Application for NBER Economics of Digitization Tutorial

Stephan Sagl

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1 Contact Information

Stephan Sagl
sus112@psu.edu
(814) 699 - 2019
Citizenship: Austria

2 Graduate Studies

I am a 3rd year PhD student at Pennsylvania State University, where I started my PhD in Fall 2018. During my first year, I took the standard 2 semester sequences in microeconomic, macroeconomic and econometric theory. Additionally, I also took a one semester course in mathematics for economists in Fall 2018.

In my second year, I took different field courses. In both semesters, I took courses in Industrial Organization, Econometrics and International Trade. The Industrial Organization sequence covered topics like production function estimation, demand estimation, dynamic discrete choice problems, auctions and dynamic games. The Econometrics sequence covered topics like extremum estimators, nonparametric methods, causal inference and program evaluation with an emphasis on identification. For International Trade, we covered the important theoretical trade models. We also discussed topics in open economy macroeconomics. For example, we covered dynamic-general-equilibrium models in the open economy with a special focus on computation and performing counterfactual analysis.

I also took a two semester sequence on empirical methods. The goal of the course was to familiarize us with state of the art programming languages needed to solve economic models numerically and program econometric methods. In course of the sequence, I replicated a recent paper of Charles Murry (2017), which consists in principle of a standard micro BLP demand side.

3 Research Interest

My current interest are on topics in industrial organization and antitrust. I am currently studying the retail market for new cars in Texas and focus on the increasing retail concentration in this market. Over the last decades, large national chains like Autonation have acquired many small dealerships, often in transactions under the FTCs premerger notification threshold. Using my demand and supply side estimates, I find that retail consolidation raised the average sales price of a new car by approximately $500, corresponding to at least $375 million of consumer surplus loss per year in Texas.

In another paper I am working on at the moment, I study how the estimation of the popular discrete choice model of demand can be estimated efficiently when both micro and macro data is available to researchers. Together with my coauthors, we propose a likelihood based alternative estimator to the popular BLP GMM based approach and show that our estimator is more efficient, and easier to implement.

4 Work in Progress

- *The effect of retail consolidation in the US Auto Industry*

  I develop a structural discrete choice model of demand and supply of the retail market for new cars in Texas to study the effect of retail consolidation on prices and consumer welfare. To quantify the effect of increased ownership concentration, I build a unique data set allowing me to track dealership acquisitions and ownership changes in Texas over 8 years. Using my demand and supply side estimates, I find that retail consolidation raised the average sales price of a new car by approximately $500, corresponding to at least $375 million of consumer surplus loss per year in Texas. Furthermore, I demonstrate that the prevalent approach of ignoring the complex ownership structure of dealerships leads to marginal cost estimates that are approximately 10% higher compared to when ownership is appropriately accounted for in my application.

- *Efficient Estimation of Random Coefficients Demand Models using Product and Consumer Datasets* (with Paul Grieco, Charles Murry, and Joris Pinkse)

  We provide a likelihood based approach to estimating a mixed logit demand system using aggregate and consumer-level data and allowing for price endogeneity. We propose a novel estimator for BLP models that incorporates both market- and consumer-level data using the same conditions as micro BLP estimators. We show that our estimator makes efficient use of the available data to estimate substitution patterns while avoiding the need to select moments from the micro data.

5 Committee Members

- Paul Grieco, Associate Professor of Economics, Pennsylvania State University
- Joris Pinkse, Professor of Economics, Pennsylvania State University