Published in final edited form as:

J Bank Financ. 2018 August ; 93: 198–212. doi:10.1016/j.jbankfin.2018.05.001.

Public Health Insurance and Household Portfolio Choices: Unravelling Financial “Side Effects” of Medicare

Marco Angrisani^a, Vincenzo Atella^b, and Marianna Brunetti^{c,*}

^aCenter for Economic and Social Research, University of Southern California

^bUniversity of Roma Tor Vergata, CEIS, and CHP-PCOR Stanford University

^cUniversity of Roma Tor Vergata, CEIS and CEFIN

Abstract

Large, unpredictable and not fully insurable health-care costs represent a source of background risk that might deter households’ financial risk taking. Using panel data from the Health and Retirement Study, we test whether universal health insurance, like Medicare for over-65 Americans, shields against this risk promoting stockholding. We adopt a fixed-effects estimation strategy, thereby taking into account household-level heterogeneity in health status and private insurance coverage. We find that, before Medicare eligibility, households in poor health, who face a higher risk of medical expenses, are less likely to hold stocks than their healthier counterparts. Yet, this gap is mostly eliminated by Medicare. Notably, the offsetting is primarily experienced by households in poor health and without private health insurance over the observation period.

Keywords

Household portfolios; Health status; Medicare; Health insurance

JEL classification

D14; I13; G11

1. Introduction

The rise of health-care costs in the U.S. has become an increasingly important contributor to household financial risk, in most cases responsible for large outstanding debt and bankruptcy. Cunningham (2009) estimates that in 2007 about 19% of the U.S. population had problems paying medical bills (up from 15% in 2003). This percentage is significantly higher (41%) among those between 19 and 64 years of age, who are not eligible for Medicare (Doty et al., 2008). Austin (2014) documents that, as of 2013, medical debt is the

*The views expressed in this article are solely those of the authors and do not represent those of the affiliated institutions. The authors are grateful for comments and suggestions to Andrea Attar, Silvia Barcellos, Dimitris Christelis, Mireille Jacobson, Fabrizio Mazzonna, Mario Padula, Juan Saveedra, Kevin Thom, and all participants to the seminars at the Università della Svizzera Italiana in Lugano and Università di Roma Tor Vergata. Usual disclaimers apply. Marco Angrisani kindly acknowledges financial support from the NIH under grant R01AG037398. Marianna Brunetti kindly acknowledges financial support from the Italian Ministry of Education, University and Research (MIUR), PRIN Research Project 2010-2011 (prot. 2010J3LZEN).

main factor in 18% to 26% of all consumer bankruptcies, while a recent poll by the New York Times and CBS News reveals that for 46% of households basic medical care is a hardship (Rosenthal, 2014). Consequently, some may prefer not to seek medical help and/or adhere to prescribed treatments in order to reduce health-related costs. This, in turn, may lead to even worse financial outcomes, as preventative treatments are not rendered and patients end up using expensive emergency room care as their health worsens (Gindi et al., 2012).

To the extent that health-related costs are large, unpredictable, and not fully insurable, they constitute a source of background risk, which might affect household financial behavior in two ways. The first is to increase precautionary saving (Palumbo, 1999); the second is to reduce the demand for risky financial assets (Gollier and Pratt, 1996). The latter issue, which has received significant attention in the financial economics literature, will be the focus of this paper, as we will investigate the extent to which medical expenditure risk affects household decisions to hold stocks.

Medical expenditure risk is a function of both the risk of health shocks and health insurance coverage. Other things equal, individuals in poor health status face a higher risk of incurring out-of-pocket medical costs than those in good health. At the same time, the likelihood of large out-of-pocket medical expenses is higher for uninsured than for insured individuals. Yet, the existing literature has, for the most part, examined the effect of medical expenditure risk on household stockholding modelling these two channels separately; in some cases, concentrating on the risk stemming from poor health status (e.g., Rosen and Wu, 2004; Fan and Zhao, 2009), in some others, on the changes in risk arising from different levels of insurance coverage (e.g., Goldman and Maestas, 2013; Ayyagari and He, 2016, 2017).

In the spirit of Atella et al. (2012), we contribute to the existing literature by bridging these two strands of the literature. Specifically, we study the interaction of health status and insurance coverage in determining medical expenditure risk and quantify their relative importance in shaping household portfolio choices. For this purpose, we exploit the exogenous change in insurance coverage implied by the transition of the U.S. population to Medicare to answer the following questions. If a larger risk of incurring out-of-pocket medical expenses deters individuals in poor health from holding risky assets, does Medicare eligibility mitigate this effect? If such mitigating effect exists, is it larger for individuals without health insurance coverage before Medicare eligibility? This paper complements the study by Atella et al. (2012) in two main respects. First, it examines the effect of medical expenditure risk on household portfolio choices at older ages in the context of the U.S. rather than Europe. Second, in order to identify the parameters of interest, it relies on longitudinal data and on the exogenous change in insurance coverage induced by Medicare, rather than on cross-country variation in national health care system provisions.

The universal health insurance coverage offered by Medicare has the effect of reducing the risk of large and unpredictable medical expenditures for everyone over the age of 65.²

²Eligibility may occur before age 65 in case of disability. Yet, about 95% of the U.S. population becomes eligible for Medicare at age 65.

Finkelstein and McKnight (2008) report a 40% decline at the top 25% of the out-of-pocket medical expenditure distribution and almost a 50% decline at the top 10%. Barcellos and Jacobson (2015) find that Medicare reduces out-of-pocket medical expenditure by 33% at the mean and by 53% for the top 5% spenders, with medical-related financial strain halved after 65.³ Importantly, and as the above figures suggest, the size of such reduction varies with health status and/or with pre-Medicare health insurance coverage. Other things equal, individuals in poor health status and/or without (or with low) private insurance coverage before Medicare eligibility may experience a larger reduction in background risk when they become Medicare eligible.

Using longitudinal data from the Health and Retirement Study (HRS), we adopt a fixed-effects estimation strategy to account for individual-specific heterogeneity that may correlate with financial decisions, health status and private insurance choices. Through this, we identify the extent to which the adverse impact on stockholding of increasing background risk due to poor health is mitigated by the reduction in background risk stemming from Medicare coverage. Furthermore, we investigate how this potential mitigating effect varies with the presence of health insurance prior to Medicare eligibility.

Our results show that Medicare offsets the negative effect of poor health status on household financial risk taking at both the intensive and extensive margins. More precisely, Medicare eligibility perfectly counterbalances the negative effect of poor health status, which, in the absence of universal health care insurance, is estimated to decrease the likelihood of holding stocks by 2.3 percentage points. Furthermore, we document that this effect is mainly driven by households without private health insurance, for which the reduction in background risk when they become Medicare eligible is larger. For these households, Medicare eligibility results in a net increase in the likelihood of stockholding of 1.8 percentage points, which represents a sizeable 18% increment from a 10% average stock ownership probability within this group. Our estimates are robust in terms of sign, magnitude and statistical significance to a wide range of samples selections and model specifications used to rule out potential threats to our identification strategy. Importantly, we find no change in the decision to hold safe assets (bonds, certificates of deposits) for households in poor health that become eligible to Medicare. This suggests that the increase in stock ownership they experience is largely attributable to the reduction in background risk implied by Medicare and not so much to an increase in financial resources due to lower medical expenses.

This article relates to the literature examining the relationship between health risk and household investment decisions. Edwards (2008) focuses on self-perceived risky health and documents that households who assign a higher probability to the event that medical expenses would exhaust their savings in the next five years hold safer portfolios. Rosen and Wu (2004) show that being in fair or poor health is associated with a lower probability of holding risky assets and a smaller share of wealth held in those assets. Berkowitz and Qiu (2006) find that health shocks affect portfolio choices, albeit indirectly via a reduction in

³A recent study by Mazumder and Miller (2016) shows that the positive effects on household financial wellbeing documented for Medicare are observed in the uninsured population residing in Massachusetts after the state enacted a major health care reform similar to the Affordable Care Act. In particular, they find that the reform reduced household debt, third-party collections, number of personal bankruptcies and improved credit scores.

financial wealth. Fan and Zhao (2009) do observe cross-sectional correlation between health and stockholding, yet they argue it is largely attributable to individual-specific heterogeneity, as it becomes negligible in fixed-effects regressions. Similarly, Cardak and Wilkins (2009) document the absence of a significant relationship between health status and risky asset holding when risk and time preferences are controlled for. This points to the importance of accounting for time-invariant individual traits when performing empirical analyses of household portfolios, an issue that we address via fixed-effects estimation.

Another closely related strand of literature is the one focusing on the role played by health insurance in reducing the risk of out-of-pocket medical expenses and, through it, in encouraging financial risk taking. Atella et al. (2012) take advantage of the heterogeneity of European national health care systems to show that current health status and future health risk both affect the decision to hold risky assets, albeit only in countries with less protective health care systems. Goldman and Maestas (2013) investigate the effect of supplemental insurance policies besides Medicare and exploit differences in the degree of medical expenditure risk stemming from different supplemental insurance arrangements. Their results support the hypothesis that individuals who face less medical expenditure risk, because of more generous coverage, are more likely to hold stocks. Our findings are consistent with theirs, despite major differences between the two studies. We exploit Medicare eligibility as the source of exogenous reduction in background risk and, therefore, consider a broader population than the Medicare eligible population (65 and older) used by Goldman and Maestas (2013). On average, Medicare eligibility plausibly implies larger and more widespread reductions in medical expenditure risk than changes in supplemental insurance for Medicare beneficiaries. Our paper adds to Goldman and Maestas (2013) by investigating the differential effects of these reductions on portfolio decisions of households with different health and private insurance statuses. Christelis et al. (2017) aim at establishing the causal relationship between Medicare and household stockholding via a (fuzzy) regression discontinuity design. They find a statistically significant link for highly educated individuals, but not for the entire population. Our exercise is inherently different from theirs, as it does not aim to assess the effect of the Medicare program on the decision to own stocks. Rather, our goal is to identify heterogeneous effects of Medicare on portfolio choices arising from different degrees of background risk determined by the interaction of health and private insurance statuses. Finally, Ayyagari and He (2016, 2017) exploit the introduction of Medicare Part D, covering prescription drug costs and occurred in 2006, to assess the role of medical expenditure risk in household portfolio choices. We hypothesize that the reduction in prescription drug spending risk brought about by Medicare Part D is only a modest fraction of the reduction in total medical expenditure risk afforded by Medicare eligibility. As such, we expect the contribution of prescription drug coverage to encourage household stockholding, above and beyond the one of Medicare itself, to be limited. We provide empirical evidence supporting this conjecture.

