

Saving for Retirement: Household Bargaining and Household Net Worth

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I. Introduction

Traditional economic models of saving and retirement behavior treat the household as a single decision unit, failing to consider the separate preferences of or possible conflicts between husbands and wives. In many cases, empirical studies take an even more limited view of household decisions, including only characteristics of the male household head or the “primary respondent” in analyses of savings behavior. In this paper, we examine the effects of characteristics of both husband and wife on the net worth of married couple households in the Health and Retirement Study (HRS). We find that, though the age, education, and health status of both spouses are important determinants of net worth, simple measures of relative bargaining power do not in general have significant effects on household assets. One exception is the difference between husband’s education and wife’s education—households in which the husband has at least eight years more education than his wife have significantly lower net worth, conditional on other household characteristics.

Many of the important issues in the behavior of elderly couples involve decisions in which there may be a conflict between the needs and objectives of married men and those of their wives. Consumption and savings decisions provide a simple case. Because wives tend to be younger than their husbands and also to have longer life expectancies, wives have a longer expected retirement period to finance. This suggests that wives should prefer greater net worth at retirement and/or a lower level of household consumption, given fixed household lifetime resources. If the relative bargaining power of husbands and wives varies over married couples, due to individual characteristics or environmental factors, this may be one source of variation in wealth accumulation between households with comparable total resources.

The relative influence of husbands and wives on household decisions will depend upon relative control over income, expected well-being outside the marriage, and other sources of bargaining power within the marriage. The role of married women in household decisions may have strengthened with their increased participation in the workforce, making more general models of household decision-making increasingly important. If bargaining affects household behavior, then debates on Social Security and tax reform need to consider the impact of policy on bargaining relationships as well as on individual incentives.

II. Marital Bargaining and Household Savings

Economic models of retirement and savings behavior typically examine the optimal behavior of a single individual who faces alternative streams of utility over the remainder of his or her life. In general, however, retirees are not isolated individuals; the labor supply and consumption decisions of elderly couples will be the outcome of a joint decision-making process that reflects the preferences and interests of both husband and wife. In recent years, game-theoretic models of family decision have been developed and have received considerable empirical support, but have had little influence on the study of retirement and savings.

In general, bargaining models suggest that a variety of household and extra-household characteristics that are not usually included in savings and retirement models may affect relative bargaining power, and thus behavior.

Consider a simple multi-period unitary model in which lifetime utility of the couple is

$$V(\mathbf{g}) = \int U(C_t) e^{-rt} a_t dt + \int M(w_t) e^{-rt} p_{mt} dt + \int F(w_t) e^{-rt} p_{ft} dt + \int B(w_t) e^{-rt} m_t dt$$

where $U(\mathbf{g})$ is the couple's utility from consumption and ρ their subjective discount rate. a_t , p_{mt} , p_{ft} , and m_t are the probabilities that, at time t , both spouses are alive, only the husband is alive, only the wife is alive, and that the surviving spouse dies. $M(\mathbf{g})$ and $F(\mathbf{g})$ are the widower's and widow's utility of wealth, and $B(\mathbf{g})$ the couple's utility from bequests. Hurd (1999) uses this model to analyze the effect of mortality risk on the decisions of a couple that maximizes this common objective function subject to a pooled resource constraint.

A collective alternative to the unitary model allows the couple to "bargain" over the consumption path. In a collective model, the husband and wife have separate utility functions:

$$V^M(\mathbf{g}) = v^M(C_t, M, F, B)$$

$$V^F(\mathbf{g}) = v^F(C_t, M, F, B)$$

in which the weights they place on joint consumption, the value of wealth received by self and spouse at widowhood, and bequests may differ. Both the general collective approach and cooperative bargaining models impose a Pareto-optimal joint solution in which the couple maximizes a weighted sum of their individual utilities, $m(X)V^M + (1 - m(X))V^F$, where the "sharing rule," $m(X)$, depends upon variables that affect the relative bargaining power of

husband and wife, such as each spouse's control over household resources and the value of the best alternative to agreement, which may be outside the marriage. These factors may depend, in turn, upon both permanent and transitory individual characteristics (education and health), and upon policy and institutional variables such as the tax code and marital property laws. Changes in X will alter the household's consumption and savings decisions. For instance, if the wife's relative wage rises, her relative bargaining power may rise, and thus her share of utility may increase in equilibrium.

