earnings, which are positive only for those respondents who are currently employed. Previous studies have not recognized this issue.

15. See Lumsdaine et al. (1990), Stock and Wise (1990), and Rust (1989).

16. This approach is sometimes called a "Oaxaca decomposition" in reference to the work of Oaxaca (1973) that first used this approach to explore the components of the male-female wage differential.

17. The terminology "explained" may be somewhat misleading since it may suggest a causal relationship between the control variables and economic wellbeing that may not be warranted, as discussed above. Nevertheless, it is common practice to use this expression and we do so throughout this analysis.

18. An important complication in this analysis is that characteristics can be valued at either the "male rate" or the "female rate" (using the regression coefficients obtained from the sample of men or of women). A common approach is to report both and to consider the sensitivity of findings to the different approaches.

19. In addition, the analysis takes account of the fact that the HRS also oversampled residents of the state of Florida; sample weights are used to convert survey responses into responses representative of the overall population.

20. See the HRS web page for more information on these restricted data (www.umich.edu/~hrswww) and the Appendix for a discussion of how these data were derived.

21. For more on these datasets see Moore and Mitchell (this volume), Gustman et al. (this volume), and Mitchell, Olson, and Steinmeier (this volume).

22. The value of assets is reported by over half the HRS respondents and imputed

for the remainder. The Institute for Survey Research at the University of Michigan, the organization administering the HRS survey, uses a "hot-deck" imputation procedure, assigning equal asset values to families with similar characteristics.

23. Moore and Mitchell (this volume) show that retirement wealth could grow if retirement were deferred to, say, age 65.

24. To the extent that housing represents an illiquid asset that cannot readily be converted into retirement income, this value should be subtracted from total net worth to provide a measure of the resources available for consumption.

25. The implication that women's wellbeing would surpass men's if their labor market histories were equalized should be interpreted with some caution. Based on the rather large differences in work history currently observed between men and women, the simulation exercise we are conducting here narrows the gap beyond much of the variation that is observed in our sample (called out-of-sample prediction). If the relationship between work history and wellbeing is nonlinear, so that the return to additional work is greater for those who have worked less than for those who have worked more, then our methodology will overstate the narrowing in wellbeing if men and women had the same work history. Nevertheless, one can strongly conclude based on this evidence that women's wellbeing would be much improved relative to men if they had the same work history.

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APPENDIX TABLE 1A: Effect of Health, Labor Market History, and Intrafamily Transfers on Current Income-Based Measures of Wellbeing, White Respondents¹ (standard errors in parentheses)

<i>Measure of Current Wellbeing</i>	<i>Log Family Income</i>		<i>Income-to-Needs Ratio</i>		<i>Poverty Status²</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
<i>Health measures</i>						
Able to run 1 mile with little or no difficulty	0.079 (0.027)	0.047 (0.030)	0.680 (0.198)	0.629 (0.166)	-0.140 (0.116)	0.201 (0.101)
Able to walk several blocks with little or no difficulty	0.104 (0.047)	0.123 (0.040)	0.105 (0.346)	0.368 (0.221)	-0.317 (0.142)	-0.434 (0.104)
Able to carry a 10-pound bag with little or no difficulty	0.218 (0.056)	0.051 (0.037)	0.605 (0.409)	0.141 (0.204)	-0.066 (0.165)	-0.196 (0.103)
Have had cancer	-0.093 (0.069)	0.029 (0.044)	-0.409 (0.510)	-0.212 (0.246)	0.330 (0.203)	-0.131 (0.148)
Have heart problems	0.010 (0.035)	-0.090 (0.042)	-0.012 (0.257)	-0.035 (0.233)	0.071 (0.123)	0.068 (0.120)
Have high blood pressure	-0.010 (0.038)	-0.044 (0.037)	-0.035 (0.281)	-0.216 (0.207)	0.156 (0.130)	0.002 (0.109)
Have arthritis	0.004 (0.027)	-0.075 (0.026)	-0.048 (0.201)	-0.342 (0.145)	-0.034 (0.102)	0.236 (0.084)
Have lung disease	-0.196 (0.046)	-0.016 (0.045)	-0.455 (0.336)	0.177 (0.253)	0.421 (0.129)	-0.018 (0.124)
Have diabetes	0.016 (0.050)	-0.032 (0.054)	-0.108 (0.368)	-0.369 (0.300)	-0.165 (0.181)	-0.085 (0.153)

