9-1-2006

The Sufficiency of Retirement Savings: Comparing Cohorts at the Time of Retirement

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Abstract

Assessing savings sufficiency requires detailed information on both potential retirement benefits and the characteristics of a national sample of older citizens. This chapter uses the Health and Retirement Survey and the New Beneficiary Survey linked to administrative records to assess and compare the saving adequacy of two different cohorts. Specifically we compare the two groups in terms of their annuitized net wealth (ANW) and ANW relative to the poverty line, as well as the near-poverty line. We find that the mean wealth levels of both new retiree cohorts rose over time (by about two-thirds for wealth and by half for ANW), but the chance of meeting social adequacy targets has also risen. This shortfall we believe is concentrated increasingly among nonmarried persons, and those with low human capital and labor force attachment. In other words, vulnerability during the working life appears to persist into retirement.

Disciplines

Economics

Comments

The published version of this Working Paper may be found in the 2007 publication: *Redefining Retirement: How Will Boomers Fare?*.

Chapter 3

The Sufficiency of Retirement Savings: Comparing Cohorts at the Time of Retirement

Robert Haveman, Karen Holden, Barbara L. Wolfe, and Andrei Romanov

Social Security benefits provide nearly all US retirees with a base level of support, but for many, postretirement consumption above that base level requires privately accumulated financial wealth, housing equity, and pensions.[1] Policymakers are concerned that resources available at the time of retirement may be insufficient to maintain economic well-being during the remaining years of life, and researchers arrive at rather different conclusions regarding the adequacy of available retirement resources.[2] This chapter explores saving sufficiency using data on two cohorts of individuals at the time they retired, one in the early 1980s and a second in the mid-1990s. We use data from the Health and Retirement Survey (HRS) and also the New Beneficiary Survey (NBS) to evaluate the adequacy of saving across these two cohorts. Our comparison of resource sufficiency across these two cohorts enables us to assess time-series changes in the overall level of retirement resources, and also to appraise the impact on saving adequacy of changes in financial wealth and especially the concentration of wealth increments among the wealthy (Wolff 2004).

After a brief survey of prior studies, we go on to discuss our methodology and summarize results. We conclude that mean levels of both new retiree wealth and annuitized net wealth (ANW) increased substantially from the earlier to later cohort, yet social adequacy targets are less well met over time. Our results further indicate that the failure to meet the poverty and near-poverty thresholds is increasingly concentrated among singles and among those with the lowest human capital and low labor force attachment; vulnerability to inadequate resources in working life appears to persist into retirement.

Previous Literature

A growing literature analyzes the 'adequacy of savings' of people at or near to retirement, using a variety of approaches. These studies generally fall

into two categories: those that assess savings behavior of individuals prior to retirement and, hence, the likely adequacy of resources at retirement, and those that assess how well individuals fare during retirement, given the retirement resources they have accumulated. Both types of studies require a standard against which to judge resource adequacy, as well as an estimate of the number of years (and family members) over which these resources must be allocated.

The first set of studies asks whether individuals approaching retirement—but not yet retired—are saving 'enough' to attain some standard of adequacy as of an assumed retirement age. The availability of longitudinal data with rich financial data, including the Health and Retirement Survey (HRS), has enabled the study of individuals' preretirement savings and asset accumulation patterns as they approach retirement. These studies of prospective savings adequacy at retirement reach quite disparate conclusions. Some conclude that modest pockets of inadequacy mar a generally optimistic overall situation, while others find a serious shortfall in savings. The disparate results of prospective saving adequacy studies arise from different methods of estimating future savings and assumptions about adequacy, life expectancy, and retirement age. In what follows we focus on a subset of past studies; a wide range of prior research and their conclusions appear in Table 3-1.

Some models, including Bernheim (1997), construct a simulation model to calculate 'optimal' savings behavior over the life cycle for families of different sizes, educational levels, ages (and hence, life expectancies), earnings, Social Security, and pension benefits. Bernheim's 'Baby Boomer Retirement Index' is the ratio of the actual level of older persons' accumulated financial and housing savings and the simulated target level of savings minus Social Security and pension savings. Low levels of this index support his conclusion that the financial and housing wealth of 'Baby Boomers' is only about one-third of the target level of savings. Mitchell et al. (2000) and Moore and Mitchell (2000) also take this tack, simulating saving required by the initial HRS sample that would be necessary to maintain living conditions after assumed retirement. Assuming continued earnings up to the early (62) or normal (65) retirement age, and historical returns on financial wealth, they find a median *required* savings rate of 16 percent if retirement is at age 62, dropping to only 7 percent if retirement were delayed to age 65. There is substantial heterogeneity in required saving rates, with required saving rising with earnings. Compared to actual saving patterns, these figures imply substantial under saving as people approach retirement, especially if retirement were slated for the modal retirement age of 62. A similar analysis by Gustman and Steinmeier (1998) also uses the HRS, and calculates the annuitized value of household wealth for respondents age 51–61, projecting to their expected retirement ages. As in Moore and Mitchell, this annuitized value is computed as the sum of

TABLE 3-1 Literature Review on Retirement Adequacy: Methods, Data, and Conclusions

Study	*Data*	*Measure of adequacy*	*Estimation approach*	*Conclusions*
Bernheim (1992–97)	Annual surveys of 2000 households	Financial saving relative to simulated target saving needed to maintain preretirement living standards.	Simulation model calculating 'optimal' savings over the life cycle for heterogeneous families.	About one-third of households are projected to have sufficient financial savings to meet objective.
Moore and Mitchell (2000); Mitchell et al. (2000)	HRS (1992)	Ability to maintain preretirement consumption, assuming retirement at ages 62 and 65.	Estimation of required savings rates over remaining work years to maintain current consumption.	30–40 percent of households have sufficient savings; median wealth household needs to save 9–18 percent of income in remaining work years; between one quarter and one-third of households have actual savings rates equal to prescribed rates.
Gustman and Steinmeier (1998)	HRS (1992)	Annuitized wealth relative to current earnings at expected retirement age.	Estimation of ability to purchase a two-thirds joint-and-survivors benefit annuity at assumed retirement age based on assumed work/earnings/savings behavior.	Real replacement rate of household at median of lifetime earnings distribution is about two-thirds. Low earnings and wealth households have lower rates.
Engen et al. (1999)	HRS (1992); SCF (1983–98)	Distribution of actual wealth relative to simulated utility maximizing target wealth, assuming optimizing behavior in the face of uncertainty.	Stochastic life-cycle model of utility maximizing families optimizing consumption, to estimate attainment of target wealth at retirement.	Over 60 percent of families meet the target replacement rate; with substantially lower percentages among lower income and wealth families.

Scholz et al. (2004)	HRS (1992)	Actual wealth relative to simulated utility maximizing target wealth, assuming optimizing behavior in the face of uncertainty.	Comparison of actual household with simulated maximizing household to estimate extent to which wealth is sufficient to maintain preretirement consumption.	More than 80 percent of households have sufficient expected wealth at retirement.
Wolff (2002)	SCF (1983–98)	A projection of annuitized wealth at retirement (age 65) relative to the poverty line and to income in the survey year.	Estimation of income-replacement rates and ratios of annuitized wealth relative to the poverty line, from 1983–98, for age group 47–64 years.	Percentage with expected retirement income below a half of *current* income increased from 30 percent to 43 percent over the period—an increasingly serious shortfall in retirement income.
Butrica et al. (2003)	SIPP; Social Security Administration Earnings and Benefit Records	A projection of income at age 67 relative to average shared income over ages 22 to 62 and to poverty line.	Uses Social Security Administration MINT data system to project income and demographic characteristics of 'Baby Boom' generation into retirement years, and compares this income to preretirement living standards.	Median replacement rates are projected to be 93 percent for current retirees, decreasing to about 80 percent for future cohorts of retirees; poverty rates decline from about 8 percent for current retirees to 4 percent for 'Baby Boomers'.

(*cont.*)

TABLE 3-1 (*continued*)

Study	*Data*	*Measure of adequacy*	*Estimation approach*	*Conclusions*
Haveman et al. (2006)	NBS	Annuitized wealth relative to permanent preretirement earnings and consumption and poverty line, for new Social Security beneficiaries in 1980–81.	Uses survey data and linked administrative records to calculate annuitized wealth of new beneficiaries, permanent preretirement earnings and consumption.	Approximately 30 percent of new retirees have insufficient resources to replace 70 percent of preretirement consumption. Fewer than 2 percent of couples and about 10 percent of singles are in poverty; this problem is concentrated among the lowest earners.
Munnell and Soto (2006*a*, 2006*b*, 2006*c*)	HRS (Waves 1–6)	Social Security benefits (and benefits plus employer pensions/401k, and this definition plus annuitized financial assets) relative to average indexed monthly income (AIME) (plus AIME plus returns on financial assets and to top five years of recent ten of inflation-adjusted preretirement earnings).	Uses administrative records and survey information to calculate alternative measures of retirement resources and income requirements.	Regardless of how retirement income and preretirement income are defined, the two-thirds of households with pensions approximate the 65–75 percent threshold of adequacy; households without pensions fare less well.