We hypothesize that, in periods near retirement, the net worth of households in which the wife has greater bargaining power will be greater than the net worth of households that possess the same total lifetime resources but in which the wife has less power. We do not impose a particular bargaining structure, but use a simple reduced form collective model that will allow us to test whether our measures of bargaining power affect household net worth.

III. Data

We use the first wave of the Health and Retirement Study (HRS), a national longitudinal survey of older Americans which began in 1992. Individuals chosen for inclusion in the HRS were aged 51 to 61 in 1992, or were married to or cohabiting with a survey respondent in this age range. We use a sample of married and cohabiting opposite-sex couples in which the man is aged 45 to 70 and the woman is aged 40 to 65. These age limitations result in exclusion of 225 couples in which the spouse was substantially younger or older than the age-eligible respondent, but approximately preserves the mean age of men and women in the sample.

The HRS data provide detailed information on the value of assets as well as on liabilities, allowing calculation of the couple's net worth.¹ Earned income and pension income received in 1991 is attributed to the person who received that income, allowing us to construct the wife's share (in earnings and pensions) of the couple's total income. Educational attainment of husband and wife, including highest degree, is reported. The labor market status, race, and self-reported ordinal health status (five categories) of each spouse, and the couple's geographic region of residence are among additional variables we utilize. Table 1 gives means for variables used in our analysis.

¹ Our net worth measure includes home equity. It does not include the present value of future Social Security and pension benefits or the value of 401-K and similar accounts. These values can be calculated using restricted data from Social Security records and employer pension plan details, and will be used in future work.

IV. Empirical Results

Table 2 presents results of a “standard” model of net worth, which includes only characteristics of the husband. There is a strong positive relationship between the log of household net worth and the husband’s education level and health status, as expected. A set of 3-year age categories is included to allow net worth to vary with age in a general way. There are strong regional patterns in household net worth, and households with white, non-Hispanic husbands have higher net worth than all other race and ethnic groups. The husband’s current work status is included in one specification in Table 2 and, though some categories are significant, does not have a substantive effect on the other coefficients. Since the timing of retirement, and thus work status, is jointly determined with net worth, these variables are omitted from other specifications.

Table 3 reports results from a specification that is consistent with a “unitary” model of household net worth, in which the household acts as a single decision unit. In the absence of bargaining over savings decisions within households, a model that included the characteristics of both husband and wife is the appropriate framework, since they will affect both total household resources and the joint objectives of the couple. Both sets of characteristics are highly significant, and the magnitudes of the estimated effects of wife’s education, health, and age are comparable to those of the husband’s characteristics. The complete unitary model represents a substantial improvement over the models in Table 2 in explaining variation in net worth in this sample, with an increase in R-square from .25 to .31. This result suggests that expanding the focus of studies that investigate saving and net worth beyond the single-agent standard to include the characteristics of both spouses will result in better predictions of behavior.

Next we augment the unitary model by incorporating variables suggested by the household bargaining framework. Valid measures of the relative bargaining power of husbands and wives are not easy to construct. In general, we expect bargaining power to depend upon the control that husband and wife have over household income and other resources, and on their expected well-being outside the marriage. Relative income would seem to be the most straightforward indicator of control over household resources, but relative earnings will reflect relative wage rates, which affect time use and savings through the prices of husband’s and wife’s time. We use relative current income as one measure of bargaining power but recognize that this measure is likely to be endogenous with respect to savings behavior. A more long-term measure

of potential income would be preferable, and we include relative years of education as a proxy for relative potential earnings of husband and wife.

The relative age of the wife has been found to be positively related to her share of household expenditures, and we include this as an additional measure of relative control over household decisions. However, wife's age may also act as a proxy for her remarriage prospects, which are likely to deteriorate with age more rapidly than those of her husband and thus decrease her relative bargaining power.

