



Social security income and the utilization of home care: Evidence from the social security notch[☆]



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ARTICLE INFO

Article history:

Received 29 May 2014

Received in revised form 18 August 2014

Accepted 5 October 2014

Available online 30 June 2015

JEL classification:

H55

I10

J14

Keywords:

Social Security

Retirement income

Long-term care

Formal home care

Informal home care

ABSTRACT

This paper exploits Social Security law changes to identify the effect of Social Security income on the use of formal and informal home care by the elderly. Results from an instrumental variables estimation strategy show that as retirement income increases, elderly individuals increase their use of formal home care and become less likely to rely on informal home care provided to them by their children. This negative effect on informal home care is most likely driven by male children withdrawing from their caregiving roles. The empirical results also suggest that higher Social Security benefits would encourage the use of formal home care by those who would not have otherwise used any type of home care and would also encourage the use of both types of home care services among elderly individuals.

Published by Elsevier B.V.

1. Introduction

Social Security is the primary source of income for the retired and has played a vital role in reducing poverty among the elderly. In 2010, 53% of beneficiary couples and 74% of unmarried beneficiaries received at least 50% of their income from Social Security (Fast Facts & Figures About Social Security, 2012). Based on the March 2011 Current Population Survey (CPS), the poverty rate among the elderly aged 65 and over would be 35 percentage points higher if Social Security income was not taken into account (Center on Budget and Policy Priorities, 2012). Clearly, changes in Social Security benefits would affect the elderly in many ways.

The solvency of Social Security has been a major concern among policymakers. The issue has attracted growing attention, as the weak economy causes contributions to decline and about 10,000 baby boomers reach retirement age every day. According to the

2013 Social Security Trustees Report, Social Security trust funds will exhaust in 2033, and after 2033, it will pay about 75% of promised benefits. Advocates of Social Security reform have proposed several ways to increase revenue and reduce retirement benefits. Some examples include increasing the full retirement age, lifting the payroll tax cap, and reducing the annual cost-of-living adjustments (COLAs). Critics of the reform, however, argue that these changes may negatively affect the well-being of the beneficiaries.

The goal of the paper is to investigate the effect of Social Security benefits on the retired. There is a serious econometric issue, however: the amount of Social Security payment depends on the beneficiary's earnings history, which is likely to correlate with unobserved characteristics that associate with the outcomes of interest. To address the endogeneity issue, I exploit exogenous variations in Social Security payment created by two legislation changes in 1972 and 1977 (i.e., *Social Security notch*). In 1972, Congress passed a law to provide automatic COLAs to ensure that Social Security benefits would keep up with inflation. The formula designed to calculate the benefits, however, was flawed and caused Social Security benefits to rise faster than inflation. A major element of the 1977 law change was to correct the formula. The new rules, however, only applied to those who were age 60 and younger in 1977 (i.e., individuals born in 1917 or later), workers nearing retirement in 1977 (i.e., individuals born during 1910–1916) were able to retain the more generous benefits calculated under the 1972

[☆] The content of this paper does not reflect the official opinion of Centers for Disease Control and Prevention. Responsibility for the information and views expressed in the paper lies entirely with the author.

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amendments. These law changes created permanent differences in Social Security benefits for retirees who were otherwise similar but born in different years.

A number of studies have exploited the exogenous variations in Social Security income to study the impact on a variety of outcomes and their results consistently suggest that treating Social Security income as exogenous would create biased estimates. Krueger and Pischke (1992) look at the retirement decision of the elderly. Using the CPS data from 1976 to 1988, they find that decreases in Social Security payments resulting from the 1977 amendments reduce rewards for remaining in the labor force and lead to early retirement. Using the 1980–1999 CPS data, Engelhardt et al. (2005) find that the likelihood of living with others decreases with Social Security income. The estimated elasticity is -0.4 for all elderly and the response is considerably greater for elderly widows and divorcees (i.e., -1.4). Similarly, Engelhardt (2008) find that the rise in Social Security benefits explains increases in elderly homeownership over the last twenty-five years. Snyder and Evans (2006) examine the link between income and mortality and their findings show that those born in 1916 have higher mortality than those born in 1917 even though the older cohort receives higher Social Security benefits. Using data from the 1993 wave of the Assets and Health Dynamics among the Oldest Old (AHEAD), Moran and Simon (2006) find the use of prescription drugs by low education or low income households is a normal good and is highly income sensitive. The most recent study in the literature, and the analysis closest in methodology and contents to the current study, is conducted by Goda et al. (2011). Goda et al. (2011) use data from the 1993 and 1995 waves of the AHEAD to estimate the effect of Social Security income on the long-term care utilization of the elderly. They focus on households in which the primary beneficiary has less than a high school education and find suggestive evidence that retirees substitute formal home care (i.e., paid home care services) for nursing home utilization as their Social Security income increases (i.e., an additional \$1000 of household Social Security payment leads to a 3.1 percentage point increase in formal home care, and a 2.8 percentage point decrease in the use of nursing home).¹