Source: Authors' analysis.

Notes: HRS = Health and Retirement Survey; SCF = Survey of Consumer Finances; SIPP = Survey of Income and Program Participation; and NBS = New Beneficiary Survey.

Social Security wealth (obtained by projecting covered earnings until the expected age of retirement), pension wealth, financial assets, and housing assets. These annuitized values as of 1992 are then compared with the 1992 earnings of the household, yielding a replacement rate at each individual's expected age of retirement. The authors report nominal replacement rates when the average respondent was 56 years for the median household at 97 percent, while the real replacement rate was 66 percent (see also Montalto 2001).

A similar accounting approach is followed by Wolff (2002) who relies on repeated cross-sectional Surveys of Consumer Finance (for 1983, 1985, 1989, and 1998). He reaches a gloomy conclusion by calculating 'expected retirement income'—a crude estimate of annuitized wealth at the expected age of retirement—for households in each of the annual surveys. He finds that average expected retirement income grew from 1989 to 1998, but the percentage of households' age 47–64 who would have expected retirement income below the poverty line rose from 17 to 19 percent. He also concludes that an unequal distribution of financial market gains during this period implies a rising percentage of people with expected retirement income below a half of *current* income, growing from 30 to 43 percent. For these reasons, Wolfe concludes that there is an increasingly serious shortfall in retirement income.[3]

Our own prior related research looks wealth and measures of adequacy using the New Beneficiary Survey (NBS) sample of individuals who first received Social Security retired-worker benefits in 1980–81 (Haveman et al. 2006). Below we discuss this in more detail; here we simply note that we estimate a comprehensive measure of annuitized wealth in 1982 and ask what level of potential consumption could be maintained over the remaining lifetime of the individual (and spouse, if married) if assets were annuitized and all sources of retirement income were counted. Our results suggest a modest resource adequacy problem: if the income replacement target is 70 percent of preretirement pay, we find that approximately 30 percent of new retirees have insufficient resources.

A different set of authors has taken a different modeling tack, developing a stochastic life-cycle model to compute retirement preparedness. For instance, Engen et al. (1999) posit that married two-child families maximize lifetime utility by optimizing consumption and savings both for retirement (assumed to occur at age 62) and as a precaution against uncertainty.[4] Optimal wealth accumulation is defined as that which enables smoothing of the marginal utility of consumption over the life cycle. The authors then compare the distribution of simulated results (for couples differentiated by age–education–pension coverage) with actual wealth/earnings distributions for working couples (taken from both the HRS and selected Surveys of Consumer Finance). Assuming a 3 percent rate of time preference, they

find that over 60 percent of married couples exceed the median target wealth/earnings ratio (relative to an expected 50 percent in a stochastic model), suggesting that overall savings are more than 'optimal' at the median of the distribution. But comparisons at other points in the distribution suggest that about a quarter of couple households are under saving. Based on these results, the authors calculate replacement rates (defined as the ratio of Social Security and pension benefits plus income, but no principal, from wealth to final earnings), and find a median value of 72 percent. The authors argue that, considering lower consumption needs in retirement, 'even without saving a large share of income in terms of financial assets, households can easily achieve replacement rates that are within the range recommended by financial planners and by the simulation model.'

This stochastic approach was extended by Scholz et al. (2005) whose life-cycle model reflects uncertainty regarding life expectancy, the uninsurability of certain future income and expense flows, and the characteristics of tax, transfer, social, and private pension arrangements. That model also assumes that each household can solve the optimal consumption/savings decision problem over the remaining years of its life. This solution, together with earnings histories, enables a prediction of optimum wealth holdings for a representative sample of HRS observations. Their model 'explains' over 80 percent of the variation in wealth holdings, so the authors conclude that fewer than 20 percent of households have less actual wealth than their estimated target level. Even for them, the shortfall from optimal wealth levels is deemed small.

Yet a third strand of the adequacy literature uses microsimulation models to project cohort well-being in retirement. For instance, Butrica et al. (Chapter 4, this volume) simulate using Social Security's Model of Income in the Near Term (MINT) how well Baby Boomers will do in retirement. Their assessment is that Boomer retirees will have higher real income and lower poverty rates; their replacement rates will be lower.

A fourth strand in the adequacy literature is asking how well-off individuals seem to be as they age, and what influences their ability to weather shocks in the process. Munnell and Soto (2005*a*, 2005*b*, 2005*c*) have exploited the longitudinal nature of the HRS surveys to trace the evolution of replacement rates and compare them to target replacement rates of 65–75 percent of preretirement earnings. They conclude that households without company pensions fare poorly, whereas those with pensions do better.

Clearly there are many reasons for the different conclusions across prior studies, including differences in data, assumptions, estimation procedures, and the definition of adequacy. For example, Mitchell et al. (2000), Moore and Mitchell (2000), and Engen et al. (1999) focus on consumption

smoothing, where potential consumption targets are inferred based on preretirement pay, or income net of retirement savings. Instead, Wolff (2002) focuses on wealth accumulation at retirement and its ability to generate income (and implied consumption) above the poverty threshold. And even when the main conclusions differ, all prior studies agree that there is wide heterogeneity in saving adequacy. Indeed, when comparing differences across studies, Engen et al. (1999) suggest that there may be less disagreement regarding the overall adequacy of retirement savings than is generally recognized, after when adjustments are made for differences in assumptions and estimating procedures.

Methodology: *Savings* Sufficiency for Two Cohorts

In our prior work we estimated accumulated retirement saving for single individuals and married couples first observed at retirement in the early 1980s, and we also computed the ANW that this saving implied over their remaining lifetimes. Retirement was defined as first receipt of Social Security benefits. In what follows, we extend this research by comparing our prior results to those for a new group, one which retired about a decade later. To do so, we compare estimated ANW to two alternative criteria of minimum-acceptable consumption adequacy, namely the national poverty standard, and the 'near-poverty' standard, which we set at twice the poverty standard. We distinguish changes in overall sufficiency over time, and also intertemporal changes for particular groups of new retirees focusing on patterns among groups with high and low levels of preretirement earnings and retirement wealth.

To do so, we draw on two data-sets on individuals entering retirement, each linked to Social Security administrative records. With these comparably constructed retirement cohorts we are able to examine whether, as hypothesized by Delorme et al. (2006), later cohorts of retirees are more vulnerable than were early cohorts to inadequate retirement resources due to longer life expectancy, changes in the prevalence of defined benefit (DB) plans, and uncertainties tied to growth in financial assets of defined contribution (DC) plans and own financial portfolios.

The Early and Later Cohorts

For the early cohort, we use the New Beneficiary Survey (NBS) to assess the adequacy of economic resources available at the time of retirement as defined by the first receipt of Social Security retired-worker benefits. The NBS contains information on a sample of individuals who first received Social Security benefits in 1980–81 (Ycas 1992); they were interviewed first

in 1982 and again in 1991. Our sample is drawn from the retired-worker sample and includes individuals age 62–72 at time of first benefit receipt and who were interviewed in both years.[5]

For the later cohort we take respondents to the Health and Retirement Study (HRS) from the 1931–41 birth cohort. This original HRS sample was aged 51–61 when first interviewed in 1992 and was revisited every two years after that. In 1998, additional cohorts were added to the HRS interview sequence, including a cohort born between 1924 and 1930, labeled the Children of the Depression Age (CODA), which we include in our sample frame.[6] Our HRS sample, therefore, consists of individuals who report initial Social Security receipt in the two years prior to each interview.[7] This setup mimics the NBS data selection on first Social Security receipt in 1980–81 and the initial interview up to two years later, in 1982. The HRS respondents must be at least 62 years of age at the first benefit receipt (the minimum age at which retired-worker benefits can be received) and no older than age 72 (the maximum age we selected for our NBS analysis sample).[8] By selecting our HRS sample through the 1998 interview, all of the observations report receiving Social Security benefits by 1998.[9]

Individuals in both samples are observed as they first enter Social Security recipiency status, the point in the retirement cycle at which they choose to first draw on this important retirement asset. The NBS is of individuals who first receive Social Security during a specific one-year period. The HRS sample also observes individuals at the point of first Social Security receipt, but this event can occur over a six-year period, between 1992 and 1998. Our HRS new beneficiary sample is a younger sample than is the NBS because it is drawn largely from the original HRS cohort whom we can observe only over the early retirement-ages rather than from all new Social Security beneficiaries.[10] We adjust for this unequal age distribution (see Figure 3-1) by standardizing our HRS cohort to the NBS age distribution.[11]

The NBS and HRS Data-Sets

The NBS and HRS share features important to the study of retirement adequacy across cohorts. Both the NBS and the HRS gathered detailed information from individuals on their (and their spouse/partner's) health, retirement, and economic status, including demographic information and data on family structure, work history and current employment, health status, housing, income and assets, health and life insurance coverage, and Social Security receipt and benefits. Most important is the matching of both data-sets to Social Security administrative benefits and earnings records.[12]