Table 4 presents estimates from models that introduce relative characteristics of husbands and wives as measures of relative bargaining power. Model 1 adds the age difference between husband and wife (his years less her years) and a set of dummy variables representing categories of differences in their educational attainment.² The effect of a difference in education is significant in only one case: when the husband has eight or more years of education more than his wife the couple has lower net worth even after controlling for levels of education. This effect is strongly significant, and is robust to various specifications. This implies that when the wife has very low education relative to her husband, which may imply she has less power over household decisions, household net worth is lower. This result provides some evidence in favor of a collective household framework as a basis for long-term savings behavior in multi-person households.

The age difference does not appear to have a significant effect on net worth. We also examined spousal differences in father's education and in mother's education as well as the wife's parents' education difference (her mother's years less her father's years) and did not find any of these to be significantly associated with household net worth (results are not shown).

Model 2 also includes the wife's share of current income, and the estimated effect is significantly negative. However, current income may not be a good measure of long-term control over resources and thus of control over household decisions. In addition, current household income is endogenous with respect to household wealth. Given the problematic nature of this variable, we exclude it from Models 1 and 3, but the construction of a better measure of permanent income and the wife's share of that income is a high priority. We also note that relative years of education may be a better measure of long-run income control than the

² In constructing these variables, we assigned a number of years for degrees which would require more than 17 years of schooling on average, as the HRS variable for years of education is truncated at 17.

share of current income.

Model 3 is like Model 1 except that the age difference is excluded. We have a weaker *a priori* belief regarding the effect of the age difference on the wife's relative power over household decisions than is the case for the difference in education. Excluding the age difference does affect the magnitude and significance of some of the age-category dummy variables, but does not affect the size or significance of the education difference variables.

V. Conclusion

Our unitary model of household net worth finds that characteristics of both spouses are important predictors of net worth for married couple households. Models of net worth that exclude the characteristics of the wife, or of one spouse generally, ignore significant determinants of the total resources and savings behavior of households.

Relative characteristics of husbands and wives may also affect net worth if spouses have different savings objectives, perhaps due to different life expectancies, and these characteristics affect the spouses' relative bargaining power. If this is the case, then policies that influence the balance of decision-making power in households have been overlooked as a potential means of increasing private household saving for retirement, and perhaps age at retirement. The results of our "collective" model, which includes indicators of the relative control over resources of husbands and wives, show only limited evidence that the wife's long-run relative power over household decisions is positively associated with household net worth. Households in which the husband has substantially more education than his wife have significantly lower net worth, as a bargaining model would predict. More conclusive tests of the influence of household bargaining on net worth may be possible with better measures of total household resources, and exogenous measures of relative bargaining power, such as variations in divorce and property laws.

Table 1 Means of Key Variables

Variable	N	Mean	(Std Dev)
His age	4717	56.718	(5.209)
Her age	4717	52.821	(5.085)
His health, scale 1-5, 5=poor	4717	2.576	(1.182)
Her health, scale 1-5, 5=poor	4717	2.459	(1.150)
His educ in years	4717	12.064	(3.496)
Her educ in years	4717	12.128	(2.887)
Couple's total annual income (thousands)	4717	52.162	(48.108)
Wife's share of couple's income	4686	0.237	(0.246)
Household total net worth (thousands)	4717	219.085	(389.767)
Husband working	4717	0.691	(0.462)
Husband unemployed	4717	0.032	(0.176)
Husband temporarily off work	4717	0.015	(0.121)
Husband disabled	4717	0.095	(0.293)
Husband retired	4717	0.218	(0.413)
Husband – other work status	4717	0.008	(0.089)