Labor market history measures

Ever worked before age 50	0.129 (0.075)	0.109 (0.040)	0.189 (0.556)	0.322 (0.226)	-0.148 (0.232)	-0.255 (0.113)
Had job lasting longer than 5 years before age 50	-0.027 0.055	0.065 (0.038)	-0.050 (0.403)	0.004 (0.211)	0.117 (0.184)	-0.088 (0.122)
Length of longest job held before age 50 ³	0.005 (0.002)	0.004 (0.002)	0.037 (0.012)	0.006 (0.011)	-0.009 (0.006)	-0.014 (0.008)

Intrafamily transfers

Spent time caring for grandchildren in past year	0.035 (0.059)	0.058 (0.045)	-0.162 (0.434)	0.046 (0.252)	-0.444 (0.215)	-0.217 (0.133)
Hours spent caring for grandchildren in past year ⁴ (x 1,000)	-0.024 (0.043)	0.018 (0.025)	-0.318 (0.318)	0.205 (0.141)	-0.033 (0.166)	0.099 (0.064)
Spent time caring for parents/in-laws in past year (x 1,000)	0.019 (0.107)	-0.002 (0.079)	0.308 (0.791)	-0.525 (0.445)	-0.160 (0.446)	-0.189 (0.276)
Hours spent caring for parents/in-laws in past year ⁴ (x 1,000)	-0.148 (0.059)	0.026 (0.035)	-0.951 (0.440)	0.293 (0.196)	0.245 (0.137)	0.126 (0.080)

<i>Number of observations</i> ⁵	<i>3,156</i>	<i>3,388</i>	<i>3,172</i>	<i>3,409</i>	<i>3,172</i>	<i>3,409</i>
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Source: Authors' calculations.

Notes:

¹ Estimates are weighted to provide nationally representative statistics. All models include the vector of demographic characteristics whose sample means are reported in Table 1, and the health status, labor market history, and interfamily transfers made by a respondent's spouse, along with spouse's demographic characteristics for married respondents.

² Coefficients estimated from Probit model.

³ Conditional on ever working.

⁴ Conditional on spending some time caring for grandchildren/parents.

⁵ Sample sizes for models of log family income are slightly lower because individuals with no family income have been dropped from the sample.

APPENDIX TABLE 1B: Effect of Health, Labor Market History, and Intrafamily Transfers on Current Income-Based Measures of Wellbeing, Nonwhite Respondents¹ (standard errors in parentheses)

<i>Measure of Current Wellbeing</i>	<i>Log Family Income</i>		<i>Income-to-Needs Ratio</i>		<i>Poverty Status²</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
<i>Health measures</i>						
Able to run 1 mile with little or no difficulty	-0.044 (0.053)	0.009 (0.054)	-0.120 (0.191)	0.105 (0.147)	-0.026 (0.134)	-0.088 (0.115)
Able to walk several blocks with little or no difficulty	0.211 (0.074)	0.201 (0.063)	0.103 (0.269)	0.419 (0.172)	-0.289 (0.167)	-0.280 (0.113)
Able to carry a 10-pound bag with little or no difficulty	0.445 (0.083)	0.081 (0.060)	1.091 (0.302)	0.060 (0.162)	-0.602 (0.175)	-0.258 (0.111)
Have had cancer	-0.103 (0.130)	0.017 (0.096)	0.017 (0.473)	-0.011 (0.261)	0.604 (0.289)	-0.056 (0.182)
Have heart problems	-0.267 (0.073)	-0.004 (0.077)	-0.767 (0.263)	-0.001 (0.208)	0.322 (0.167)	0.071 (0.139)
Have high blood pressure	-0.057 (0.063)	-0.117 (0.055)	0.103 (0.228)	-0.352 (0.148)	0.189 (0.151)	0.066 (0.105)
Have arthritis	-0.056 (0.053)	-0.039 (0.048)	-0.269 (0.193)	0.014 (0.130)	-0.004 (0.130)	-0.011 (0.094)
Have lung disease	-0.171 (0.111)	-0.090 (0.088)	-0.697 (0.398)	-0.077 (0.240)	0.311 (0.241)	0.038 (0.156)
Have diabetes	-0.038 (0.075)	-0.073 (0.068)	-0.462 (0.273)	-0.091 (0.184)	-0.147 (0.187)	0.203 (0.124)