Like Goda et al. (2011), this study uses Social Security law changes to identify the causal effect of retirement income on the use of long-term care services by the elderly. However, unlike Goda et al. (2011) that focus on low educated seniors and on the use of formal home care and nursing home, I use a nationally representative sample to investigate the use of formal home care and informal home care provided freely by family or friends.² Informal home care has become prevalent due to population aging and high costs of long-term care services. In this paper, I focus exclusively

¹ Although these studies use Social Security notch to address the endogeneity of Social Security income, there are differences in how they exploit the notch. Krueger and Pischke (1992) create an aggregate panel data set from the CPS. They construct an earnings history for a hypothetical worker. For each calendar year, age, and birth cohort, they impute the average Social Security benefit according to the time period, the laws that were in effect, and the earnings history for that cohort and then use the imputed benefit variable in the estimation equation. Engelhardt et al. (2005) and Engelhardt (2008) construct an instrumental variable for the mean reported annual Social Security income for each birth cohort/age cell in a method similar to Krueger and Pischke. Snyder and Evans (2006) exploit the exogenous variation in Social Security income by regression discontinuity and difference-in-difference methods (i.e., comparing mortality rates for those born in the first quarter of 1917 with those born in the fourth quarter of 1916). The current paper follows Moran and Simon (2006) and Goda et al. (2011), it uses a binary instrumental variable for cohorts who receive an unexpected windfall of retirement income to address the endogeneity problem of Social Security benefits.

² Due to data limitations, Goda et al. (2011) are only able to measure any informal (unpaid) home care use over the 4 weeks prior to the 1993 survey. Using this variable as the dependent variable, their IV estimates suggest that Social Security income increases the use of informal home care. The estimated effect, however, is imprecisely measured.

on the informal home care provided by children and examine how the parent's retirement income influences the caregiving behavior of the adult child. I also look at whether there is a substitution between formal and informal home care due to changes in Social Security income. To my knowledge, this is the first study to examine the causal relationship between retirement income and the use of informal home care services by the elderly.³

In recent years, state and federal lawmakers have recognized the important role of family caregivers in the long-term care system and have regarded informal care as a way to reduce public long-term care expenditures. Several states have offered tax deductions and credits for family caregivers. For example, Georgia offers a credit of up to \$150 for a qualifying family member. California and Missouri offer \$500 tax credit for full-time caregivers. In New Jersey, a \$675 tax credit has been proposed. At the national level, the National Family Caregiver Support Program was established in 2000 and it has provided approximately \$154 million annually to support family or informal caregivers. Determining the impact of Social Security income on informal home care and on the substitution between formal and informal home care has important implications for developing Social Security reform and long-term care policies.

I use data from the Second Longitudinal Study of Aging (LSOA II) and an instrumental variables method to identify the effect of an exogenous change in Social Security benefits on the elderly. Although I find a negative effect of Social Security income on the use of informal home care, the estimated effect does not reach statistical significance. Social Security income, however, has a statistically significant negative impact on the use of informal home care provided by the adult child (i.e., the income elasticity is -2.2 at the sample means) and this negative effect is likely driven by male children withdrawing from their caregiving role. Moreover, the findings suggest that the use of formal home care is a normal good and is highly income sensitive. Specifically, a \$1000 increase in household Social Security income would significantly increase the likelihood of utilizing formal home care by 2.1 percentage points. Although some elderly individuals may substitute formal for informal home care in response to higher retirement income, the estimated effects suggest that increases in retirement income would encourage elderly individuals to use both paid and unpaid helpers and also encourage the use of home care services among those who would not have otherwise used any type of home care services. Finally, the subsample analysis shows a smaller income effect among married, nonwhite or low-educated elderly individuals.

The rest of the paper is organized as follows: Section 2 provides a brief discussion of the background of the legislation changes during the 1970s; Section 3 provides a detailed discussion of the LSOA II data and the empirical strategy; Section 4 presents the estimation results for the full sample as well as for various subsamples of interest; and Section 5 concludes.

2. Double indexation and the Social Security notch

Prior to 1972, Social Security benefits were based on workers' average nominal monthly earnings and were calculated using a progressive formula. The benefit amount was fixed and Congress had to amend the Social Security law in order to make adjustments to the payments. During the 1960s and 1970s, inflation erosion of Social Security payments became a serious concern as inflation had

³ A number of studies have looked at the relationship between formal and informal home care (Ettner, 1994; Kemper, 1992; Pezzin et al., 1996; Van Houtven and Norton, 2004) and between informal home care and nursing homes (Charles and Sevak, 2005; Van Houtven and Norton, 2004).

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