Because both data-sets provide comparably detailed financial information for each spouse in married-couple households, we are able to

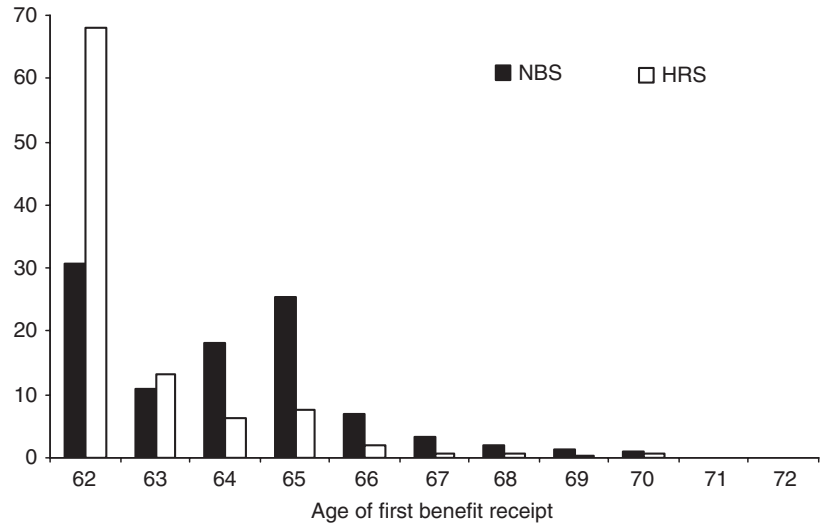


Figure 3-1. Age distribution of NBS and HRS samples. (*Source*: Authors' calculations.)

accurately estimate financial, housing, pension, and Social Security wealth for all respondents (including the period during which only one spouse in a married couple survives).[13] Asset and housing information is provided at the household level in both surveys. Our samples are of two (age-standardized) cohorts that first accepted Social Security benefits (i.e. retired) approximately a decade apart. Adopting this definition of retirement avoids the need to estimate unobserved preretirement earnings, savings, and pension and asset accretion of individuals.

Net Wealth

For respondents in both the NBS and the HRS, we calculate for each unmarried individual and married couple the present value (in $2004) of all retirement resources currently held and expected over their retired lifetimes. Net wealth, so defined, is the sum of nonpension financial wealth, the net value of own home (home value less outstanding mortgage), other property including business property, the present value of currently received and expected DB pensions, the value of all DC pension accounts [including IRA and 401(k)], and the present value of currently received and expected Social Security benefits.[14] In both data-sets, respondents report directly the value of their financial, property, and net home equity wealth. For the NBS cohort, we estimate Social Security wealth using the

monthly inflation-adjusted benefits to which each individual is entitled (from the linked Master Beneficiary File), calculating the present value (in 1982 but in $2004) of these benefits over the individual's expected remaining lifetime including, if married, the probable widow(er)hood years of the longer lived spouse. We include for a married couple spouse and survivor benefits, if greater than own retired-worker benefits. Survival probabilities to each year are drawn from 1982 race- and gender-specific life tables (US Department of Health and Human Services, Public Health Service, National Center for Health Statistics 1985). We discount this expected stream of Social Security benefits to 1982 using a 2.75 percent rate, taken to be the individual rate of time preference, yielding the wealth value of Social Security benefits.[15]

The value of current (or future expected) employer-provided pension benefits is provided by the NBS respondent (and, if married, the spouse) and reflects a nominal value of benefits at the time of interview. While few pension plans are fully price indexed, we incorporate a price adjustment estimated from the NBS data. The average annual growth rate of mean pension benefits from 1982 to 1991 for those fully retired and receiving benefits in both years was 3.25 percent between 1982 and 1991, a value that is 0.75 percentage points less than the actual 4 percent rate of inflation between those years. We thus use a 3.50 percent rate to discount pension benefit streams to 1982 [2.75 percent for individual time preference plus 0.75 (4.00 − 3.25) to capture the average erosion in the value of pensions due to inflation]. In calculating couples' pension wealth, we use survey responses that indicate whether a pensioner chose a single-life or some form of survivor benefit that would continue to be paid to a surviving spouse and adjust our pension wealth estimates for that choice.

For the HRS sample, data on pension wealth are obtained primarily from the HRS 'pension estimation program', which uses plan descriptions provided by employers, along with specific data from respondents to estimate pension entitlements held by respondents. Using assumptions on macroeconomic variables consistent with the NBS study (e.g. nominal discount rate of 3.5 percent), we estimate the present value of each respondent's or couple's stock of pension wealth. We used survey responses to questions about pension income to construct pension wealth for the CODA cohort, which was not represented in the 'pension estimation program'. For the HRS sample, we use the 'Mitchell Social Security Wealth' estimates available in the restricted version of the data. For those observations for which this value is not available (28% of our sample), we substitute calculated Social Security wealth based on the respondent's own estimate of Social Security benefits, using the same algorithm as used in the NBS estimate. For the missing (nonmatched) Social Security wealth estimates, we follow a procedure similar to those of the NBS and Mitchell, using survey responses

on current or expected retired-worker benefits amounts for both respondent and the spouse, as well as expected date of receipt if relevant. For single respondents, the estimate of Social Security wealth is the present discounted value of the stream of projected benefits taking into account his or her probability to survive until that age. We again use a 2.75 percent discount rate (reflecting a nominal rate of 3.5%) and survival probabilities based on US Decennial Life Tables for 1989–91 (US Department of Health and Human Services, Public Health Service, National Center for Health Statistics 1997).

For married couples in both the NBS and the HRS samples, Social Security plus pension wealth estimates are the expected stream of benefits of both spouses over their expected lifetimes, including that of the lone survivor who will claim survivor benefits whenever they exceed their own work-based benefits.[16]

Annuitized Net Wealth

Wealth estimates do not account for the number of remaining years of life, or the two lives of couples, over which resources must be spread. Our primary measure of well-being is the annuitized value of total assets over the remaining expected lifetime of respondents and, if married, of surviving spouses (again using race- and sex-specific life tables). Because our wealth estimates already reflect differences in inflation indexing, we use a uniform interest rate of 2.75 percent, taken to be the individual rate of time preference. The annuitized value we report is the single-person equivalent annual income that could be consumed if an individual or couple maintained a steady level of consumption potential over their remaining lifetimes, including, for couples, the period when only one is expected to survive. All wealth is annuitized assuming couples require 1.66 of the income of a single individual to maintain equivalent consumption.[17] This single-person equivalent permits easy comparison between singles and couples. It diverges from the income a couple might actually report from pensions or annuitized wealth (e.g. if an annuity were actually purchased) because we force a couple to take an annuity that preserves equivalent consumption over the survival of only one of them. This, for example, could result in lower estimated than actually reported annual pension income for a couple in which the retired worker selected a single-life pension.[18]

Characteristics of the Early (NBS) and Later (HRS) Samples

Table 3-2 summarizes key characteristics of the two samples of new Social Security retired-worker beneficiaries; all dollar values are in $2004. The

TABLE 3-2 Characteristics of New Social Security Benefit Recipients

Variable Means	*Characteristics of NBS Sample*			*Age Standardized HRS Characteristics*		
	Married Couples	*Single Men*	*Single Women*	*Married Couples*	*Single Men*	*Single Women*
Number of observations	5,783	702	1,381	1,447	196	309
Age	65.64	65.93	66.48	64.56	66.22	65.12
Male	0.66			0.56		
Nonwhite	0.08	0.19	0.15	0.10	0.15	0.23
Widowed		0.33	0.50		0.29	0.42
Separated or divorced		0.40	0.29		0.51	0.43
Respondent high school only	0.32	0.22	0.30	0.34	0.29	0.25
Respondent some college	0.14	0.10	0.19	0.19	0.22	0.24
Respondent college or higher	0.12	0.10	0.12	0.24	0.18	0.17
Spouse high school only	0.35			0.37		
Spouse some college	0.13			0.19		
Spouse college or higher	0.09			0.20		
Number of children	2.69	1.93	1.89	3.10	3.07	2.84
Respondent health condition	0.24	0.26	0.24	0.19	0.19	0.24
Spouse health condition	0.42			0.24		
Private health insurance (resp.)	0.84	0.69	0.77	0.65	0.62	0.60
Private health insurance (spouse.)				0.66		

Has a pension	0.57	0.43	0.46	0.56	0.42	0.37
Home ownership	0.87	0.46	0.57	0.92	0.66	0.68
Years worked	32.23	34.66	28.36			
Longest job uncovered	0.19	0.18	0.10	0.20	0.18	0.16
ANW	29,202	27,719	23,452	46,912	37,515	32,145
Standard deviation	26,587	26,900	18,357	58,379	39,173	44,533
Minimum	2,567	3,919	3,426	856	1,833	293
Maximum	881,687	356,590	201,494	545,456	291,385	377,839
Replacement rate (PovLine)	3.67	3.48	2.95	5.89	4.71	4.04
Standard deviation	3.34	3.38	2.31	7.33	4.92	5.59
Minimum	0.32	0.49	0.43	0.11	0.23	0.04
Maximum	110.75	44.79	25.31	68.51	36.60	47.46

Source: Authors' calculations.