The remainder of the paper is organized as follows. We review the main features of the Medicare system in Section 2. Section 3 provides a description of the data set, while Section 4 describes the empirical specification and the identification strategy. Section 5 presents the results of the main analysis, while Section 6 discusses a series of robustness checks. Section 7 concludes.

2. Health Insurance Coverage through Medicare

Medicare is a federal health insurance program. Eligibility for Medicare is automatic for people who are at least 65 and have worked at least 40 quarters in covered employment or have a spouse who did. Coverage is also available to younger individuals with severe kidney disease and recipients of Social Security Disability Insurance (DI).⁴ The program comprises four parts. Two main parts are for hospital and medical insurance (Part A and Part B) and two additional parts provide flexibility and prescription drugs (Part C and Part D). Hospital insurance (Part A) helps to pay for in-patient care in a hospital, skilled nursing facility (following a hospital stay), some home health care and hospice care, and is generally available without paying a monthly premium since payroll taxes are used to cover these costs. Medicare Part B helps pay for physician visits, outpatient hospital visits, home health care costs, and other services for the aged and disabled. Enrolment in Part B is voluntary, requires a monthly premium, and patients must meet an annual deductible before coverage actually begins. Medicare Part C, also known as Medicare Advantage Plans or “Medicare + Choice,” allows users to design a custom plan that can be more closely aligned with their medical needs.⁵ Finally, Medicare Part D (into effect since January 1, 2006) requires payment of a premium and a deductible and provides a private insurance option for Medicare beneficiaries to purchase subsidized coverage for the costs of prescription drugs.

Currently, the Medicare program covers 95% of the U.S. population over the age of 65 and is expected to grow considerably in terms of enrollees in the coming years due to the ageing of the U.S. population and to the introduction of the Affordable Care Act (see e.g. Blumenthal et al. 2015, and Davis et al., 2015).⁶

3. Data and Sample Selection

We draw our sample from the Health and Retirement Study (HRS), a multipurpose, longitudinal household survey representing the U.S. population over the age of 50. Since 1992, the HRS has surveyed age-eligible respondents and their spouses every two years to track transitions from work into retirement, to measure economic well-being in later life and to monitor changes in health status as individuals age. In particular, respondents are surveyed on a variety of economic and health outcomes, including employment, health-insurance status, physical and mental health, income, as well as housing and financial wealth. Initially, the HRS consisted of individuals born 1931-1941 and their spouses, but additional cohorts have been added in 1993, 1998, 2004, and 2010. As of 2012, the number

⁴According to Medicare guidelines, individuals before age 65 are eligible if: (i) entitled to Social Security disability benefits for 24 months and/or for Lou Gehrig’s disease (amyotrophic lateral sclerosis); (ii) receive a disability pension from the railroad retirement board and meet certain conditions; (iii) have permanent kidney failure (dialysis or underwent a kidney transplant) and meet certain conditions; (iv) child or widow(er) aged 50 or older of someone who’s worked long enough in a government job through which Medicare taxes were paid, meeting the requirements of the Social Security disability program. More details can be found at <https://www.ssa.gov/pubs/EN-05-10043.pdf>.

⁵These plans enlist private insurance companies to provide some of the coverage, but details vary based on the program and eligibility of the patient. Some Advantage Plans team up with health maintenance organizations (HMOs) or preferred provider organizations (PPOs) to provide preventive health care or specialist services. Others focus on patients with special needs such as diabetes.

⁶According to Klees et al. (2014), in 2013, Part A covered almost 52 million enrollees with benefit payments of \$261.9 billion, Part B covered almost 48 million enrollees with benefit payments of \$243.8 billion, and Part D covered over 39 million enrollees with benefit payments of \$69.3 billion.

of individuals ever interviewed by the HRS is 37,319 belonging to 25,272 households. We use data from the RAND-HRS, version O (Chien et al., 2015) for the period 1992-2012.

We restrict our analysis to individuals between 55 and 75 years of age, a 10-year window around Medicare eligibility age. Following Goldman and Maestas (2013), we also drop Medicaid recipients, in view of their limited stock of financial wealth. This leaves us with an unbalanced panel of 17,584 unique households, spanning the 1992-2012 period, for a total of 69,285 household-time observations.

4. Empirical Specification and Identification Strategy

Our analysis focuses on both the extensive and intensive margins of a household's decision to hold risky financial assets. We assume that portfolio choices are influenced by the household's socioeconomic and health characteristics, as well as by the degree of insurance against unpredictable health-related costs.

Medical expenditure risk is a function of both health status and health insurance coverage. Other things equal, individuals in poor health status face a higher risk of incurring out-of-pocket medical costs than those in good health. At the same time, the likelihood of large out-of-pocket medical expenses is higher for uninsured than for insured individuals. For these reasons, within the U.S. context we expect the background risk reduction induced by Medicare to have a larger effect on the financial decisions of individuals in poor health than on those in good health. Also, this effect should be more evident for those not covered by other forms of health insurance before being eligible for Medicare. Hence, our empirical analysis aims at testing the following hypotheses:

Hypothesis 1: Households in poor health before Medicare face, on average, a higher risk of large and unpredictable medical expenses, which reduces their willingness to take financial risk.

Hypothesis 2: To the extent that Medicare induces a reduction in background risk, it mitigates the lower propensity of households in poor health to take financial risk (once they become Medicare eligible).

Hypothesis 3: This mitigating effect is larger for households not covered by other forms of health insurance before Medicare eligibility.

In order to empirically test these hypotheses, we adopt the following specification:

$$Y_{it} = \gamma_1 D_{it}^{Med} + \gamma_2 PoorH_{it} + \gamma_3 (PoorH_{it} \cdot D_{it}^{Med}) + X_{it}\beta + \tau_t + \eta_i + \varepsilon_{it} \quad (1)$$

where the subscripts i and t denote households and time, respectively. The dependent variable in equation (1), Y_{it} , is either a binary indicator for stock ownership or the share of stocks on total household financial wealth. The regression equation features a binary indicator for poor health status, $PoorH_{it}$, a dummy for Medicare eligibility, D_{it}^{Med} , and their

interaction, besides a vector of controls X_{it} . The terms, τ_t , and η_i represent time and household fixed effects, respectively. Finally, ε_{it} is an idiosyncratic error.

Our analysis is carried out having households, rather than individuals, as observation units since data on asset holdings are only available at the household level.⁷ The implicit assumption maintained throughout the paper is that household members take investment decisions jointly, conditional on their individual characteristics, including their health status, health insurance coverage and perceived risk of incurring out-of-pocket medical expenses.

In equation (1), γ_2 measures whether, in the absence of universal coverage like the one provided by Medicare ($D_{it}^{Med} = 0$), household financial risk-taking is deterred by poor health status. According to Hypothesis 1, we expect γ_2 to be negative. The parameter γ_3 captures the extent to which the effect on portfolio choices of a reduction in background risk stemming from Medicare eligibility is different for households in poor and good health. According to Hypothesis 2, we expect γ_3 to be positive. To test Hypothesis 3, we estimate equation (1) separately for households with and without private insurance coverage. Hypothesis 3 is verified if the parameters γ_2 and γ_3 are larger in magnitude for those households not covered by private health insurance before Medicare eligibility.

In order to guarantee the causal interpretation of the estimates, endogeneity issues and potential confounding effects need to be recognized and ruled out. First of all, health status is bound to be correlated with observable and unobservable characteristics driving investment decisions (e.g., wealth accumulation and risk aversion). We overcome this problem by controlling for a wide range of relevant variables (X_{it}) and by allowing for household fixed effects (η_i).

Second, households in poor and good health before Medicare eligibility, which for the vast majority means before age 65, may exhibit diverging trends in their risky asset holding. These pre-Medicare trends may produce differences in observed financial behaviors after Medicare eligibility, which may be incorrectly attributed to the differential reduction in background risk implied by Medicare across households with different health status. Although we document the absence of diverging trends in stock ownership for households in poor and good health before the age of 65, in all our regressions we control for health-group-specific age trends, capturing differential behaviors in stockholding before Medicare eligibility between households in good and poor health.⁸

Third, given the fixed-effects model specification, the identification of γ_3 relies on: i) households who are always in poor health status and become Medicare eligible; ii) households who are Medicare eligible but change their health status. In this latter case, we

⁷Definitions of Medicare eligibility and poor health status at the household level are provided in section 4.1. below.

⁸We regress stock ownership (and share of risky assets) on age, poor health status and their interaction using the subsample of households younger than 65. In both regressions, there is no statistical evidence of differential age trend between households in good and poor health.

can have two possible transitions: from good to poor health and from poor to good health. The first type of transition would impose an attenuation bias on our parameter of interest γ_3 and, therefore, does not threaten the validity of our conclusions: a positive and significant parameter estimate would reinforce the plausibility of Hypothesis 2. The transition from poor to good health is, instead, more problematic, as households may decide to take on more financial risk not because of the reduction in background risk implied by Medicare, but because of their improved health. In our sample, the transition from poor to good health is rather rare (about 4%) and the likelihood of it taking place remains virtually constant across different ages. We also check whether such transition might induce an increase in stockholding, which could be erroneously attributed to the reduction in background risk implied by Medicare, by comparing the estimates for the full sample with those for the sub-sample of individuals who do not change health status after age 65. Similar coefficients across these two samples reduce concerns about the transition from poor to good health after Medicare eligibility driving the results and jeopardizing our identification strategy.

