Health Status and Portfolio Choice

by

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ABSTRACT

This paper analyzes the role that health status plays in household portfolio decisions using data from the first wave of the Health and Retirement Study. The results indicate that health is a significant predictor of both the probability of owning different types of financial assets and the share of financial wealth held in each asset category. Households in poor health are less likely to hold both safe and risky financial assets, other things (including the level of total wealth) being the same. Poor health is associated with a smaller share of financial wealth held in risky assets and a larger share in safe assets. We find no evidence that the cross sectional relationship between health status and portfolio allocation is driven by "third variables" that simultaneously affect health and financial decisions. Further, the relationship between health status and portfolio choice does not appear to operate through the effect of poor health on individuals' attitudes toward risk or their planning horizons.

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1. Introduction

Economists have long realized the importance of understanding individual portfolio choice. People's decisions about what financial assets to hold affect the course of stock and bond prices, influence real decisions such as corporate investment, and determine in part the efficacy of monetary policy. In recent years, attention to this issue has intensified given the public policy concern with issues such as the adequacy of households' retirement saving, and how people might allocate their wealth if social security became privatized. Recent empirical work on individual portfolio choice has focused on a number of important questions, including the impacts of bequest motives (Hurd [2001]), undiversifiable human capital risk (Heaton and Lucas [2000]), and the differential tax treatment of income generated by various assets (Poterba [2001]).

The role of health status has received little attention. While several studies have documented that health affects total wealth accumulation (Smith [1999], Venti and Wise [2000], Wu [2001]), we know of no research on how health influences the allocation of that wealth to various assets. *A priori*, the existence of health effects seems reasonable. Poor health may influence an individual's marginal utility of consumption, her degree of risk aversion, rate of time preference, and the variability of her labor income, all of which could affect portfolio composition. As the baby boomers grow older and their health begins to deteriorate, it seems particularly pressing to understand how poor health affects portfolio allocation decisions.

The purpose of this paper is to investigate whether differences in health status help explain differences in individual portfolio composition, *ceteris paribus*. We examine how health status is related to both the probability that a household holds a

particular type of asset in its portfolio, and the share of financial wealth held in each asset category. The remainder of the paper is organized as follows. Section 2 reviews previous empirical work on household portfolio choice. Section 3 discusses the empirical strategy and describes the data. In Sections 4 and 5 we examine the impact of health status on the choice of assets and on the proportion of financial wealth held in the various assets, respectively. We find that health effects are present in both sets of decisions. In particular, households in poor health are less likely to hold both safe and risky financial assets, other things (including the level of total wealth) being the same. Further, poor health is associated with a smaller share of financial wealth held in risky assets and a larger share in safe assets. Section 6 concludes with a summary and suggestions for future research.

2. Previous Literature

A rich theoretical literature demonstrates how portfolio decisions depend on factors such as risk aversion and investment opportunities.[1] Early contributions analyzed static models in which an investor selects the portfolio that maximizes expected utility given total wealth and the risk-return pattern of available assets (Tobin [1958] and Mossin [1969]). More recent research has moved to a dynamic framework in which one's portfolio is selected to maximize expected lifetime utility. Important issues include the role of incomplete portfolios (King and Leape [1998]), human capital uncertainty (Heaton and Lucas [1997]), the ability to substitute labor income for asset income (Bodie, Merton and Samuelson [1992]), and uncertain time horizons (Foldes [2000]).

The empirical literature on portfolio choice has sought to find observable variables that explain cross sectional variation in portfolio behavior. Typically, the

covariates used include resources available to the household (total wealth and income) as well as demographic characteristics (age, race, gender, marital status). Such variables are generally statistically significant and quantitatively important in regressions explaining portfolio behavior, both in U.S. and European data. (See, for example, Bertaut and Starr-McCluer [2001], Carroll [2001] and Guiso *et al.* [2001]).

Most empirical work in this area addresses two distinct but related questions regarding portfolio choice. First, does the individual or household hold a positive amount of a given asset at all? Second, what proportion of the total portfolio is held in each asset? This approach of estimating reduced-form models for ownership probabilities and for portfolio shares has served as a fruitful starting point for analyzing a number of issues relating to portfolio allocation. Examples include Poterba and Samwick [1999], who include marginal tax rates to study the impact of the federal income tax; Heaton and Lucas [2000], who use a measure of the variability of labor income to investigate whether the riskiness of human capital affects the demand for financial assets; and Hurd [2001], who includes an indicator variable for whether the individual has a bequest motive to see if such a motive increases the investor's effective time horizon. We adopt the same basic approach to analyze the effect of health status on portfolio composition.

3. Data and Empirical Strategy

3.1 Description

We use data from the first wave of the Health and Retirement Study (HRS). The HRS is a nationally representative panel of approximately 7,000 households with a primary respondent between the ages of 51 and 61 during the first year of the survey. The first wave of the study was conducted in 1992, so the primary respondents represent

[1] See Gollier [2001] for an excellent survey.

cohorts born between 1931-1941.[2] The survey collects detailed information on health and cognitive status, the nature of retirement decisions, housing, income and wealth holdings, work history, family composition, and the availability of insurance and pensions. Of particular interest for our analysis is that the HRS provides information on each household's holdings of the following financial assets: checking, savings and money market accounts, CDs, bonds and bond funds, government savings bonds and T-bills, stocks, mutual funds and IRA and Keogh accounts.

Conducting an analysis of portfolio decisions requires that one specify the set of assets from which the investor chooses. In practice, some arbitrariness is involved in aggregating financial assets into relatively homogeneous groups that are suitable for statistical analysis. A typical strategy is to collapse financial assets into three classes, "safe," "medium risky," and "risky" (Hurd [2001]), although some studies construct as many as eight to ten categories (Poterba and Samwick [1999]). We use a four-way classification scheme consisting of safe assets (checking and savings accounts, money market funds, CDs, government savings bonds and T-bills), bonds (corporate, municipal and foreign bonds and bond funds), risky assets (stocks and mutual funds), and retirement accounts (IRAs and Keoghs). This is quite similar to Hurd's [2001] approach, except that he combines retirement accounts and bonds into one category. However, given the special tax treatment of IRA and Keogh accounts, and the fact that they may be relatively illiquid for some households, it is seems sensible to segregate them (as do Poterba and Samwick [1999] and King and Leape [1998]). Unfortunately, the HRS does not indicate

[2] While these data are not representative of the entire age distribution of households, Poterba [1994, p. 2] and others have shown that net worth is highly concentrated among older households, so they are a natural group to study in this context.

what kinds of assets are in the retirement accounts. The Survey of Consumer Finances (SCF) does provide some information. On the basis of SCF tabulations, we allocated each household's retirement accounts to stocks and bonds. Doing so did not change the substantive results of our analysis of portfolio shares. [3]

Table 1 presents summary statistics of the key variables, including demographic characteristics and financial wealth holdings. The average age of husbands is roughly 58 years and the average age of wives is 53, while singles are 56 years of age on average. 66 percent of single people are female and 30 percent are black. For married couples, approximately 13 percent of husbands and wives are black. Single people have slightly over $35,000 in financial assets on average; the figure for couples is $69,000.

Approximately 66 percent of singles and 86 percent of married couples have a positive amount of safe asset holdings. The percentages for the other categories are much lower – only 17 percent of singles own any risky assets, while 32 percent of married couples have a positive amount of these assets. The analogous numbers for bonds are only 4 percent and 7 percent. The figures in this table are consistent with previous findings that many households have incomplete portfolios in the sense that they do not own positive amounts of every type of asset. Conditional on having financial wealth, the great majority of it is held in safe assets – an average of 70 percent for singles and 60 percent for couples.

