

Medicaid Insurance and Redistribution in Old Age

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14th Annual Joint Conference of the Retirement Research Consortium

August 2-3, 2012
Washington, D.C.

This research was supported by grants from the U.S. Social Security Administration (SSA) as part of the Retirement Research Consortium (RRC). The findings and conclusions are solely those of the authors and do not represent the views of SSA, any agency of the Federal Government, the NBER Retirement Research Center, CRR, MRRC, or the Federal Reserve Bank of Chicago. For useful comments and suggestions we thank Amy Finkelstein, Karl Scholz, and Gianluca Violante. Jones gratefully acknowledges the hospitality of the Federal Reserve Bank of Chicago.

1. Introduction

In the United States, a key public health insurance program for the elderly poor is Medicaid, a means-tested program that covers any medical expenses not picked up by other insurance programs. In this paper we analyze the insurance and redistributive properties of Medicaid during old age.

One force limiting Medicaid redistribution is that poor people tend to live shorter lives and to die before incurring large medical expenses. In contrast, richer people are more likely to live long and face expensive medical conditions, such as nursing home stays, when very old. Another force reducing Medicaid redistribution is that while Medicaid was initially designed to protect and insure the lifetime poor, it was later expanded to insure richer people impoverished by high medical expenses. For example, extended stays in a nursing home are generally not covered by other public or private insurance, even though nursing home care costs \$60,000 to \$75,000 a year (in 2005). Medicaid ends up financing 70% of nursing home residents (Kaiser Foundation, 2010).

To understand these mechanisms, we construct and estimate a life-cycle model of consumption and medical expenditure that accounts for Medicare, Supplemental Social Insurance (SSI) and Medicaid. People optimally choose whether to apply for Medicaid if they are eligible, how much to save, and how to split their consumption between medical and non-medical goods. We allow for heterogeneity in wealth, income, health, gender, life expectancy, and medical needs. We estimate the model by matching life-cycle profiles of assets, out-of-pocket medical spending, and Medicaid usage for elderly singles in different cohort and permanent income (PI) groups.

Using our estimated model to compute Medicaid payments, we find that the current Medicaid system provides different kinds of insurance to households with different resources. Households in the lower PI quintiles are much more likely to receive Medicaid transfers, but the transfers that they receive are on average relatively small. Households in the higher PI quintiles are much less likely to receive any Medicaid pay-outs, but when they do these pay-outs are very big and correspond to severe and expensive medical conditions. Therefore, Medicaid is an effective insurance device for the poorest, but also offers valuable insurance to the rich by insuring them against catastrophic medical conditions.

Summing over agents' lives, our preliminary results show that at age 74 the expected annuity value of Medicaid benefits is a hump-shaped function of permanent income. People in the lowest 20% of the income distribution receive more or less the same average annual payment as those in the top 20%. Once one takes into account that the rich live longer, Medicaid is even less redistributive: in terms of present discounted value, the richest people receive more than the poorest ones, and the middle income people still benefit the most.

2. The Medicaid System

In the United States, there are two major public insurance programs helping the elderly with their medical expenses. The first is Medicare, which provides health insurance to almost every person over the age of 65. The second is Medicaid, a means-tested program that serves as the payer of "last resort": Medicaid contributes only after Medicare and private insurance pay their share, and the individual spends down his assets to a "disregard" amount. Because Medicaid restricts benefits to those with assets below the disregard, it discourages saving through an additional channel not present in non-mean-tested insurance, which reduces savings only by reducing risks.

Medicaid-eligible individuals can be divided into two main groups. The first group comprises the categorically needy, whose income and assets fall below certain thresholds. People who receive SSI typically qualify as categorically needy. The second group comprises the medically needy, who are individuals whose income is not particularly low, but who face such high medical expenditures that their resources become small in comparison.

The categorically needy provision thus affects the saving of people who have been poor throughout most of their lives, but has no impact on the saving of middle- and upper-income people. The medically needy provision, instead, provides insurance to people with higher income and assets, but who are still at risk of being impoverished by expensive medical conditions.

To document how Medicaid reciprocity varies with income, we use data from the Assets and Health Dynamics of the Oldest Old (AHEAD) data set. The AHEAD is a survey of individuals who were non-institutionalized and aged 70 or older in 1994. We

consider only single, retired individuals. We begin our analysis in 1996 with 3,259 single individuals, of whom 592 are men and 2,667 are women. In 2006, 884 of these people are still alive. We break the data into 5 cohorts. The first cohort consists of individuals that were ages 72-76 in 1996; the second cohort contains ages 77-81; the third ages 82-86; the fourth ages 87-91; and the final cohort contains ages 92-102. We calculate summary statistics, cohort-by-cohort, for surviving individuals in each calendar year—we use an unbalanced panel. Since we want to understand the role of income, we further stratify the data by post-retirement PI, which we measure as an individual’s average pension and annuity income over all periods during which he or she is observed.

Panel (a) of Figure 1 plots the fraction of the sample receiving Medicaid by age, birth cohort and income quintile. There are four lines for each cohort: we have split the data into PI quintiles, but then merged the top two quintiles because at some younger ages no one in the top PI quintile is on Medicaid. The members of the first cohort appear in our sample at an average age of 74 in 1996. We then observe them in 1998, when they are on average 76 years old, and then again every two years until 2006.

