Problem Set #1
Computational Methods for Economists, Dr. DeBacker
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1 Health Policy and its Effects

The overarching commonality of my research interests lies in their connection to healthcare and public policy. I am interested in both the effects of public policy on health outcomes, such as mortality rates, and the infrastructure of various health programs including Medicare and Medicaid. My interests encompass both theoretical and empirical approaches to this research.

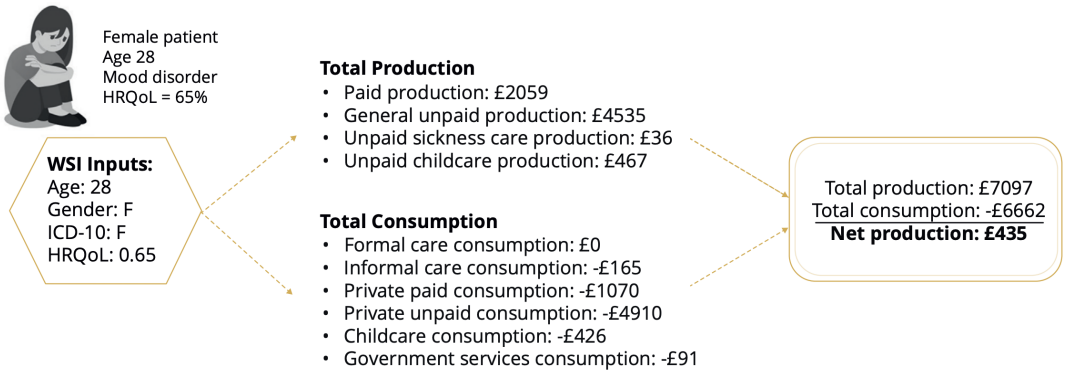
I am currently involved in two of Dr. Ozturk's research projects: one examining Autism Spectrum Disorder and another focusing on Alzheimer's disease. Both conditions are irreversible and present significant challenges to patients, caregivers, and society at large. Many diseases and conditions are lifelong with no expectation of improvement. I believe there is a critical need to better understand the costs and societal impacts of caring for individuals with these diseases, and I see substantial potential for research in this area.

Additionally, I have observed anecdotally that health economics research often focuses on the fiscal impacts of various diseases and interventions, while indirect benefits receive less attention. For example, the reduced burden on caregivers when their family member is approved for respite care, or the mental health benefits associated with reduced wait times to see providers for initial care, are not primary areas of focus for many researchers. In "Assessing the Health and Welfare Benefits of Interventions Using the Wider Societal Impacts Framework," while the framework includes categories such as "Private unpaid consumption," their monetary value is calculated rather than examining their effects on societal utility (Premji and Griffin 2024).

From my recent exploration of microeconomic theory and welfare economics, I understand that structural models such as social welfare functions (SWFs) "convert the possible outcomes of governmental policy choice into vectors (lists) of interpersonally comparable well-being numbers, measuring the lifetime wellbeing of each individual in the population of interest" (Adler 2024). This type of work may align with my research interests. The cited article provides an overview of the SWF framework and reviews key concepts and findings from SWF applications to health policy. I plan to review this article to better assess whether this framework could be applicable to my research interests.

Microsimulation models (MSMs) have been used previously to estimate "how changes in behavior due to the policy affect designated outcomes of interest to policy makers" (Abraham 2013). My recent research into MSMs indicates that these models are used ex ante to predict how policies may affect social welfare. However, I still need to understand how and whether these models can be used ex post to evaluate the effects of policy changes after implementation.

Figure 1. Estimated net production for a female with a mood disorder.



F indicates female or ICD chapter; HRQoL, health-related quality of life; ICD-10, International Classification of Diseases, Tenth Edition.

Figure 1: Calculation of Net Production

2 Price Transparency in Healthcare

Another area of interest is studying price transparency in the U.S. healthcare system. U.S. healthcare spending per capita is almost twice the average of other wealthy countries, yet the system remains inefficient and produces worse health outcomes than other developed nations (Twitter, Rakshit, and Cox 2024) The explanation for this disparity is not straightforward—there are multiple contributing factors—but one significant issue is the lack of price transparency for hospital care. While hospitals are not the only settings where this problem exists, price transparency is generally lacking regardless of where patients receive care.

There has been a recent push for hospital price transparency across Medicaid agencies. Colorado recently began publishing its Hospital Transparency Report following legislation mandating yearly reviews. Economists have shown considerable interest in this area as well. In "Hospital Choices, Hospital Prices, and Financial Incentives to Physicians," Drs. Ho and Pakes found that insurers with more capitated physicians are more responsive to price considerations (Ho and Pakes 2014). Capitated rates are fixed monthly payments made to physician groups, contrasting with fee-for-service rates, which represent a volume-based reimbursement model. Their model is specified as follows: "The potentially observable part of the hospital referral function whose maximum determines the hospital (h) that patient i of insurer π is allocated to, is assumed to take the additively separable form:

$$W_{i,\pi,h} = \theta_{p,\pi} p(c_i, h, \pi) + g_\pi(q_h(s), s_i) + f_\pi(d(l_i, l_h))$$

where:

- $p(c_i, h, \pi)$ is the price insurer π is expected to pay at hospital h for a patient who enters in condition (including diagnosis) c_i;
- s_i is a measure of the severity of the patient's condition;

- $q_h(s)$ is a vector of perceived qualities of hospital h, one for each different severity level;

- $g_\pi(q_h(s), s_i)$ is the plan- and severity-specific function that determines the impact of hospital quality for the given severity on hospital choice; and

- l_i is patient $i's$ location, l_h is hospital $h's$ location, $d()$ provides the distance between the two locations, and $f_\pi()$ is an increasing function of that distance which may differ by plan, for $i = 1, \ldots, n_{\pi,s}$, $h = 1, \ldots, H$, and $\pi = 1, \ldots, \Pi$ " (Ho and Pakes 2014)

I will continue to review the literature in these two areas and remain open to exploring other fields of interest during my first year of doctoral study.

References

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