



US Centre Summer Research Grant

Recipient name: Nilesh Raut

Project title: Caregiving, Insurance, and Housing: The Economics of Ageing in the United States

Summary of project:

My thesis aims at investigating how health, aging, housing, and public finance interact in the US. The first chapter of my thesis attempts to investigate the impact of Deficit Reduction Act 2005 on the uptake of (Medicaid) and private long-term care insurance in the US and identifies that DRA2005 saved \$36 per 65 years old individual. The second chapter identifies the impact of housing and financial wealth on public and private insurance in the US. The third chapter investigates the effect of Affordable care act's Medicaid expansion on the mental wellbeing of spousal caregivers in the US. The fourth chapter plans to identify how the social housing in the US impacts the nursing home care utilization/admissions. Nursing home care in the US is expensive and can result in welfare loss of individual if not planned properly. The main objective of the thesis is to identify and quantify the effect of several relationships mentioned above and provide policy recommendations with concrete evidence for shaping and for improving the 21st century health and welfare policies in the US.

Introduction

Ageing and inequality – these are two major challenges the world has been facing for ages. Inequality refers to the distribution of economic wellbeing, which is different across contexts and the life cycle, whereas ageing is an inevitable health process that affects individual's ability to participate fully in society and in economy. Thus, ageing exacerbates inequality by limiting individual's ability in later life. The process of ageing is complex and involves multiple factors such as decline of physical and mental health and rise of demand for access to health and care services. The percentage of older population in OECD countries is expected to increase from 14% in 2010 to appx 25% in 2050. Long-term care (LTC) services are both publicly and privately financed in the US, with appx 72% of LTC services are covered under the public health insurance programs. The private share (28%) of LTC services is a sum of private insurance or LTCI (11%) and out of pocket expenses. The small share of private LTCI is one of the most worrying concerns of old age Americans given their low savings. Thus, in the event of needed long-term care, lack of LTCI increases not only the individual's out-of-pocket expenses but also the public expenditure via Medicaid for long-term care. As the Baby boomers start to retire due to aging, the demand for Medicaid is likely to shoot-up since most of them might not afford the costs of long-term care services and supports because of their reduced income ([Bergquist et al 2015](#)). This presents three major social policy challenges in the US: 1) Rapid increase in Medicaid expenditure, 2) Rise in health inequality due of lack of LTSS coverage, and 3) Growing fiscal deficit, which generate concerns around the public sustainability of current Medicaid design, and calls for strategic policy interventions to reduce spending to qualify for Medicaid ([Pauly 1990](#)).

Thesis Project

My thesis aims at investigating how health, aging, housing, and public finance interact in the US. The first chapter of my thesis attempts to investigate the impact of Deficit Reduction Act 2005 on the uptake of (Medicaid) and private long-term care insurance in the US and identifies that DRA2005 saved \$36 per 65 years old individual. The second chapter identifies the impact of housing and financial wealth on public and private insurance in the US. The third chapter investigates the effect of Affordable care act's Medicaid expansion on the mental wellbeing of spousal caregivers in the US. The fourth chapter plans to identify how the social housing in the

US impacts the nursing home care utilization/admissions. Nursing home care in the US is expensive and can result in welfare loss of individual if not planned properly.

Objective

The main objective of the thesis is to identify and quantify the effect of several relationships mentioned above and provide policy recommendations with concrete evidence for shaping and for improving the 21st century health and welfare policies in the US. Next, polishing all the thesis chapters and sending them for publication to the top journals of Economics and Policy.

Design

I am using Health and Retirement Study (HRS) Surveys and Panel Study of Income Dynamics (PSID) of the US for identifying the effect for my thesis chapters. The HRS is a panel study sponsored by the National Institute of Aging (NIH). It is a bi-annual survey that began interviewing respondents and their spouses from 1992 onward. The first wave of HRS collected information from individuals aged 50 and above (mainly aged 51-61 and born between 1931-1941) when the sample was first collected in 1992 ([National Institute on Aging and The Social Security Administration 2018](#)). The HRS contains the oldest cohort, i.e. people born before 1923, named as Asset and Health Dynamics among the Oldest Old (AHEAD). Starting in 1993, the AHEAD sample was collected every alternate year until 1998 when it was merged with other samples. Subsequently, two additional sample cohorts were added, namely the War Baby (WB - Individuals born between 1942 and 1947) and the Children of Depression Age (CODA - Individuals born between 1924 and 1930) cohorts.

