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A further look at household portfolio choice and health status

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This paper investigates the effect of changes in health status on household financial wealth and financial portfolio choice. It is shown that the impact of health events on household financial and non-financial wealth is asymmetric. A diagnosis of a new disease leads to a larger decrease in financial wealth than in non-financial wealth. Moreover, we find that the puzzle pertaining to the relationship between health status and portfolio choice discussed in the extant literature generally disappears after controlling for differences in the amount of financial assets held by healthy and sick people. The results suggest that the effect of changes in health status on household financial portfolios is indirect. A health shock significantly reduces household total financial wealth, in turn leading households to restructure the composition of their financial assets.

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1. Introduction

How health status affects household wealth and how that wealth is allocated can have major implications for the development of capital markets. This issue has assumed special importance in recent years with the ageing of the baby boomers, and economists have paid increasing attention to the impact of health shocks on household economic status. For example, Smith (1998) has found that a serious decline in health leads to a large decline in household wealth, and he has also shown (Smith, 1999) that, across all age groups, people in excellent health in 1984 had 74% more wealth than those in fair or poor health. Wu (2003) has demonstrated that a wife s health status has a larger impact on household wealth than that of the husband. In a recent study, Rosen and Wu (2004) go a step further and test the impact of health status on household financial portfolio choices. Using the US Health and Retirement Survey (HRS) data, Rosen and Wu (2004) find that when the head of a household or the spouse is sick, it is less likely to own stocks, and that such a household invests a smaller proportion of its financial assets in stocks relative to healthy ones. The above studies provide clear evidence of a sig- nificant health effect on household economic status. However, there remain impor- tant unresolved questions: Does a health shock affect household financial and non-financial wealth in a similar fashion, and why does health status affect house- hold financial portfolio choices?

The first objective of this study is to test for differences in the impact of health shocks on households financial versus non-financial assets. A large number of studies have examined the effect of health shocks on household wealth but no study has examined the effect of health shocks on household financial and non-financial wealth separately. Changes in financial and non-financial wealth engendered by changes in health status could have quite different impacts on capital markets. Health effects on financial wealth may affect stock-market activity while those on non-financial wealth may be more relevant for the housing market.

There are sound reasons for believing that health shocks have differential effects on household financial and non-financial wealth. For example, when a household member becomes sick, the income of the household is reduced and medical expenses increase. Since financial assets generally are more liquid than non-financial ones, the immediate impact on the household s overall wealth will be a reduction in its finan- cial assets. Thus, one could expect that the change in health status will have a larger impact on a household s financial than on its nonfinancial wealth, at least in the short run. Note that some non-financial assets, such as homes, are excluded from the spend-down requirement for eligibility in the US Medicaid program, which may make sick households more willing to spend financial instead of non-financial assets in order to qualify for Medicaid.

This study finds that health events have a significantly larger impact on household financial assets than on non-financial assets. For single households, a health shock leads to a significant decline in financial but not in non-financial assets. For married households, a health shock to the wife leads to a decline in financial assets nearly three times larger than that in non-financial assets. The results indicate that the

effects of health events on household financial and non-financial wealth are asymmetric.

The second objective of this paper, which may be more important, is to offer an explanation of the channel through which health status affects the composition of a household s financial portfolio. Rosen and Wu (2004) analyze the impact of health status on household financial assets and find that sick households hold less risky assets in their financial portfolios than healthy ones. They test several possible channels through which health status can affect a household s financial assets, such as risk attitude, planning horizon, life expectancy and bequest motives. None of these channels, however, adequately explain the health effect; thus, how health status affects the risk of a household s financial portfolio remains a puzzle.

Like most studies of household portfolio choice, Rosen and Wu (2004) focus on the effect of health status on financial asset allocation. Since a health shock can have a large impact on household wealth, in turn affecting portfolio choices, Rosen and Wu use total wealth (including financial and non-financial wealth) to control for the wealth effect of a change in health status on financial portfolio choices. It is not clear, however, whether total household wealth adequately captures the wealth effect of the health shock in an analysis of financial asset allocation. In a standard portfolio choice model with one risky and one riskless asset, where the risky asset represents stocks and the riskless asset represents other financial assets (bonds, CDs, checking accounts), the relevant measure of total wealth is financial wealth.[1] Given the earlier evidence that the impact of health events on financial and non- financial assets is asymmetric, it is important to consider the effect of financial wealth on household financial portfolio choices. If a health shock leads to a significant reduction in household financial wealth, then, as predicted by standard portfolio the- ory, a sick household will restructure its portfolio in response to such a wealth effect by decreasing its holdings of risky financial assets (stocks).

In order to consider the role of a financial wealth effect in the relationship between household health status and financial portfolio choices, we explicitly control for differences in financial assets between healthy and sick households when analyzing the effect of health status on financial asset allocation. Interestingly, we find that the health effect largely disappears after controlling for financial wealth effects. This sug- gests that the operation of the health effect is indirect; a health shock can signifi- cantly reduce household total financial assets and lead to a restructuring of the composition of its financial assets. In other words, the effect of health status on household financial portfolios can be explained by the financial wealth effect induced by a health shock.