A further issue is represented by the fact that health status near age 65 may worsen because individuals, especially those in poor health, may wait until they are Medicare eligible to seek the care they need. In this scenario, a positive γ_3 might reflect mean reversion in health for those in poor health, rather than a differential reduction in background risk implied by universal health coverage (i.e., Ashenfelter's dip as in Ashenfelter, 1978 and Ashenfelter and Card, 1985). To address this problem, we compare the estimates for the full sample with those for the sub-sample of individuals who do not change health status in the 60-65 window range.

Finally, testing Hypothesis 3 implies estimating equation (1) on the sub-samples of households with and without private health insurance before Medicare eligibility. Clearly, households with and without health insurance are different in many respects. In our regression analysis, we control for a wide range of demographics and household characteristics. Importantly, unobserved heterogeneity, which may lead to different insurance and investment decisions across these two groups, is accounted for via household fixed effects. It should be noted that private health insurance can be purchased to supplement Medicare coverage and this choice is endogenously determined by household changing circumstances (including health status) over time. To ensure private health insurance status homogeneity within the two sub-samples, we compare households with and without private health insurance over the entire observation period, rather than just before Medicare eligibility.

Our fixed-effects estimation strategy takes into account time-invariant unobserved heterogeneity, but does not rule out biases stemming from time-varying factors affecting both health and financial decisions. The causal interpretation of our estimates should be subject to the caveat that some of these mechanisms may not be fully controlled for by our rich set of time-varying regressors.

4.1 Variables definition

In our empirical analysis, we consider two dependent variables reflecting the extensive and intensive margins of a household's decision to hold risky assets. The participation choice is modelled via a binary variable taking value 1 if the household owns stocks, mutual funds, and investment trusts, and 0 otherwise. The allocation choice is measured by the share of these risky assets (stocks, mutual funds, and investment trusts) on household financial wealth.

We rely on the self-reported general health status variable provided by the HRS, in which respondents rate their health as: *excellent*, *very good*, *good*, *fair*, *poor*. The indicator for household poor health status takes value 1 if at least one between the household financial respondent and his/her partner reports their health status being poor, and 0 otherwise. Similarly, the indicator for Medicare eligibility equals 1 when at least one household member is eligible for Medicare. We consider as Medicare eligible all individuals over the age of 65 and those entitled to Social Security Disability benefits, regardless for their age.⁹ In order to capture the reduction in background risk implied by Medicare for households in poor health status, the interaction variable, $D_{it}^{Med} \times PoorH_{it}$, takes value 1 if at least one household member in poor health status is also Medicare eligible and 0 otherwise.¹⁰

We adopt different specifications when estimating equation (1). In the baseline specification, we control for marital status and non-linearly for age of the household financial respondent (using dummies for the 60-64, 65-69 and 70-75 brackets, thus having the 55-59 bracket as reference category). Alongside with time effects, pre-Medicare trends in risky asset holding for households in good and poor health are also accounted for.¹¹ Household economic conditions are captured by separate work status indicators for the financial respondent and his/her partner, by household income quintile dummies and by a second-order polynomial in non-housing wealth (after applying an inverse hyperbolic sine transformation so as not to drop negative values).

We amend the baseline specification by considering the risk of future health deterioration on household portfolio choices. To this end, we follow Atella et al. (2012), who propose a novel measure of future health risk based on engagement in risky behaviors (namely smoking, drinking and having a sedentary life-style), as-of-yet asymptomatic diseases (namely high blood pressure, high blood cholesterol and osteoporosis), and grip strength.¹² Thus, in our second specification we include indicators for whether at least one household member

⁹As discussed in Section 2, Medicare eligibility conditions are extremely detailed, with several specific cases to consider according to health status, work condition and civil status. Our classification is as accurate as it can be given the information available in the HRS public release data.

¹⁰For single households, the indicators for poor health status and Medicare eligibility of the partner are both set to 0.

¹¹We first estimate a cubic polynomial in age for households in good and poor health on the subsample of individuals below the age of 65. We then project this until age 75 and use it as a control in our regression equation. As an alternative, we have also estimated a cubic polynomial on the distance in months from age 65. Both approaches return similar estimates and provide strong statistical support for the absence of diverging pre-Medicare trends for households in good and poor health.

¹²Due to differences in data availability between the HRS and SHARE, we cannot adopt the exact definition of "future health risk" as the one proposed by Atella et al. (2012). More precisely, while the variables capturing risky behaviors (smoking, drinking and sedentary lifestyle) are fully comparable across the two surveys, the ones on asymptomatic diseases are not, as there is no information on high blood cholesterol and osteoporosis in the HRS. Moreover, HRS data on grip strength have a high number of missing observations, which mine its reliability.

engages in smoking, drinking and sedentary lifestyle. In our richest and preferred specification, we add controls for household-level conditions that, while as-of-yet asymptomatic, might entail health deterioration in the future, namely high blood pressure, diabetes and obesity (body mass index greater or equal than 30).¹³ Specifically, we include indicators taking value 1 if at least one between the financial respondent and the spouse reports the relevant condition. We check the robustness of our results to the inclusion of additional regressors. Specifically, we consider whether the household holds a life insurance policy as well as its probability of leaving a bequest of \$10,000 or more (obtained by averaging the probabilities of bequeathing \$10,000 or more reported by the respondent and, if present, the spouse). We also control for cognitive ability as measured by total word recall score (the sum of immediate and delayed word recall).¹⁴ We create an indicator for poor cognitive ability which takes value 1 if at least one household member has a total word recall score below the sample median. Finally, we account for difficulties in activities of daily living (ADL) and instrumental activities of daily living (IADL). The ADL score, ranging from 0 to 5, sums difficulties in bathing, dressing, eating, getting in/out of bed and walking across the room. The IADL score, ranging from 0 to 3, sums difficulties with using the phone, managing money, and taking medications. We create household-level indicators taking value 1 if at least one between the financial respondent and the spouse has any difficulty with ADL and IADL (i.e., has a ADL/IADL score greater than 0).

4.2 Descriptive statistics

Table 1 reports descriptive statistics of the variables used in the empirical analysis. About 29% of households hold risky assets, which, on average, constitute 19% of total household financial wealth. Couple households represent 60% of the sample, with the average age of the financial respondent being 64. About 10% of households have at least one member who reports being in poor health and 54% of households have at least one Medicare-eligible member. The average (median) yearly income (in 2012 dollars) is approximately \$60,000 (\$36,500) and the average (median) non-housing wealth is about \$270,000 (\$54,000). As can be seen, both income and non-housing wealth distributions are highly skewed. In the regression analysis, we use binary indicators for income quintiles and a second-order polynomial in non-housing wealth. The latter is transformed via hyperbolic sine function in order to reduce the potential impact of outliers on regression results while including in the sample households with zero or negative wealth. Less than 25% of sampled households have a least one member doing some physical activity; 61% have at least one member who drinks one or more alcoholic beverage a day and 23% at least one member who smokes. Finally, in 63% of the households at least one member has been diagnosed with high blood pressure, in 25% at least one member has been diagnosed with diabetes and in 39% at least one member is classified as obese.

Life insurance policies are widespread, as 76% of households in the sample hold one. The average household probability of leaving an inheritance of \$10,000 or more is slightly less than 70%. Finally, in 37% of the households at least one member performs poorly in

¹³The results of our analyses remain unchanged if we add a measure of mental health (the CES-D index) among the regressors.

¹⁴Respondents are read a list of 20 words and asked to recall them in no particular order immediately (which gives the immediate word recall score) and after approximately five minutes (which gives the delayed word recall score).

cognitive test; and in 11% and 5% of the households at least one member has some difficulty with daily living activities and instrumental daily living activities, respectively.

5. Results

In Table 2 we estimate a fixed-effect linear probability model for the decision to hold risky assets.¹⁵ The columns refer to three different specifications, the baseline (column 1), the one adding controls for risky behaviors (column 2) and the one further adding indicators for asymptomatic conditions (column 3).

We find supportive evidence for our first hypothesis: households without universal coverage and in poor health status have, on average, a significantly lower probability of holding risky assets than their healthier counterparts. Specifically, prior to Medicare eligibility, being in poor health reduces the probability of holding risky assets by 2.3 percentage points across all specifications. It should be noted that, given the presence of fixed-effects, this parameter is identified off of households that change health status over time. Most likely, these are transitions from good to poor health, which can be thought of health shocks. While not the focus of our study, we compute also the marginal effect of poor health on the likelihood of stockholding, namely $(\gamma_2 + \gamma_3 D^{Med})$. Across our three specifications, its estimate is -0.01 , with a bootstrap standard error of 0.006 .¹⁶ Such modest and borderline significant effect is consistent with the argument emphasized in this paper that the perceived risk of incurring out-of-pocket medical costs is a function of both health and health insurance status. When considering households with and without Medicare coverage, the impact of poor health on stockholding is less pronounced than when zooming in on household without Medicare and in poor health, as we do when looking only at γ_2 . Given our fixed-effects estimation approach, this result is also in line with the findings of Fan and Zhao (2009), who observe that the strong, negative cross-sectional correlation between poor health and stockholding largely disappears when unobserved individual heterogeneity is accounted for.