Empirical Methodology

I use combination of econometric techniques to identify the causal effect. These techniques use both natural experiment (Instrumental variables or control function approaches) ([Angrist and Pischke 2009](#); [Wooldridge 2013](#)) as well as a quasi-experimental approach (difference in differences and event study approaches). The difference-in-differences estimation approach is one of the most widely used identification strategies in empirical economics ([Angrist and Krueger 1999](#); [Athey and Imbens 2006](#); [Bertrand, Duflo, and Mullainathan 2004](#); [Ai and Norton 2003](#); [Puhani 2012](#)). A growing number of studies tests a combination of complex identifying

assumptions in panel event study design and attempts to provide a guidance on accurately estimating the impact of staggered adoption of policies (Athey and Imbens 2021; Borusyak and Jaravel 2017; Callaway and Sant’Anna 2018; de Chaisemartin and D’Haultfoeuille 2019; Sun and Abraham 2020; Goodman-Bacon 2021). In addition, I perform several other analyses for each individual chapters. These include specification check, heterogeneity analyses, falsification tests, mechanisms, reduced form regressions, and descriptive statistics. I also use welfare analysis for finding the benefits received by individuals due to government reforms.

Results

Chapter I - I find that Long-term care insurance partnerships (LTCIP) increases the coverage of private-insurance and decreases the uptake of Medicaid (Public) insurance. Long-term care partnership increases the coverage of private-insurance (Figure 1a) and decreases the uptake of Medicaid (Public) insurance. The effect on Medicaid picks up almost 2-3 years after the implementation of LTCIP (Figure 1b). I estimate that the adoption of LTCIP has given rise to an average Medicaid saving of \$36 for every 65-year-old.

Figure 1(a) Event Study: Impact of LTCIP on private long-term care insurance.