Labor market history measures

Ever worked before age 50	0.210 (0.097)	-0.110 (0.073)	-0.062 (0.348)	-0.338 (0.199)	-0.151 (0.199)	0.176 (0.130)
Had job lasting longer than 5 years before age 50	0.090 (0.082)	0.282 (0.076)	0.783 (0.297)	0.517 (0.207)	-0.302 (0.184)	-0.342 (0.145)
Length of longest job held before age 50 ⁵	0.007 (0.003)	0.007 (0.004)	-0.002 (0.012)	0.029 (0.011)	-0.005 (0.009)	-0.020 (0.009)

Intrafamily transfers

Spent time caring for grandchildren in past year	0.197 (0.093)	-0.052 (0.072)	0.592 (0.337)	-0.267 (0.194)	-0.121 (0.235)	0.158 (0.130)
Hours spent caring for grandchildren in past year ⁴ (x 1,000)	0.002 (0.065)	0.056 (0.033)	-0.145 (0.238)	0.064 (0.089)	-0.430 (0.285)	-0.097 (0.060)
Spent time caring for parents/in-laws in past year (x 1,000)	-0.445 (0.196)	0.083 (0.133)	-0.802 (0.714)	0.318 (0.365)	1.676 (0.740)	-0.254 (0.270)
Hours spent caring for parents/in-laws in past year ⁴ (x 1,000)	0.107 (0.141)	-0.105 (0.062)	0.048 (0.517)	-0.147 (0.169)	-6.116 (4.301)	0.301 (0.133)

<i>Number of observations</i> ⁵	1,055	1,351	1,068	1,371	1,068	1,371
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Notes: See Appendix Table 1A.

APPENDIX TABLE 1C: Effect of Health, Labor Market History, and Intrafamily Transfers on Current Income-Based Measures of Wellbeing, Single Respondents¹ (standard errors in parentheses)

<i>Measure of Current Wellbeing</i>	<i>Log Family Income</i>		<i>Income-to-Needs Ratio</i>		<i>Poverty Status²</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
<i>Health measures</i>						
Can run 1 mile with little or no difficulty	0.142 (0.073)	0.041 (0.056)	1.374 (0.435)	0.247 (0.148)	-0.149 (0.141)	-0.005 (0.108)
Can walk several blocks with little or no difficulty	0.211 (0.106)	0.224 (0.064)	0.222 (0.632)	0.383 (0.169)	-0.318 (0.168)	-0.428 (0.104)
Able to carry a 10-pound bag with little or no difficulty	0.346 (0.120)	0.059 (0.062)	0.401 (0.715)	0.129 (0.162)	-0.270 (0.189)	-0.250 (0.102)
Have had cancer	0.001 (0.209)	0.114 (0.080)	0.056 (1.222)	0.277 (0.210)	0.443 (0.328)	-0.265 (0.152)
Have heart problems	-0.210 (0.095)	-0.061 (0.074)	-0.410 (0.559)	-0.055 (0.193)	0.223 (0.160)	0.072 (0.122)
Have high blood pressure	-0.085 (0.094)	-0.120 (0.058)	-0.051 (0.554)	-0.338 (0.151)	0.151 (0.156)	0.010 (0.098)
Have arthritis	0.041 (0.071)	-0.126 (0.047)	-0.105 (0.425)	-0.297 (0.123)	-0.056 (0.127)	0.126 (0.084)
Have lung disease	-0.327 (0.115)	-0.101 (0.073)	-0.763 (0.681)	-0.164 (0.191)	0.545 (0.179)	0.129 (0.120)
Have diabetes	-0.022 (0.116)	-0.101 (0.081)	-0.466 (0.694)	-0.103 (0.210)	-0.104 (0.204)	0.030 (0.133)