One important issue in studying portfolio *shares* is how broadly the measure of wealth in the denominator should be defined. Different pictures can emerge if one uses financial assets, all physical assets (including homes and automobiles), or physical assets plus human capital as the relevant measure of wealth (Heaton and Lucas [2000]). We

[3] We thank Andrew Samwick for providing us with the relevant SCF data.

follow most previous investigators in looking at shares of financial assets. We compute portfolio shares for all individuals who report positive financial assets.[4]

Our health status variable is based on the answer to the following question: "Would you say your health in general is excellent, very good, good, fair, or poor?" The HRS codes the answers to this question on a 1 to 5 scale, with 1 representing excellent health and 5 representing poor health. We create a dichotomous variable *Sick*, which takes a value of one if the individual rates his or her health as "fair" or "poor" and zero otherwise.[5] A large literature documents the validity of self-reported health measures. Poor self-reported health is strongly correlated with mortality even after controlling for indices of functional capacity, the presence of specific medical conditions and physician health assessments (Idler and Benyamini [1997]). Additional evidence along these lines is provided by Hurd and McGarry [1995], who find correlations in the AHEAD data between self-reported health status and both mortality and the onset of several serious health conditions, after controlling for various socio-demographic conditions.

3.2 Some Cross Tabulations

We begin our exploration of the relationship between health and portfolio decisions by showing how the proportion of households owning various assets and their respective portfolio shares vary with health status (Table 2). Results are shown separately for single and married people. For both individuals and couples, being healthy increases the probability of owning each one of the financial assets. For example, 22.1 percent of healthy single people own some risky assets; for sick single people the analogous number is only 5.8 percent. Similarly, 38.6 percent of couples in which both

[4] Some researchers exclude households whose financial net worth does not exceed some threshold (Heaton and Lucas [2000]).

spouses are healthy own some risky assets; the figure is only 10.2 percent for couples in which both spouses are sick. The right hand side of Table 2 indicates that health status is also correlated with the proportion of financial wealth held in each asset category. Married couples with two healthy spouses hold an average of 55 percent of their financial wealth in safe assets and 16 percent in risky assets, while couples with both spouses who are sick hold 81 percent in safe assets and only 6 percent in risky assets. A similar relationship between health status and portfolio shares holds for singles.

Although Table 2 indicates that differences in health status are associated with differences in ownership probabilities and portfolio shares, a number of variables are known to be correlated with health status and some of these could also be correlated with portfolio decisions. Hence, while these results are suggestive, we now turn to a multivariate approach. We discuss ownership probabilities and portfolio shares in Sections 4 and 5, respectively.

4. Ownership Probabilities

4.1 Estimation Issues

Our goal is to determine whether cross-sectional variations in health status exert an independent effect on the probability that a household owns each of the four types of assets. We follow the general strategy employed in previous papers and estimate a probit model for the probability of owning each asset, including on the right hand side our dichotomous variable for poor health and controls for total wealth,[6] income and other demographic characteristics.[7]

[5] Analysis using all five indicator variables does not change our substantive results.
[6] Total wealth includes the value of all net housing equity, all vehicles, net business equity, financial assets, and other assets including real estate. It does not include pension or social security wealth.

Two major issues must be addressed in estimating these models. The first is how to treat married couples versus singles. The typical practice of simply including an indicator variable for marital status (for example, Bertaut and Starr-McCluer [2001]) is really not suitable in our context. There are potentially interesting questions about decision making within households that are best explored if separate equations are estimated for single and married individuals. This decision is reinforced by Barber and Odean's [2001] finding that married and single people follow different stock trading strategies; their other portfolio decisions might differ as well.

The second issue relates to the treatment of health status for married couples. Because of different life expectancies, husbands and wives may have different time horizons. Further, there is some evidence that men and women differ with respect to risk aversion (Barber and Odean [2001] and Lott and Kenny [1999]). These considerations suggest that men and women may favor different portfolio strategies, and that the impact on the family's portfolio when one or the other is ill may differ. Hence, there is no reason to expect health effects for the two spouses to be symmetric, so an average or combined measure is inappropriate. Instead, we enter one indicator variable for the husband's health status, and another for the wife's.[8]

With respect to other covariates, our choices are quite conventional. We include age because risk aversion and the time horizon vary with it (Bertaut and Starr-McCluer [2001, p. 15]).[9] Previous studies have indicated that education exerts an important

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[7] An alternative strategy would be to employ panel data to look at the impact of health shocks on *changes* in portfolio behavior. However, as Guiso *et al.* [2001, p. 8] note, "Because of volatility in asset prices, it is difficult to understand portfolio allocation by studying ...changes in the value of each type of asset."

[8] As noted below, we also allowed for the possibility of an interaction between the spouses' health outcomes and found that, in general, it had no impact on the substantive results.

[9] There is a well-documented negative correlation between health status and age. This raises the possibility that the failure to include health status in analyses of portfolio choice may bias estimates of age effects.

influence on portfolio choice; in general, households with more education are more likely to hold diversified portfolios, perhaps because they have better information about various investment opportunities (King and Leape [1998, p. 190]). We include a set of dichotomous variables for educational attainment. We also include indicator variables for sex (in the equation for singles) and race, and the presence of any children, all of which could affect risk aversion, the decision-making time horizon and bequest motives.

Theory suggests that the level of total wealth is an important determinant of portfolio allocation both because it can influence risk aversion (Guiso and Jappelli [2001, p. 4]) and because there may be fixed costs to owning certain assets (Hurd [2001, p. 30]). To allow for nonlinearities in the impact of wealth, we enter it as a quadratic. Our wealth variable includes financial wealth in addition to physical capital such as net equity in housing and businesses. Following the tack suggested by some earlier studies, we experimented with a wealth variable that also included an estimate of individuals' human capital.[10] This modification had no impact on the estimates of health effects that are reported below. Finally, previous studies have also shown that income is a significant determinant of portfolio composition even conditional on wealth (King and Leape [1998]), and we also enter it as a quadratic.[11]

However, when we estimated our models without health, the coefficients on the age variables generally did not change substantially.

[10] We follow Heaton and Lucas's [2000] algorithm for estimating human capital: Assume that for individuals under the age of 65, real labor income remains constant at its current level until age 65 and then ceases. For individuals over 65 who report labor income, assume that this income remains constant until age 70 and then ceases. Streams of labor income are discounted back to the respondent's current age at a real interest rate of 5 percent.

[11] The results are essentially unchanged when we use step functions for wealth and household income.

4.2 Basic Results

The probit estimates for single individuals and couples are reported in Tables 3a and 3b, respectively. The first column for each asset category gives the results for the basic specification. The second column for each category adds controls for parents' education and industry and occupation.

Consider first the health effects for the single individuals in Table 3a. The results are quite striking. Being in poor health exerts a negative and statistically significant effect on the probability of owning each financial asset. Further, calculating the marginal effects from the probit coefficients listed in the table[12], we find that the effects are quantitatively important. Specifically, the figures in the first columns under each of the assets imply that being in ill health reduces the probabilities of owning safe assets, retirement accounts, bonds, and risky assets by 14, 11, 1, and 7 percentage points, respectively. In short, the basic message from the cross tabulations in Table 2 continues to hold when we include other covariates: health affects asset choice.

An important question is whether the observed relationship between health and portfolio diversification is somehow spurious. One way this might occur is if there is reverse causality – portfolio composition affects health rather than vice versa. We find this scenario implausible. Although it is well-documented that there are dual pathways relating health status and wealth (Smith [1999]), we can think of no compelling reason to believe that the *allocation* of that wealth to various assets would influence health status after controlling for the level of total wealth.