The estimated value for the parameter γ_3 is positive and statistically significant. This supports our second hypothesis of a differential reduction in the background risk of incurring large out-of-pocket medical expenses implied by Medicare for households in poor and good health.¹⁷ Interestingly, Medicare eligibility almost perfectly counterbalances the negative effect of poor health status on the likelihood of holding risky assets. Such offsetting effect is economically important given that about 30% of sampled households hold stocks in their portfolios and only 15% of those in poor health do so.¹⁸

¹⁵We have also estimated equation (1) via fixed-effect Logit. The corresponding results only partially replicate those presented in the text. In this case, however, the sample size is greatly reduced as the estimation of a Logit model with fixed effects requires individuals without internal variation on the dependent variable to be dropped from the analysis.

¹⁶The full set of estimated marginal effects are available upon request.

¹⁷An alternative view is to ask whether health changes have a different impact on the probability of stockholding depending on whether the household is covered by Medicare. When we estimate our richest specification separately for the pre-Medicare and the Medicare-eligible samples, the fixed-effects coefficient of poor health is -0.022 (0.011) for the former and -0.001 (0.006) for the latter. This suggests that, in the absence of universal health care coverage like the one provided by Medicare, households are relatively more responsive to changes in health status and, hence, to changes in the risk of out-of-pocket medical expenditures.

¹⁸We also experiment with a broader definition of household poor health status, where at least one member reports being in fair or poor health, rather than just in poor health. When we adopt such definition, both the negative effect of poor health on stockholding and the mitigating effect of Medicare are, not surprisingly, weakened. Nonetheless, they retain the expected sign.

Medicare eligibility entails both a reduction in out-of-pocket medical expenses and background risk associated with health-related costs. Thus, a legitimate concern is to what extent our results are driven by Medicare-eligible individuals in poor health investing more in stocks simply because they are less cash constrained. There are several reasons to argue against such instance. First, the set of explanatory variables includes non-housing wealth. Given fixed-effects regressions, this implies that changes in available financial resources are held constant and, hence, the estimated parameter γ_3 is net of potential increases in the probability of holding stocks induced by additional liquidity. Second, when we exclude wealth from the set of explanatory variables, we do not observe any difference in the estimated coefficients of interest.¹⁹ This further suggests that the “liquidity effect” associated with Medicare does not play an important role. Third, more available financial resources following a reduction in medical costs should boost investments in both risky and risk-free assets (especially if there is little variation in the degree of background risk and households want to maintain their portfolio allocation unchanged). However, while we find an effect of Medicare on the probability of holding stocks, we do not find it on the likelihood of holding either bonds, certificates of deposits or safe assets in general. Such findings provide additional supportive evidence to the interpretation that the observed increase in stock ownership among households in poor health who become Medicare eligible is primarily driven by the experienced reduction in background risk and not so much by less binding liquidity constraints.²⁰

Overall, we estimate the marginal effect of Medicare on stockholding, $(\gamma_1 + \gamma_3 \text{PoorH})$, to be positive, but small and not statistically significant. Across our three specifications, its estimate is 0.0075, with a bootstrap standard error of 0.008.²¹ Again, we interpret this finding in favor of the argument that health and health insurance status both contribute and interact in determining household background risk and, in turn, the propensity to hold risky assets. If we expect the reduction in the background risk of out-of-pocket medical expenses implied by Medicare to be mainly noticeable for those in poor health, who represent a relatively small fraction of the population, we should also anticipate the overall effect of Medicare on stockholding to be limited. This result is in line with Christelis et al. (2017), who find no effect of Medicare on portfolio choices in the population.²²

Concerning time-varying socio-economic variables, we observe a strong and positive income gradient in stockholding. The estimated relationship with wealth is also statistically significant, with a 10% increase in non-housing wealth associated with a 0.4 percentage points increase in the probability of investing in stocks. All other demographics correlate rather weakly with risky investment decisions. Contrary to what Atella et al. (2012) report for Europe, the risk of possible future health deterioration, as captured by smoking, drinking

¹⁹These results are very similar to those reported in text and, therefore, omitted in the interest of space. They are, however, available upon request.

²⁰The estimates of the regressions using investment in risk-free assets as dependent variables are available upon request.

²¹The full set of estimated marginal effects is available upon request.

²²Christelis et al. (2017) estimate that Medicare positively affects stock holding only within the sub-group of those with some college education. In contrast, we do not find evidence that the marginal effect of Medicare is different, both in magnitude and statistically, across education groups. This different finding may stem from different sample selection criteria (the observation period and the age range is different in the two studies) as well as from different estimation methods.

and sedentary behavior as well as by asymptomatic diseases, does not seem to play a role in shaping portfolio decisions of older Americans.²³

Next, we test Hypothesis 3. As discussed above, we proceed by first dropping all households whose ownership of private health insurance changes over the observation period and then by estimating equation (1) separately on the sub-samples of households with and without private health insurance.²⁴ In Table 3 we present the results of this exercise using our richest specification. Column (1) reports the results obtained using the sub-sample of households who have never changed their insurance status over the observation period. Despite the substantial reduction in sample size, the estimates are very similar to those presented in the last column of Table 2. Columns (2) and (3) of Table 3 present the estimates for the sub-samples without and with private insurance, respectively. In line with Hypothesis 3, the parameters γ_2 and γ_3 are economically sizeable and statistically significant for households without private health insurance, but of much lower magnitude and not statistically different from zero for those with private health insurance. Specifically, for households without private health insurance or Medicare, poor health status decreases the likelihood of holding stocks by 3.1 percentage points. For this group, the reduction in background risk implied by Medicare eligibility increases the probability of stock ownership by 4.9 percentage points. The resulting net increase is 1.8 percentage points, which represents a sizeable 18% increment from a 10% average stock ownership probability within this group. The *p-value* for the null hypothesis that the sheltering effect of Medicare is the same for households with and without private insurance against the alternative that is larger for the latter is 0.07.²⁵

In Tables 4 and 5, we repeat all previous analyses focusing on the intensive margin of household stockholding. In these fixed-effects regressions, the dependent variable is the fraction of household financial wealth held in risky assets.²⁶ The results in Table 4 show a negative effect of poor health on stockholding prior to Medicare. The share of risky assets for households in poor health without Medicare coverage is about 2 percentage points lower than for their healthier counterparts. Although still positive, the offsetting impact of Medicare eligibility is substantially smaller than the one found for stock ownership in Table 2 and not precisely estimated. In other words, for households in poor health, Medicare eligibility does not appear to affect portfolio choices at the intensive margin. As a

²³A potential explanation for this different finding is in data quality between the HRS and SHARE, with the latter presenting a much lower rate of missing observations on variables used as proxies for future health status. Most likely, such different result is driven by differences in the estimation method adopted in the two studies. In Atella et al. (2012), the effect of future health status on investment decisions is identified off of cross-sectional variation in risky behaviors and asymptomatic conditions. In this paper, it is identified off of within-individual variation in such variables, which is rather modest.

²⁴We are left with 8,969 unique households after dropping from our original dataset the 8,615 households that changed private health insurance ownership over the observation period.

²⁵We also run these regressions separately for households with low (high school or less) and high education (some college or more). Interestingly, we find that, compared to low educated individuals, individuals with high education and no private insurance respond significantly more to poor health and to Medicare eligibility conditional on poor health. A possible interpretation of these results is that better educated individuals are more aware of the sources of background risk they face and take these sources more into account when making investment decisions.

²⁶The identifying assumption is that selection into stock holding operates through time-invariant individual characteristics. While other forms of selection (through time-varying shocks) are possible, the literature indicates that stock holders and non-stock holders are inherently different types of investors, characterized by different attitude towards risk, ability to make financial plans, etc. These traits are unlikely to change at old ages and, thus, are accounted for by individual fixed effects. Alternative econometric methods could be used to model this limited dependent variable (e.g. Tobit model, fractional variable model). While relaxing the assumption of linearity, these methods do not allow to include individual fixed-effects. We prefer to estimate a linear regression model with individual fixed-effects, while acknowledging its limitation in this context.

consequence of this, when we pool together households with and without Medicare to compute the overall marginal effect of poor health on the share of risky assets, we estimate it to be -0.0125 and statistically significant (with a bootstrap standard error of 0.006). Hence, while, on average, adverse health shocks only slightly impact the decision to hold stocks, they do tilt household portfolios towards safer positions. Similar relationships between health shocks and household portfolio decisions at the extensive and intensive margins are noticed by Fan and Zhao (2009) in fixed-effects regressions.

In Table 5, we split the sample by health insurance status and find strongly supportive evidence for Hypothesis 3. Poor health prior to Medicare and Medicare eligibility conditional on poor health both affect the decision of how much wealth to hold in risky assets for households without private health insurance, but not for those with private health insurance. In particular, we estimate that, among households without private insurance, having at least a member in poor health status prior to Medicare decreases the fraction of wealth held in stocks by 6.6 percentage points. Such negative effect is completely offset by becoming Medicare eligible. The null hypothesis that, in the absence of Medicare, the detrimental effect of poor health on stockholding (parameter γ_2) is the same among households with and without private insurance versus the alternative that it is more pronounced for the latter is rejected at any conventional significance level. Similarly, we reject the null that, conditional on being in poor health, the sheltering effect of Medicare on stockholding (parameter γ_3) is the same for households with and without insurance against the alternative that it is greater for the latter.²⁷

6. Robustness Checks and Further Analysis

In this section we test the robustness of our main results to: (i) richer model specifications; (ii) excluding households who transit from poor to good and from good to poor health before and after Medicare eligibility; (iii) excluding households who report working for pay during the observation period; (iv) limiting our sample to couples; (v) fictitiously changing the age of Medicare eligibility from 65 down to ages 60-64 (placebo regressions).²⁸ We also assess the extent to which the risk-mitigating effect of Medicare is driven by prescription drug coverage offered by Medicare Part D.