Labor market history measures

Ever worked before age 50	0.163 (0.142)	-0.046 (0.075)	0.112 (0.837)	-0.130 (0.196)	-0.161 (0.217)	0.122 (0.121)
Had job lasting longer than 5 years before age 50	-0.057 (0.118)	0.189 (0.072)	0.166 (0.698)	0.533 (0.189)	-0.223 (0.195)	-0.182 (0.125)
Length of longest job held before age 50 ³	0.010 (0.004)	0.010 (0.004)	0.030 (0.027)	0.011 (0.010)	-0.011 (0.008)	-0.024 (0.007)

Intrafamily transfers

Spent time caring for grandchildren in past year	0.140 (0.145)	0.029 (0.061)	-0.486 (0.877)	-0.188 (0.160)	-0.625 (0.325)	-0.075 (0.111)
Hours spent caring for grandchildren in past year ⁴ (x 1,000)	0.004 (0.189)	0.029 (0.036)	-0.332 (1.143)	0.019 (0.095)	0.045 (0.386)	0.002 (0.059)
Spent time caring for parents/in-laws in past year	-0.413 (0.250)	0.001 (0.113)	-1.313 (1.511)	-0.076 (0.297)	0.621 (0.479)	-0.144 (0.219)
Hours spent caring for parents/in-laws in past year ⁴ (x 1,000)	0.121 (0.138)	-0.086 (0.048)	-0.091 (0.836)	-0.179 (0.127)	-0.522 (1.049)	0.212 (0.072)

<i>Number of observations</i> ⁵	830	1,555	848	1,582	848	1,582
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Notes: See Appendix Table 1.

⁵ Sample sizes for models of log family income are slightly lower because individuals with no family income have been dropped from the sample.

APPENDIX TABLE 2A: Effects of Health, Labor Market History, and Interfamily Transfers on Projected Retirement: Income-Based Measures of Wellbeing, White Respondents (standard errors in parentheses)

	<i>Log Family Income</i>			
	<i>Men Coef.</i>	<i>Std. Err.</i>	<i>Women Coef.</i>	<i>Std. Err.</i>
<i>Health measures</i>				
Able to run 1 mile	0.078	0.024	0.062	0.027
Able to walk sev. blocks	0.137	0.043	0.141	0.036
Able to carry 10-lb bag	0.264	0.050	0.165	0.033
Have had cancer	-0.008	0.063	0.042	0.040
Have heart problems	0.025	0.032	-0.045	0.038
Have high blood pressure	0.046	0.035	-0.078	0.033
Have arthritis	-0.021	0.025	-0.043	0.023
Have lung disease	-0.100	0.041	-0.119	0.041
Have diabetes	-0.014	0.045	-0.080	0.048
<i>Labor market history measures</i>				
Ever worked before age 50	-0.049	0.068	0.140	0.036
Had 5+ yr job < age 50	0.087	0.050	-0.014	0.034
Length longest job < age 50	0.022	0.001	0.015	0.002
<i>Intrafamily transfers</i>				
Cared for grandkids last year	-0.023	0.053	0.096	0.041
Hours last year (1000)	-5.5E-05	4E-05	-3.5E-05	2E-05
Cared for parents/in-laws last year	-0.023	0.097	-0.009	0.072
Hours last year (1000)	6.2E-06	5E-05	-8.7E-06	3E-05
R-squared	0.384		0.523	

Source: Authors' calculations.

Notes:

¹ Estimates are weighted to provide nationally representative statistics. All models include the vector of demographic characteristics whose sample means are reported in Table 1, and the health status, labor market history, and intrafamily transfers made by a respondent's spouse, along with spouse's demographic characteristics for married respondents. The HRS data employed for this analysis is the Beta release tape.

² Coefficients estimated from Probit model.

³ Conditional upon ever working.

⁴ Conditional upon spending some time caring for grandchildren/parents.