Another possibility is that some third variable drives both health status and portfolio choice. This seems a more serious issue. Suppose, for example, that people

with privileged family backgrounds learn more as children about the financial world and also acquire good health habits. In this case, the strength of the relationship between poor health and portfolio choice would be overestimated. Or perhaps certain jobs have more volatile income streams than others and at the same time involve more stress and worse working conditions than other jobs. Again, our estimated relationship between health status and portfolio choice would be biased. The HRS data provide us with some information that can be used to explore these possibilities. Although there is not extensive information on family background, we do know the parents' education. Further, household members' occupation and industry are reported. The second columns for each asset category in Tables 3a and 3b show the results when the basic equations are augmented with parents' education and a set of industry and occupation dichotomous variables. Although there are some systematic relationships among occupation, industry and portfolio diversification (results not shown here), the magnitude and the significance of the health effects do not change substantially. Thus, to the extent that our data allow us to explore the possible influence of third variables, we find that they do not undermine our basic finding that health status affects asset choice.

Consider next the married couples in Table 3b. There are two health coefficients for each family, one each for the husband and the wife. As in Table 3a, the first column for each asset does not include controls for family background and occupational history, while the second column for each asset does. For every asset type, the coefficient on poor health (of either spouse) is negative. The coefficients in the first columns of Table 3b imply that poor health of a husband reduces the likelihood of owning safe assets, retirement accounts, bonds, and risky assets by 2, 11, 1, and 3 percentage points,

[12] See Maddala [1983, p. 23].

respectively. The corresponding decreases for wives who are in poor health are 3, 7, 2 and 8 percentage points. Thus, just as for singles, poor health reduces the probability of owning each financial asset, *ceteris paribus*. Once again, including additional controls for parents' education, industry and occupation does not alter substantially the magnitude or significance of the health effects.

A particularly interesting result is that for almost all of the assets, the health effects for wives are larger in absolute value and more statistically significant than those for husbands. Why are households with ill wives less likely to own various assets than households with ill husbands? Suppose that poor health for either spouse requires some adjustment in the family's portfolio. Suppose further that the husband is the primary financial planner in the family. Then when a wife is sick, the husband (as the primary financial planner) will adjust the family's portfolio more than in the situation where the husband is sick (and he is not as able to manage household funds). To explore this conjecture, we take advantage of an HRS question that asks the respondent to identify the "primary decision maker" in the household. In analyses not detailed here, we find that when the "primary decision-maker" is the one who is sick--whether this is the husband or the wife--the health effects on ownership probabilities are smaller than when the other spouse is the one who is sick. This lends support to our explanation for the asymmetric responses, although other stories certainly are possible.

In any case, just as for the singles in Table 3a, the point estimates for the married couples are quantitatively substantial. For example, computations based on these coefficients suggest that a couple in which both spouses are in poor health is 11 percentage points less likely to hold risky assets than a couple in which both spouses are

in good health, other things being the same. A natural question in this context is whether the cumulative impact when both spouses are ill is different from the sum of the individual effects. To investigate this issue, we augment each equation with an interaction between the husband's and wife's health variables. It turns out that these interactions are not significant for any of the assets (results not shown here), so that the joint effect when both spouses are in poor health is approximately equal to the sum of the individual spouses' effects.

We now discuss very briefly the coefficients on the other variables in Tables 3a and 3b. The findings are broadly consistent with those from previous studies. For example, the probability of owning each asset tends to increase with wealth and income; the probability of owning each asset increases with age; the probability of owning risky assets increases substantially with education; and blacks are much less likely to own risky assets than non-blacks. Single females are more likely to hold safe assets than single males, though there are no significant gender differences for the other assets. In results not reported here, we allow the health effects of singles to vary by gender by including an interaction between sex and health status. However, this interaction term is not significant for any of the assets.

4.3 Mechanisms for Health Effects

Taken together, Tables 3a and 3b indicate that health status exerts important effects on portfolio diversification. For both single and married households, poor health is associated with a lower probability of owning each financial asset. As noted in the introduction, there are various mechanisms through which health might affect portfolio choice. In this section we examine several of these mechanisms.

4.3.1 Risk aversion

As already noted, theory suggests that an investor's risk aversion is an important determinant of portfolio allocation. Respondents who become sick may become less (or possibly more) risk averse than previously. The HRS asks respondents a question that is designed to provide information about their attitudes toward risk--whether they would take a job that would double their income with a 50 percent chance and cut it in half with a 50 percent chance. To investigate whether health effects might operate through impacts on risk aversion, we define the dichotomous variable *risk taker*, which takes the value of one if the individual answers affirmatively to the question, and zero otherwise. The results when we augment our basic model with this variable are in the first panels of Tables 4a and 4b. In general, more risk loving individuals are less likely to have safe assets, but more likely to have risky assets (although not all the point estimates are statistically significant). While these findings are perfectly intuitive, note that including this self-reported risk aversion measure does not affect the estimated health coefficients substantially, for either singles or married couples. Hence, health does not appear to affect portfolio choices by affecting attitudes toward risk.

4.3.2 Perceived life expectancy

Another possibility is that health effects operate through life expectancy. The portfolios of unhealthy people may be different from those of healthy people because the unhealthy people do not expect to live as long. The HRS asks respondents to rate their chances of living to the age of 85 on a scale of one to ten. We define the variable *prob85* as the response to this question. The second panels of Tables 4a and 4b show the results when the basic model is augmented with *prob85*. We find that one's perceived chance of

living to 85 is not strongly related to a household's asset allocation. Further, the health effects are about the same as they were in the basic model.

4.3.3 Planning horizon

The HRS asks, "In deciding how much of their (family) income to spend or save, people are likely to think about different financial planning periods. In planning your (family's) saving and spending, which of the time periods listed ...is most important to you [and your (husband/wife...)]?" The possible responses are: "next few months," "next year," "next few years," "next 5-10 years," and "more than 10 years." We create the dichotomous variable *plan1* which takes a value of one if the first response was given and zero otherwise, *plan2* if the second response was given, and so on. If poor health affects portfolio choices by changing people's time horizons, then when we include these dichotomous variables, the health coefficient should become less important. The third panels of Tables 4a and 4b show the results when we augment the original specifications with the *plan* variables. The results indicate that households with longer time horizons are more likely to have some of each type of asset. However, comparing the coefficients on the health variables to their counterparts in Tables 3a and 3b, we see that they are nearly identical. Thus, there is little evidence that the results are driven by the fact that some households are more forward-looking than others.

4.3.4 Bequest Motives

In the same spirit, if an individual has a bequest motive, this may, in effect, extend his time horizon. The HRS asks individuals whether they intend to leave a sizable bequest to their heirs. The five possible answers to this question are "definitely", "probably", "possibly", "probably not" and "definitely not". We create a set of

dichotomous variables on the basis of the responses and included it in the model. As indicated in the fourth panels of Tables 4a and 4b, the strength of the bequest motive is significantly related to the probability of ownership of financial assets, but it has no substantive impact on the coefficients on the health variables.

4.3.5 Summary

We have examined a number of possible channels through which health might affect portfolio decisions. None of them does a very good job at explaining the strong relationship between health and the probability of owning particular classes of assets. One possibility is that the various attitudinal measures are not good proxies for individuals' true underlying risk preferences, planning horizons, bequest motives or perceived life expectancy. Or some entirely different mechanisms might be at work. For example, health may affect portfolio choices through the need to pay medical expenses. If this were the case, we would expect the health effects to vary by health insurance status. However, in results not shown here, we find no evidence that the relationship between health and portfolio choice depends on the availability of health insurance. Alternatively, health status may affect expectations of future income and consumption streams that in turn influence investment decisions. Unfortunately, our data are not suitable for investigating the importance of this channel. That said, we believe that the results in Table 4 in conjunction with our discussion of "third variables" in Table 3 go a long way in establishing that there is a robust relationship between health status and portfolio diversification, though the channels through which it operates are not entirely clear.