6.1 Additional controls

In Table 6, we augment our richest specification with further controls and present regressions results for both the extensive and intensive margins. Specifically, we take into account household ownership of a life insurance policy, the probability of leaving a bequest, cognitive ability, difficulties with ADL and IADL. Due to the large number of missing values for these variables, the sample size is cut sharply. Column (1) shows that households

²⁷Overall, we find no effect of Medicare eligibility on the fraction of wealth held in safe assets. When we split the sample between households without and with private insurance prior to Medicare, we observe that among the former those in poor health decrease their holdings of safe assets once they become Medicare eligible. This, again is consistent with a reduction in background risk and a reshuffling of the portfolio towards riskier assets. Results are available upon request.

²⁸We performed two additional robustness checks, where we focus on the HRS cohort only to isolate cohort effects and exclude households with zero financial wealth. The results of these regressions, available upon request, are in line with the empirical evidence reported so far.

with life insurance are 2 percentage points more likely to participate in the stock market, on average. A higher probability of leaving a bequests of at least \$10,000 is associated with a higher likelihood of stock ownership, although the estimated coefficient is rather small to be economically relevant. No significant effects are found for poor cognitive ability and ADL/IADL difficulties.²⁹ While the inclusion of these additional variables in the regression equation implies a notable reduction in sample size, it does not affect the estimated coefficients of interest and the conclusions drawn in the previous section.

6.2 Health status changes before and after age 65

A legitimate concern is that Medicare eligibility may induce changes in health status, rather than in background risk, which may ultimately produce our findings. For instance, Medicare may increase the likelihood that individuals transit from poor to good health as access to health care services improves. In this scenario, a positive estimate for γ_3 would stem from health improvements triggered by Medicare, rather than from a reduction in background risk implied by the availability of universal health insurance. Additionally, in anticipation of Medicare, individuals approaching 65 may decide to delay medical care until they become Medicare eligible. This may cause health status to worsen immediately before age 65 and to improve thereafter. Again, a positive estimate for γ_3 in this case should not be attributed to the reduction in background risk brought about by Medicare.

In order to address these concerns, we repeat our regressions using the sub-samples of respondents who did not change their health status before or after age 65. More precisely, our first robustness check excludes from the sample households changing their health status after Medicare eligibility (age 65-75). Our second robustness check excludes from the sample households with health status transitions occurring between 60 to 64 years of age, that is, before qualifying for Medicare.

Tables 7 and 8 report the results for these exercises for the extensive and intensive margins, respectively. As can be seen, all our hypotheses receive further support from the data. Households in poor health can afford increase their holding of risky assets after Medicare due to a larger reduction in background risk compared to their counterparts in good health. The sheltering role of Medicare is significantly more prominent for those without any form of health insurance prior to Medicare.

It is worth noting that, compared to the baseline results in Table 3 (Table 5), recalled for convenience in Columns (1) and (2), the estimate of γ_3 is almost 25% (15% to 30%) larger when households who experience health transitions after Medicare are excluded from the sample. This indicates that, since the most frequent transition at older ages is from good to poor health, which should discourage risky asset holding, our baseline estimate of γ_3 can be interpreted as a lower bound of the risk-mitigating role of Medicare.

²⁹Christelis et al. (2010) find that poor cognitive ability is a strong deterrent for stock-market participation in a cross-section of European older adults. We attribute the difference between their finding and ours to the different estimation methods and to the fact that cognitive ability exhibits limited within-individual variation (which is the source of variation we exploit).

6.3 Excluding individuals who are working for pay

Another potential confounding effect is the transition from work to retirement. This is likely to affect the background risk faced by individuals as it typically implies a shift from a relatively more volatile source of income – earnings – to a more stable one – pension benefits and annuities. Since normal retirement age is around 65 for most of our sampled individuals, the cessation of productivity risk associated with retirement, especially for those in poor health, may, at least partially, drive our results. To address this issue, we restrict our analysis to households whose financial respondent reports not working for pay during the observation period and who should, therefore, experience little or no change in income risk over time.³⁰

Table 9 presents the results of the analysis using this selected sample. As shown in columns (3)-(4) and (7)-(8), Hypotheses 1 and 2 are confirmed: we find an adverse effect of poor health on the likelihood of holding risky assets, which is offset by the availability of universal health insurance through Medicare. Again, this counterbalancing effect is only found for households without any other form of private health insurance. Yet, our third hypothesis receives less support from the data, as the differences between estimates referring to households with and without private health insurance are now less pronounced and not statistically significant. This finding, however, can be rationalized on the basis of the specific sample selection adopted here. By excluding individuals working for pay, we are presumably dropping households with employer-provided health insurance. As a result, those who report having private health insurance are more likely to hold individually contracted and, likely, less generous policies. This, in turn, makes the insured and the uninsured in Table 9 more comparable in terms of reduction in background risk associated with Medicare eligibility.

6.4 Limiting the sample to couples and focusing on both members Medicare eligible

In Table 10, we repeat the exercise presented in Tables 3 and 5 excluding from the sample single respondents. We also experiment with a narrower definition of household Medicare eligibility using an indicator that takes value 1 if *both* couple members are Medicare eligible, and 0 otherwise. In this case, differences across insurance groups are more marked. In particular, for couples without private insurance, poor health status prior to Medicare reduces the likelihood of holding stocks by 4.6 percentage points, while it entails virtually no change in the likelihood of holding stocks among couples with private insurance. The offsetting effect of Medicare eligibility is equal to 7.0 percentage points for the average couple without private coverage. It is not indistinguishable from zero for couples with private insurance. The null hypotheses that the parameters γ_2 and γ_3 are equal for these two sub-samples are rejected at any conventional significance level in favor of the alternative that they are greater for households without private insurance. Comparison with the results in Table 3 provides suggestive evidence that the sheltering role of Medicare is proportionally

³⁰This sub-sample consists for the most part of retirees (82%) and individuals who are not in the labor force (11%). Roughly 4% are disabled and about 3% report being unemployed. Excluding the latter does not affect the estimates either qualitatively or quantitatively. The same is found when we exclude households where both the financial respondent and the spouse do not work for pay (all results available upon request).

stronger in a couple household where *both* members are Medicare eligible, which, as a consequence, enjoys a larger reduction in background risk. In fact, the net increase in the probability of holding risky assets for households in poor health who become Medicare eligible is 1.8 for the whole sample and 2.4 for couples.

As far as the intensive margin is concerned, the estimates in the right panel of Table 10 show a negative health effect of 7.7 percentage points prior to Medicare among households without other forms of insurance and a counterbalancing effect of Medicare of 8.5 percentage points. In contrast, there is no apparent effect of either health status or Medicare eligibility for privately insured households.

6.5 Placebo regressions

As placebo tests, we re-estimate our preferred model specification after moving the Medicare eligibility age threshold from 65 down to ages 64-60. This allows us to check whether our findings are determined by Medicare or by some other confounding factors/events. Results for both the extensive and the intensive margins are presented in Table 11. As the threshold moves down from age 65 the magnitude of our parameters of interest is monotonically reduced and statistical significance is lost. When the threshold is positioned at age 64, the results are similar to those discussed above. This finding could be explained by some households anticipating portfolio decisions as they are on the verge of enrolling in Medicare. Also, since our data are collected every two years and we do not consider the month of birth, we may not discriminate well individuals who are “close” and “far” from the 65 age threshold. Some individuals treated as 64-year olds in our analysis may as well be already eligible for Medicare.

6.6 The role of prescription drug coverage through Medicare Part D

Ayyagari and He (2016, 2017) have recently exploited the introduction of Medicare Part D in 2006 to estimate the effect of medical expenditure risk on household portfolio choices. They find evidence that, by reducing prescription drug spending risk, this program has significantly increased risky investment among Medicare-eligible relative to Medicare-ineligible cohorts.

While prescription drug costs represent a sizeable share of medical expenses for American adults, they do not exceed 10% of total health care spending (Keehan et al, 2011). Prescription drug costs tend to be larger for seniors. Yet, Medicare Part D accounts for about 16% of the overall Medicare cost.³¹ Given these figures, we hypothesize that the reduction in prescription drug spending risk brought about by Medicare Part D is a modest fraction of the reduction in total medical expenditure risk (comprising all types of health care costs, including hospital stay, physician and clinical services, etc) afforded by Medicare eligibility. As such, we expect the contribution of prescription drug coverage to encourage household stockholding, above and beyond the one of Medicare itself, to be limited.

³¹In FY 2016, the Office of the Actuary has estimated that gross current spending on Medicare benefits will total \$672.6 billion. In the same year, Part D is estimated to have a \$108.0 billion gross spending, which is 16% of total budget.

To test this hypothesis, we amend our specification by adding an indicator for enrolment in Medicare Part D, its interaction with the indicator for Medicare eligibility and a triple interaction between poor health, Medicare eligibility and enrolment in Medicare Part D.³² This allows us to assess the relative role of Medicare and Medicare Part D on household portfolio choices. The results of this analysis are reported in Table 12.

As far as the extensive margin is concerned, there is no evidence of an additional contribution of Medicare Part D to the probability of holding stocks in the full sample. In Column (1), although positive, the estimated coefficient for the triple interaction is not statistically significant. In Column (2), when we restrict attention to the sub-sample of households that did not change private insurance status over the observation period, this coefficient becomes large and significant (0.054). The split between households without and with insurance suggests that this result is mainly driven by the latter. For those without private insurance, it is the reduction in medical expenditure risk induced by Medicare itself that promotes stockholding, while prescription drug coverage has no additional effect. For those with private insurance prior to Medicare, instead, the reduction in prescription drug spending risk offered by Medicare Part D seems to have a sizeable and positive impact on investment decisions (an estimated coefficient of 0.091). As can be seen in Columns (5)-(8) of Table 12, there is no apparent, additional contribution of prescription drug coverage at the intensive margin, while the interaction between Medicare eligibility and poor health retains the same sign, size and statistical significance across samples as in Table 5.

