

Long Term Care Insurance and Patterns of Care Use among Older Adults

Introduction

This dissertation investigates private long-term care insurance (LTCI) and its effects on the use of long term care services among older adults. Policy makers have shown continued interest in promoting LTCI as a potential alternative to public funding, in an effort to reduce the current reliance on Medicaid and to improve the efficiency of LTC financing (Johnson and Uccello 2005).

Economic theory suggests that private LTCI may affect not only the total amount of care used, but also the settings of care and the mix of formal and informal care. On one hand, LTCI may allow older adults to avoid nursing homes, and instead receive care in their preferred setting, their own homes. On the other hand, one of the biggest concerns about LTCI has been moral hazard, namely, the possibility that more paid care than necessary will be used because LTCI lowers the effective out-of-pocket prices that consumers pay for their care. With LTCI, another form of moral hazard is the possible replacement of informal (unpaid) care with formal (paid) home health care services that are covered under the policy.

While numerous studies have explored the reasons why the LTCI market is small, little is known about the consequences of LTCI for service utilization. This dissertation contributes to the literature in three ways: by systematically quantifying the effects of LTCI on the use of long term care services, by explicitly addressing the endogeneity of LTCI purchases, and by addressing these issues with the most recent and nationally representative data from the Health and Retirement Study (HRS).

Methods

Pooled HRS data covering 1998-2004 (waves 4 through 7) are used for the analysis. The study sample is restricted to older adults ages 65 and older who have limitations in at least two activities of daily living. The standard errors in all regression analyses are corrected for observations on the same subject across years.

The conceptual framework is a modified version of Becker's model of family decision-making with household production. Care can be produced either in an institutional setting or home/community setting. The family is assumed to choose the optimal amount of market goods and services, leisure, and functionality, to maximize their household utility function, subject to a setting-specific budget constraint. Functionality is produced, conditional on disability level, using a fixed amount of nursing home care if in an institutional setting, or some combination of formal home health care and informal care, if in a home/community setting. The family then determines the setting of care based on a utility comparison across the two settings, along with the optimal amount of formal and informal care to utilize. Insurance enters the budget constraint by lowering the prices of covered services at the point of purchase.

Empirical Model

To obtain a full picture of the effects of LTCI on care utilization, I first estimate a binary choice model for whether a person stays at home or goes to a nursing home, and then, conditional on staying at home, estimate reduced form models for home health care and informal care.

Two econometric concerns arise in the empirical estimation. Much work in the literature has established the endogeneity of health insurance in models for medical care use. To address this issue, I formally test for the endogeneity of LTCI in all three models, following the procedure described in Wooldridge (2001). Two variables are used to identify the model: whether the individual has purchased a life insurance policy and the price they face for a LTCI policy. These are strong identifiers because the purchase of life insurance arguably reflects a person's attitude towards risk, and the price of LTCI has been shown to be a significant determinant in the decision to buy LTCI. To assign LTCI prices for the entire sample, whether or not an individual actually purchases LTCI, I use the premium calculator provided by the Federal Employees' Long-term Care Insurance Program. The premium is for a typical comprehensive policy with a \$150 daily benefit, 5-year benefit period, 90-day waiting period, and an automatic 5% inflation protection factor. Age is the primary determinant of LTCI premiums. For those who do not have a current policy, their current age is used, while for those who do have a current policy, the age at which they first reported having LTCI is used, provided there is no lapse in coverage in between. If a person has had insurance all the time ever since he/she entered the survey, his/her survey entering age is used because the true purchase age cannot be obtained from the data. Life insurance and LTCI premiums turn out to be fairly good predictors of actual LTCI purchases.

Another econometric issue concerns the distribution of the dependent variable in the models that are estimated. Because a large proportion of people did not use any services at all, significant censoring exists at the value 0. In addition, the distribution of non-censored values is highly skewed. To account for this, models for the use of home health care and the use of informal care are estimated by two sets of two-part models (Duan et al. 1983). The first part is a probit model for the probability of using any home health care/informal care, and the second part is a linear model for the amount of care, conditional on having any. A log transformation is applied to hours of home health care and informal care in the second part to further diminish the influence of the skewed distribution.

Regarding the measurement of variables, a person is viewed as living in a nursing home if he/she reported an average of more than 100 days in a nursing home during the recall period (2 years), and as staying at home otherwise. For the latter, the hours of informal care received are the sum of unpaid help from all caregivers in a month. Similarly, the hours of formal home care are the sum of paid help from all sources in a month. The analysis controls for demographic characteristics, financial resources, family structure, health conditions, and Medicaid coverage.

Results and Discussion

In this sample, only about 5% have a LTCI policy. About 23% have a nursing home stay. Among those remaining at home, more than 50% receive informal care, and about 23% receive formal home care. Conditional on having any informal care, the mean hours of informal care are 174 hours. Conditional on having any formal home care, the mean hours are 157.

LTCI premiums and the presence of life insurance are fairly good predictors of LTCI. The tests for the endogeneity of LTCI suggest that LTCI is endogenous only in the formal home care model. Therefore, the model for choice of care setting is estimated with simple probit, the model for informal care is estimated with simple probit in the first part and OLS in the second part, and the model for formal home care is estimated with IV probit and 2SLS. The key findings are summarized below.

Table: Effects of Long Term Care Insurance on Care Utilization

Model	Coef.	Robust S.E.
Setting of care: stay at home (vs. nursing home)	0.233*	0.134
Conditional on remaining at home		
Pr(any informal care)	-0.285**	0.110
E(log hours of informal care hours>0)	-0.014	0.170
Pr(any formal home care)	1.503**	0.661
E(log hours of formal home care hours>0)	0.214	0.221

*Note: * denotes significant at 10% level, ** denotes significant at 5% level.*

Private insurance reduces the probability of entering a nursing home. It allows older adults to receive care in their homes, where they feel more comfortable. Based on these findings, public policies aimed at promoting LTCI should have the expected effects of correcting the institutional bias and reducing the cost pressure on Medicaid. For those who stay at home, private insurance increases the probability of using formal home care, and at the same time, decreases the probability of using informal care. Evidence on this substitution effect reveals that moral hazard does exist in terms of likelihood but not magnitude. Without controlling for the endogeneity of LTCI, the effect of LTCI on the probability of using formal home care is insignificant.

Conclusions

Using a nationally representative sample of disabled older adults, this research has examined the effects of LTCI on the choice of long term care setting and on the utilization of different types of care, controlling for the endogeneity of LTCI insurance. The key finding is that LTCI has the effect of enabling people to avoid, or at least postpone, entering nursing homes. This suggests that LTCI should be very helpful in reducing our current reliance on Medicaid to finance long term care. Another finding is some evidence that LTCI results in a substitution of formal home care services for informal care from family members and friends.