5. Portfolio Shares

5.1 Estimation Issues

Our next step is to estimate how the shares of the four asset categories that comprise financial wealth depend on health status. The main statistical issue arises from the fact that portfolio shares are bounded by zero and one. Investigators have used a variety of econometric approaches. Heaton and Lucas [2000] discard from their sample individuals whose stock holdings fall below a certain floor and use ordinary least squares estimation. Bertaut and Starr-McCluer [2001] utilize Heckman's [1979] selectivity bias correction to account for the fact that many of the portfolio shares are zeroes. Poterba and Samwick [1999] use a two-limit tobit estimator. While each approach has its advantages and disadvantages, we choose to use a two-limit tobit procedure because a substantial number of shares are either zero or one, and because the standard Heckman procedure is appropriate only when there is censoring at one end of the distribution of the left hand side variable.[13]

It is difficult to find a compelling reason to use a set of covariates different from that in the ownership equations so, following the usual practice, we use the same variables as in Table 3. A technical point arises in this context. When a set of share equations with the same right hand variables is estimated by ordinary least squares, the predicted shares are constrained to add to one, implying that the predicted marginal effects for any given covariate are constrained to sum to zero. The tobit estimator does not automatically impose this constraint. While it is possible to constrain the coefficients

[13] See Maddala [1983, p. 366].

in this way, the process is cumbersome.[14] It turns out that, as a practical matter, in our data the two-limit marginal effects come close to summing to zero, so we simply present unconstrained estimates.[15]

5.2 Basic Results

Following the tack we took with the ownership probabilities, we estimate the share equations separately for singles and married couples. The two-limit tobit results are presented in Tables 5a and 5b, respectively. Once again, the first column for each asset is the canonical specification and the second column includes controls for occupational history and parents' education. Consider first the health effects for the single individuals. The results indicate that poor health increases the proportion of financial wealth held in safe assets and decreases the proportion held in the other three asset categories. Using the coefficients in the tables, we can compute the marginal effects of poor health on portfolio shares. The specifications in the first columns imply that poor health is associated with an increase of 6.4 percentage points held in safe assets, a decrease of 5.1 percentage points held in retirement accounts, a decrease of 0.3 percentage points held in bonds, and a decrease of 2.8 percentage points held in risky assets.[16] The addition of more control variables in the second columns does not alter these main results.

The health effects for married couples are shown in Table 5b. Once again, poor health leads to a higher concentration of safe assets and a lower concentration of all of the other asset categories. This is true for both the health of the husband and the health of the

[14] See Poterba and Samwick [1999] for details. Note that Heckman's two-step procedure does not constrain the predicted shares to equal one.
[15] Specifically, the sum of the marginal health effects comes out to -0.018 for singles, and -0.006 for couples.
[16] As discussed earlier, the tobit estimator does not constrain the shares to sum to one, which explains the fact that the marginal effects do not sum to zero.

wife (although not all the coefficients are statistically significant). Calculations of the marginal effects for the basic specifications indicate that poor health of a husband is associated with an increase of 7 percentage points held in safe assets, a decrease of 7 percentage points held in retirement accounts, a decrease of less than 0.1 percentage points held in bonds and a decrease of 0.6 percentage points held in risky assets. The analogous numbers associated with a wife being in poor health are 6.8, -3.5, -0.5 and –3.4 percentage points. In the second set of columns where we include controls for parents' education, industry and occupation, the results are similar. The basic conclusion is that health is a strong predictor of how a household allocates its financial wealth to different types of assets. Specifically, poor health is associated with less risky portfolios.

5.3 Mechanisms for Health Effects

As in the case of ownership probabilities, we next explore possible channels through which health might affect portfolio shares. Following the tack in Tables 4a and 4b, we incorporate risk preferences, perceived life expectancy, planning horizon, and bequest motives into the basic model. The results are presented in Tables 6a and 6b for singles and couples, respectively. Table 6a shows that, in some cases, the additional variables are systematically related to the allocation of financial wealth. For example, from the first panel, individuals who say that they would be willing to take a job with riskier wages hold larger shares of their portfolios in risky assets and smaller shares in safe assets. In other cases, the additional variables are not statistically significant (for example, the life expectancy variable in the second panel). Importantly, however, the inclusion of none of these variables significantly alters the coefficients on the health status variable. The results for married couples in Table 6b are similar.

Hence, as is the case for ownership probabilities, none of these variables sheds much light on the channels through which health affects portfolio shares. However, an intriguing hypothesis is suggested by the theoretical model of Bodie, Merton and Samuelson (BMS) [1992], which posits that individuals vary their labor supply to compensate for the variability in investment returns. BMS view this as an explanation for the fact that older people tend to hold safer portfolios--the ability to compensate *ex post* for low returns decreases with age. But when an individual is sick, his or her ability to adjust labor supply is similarly diminished; the BMS logic suggests that this, too, should induce a movement toward safer assets, just as our empirical findings suggest. Indeed, the BMS model might also help explain why the health effects for wives tend to be stronger than the effects for husbands. Labor supply tends to be more responsive to economic variables for married women than for married men (Killingsworth and Heckman [1986]). Hence, to the extent that illness reduces the wife's ability to participate in the labor force, it particularly impairs the household's ability to compensate *ex post* for unfavorable outcomes. This interpretation is also consistent with our finding that the health effects of singles do not vary by gender, since it is well-established that labor supply responses for single women and single men are roughly the same. While other stories are possible, we find it interesting that our results are consistent with the well-known BMS portfolio choice model.

6. Summary and Conclusions

This paper has documented the existence of a strong cross-sectional relationship between health status and portfolio decisions. Even after controlling for the level of total net worth, household income, and a variety of socio-demographic characteristics, poor

health decreases the probability of owning each of four asset classes: safe assets, retirement accounts, bonds, and risky assets. Further, those in poor health tend to have relatively safe portfolios -- compared to households that are in good health, the proportion of wealth held in safe assets is higher, while the proportion held in all other asset categories is lower. We find no evidence that the health effects are driven by some third variable that simultaneously influences both health status and financial decision-making.

Although the results suggest that health is an important determinant of portfolio allocation, it is not clear through what channels the effect operates. Taking advantage of attitudinal data, we explored several possibilities, including risk preferences, perceived life expectancy, bequest motives, and planning horizons. However, the inclusion of such variables has very little impact on the magnitude of the health effect. Perhaps the survey responses do not adequately represent individuals' underlying attitudes, or there are other reasons why health affects household portfolio decisions. Exploring alternative mechanisms through which health might affect portfolio choice is an important avenue for future research. We view the notion that poor health reduces the household's ability to increase labor supply to compensate for bad portfolio performance as particularly promising in this context. In any case, the results in this paper suggest that there are potentially important linkages between the health care sector and financial markets. One can imagine, for example, that improvements in medical technology that improve health status will induce changes in portfolio holdings. This observation could be particularly relevant in assessing the financial consequences of the aging of the current baby boomers.

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Table 1: Summary Statistics

Variable	Singles	Married Couples
Age (Singles)	55.968	…
Husband Age	…	57.620
Wife Age	…	53.410
Education (Singles)	11.746	…
Husband Education	…	12.058
Wife Education	…	12.132
Proportion Black (Singles)	0.299	…
Husband Black	…	0.128
Wife Black	…	0.125
Proportion Female (Singles)	0.664	…
Proportion Sick (Singles)	0.319	…
Husband Sick	…	0.201
Wife Sick	…	0.184
Proportion With Any Children	0.788	0.968
Household Income	17,987	36,656
Financial Assets	35,127	69,113
Total Net Worth	129,459	261,787
Have Safe Asset	0.665	0.860
Have Retirement Account	0.246	0.443
Have Bond	0.040	0.069
Have Risky Asset	0.169	0.318
Have Some Financial Assets	0.682	0.878
N	2,658	4,941
Conditional on Having Some Financial Assets		
Proportion in Safe Assets	0.702	0.598
Proportion in Retirement Accounts	0.183	0.246
Proportion in Bonds	0.013	0.014
Proportion in Risky Assets	0.103	0.143
N	1,814	4,338

Notes: Data source is Wave 1 of the HRS. Safe assets include checking, savings and money market accounts, CDs, government savings bonds, and T-bills. Retirement accounts include IRA and Keogh accounts. Bonds include all corporate, municipal and foreign bonds and bond funds. Risky assets include individual stocks and mutual funds. Financial assets are the sum of safe assets, retirement accounts, bonds and risky assets. Total net worth includes all housing and non-housing equity in addition to financial assets. An individual is classified as "sick" if (s)he reports being in fair or poor health.

