



Income and the utilization of long-term care services: Evidence from the Social Security benefit notch[☆]

Gopi Shah Goda^{a,b,*}, Ezra Golberstein^{c,1}, David C. Grabowski^{d,2}

^a Stanford University, Stanford Institute for Economic Policy Research, 366 Galvez Street, Stanford, CA 94305, United States

^b National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138, United States

^c University of Minnesota, Division of Health Policy and Management, School of Public Health, 420 Delaware Street SE, MMC 729, Minneapolis, MN 55455, United States

^d Harvard University, Department of Health Care Policy, Harvard Medical School, 180 Longwood Avenue, Boston, MA 02115, United States

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ABSTRACT

This paper estimates the impact of income on the long-term care utilization of elderly Americans using a natural experiment that led otherwise similar retirees to receive significantly different Social Security payments based on their year of birth. Using data from the 1993 and 1995 waves of the AHEAD, we estimate instrumental variables models and find that a positive permanent income shock lowers nursing home use but increases the utilization of paid home care services. We find some suggestive evidence that the effects are due to substitution of home care for nursing home utilization. The magnitude of these estimates suggests that moderate reductions in post-retirement income would significantly alter long-term utilization patterns among elderly individuals.

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1. Introduction

The financing of long-term care is an increasingly important issue for the elderly. Nearly 70% of individuals living to age 65 will require some long-term care assistance, with over one-third requiring some time in a nursing home (Kemper et al., 2005). On average, the present discounted value of lifetime long-term care expenditures is \$47,000 (in 2005 dollars), but the distribution is heavily skewed with 16% of elderly individuals incurring over \$100,000 in lifetime expenditures and 5% incurring over \$250,000. Although

many individuals receive some long-term care coverage under Medicaid and a small number of individuals purchase private coverage, long-term care represents, on average, the largest source of out-of-pocket health care spending for elderly individuals.

In this context, future reductions in post-retirement income could dramatically alter elderly individuals' patterns of long-term care service utilization. Moreover, individuals generally prefer long-term care in the least restrictive, most home-like setting possible (Kane and Kane, 2001), suggesting important welfare effects as individuals transition across long-term care settings. For example, Mattimore et al., 1997 found that 30% of elderly survey respondents would rather die than enter a nursing home and an additional 26% indicated they were very unwilling to move to an institutional setting. Similarly, Grabowski and Gruber (2007) have shown that state Medicaid payment rules have no effect on overall nursing home utilization, suggesting that demand for nursing home care is relatively inelastic with respect to public program generosity.

Surprisingly however, little is known about how income influences formal long-term care utilization. Using data from the Channeling Demonstration, higher income was found to be associated with a greater probability of formal care (Kemper, 1992). Using National Long-Term Care Survey data, income did not have a

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* Corresponding author at: Stanford University, Stanford Institute for Economic Policy Research, 366 Galvez Street, Stanford, CA 94305, United States. Tel.: +1 650 736 0480.

E-mail addresses: gopi@stanford.edu (G.S. Goda), egolberstein@umn.edu (E. Golberstein), grabowski@hcp.med.harvard.edu (D.C. Grabowski).

¹ Tel.: +1 612 626 2572.

² Tel.: +1 617 432 3369.

statistically meaningful effect on nursing home entry, but it had a positive association with paid home care (Ettner, 1994). However, a potential problem with these earlier studies is that unobserved characteristics may be correlated with both an individual's income and the propensity to use long-term care services. For example, an individual in poorer health may have both lower income and higher long-term care utilization, or individuals with higher incomes may have unobservable preferences for living independently. In this study, we address this issue of endogeneity by relying on a natural experiment that generated large, plausibly exogenous variation in permanent Social Security income for otherwise similar individuals based on their year of birth. The Social Security benefits "notch", which is described in detail below, has been used by others to examine the effect of income on labor supply (Krueger and Pischke, 1992), prescription drug use (Moran and Simon, 2006), mortality (Snyder and Evans, 2006) and elderly living arrangements (Engelhardt et al., 2005). The goal in this study is to use the variation based on the notch to examine the effect of permanent income on long-term care utilization across settings.

The conceptual framework for this paper is based on economic models of household decision-making in the care of a disabled individual (e.g., Pezzin et al., 1996). In this model, utility is a function of private goods, leisure, the elderly person's functioning and the household's preferences (e.g., for independence). Under this framework, households jointly choose long-term care services and living arrangements. Households are assumed to maximize their utility subject to constraints on their budget and their time. The effect of income on overall long-term care utilization depends on how income influences the choice of long-term care services and living arrangement. That is, certain long-term care services may be normal goods while others may be inferior, due, perhaps, to the levels of independence associated with different types of services. Paid home care is typically considered a normal good, suggesting higher household income is expected to increase the use of paid care use. However, given the disutility associated with nursing home entry discussed above, nursing home care is likely an inferior good, suggesting higher income will lead to less nursing home care, *ceteris paribus*. Thus, we predict greater household income will increase the use of paid home care, but lead to less use of nursing home care.

