

Abstract

Rapid population aging worldwide has intensified demand for healthcare service among middle-aged and older adults, creating unprecedented challenges for healthcare systems. While adequate healthcare provision is essential for individual well-being and social productivity, the associated expenditure growth threatens long-term sustainability. This dissertation examines how healthcare system can improve efficiency in serving aging populations through optimized insurance design and resource allocation.

The dissertation comprises three empirical studies that investigate different dimensions of healthcare efficiency using rigorous causal identification strategies. Chapter 2 analyzes medical insurance design by examining China's 2015 integration of separate urban and rural insurance schemes. Using longitudinal data from the China Health and Retirement Longitudinal Study and a triple-difference identification strategy, I find that insurance integration improved health outcomes for both urban and rural residents while significantly reducing urban-rural health disparities, particularly in activities of daily living. However, the reform also generated moral hazard effects

among certain demographic groups, highlighting the need for complementary behavioral interventions.

Chapters 3 and 4 investigate healthcare resource allocation using administrative data from Japan's Ministry of Health, Labour and Welfare. Japan's combination of severe population aging, exceptionally high hospital bed capacity, and comprehensive health data provides an ideal setting for examining supply-side healthcare efficiency. Chapter 3 employs a novel instrumental variable approach exploiting COVID-19 bed allocation policies to identify causal effects of hospital capacity on physician treatment patterns. I find that increased bed availability leads to significant substitution from outpatient to inpatient services, with a 1 percentage point increase in empty bed share raising hospital admission probability by 0.029 percentage points while reducing doctor visits by 0.024 percentage points. These effects are most pronounced in regions with abundant medical resources, suggesting that treatment decisions may be influenced by financial incentives beyond clinical necessity.

Chapter 4 examines whether capacity-induced treatment changes translate into improved care quality. Despite the significant utilization shifts documented in Chapter 3, I find no statistically significant effects of hospital bed availability on mortality outcomes. This disconnect between resource utilization and health outcomes suggests

that increased capacity may lead to supplier-induced demand rather than clinically beneficial care improvements.

The dissertation's findings have important policy implications for aging societies. The insurance integration analysis demonstrates that well-designed reforms can simultaneously improve health outcomes and reduce disparities, though careful attention to behavioral responses is required. The hospital capacity studies reveal that simply increasing physical infrastructure may not improve health outcomes, particularly in systems with high baseline capacity but constrained complementary resources like physician supply. Instead, balanced resource allocation considering the interaction between different healthcare inputs may yield greater efficiency gains.

This research contributes to health economics literature by providing novel causal evidence on insurance design and healthcare resource allocation effects. The findings suggest that healthcare efficiency optimization requires multidimensional approaches that consider both demand-side access issues and supply-side utilization patterns, with careful attention to ultimate welfare effects rather than intermediate process measures.