Table 2 “Standard” Models of (Log) Household Net Worth

	Without work status		With work status	
Intercept	4.239***	(0.077)	4.278***	(0.119)
Husband working			0.022	(0.094)
unemployed			-0.579***	(0.136)
temporarily laid off			-0.278	(0.173)
disabled			-0.503***	(0.104)
retired			0.331***	(0.086)
other work status			0.072	(0.219)
Husband's health excellent	0.319***	(0.056)	0.294***	(0.055)
very good	0.195***	(0.052)	0.177***	(0.051)
fair	-0.162***	(0.064)	-0.085	(0.065)
poor	-0.638***	(0.08)	-0.353***	(0.091)
Husband completed high school	0.617***	(0.052)	0.569***	(0.052)
has some college	0.623***	(0.064)	0.595***	(0.063)
has Associate's degree	0.664***	(0.115)	0.618***	(0.114)
has BA, BS	1.076***	(0.072)	1.036***	(0.072)
has Master's degree	1.131***	(0.098)	1.042***	(0.097)
has MBA	1.14***	(0.236)	1.09***	(0.233)
has law, MD degree	1.814***	(0.148)	1.776***	(0.147)
has PhD	1.42***	(0.168)	1.38***	(0.166)
Husband aged 45-48	-0.51***	(0.158)	-0.491***	(0.157)
49-51	-0.345***	(0.066)	-0.316***	(0.065)
52-54	-0.217***	(0.059)	-0.192***	(0.059)
58-60	0.149**	(0.061)	0.137**	(0.061)
61-63	0.241***	(0.071)	0.126*	(0.073)
64-66	0.224**	(0.093)	0.03	(0.097)
67-69	0.144	(0.127)	-0.065	(0.13)
70-72	-0.264	(0.175)	-0.525***	(0.177)
73-75	0.258	(0.235)	0.019	(0.236)
Midwest	-0.099	(0.061)	-0.136**	(0.061)
South	-0.243***	(0.056)	-0.272***	(0.056)
West	0.144**	(0.069)	0.113*	(0.069)
Husband's race: black	-0.756***	(0.06)	-0.746***	(0.06)
Asian	-0.514***	(0.19)	-0.484***	(0.188)
Hispanic/Latino	-0.786***	(0.074)	-0.737***	(0.073)
other non-white	-0.918***	(0.212)	-0.872***	(0.21)
R ²	.252		.269	

Standard errors in parentheses.

*, **, *** = statistically significant at 10%, 5%, and 1% respectively.

Table 3 Unitary Model of (Log) Household Net Worth

Intercept	4.328***	(0.102)
Number of living children	-0.065***	(0.009)
Husband's health excellent	0.246***	(0.054)
very good	0.144***	(0.05)
fair	-0.111*	(0.062)
poor	-0.449***	(0.078)
Wife's health excellent	0.305***	(0.054)
very good	0.24***	(0.05)
fair	-0.251***	(0.064)
poor	-0.551***	(0.088)
Husband completed high school	0.402***	(0.052)
has some college	0.343***	(0.065)
has Associate's degree	0.44***	(0.112)
has BA, BS	0.647***	(0.075)
has Master's degree	0.565***	(0.103)
has MBA	0.667***	(0.23)
has law, MD degree	1.303***	(0.15)
has PhD	0.829***	(0.169)
Wife completed high school	0.329***	(0.054)
has some college	0.515***	(0.067)
has Associate's degree	0.584***	(0.11)
has BA, BS	0.539***	(0.087)
has Master's degree	0.788***	(0.11)
has MBA	1.129***	(0.375)
has law, MD degree (n=6)	-0.128	(0.53)
has PhD	1.363***	(0.297)
Husband aged 45-48	-0.516***	(0.153)
49-51	-0.192***	(0.068)
52-54	-0.135**	(0.06)
58-60	0.097	(0.061)
61-63	0.131*	(0.075)
64-66	0.118	(0.094)
67-69	0.057	(0.126)
70-72	-0.348**	(0.17)
73-75	0.228	(0.23)
Wife aged 40-42	-0.716***	(0.12)
43-45	-0.453***	(0.096)
46-48	-0.377***	(0.08)
49-51	-0.163***	(0.067)
52-54	-0.069	(0.061)
58-60	0.106*	(0.064)
61-63	0.093	(0.139)
64-66	0.031	(0.221)
67-70	-0.075	(0.345)
Husband's race: black	-0.631***	(0.059)
Asian	-0.414**	(0.183)
Hispanic/Latino	-0.499	(0.074)
other non-white	-0.753	(0.204)
R ²	.313	

Standard errors in parentheses.

*, **, *** = statistically significant at 10%, 5%, and 1% respectively.

Region is included in model but not shown in table (effects similar to those in Table 2).

