

How I Know Prof. John Mullahy and summary of the dissertation chapters

I took two courses with Prof. John Mullahy during my Ph.D.

1. POPHLTH848: Health Economics (001) SP19
2. POPHLTH876: Measuring Health Outcomes (001) FA21

I also regularly discussed my research with Prof. John Mullahy.

Summary of Job Market Paper

My Job Market paper examines whether high-speed internet (broadband) technology affects the mental health of older adults (50+) in the US. Using a quasi-experimental design and individual panel data at the census tract level, I exploit spatial, temporal, and individual-level variations and employ the latest DID estimator by De Chaisemartin and d'Haultfoeuille (2022) for the dynamic treatment effect. I find that high-speed broadband improves mental health in older adults, i.e., depression symptoms decline by about 5.2%, comparable with other major life events like job loss, recession, and the death of a spouse. These positive effects on mental health are primarily due to increased social connectedness and reduced social isolation. Recent evidence of social media's adverse impact on college students' mental health due to unfavorable social comparisons, this work contributes to the discussion in the literature highlighting the potential positive effect of technology.

Within economics literature, research on mental health is focused on a relatively younger population; most of which suffer from challenges due to two-way-fixed-effects (TWFE), lack individual panel data, use analysis at the broader level (e.g., county), could not explore potential mechanisms, and focuses on other economic outcomes like labor market or education. I contribute to this broad health literature by studying the unexplored effects of broadband expansion on the mental health of the most vulnerable age group cohort (50+), providing unexplored potential mechanisms, using advanced DID estimators, employing the individual panel data, and conducting the analysis at the census tract level for better measurement of the treatment.

Second Paper

In my second chapter, co-authors and I examine whether early-life exposure to an agricultural technology (Green Revolution) impacts later-life aging outcomes (cognitive function) in India. The Green Revolution (GR) is arguably the single most significant shock to agricultural productivity gains in developing countries and one of the most significant technological innovations of the 20th century. High-yield crop variants (HYV) developed under the GR dramatically increased major crop yields. We leverage the world's largest aging data and employ a generalized DID approach, exploiting temporal and spatial variation in the adoption of HYV crops. We find that one standard deviation increase in the average HYV share during early life improves the cognitive score by 0.072 in later life, with notable effects among men, low castes, and rural areas. We estimate that improved height and education explain some of these positive benefits. However, we also find an increase in chronic conditions and metabolic syndrome (e.g., diabetes, blood pressure, heart disease), supporting the evidence that dietary shifts might explain adverse physical health effects.

Third Paper

In the third chapter, I extend the broadband-related research to examine broadband technology's impact on Social Security Disability Insurance (SSDI) enrollment for older adults in the US. This research holds pivotal policy significance in line with the Social Security Administration's (SSA) service efficiency mandate. I use the staggered broadband rollout and restricted individual panel data from the Health and Retirement Study (HRS) and exploit spatial, temporal, and individual-level variations in broadband availability. Employing the latest DID estimator, I find a 6% increase in the likelihood of receiving SSDI benefits among older adults after high-speed broadband introduction, with more benefits for rural areas.