Table 2: Self-Reported Health Status and Portfolio Decisions

	Probability of Having Asset					Proportion Held in Asset Category			
	Safe	Retirement	Bond	Risky	Financial	Safe	Retirement	Bond	Risky
					Singles				
Health Status									
Healthy	0.772	0.318	0.054	0.221	0.793	0.675	0.198	0.015	0.112
Sick	0.437	0.091	0.011	0.058	0.445	0.803	0.124	0.006	0.067
					Married Couples				
Health Status									
Both Healthy	0.913	0.530	0.089	0.386	0.932	0.547	0.276	0.017	0.160
One Spouse Sick	0.788	0.294	0.035	0.200	0.801	0.706	0.177	0.008	0.108
Both Spouses Sick	0.608	0.146	0.009	0.102	0.632	0.814	0.123	0.003	0.060

Notes: An individual is classified as "healthy" if (s)he reports having excellent, very good or good health. An individual is classified as "sick" if (s)he reports having fair or poor health. Proportions held in particular asset categories are calculated only for those with positive financial wealth.

Table 3a: Probit Models for Ownership Probabilities - Singles
Dependent Variable is the Probability of Owning Particular Types of Assets

	Safe Assets		Retirement		Bonds		Risky Assets	
Explanatory Variable	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Sick	-0.405	-0.402	-0.443	-0.382	-0.408	-0.416	-0.452	-0.436
	(0.063)	(0.076)	(0.080)	(0.092)	(0.171)	(0.178)	(0.094)	(0.108)
Age	0.026	0.032	0.039	0.042	0.032	0.038	0.013	0.016
	(0.009)	(0.010)	(0.009)	(0.010)	(0.015)	(0.015)	(0.010)	(0.011)
High School	0.523	0.282	0.604	0.467	0.292	0.191	0.632	0.510
	(0.068)	(0.088)	(0.087)	(0.108)	(0.201)	(0.215)	(0.109)	(0.143)
Some College	0.626	0.202	0.773	0.499	0.608	0.500	0.963	0.855
	(0.088)	(0.112)	(0.096)	(0.121)	(0.203)	(0.220)	(0.116)	(0.152)
College	0.809	0.346	0.777	0.505	0.879	0.741	1.118	1.016
	(0.152)	(0.179)	(0.128)	(0.155)	(0.224)	(0.243)	(0.142)	(0.181)
Post College	0.869	0.376	0.871	0.464	0.966	0.781	1.142	1.012
	(0.145)	(0.192)	(0.116)	(0.156)	(0.211)	(0.238)	(0.132)	(0.185)
Net Worth/(10^6)	1.981	1.379	1.572	1.728	1.139	1.073	1.864	1.781
	(0.259)	(0.268)	(0.161)	(0.187)	(0.163)	(0.168)	(0.165)	(0.181)
Net Worth Squared /(10^12)	-0.285	-0.203	-0.254	-0.328	-0.135	-0.125	-0.251	-0.241
	(0.040)	(0.042)	(0.036)	(0.049)	(0.029)	(0.029)	(0.029)	(0.032)
HH Income/(10^6)	24.707	22.481	13.597	11.906	5.789	5.159	4.727	1.527
	(2.307)	(2.801)	(1.754)	(2.974)	(3.223)	(3.300)	(1.682)	(1.871)
HH Income Squared/(10^12)	-20.812	-18.486	-10.148	-1.854	-16.170	-13.318	-4.444	-1.810
	(2.657)	(3.201)	(2.751)	(26.552)	(14.491)	(14.664)	(1.981)	(2.302)
Black	-0.457	-0.416	-0.621	-0.553	-0.762	-0.716	-0.589	-0.408
	(0.061)	(0.076)	(0.079)	(0.092)	(0.204)	(0.209)	(0.093)	(0.108)
Have Kids	-0.062	-0.075	-0.111	-0.142	-0.096	-0.094	-0.066	-0.100
	(0.079)	(0.092)	(0.076)	(0.083)	(0.125)	(0.128)	(0.082)	(0.091)
Female	0.154	0.170	0.124	0.078	0.100	0.109	-0.028	-0.003
	(0.065)	(0.093)	(0.068)	(0.087)	(0.120)	(0.122)	(0.074)	(0.093)
Controls for Parents' Education, Industry and Occupation?	No	Yes	No	Yes	No	Yes	No	Yes
Avg Probability in Sample	0.665	0.705	0.246	0.278	0.040	0.056	0.169	0.193
N	2,658	2,104	2,658	2,104	2,658	2,135	2,658	2,104

Notes: Due to missing information on family background, industry and occupation, sample sizes differ between first and second columns of each regression. For bonds, the regression in the second column only includes parents' education in order to preserve a sufficient number of observations. Standard errors are in parentheses.

Table 3b: Probit Models for Ownership Probabilities - Married Couples
Dependent Variable is the Probability of Owning Particular Types of Assets