Overall, the results of our analysis confirm a certain role of Medicare Part D in reducing health care costs risk and promoting stockholding as found by Ayyagari and He (2016, 2017). At the same time, they suggest that the additional reduction in spending risk afforded by Medicare Part D above and beyond that offered by Medicare itself is modest. Moreover, its effect on household portfolio choices is heterogeneous and not relevant for the uninsured, who benefit the most from Medicare coverage.

7. Conclusions

In this paper we aim to gauge the potential sheltering effect of universal health insurance - such as the one provided by Medicare to individuals older than 65 in the U.S. - against the background risk of unpredictable medical expenses and to assess the consequences of this for household portfolio choice. Exploiting the transition to Medicare eligibility and fixed-effects estimation allowed by the longitudinal nature of the HRS data, we identify the effect of the reduction in background risk implied by Medicare on household stockholding. We also document how this effect varies across households with different health status and different insurance coverage, which are likely subject to different risks of large and unpredictable medical costs.

Our results can be summarized as follows. First, before Medicare, poor health status, which entails a higher risk of out-of-pocket medical expenditures on average, induces households

³²As briefly described in Section 2, enrollment in Medicare Part D is voluntary and does not happen automatically once the person is eligible for Medicare. Starting from 2006, the HRS asks respondents whether they are enrolled in Medicare Part D and, therefore, receive coverage for prescription drugs.

to reduce their exposure to other sources of financial risk, thereby deterring stockholding. Second, this effect is mitigated and almost perfectly counterbalanced by universal health insurance as the one guaranteed by Medicare to American adults over the age of 65. Third, this estimated sheltering effect is heterogeneous across households, being significantly larger for those uninsured before Medicare eligibility.

Our results are extremely robust to different model specifications and sample selection criteria used to rule out possible confounding effects. These include, but are not limited to, the reduction in income volatility associated with the transition from earnings to pension/annuity that is likely to happen around the same age individuals become Medicare eligible, and possible endogenous changes in health status induced by Medicare. Additionally, our parameters of interest are larger in magnitude for couples where both members are covered by Medicare, indicating that these households enjoy a larger reduction in background risk and, thus, can afford relatively riskier portfolio allocations.

The estimated sheltering role of universal health insurance offered by Medicare is economically relevant. If we consider that as of 2012 the U.S. population aged 65 and older was about 41 millions, that about 25% of these individuals invest in risky assets and that about 10% are in poor health status, then our estimates indicate that approximately 1 million households are not deterred from holding stocks by virtue of the reduction in background risk provided by Medicare coverage. Based on these numbers, simple back-of-the-envelope calculations indicate that Medicare is able to keep about 3 billion dollars of household wealth invested in the stock market.

References

- Ayyagari P, He D. 2016; Medicare Part D and Portfolio Choice. *American Economic Review: Papers & Proceedings*. 106(5):339–342.
- Ayyagari P, He D. 2017; The role of medical expenditure risk in portfolio allocation decisions. *Health Economics*. 26(11):1447–1458. [PubMed: 27723184]
- Ashenfelter O. 1978; Estimating the Effect of Training Programs on Earnings. *Review of Economics and Statistics*. 60:47–50.
- Ashenfelter O, Card D. 1985; Using the Longitudinal Structure of Earnings to Estimate the Effect of Training Programs. *Review of Economics and Statistics*. 67:648–660.
- Atella V, Brunetti M, Maestas N. 2012; Household portfolio choices, health status and health care systems: a cross-country analysis based on SHARE. *Journal of Banking and Finance*. 36(5):1320–1355. [PubMed: 23885134]
- Austin D. 2014; Medical Debt As A Cause of Consumer Bankruptcy. *Maine Law Review*. 67(1):1–23.
- Barcellos SH, Jacobson M. 2015; The Effects of Medicare on Medical Expenditure Risk and Financial Strain. *American Economic Journal: Economic Policy*. 7(4):41–70. [PubMed: 27928462]
- Berkowitz MK, Qiu J. 2006; A further look at household portfolio choice and health status. *Journal of Banking & Finance*. 30:1201–1217.
- Blumenthal D, Abrams M, Nuzum R. 2015; The Affordable Care Act at 5 Years. *New England Journal of Medicine*. 372:2451–2458. [PubMed: 25946142]
- Cardak BA, Wilkins R. 2009; The determinants of household risky asset holdings: Australian evidence on background risk and other factors. *Journal of Banking & Finance*. 33(5):850–860.
- Chien, S, , et al. RAND HRS Data Documentation, Version O. Santa Monica, CA: RAND Center for the Study of Aging; 2015.

- Christelis D, Jappelli T, Padula M. 2010; Cognitive abilities and portfolio choice. *European Economic Review*. 54:18–38.
- Christelis, D, Georgarakos, D, Sanz-de-Galdeano, A. The Impact of Health Insurance on Stockholding: A Regression Discontinuity Approach, mimeo. University of Alicante; 2017.
- Cunningham PJ. 2009 Trade-Offs Getting Tougher: Problems Paying Medical Bills Increase for U.S. Families, 2003-2007. Center for Studying Health System Change, mimeo.
- Davis, K; Guterman, S; Bandeali, F. The Affordable Care Act And Medicare: How the Law Is Changing the Program and the Challenges That Remain, the Commonwealth Fund. 2015. available from: <http://www.commonwealthfund.org/>
- Doty, MM; Collins, SR; Rustgi, SD; Kriss, JL. Seeing red: the growing burden of medical bills and debt faced by U.S. families. Issue Brief. 2008. available from: <http://www.commonwealthfund.org/>
- Edwards RD. 2008; Health risk and portfolio choice. *Journal of Business & Economic Statistics*. 26(4):472–485.
- Fan E, Zhao R. 2009; Health Status and Portfolio Choice: Causality or Heterogeneity? *Journal of Banking & Finance*. 33:1079–1088.
- Finkelstein A, McKnight R. 2008; What Did Medicare Do? The Initial Impact of Medicare on Mortality and Out of Pocket Medical Spending. *Journal of Public Economics*. 92:1644–1669.
- Gindi, RM, Cohen, RA, Kirzinger, WK. Emergency Room Use among Adults Aged 18-64: Early Release of Estimates from the National Health Interview Survey, January–June 2011. National Center for Health Statistics; 2012. available from: <http://www.cdc.gov/nchs/nhis/releases.htm>
- Goldman DP, Maestas N. 2013; Medical expenditure risk and household portfolio choice. *Journal of Applied Econometrics*. 28(4):527–550. [PubMed: 23997424]
- Gollier C, Pratt JW. 1996; Risk vulnerability and the tempering effect of background risk. *Econometrica*. 64(5):1109–1123.
- Keehan SP, Sisko A, Truffer CJ, Poisal JA, Cuckler GA, Madison AJ, Lizonitz JM, Smith SD. 2011; National health spending projections through 2020: economic recovery and reform drive faster spending growth. *Health Affairs*. 30(8):1594–1605. [PubMed: 21798885]
- Klees, BS, Christian, JW, Curtis, CA. Brief summaries of Medicare & Medicaid Title XVIII and Title XIX of The Social Security Act, Office of the Actuary. Centers for Medicare & Medicaid Services; 2014.
- Mazumder B, Miller S. 2016; The Effects of the Massachusetts Health Reform on Household Financial Distress. *American Economic Journal: Economic Policy*. 8(3):284–3131.
- Palumbo M. 1999; Uncertain medical expenditures and precautionary saving near the end of the life cycle. *Review of Economic Studies*. 66(66):395–421.
- Rosen HS, Wu S. 2004; Portfolio choice and health status. *Journal of Financial Economics*. 72:457–484.
- Rosenthal, E. Paying Till It Hurts, *New York Times*. 2014. Available at: <http://www.nytimes.com/interactive/2014/health/paying-till-it-hurts.html>

Table 1

Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max	Obs
Holding risky assets	0.293	0.455	0	1	69,285
Share invested in risky assets	0.188	0.321	0	1	60,123
Poor Health	0.095	0.293	0	1	69,285
Medicare Eligibility	0.544	0.498	0	1	69,285
Age	64.170	6.033	55	75	69,285
Couple	0.599	0.490	0	1	69,285
Working	0.485	0.500	0	1	69,285
Total income	60,612	276,196	0	60,000,000	69,285
Net Wealth	269,790	1,013,935	-825,425	90,600,000	69,285
Smoking	0.227	0.419	0	1	69,285
Drinking	0.610	0.488	0	1	69,285
No exercise	0.764	0.424	0	1	69,285
High blood pressure	0.634	0.482	0	1	69,285
Diabetes	0.246	0.431	0	1	69,285
Obese	0.390	0.488	0	1	69,285
Has life insurance	0.758	0.429	0	1	68,692
Probability of leaving 10k+ bequest	69.745	36.072	0	100	61,220
Poor cognitive abilities	0.369	0.483	0	1	60,782
Has difficulty in Activities of Daily Living	0.112	0.315	0	1	65,140
Has difficulty in Instrumental Activities of Daily Living	0.049	0.215	0	1	65,136

Table 2

Baseline specifications: Holding risky assets.