Notes: NBS age is in 1982; HRS age is at first interview as recipient Health Condition: indicating poor or fair health, estimated from number of health conditions in NBS, from specific question in HRS. Pension: current or future expected pension receipt.

HRS sample is age-standardized by age of first benefit receipt to match the NBS sample (unadjusted data are available on request). The age reported in this table and that is used in our analysis is age at first post-benefit-receipt interview rather than 'retirement' age since that is the age at which financial data are reported.

Differences in the characteristics of the two beneficiary cohorts reflect changes in both overall population characteristics and the probability of subgroups achieving eligibility for retired-worker benefits. The later HRS beneficiary cohort contains a higher proportion of nonwhite respondents, reflecting both the growth in the share of the American population that is nonwhite and the increase in Social Security eligibility of the nonwhite population. Similarly, the greater percentage of new beneficiaries in higher education categories in the HRS cohort reflects the time-series rise in schooling among the population, as well as the long-term increase in women's labor force participation. Because of somewhat different health status definitions in the two data-sets, the means in respondent and spouse health conditions are not precisely comparable, though the means imply there has been no change in the overall probability of poor health among beneficiaries.[19] Comparing the early 1980s to mid-1990s retirees, private health insurance coverage has fallen somewhat, consistent with overall national patterns of declining employer-provided health care coverage and its continuation into retirement. While family size has fallen overall, the increasing labor force participation of women with children is reflected in the higher number of children among female new beneficiaries. The percentage with current or expected pension income, and the percentage, whose longest job was uncovered by Social Security, are comparable between the two data-sets.

The bottom panel of Table 3-2 summarizes our ANW estimates (in $2004) for the early and late cohorts; Figure 3-2 summarizes changes in distribution of ANW across the two cohorts. For married couples, mean ANW grew by 60 percent between the cohorts (from $29,200 to $46,900). For single men and women, the increases were 35 and 37 percent, respectively.

A striking finding is the rising dispersion in ANW across the cohorts. Across all households, the standard deviation of ANW rises by more than 140 percent, reflecting the increased inequality in financial wealth holdings over this period. The minimum value of ANW is much lower in the later sample for all HRS marital/gender groups, perhaps because of the increased likelihood of low income/wealth spouse-only individuals being included in the HRS sample. The relatively high variance of ANW in the HRS sample is likely contributing to the high standard errors in our multivariate estimates reported below.

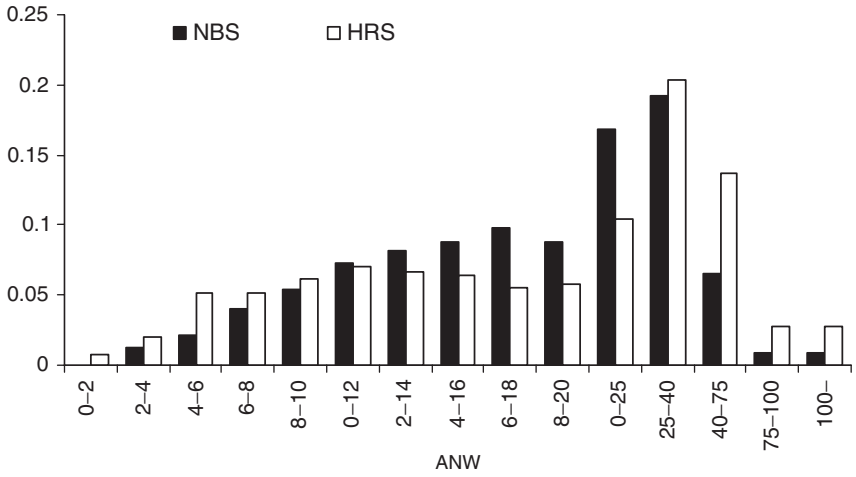


Figure 3-2. Distribution by annuitized new wealth bins ($000, in $1994). *Note*: HRS not age-weighted. (*Source*: Authors' calculations.)

Estimates of Wealth and ANW

The first panel of Table 3-3 summarizes mean wealth values at retirement for the early and later beneficiary cohorts ($2004).[20] The mean level of wealth over all individuals and couples in the samples grew by 60 percent, from the early cohort ($554,000) to the later one ($891,000). Much of this was due to rising financial wealth; for the NBS cohort, for instance, average financial wealth was nearly $125,000; a decade later, the mean level of financial/property wealth for new beneficiaries tripled. During the period, financial wealth also grew from 22 to 42 percent of total wealth. The increase in pension wealth between the cohorts is also substantial, from less than $80,000 to $194,000. Social Security wealth fell by almost 25 percent, from $263,000 in the early cohort, to $207,000 for the later cohort.[21]

We also see that, for both the early and later cohorts, the level of wealth varies substantially by race, marital status, sex, education, and the age of retirement. For both cohorts, the mean level of wealth for white households is about twice that for nonwhite households, though the difference is somewhat larger for the HRS cohort (2.4 times vs. 1.93 times for the NBS cohort). White households tend to hold a far larger share of their wealth in financial wealth than do nonwhite households (23% vs. 8.6%), although the share was larger for both groups in the HRS cohort of retirees (to 44% and 16.8%, respectively). Mean wealth for retirees in both cohorts is less

TABLE 3-3 Net Wealth and Annuitized New Wealth of NBS and HRS Sample by Sample Characteristics

	All Households	*Distribution of Wealth (%)*	*Race*		*Marital Status*		*Age at*	
			White	*Nonwhite*	*Single*	*Married*	*62–64*	*65*
New Beneficiary Survey								
Number of households	7,866		7,059	807	2,083	5,783	2,544	771
Net wealth, means								
Total net Wealth	$553,967	100.0	$582,786	$301,873	$322,244	$637,431	$522,459	$555,553
Financial/property	124,276	22.4	135,526	25,870	64,603	145,770	94,194	124,897
Housing	86,715	15.7	92,050	40,047	50,127	99,894	81,135	87,135
Pensions	79,447	14.3	83,492	44,065	49,305	90,304	90,444	79,433
Social Security	263,528	47.6	271,718	191,890	158,208	301,464	256,685	264,087
ANW, means								
Total ANW	$28,060	100.0	$29,279	$17,404	$24,890	$29,202	$24,116	$27,124
Financial/property	6,067	21.6	6,609	1,323	4,933	6,475	4,176	5,981
Housing	4,229	15.1	4,470	2,122	3,723	4,412	3,644	4,039
Pensions	4,191	14.9	4,366	2,662	3,862	4,310	4,349	4,041
Social security	13,573	48.4	13,833	11,296	12,372	14,005	11,947	13,062
Social poverty indicators, means								
ANW/poverty standard	3.52		3.68	2.19	3.13	3.67	3.03	3.41
ANW/twice poverty standard	1.76		1.84	1.09	1.56	1.83	1.51	1.70
ANW < poverty standard	0.04		0.03	0.16	0.10	0.02	0.06	0.04
ANW < 2 × poverty standard	0.23		0.19	0.54	0.37	0.18	0.31	0.25
Health and Retirement Survey								
Number of households	1,952		1,543	409	505	1,447	1,588	180
Net wealth, means								
Total net wealth	$890,918	100.0	$962,547	$402,290	$459,569	$1,095,624	$875,203	$992,265
Financial/property	376,068	42.2	421,311	67,431	172,856	472,506	342,160	489,329
Housing	113,961	12.8	122,995	52,328	72,016	133,866	108,319	113,988
Pensions	194,019	21.8	204,133	125,025	82,949	246,729	212,237	188,852
Social Security	206,871	23.2	214,107	157,506	131,748	242,522	212,487	200,096
ANW, means								
Total ANW	$42,971	100.0	$46,044	$22,006	$34,666	$46,912	$39,313	$45,405
Financial/property	17,918	41.7	19,997	3,735	12,976	20,263	15,252	22,260
Housing	5,689	13.2	6,104	2,859	5,446	5,805	4,957	5,249
Pensions	8,929	20.8	9,266	6,625	6,070	10,285	9,361	8,318
Social Security	10,435	24.3	10,676	8,787	10,173	10,559	9,743	9,579
Social poverty indicators, means								
ANW/poverty standard	5.40		5.78	2.76	4.35	5.89	4.94	5.70
ANW/twice poverty standard	2.70		2.89	1.38	2.18	2.95	2.47	2.85
ANW < poverty standard	0.08		0.06	0.25	0.17	0.04	0.07	0.09
ANW < 2 × poverty standard	0.23		0.20	0.52	0.36	0.19	0.27	0.24

Source: Authors' calculations.