	Safe Assets		Retirement		Bonds		Risky Assets	
Explanatory Variable	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Husband Sick	-0.102	-0.198	-0.277	-0.174	-0.030	-0.116	-0.097	-0.069
	(0.059)	(0.078)	(0.055)	(0.068)	(0.095)	(0.114)	(0.058)	(0.072)
Wife Sick	-0.209	-0.141	-0.193	-0.237	-0.323	-0.288	-0.249	-0.267
	(0.060)	(0.082)	(0.058)	(0.073)	(0.120)	(0.137)	(0.063)	(0.078)
Husband Age	0.024	0.030	0.022	0.022	0.025	0.019	0.009	0.014
	(0.005)	(0.007)	(0.004)	(0.005)	(0.007)	(0.008)	(0.005)	(0.005)
Wife Age	0.017	0.013	0.035	0.035	0.006	0.009	0.014	0.014
	(0.005)	(0.006)	(0.004)	(0.005)	(0.007)	(0.007)	(0.004)	(0.005)
Husband HS	0.413	0.374	0.393	0.366	0.307	0.248	0.326	0.346
	(0.065)	(0.087)	(0.055)	(0.072)	(0.111)	(0.136)	(0.060)	(0.079)
Wife HS	0.470	0.303	0.403	0.378	0.616	0.662	0.500	0.510
	(0.063)	(0.089)	(0.057)	(0.075)	(0.139)	(0.175)	(0.062)	(0.083)
Husband Some College	0.440	0.290	0.352	0.313	0.428	0.358	0.557	0.541
	(0.085)	(0.111)	(0.066)	(0.086)	(0.120)	(0.145)	(0.069)	(0.090
Wife Some College	0.438	0.163	0.444	0.344	0.689	0.679	0.420	0.348
	(0.087)	(0.118)	(0.068)	(0.089)	(0.146)	(0.185)	(0.073)	(0.096)
Husband College	0.540	0.413	0.440	0.370	0.598	0.489	0.684	0.689
	(0.137)	(0.167)	(0.082)	(0.104)	(0.129)	(0.154)	(0.083)	(0.106)
Wife College	0.365	-0.044	0.581	0.480	0.772	0.808	0.634	0.527
	(0.147)	(0.183)	(0.095)	(0.121)	(0.163)	(0.201)	(0.096)	(0.124)
Husband Post College	0.504	0.336	0.574	0.507	0.666	0.557	0.637	0.720
	(0.140)	(0.178)	(0.085)	(0.114)	(0.128)	(0.153)	(0.085)	(0.115)
Wife Post College	0.254	-0.155	0.519	0.398	0.715	0.781	0.409	0.378
	(0.156)	(0.206)	(0.099)	(0.131)	(0.166)	(0.203)	(0.100)	(0.133)
Net Worth/(10^6)	1.477	1.241	1.267	1.339	0.865	0.830	1.164	1.150
	(0.169)	(0.204)	(0.084)	(0.101)	(0.085)	(0.091)	(0.080)	(0.093)
Net Worth Squared/(10^12)	-0.215	-0.174	-0.186	-0.187	-0.124	-0.118	-0.180	-0.174
	(0.027)	(0.032)	(0.016)	(0.018)	(0.017)	(0.018)	(0.017)	(0.019)
HH Income/(10^6)	17.241	13.084	11.711	9.770	2.048	1.258	2.416	0.763
	(1.622)	(2.059)	(1.089)	(1.356)	(1.282)	(1.365)	(1.354)	(1.601)
HH Income Squared/(10^12)	-29.461	-23.884	-17.687	-13.514	0.817	2.448	15.562	18.292
	(7.502)	(7.774)	(4.943)	(6.347)	(4.122)	(4.331)	(8.740)	(9.624)
Husband Black	-0.574	-0.363	-0.590	-0.399	-0.454	-0.414	-0.234	0.077
	(0.210)	(0.271)	(0.221)	(0.278)	(0.456)	(0.528)	(0.225)	(0.271)
Wife Black	0.119	-0.043	0.046	-0.134	0.202	0.120	-0.264	-0.515
	(0.213)	(0.273)	(0.224)	(0.280)	(0.458)	(0.530)	(0.229)	(0.278)
Have Kids	-0.187	-0.444	-0.149	-0.174	-0.095	0.054	-0.136	-0.006
	(0.156)	(0.249)	(0.114)	(0.145)	(0.162)	(0.194)	(0.116)	(0.147)
Controls for Parents' Education, Industry and Occupation?	No	Yes	No	Yes	No	Yes	No	Yes
Avg Probability in Sample	0.860	0.884	0.443	0.485	0.070	0.084	0.318	0.355
N	4,941	3,646	4,941	3,695	4,941	3,504	4,941	3,698

Notes: Due to missing information on family background, industry and occupation, sample sizes differ between first and second columns of each regression. For bonds, the regression in the second column only includes parents' education in order to preserve a sufficient number of observations. Standard errors are in parentheses.

Table 4a: Probit Models for Ownership Probabilities - Alternative Specifications for Singles
Dependent Variable is the Probability of Owning Particular Types of Assets

Explanatory Variable	Safe Assets	Retirement	Bonds	Risky Assets
		Risk Preferences		
Sick	-0.420	-0.454	-0.557	-0.466
	(0.065)	(0.082)	(0.193)	(0.097)
Risk Taker	-0.253	-0.079	-0.137	0.139
	(0.067)	(0.073)	(0.130)	(0.079)
		Perceived Life Expectancy		
Sick	-0.447	-0.438	-0.487	-0.468
	(0.068)	(0.085)	(0.185)	(0.100)
Perceived Chance of Living to 85 (%)	-0.016	-0.003	-0.012	-0.006
	(0.009)	(0.010)	(0.018)	(0.011)
		Planning Horizon		
Sick	-0.392	-0.402	-0.393	-0.385
	(0.067)	(0.084)	(0.184)	(0.098)
Planning Horizon				
Next Year	0.029	0.000	0.350	-0.057
	(0.105)	(0.126)	(0.248)	(0.146)
Next Few Years	0.157	0.266	0.378	0.236
	(0.078)	(0.090)	(0.197)	(0.104)
Next 5-10 Years	0.257	0.354	0.455	0.439
	(0.088)	(0.093)	(0.198)	(0.105)
More Than 10 Years	-0.092	0.320	0.565	0.341
	(0.126)	(0.130)	(0.234)	(0.144)
		Bequest Motive		
Sick	-0.371	-0.416	-0.447	-0.454
	(0.065)	(0.083)	(0.185)	(0.098)
Likelihood of Leaving Bequest				
Definitely	0.380	0.199	0.135	0.278
	(0.108)	(0.106)	(0.181)	(0.113)
Probably	0.331	0.326	0.094	0.383
	(0.109)	(0.104)	(0.188)	(0.112)
Possibly	0.381	0.270	0.393	0.183
	(0.096)	(0.100)	(0.166)	(0.112)
Probably Not	0.257	0.276	0.043	0.117
	(0.074)	(0.083)	(0.164)	(0.096)

Notes: All regressions include controls for age, education, race, sex, household income, total net worth and the presence of children as in Table 3a. Omitted category for planning horizon is "a few months". Omitted category for bequest motive is "definitely not". Standard errors are in parentheses.

Table 4b: Probit Models for Ownership Probabilities - Alternative Specifications for Married Couples
Dependent Variable is the Probability of Owning Particular Types of Assets

Explanatory Variable	Safe Assets	Retirement	Bonds	Risky Assets
		Risk Preferences		
Husband Sick	-0.106	-0.296	-0.019	-0.098
	(0.066)	(0.060)	(0.104)	(0.063)
Wife Sick	-0.192	-0.159	-0.391	-0.259
	(0.068)	(0.064)	(0.137)	(0.069)
Husband Risk Taker	-0.112	-0.043	0.032	0.067
	(0.065)	(0.052)	(0.077)	(0.053)
Wife Risk Taker	-0.137	-0.015	0.074	-0.026
	(0.066)	(0.053)	(0.078)	(0.054)
		Perceived Life Expectancy		
Husband Sick	-0.152	-0.299	-0.020	-0.076
	(0.068)	(0.062)	(0.107)	(0.064)
Wife Sick	-0.196	-0.161	-0.372	-0.290
	(0.069)	(0.066)	(0.139)	(0.071)
Husband Perceived Chance of Living to 85 (%)	-0.021	-0.009	0.012	0.004
	(0.009)	(0.007)	(0.011)	(0.007)
Wife Perceived Chance of Living to 85 (%)	0.008	-0.002	0.006	-0.006
	(0.009)	(0.007)	(0.011)	(0.008)
		Planning Horizon		
Husband Sick	-0.078	-0.256	-0.060	-0.070
	(0.067)	(0.061)	(0.109)	(0.064)
Wife Sick	-0.184	-0.118	-0.339	-0.251
	(0.069)	(0.065)	(0.139)	(0.070)
Husband Planning Horizon				
Next Year	0.001	0.129	0.043	0.036
	(0.101)	(0.092)	(0.154)	(0.096)
Next Few Years	0.265	0.212	0.004	0.119
	(0.082)	(0.071)	(0.122)	(0.074)
Next 5-10 Years	0.254	0.273	0.114	0.183
	(0.086)	(0.073)	(0.122)	(0.075)
More Than 10 Years	0.367	0.351	0.327	0.335
	(0.125)	(0.096)	(0.141)	(0.096)
Wife Planning Horizon				
Next Year	-0.048	-0.056	-0.046	-0.110
	(0.095)	(0.087)	(0.151)	(0.089)
Next Few Years	0.138	0.167	0.067	-0.086
	(0.081)	(0.068)	(0.114)	(0.070)
Next 5-10 Years	0.262	0.271	0.091	0.035
	(0.090)	(0.071)	(0.117)	(0.072)
More Than 10 Years	0.132	0.299	0.112	0.102
	(0.127)	(0.095)	(0.140)	(0.095)

Table 4b (continued): Probit Models for Ownership Probabilities - Alternative Specifications for Married Couples
Dependent Variable is the Probability of Owning Particular Types of Assets

Explanatory Variable	Safe Assets	Retirement	Bonds	Risky Assets
		Bequest Motive		
Husband Sick	-0.092	-0.276	-0.043	-0.097
	(0.060)	(0.055)	(0.097)	(0.058)
Wife Sick	-0.205	-0.196	-0.341	-0.258
	(0.061)	(0.058)	(0.124)	(0.063)
Likelihood of Leaving Bequest				
Definitely	0.385	0.086	0.233	0.245
	(0.104)	(0.073)	(0.106)	(0.074)
Probably	0.375	0.242	0.120	0.228
	(0.090)	(0.064)	(0.099)	(0.065)
Possibly	0.251	0.176	0.183	0.233
	(0.083)	(0.065)	(0.103)	(0.067)
Probably Not	0.155	0.124	-0.029	0.120
	(0.065)	(0.056)	(0.098)	(0.059)

Notes: All regressions include controls for age, education, race, household income, total net worth and the presence of children as in Table 3b. Omitted category for planning horizon is "next few months". Omitted category for bequest motive is "definitely not". Standard errors are in parentheses.