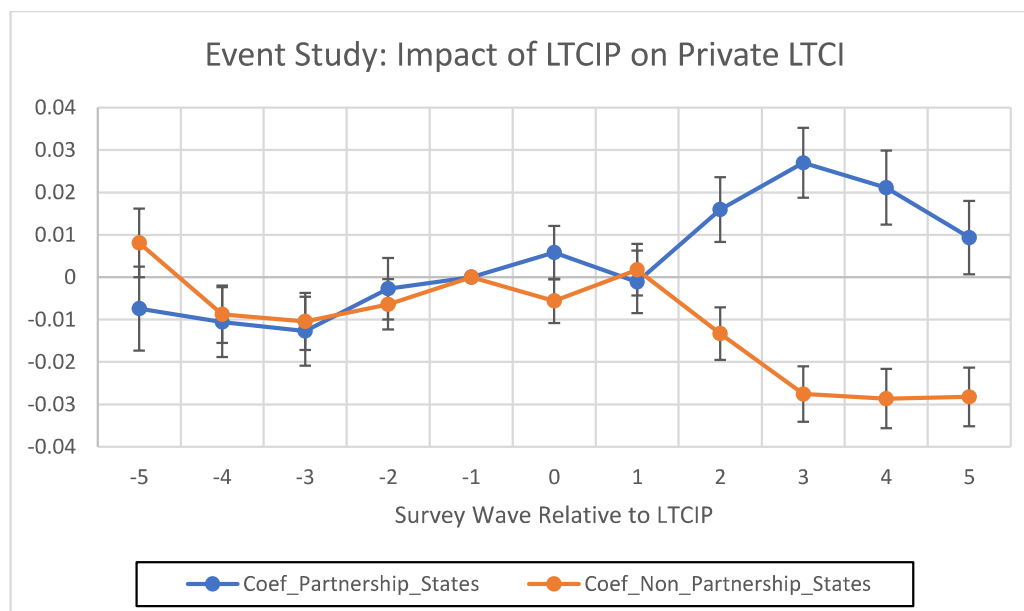
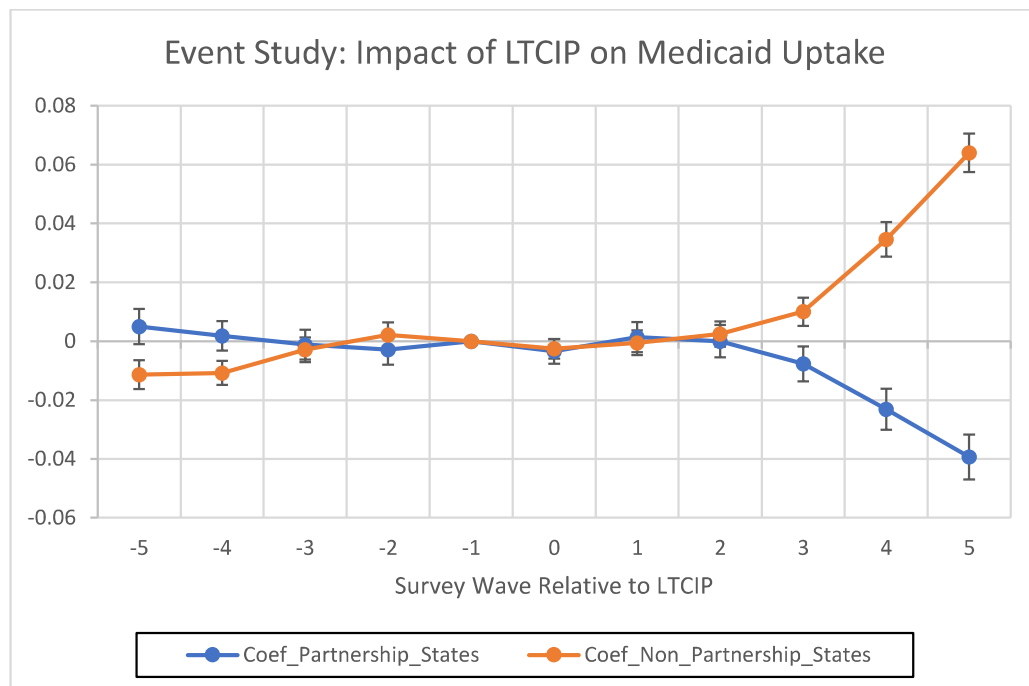
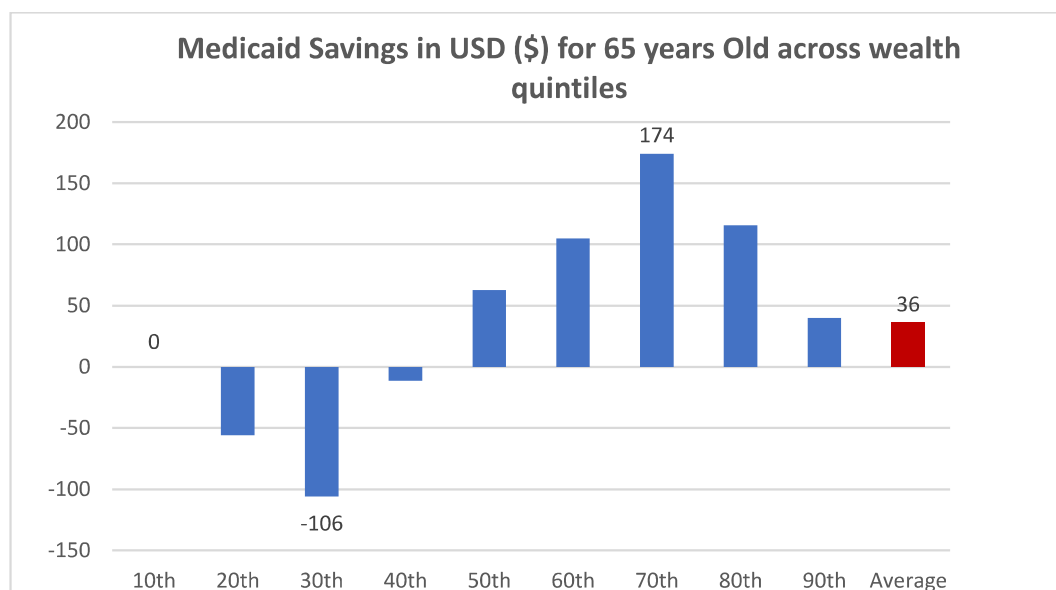


Figure 1(b) Event Study: Impact of LTCIP on Medicaid.