<i>Income-to-Needs Ratio</i>				<i>Poverty Status</i>			
<i>Men Coef.</i>	<i>Std. Err.</i>	<i>Women Coef.</i>	<i>Std. Err.</i>	<i>Men Coef.</i>	<i>Std. Err.</i>	<i>Women Coef.</i>	<i>Std. Err.</i>
0.512	0.199	0.562	0.174	-0.013	0.009	-0.013	0.011
0.392	0.349	0.237	0.231	-0.059	0.015	-0.047	0.014
0.674	0.412	0.316	0.213	-0.091	0.018	-0.035	0.013
0.154	0.514	0.034	0.257	0.014	0.023	-0.010	0.016
0.108	0.259	0.037	0.244	0.016	0.011	0.019	0.015
0.270	0.283	-0.210	0.217	0.012	0.012	0.019	0.014
-0.131	0.203	-0.198	0.152	-0.004	0.009	0.002	0.010
-0.295	0.338	-0.223	0.264	0.057	0.015	0.052	0.017
-0.059	0.371	-0.429	0.314	0.012	0.016	0.025	0.020
-0.749	0.560	-0.049	0.236	-0.052	0.025	-0.071	0.015
0.173	0.406	-0.350	0.221	-0.051	0.018	-0.017	0.014
0.092	0.012	0.064	0.012	-0.002	0.001	-0.003	0.001
-0.215	0.437	0.130	0.264	-0.007	0.019	-0.069	0.017
-0.00026	0.0003	3.3E-05	0.0001	1.7E-05	1E-05	1.7E-05	9E-06
-0.252	0.796	-0.491	0.466	0.015	0.035	-0.008	0.029
0.00065	0.0004	3E-05	0.0002	-1.5E-05	2E-05	1.1E-05	1E-05
0.122		0.202		0.27		0.336	

APPENDIX TABLE 2B: Effects of Health, Labor Market History, and Interfamily Transfers on Projected Retirement: Income-Based Measures of Wellbeing, Nonwhite Respondents (standard errors in parentheses)

	<i>Log Family Income</i>			
	<i>Men Coef.</i>	<i>Std. Err.</i>	<i>Women Coef.</i>	<i>Std. Err.</i>
<i>Health measures</i>				
Able to run 1 mile	-0.021	0.049	0.050	0.055
Able to walk sev. blocks	0.181	0.069	0.201	0.066
Able to carry 10-lb bag	0.484	0.078	0.214	0.062
Have had cancer	0.074	0.123	0.152	0.101
Have heart problems	-0.172	0.068	-0.092	0.081
Have high blood pressure	-0.023	0.059	-0.158	0.056
Have arthritis	-0.056	0.050	-0.039	0.049
Have lung disease	-0.147	0.103	-0.030	0.092
Have diabetes	-0.130	0.070	-0.153	0.070
<i>Labor market history measures</i>				
Ever worked before age 50	-0.120	0.090	-0.146	0.077
Had 5+ yr job < age 50	0.249	0.076	0.279	0.078
Length longest job < age 50	0.024	0.003	0.023	0.004
<i>Intrafamily transfers</i>				
Cared for grandkids last year	-0.035	0.086	0.073	0.074
Hours last year (1000)	0.000	0.000	0.000	0.000
Cared for parents/in-laws last year	0.241	0.183	0.157	0.140
Hours last year (1000)	1E-05	0.0001	-0.0005	6E-05
R-squared	0.564		0.547	

Notes: See Table 2A.

<i>Income-to-Needs Ratio</i>				<i>Poverty Status</i>			
<i>Men Coef.</i>	<i>Std. Err.</i>	<i>Women Coef.</i>	<i>Std. Err.</i>	<i>Men Coef.</i>	<i>Std. Err.</i>	<i>Women Coef.</i>	<i>Std. Err.</i>
-0.019	0.123	0.395	0.175	-0.011	0.025	-0.037	0.024
-0.082	0.174	0.314	0.205	-0.027	0.036	-0.049	0.028
0.719	0.196	0.187	0.194	-0.150	0.040	-0.065	0.026
0.387	0.307	0.230	0.312	-0.002	0.063	-0.036	0.042
-0.125	0.170	0.006	0.248	0.080	0.035	0.013	0.033
-0.084	0.147	-0.308	0.177	0.034	0.030	0.037	0.024
-0.182	0.125	0.034	0.156	0.011	0.026	0.029	0.021
-0.182	0.258	-0.030	0.286	0.008	0.053	-0.037	0.038
-0.292	0.177	-0.244	0.220	0.055	0.036	0.013	0.030
-0.293	0.255	-0.132	0.238	-0.071	0.046	0.026	0.032
0.323	0.192	0.094	0.247	-0.090	0.039	-0.119	0.033
0.050	0.008	0.047	0.013	-0.008	0.002	-0.007	0.002
0.284	0.218	-0.041	0.232	0.021	0.045	-0.074	0.031
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.149	0.463	-0.240	0.435	-0.129	0.095	0.032	0.059
-8E-05	0.0003	-1E-05	0.0002	-7E-05	7E-05	3E-05	3E-05
0.375		0.287		0.436		0.492	