Note: HRS data are age standardized (see text).

Retirement		*Marital Status/Sex*				*Education*			
66–69	*70–72*	*Single Women*	*Single Men*	*Married Women*	*Married Men*	*No High School*	*High School*	*Some College*	*College+*
4,206	345	1,381	702	1,952	3,831	3,406	2,420	1,130	910
$567,267	$620,608	$322,287	$322,160	$623,931	$644,310	$423,752	$582,800	$629,980	$870,273
135,367	209,499	58,569	76,474	125,866	155,912	70,212	130,862	155,064	270,885
88,703	102,682	54,491	41,541	93,042	103,385	64,785	90,697	104,021	136,717
74,065	63,999	48,398	51,091	85,954	92,520	47,240	81,853	94,744	174,598
269,131	244,427	160,829	153,054	319,069	292,493	241,515	279,387	276,150	288,073
$29,861	$37,284	$23,452	$27,719	$27,824	$29,905	$21,584	$28,948	$32,419	$44,527
6,752	11,853	4,168	6,437	5,841	6,799	3,418	6,309	7,810	13,171
4,477	5,943	3,850	3,471	4,270	4,484	3,144	4,386	5,153	6,728
4,137	4,027	3,571	4,436	3,820	4,559	2,518	4,203	5,047	9,361
14,495	15,462	11,863	13,374	13,893	14,063	12,504	14,050	14,409	15,267
3.75	4.68	2.95	3.48	3.49	3.76	2.71	3.64	4.07	5.59
1.88	2.34	1.47	1.74	1.75	1.88	1.36	1.82	2.04	2.80
0.03	0.05	0.10	0.09	0.02	0.02	0.07	0.02	0.01	0.02
0.18	0.14	0.37	0.36	0.20	0.16	0.36	0.14	0.12	0.07
152	32	309	196	671	776	550	704	364	334
$844,261	$808,216	$467,052	$451,113	$963,984	$1,199,169	$473,598	$845,986	$968,496	$1,373,199
333,290	388,109	168,054	178,283	359,714	561,226	149,511	387,215	382,867	618,895
115,933	158,633	77,876	65,394	125,594	140,373	73,939	113,380	112,923	162,658
191,709	50,087	85,328	80,262	220,353	267,476	69,712	137,940	257,043	362,830
203,329	211,387	135,795	127,174	258,323	230,093	180,435	207,452	215,663	228,816
$44,383	$57,396	$32,145	$37,515	$42,915	$50,056	$25,190	$39,491	$47,489	$64,673
17,244	25,842	11,625	14,504	16,194	23,464	8,534	17,867	18,334	28,600
6,182	12,342	5,333	5,574	5,640	5,934	3,898	5,345	5,961	8,036
9,511	3,825	5,711	6,476	9,735	10,718	3,182	6,168	12,020	16,813
11,447	15,387	9,476	10,961	11,346	9,940	9,576	10,111	11,174	11,225
5.57	7.21	4.04	4.71	5.39	6.29	3.16	4.96	5.96	8.12
2.79	3.60	2.02	2.36	2.70	3.14	1.58	2.48	2.98	4.06
0.10	0.00	0.19	0.14	0.02	0.05	0.20	0.05	0.03	0.02
0.24	0.07	0.39	0.33	0.18	0.19	0.47	0.24	0.15	0.07

for those who first received benefits at ages 62–64 than those who did so at later ages.[22] In both cohorts, total wealth (unadjusted for household size) was about twice as great for married compared to single respondents, and for those with more schooling. Differences for men and women by marital status are not substantial, though a higher percentage of men's wealth is in financial assets.

The second panel of Table 3-3 presents estimates of the single-person equivalent ANW values for our samples of new beneficiaries. Couples' mean ANW rise by almost two-thirds (60 percent) from the early to the later cohort, while for singles it rose by about 40 percent.[23] As was true for total wealth, ANW is positively related to the age at first benefit receipt. However, the disparity in ANW values between early (<age 65) and late retirees is greater than for wealth, as the shorter expected lifetimes of older retirees reduces the period over which retirement resources must be annuitized.[24] Furthermore, as in the case of the wealth estimates, levels of ANW vary by socioeconomic group (shown in Appendix Figure 3A-1). Between the early 1980s and the mid-1990s, ANW increased for all of the age groups, but the relative position of nonwhites, single individuals, early retirees (62–64-year olds) and those with less education eroded as their ANW grew more slowly. While ANW for whites in the HRS cohort was 57 percent larger than for whites in the NBS cohort, ANW for nonwhites increased by only 26 percent from the early to the later cohort. Among the marital status gender groups, smaller increases in ANW are seen for single men and women (35% and 37%, respectively), compared to married men (67%). The pattern seems clear; wealth (and hence, ANW) gains between the early 1980s and the mid-1990s were greatest for those groups with the greatest human capital and the strongest attachment to the labor force. The wealth advantage for whites relative to nonwhites increased substantially, expanding an already substantial racial disparity in resources at retirement.

Retirement Resource Adequacy for Newly Retired Workers

There is no universally accepted definition of retirement resource adequacy, and no consensus on the means of achieving this goal.[25] Nevertheless, we are able to address the question: 'Do newly retired workers have resources sufficient to enable them to escape poverty or near poverty during retirement?' This adequacy criterion reflects a social norm—the meeting of basic needs—irrespective of individual preretirement living standards. We also study the relative importance of public and private resources

in supporting retirement and the effects of individual characteristics in individuals' ability to meet these adequacy criteria. Specifically, we posit two absolute standards, namely a *family-size-conditioned poverty threshold*, and a threshold equal to *twice the poverty threshold*; the latter is commonly referred to as a near-poverty standard.[26] A ratio of ANW to the poverty line (or twice the poverty line) of one or more is interpreted as a level of retirement resources sufficient to avoid poverty (or near poverty) throughout the retirement period.

The final panel of Table 3-3 indicates households' position relative to the social minimum consumption ratios. For the early and late cohorts, respectively, the poverty line ratios are 3.5 and nearly 5.5; for the near-poverty standard the ratios are 1.8 and 2.7, respectively. The increase in the mean ratio reflects the increase in ANW across the two cohorts. Table 3-3 also shows the percentage of respondents in the various groups who fail to meet the poverty and near-poverty standards. In contrast to the large increase in mean ANW, but consistent with the increase in the standard deviation of the ANW distribution, the percentage of new beneficiaries who fail to meet the poverty standard rises from the early to the later cohort. In the early 1980s, about 4 percent of new retirees failed to have ANW in excess of the poverty threshold; by the mid-1990s, this had increased to 8 percent; the percentage of failing to meet the near-poverty standard remained stable at 23 percent.

These patterns persist generally across the more detailed demographic groups. In general, groups with lower human capital or labor force attachment (those with low education, women, singles, nonwhites, and those retired at an earlier age) have substantially lower poverty and near-poverty ratios than do those with higher levels of human capital and labor force attachment. For the early and the late cohort, those groups with low levels of human capital or labor force attachment—those with low levels of schooling, nonwhites, singles, and females—have the highest percentages failing to meet the poverty and near-poverty standards. These same disadvantaged groups experienced the largest increases in the percentage that fail to meet the poverty and near-poverty standards.

Correlates of Retirement Resource Adequacy

To describe the predictors of individual resources and resource adequacy, we next estimate multivariate regression models of ANW and indicators of falling below the poverty threshold, relating these outcomes to socioeconomic characteristics. Table 3-4 presents the ANW results for married

TABLE 3-4 Predictors of Annuitized New Wealth: New Social Security Beneficiaries: OLS Models

	Married Couples		*Single Men*		*Single Women*	
	Coefficient	t-*Value*	*Coefficient*	t-*Value*	*Coefficient*	t-*Value*
New Beneficiary Survey						
Intercept	−74.50	−7.77	−72.97	−3.11	−88.03	−6.82
Age at retirement	1.31	9.04	1.23	3.47	1.46	7.54
Nonwhite	−4.72	−4.50	−4.65	−2.41	−4.04	−3.74
Widowed			5.41	2.53	0.09	0.09
Separated or divorced			0.15	0.08	−0.49	−0.43
Respondent high school	2.84	4.12	2.30	1.23	3.84	4.25
Respondent some college	4.42	4.80	8.27	3.25	6.07	5.82
Respondent college or higher	12.00	11.35	15.94	6.27	11.66	9.27
Spouse high school	2.25	3.31				
Spouse some college	4.11	4.39				
Spouse college or higher	10.12	8.79				
Number of children	−0.20	−1.38	−0.18	−0.48	−0.50	−2.45
Longest job uncovered	3.80	5.19	4.35	2.21	3.85	3.13
Respondent health condition	−1.76	−2.71	−0.75	−0.45	−1.12	−1.29
Spouse health condition	−1.71	−3.02				
Private health insurance	4.08	5.26	4.87	2.89	2.09	2.25
Pension	6.31	10.83	11.20	7.08	9.06	11.99
Home ownership	5.98	7.23	11.68	7.57	8.38	11.08
Number of observations	5,783		702		1,381	
F-value (*p*-value)	71.7	<.0001	26.28	<.0001	55.33	<.0001
Adjusted R^2	0.1550		0.3192		0.3385	
Mean ANW ($000)	29.20		27.72		23.45	