Notes: Each point in the figure 1(a) and 1(b) indicates the effect of LTCIP relative to event time estimated using non-parametric event study, with survey wave for the year 2006 reporting the LTCIP for the first time after DRA-2005 is designated as Wave 0. As the HRS is a biannual survey, the points on X-axis are two years apart. The bars associated with each point on the plot represent 95% confidence interval for the associated coefficient. Each figure has coefficients plotted for two categories, LTCIP states vs Non-Partnership states. All the coefficient estimates are weighted using survey weights at person-level.

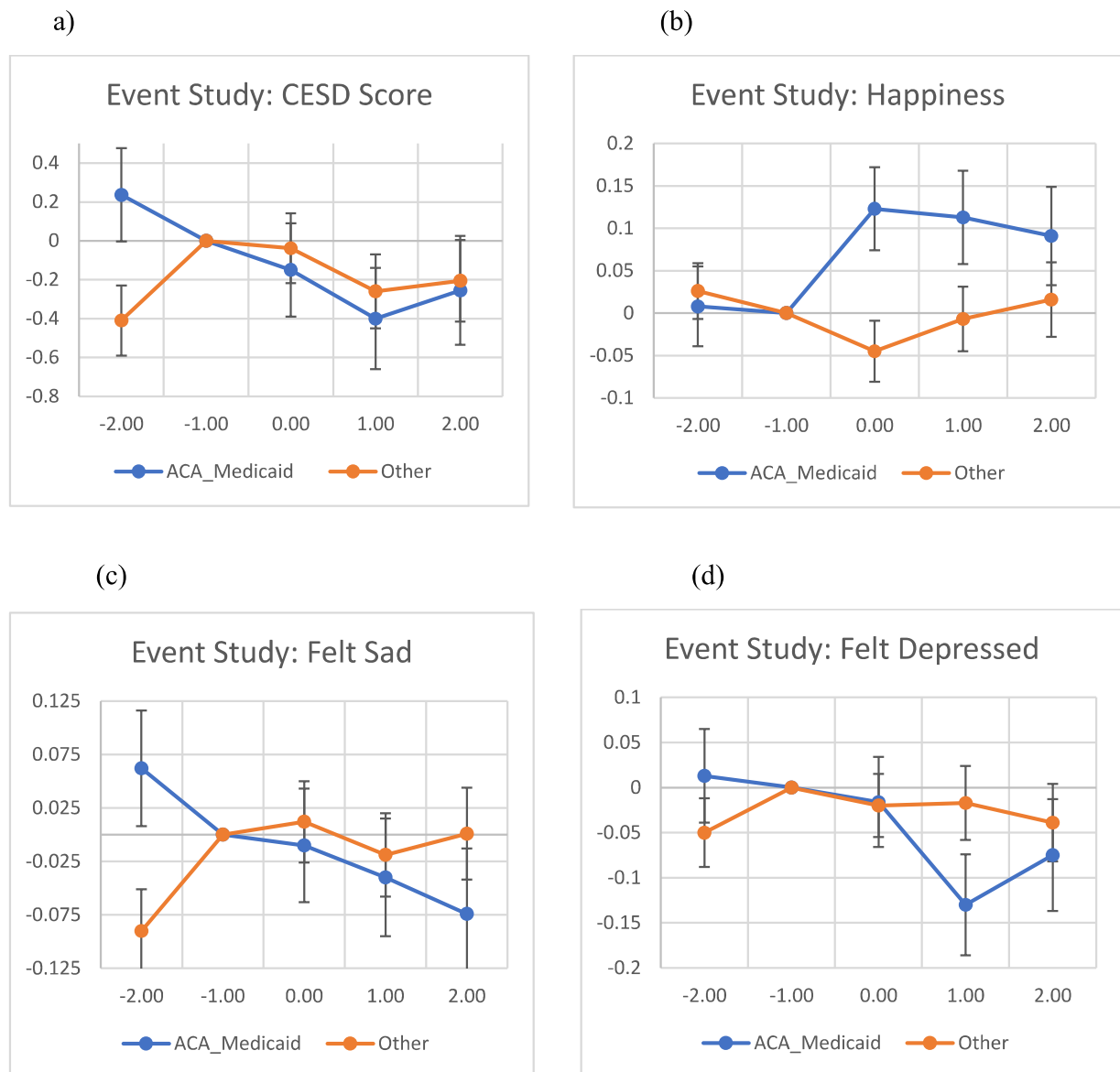
Figure 1(c) Event Study: Impact of LTCIP on Medicaid.



