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Research Statement
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I am interested in a wide range of topics in healthcare, including consumer and provider behavior, information frictions, quality of healthcare, and disparities in health outcomes. In addition, I am excited about developing applied econometrics tools that facilitate the analysis of these issues and empirical questions more broadly. My current work focuses on nursing homes, which is both an important part of the healthcare sector,[1] and a setting where poor quality can have severe consequences, even death.

My job market paper, "Demand for Quality in the Presence of Information Frictions: Evidence from the Nursing Home Market", focuses on an important reason for why competition has not led to higher levels of nursing home quality: information frictions faced by consumers. This type of information friction is relatively understudied compared to behavioral frictions associated with insurance demand and treatment decisions, due to challenges associated with measuring quality and determining mistakes about quality choice. Using administrative data on the universe of nursing home residents, I estimate quality of nursing homes in California, and use these estimates as inputs into a structural demand model. I find substantial variation in nursing home quality: one standard deviation higher quality is associated with 2 percent lower risk-adjusted 90-day mortality rate. Yet, despite the high stakes for residents, average demand for quality is very low, even after accounting for unobserved supply side constraints arising from selective admissions practices by nursing homes. Patterns of demand heterogeneity highlight information frictions as a major reason for this low demand: residents who were younger, highly educated, free from dementia, and who made their choices after the introduction of the star rating system were more responsive to quality differences. Counterfactual simulations based on estimates of the structural demand model and a competing risks model suggest that eliminating information frictions may reduce deaths by at least 8 to 28 percent, and potentially even more if supply side responses are taken into account.

Motivated by the finding in my job market paper that residents from disadvantaged groups tend to make worse nursing home choices, in an ongoing project "Assessing the Relative Importance and Interactions Between Common Explanations for Racial Segregation: Evidence from Nursing Homes", I study the role that information frictions and other factors play in the perpetuation of racial segregation. In particular, past work has established that a number of factors, including in-group preferences, discrimination, and location contribute to racial segregation in various settings, such as school and neighborhood choice. However, since most of these factors have been studied independently, it is difficult to make precise statements about the relative importance of these explanations and potential interactions between them. In this project, I take advantage of an administrative data set on the universe of nursing home residents to study a number of explanations simultaneously using a two-sided matching model. The estimation results indicate that both in-group preferences and discrimination contribute to the observed pattern of minorities being disproportionately concentrated in lower-quality nursing homes,

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[1] More than half of Americans aged 57–61 today are expected to spend at least one night in a nursing home during their lifetimes (Hurd, Michaud, and Rohwedder, 2017).

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whereas location is unlikely to play a major role. Moreover, lower minority demand for quality also contributes to segregation, with further analysis suggesting that this may be due to information frictions. In simulations, I quantify the relative importance and potential interactions between these factors.

In separate work, "Selective Admissions and Discharges by Nursing Homes", I delve deeper into one of the factors contributing to inequitable outcomes – dynamic strategic incentives of providers. In particular, I provide a unified framework for analyzing two margins of strategic behavior by nursing homes that have been documented in previous studies – selective admission practices (Gandhi 2019; Cheng 2022), and selective discharge practices (Hackmann, Pohl, and Ziebarth 2020). Combining the two margins in a single model allows me to study externalities that new and existing residents impose on each other, and to conduct more realistic counterfactual simulations. To study these issues, I provide a microfoundation for the structural model which yields testable implications and provides intuition on the identification of the model – specifically, nursing homes' admission and discharge policies are identified by differences in the characteristics of residents they admit and discharge respectively during times of high and low occupancy. I plan to estimate the model using an extension of the Gibbs sampler in Agarwal and Somaini (2022) and Cheng (2022), with data augmentation on residents' indirect utility and latent variables that determine nursing homes' admission and discharge decisions. Finally, the model and methods in this project have broader applications for understanding firm behavior under capacity constraints (e.g., landlords' decisions about whether to accept and evict prospective and existing tenants respectively), or other forms of constraints (e.g., for-profit hospices facing payment caps).

I am also interested in various applied econometrics topics, which are typically motivated by issues I observe in empirical studies. One example is my paper on the estimation of regression discontinuity designs with multiple running variables (MRDD), "Regression Discontinuity with Multiple Running Variables". The increased availability of rich administrative data sets has led to increased opportunities for researchers to estimate causal effects of programs where eligibility is determined by multiple running variables.[2] However, most applied research on such programs analyze each running variable separately, which does not make full use of the exogenous variation available in the data. Hence, in this paper I develop an MRDD estimator that provides efficiency gains over this common empirical approach, and which also allows the researcher to estimate heterogeneous treatment effects over a subset of the running variable space. In addition, I derive Bayesian confidence intervals for my estimator, confirm their validity in simulations, and demonstrate the performance of my estimator in an empirical application.

In another applied econometrics project, I extend the methods in Altonji, Elder, and Taber (2005), and Oster (2019) for bounding omitted variables bias (OVB) in OLS to discrete choice settings. I derive bounds for the bias based on movements in the coefficient of interest before and after the inclusion of additional controls, combined with an assumption about the importance of the omitted variable relative to the importance of the additional controls for consumer utility. In

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[2] For example, Medicaid eligibility is determined based on income and asset thresholds, and eligibility for financial aid programs are often determined based on income and academic performance thresholds.

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simulations, I show that this bounding procedure is robust to various alternative distributional assumptions. Finally, I conduct an empirical application studying whether the low estimates of nursing home residents' demand for quality in my job market paper can be explained by OVB. The bounds derived in this project indicate that the gap between my demand estimates and demand estimates in the literature from other healthcare settings can only be explained by OVB if (i) residents value the omitted variable positively, but the omitted variable is negatively correlated with my main survival-based quality measure, and (ii) residents value the omitted variable at least 10 times more than they value publicly observable nursing home characteristics.

Looking forward, my research agenda over the next three to five years will continue to focus on issues related to healthcare. For example, I have preliminary work that seeks to understand search costs and choice set formation by residents who are looking for a nursing home, leveraging idiosyncratic features of the Nursing Home Compare website that give rise to a difference-in-difference regression discontinuity design. In addition, I have plans to study the welfare effects of distortions in the firm size distribution induced by size-contingent criteria that many nursing home regulations are based on. Given the importance of the healthcare sector in the US economy as well as its increasing relevance in policy debates, I am excited and eager to contribute to our knowledge in these areas by pursuing this research agenda in the coming years.

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