Health and Retirement Study						
Intercept	−137.15	−3.23	68.58	0.83	−219.01	−3.15
Age at retirement	2.23	3.35	−0.83	−0.65	3.80	3.51
Nonwhite	−7.15	−2.50	−6.62	−0.94	−8.89	−2.18
Widowed			−22.92	−2.74	−6.85	−1.22
Separated or divorced			−16.46	−2.37	−6.66	−1.23
Respondent high school	5.82	2.12	3.97	0.53	−2.41	−0.49
Respondent some college	8.92	2.66	7.26	0.83	4.53	0.82
Respondent college or higher	22.40	6.07	21.35	2.36	31.04	4.53
Spouse high school	3.75	1.39				
Spouse some college	6.47	1.93				
Spouse college or higher	22.99	6.27				
Number of children	0.08	0.16	−0.23	−0.16	−1.27	−1.40
Longest job uncovered	0.67	0.26	2.99	0.46	−6.32	−1.23
Respondent health condition	−2.68	−1.00	2.39	0.33	−2.62	−0.59
Spouse health condition	−4.16	−1.65				
Private health insurance	7.22	3.35	11.76	2.02	3.32	0.82
Pension	4.82	2.27	19.50	3.31	7.46	1.76
Home ownership	16.98	4.50	27.02	4.34	13.42	3.11
Number of observations	1,447		196		309	
F-value (p-value)	20.97	<.0001	6.65	<.0001	8.65	<.0001
Adjusted R^2	0.1716		0.2736		0.2441	
Mean ANW ($000)	46.91		37.51		32.15	

Source: Authors' calculations.

Note: HRS data are age standardized (see text).

couples as well as for single men and women. Results for the early (NBS) cohort are shown in the top panel of the table. Respondents who are white, with more than a high school degree (and, if married, those with a more educated spouse), who first received retired-worker benefits at an older age, and whose longest job was uncovered by Social Security tend to have higher ANW than respondents without these characteristics. These characteristics are likely associated with higher savings propensities or more generous pensions in noncovered work. Respondents with a health condition and those who have a spouse with a health condition have lower ANW, though respondent health is statistically significant only for married couples. Two variables that directly capture the presence of components of ANW—having a private pension and owning a home—are positively and significantly related to the ANW. Finally, those with private health insurance coverage have greater ANW than those who lack private health insurance coverage. The significance of these wealth components indicate that individuals do not compensate with greater savings in other forms for the absence of an employer-provided pension or probable absence of retiree health insurance coverage. Nor is investment in housing merely an asset allocation decision; housing is either associated with or enables greater retirement resource accumulation.

The bottom panel of Table 3-4 presents results for the later (HRS) cohort. With only a few exceptions, patterns are similar, especially for married couples. In general, the size of the coefficients is larger in the regressions for the later cohort though levels of statistical significance are somewhat lower.[27] The coefficient of working in an uncovered job is substantially smaller and statistically insignificant for married couples in this cohort, most likely due to the difference in the definition of this variable between the NBS and the HRS coupled with the expansion of Social Security coverage to federal employment in the 1980s.[28] Being widowed or divorced rather than never-married suggests substantially lower ANW for the later HRS cohort than for the NBS cohort.[29] This may reflect the better labor force prospects of never-married women in the later cohort (and consequently their ability to accumulate their own retirement resources), and the financial losses among women among the larger share of women who become divorced or widowed at an early age in the later cohort.

Table 3-5 links the failure to meet the poverty standard (ANW/poverty line ≤ 1) to the same socioeconomic characteristics as above. For the early (NBS) cohort, several factors are negatively related to the probability of resource failures, including later retirement age, schooling, coverage by private health insurance, and the owning of a pension and a home. Vulnerability to poverty is higher for nonwhites, having more children, and poor

TABLE 3-5 Probability of ANW Falling Below Poverty Line Standard: Probit Models

	Married Couples				*Single Women*				*Single Men*			
	Coefficient	*S.E.*	χ^2	*Prob.*	*Coefficient*	*S.E.*	χ^2	*Prob.*	*Coefficient*	*S.E.*	χ^2	*Prob.*
New Beneficiary Survey												
Intercept	4.36	1.85	5.56	0.02	8.85	3.12	8.07	0.00	9.47	2.20	18.44	0.00
Age at retirement	−0.09	0.03	9.15	0.00	−0.14	0.05	8.57	0.00	−0.14	0.03	19.08	0.00
Nonwhite	0.72	0.12	33.25	0.00	0.33	0.20	2.79	0.09	0.63	0.15	18.02	0.00
Widowed					−0.75	0.28	7.09	0.01	−0.06	0.19	0.11	0.74
Separated or divorced					−0.49	0.22	4.88	0.03	−0.21	0.20	1.18	0.28
Respondent high school	−0.28	0.15	3.4	0.07	−0.43	0.27	2.52	0.11	−0.56	0.16	12.52	0.00
Respondent some college	−0.30	0.24	1.55	0.21	−0.27	0.41	0.42	0.52	−0.76	0.23	11.16	0.00
Respondent college or higher	−0.71	0.44	2.57	0.11	−0.24	0.38	0.40	0.52	0.17	0.24	0.48	0.49
Spouse high school	−0.49	0.15	10.48	0.00								
Spouse some college	−0.70	0.31	4.95	0.03								
Spouse college or higher	−0.54	0.45	1.44	0.23								
Number of children	0.05	0.02	8.15	0.00	0.01	0.05	0.07	0.79	0.07	0.03	5.49	0.02
Longest job uncovered	0.40	0.11	11.91	0.00	0.34	0.21	2.61	0.11	0.42	0.19	4.87	0.03
Respondent health condition	0.38	0.11	11.72	0.00	0.28	0.19	2.18	0.14	0.21	0.14	2.30	0.13
Spouse health condition	0.09	0.11	0.6	0.44								
Private health insurance	−0.45	0.11	15.89	0.00	−0.57	0.18	9.46	0.00	−0.60	0.13	19.67	0.00
Pension	−1.87	0.38	24.27	0.00	−6.54		0.00	1.00	−1.91	0.26	55.76	0.00
Home ownership	−0.80	0.11	51.63	0.00	−1.28	0.26	25.05	0.00	−1.26	0.15	73.07	0.00
Number of observations		5,783				702				1,381		
Log-likelihood		−327.10				−136.25				−256.35		

(*cont.*)

TABLE 3-5 (*continued*)

	Married Couples				*Single Women*				*Single Men*			
	Coefficient	*S.E.*	χ^2	*Prob.*	*Coefficient*	*S.E.*	χ^2	*Prob.*	*Coefficient*	*S.E.*	χ^2	*Prob.*
Health and Retirement Study												
Intercept	0.04	3.54	0	0.99	5.26	5.80	0.82	0.36	3.69	3.88	0.9	0.34
Age at retirement	0.00	0.06	0	0.97	−0.08	0.09	0.76	0.38	−0.06	0.06	0.97	0.33
Nonwhite	0.33	0.18	3.56	0.06	0.73	0.36	4.01	0.05	0.18	0.22	0.67	0.41
Widowed					−1.33	0.62	4.64	0.03	−0.07	0.31	0.04	0.83
Separated or divorced					−0.93	0.42	4.89	0.03	0.38	0.30	1.61	0.20
Respondent high school	−0.47	0.20	5.41	0.02	−0.52	0.37	1.97	0.16	−0.34	0.25	1.86	0.17
Respondent some college	−0.28	0.28	1.03	0.31	−0.93	0.63	2.18	0.14	−0.52	0.30	2.98	0.08
Respondent college or higher	−0.39	0.37	1.11	0.29	−1.64	0.74	4.89	0.03	−0.62	0.55	1.28	0.26
Spouse high school	−0.38	0.20	3.73	0.05								
Spouse some college	−0.25	0.28	0.79	0.38								
Spouse college or higher	−1.44	0.64	5.13	0.02								
Number of children	0.09	0.03	9.6	0.00	0.01	0.07	0.03	0.86	0.02	0.05	0.29	0.59
Longest job uncovered	0.33	0.20	2.72	0.10	0.65	0.39	2.82	0.09	0.34	0.28	1.44	0.23
Respondent health condition	0.00	0.18	0	0.98	0.72	0.34	4.53	0.03	0.65	0.22	8.82	0.00
Spouse health condition	0.36	0.17	4.47	0.03								
Private health insurance	−0.53	0.16	10.44	0.00	−0.16	0.32	0.24	0.62	−0.08	0.22	0.14	0.71
Pension	−1.32	0.24	29.32	0.00	−1.21	0.45	7.29	0.01	−1.34	0.33	16.63	0.00
Home ownership	−1.37	0.18	57.41	0.00	−1.38	0.38	12.97	0.00	−1.32	0.22	36.86	0.00
Number of observations		1,447				197				311		
Log-likelihood		−156.41				−42.83				−96.08		

Source: Authors' calculations.

