

I am an Applied Economist focusing on health, aging, and human capital in the US and India, particularly emphasizing social equity issues in rural areas, gender, and socioeconomic status. The first research theme explores the impact of technologies like the Green Revolution and high-speed internet on health, welfare, human capital, and social security access. The second theme delves into the lasting effects of early life shocks on later health and intergenerational well-being. The third theme centers on evaluating educational policies. I employ advanced quantitative methods, including recent developments in Difference-in-Differences (DID) and multiple Regression Discontinuity Design (MRDD), along with novel data, to address critical policy questions.

### Dissertation Chapters

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.

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.

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.

### Other Ongoing Projects:

There are mainly three broad aspects in my other ongoing projects. The first theme, *Technological Innovation and Social Welfare*, investigates the transformative role of broadband technology in the realm of access to social security disability insurance during the events of SSA office closures. I aim to unravel the intricate dynamics between technological advancements, administrative changes, and their consequences for marginalized communities.

Under the second theme, *Labor Market Disparities*, Prof. Jeremy Foltz and I have a paper (revise and resubmit) that scrutinizes salary differentials between foreign and US-born academic faculty, probing potential sources of wage inequality and their broader socio-economic ramifications. Additionally, I analyze the spillover effects of bicycle policies on girls' enrollment in schools, shedding light on how policy interventions can influence educational access and gender parity.

The third theme, *Education, Health and Human Capital*, encapsulates investigations into the impact of teacher hiring policies on student test scores using the advanced multiple RDD methods, delving into the intricate web of educational systems and their implications for academic outcomes. Secondly, my co-authors and I have a paper (under review) that estimates the early life exposure to the Great Depression in the US on later-life mortality using unique bank deposit data. Concurrently, my co-authors and I explore the effects of early-life exposures to the Green Revolution on intergenerational human capital development, tracing how historical influences shape long-term individual and societal progress.

### **Future Research:**

In my future trajectory, I am excited to use increasingly available big data from the US and India with the recent innovations in DID, RDD, and machine learning as they provide valuable insight for better policy recommendations. Using these tools, I plan to expand my research to explore the effects of various newer technologies on other aspects of health, access to social security insurance, social equity, and intergenerational transmission. I also categorized future research under three broad themes.

First, in the realm of *Health and Technology*, I expect to extend the current work to focus on mental health-related outcomes for younger and older populations since mental health is a relatively understudied research area in economics but has implications for comprehensive well-being. Secondly, under the theme of *Early-life Shocks and Long-term Trajectories*, I expect to continue research on the enduring ramifications of early-life shocks on subsequent life trajectories using big data on the aging population from the US and India, which I already have access to. I am working with Prof. Lauren Schmitz and Prof. Kanika Arora to understand the aging outcomes in developing countries and planning to apply for a National Institute of Aging (NIA) grant. I contribute to this work by analyzing data to understand the gender and caste disparities in cognitive functions. Finally, under the theme of *Technological Advancements and Societal dynamics*, I am poised to evaluate the multifaceted effects of high-speed internet technology, shedding light on its potential to reduce informational friction and facilitate access to vital social capital. This exploratory endeavor encompasses a comprehensive examination, ranging from the propagation of misinformation to the access to financial resources for vulnerable populations in the US. By delving into these domains, I endeavor to forge a nuanced understanding of technology's role in shaping contemporary societal landscapes while pursuing avenues for enhancing overall welfare and equity.