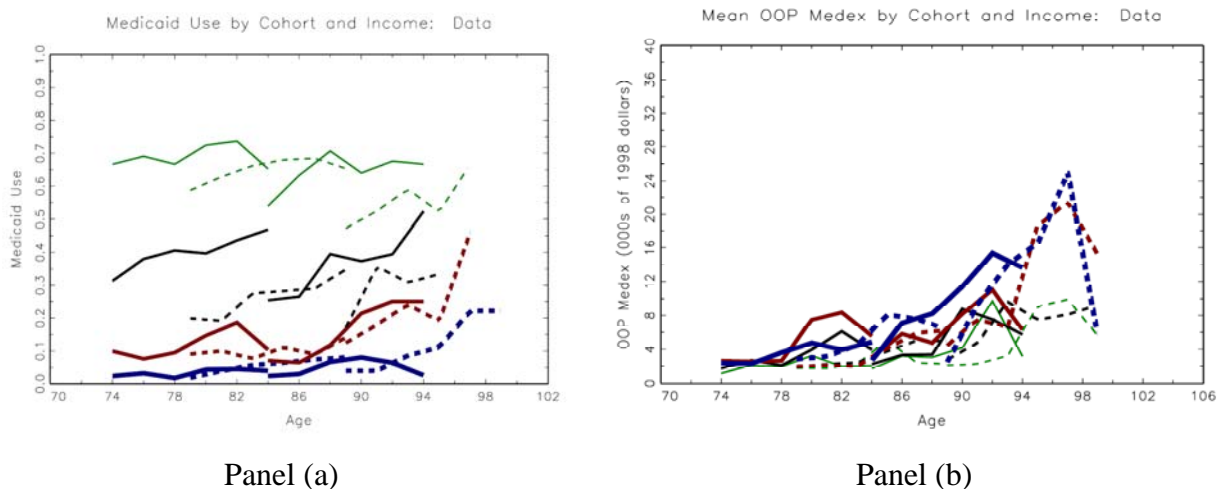


Figure 1: Medicaid Use and Out-of-pocket Medical Expenditures by Age, Cohort and Income

Unsurprisingly, Medicaid reciprocity is inversely related to permanent income: the top line shows Medicaid use in the bottom 20% of the PI distribution, while the bottom line shows use in the top 40%. More precisely, the top line shows that for the bottom PI quintile, about 60-70% of the sample receives Medicaid; this fraction stays rather stable over time. The Medicaid reciprocity rate tends to rise with age most quickly for people in the middle and highest PI groups. Medicaid use in the oldest cohort and top two

permanent income quintiles rises from about 4% at age 89 to over 20% at age 96. Even people with relatively large resources can be hit by medical shocks severe enough to exhaust their assets and require the use of Medicaid. This point is reinforced by the second panel of Figure 1, which shows that mean out-of-pocket Medical expenses rise rapidly after age 90.

Understanding the incidence of Medicaid also requires us to consider life expectancy. Using the AHEAD data on self-reported health and nursing home stays, we estimate health transitions and mortality rates by fitting the transitions observed in the data to a multinomial logit model, where the transition probabilities depend on age, sex, current health, and permanent income. Using this model, we simulate demographic histories, beginning at age 70, for different gender-PI-health combinations. Table 1 shows life expectancies. Rich people, women, and healthy people live much longer than their poor, male, and sick counterparts. For example, a male at the 10th PI percentile in a nursing home expects to live only 3.5 more years, while a female at the 90th PI percentile in good health expects to live 16.1 more years. These results show that the rich are more likely to live to older ages, where medical expenses are high, than the poor.

Income Percentile	Males			Females			All
	Nursing Home	Bad Health	Good Health	Nursing Home	Bad Health	Good Health	
10	3.5	5.8	7.2	6.0	10.0	12.0	10.4
50	3.8	7.1	9.1	6.8	11.9	14.2	12.4
90	4.3	8.6	11.0	8.1	14.0	16.1	14.3
Men							9.4
Women							13.5
Bad Health							10.5
Good Health							13.9

Table 1. Life expectancy in years, conditional on reaching age 70

3. Model and Preliminary Results

To understand better, the effects of Medicaid we construct a structural model of single retirees. Individuals in this model receive utility from the consumption of both non-medical and medical goods. They face several sources of risk, which we treat as exogenous: health status risk, survival risk, and medical needs risk. These shocks affect their utility of consuming medical goods and services, including nursing homes.

Individuals optimally choose how much to spend in response to these shocks.

We model two types of health insurance. The first type pays a proportional share of total medical expenses and can be thought of as a combination of Medicare and private insurance. The second type of health insurance that we model is Medicaid. Medicaid transfers depend on the individuals' medical needs: individuals with higher needs receive larger transfers. We allow individuals to qualify for Medicaid through both the categorically and medically needy programs, and we allow the two programs to differ in generosity.

The model is estimated in two steps. In the first step we estimate or calibrate those parameters, such as mortality rates, that can be cleanly identified outside our model. In the second step we estimate the utility function and social insurance transfer parameters with the method of simulated moments (MSM), taking as given the parameters that were estimated in the first step. In particular, we find the parameter values that allow simulated life-cycle decision profiles to “best match” (as measured by a GMM criterion function) the profiles from the data. We match Medicaid usage rates, median assets, the median and 90th percentile of out-of-pocket medical spending, and the first and second autocorrelations of medical spending, all conditional on birth cohort, permanent income and age. The estimated model fits the data fairly well.

While our model is estimated to match out-of-pocket medical expenditures, we can also use it to simulate Medicaid benefits. Our preliminary finding is that the largest lifetime payments are made to individuals in the middle of the PI distribution. Although the poor have higher Medicaid reciprocity rates, the transfers they receive are small. As the results above point out, an important reason for this is that low-PI individuals tend to die young, before they reach an age where they face a high risk of catastrophic medical expenses. This dynamic causes Medicaid benefits to initially rise with income. On the other hand, Medicaid covers a larger share of the medical expenses of low-PI individuals. At higher levels of income this dynamic dominates, and Medicaid benefits decrease with income. In the end, people in the middle of the PI distribution fare the best.

References

Kaiser Family Foundation, 2010. *Medicaid: A Primer*.