Note: HRS data are age standardized (see text).

health conditions. The pattern of coefficients is similar for the later (HRS) cohort, though again statistical significance is somewhat less. An exception to this is the loss of any association between coverage by private health insurance and having ANW less than the poverty line among single men and women.

Since our results suggest that the most disadvantaged among the retirees do not fare well, we conduct some further exploration of the predictors of the distribution of well-being among retirees at the time of retirement. We also run quantile regressions for the married sample,[30] and these indicate the influence of a set of explanatory variables on ANW, conditional on the position in the distribution of the dependent variable. The distinct points of the ANW distribution that we use are percentiles 20, 40, 50, 60, and 80.[31] The age of retirement, which was significantly related to ANW for both cohorts, has a greater effect at high levels of ANW for the NBS sample than for the HRS sample (where age has its largest effect over the middle of the ANW distribution).[32] The negative effect of nonwhite on ANW is greater at the top of the ANW distribution for both the early and the later cohorts, although the pattern is somewhat different between the samples. The effect of education on ANW is increasing over the ANW distribution, and is especially large for those with some college and for college graduates.[33] The results for spouse schooling mimic those of the respondent for both samples. The negative influence of respondent health problems is greater for those higher in the ANW distribution, and this also is consistent across samples; the pattern is less clear for spouse health. For both cohorts, the importance of private health insurance in protecting ANW is greatest higher in the distribution of ANW. The composition of ANW in terms of pensions and home ownership appears to be more important for those higher in the distribution of ANW for the early (NBS) cohort, although the general pattern holds for the HRS sample as well. Having more children seems to have a constant effect over the ANW distribution.

Conclusions and Discussion

Our results contribute to the growing literature on the adequacy of resources of older Americans. In particular, we explore how resources have changed for two cohorts that entered retirement, defined by Social Security benefit receipt, nearly two decades apart. The rich data-sets we use permit comprehensive estimates of the wealth individuals bring into retirement, avoiding the need to forecast either wealth accumulation or earnings or the retirement age to which savings may be targeted. With these data-sets we estimate the ANW of all members of our sample, considering the age and life expectancy of the respondent (and spouse, if married). We take

into account the effect of increasing life expectancy on retirement security of successive cohorts, and we compare wealth to national standards of basic needs adequacy. The data may not be representative of all current retirees, they do provide a picture of the resources individuals deem adequate as they make a key retirement decision.[34]

We find that only about 4 percent of new retirees in the early cohort have inadequate resources; for the later cohort, about 8 percent of the respondent living units have ANW below the poverty line. This rise in exposure to poverty occurs despite wealth increases of more than 50 percent for the more recent cohort. In both cohorts, more than one-fifth of the sample has ANW less than twice the poverty threshold. Respondents failing to meet these standards are concentrated among those groups with lower levels of human capital, and/or labor force attachment (nonwhites, women, single individuals, those with low education levels, and those who retired at an early age). We also show that failure to meet social adequacy targets is increasingly concentrated among those who fared least well during their working years, with the least human capital and most modest employment patterns. In other words, vulnerability during the work life appears to persist into retirement, and this is particularly true for nonmarried men and women.

Future work can elaborate our findings in more detail, by following HRS respondents into retirement to evaluate whether anticipated saving adequacy proved sufficient. In addition, some argue that including the equity value of owner-occupied housing overstates ANW; alternative estimates can be derived. Finally, the adequacy standards we use reflect national norms of minimal acceptable consumption, but these are crude indicators of retirement resources. Future work can do more by accounting for alternative standards, as well as possible income flows from postretirement employment, intrafamily transfers, and public cash and in-kind benefits.

Acknowledgments

This research was supported by grants from the US Social Security Administration; funding was also received from the Institute for Research on Poverty, the Graduate School, and the Center for Demography and Ecology, all at the University of Wisconsin, Madison.

Notes

[1] Concern with *expost* adequacy of individual wealth holdings at the time of retirement complements that regarding the motivation and pattern of

consumption-savings choices made prior to retirement. This literature includes Modigliani and Brumberg (1954) and Kotlikoff and Summers (1981); more recent contributions include Banks et al. (1998), Bernheim et al. (2001), Hurd and Rohwedder (2003), and Venti and Wise (2000); see also Bloom et al. (2002).

[2] The Congressional Budget Office (2003) provides an extensive review of these studies and a summary of their results.

[3] For several reasons, Wolff's conclusion seems overstated. First, he assumes people aged 47–64 will accrue no additional savings between their current age and the age of their retirement. Second, he assumes that the financial and housing assets that they currently hold will not grow in real value over the years from their current age to the age of retirement. Third, his replacement rate uses 'current' earnings as the denominator.

[4] To incorporate uncertainty of earnings in preretirement years, heterogeneous earnings shocks over the preretirement years are introduced. When this stochastic pattern is recognized, some households who have optimal savings will have wealth-earnings ratios below (above) the median and hence be seen as having inadequate (adequate) savings.

[5] Our NBS sample consists of respondents who were interviewed in both years; we do not require that their spouses survive. We require a 1991 interview since data on earnings and on Social Security and pension benefits are available for many spouses of retired workers only in the later survey. We exclude from our sample individuals who have fewer than ten years of recorded Social Security earnings data after the age of 50. For details on those who attrited see Antonovics et al. (2000).

[6] With the CODA sample added to our sample, the older HRS spouses in the original HRS cohort, approximately age 68–74 when first interview in 1998, now become part of the individual sample.

[7] For a married couple, the first person to be identified determines the timing of 'retirement' for the couple.

[8] Both data-sets have age of benefit receipt. The first interview occurs up to two years after initial benefit receipt in both data-sets. Financial variables are identified as at that age. The NBS sample was truncated at age 72 since at the time of the NBS that was the age at which the earnings test was lifted. We use that same age limit in selecting the HRS sample.

[9] The 1998 cutoff is because the primary purpose of the project from which this paper derives is to track well-being over the years after this retirement point. We have done this in the NBS for the 1982–91 periods (Haveman et al. 2005). Our HRS sample is intended as one that can be followed for a minimum of six years, up to the latest 2004 interview.

[10] This is the case even though we include members of the CODA sample in our analysis. For the CODA sample, we only include those who retired in the two years prior to 1998, the period of observation that is both available and consistent with our selection for the HRS more generally.

[11] Descriptive data are weighted by the HRS weights and by the age-standardizing 'weight'. The standardization adjusts for the differential 'population sampling' of new beneficiaries from the younger HRS sample. In other words, we must observe a lower proportion of retirements at later ages among the HRS cohort because of the

younger age of the original HRS sample. Differential patterns of retirement timing by racial groups or by gender are reflected in the data, but these represent 'true' changes over time in population composition and retirement timing rather than sample selection procedures.

[12] The NBS is fully matched to Social Security Earnings History and Master Beneficiary records. The HRS is also linked to Social Security Administration (SSA) administrative data, but only for respondents who granted permission for the link; we estimate Social Security wealth from reported Social Security benefit amounts for individuals who refused permission.

[13] We use the RAND HRS data file (Version F). See http://hrsonline.isr.umich.edu/ for more information on this file.

[14] Because the NBS does not include an estimate of nonhousing debt, we subtracted the value of nonhousing debt from the HRS financial wealth estimate for consistency. The resulting overstatement of net wealth is modest as older households hold very small amount of nonhousing debt. Gist and Figueiredo (2002) report median 1989 nonhousing debt (in $1998) for those in the lowest quarter of the income distribution of $850, rising to about $2,900 for those in the middle two quartiles and to about $12,000 for those in the top quartile.

[15] We selected this rate for comparability with Smith (1995). The rate used in other studies, including those discussed above, typically ranges between 2.5 and 3.0 percent.

[16] Social Security and pension wealth for married couples is the sum of spousal wealth values. The value of Social Security benefits are estimated conditional on remaining married or being a sole survivor, using Social Security survivorship rules. If a pensioner indicated continuation of benefits to his or her surviving spouse, a joint and two-thirds (67%) survivor benefit is assumed.

[17] This equivalence scale, based on the National Academy of Sciences study of poverty measurement (Citro and Michael 1995), is used to allocate wealth—and achieve equivalent consumption—over the married and widow(er)ed lifetimes of couples.

[18] It is interesting that our annuitized values are remarkably close to the inflation-indexed annuity estimated by the Social Security Office of the Actuary (NASI 2005). The Office estimated a single unisex life annuity of approximately $741 paid to a 65-year old for a $10,000 payment. Our estimates imply on average (across our race and sex groups) a $737 annual annuity for the same payment.

