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ScienceDirect
Journal of Health Economics 27 (2008) 134–156
JOURNAL OF HEALTH ECONOMICS
www.elsevier.com/locate/econbase

Informal care and Medicare expenditures: Testing for heterogeneous treatment effects

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Received 24 May 2006; received in revised form 12 March 2007; accepted 12 March 2007
Available online 18 March 2007

Abstract

We estimate the effect of informal care on Medicare expenditures not only for care provided by children but also by the source of informal care (sons versus daughters, children versus others) and recipient characteristics (marital status). Our conceptual framework predicts heterogeneous effectiveness by source and recipient of informal care. We estimate two-part expenditure models as a function of informal care, controlling for endogeneity. We find that informal care by children reduces Medicare long-term care and inpatient expenditures of single elderly. We find that children are less effective caregivers among recipients who are married. For single elderly, child caregivers are more effective than other types. Gender of a child caregiver does not matter.

JEL classification: I12; I11; J22

Keywords: Informal care; Health care expenditures; Elderly; Long-term care; Substitution effect

In any health care system, changes in one form of care affect related forms of care. This is particularly true in long-term care because of the many close substitutes. Skilled nursing homes compete with unskilled nursing homes, board and care homes, home health care, adult day care, and informal care (Norton, 2000). Medicare and Medicaid have expanded home health care benefits over the past 15 years to provide a low-cost alternative to traditional nursing homes for

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doi:10.1016/j.jhealeco.2007.03.002

those able to live at home with assistance. Simply shifting from nursing home care to low-cost alternatives will not be enough to stem long-term care costs in the decades to come; however, due to the expected increase in demand for paid long-term care, it is imperative to find other cost-effective ways to care for elderly persons.

Informal care is a potentially cost-effective source of long-term care, yet countervailing demand and supply trends may change informal care's relationship to paid long-term care. First, as mentioned, Medicare and Medicaid have expanded insurance coverage of long-term care over the last 15 years, thereby increasing demand for paid care (Congressional Budget Office, 1999). Second, the supply of informal care is likely to fall due to increased migration, increasingly fractured families (Pezzin and Schone, 1999), delayed childbearing, and the fact that many children have limited contact with elderly parents (Kotlikoff, 1989). Third, increases in life expectancy, especially for men, mean that elderly persons remain married at older ages (Lakdawalla and Philipson, 2002). This phenomenon increases the relative importance of informal care as a source of long-term care by providing a readily available source of informal care—one's spouse. Fourth, among the single elderly, informal care has traditionally been provided by daughters, but with more equal labor force participation between sons and daughters and changing cultural norms, sons are increasingly providing informal care (Spector et al., 2000; Carmichael and Charles, 2003). Combined, these factors show that the market for informal care and its relationship to formal care will change over time (by *formal care* we mean paid care of any type).

To understand the current state of informal care, and what incentives to caregivers may be cost-effective to the government, it is important to understand how informal care affects public expenditures, not just utilization.

One recent study shows that informal care reduces home health care use and delays nursing home entry (Van Houtven and Norton, 2004). We analyzed data from the Asset and Health Dynamics Among the Oldest-Old Panel Survey (AHEAD) and the Health and Retirement Survey (HRS) which show that a 10 percent increase in informal care leads to a .87 percentage point decline in the probability of any home health care use (mean of 8.3%), and a two-night reduction in nursing home use (mean of 25 nights per year) among the single elderly. These results are statistically significant. Other researchers echo the finding that informal care is a net substitute for nursing home care using AHEAD data, and also used instrumental variables estimation to control for endogeneity of informal care (Lo Sasso and Johnson, 2002; Charles and Sevak, 2005). An older study by Greene (1983) controlled for endogeneity and concluded that informal care reduces formal care use, but data in that study came only from one state.

The utilization studies raised as many questions as they answered. Looking beyond use to the more policy relevant outcome of expenditures, does an increase in informal care reduce formal care expenditures? Because we do not expect the effect of informal care on formal care expenditures to be uniform across all persons, both for the providers of informal care and for the recipients, we extend the model in key ways to ask, does the effect of informal care on expenditures vary across several important subpopulations? We recently merged the AHEAD data to Medicare claims data to answer these questions.

First, is the effect of informal care on formal care expenditures as strong for married elderly persons as for non-married? We postulate that because spouses provide informal care to each other, additional informal care by children should have less effect for married persons.

Second, are sons as effective as daughters in providing informal care? Sons and daughters may interact differently with their parents and specialize in providing different types of informal care. Therefore, an hour of informal care from a son may ultimately have a different effect on Medicare expenditures than an hour from a daughter. Although there is a long literature on the