

Economic Effects of Informal Care

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1. Introduction

There is growing recognition of the importance of informal care as an integral part of the health care system. Informal care (unpaid care provided by family or friends) is often ignored in health economics because there are no direct expenditures. However, in any health care system, changes in one form of care affect similar forms of care. This is particularly true in long-term care because there are many close substitutes. Informal care is a substitute for home health care as well as care in nursing homes, hospice, and board and care homes. Informal care may also complement formal care if the informal caregiver notices health problems and facilitates appointments or transportation.

Informal care has economic consequences throughout the health care system, even if the caregivers are not paid directly. First, informal care improves the health and well being of the elderly persons being cared for. Improvements in quality-adjusted life years are typically valued at \$100,000–\$200,000 per life year (CUTLER, GRUBER et al., 2002). Second, formal care use and expenditures change for persons who receive informal care. On net, informal care reduces formal care expenditures. Third, the health of the caregiver also changes, typically for the worse, which may increase formal care expenditures. Finally, although informal care is by definition unpaid, informal care affects intergenerational transfers of money. Informal caregivers more often receive cash transfers of money from

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their parents than their non-caregiving siblings, although the effect on bequests is minimal.

The aging of the baby boom generation will increase demand for informal care and heighten the importance of understanding the economic effects of informal care. The fraction of the population in Europe and the U.S. expected to be over 85 in the future will rise rapidly over the next several decades, straining the existing formal care systems (NORTON, 2000). A few governments have passed legislation to provide more incentives to informal caregivers, presumably with the understanding that encouraging informal care may reduce other public expenditures. Informal caregivers in Germany are compensated with a cash benefit, four weeks of respite care per year, and pension contributions by the government (WIENER and CUELLAR, 1999; CUELLAR and WIENER, 2000). In the United States a handful of states provide modest tax credits for informal caregivers (FTB, 2001; STATE OF MISSOURI, 2003).

We summarize here the recent literature on the economic effects of informal care, primarily using results from research in the United States. Despite the importance of this topic for Europe, there are few studies based on European data.

2. Informal Care and Health Care Use of Older Adults

The potential economic effects of informal care are clear in relation to an elderly person's formal care. Van Houtven and Norton (VAN HOUTVEN and NORTON, 2004) lay out a conceptual model in which informal care can be either a substitute or complement, depending primarily on whether the sign of the marginal benefit to health of medical care with respect to informal care is negative or positive, respectively. Based on this framework, other forms of long-term care such as home health and nursing home care are expected to be substitutes; *a priori* it is harder to know whether informal care is a substitute or complement for hospital care, physician visits, and outpatient surgery. Empirically, they estimated models to predict formal care use as a function of informal care, controlling for the endogeneity of informal care.

Van Houtven and Norton (VAN HOUTVEN and NORTON, 2004) found that informal care reduces total formal health care use of the elderly, primarily by reducing home health care and nursing home use. Informal care is a complement only to outpatient surgery. Over the two-year recall period a 10 percent increase in informal care leads to a .87 percentage point reduction in the likelihood of home health care use (to 7.43 percent from a mean of 8.3) and a two-

night reduction in nights in a nursing home (to 23 nights from a mean of 25) across the full sample. These results are statistically significant. They detected endogeneity for all utilization types except outpatient surgery, and controlled for it with instruments that are strongly correlated with informal care but uncorrelated with formal care use – eldest child being a daughter and number of siblings in the family. Others have recently found similar results for nursing home care using the same data set and similar empirical methods (LO SASSO and JOHNSON, 2002), even when considering nursing home care that occurred years after the informal care occurred (CHARLES and SEVAK, 2005).

The cost implications of these studies are significant due to the magnitude to which informal care is shown to reduce use in samples of relatively healthy older adults. In addition to potential private savings and benefits, informal care can potentially save Medicare and Medicaid Home and Community-based Waiver dollars by reducing home health care use of older adults, and can save Medicare and Medicaid dollars by delaying entry into nursing homes. Therefore, we next examine research quantifying the effect of informal care on public expenditures.

3. Informal Care and Medicare Expenditures of Older Adults

In order to quantify savings to the public purse, knowing the effect of informal care on formal care expenditures is preferable to quantifying its effect on formal care use. Van Houtven and Norton (VAN HOUTVEN and NORTON, 2006) measure how informal care affects formal care Medicare expenditures, using models and data similar to their prior study (VAN HOUTVEN and NORTON, 2004). To our knowledge, no other researchers have considered the effect of informal care on public expenditures.

