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The asset cost of poor health

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ABSTRACT

This paper examines the correlation between poor health and the evolution of wealth for households in the first nine waves of the Health and Retirement Survey (HRS). It complements previous studies that have enumerated specific financial costs of poor health, such as out of pocket medical expenses or lost earnings. Because poor health can affect wealth accumulation through several channels, the "asset cost" measure can provide additional insight on the health-wealth nexus. We develop a simple measure of health status based on the first principal component of HRS survey responses on self-reported health status, diagnoses, ADLs, IADLs, and other indicators of underlying health. We find a large and substantively important correlation between this health measure and wealth accumulation. Within each 1994 asset quintile, individuals in the top third of the 1994 health status distribution averaged 50 percent more wealth in 2010 than those in the bottom third of that distribution.

Paying for uninsured health care costs is a major concern of many elderly households. Out-of-pocket expenditures for health care are one potential cost of poor health, but there are others. Those in poor health may need to renovate their homes or to relocate, they may experience lower earnings in their pre-retirement years, and they may also need to hire service providers for non-health services such as cleaning and shopping. Because poor health is often persistent, it can deplete resources over a long period of time.

This paper examines the relationship between poor health and the evolution of household wealth for those near and post retirement. We call this "the asset cost of poor health." It is a more inclusive measure of the financial cost of poor health than the measures used in earlier studies, and it has the potential to capture out-of-pocket medical expenses as well as other health-related costs.

Previous studies of the late-life financial cost of poor health have typically relied on one of two empirical strategies. The most common approach is to estimate out-of-pocket expenditures for health care. Marshall et al. (2011), for example, develop a comprehensive measure of these costs, based on information recorded in both the core (living) and exit (deceased) interviews in the Health and Retirement Study (HRS). They give careful consideration to the imputation of missing values and to the treatment of unusually large expenditures. They estimate that out-of-pocket spending in the last year of life averages $11,618. They also find substantial heterogeneity. The value at the 90th percentile is $29,335, at the 95th percentile is $49,907, and at the 99th percentile is $94,310. Kelley et al. (2012) consider the five year period prior to death, and estimate 90th percentile spending values of approximately $90,000.

De Nardi et al. (2015) analyze data from the Medicare Current Beneficiary Survey (MCBS), a nationally representative sample of the over-65 population, and find a similarly concentrated pattern of outlays. They estimate that out-of-pocket spending by those in the top five percent of the spending distribution averages $26,930 ($2014), and that the mean for the whole Medicare beneficiary population is $2,740. Their estimates are lower than those of the two preceding studies, which is not surprising given that their sample is substantially younger. Other studies that have estimated the distribution of out-of-pocket medical costs include De Nardi et al. (2010), French and Jones (2004), Hurd and Rohwedder (2009), Palumbo (1999) and Webb and Zhivan (2010). None of these studies focuses on the last year of life. By examining only out-of-pocket medical costs, and omitting indirect costs and non-health-care costs that may be incurred because of poor health, these studies may understate the total financial cost of poor health.

An alternative approach, which has been followed in some prior studies, is to infer the financial consequences of poor health from the change in household wealth following specific health shocks. For example, Smith (1999, 2004) investigates how wealth responds to major health events using the early waves of the HRS. Coile and Milligan (2009), Wallace et al. (2013, 2014) and Wu (2003) consider how wealth changes around specific acute health events

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and new diagnoses, also using the HRS. These studies show that specific major health events have substantial financial repercussions. While capturing the potential indirect costs of health shocks, they focus on relatively short intervals after such shocks. They also omit the potential costs of chronic poor health, which may not be associated with specific health shocks.

We estimate the asset cost of poor health by studying the evolution of household net assets as a function of household health status. Our goal is to capture not only the relationship between health and wealth that is due to the direct out-of-pocket cost of health care, but also the relationship that is induced by other costs that are associated with poor health. The asset cost measure can capture the cumulative effect of all of the adverse financial consequences of poor health over a long period of time. We do not attempt to identify the specific expenditures associated with poor health that lead to a draw down, or a slower growth rate, of household net worth. While more inclusive than previous measures, the asset cost measure also suffers from one potential drawback: it can be affected by voluntary changes in consumption that are associated with poor health, such as a higher rate of spending in anticipation of a shorter life.