We develop estimates of the effect of a permanent shock in Social Security income on formal long-term care utilization among households headed by beneficiaries with less than a high school education, approximately 45% of our sample. Using data from the 1993 and 1995 waves of the Assets and Health Dynamics among the Oldest Old (AHEAD), our IV estimates suggest that a permanent Social Security income shock had a moderate but statistically insignificant effect on overall formal long-term care utilization.

However, we find this overall effect masks the effects of income on different types of long-term care utilization. When we decompose the total effects, we find evidence that positive Social Security income shocks had a negative effect on nursing home entry, but a positive effect on the use of paid home care. Specifically, a \$1000 (or 10%) increase in annual Social Security income for those in this low-education group would decrease the likelihood of any nursing home use by 24–34% (relative to mean) and increase the likelihood of receiving any paid home care use by 15–16%.

Although several pathways may lead to the increased use of home care and lower use of nursing home care, we find some support for the hypothesis that higher permanent Social Security income causes individuals to substitute home care for nursing home care rather than inducing home care use among individuals who would not have otherwise used long-term care. The substitution hypothesis behind our findings appears more likely than explanations related to income-induced improvements in health or resulting changes in Medicaid eligibility.

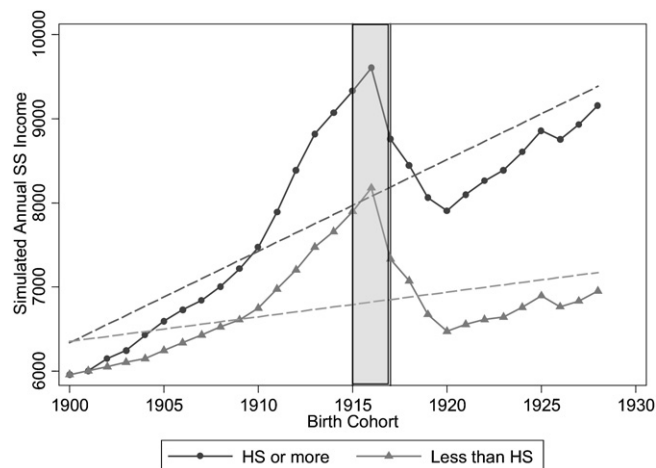


Fig. 1. Notes: Each birth cohort's benefits were computed with identical real earnings histories and the Social Security Administration's ANYPIA program as detailed in Engelhardt et al. (2005). Benefits differ across birth cohort only due to legislative changes in benefits. Shading indicates notch years of 1915–1917.

This paper is organized as follows. In Section 2, we provide a brief description of the Social Security benefits notch. In Section 3, we describe our data and empirical strategy. In Section 4, we present our results, and in Section 5, we explore the mechanisms behind our results. In Section 6, we discuss the implications of our results for Social Security reform and other shocks to post-retirement permanent income. Finally, Section 7 provides a brief conclusion.

2. Social Security benefits notch

This section provides a brief overview of the Social Security benefits notch (see papers cited in the previous section for more detailed accounts). Social Security payments are based on lifetime earnings. Prior to 1972, neither lifetime earnings nor post-retirement payments were indexed for inflation, but rather periodically adjusted by Congress. In 1972, Congress amended the Social Security Act to provide automatic indexation of credited earnings for those workers who had not yet retired, which created an unanticipated windfall for workers from certain birth cohorts because of an error that led the prior earnings of these workers to be doubly indexed for inflation. The high rate of inflation over the following years led to a large increase in benefits for the affected cohorts. In 1977, Congress passed another law to eliminate the double indexation for future cohorts of retirees. This law change created a large reduction in Social Security payments for those cohorts born in 1917 or later relative to the preceding cohorts. Importantly however, cohorts born prior to 1917 (near retirement in 1977) retained doubly indexed benefits under a grandfather provision. Taken together, these law changes and the high rate of inflation over the mid 1970s created a large and permanent difference in Social Security payments across birth cohorts, which came to be called the Social Security Benefits Notch. Because these benefits changes were unanticipated and otherwise outside the control of retirees, they are a valid natural experiment for examining income/wealth effects among elderly individuals.

Fig. 1 displays a measure of Social Security benefits that differ across birth cohort only due to legislative changes in benefits rather than differences in observable characteristics by birth cohort. Each birth cohort's benefits were computed with identical real earnings histories and the Social Security Administration's ANYPIA program as detailed in Engelhardt et al. (2005). We also depict the best fit line between birth cohort and average household Social Security ben-

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