[19] In the HRS, we use a self-reported health (SRH) status variable, and assign a value of 1 to those reporting fair/poor health status. For NBS, those with the four or more limitations on daily living are assigned a value of 1. Note that both samples exclude disabled workers who had received benefits prior to age 62: the NBS does so explicitly and our HRS sample by our selection criteria.

[20] Our estimates of asset values for the NBS and HRS samples tend to be greater than those based on the Survey of Income and Program Participation, but smaller than estimates of asset holdings for households headed by persons aged 62–70 years in the Survey of Consumer Finances (SCF). This latter difference is likely to be due to the higher proportion of older persons in this age range in the SCF, as well as the substantial efforts of the SCF in collecting wealth

data, especially among high-wealth individuals (available from the authors on request).

[21] This is not due to increased early retirement since all descriptive statistics are age standardized. This may still reflect differences in the probability of Social Security eligibility by gender, marital status, and other characteristics.

[22] Given the age of the initial HRS and the shorter period we observe the CODA sample we have a smaller number who retired at 66+ and so we can say less about the relative economic position of older retirees.

[23] This difference is much smaller than the marital status difference in total wealth, a result of both allocating wealth over the remaining lifetime of the longer surviving spouse and accounting for the greater consumption needs of married couples when both spouses are alive.

[24] Because our samples include only new beneficiaries, this age effect is not a measure of the effect of delaying retirement on the economic well-being of early retirees. It only indicates that those who delay retirement have both higher wealth and greater ANW.

[25] The 1965 Older Americans Act stipulates the following objective: 'An adequate income in retirement in accordance with the American standard of living'.

[26] We use the revised poverty lines suggested by the National Research Council study of poverty (Citro and Michael 1995). In 2000, the absolute poverty line for single individuals was $7961 in $2004; for married couples we used the single-person equivalent ANW.

[27] Our bootstrap estimates indicate that this is not wholly a consequence of the smaller HRS sample to test whether the difference between HRS and NBS coefficients and standard errors were attributable to differences in sample size, we simulated NBS bootstrap estimates of standard errors for an NBS sample of a size comparable to the HRS. Using this smaller NBS sample yields standard errors approximately double those in the original NBS regressions, but only about one-half of the standard errors in the HRS regressions. The higher variance of the dependent variable (ANW) in the HRS relative to the NBS could account for the remainder of the difference.

[28] The NBS asks directly about longest job coverage. The HRS asks if the respondent ever worked in an uncovered job.

[29] Note indicates the effect of marital status among single individuals at the time they retire and does not describe the effect of becoming widowed or divorced compared to being married.

[30] See Buchinsky (1998).

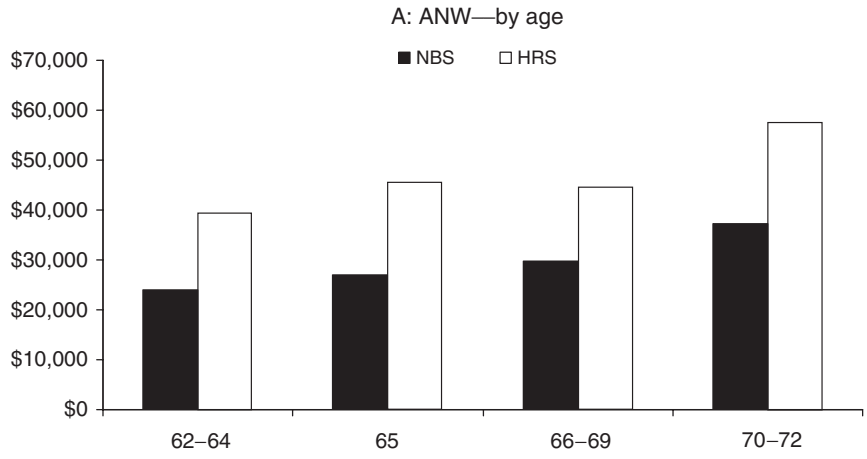
[31] Full results are available on request from the authors.

[32] This difference in samples may be tied to the slightly different sample structure of the two data-sets.

[33] For the earlier HRS cohort, this pattern is pronounced for college graduates only.

[34] Virtually all US citizens become new Social Security beneficiaries at some age. For some, that age may reflect retirement-age adjustments in response to the adequacy of savings; for others unexpected events may lead to unexpectedly early retirement.

Appendix



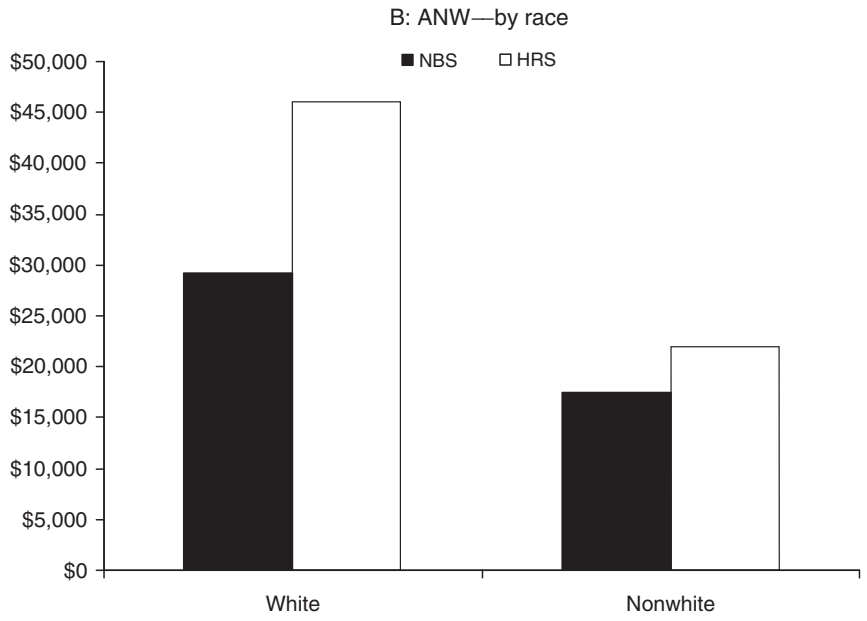


Figure 3-A1. Levels of ANW by socioeconomic group. (*Source*: Authors' calculations.)

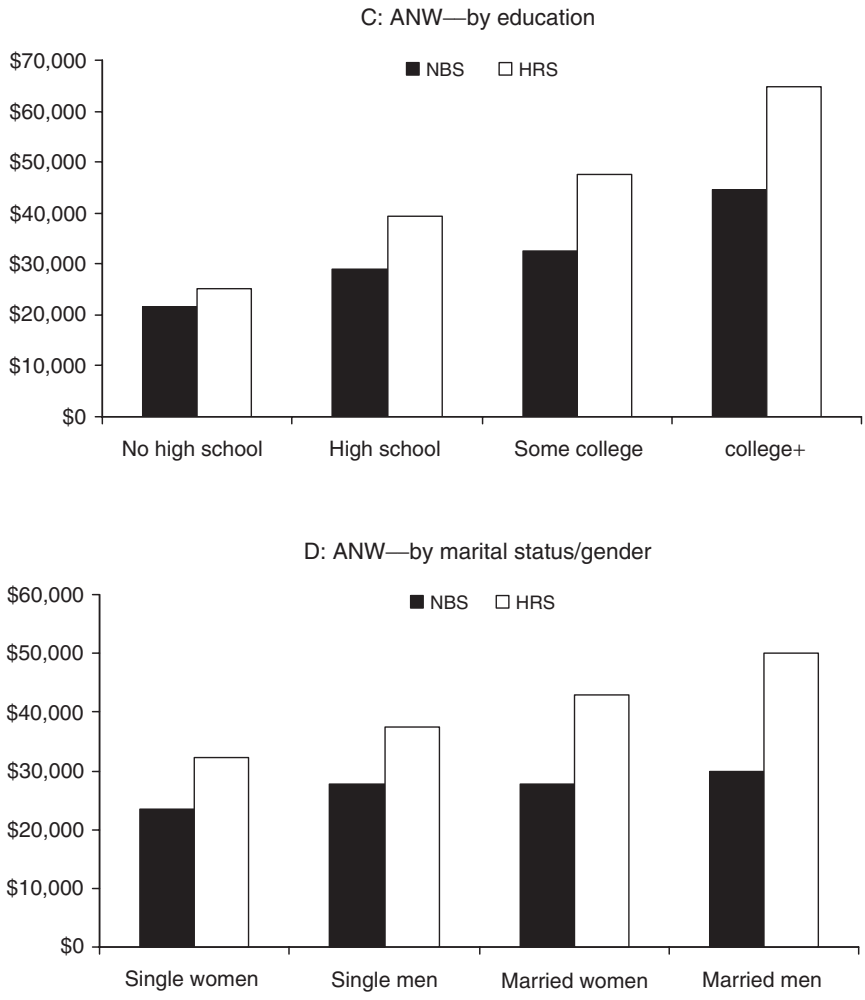


Figure 3-A1. (*continued*)

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