Dependent Variable: Holding risky assets	(1)	(2)	(3)
Medicare Eligibility	0.005 (0.007)	0.005 (0.007)	0.005 (0.007)
Poor Health	-0.023*** (0.007)	-0.023*** (0.007)	-0.023*** (0.007)
Medicare Eligibility × Poor Health	0.022** (0.010)	0.023** (0.010)	0.023** (0.010)
Working for Pay, respondent	-0.006 (0.005)	-0.006 (0.005)	-0.006 (0.005)
Working for Pay, spouse	0.001 (0.006)	0.000 (0.006)	0.000 (0.006)
Couple	-0.010 (0.008)	-0.012 (0.008)	-0.011 (0.008)
Income, 2 nd quintile	-0.001 (0.005)	-0.001 (0.005)	-0.001 (0.005)
Income, 3 rd quintile	0.012** (0.006)	0.012** (0.006)	0.012** (0.006)
Income, 4 th quintile	0.050*** (0.006)	0.050*** (0.006)	0.050*** (0.006)
Income, 5 th quintile	0.073*** (0.008)	0.073*** (0.008)	0.073*** (0.008)
Non-Housing Wealth	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Non-Housing Wealth ²	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
Smoking		0.008 (0.007)	0.008 (0.007)
Drinking		0.005 (0.005)	0.005 (0.005)
No exercise		0.002 (0.004)	0.002 (0.004)
High blood pressure			0.002 (0.006)
Diabetes			-0.002 (0.007)
Obese			-0.003 (0.005)
Constant	0.065*** (0.017)	0.059*** (0.018)	0.059*** (0.018)
Observations	69,285	69,285	69,285
R-squared	0.039	0.039	0.039
Number of households	17,584	17,584	17,584

Note: Robust standard errors in parentheses. All specifications control for time fixed effects, 5-years age-classes dummies and group-specific age trend.

Table 3

Baseline specifications, by private health insurance: Holding risky assets.

Dependent Variable: Holding risky assets	Insurance sample	Without Health Insurance	With Health Insurance
	(1)	(2)	(3)
Medicare Eligibility	0.007 (0.011)	0.008 (0.012)	0.012 (0.015)
Poor Health	−0.032*** (0.011)	−0.031*** (0.010)	−0.027 (0.017)
Medicare Eligibility × Poor Health	0.028* (0.016)	0.049*** (0.015)	0.010 (0.025)
Observations	28,001	7,653	20,348
R-squared	0.038	0.029	0.046
Number of households	8,969	3,025	5,944

Note: Robust standard errors in parentheses. All specifications control for time fixed effects, 5-years age-classes dummies and group-specific age trend. Besides, all regressions include dummies for being a couple, working for pay (both respondent and spouse), income quintiles as well as a second-order polynomial in non-housing wealth, besides household-level controls for smoking, drinking, having a sedentary lifestyle, and suffering from high blood pressure, diabetes and obesity.

Table 4

Baseline specifications: Share invested in risky assets.

Dependent Variable: Share invested in risky assets	(1)	(2)	(3)
Medicare Eligibility	0.003 (0.006)	0.003 (0.006)	0.003 (0.006)
Poor Health	-0.017** (0.007)	-0.018** (0.007)	-0.018** (0.007)
Medicare Eligibility × Poor Health	0.009 (0.009)	0.009 (0.009)	0.009 (0.009)
Working for Pay, respondent	0.000 (0.004)	0.000 (0.004)	0.000 (0.004)
Working for Pay, spouse	0.004 (0.005)	0.004 (0.005)	0.004 (0.005)
Couple	-0.006 (0.007)	-0.006 (0.007)	-0.006 (0.007)
Income, 2 nd quintile	-0.000 (0.004)	-0.000 (0.004)	-0.000 (0.004)
Income, 3 rd quintile	0.005 (0.005)	0.005 (0.005)	0.005 (0.005)
Income, 4 th quintile	0.020*** (0.005)	0.020*** (0.005)	0.020*** (0.005)
Income, 5 th quintile	0.023*** (0.006)	0.023*** (0.006)	0.023*** (0.006)
Non-Housing Wealth	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Non-Housing Wealth ²	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
Smoking		-0.001 (0.006)	-0.001 (0.006)
Drinking		0.002 (0.004)	0.002 (0.004)
No exercise		0.004 (0.003)	0.004 (0.003)
High blood pressure			0.001 (0.005)
Diabetes			-0.001 (0.006)
Obese			0.000 (0.004)
Constant	-0.053*** (0.016)	-0.057*** (0.016)	-0.057*** (0.016)
Observations	60,123	60,123	60,123
R-squared	0.035	0.035	0.035
Number of households	15,854	15,854	15,854

Note: Robust standard errors in parentheses. All specifications control for time fixed effects, 5-years age-classes dummies and group-specific age trend.

Table 5

Baseline specifications by private health insurance: Share invested in risky assets.

Dependent Variable: Share invested in risky assets	Insurance sample	Without Health Insurance	With Health Insurance
	(1)	(2)	(3)
Medicare Eligibility	0.000 (0.009)	0.006 (0.014)	0.002 (0.011)
Poor Health	−0.033*** (0.011)	−0.066*** (0.020)	−0.021* (0.013)
Medicare Eligibility × Poor Health	0.012 (0.014)	0.067*** (0.024)	−0.010 (0.017)
Observations	23,786	4,653	19,133
R-squared	0.039	0.032	0.044
Number of households	7,743	2,060	5,683

Note: Robust standard errors in parentheses. All specifications control for time fixed effects, 5-years age-classes dummies and group-specific age trend. Besides, all regressions include dummies for being a couple, working for pay (both respondent and spouse), income quintiles as well as a second-order polynomial in non-housing wealth, besides household-level controls for smoking, drinking, having a sedentary lifestyle, and suffering from high blood pressure, diabetes and obesity.

Table 6

Robustness Check I: Additional controls.

VARIABLES	Dependent Variable: Holding risky assets				Dependent Variable: Share invested in risky assets			
	Full sample	Insurance sample	Without Health Insurance	With Health Insurance	Full sample	Insurance sample	Without Health Insurance	With Health Insurance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Medicare Eligibility	0.006 (0.008)	0.002 (0.013)	0.008 (0.013)	0.006 (0.017)	0.004 (0.006)	−0.004 (0.010)	0.005 (0.016)	−0.003 (0.012)
Poor Health	−0.031*** (0.009)	−0.042*** (0.013)	−0.032*** (0.013)	−0.041*** (0.019)	−0.022*** (0.008)	−0.038*** (0.012)	−0.063*** (0.024)	−0.029*** (0.014)
Medicare Eligibility × Poor Health	0.025*** (0.011)	0.030* (0.018)	0.044*** (0.018)	0.021 (0.027)	0.012 (0.010)	0.022 (0.015)	0.060*** (0.028)	0.006 (0.018)
Has life insurance	0.021*** (0.006)	0.012 (0.010)	−0.004 (0.010)	0.022 (0.015)	0.009* (0.005)	0.004 (0.009)	−0.011 (0.013)	0.009 (0.012)
Probability of leaving 10k+ bequest	0.000*** (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	−0.000 (0.000)
Poor cognitive abilities	−0.000 (0.004)	0.007 (0.006)	0.002 (0.007)	0.009 (0.007)	0.000 (0.003)	0.001 (0.005)	−0.002 (0.008)	0.001 (0.006)
ADLA difficulty	0.005 (0.005)	0.005 (0.009)	0.004 (0.010)	0.005 (0.012)	0.001 (0.004)	−0.003 (0.007)	−0.003 (0.012)	−0.002 (0.009)
IADLA difficulty	0.009 (0.007)	0.012 (0.011)	0.003 (0.011)	0.015 (0.016)	0.014*** (0.006)	0.018* (0.010)	0.007 (0.015)	0.023* (0.012)
Observations	58,657	23,728	5,997	17,731	51,436	20,486	3,767	16,719
R-squared	0.039	0.039	0.035	0.046	0.033	0.038	0.040	0.041
Number of households	16,296	8,019	2,590	5,429	14,721	6,967	1,777	5,190

Note: Robust standard errors in parentheses. All specifications control for time fixed effects, 5-years age-classes dummies and group-specific age trend. Besides, all regressions include dummies for being a couple, working for pay (both respondent and spouse), income quintiles as well as a second-order polynomial in non-housing wealth, besides household-level controls for smoking, drinking, having a sedentary lifestyle, and suffering from high blood pressure, diabetes and obesity

Table 7

Robustness Check II: Excluding health status transitions, Holding risky assets.

Dependent Variable: Holding risky assets	Insurance sample		Excluding health status transitions between 65 and 75		Excluding health status transitions between 60 and 64	
	Column (2)	Table 3	Column (3)	Table 3	Without Health Insurance	With health insurance
	(1)	(2)	(3)	(4)	(5)	(6)
Medicare Eligibility	0.008 (0.012)	0.012 (0.015)	0.014 (0.014)	0.012 (0.016)	0.010 (0.013)	0.009 (0.016)
Poor Health	-0.031*** (0.010)	-0.027 (0.017)	-0.024*** (0.011)	-0.015 (0.019)	-0.041*** (0.012)	-0.025 (0.020)
Medicare Eligibility × Poor Health	0.049*** (0.015)	0.010 (0.025)	0.061*** (0.021)	0.002 (0.033)	0.060*** (0.017)	0.003 (0.027)
Observations	7,653	20,348	6,436	19,216	6,975	19,764
R-squared	0.029	0.046	0.027	0.045	0.028	0.047
Number of households	3,025	5,944	2,643	5,724	2,799	5,821

Note: Robust standard errors in parentheses. All specifications control for time fixed effects, 5-years age-classes dummies and group-specific age trend. Besides, all regressions include dummies for being a couple, working for pay (both respondent and spouse), income quintiles as well as a second-order polynomial in non-housing wealth, besides household-level controls for smoking, drinking, having a sedentary lifestyle, and suffering from high blood pressure, diabetes and obesity.

Table 8

Robustness Check II: Excluding health status transitions, Share invested in risky assets.

