

## Research Statement

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My research interests combine econometric theory with industrial organization. More specifically, my primary research area concerns firm productivity heterogeneity. Standard models in this area assume a production function that is common across firms and separability of unobserved productivity from inputs. The analysis of firm specific production functions is complicated due to the endogeneity bias from productivity. It is important to model production functions this way because firms use different technology. Ignoring heterogeneity biases the estimates of the production function and productivity. I address this issue in a paper coauthored with my advisor, which combines quantile regression techniques with a correction for endogeneity bias. We explore the implications of heterogeneous production function estimates, which can vary over the conditional distribution of output.

The separability of productivity and inputs remains an econometric challenge due to data limitations at the firm-level. Current methodologies rely on rich datasets with information on wages and other prices, which are often not available to researchers. In addition, there are still significant sources of unobserved heterogeneity, which could contaminate productivity measurements. My job market paper uncovers these productivity effects, while also considering unobservables and endogeneity bias. I apply non-parametric identification techniques and propose a flexible estimator that captures firm heterogeneity. My paper contributes to the growing literature of multi-factor productivity measurements, while addressing the significant econometric concerns surrounding them.

My future research agenda includes multiple extensions of my coauthored paper and job market paper. For example, my coauthored paper can be adapted to study production risk and efficiency frontiers. I am also interested in extending the model to alternative production function specifications, as well as unconditional quantile estimators, which may be more suited for studying productivity heterogeneity. My job market paper provides interesting directions for future research, such as the implication for markup estimates as well as industry productivity dynamics and their spill-over effects. The last topic is currently being considered by using a competitor-level network model. My secondary research area is the structural estimation of auctions. I am specifically interested in models with unobserved heterogeneity and auctions with multiple equilibria. Unobserved heterogeneity in auction models occurs when the bidder has more information about the auction characteristics than the econometrician. Therefore, we cannot recover the true valuation a bidder has on an object, since it is partially determined by these unobservables. Valuation functions are crucial for evaluating auction outcomes, such as seller revenue and efficiency. I am interested in applying econometric techniques that can estimate informative bounds on bidder valuations without imposing strict structural assumptions. These econometric techniques can also be applied to auctions with multiple equilibria. In this regard, I am interested in defining bounds on valuations when I observe how bidders interact over repeated auction rounds using revealed preference approaches.