The rest of the paper proceeds as follows: Section 2 briefly discusses the data sources of this study. Section 3 investigates the impact of health events on household

[1] In principle, private business investments, housing, and other highly non-liquid assets should be treated as risky assets. If one wants to analyze the allocation of overall household assets, it would be more appropriate to use household total wealth to control for the wealth effect.

financial and non-financial wealth. Section 4 analyzes the effect of health status on financial portfolio choices. Section 5 summarizes and concludes the paper.

2. Data

The data used in this study are from the first six waves of the Health and Retirement Survey (HRS). The HRS is a biennial panel sponsored by the National Institute of Ageing and administered by the Institute for Social Research at the University of Michigan. The panel began in 1992 with follow-up surveys in 1994, 1996, 1998, 2000 and, 2002. While this sample is not representative of the overall age distribution of households, it has been shown that older households own a large percentage of national wealth (see, for example, Poterba, 1994). At the same time, since health is more of a concern to the elderly, the HRS dataset is relevant for studying health-related issues.

The survey includes comprehensive information on the household head and spouse (for married couples) consisting of demographics, health status, financial and housing data, income, social security, health insurance, family structure, retirement plans and employment history. For our study, we focus on household demographics, health status and economic data. In particular, the HRS provides detailed information on household financial assets, namely checking, savings, and money market accounts, CDs, bonds and bond funds, government bonds and T-bills, stocks, mutual funds, and IRA and Keogh accounts. Following Rosen and Wu (2004), and for ease of comparison, we use a four-way classification of these assets into 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 equity mutual funds), and retirement accounts (IRAs and Keoghs). Similar to Wu (2003), we use the information on new severe health conditions reported between the two waves of the survey as the exogenous measure of new health shocks. Severe health conditions include a heart problem, stroke, cancer or malignant tumor, lung disease and diabetes.[2] In this way, we are able to mitigate concerns about an endogeneity problem in the relationship between health status and wealth.

Table 1 provides summary statistics for single and married households. The average age of a single household is 60.6%, and 8.5% have been diagnosed with new severe conditions during the sample period. For married households, the average age of wives is 57.7 which is about 4 years younger than that of husbands. About 9.7% of husbands have been diagnosed with new severe conditions compared to 6.2% of wives. Whether married or single, household non-financial assets comprise a larger proportion of total assets than financial ones. For single households, the average financial and non-financial assets are $61,224 and $100,902, respectively. For mar-

[2] Individuals with mild conditions such as high blood pressure and arthritis are not considered sick in the empirical analysis.

Table 1
Summary statistics of single and married households

	Single households	Married households
Age (singles)	60.6	
Husband age		61.5
Wife age		57.5
New severe condition (singles)	8.5%	
Husband new severe condition		9.7%
Wife new severe condition		6.2%
College degree (singles)	16.5%	
Husband college degree		23.9%
Wife college degree		15.9%
Financial assets	$61,224	$141,746
Non-financial assets	$100,902	$235,243
Owners of stock	20.5%	37.7%
Owners of bonds	4.2%	8.7%
Owners of retirement assets	27.5%	50.1%
Owners of safe assets	74.4%	88.9%
Conditional on having positive financial assets		
Share of stock in financial assets	12.9%	17.1%
Share of bonds in financial assets	1.1%	1.8%
Share of retirement assets in financial assets	18.8%	28.6%
Share of safe assets in financial assets	67.2%	52.5%
Number of observations	10,346	18,165

This table provides the basic summary statistics of the first six waves of the Health and Retirement Survey. The sample includes the households that were surveyed in all six waves. Columns 2 and 3 are the summary statistics for single households and married households, respectively. Stock includes the combination of common shares and equity mutual funds. Retirement assets include IRA and Keogh accounts. Bonds include corporate, municipal and foreign bonds and bond funds. Safe assets include checking, savings and money market accounts, CDs, government savings bonds and T-bills. Financial assets are the sum of the four asset classes (stock, retirement, bonds, and safe assets). Non-financial assets include real estate vehicles, business assets and residence.

ried households, the average financial and non-financial assets held are $141,746 and $235,243, respectively. It appears that, compared to single households, married households have significantly higher financial and non-financial assets.

Table 1 shows the different portfolio allocations made by single and married households. A greater percentage of married households owns stock (37.7%) compared to single households (20.5%). The proportion of stocks in their respective financial asset portfolios is similar, with stocks comprising 17.1% of the financial assets of married households and only 12.9% of the financial asset portfolio of single ones. Married households also invest more often in retirement assets and bonds, and have a higher proportion of their financial wealth invested for retirement and in bonds compared to single households. For all households, however, bonds are the least favored investment and comprise the smallest percentage of household portfo- lios. The picture that emerges from these summary statistics is that married house- holds accept more risk than single ones, which may be due to the fact that married households are wealthier than single ones and more willing to accept risks in their portfolios.