Van Houtven and Norton's (VAN HOUTVEN and NORTON, 2006) results on expenditures are consistent with their prior research on use. They show that informal care strongly reduces the likelihood of using the two main types of long-term care financed by Medicare, home health care and skilled nursing. Once long-term care is accessed, however, informal care has no effect on the level of home health or skilled nursing facility expenditures across the full sample. Modest increases in informal care hours – of 10 percent – are predicted to lead to annual Medicare savings of around \$26 in skilled nursing and around \$30 in home health expenditures. Furthermore, informal care is a small net substitute for inpatient care by reducing the amount of expenditures on inpatient care.

In addition to the basic question of how much does informal care by adult children save Medicare, Van Houtven and Norton (VAN HOUTVEN and NORTON,

2006) examine whether the effect of informal care was uniform across several important subpopulations. The authors postulate that because spouses provide informal care to each other, additional informal care by children should have less effect for married persons. Second, because sons and daughters have a different propensity to provide care (MCGARRY, 1998; CARMICHAEL and CHARLES, 2003) and may specialize in providing different types of informal care, they may have a different effect on Medicare expenditures. Third, they expect adult children to be more committed to providing care than friends or other relatives, leading to a stronger effect on expenditures.

Considering these key extensions, children are less effective caregivers for married elderly. Among single elderly, adult child caregivers are more effective than other types of caregivers, and there are no differences in effectiveness between daughters and sons. Therefore, two of the hypotheses were confirmed, while they found no gender differences in the effectiveness of adult child caregivers.

In summary, Van Houtven and Norton (2006) find that informal care by children saves Medicare money on long-term care and on inpatient care, adding further evidence that informal care is a cost-saving alternative to paid long-term care. Some of the extensions explored may help illuminate how incentives to caregivers could be targeted – namely, to children rather than other types of caregivers of the single elderly, to children of the single elderly rather than the married elderly, and with no regard to the gender of the child.

In related work, Yoo and colleagues (YOO, BHATTACHARYA et al., 2004) find that the availability of a spouse caregiver (as proxied by the male to female ratio among the elderly in a country) reduces national long-term care expenditures in OECD countries. The effect for children is much smaller. Their results provide more evidence that informal caregivers can reduce formal health care expenditures, and that the effect varies by closeness to the care recipient.

4. Informal Care and the Health of the Caregiver

Beyond knowing the effect of informal care on public formal care expenditures for care recipients, calculating the savings to the public purse requires considering the effects of informal care on the caregiver. In terms of labor market outcomes, older studies have documented that some caregivers quit work to perform their caregiving duties (STONE, CAFFERATA et al., 1987) while newer studies indicate that primary caregivers maintain the same working hours but sacrifice leisure time (SPILLMAN and PEZZIN, 2000). Regardless of labor market entry and exit, the opportunity cost of being a caregiver ranges between \$3,600 and \$26,000

per caregiver per year depending on the valuation method for a caregiver's time and assumptions made about care recipient severity (HARROW, TENNSTEDT et al., 1995; ARNO, LEVINE et al., 1999; LANGA, CHERNEW et al., 2001; SMALL, McDONNELL et al., 2002; BLOOM, DE POUVOURVILLE et al., 2003).

Although there are intangible benefits that informal care can provide to caregivers, providing informal care often has negative effects on caregiver health. Caregivers experience more depression than non caregivers (BAUMGARTEN, BATTISTA et al., 1992; SCHULZ, O'BRIEN et al., 1995; CLYBURN, STONES et al., 2000; HALEY, LAMONDE et al., 2001; HALEY, LAMONDE et al., 2003; SCHULZ, MENDELSON et al., 2003; SCHULZ and MARTIRE, 2004), have more problems with self-efficacy (PINQUART and SORENSEN, 2003) and report myriad physical health problems, ranging from slightly lower self-rated health to immune system and cardiovascular problems, among others (KIECOLT-GLASER, DURA et al., 1991; KING, OKA et al., 1994; SCHULZ, O'BRIEN et al., 1995; VITALIANO, 1997; NAVAIE-WALISER, FELDMAN et al., 2002; VITALIANO, ZHANG et al., 2003). Establishing causality, a randomized control trial study showed that caregivers experiencing strain had significantly higher 4-year mortality risk than non-caregiving controls (SCHULZ and BEACH, 1999). A recent longitudinal study by Christakis (CHRISTAKIS and ALLISON, 2006) further shows that caregiver health is closely linked to care recipient health. Husbands whose wives were hospitalized – a marker for the onset of serious illness – faced a 5 percent increased risk of death and a wife whose husband was hospitalized faced a 3 percent increased risk of death.

Because caregiving involves negative mental and physical health effects, we expect caregivers to consume more health services than non-caregivers, controlling for initial health status. Therefore, considering changes in caregiver health care use may be important when considering the full economic cost of informal care.