Table 5a: Two-Limit Tobit Regressions of Portfolio Shares - Singles
Dependent Variable is the Share of Financial Wealth Held in a Particular Asset

	Safe Assets		Retirement		Bonds		Risky Assets	
Explanatory Variable	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Sick	0.159	0.127	-0.172	-0.126	-0.122	-0.115	-0.154	-0.140
	(0.049)	(0.052)	(0.053)	(0.057)	(0.074)	(0.076)	(0.058)	(0.063)
Age	-0.014	-0.017	0.017	0.018	0.009	0.012	0.006	0.011
	(0.005)	(0.054)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
High School	-0.353	-0.292	0.293	0.254	0.077	0.042	0.359	0.310
	(0.005)	(0.063)	(0.060)	(0.068)	(0.089)	(0.093)	(0.072)	(0.086)
Some College	-0.521	-0.407	0.391	0.276	0.188	0.153	0.556	0.519
	(0.060)	(0.070)	(0.065)	(0.075)	(0.091)	(0.097)	(0.076)	(0.090)
College	-0.542	-0.448	0.355	0.249	0.309	0.254	0.618	0.588
	(0.075)	(0.085)	(0.081)	(0.091)	(0.100)	(0.106)	(0.089)	(0.104)
Post College	-0.547	-0.380	0.423	0.250	0.345	0.272	0.559	0.528
	(0.068)	(0.086)	(0.073)	(0.092)	(0.096)	(0.104)	(0.083)	(0.106)
Net Worth/(10^6)	-0.679	-0.638	0.380	0.405	0.434	0.413	0.738	0.671
	(0.076)	(0.078)	(0.084)	(0.090)	(0.072)	(0.073)	(0.077)	(0.078)
Net Worth Squared/(10^12)	0.098	0.091	-0.070	-0.086	-0.048	-0.045	-0.101	-0.091
	(0.014)	(0.015)	(0.018)	(0.022)	(0.012)	(0.012)	(0.014)	(0.015)
HH Income/(10^6)	-2.900	-2.064	3.672	3.367	2.247	2.215	0.628	-0.481
	(0.811)	(0.843)	(0.086)	(0.889)	(1.367)	(1.388)	(0.842)	(0.877)
HH Income Squared/(10^12)	3.118	2.347	-3.050	-2.580	-8.546	-8.182	-1.091	-0.200
	(0.789)	(0.801)	(0.821)	(0.832)	(5.977)	(5.972)	(0.795)	(0.809)
Black	0.319	0.250	-0.287	-0.242	-0.279	-0.261	-0.269	-0.172
	(0.049)	(0.053)	(0.053)	(0.058)	(0.089)	(0.091)	(0.059)	(0.064)
Have Kids	0.042	0.048	-0.053	-0.057	-0.023	-0.020	-0.019	-0.024
	(0.044)	(0.045)	(0.047)	(0.048)	(0.054)	(0.055)	(0.048)	(0.050)
Female	-0.009	-0.017	0.030	0.011	0.052	0.055	-0.029	-0.004
	(0.040)	(0.047)	(0.043)	(0.051)	(0.052)	(0.052)	(0.044)	(0.051)
Controls for Parents' Education, Industry and Occupation?	No	Yes	No	Yes	No	Yes	No	Yes
N	1,814	1,526	1,814	1,526	1,814	1,551	1,814	1,526

Notes: Due to missing information on family background, industry and occupation, sample sizes differ between first and second columns. Tobit regressions are censored at zero and one. Standard errors are in parentheses.

Table 5b: Two-Limit Tobit Regressions of Portfolio Shares - Married Couples
Dependent Variable is the Share of Financial Wealth Held in a Particular Asset

	Safe Assets		Retirement		Bonds		Risky Assets	
Explanatory Variable	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Husband Sick	0.120	0.084	-0.158	-0.108	-0.007	-0.036	-0.019	-0.005
	(0.025)	(0.028)	(0.027)	(0.030)	(0.036)	(0.041)	(0.029)	(0.033)
Wife Sick	0.117	0.133	-0.075	-0.099	-0.118	-0.106	-0.112	-0.116
	(0.026)	(0.031)	(0.028)	(0.032)	(0.045)	(0.050)	(0.032)	(0.037)
Husband Age	-0.005	-0.004	0.005	0.004	0.009	0.006	0.003	0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
Wife Age	-0.012	-0.011	0.014	0.012	0.001	0.002	0.004	0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband HS	-0.172	-0.161	0.157	0.135	0.108	0.070	0.123	0.135
	(0.026)	(0.031)	(0.027)	(0.032)	(0.041)	(0.048)	(0.031)	(0.037)
Wife HS	-0.185	-0.183	0.122	0.114	0.219	0.230	0.211	0.211
	(0.027)	(0.032)	(0.028)	(0.034)	(0.052)	(0.064)	(0.032)	(0.039)
Husband Some College	-0.190	-0.177	0.121	0.101	0.135	0.072	0.240	0.238
	(0.030)	(0.036)	(0.032)	(0.038)	(0.045)	(0.053)	(0.035)	(0.042)
Wife Some College	-0.176	-0.149	0.146	0.116	0.237	0.235	0.161	0.137
	(0.031)	(0.037)	(0.033)	(0.039)	(0.055)	(0.068)	(0.037)	(0.045)
Husband College	-0.217	-0.195	0.132	0.102	0.183	0.093	0.279	0.285
	(0.035)	(0.042)	(0.037)	(0.044)	(0.048)	(0.058)	(0.040)	(0.048)
Wife College	-0.258	-0.234	0.189	0.174	0.303	0.321	0.227	0.168
	(0.041)	(0.048)	(0.042)	(0.050)	(0.061)	(0.074)	(0.046)	(0.055)
Husband Post College	-0.262	-0.258	0.170	0.133	0.221	0.116	0.279	0.322
	(0.036)	(0.045)	(0.038)	(0.047)	(0.048)	(0.060)	(0.041)	(0.052)
Wife Post College	-0.201	-0.185	0.179	0.158	0.270	0.308	0.152	0.127
	(0.042)	(0.052)	(0.044)	(0.054)	(0.062)	(0.078)	(0.048)	(0.059)
Net Worth/(10^6)	-0.385	-0.380	0.248	0.234	0.274	0.235	0.389	0.371
	(0.032)	(0.034)	(0.033)	(0.035)	(0.033)	(0.034)	(0.035)	(0.0360
Net Worth Squared/(10^12)	0.061	0.058	-0.041	-0.037	-0.039	-0.033	-0.059	-0.055
	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)
HH Income/(10^6)	-3.402	-2.428	3.557	2.624	0.549	0.114	1.420	0.918
	(0.424)	(0.450)	(0.439)	(0.465)	(0.450)	(0.467)	(0.457)	(0.485)
HH Income Squared/(10^12)	6.804	5.008	-8.315	-6.257	-0.104	0.630	-0.816	-0.511
	(1.532)	(1.507)	(1.557)	(1.535)	(1.308)	(1.285)	(1.580)	(1.562)
Husband Black	0.150	0.002	-0.270	-0.192	-0.168	-0.120	0.010	0.176
	(0.106)	(0.117)	(0.118)	(0.132)	(0.183)	(0.210)	(0.119)	(0.133)
Wife Black	0.062	0.192	0.079	0.007	0.089	0.039	-0.202	-0.328
	(0.108)	(0.119)	(0.119)	(0.134)	(0.183)	(0.211)	(0.122)	(0.137)
Have Kids	0.008	-0.047	-0.043	-0.014	-0.016	0.053	-0.006	0.035
	(0.049)	(0.056)	(0.051)	(0.057)	(0.059)	(0.068)	(0.055)	(0.063)
Controls for Parents' Education, Industry and Occupation?	No	Yes	No	Yes	No	Yes	No	Yes
N	4,338	3,336	4,338	3,336	4,338	3,336	4,338	3,336