Table 4 Collective Models of (Log) Household Net Worth

	Model 1		Model 2		Model 3	
He has 8+ years more educ	-0.459**	(0.202)	-0.503***	(0.201)	-0.458**	(0.202)
He has 5-7 years more educ	-0.026	(0.095)	-0.036	(0.095)	-0.025	(0.095)
She has 5-7 years more educ	-0.033	(0.091)	-0.029	(0.092)	-0.033	(0.091)
She has 8+ years more educ	-0.027	(0.167)	-0.016	(0.168)	-0.029	(0.167)
Age difference (his-her years)	0.006	(0.017)	0.006	(0.017)		
Wife's share of current income			-0.424***	(0.08)		
Husband completed high school	0.408***	(0.055)	0.415***	(0.055)	0.407***	(0.055)
has some college	0.357***	(0.068)	0.361***	(0.068)	0.356***	(0.068)
has Associate's degree	0.455***	(0.114)	0.468***	(0.114)	0.455***	(0.114)
has BA, BS	0.663***	(0.082)	0.665***	(0.082)	0.663***	(0.082)
has Master's degree	0.591***	(0.113)	0.58***	(0.113)	0.59***	(0.113)
has MBA	0.691***	(0.236)	0.675***	(0.238)	0.688***	(0.236)
has law, MD degree	1.362***	(0.164)	1.295***	(0.164)	1.363***	(0.164)
has PhD	0.929***	(0.188)	0.897***	(0.187)	0.927***	(0.188)
Wife completed high school	0.319***	(0.055)	0.333***	(0.055)	0.318***	(0.055)
has some college	0.497***	(0.07)	0.526***	(0.07)	0.497***	(0.07)
has Associate's degree	0.566***	(0.113)	0.612***	(0.113)	0.566***	(0.113)
has BA, BS	0.512***	(0.093)	0.557***	(0.093)	0.512***	(0.093)
has Master's degree	0.759***	(0.12)	0.841***	(0.121)	0.76***	(0.12)
has MBA	1.1***	(0.376)	1.173***	(0.375)	1.1***	(0.376)
has law, MD degree (n=6)	-0.178	(0.534)	-0.055	(0.532)	-0.18	(0.534)
has PhD	1.323***	(0.305)	1.458***	(0.311)	1.322***	(0.305)
Husband aged 45-48	-0.454**	(0.22)	-0.446**	(0.22)	-0.513***	(0.153)
49-51	-0.158	(0.113)	-0.153	(0.112)	-0.192***	(0.068)
52-54	-0.117	(0.077)	-0.117	(0.077)	-0.135**	(0.06)
58-60	0.08	(0.077)	0.092	(0.077)	0.097	(0.061)
61-63	0.098	(0.119)	0.107	(0.118)	0.133*	(0.075)
64-66	0.071	(0.169)	0.07	(0.168)	0.124	(0.094)
67-69	-0.013	(0.229)	-0.007	(0.228)	0.059	(0.126)
70-72	-0.414	(0.294)	-0.4	(0.293)	-0.323*	(0.171)
73-75	0.117	(0.367)	0.135	(0.365)	0.225	(0.23)
Wife aged 40-42	-0.806***	(0.266)	-0.778***	(0.265)	-0.716***	(0.12)
43-45	-0.524***	(0.213)	-0.496**	(0.213)	-0.452***	(0.096)
46-48	-0.427***	(0.16)	-0.411***	(0.159)	-0.375***	(0.08)
49-51	-0.196*	(0.114)	-0.183	(0.113)	-0.161**	(0.067)
52-54	-0.086	(0.076)	-0.076	(0.076)	-0.069	(0.061)
58-60	0.127	(0.08)	0.126	(0.08)	0.109*	(0.064)
61-63	0.137	(0.169)	0.162	(0.169)	0.101	(0.139)
64-66	0.087	(0.265)	0.038	(0.266)	0.032	(0.221)
67-70	0.033	(0.408)	-0.004	(0.406)	-0.049	(0.346)
R ²	.314		.317		.314	

Standard errors in parentheses.

*, **, *** = statistically significant at 10%, 5%, and 1% respectively.

Models also include a constant term and control variables for region of residence, number of living children, husband and wife's health status, and husband's race.