APPENDIX TABLE 2C: Effects of Health, Labor Market History, and Interfamily Transfers on Projected Retirement: Income-Based Measures of Wellbeing, Single Respondents (standard errors in parentheses)

	<i>Log Family Income</i>			
	<i>Men Coef.</i>	<i>Std. Err.</i>	<i>Women Coef.</i>	<i>Std. Err.</i>
<i>Health measures</i>				
Able to run 1 mile	0.150	0.068	0.022	0.055
Able to walk sev. blocks	0.290	0.099	0.241	0.065
Able to carry 10-lb bag	0.459	0.112	0.283	0.062
Have had cancer	-0.099	0.194	0.120	0.079
Have heart problems	-0.049	0.088	-0.142	0.074
Have high blood pressure	-0.006	0.087	-0.168	0.057
Have arthritis	0.018	0.067	-0.061	0.046
Have lung disease	-0.236	0.107	-0.151	0.073
Have diabetes	-0.121	0.109	-0.149	0.080
<i>Labor market history measures</i>				
Ever worked before age 50	-0.157	0.133	0.007	0.076
Had 5+ yr job < age 50	0.242	0.110	0.326	0.072
Length longest job < age 50	0.040	0.004	0.027	0.004
<i>Intrafamily transfers</i>				
Cared for grandkids last year	0.029	0.138	0.182	0.060
Hours last year (1000)	-3E-04	0.0002	-1E-04	4E-05
Cared for parents/in-laws last year	0.090	0.236	-0.062	0.111
Hours last year (1000)	-6E-05	0.0001	-2E-04	5E-05
R-squared	0.464		0.450	

Notes: See Table 2A.

<i>Income-to-Needs Ratio</i>				<i>Poverty Status</i>			
<i>Men</i>	<i>Std.</i>	<i>Women</i>	<i>Std.</i>	<i>Men</i>	<i>Std.</i>	<i>Women</i>	<i>Std.</i>
<i>Coef.</i>	<i>Err.</i>	<i>Coef.</i>	<i>Err.</i>	<i>Coef.</i>	<i>Err.</i>	<i>Coef.</i>	<i>Err.</i>
0.396	0.462	0.253	0.143	-0.013	0.009	-0.013	0.011
-0.392	0.673	0.293	0.164	-0.059	0.015	-0.047	0.014
0.773	0.760	0.320	0.157	-0.091	0.018	-0.035	0.013
-0.143	1.302	0.437	0.204	0.014	0.023	-0.010	0.016
0.076	0.595	0.023	0.187	0.016	0.011	0.019	0.015
0.007	0.589	-0.236	0.146	0.012	0.012	0.019	0.014
-0.313	0.453	-0.137	0.119	-0.004	0.009	0.002	0.010
-0.806	0.723	-0.376	0.186	0.057	0.015	0.052	0.017
-0.914	0.739	-0.192	0.203	0.012	0.016	0.025	0.020
-0.589	0.891	-0.264	0.190	-0.052	0.025	-0.071	0.015
-0.094	0.744	0.116	0.184	-0.051	0.018	-0.017	0.014
0.142	0.028	0.062	0.009	-0.002	0.001	-0.003	0.001
-0.515	9.935	0.089	0.156	-0.007	0.019	-0.069	0.017
-1E-03	0.0012	-6E-05	9E-05	2E-05	1E-05	2E-05	9E-06
-0.027	1.607	-0.398	0.288	0.015	0.035	-0.008	0.029
-5E-04	0.0009	-1E-04	0.000	-2E-05	2E-05	1E-05	1E-05
0.151		0.281		0.207		0.336	