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Social security and the rise in health spending



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ABSTRACT

In a quantitative model of Social Security with endogenous health, I argue that Social Security increases the aggregate health spending of the economy because it redistributes resources to the elderly whose marginal propensity to spend on health is high. I show by using computational experiments that the expansion of US Social Security can account for over a third of the dramatic rise in US health spending from 1950 to 2000. In addition, Social Security has a spill-over effect on Medicare. As Social Security increases health spending, it also increases the payments from Medicare, thus raising its financial burden.

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1. Introduction

Aggregate health care spending as a share of GDP has more than tripled since 1950 in the United States. It was approximately 4% in 1950, and jumped to 13% in 2000 (see Fig. 1).¹ Why has US health spending as a share of GDP risen so much? This question has attracted growing attention in the literature (Newhouse, 1992; Finkelstein, 2007; Hall and Jones, 2007, among others). Several explanations have been proposed, such as increased health insurance and economic growth. However, these existing explanations *together* only account for up to half of the rise in US health spending over the last half century, suggesting that there is still a large portion of the rise in health spending remaining unexplained (e.g., Newhouse, 1992; CBO, 2008). This paper is mainly motivated by this large unexplained residual.

Over the last several decades, the size of the US Social Security program has also dramatically expanded (as shown in Fig. 2). Total Social Security expenditures were only 0.3% of GDP in 1950, and jumped to 4.2% of GDP in 2000.² Furthermore, several papers in the literature have shown that *theoretically* mortality-contingent claims, such as Social Security annuities, may have positive effects on health spending and longevity (Davies and Kuhn, 1992; Philipson and Becker, 1998). For

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¹ For 1929–1960, the data is from Worthington (1975), and after 1960, the data is from <http://www.cms.hhs.gov/NationalHealthExpendData>. Health care spending includes spending on hospital care, physician service, prescription drugs, and dentist and other professional services. It excludes the following items: spending on structures and equipment, public health activity, and public spending on research.

² Note that these changes do not simply reflect the population structure changes over this period. The average Social Security expenditure (per elderly person) also increased significantly, from 3.7% of GDP per capita in 1950 to 33.7% of GDP per capita in 2000.

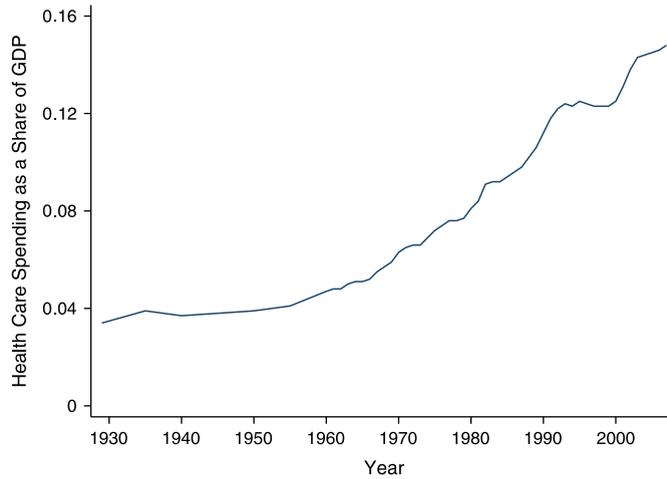


Fig. 1. Health spending (as a share of GDP) in the United States: 1929–2005.

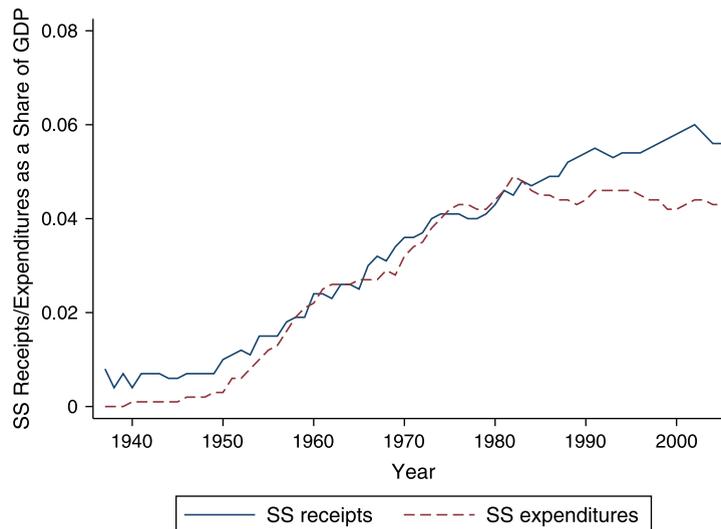


Fig. 2. US Social Security: total expenditures/receipts as a share of GDP.

instance, [Davies and Kuhn \(1992\)](#) argue that Social Security annuities provide people with an incentive to increase longevity through higher spending on longevity-inducing health care because the longer a person lives, the more Social Security payments she receives.

What are the effects of Social Security on *aggregate* health spending? Can the expansion of US Social Security account for the dramatic rise in US health spending over the last several decades? To address these questions, I develop an Overlapping Generations (OLG), General Equilibrium (GE) model with endogenous health spending and endogenous longevity. Following [Grossman \(1972\)](#), the concept of health capital is adopted in the model. Health capital depreciates over the life cycle, and health spending produces new health capital. In each period, agents face a survival probability which is an increasing function of their health capital. Before retirement, agents earn labor income by inelastically supplying labor to the labor market. After retirement, they live on Social Security annuities and private savings. Social Security annuities are financed by a payroll tax on working agents. In the model, agents spend their resources either on consumption, which gives them a utility flow in the current period, or on health care, which increases their health capital and survival probability to the next period. Agents can smooth consumption or health spending over time via private savings, but they do not have access to private annuity markets.³ Agents also have a warm-glow bequest motive.

In the model, Social Security increases aggregate health spending as a share of GDP via two channels. First, Social Security transfers resources from the young to the elderly (age 65+), whose marginal propensity to spend on health care is

³ The data shows that the US private annuity markets were very thin over the last several decades. According to [Warshawsky \(1988\)](#), only approximately 2–4% of the elderly population owned private annuities from the 1930s to the 1980s. A common explanation for the lack of private annuity markets is that the adverse-selection problem in private annuity markets reduces the yield on these annuities.

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