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Research Statement

My research combines economic theory and econometrics to enhance the estimation of key structural parameters and improve the robustness of counterfactuals such as to better inform the design of policies, with a particular emphasis on policies that impact children.

Identification and Estimation of Production Functions Production functions arise in many fields of demand analysis such as price search, general equilibrium, and human capital. [3] shows that consumer preferences are necessary and sufficient to nonparametrically identify production functions in a variety of consumer models through cross-equation restrictions implied by first-order conditions. Thus, empirical researchers may select the best set of assumptions for identification depending on the application. In a model of price search whereby consumers can decrease their own prices paid by searching for favorable prices, implicit search costs (e.g., opportunity cost of time) are estimated from weak assumptions on the price function informed by data on prices paid and search intensity. Another demand setting where production is of interest is household production. [2] considers a collective model with children where the impacts of parental inputs on children welfare is captured through a household production function. The study first addresses the identification problem that arises when the output of production, children welfare, is unobservable. A partial identification strategy is then proposed and used to show how parenting skills vary with household characteristics. By leaving children welfare as an unobservable and allowing for heterogeneity in the production technology, the framework facilitates the evaluation of policies directed at families.

Nonparametric Consumer Analysis [1] provides a novel nonparametric revealed preference characterization of the exponential discounting model that allows to investigate its sources of departures. Precisely, it makes it possible to differentiate between deviations from static utility maximization and time consistency as well as to assess the severity of the departures. [5] provides a dynamic random utility model that allows for unrestricted time correlation and cross-section heterogeneity in preferences. The framework unifies the deterministic revealed preference approach with the nonparametric random utility approach. By exploiting the longitudinal information encoded in choices, [5] provides a more informative test of stochastic utility maximization while relaxing preference stability inherent to revealed preference analysis. [4] provides a novel method to test whether decision makers belong to specific classes of preferences through preference learnability results. In particular, the approach gives a natural way to analyze the statistical power of revealed preference tests.

Future work I am currently working on computational tools that draws from recent advances in machine learning such as the Adversarial Method of Moments to speed up the implementation of an estimation method for partially identified models. This project complements my areas of research as nonparametric methods are often computationally intensive and benefit from computational innovations. In joint work, a collective model of exponential discounting within a random utility framework is considered. The project aims to better understand sources of time inconsistent behavior by explicitly accounting

for individual heterogeneity and changes in preferences. In another joint work, a new method is developed to deliver approximations for average and distributional welfare estimates robust to unobserved preference heterogeneity. These projects are in line with the implicit emphasis of my research on the importance of heterogeneity for understanding observed behavior and better informing policy-making

Bibliography

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