We examine data from nine waves of the HRS, from 1994 to 2010. We do not use the first wave (1992) because of data limitations. We focus on the original HRS cohort, which consists of households containing at least one respondent between the ages of 51 and 61 in 1992. We emphasize the asset cost of poor health for persons in two-person households, although we also present summary results for single-person households. It is widely recognized that while health can affect wealth, wealth may also affect health. By defining health status at the beginning of a sixteen year period, and studying the evolution of wealth over that period, we try to emphasize the links from health to wealth and not the reverse causality.

Our analysis is divided into six sections. The first describes our procedure for estimating the evolution of assets, and the second presents our health status index that is constructed from HRS responses. We emphasize the properties of the index that are particularly important for our analysis. Section three describes the evolution of net assets by health quintile. The fourth section presents our estimates of the asset cost of poor health for two-person households. We compare the asset growth of individuals with similar asset holdings, but different health status, in 1994, using two methods. The first is a difference-in-difference estimator that compares the increase in assets between 1994 and 2010 for persons who had similar assets, but different health status, in 1994. The second is a matching estimator proposed by Abadie et al. (2004) and Abadie and Imbens (2006). Both approaches suggest that the asset cost of poor health is substantial. Conditioning on assets in 1994, in 2010 the assets of those in good health in 1994 were at least 50 percent greater than the assets of those in poor health in 1994. For example, for married persons in the middle of the asset distribution and in the bottom third of the health distribution in 1994, net assets increased from about $220,000 in 1994 to about $255,000 in 2010. For those in the same place in the asset distribution in 1994, but in the top third of the health status distribution, assets increased to $460,000. Section five reports parallel findings on the asset cost of poor health for one-person households. There is a brief conclusion.

The evolution of assets

HRS respondents were first surveyed in 1992 when they were between the ages of 51 and 61 and subsequently resurveyed every other year through 2010 (when they were age 69–79). We analyze individuals in one-person and two-person households separately. For two-person households, the HRS reports assets at the household level, reflecting the difficulty of assigning the ownership of assets, such as housing or jointly held financial assets, to individual household members. Thus for each individual in a two-person household our asset measure is total household assets. For consistency we also assign the sum of both partners' earned and annuity income to individuals in two-person households. Our health measure is the average health status of the two household members. For two-person households with both members between the ages of 51 and 61 in 1992, our sample includes two observations with identical wealth and health data, but different individual-specific attributes such as age.

Our analysis begins in 1994 because an index of health status – an important component of our analysis – could not be constructed from the data available for 1992. We calculate asset growth for each of the eight two-year intervals between the 1994 and 2010 survey waves. Our "assets" variable is actually a measure of net worth: it equals the sum of equity in owner-occupied housing, IRA balances (which include rollovers from 401(k) accounts), Keogh balances, other financial assets, and the value of vehicles, less debt. The value of business assets and other real estate are excluded. Balances in 401(k) plans are not included because 401 (k) reporting limitations in the HRS, as explained in Poterba et al. (2011). We emphasize the assets in our composite because households directly control their draw-down. We do not include the asset value of annuities received from Social Security or from defined benefit pension plans.

Poterba et al. (2011) report that the reported assets for HRS respondents are affected by apparent reporting errors and that the resulting means are unstable from year to year. We therefore estimate simple reduced form equations for asset holdings in each sample year, and then compute fitted values from these equations to track the effect of health status on asset holdings. Our procedure involves three steps:

(i) We estimate separate GLS regressions for assets at the beginning and end of each interval, allowing the residual variance to differ from interval to interval. For each family status transition group (i.e. individuals in one-person or two-person households), we estimate a specification of the form:

$$A_{ibj} = \alpha_b + \sum_{j=1}^{J} \delta_{bj} I_j + \varepsilon_{ibj}$$
$$A_{iej} = \alpha_e + \sum_{j=1}^{J} \delta_{ej} I_j + \varepsilon_{iej} \quad (1)$$

A_{ibj} and A_{iej} respectively denote the level of assets for person i at the beginning (b) or end (e) of interval j. I_j is an indicator variable for the jth interval.

(ii) To obtain trimmed means, for each interval and for each family status group, we eliminate observations with residuals in the top and bottom one percent of the residual distribution. In cases where there are fewer than 100 observations in an interval we exclude the observations with the highest and lowest residuals.

(iii) We then re-estimate (1) using the trimmed data.

The resulting estimates of (δ_{bj}, δ_{ej}) and the intercepts (α_b, α_e) are shown in Table 1-1.

Fig. 1-1 plots the predicted asset values for the beginning and ending year in each of the eight intervals for individuals in continuing two-person households. The asset balances shown for the 1994–1996 interval are for persons in two-person households in both 1994 and 1996 and the balances shown for 1996 and 1998

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