4.1. Informal Caregivers Use

In a recent study, Van Houtven, Wilson and Clipp (VAN HOUTVEN, WILSON et al., 2005) examined whether more intensive caregivers lead to higher drug use in a sample of elderly caregivers (mainly elderly wives) of patients with dementia. Drug use among the elderly is common, entails high out-of-pocket costs, and is sensitive to changes in health that may arise from caregiving – drugs can be used to treat pain from injuries or to treat stress or depression.

The results show that a ten percent increase in total informal care per day, holding all else constant, is associated with a 0.71 percent increase in drugs consumed

per month. When one considers that a commonly used drug among the elderly is \$67 (example is for 30 capsules of Celebrex®) the associated increase in total costs to the caregiver *per month* ranges between \$0.48 and \$4.80 depending on a caregiver's base consumption of drugs (between 1 and 10 drugs). Therefore, in this sample the marginal monthly drug costs to caregivers associated with more intensive caregiving are small for the average caregiver. This finding does not lessen the effect of informal care on health more broadly or the concern the findings raise among intensive elderly caregivers who have no drug insurance and take multiple drugs per month.

5. Informal Care and Intergenerational Transfers

Informal care may not only affect the caregiver's health, but also her wealth. In their seminal paper, Bernheim, Schleifer, and Summers (BERNHEIM, SCHLEIFER et al., 1985) argue that children who provide informal care (or attention) should receive a larger share of bequests than their siblings who do not. However, most bequests are divided equally, even among wealthy decedents; early empirical work found little or no evidence in support of this theory. More recent research has also considered inter-vivos transfers of cash from elderly parents to their adult children. Unlike bequests, inter-vivos transfers are often divided unequally among children. The remarkably different pattern of giving between inter-vivos transfers and bequests – primarily unequal or primarily equal – suggests that the strategic interaction between parents and children may be different for these two methods of passing wealth to the next generation (NORTON and VAN HOUTVEN, 2006).

Norton and Van Houtven (NORTON and VAN HOUTVEN, 2006) give three reasons why informal care induces more inter-vivos transfers than bequests. Inter-vivos transfers can be adjusted quickly to the amount of care, are less costly than writing a will, and can be kept secret from other family members and the public. They hypothesize that inter-vivos transfers are related to informal care, but that bequests are not. They test these hypotheses by estimating whether children of parents who make any transfers are more likely to receive a transfer if they provide informal care, and also whether parents who receive informal care are more likely to plan to divide their bequests unequally among their children. Informal care provides a good test for exchange because, unlike some measures of attention, it involves a serious commitment on the part of children in time and effort, and varies among children within a family. The Asset and Health Dynamics Among the Oldest-Old Panel Survey (AHEAD) has information on both parents and

children, and about transfers, intended bequests, informal care, and finances. The models control for the endogeneity of informal care.

Norton and Van Houtven (NORTON and VAN HOUTVEN, 2006) show that, as expected, if a parent gives any inter-vivos transfers, she is more likely to give to children who provide informal care. In contrast, informal care has no effect on the equality of intended bequests. The results support exchange as a motivation for inter-vivos transfers, but not for intended bequests. Explaining this phenomenon is important given that hundreds of billions of dollars are bequeathed and transferred each year (WILHELM, 1996). Given the inequality of informal care provision, and the advantages of transfers over bequests for exchange, it is not surprising that inter-vivos transfers are so unequally divided.

6. Conclusion

The work highlighted in this review article shows that informal care has broad economic consequences throughout the health care system and the wider economy. Informal care is a significant substitute for formal long-term care. Even highly skilled, publicly financed long-term care such as Medicare skilled nursing and home health care is reduced by child-provided informal care.

These savings may be offset somewhat by health losses to caregivers, labor force changes, and other income changes due to caregiving. It is clear in the literature that caregivers are at higher risk of depression and other health ailments as a result of providing care. The health consequences of caregiving may in turn be associated with increased health care use among caregivers. Although modest, this notion is supported by the finding that drug use is higher for more intensive caregivers. Examining health care use among other types of caregivers (not just wives) as well as directly measuring the marginal effect of depression on a caregiver's use, would better quantify how reductions in caregiver health affect caregiver health care use. Finally, financial transfers from parents may partially counterbalance the negative health and economic costs of informal caregiving to the caregiver. There is evidence that inter-vivos transfers are made disproportionately to the child or children in the family who provide informal care (NORTON and VAN HOUTVEN, 2006).

As the population ages and more and more elderly parents demand long-term care, it will become important to understand not only whether informal care supply will keep pace with this increased demand, but which of informal care's economic effects described in this paper are most dominant and persistent. In sheer monetary value, the cost savings to paid long-term care appear to dominate

the others, but monetizing the negative health consequences and the intangible benefits of being a caregiver remain a knotty challenge.

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