Notes: Due to missing information on family background, industry and occupation, sample sizes differ between first and second columns. Tobit regressions are censored at zero and one. Standard errors are in parentheses.

Table 6a: Two-Limit Tobit Regressions of Portfolio Shares - Alternative Specifications for Singles
Dependent Variable is the Share of Financial Wealth Held in a Particular Asset

Explanatory Variable	Safe Assets	Retirement	Bonds	Risky Assets
		Risk Preferences		
Sick	0.155	-0.176	-0.175	-0.151
	(0.049)	(0.054)	(0.084)	(0.059)
Risk Taker	-0.071	0.017	-0.039	0.110
	(0.042)	(0.045)	(0.056)	(0.046)
		Perceived Life Expectancy		
Sick	0.141	-0.159	-0.145	-0.151
	(0.051)	(0.056)	(0.081)	(0.061)
Perceived Chance of Living to 85 (%)	-0.006	0.006	-0.002	-0.001
	(0.006)	(0.006)	(0.008)	(0.007)
		Planning Horizon		
Sick	0.131	-0.151	-0.117	-0.129
	(0.050)	(0.054)	(0.079)	(0.060)
Planning Horizon				
Next Year	0.017	0.002	0.155	-0.066
	(0.073)	(0.079)	(0.107)	(0.088)
Next Few Years	-0.158	0.145	0.157	0.088
	(0.053)	(0.057)	(0.085)	(0.062)
Next 5-10 Years	-0.199	0.183	0.174	0.171
	(0.054)	(0.058)	(0.086)	(0.063)
More Than 10 Years	-0.238	0.222	0.257	0.142
	(0.076)	(0.081)	(0.101)	(0.086)
		Bequest Motive		
Sick	0.144	-0.159	-0.136	0.080
	(0.050)	(0.055)	(0.080)	(0.013)
Likelihood of Leaving Bequest				
Definitely	-0.154	0.079	0.068	0.166
	(0.059)	(0.064)	(0.076)	(0.066)
Probably	-0.190	0.139	0.009	0.149
	(0.059)	(0.064)	(0.080)	(0.066)
Possibly	-0.083	0.068	0.143	0.088
	(0.058)	(0.062)	(0.072)	(0.066)
Probably Not	-0.141	0.136	-0.018	0.067
	(0.050)	(0.053)	(0.072)	(0.058)

Notes: All regressions include controls for age, education, race, sex, household income, total net worth and the presence of children as in Table 5a. Tobit regressions are censored at zero and one. Omitted category for planning horizon is "next few months". Omitted category for bequest motive is "definitely not". Standard errors are in parentheses.

Table 6b: Tobit Regressions of Portfolio Shares - Married Couples
Dependent Variable is the Share of Financial Wealth Held in a Particular Asset

Explanatory Variable	Safe Assets	Retirement	Bonds	Risky Assets
		Risk Preferences		
Husband Sick	0.115	-0.166	-0.003	-0.013
	(0.027)	(0.029)	(0.038)	(0.031)
Wife Sick	0.112	-0.064	-0.141	-0.113
	(0.029)	(0.031)	(0.052)	(0.034)
Husband Risk Taker	-0.024	-0.006	0.015	0.034
	(0.022)	(0.023)	(0.028)	(0.024)
Wife Risk Taker	-0.008	0.007	0.033	-0.009
	(0.023)	(0.024)	(0.029)	(0.025)
		Perceived Life Expectancy		
Husband Sick	0.105	-0.160	0.000	0.000
	(0.028)	(0.030)	(0.039)	(0.031)
Wife Sick	0.114	-0.059	-0.129	-0.128
	(0.030)	(0.031)	(0.051)	(0.035)
Husband Perceived Chance of Living to 85 (%)	0.000	-0.003	0.005	0.004
	(0.003)	(0.003)	(0.004)	(0.003)
Wife Perceived Chance of Living to 85 (%)	-0.001	0.002	0.003	-0.002
	(0.003)	(0.003)	(0.004)	(0.004)
		Planning Horizon		
Husband Sick	0.104	-0.150	-0.023	-0.003
	(0.027)	(0.029)	(0.039)	(0.031)
Wife Sick	0.102	-0.047	-0.120	-0.119
	(0.029)	(0.031)	(0.051)	(0.035)
Husband Planning Horizon				
Next Year	-0.030	0.060	0.010	0.001
	(0.041)	(0.043)	(0.056)	(0.046)
Next Few Years	-0.077	0.078	0.003	0.048
	(0.031)	(0.033)	(0.044)	(0.036)
Next 5-10 Years	-0.078	0.097	0.046	0.056
	(0.032)	(0.034)	(0.044)	(0.036)
More Than 10 Years	-0.099	0.097	0.087	0.108
	(0.041)	(0.043)	(0.051)	(0.045)
Wife Planning Horizon				
Next Year	0.049	-0.022	-0.028	-0.038
	(0.039)	(0.041)	(0.055)	(0.044)
Next Few Years	-0.017	0.046	0.023	-0.040
	(0.030)	(0.032)	(0.041)	(0.033)
Next 5-10 Years	-0.061	0.087	0.018	-0.004
	(0.031)	(0.033)	(0.042)	(0.034)
More Than 10 Years	-0.034	0.047	0.032	0.030
	(0.040)	(0.042)	(0.050)	(0.044)

Table 6b (continued): Tobit Regressions of Portfolio Shares - Married Couples
Dependent Variable is the Share of Financial Wealth Held in a Particular Asset

Explanatory Variable	Safe Assets	Retirement	Bonds	Risky Assets
		Bequest Motive		
Husband Sick	0.122	-0.158	-0.016	-0.020
	(0.025)	(0.027)	(0.035)	(0.029)
Wife Sick	0.118	-0.077	-0.121	-0.113
	(0.027)	(0.029)	(0.046)	(0.033)
Likelihood of Leaving Bequest				
Definitely	-0.027	-0.016	0.069	0.096
	(0.031)	(0.033)	(0.038)	(0.035)
Probably	-0.073	0.053	0.025	0.090
	(0.028)	(0.029)	(0.036)	(0.032)
Possibly	-0.064	0.030	0.053	0.102
	(0.029)	(0.030)	(0.037)	(0.033)
Probably Not	-0.036	0.031	-0.019	0.049
	(0.025)	(0.027)	(0.035)	(0.029)

Notes: All regressions include controls for age, education, race, household income, total net worth and the presence of children as in Table 5b. Omitted category for planning horizon is "next few months". Omitted category for bequest motive is "definitely not". Tobit regressions are censored at zero and one. Standard errors are in parentheses.