Dependent Variable: Share invested in risky assets	Insurance sample		Excluding health status transitions between 65 and 75		Excluding health status transitions between 60 and 64	
	Column (2)	Table 5	Column (3)	Table 5	Without Health Insurance	With health insurance
	(1)	(2)	(3)	(4)	(5)	(6)
Medicare Eligibility	0.006 (0.014)	0.002 (0.011)	0.011 (0.016)	0.004 (0.012)	0.004 (0.015)	0.002 (0.012)
Poor Health	-0.066*** (0.020)	-0.021* (0.013)	-0.044*** (0.019)	-0.017 (0.014)	-0.086*** (0.027)	-0.018 (0.014)
Medicare Eligibility × Poor Health	0.067*** (0.024)	-0.010 (0.017)	0.076** (0.034)	-0.008 (0.024)	0.085*** (0.031)	-0.013 (0.018)
Observations	4,653	19,133	3,966	18,073	4,320	18,602
R-squared	0.032	0.044	0.029	0.045	0.030	0.044
Number of households	2,060	5,683	1,806	5,468	1,925	5,566

Note: Robust standard errors in parentheses. All specifications control for time fixed effects, 5-years age-classes dummies and group-specific age trend. Besides, all regressions include dummies for being a couple, working for pay (both respondent and spouse), income quintiles as well as a second-order polynomial in non-housing wealth, besides household-level controls for smoking, drinking, having a sedentary lifestyle, and suffering from high blood pressure, diabetes and obesity.

Table 9

Robustness Check III: Excluding households whose financial respondent is working for pay.

VARIABLES	Dependent Variable: Holding risky assets				Dependent Variable: Share invested in risky assets			
	Full sample	Insurance sample	Without Health Insurance	With Health Insurance	Full sample	Insurance sample	Without Health Insurance	With Health Insurance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Medicare Eligibility	−0.005 (0.009)	−0.004 (0.014)	−0.002 (0.012)	0.003 (0.023)	−0.010 (0.008)	−0.021* (0.013)	−0.004 (0.015)	−0.026 (0.017)
Poor Health	−0.028*** (0.009)	−0.036*** (0.013)	−0.018* (0.011)	−0.044 (0.027)	−0.020** (0.009)	−0.036*** (0.014)	−0.036* (0.019)	−0.033* (0.019)
Medicare Eligibility × Poor Health	0.030** (0.012)	0.049*** (0.019)	0.059*** (0.018)	0.040 (0.034)	0.009 (0.011)	0.017 (0.018)	0.073*** (0.027)	−0.010 (0.023)
Observations	35,682	13,664	5,267	8,397	30,282	11,113	3,177	7,936
R-squared	0.037	0.033	0.032	0.044	0.032	0.033	0.040	0.038
Number of households	12,293	5,468	2,391	3,077	10,805	4,521	1,575	2,946

Note: Robust standard errors in parentheses. All specifications control for time fixed effects, 5-years age-classes dummies and group-specific age trend. Besides, all regressions include dummies for being a couple, working for pay (both respondent and spouse), income quintiles as well as a second-order polynomial in non-housing wealth, besides household-level controls for smoking, drinking, having a sedentary lifestyle, and suffering from high blood pressure, diabetes and obesity.

Table 10

Robustness Check IV: Couple households only, both members Medicare eligible.

VARIABLES	Dependent Variable: Holding risky assets				Dependent Variable: Share invested in risky assets			
	Full sample	Insurance sample	Without Health Insurance	With Health Insurance	Full sample	Insurance sample	Without Health Insurance	With Health Insurance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Medicare Eligibility	−0.006 (0.008)	−0.001 (0.016)	0.009 (0.019)	−0.002 (0.019)	0.007 (0.007)	0.011 (0.012)	−0.010 (0.020)	0.015 (0.014)
Poor Health	−0.021** (0.010)	−0.021 (0.015)	−0.046*** (0.017)	−0.009 (0.021)	−0.014 (0.009)	−0.021 (0.013)	−0.077*** (0.024)	−0.010 (0.015)
Medicare Eligibility × Poor Health	0.026* (0.013)	0.018 (0.022)	0.070*** (0.024)	−0.012 (0.030)	0.016 (0.011)	0.004 (0.018)	0.085*** (0.036)	−0.021 (0.021)
Observations	41,481	16,925	3,037	13,888	37,614	15,274	2,043	13,231
R-squared	0.042	0.040	0.043	0.046	0.039	0.043	0.053	0.046
Number of households	10,672	5,327	1,216	4,111	9,936	4,849	881	3,968

Note: Robust standard errors in parentheses. All specifications control for time fixed effects, 5-years age-classes dummies and group-specific age trend. Besides, all regressions include dummies for being a couple, working for pay (both respondent and spouse), income quintiles as well as a second-order polynomial in non-housing wealth, besides household-level controls for smoking, drinking, having a sedentary lifestyle, and suffering from high blood pressure, diabetes and obesity.

Table 11

Robustness Check V: Placebo regressions.

VARIABLES	60			61			62			63			64		
	(1)	(2)	Without health insurance	(4)	Without health insurance	With health insurance	(6)	Without health insurance	With health insurance	(8)	Without health insurance	With health insurance	(10)	Without health insurance	With health insurance
	Dependent Variable: Holding risky assets														
Treatment	−0.011 (0.022)	0.047*** (0.016)	0.006 (0.015)	0.009 (0.012)	−0.008 (0.013)	−0.001 (0.011)	0.004 (0.013)	0.018* (0.011)	0.004 (0.015)	0.001 (0.012)					
Poor Health	−0.033* (0.019)	−0.005 (0.026)	−0.031* (0.018)	0.010 (0.025)	−0.030* (0.017)	−0.007 (0.023)	−0.034** (0.016)	−0.017 (0.023)	−0.034** (0.016)	−0.027 (0.022)					
Treatment × Poor Health	0.029 (0.022)	−0.028 (0.030)	0.026 (0.021)	−0.054* (0.029)	0.031 (0.021)	−0.028 (0.029)	0.039* (0.021)	−0.016 (0.029)	0.044** (0.021)	0.006 (0.029)					
Observations	6,402	19,541	6,402	19,541	6,402	19,541	6,402	19,541	6,402	19,541					
R-squared	0.028	0.047	0.028	0.047	0.028	0.046	0.029	0.047	0.029	0.046					
Number of households	2,578	5,788	2,578	5,788	2,578	5,788	2,578	5,788	2,578	5,788					
	Dependent Variable: Share invested in risky assets														
Treatment	−0.010 (0.025)	0.019 (0.012)	−0.005 (0.018)	0.001 (0.009)	−0.004 (0.016)	−0.001 (0.008)	0.019 (0.016)	0.011 (0.008)	0.020 (0.017)	0.004 (0.009)					
Poor Health	−0.100*** (0.031)	−0.026 (0.021)	−0.089*** (0.029)	−0.015 (0.020)	−0.078*** (0.026)	−0.021 (0.019)	−0.088*** (0.026)	−0.023 (0.018)	−0.085*** (0.024)	−0.029* (0.017)					
Treatment × Poor Health	0.070** (0.033)	−0.007 (0.024)	0.059* (0.031)	−0.025 (0.023)	0.048 (0.030)	−0.016 (0.023)	0.060** (0.030)	−0.017 (0.023)	0.064** (0.029)	−0.003 (0.022)					
Observations	3,982	18,393	3,982	18,393	3,982	18,393	3,982	18,393	3,982	18,393					
R-squared	0.035	0.043	0.035	0.043	0.035	0.043	0.037	0.043	0.037	0.043					
Number of households	1,776	5,537	1,776	5,537	1,776	5,537	1,776	5,537	1,776	5,537					

Note: Robust standard errors in parentheses. All specifications control for time fixed effects, 5-years age-classes dummies and group-specific age trend. Besides, all regressions include dummies for being a couple, working for pay (both respondent and spouse), income quintiles as well as a second-order polynomial in non-housing wealth, besides household-level controls for smoking, drinking, having a sedentary lifestyle, and suffering from high blood pressure, diabetes and obesity.

Table 12

The role of prescription drug coverage through Medicare Part D.

VARIABLES	Dependent Variable: Holding risky assets			Dependent Variable: Share invested in risky assets		
	Full sample	Insurance sample	Without Health Insurance	With Health Insurance	Full sample	Insurance sample
	(1)	(2)	(3)	(4)	(5)	(6)
Medicare Eligibility	0.008 (0.008)	−0.000 (0.013)	−0.005 (0.013)	0.008 (0.020)	0.002 (0.006)	−0.012 (0.012)
Poor Health	−0.026*** (0.009)	−0.039*** (0.014)	−0.030** (0.012)	−0.036 (0.023)	−0.018** (0.008)	−0.036*** (0.014)
Medicare Eligibility × Poor Health	0.023** (0.011)	0.032* (0.018)	0.054*** (0.017)	0.009 (0.029)	0.008 (0.010)	0.017 (0.017)
Medicare Part D	0.008 (0.036)	−0.071 (0.051)	−0.064 (0.070)	−0.109 (0.076)	0.005 (0.035)	−0.050 (0.037)
Medicare Eligibility × Medicare Part D	−0.006 (0.036)	0.057 (0.052)	0.057 (0.070)	0.079 (0.077)	0.004 (0.035)	0.059 (0.038)
Medicare Eligibility × Poor Health × Medicare Part D	0.022 (0.014)	0.054*** (0.026)	−0.005 (0.025)	0.091** (0.046)	0.003 (0.013)	0.014 (0.021)
Observations	54,108	19,301	5,901	13,400	47,521	16,515
R-squared	0.039	0.042	0.030	0.054	0.035	0.042
Number of households	13,786	6,093	2,315	3,778	12,637	5,313

Note: Robust standard errors in parentheses. All specifications control for time fixed effects, 5-years age-classes dummies and group-specific age trend. Besides, all regressions include dummies for being a couple, working for pay (both respondent and spouse), income quintiles as well as a second-order polynomial in non-housing wealth, besides household-level controls for smoking, drinking, having a sedentary lifestyle, and suffering from high blood pressure, diabetes and obesity.