Chapter II - the results indicate that both housing and financial value are important sources of risk protection, for older adults, in the form of self-insurance for funding their future long-term care costs. I find that a \$100,000 change in both housing and total assets reduces the likelihood of purchasing private-LTCI by 0.59 and 0.47 percentage points, respectively. A \$100,000 change in financial and total assets reduces the probability of buying private-LTCI by 4.7 percentage points and 6.8 percentage points, respectively. The demand of private-LTCI significantly responds to changes in wealth.

Third Chapter - We find that ACA's Medicaid expansion reduced depressive symptoms among caregivers (Figure 2), and specifically we estimate that exposure to ACA Medicaid expansion gives rise to a 0.38 points (equivalent to 4-5%) reduction in the CESD score (a negative scale in which the lowest scale indicates the best mental wellbeing). We also find that ACA Medicaid causes a spillover effect at the household level, improving the well-being of the spouse care recipient. Our results are robust to various specifications, and we identify several potential driving mechanisms (Figure 3) for the findings: reductions in out of -pocket expenses and labor supply and, as expected, increased Medicaid uptake. The evidence from falsification tests confirms that the estimated effects are purely due to ACA's Medicaid expansion and no other phenomena.

Figure 2. Event study design of ACA Medicaid Expansion exposure on CESD Score - and three score components



Note: This figure depicts the results of the events study design of the ACA Medicaid expansion on mental health (CESD) and three of its components for the period 2010-2018. Time, $t = 0$, corresponds to year 2014.

Figure 3. Event study design of ACA Medicaid Expansion exposure on Potential Mechanisms (Labor participation)



Conclusion

Chapter I – The findings suggest that LTCIP stimulates the purchase of private-LTCI, which subsequently reduces the uptake of Medicaid provide fresh evidence that the implicit tax on private-LTCI can be minimized to some extent by reducing means testing. These results strengthen the claims made by Brown and Finkelstein (2011) suggesting that the Partnership program has a direct impact on means testing component of the implicit tax on private-LTCI and reinventing LTCIP can be a way forward for eliminating the implicit tax completely.

Chapter II - Consistent with Davidoff (2010), we observe that individuals view their housing assets as a form of self-insurance to be used in financing their future long-term care costs. However, we do not find significant evidence suggesting that a positive wealth shock influences the receipt of Medicaid. A likely reason for this result is that people most at risk of spending down to Medicaid hold few assets and thus are less affected by asset shocks. Our results indicate no significant decrease in demand for Medicaid after both an unexpected change in housing and financial assets.

Chapter III - These results indicate that availability of health insurance to adult spousal caregivers can significantly reduce the mental burden associated with informal caregiving. These findings offer some answers to the demand of sustainable arrangement for informal caregiving. The ACA Medicaid is observed to benefit spousal caregivers by significantly improving their otherwise deteriorating mental health. I also find that the ACA Medicaid results in spillover at household level by significantly improving the well-being of spouses being cared for. No one has cast ACA Medicaid expansion as a caregiver support policy. However, combined, our results suggest that ACA-Medicaid expansion is in fact an indirect caregiver support policy, improving mental health of both caregivers and spousal care recipients. Therefore, indirect, and direct programs supporting the modal providers of long-term care in the United States -- unpaid informal caregivers – could help minimize the negative mental health impacts of caregiving, while supporting the preference of disabled older adults to remain safely in their own homes.

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