

Daniel Lopez Gomez

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Citizenship and Visa Status

Colombia (F1 Visa)

Education

Ph.D. Economics, The Ohio State University, 2022 (expected)

Dissertation: "The Application and Performance of High-Dimensional Data Methods in Industrial Organizations Type Discrete Choice Models."

Committee: Jason Blevins (Chair), Robert de Jong, Adam Dearing

M.A. Economics, The Ohio State University, 2018

B.S. Industrial Engineering, University of Miami, *Magna Cum Laude*, 2017

Research and Teaching Fields

Research fields: High-Dimensional Econometrics, Empirical Industrial Organizations

Teaching fields: Econometrics, Applied Statistics, Data Analysis

Publications

Lopez Gomez, Daniel, and Parmeter, Christopher. (2020). "Smooth Coefficient Estimation of Stochastic Frontier Models." *Economics Letters* 193, 109340.

This paper proposes two alternative estimators for the semiparametric smooth coefficient stochastic frontier model which do not require parametric specification of the parameters of the distribution of inefficiency to identify all of the model primitives. These new estimators offer avenues for testing for a correct specification. A small Monte Carlo simulation study reveals that the new methods perform similarly when the correct specification is present and that the existing smooth coefficient estimator can perform poorly when it is incorrectly specified.

Research Papers

"Assessing the Performance of the BLP-2LASSO in Estimating High Dimensional Aggregate Discrete Choice Models with Random Coefficients." **(Job Market Paper)**

The random coefficients logit model introduced by Berry, Levinsohn, and Pakes (BLP, 1995) provides a framework for the study of heterogeneous consumer preferences of differentiated products when only aggregate data is available. Modern data sets are incredibly rich in the number of features available to describe a product, often leading the researcher to make an ad hoc call about what belongs in the model and what does not. In an effort to provide a more rigorous approach to this exercise, Gillen, Montero, Moon, and Shum (2019) introduced the BLP-2LASSO, a novel penalized estimation algorithm that augments the classical BLP by incorporating a data-driven selection of relevant control variables out of a high dimensional set of available ones. In this paper, I build upon their work by first proposing a modification to the BLP-2LASSO in order to account for multiple pre-determined random coefficients entering the model. I follow this up by performing a rigorous look into the performance of the now modified BLP-2LASSO. Through a Monte Carlo Study, I confirm that the modified BLP-2LASSO algorithm has a desirable performance in terms of model selection, parameter estimation as well as post-estimation exercises, a task of extreme relevance in empirical demand estimation work.

“Many Moment Inequalities in Multiple Equilibria Market Entry Games.”

This paper studies the partial identification of static market entry games with multiple equilibria that are characterized by *many* moment inequalities, allowing the number of moment inequalities p to be much larger than the sample size n . I follow the market structure model of Ciliberto and Tamer (2009), however, employing the Galichon and Henry (2011) bounds which although expected to perform better cause problems as they generate a much higher number of moment inequalities than the Ciliberto and Tamer bounds. I compare the performance of two different *many* moment inequalities testing methodologies, the original two-stage inference procedure proposed by Chernozhukov, Chetverikov, and Hong (Working Paper), along with the alternative method proposed by Bugni, Caner, Kock, and Lahiri (2020) which introduces a new inequality selection first stage based on the Lasso. Montecarlo simulations show that the Galichon and Henry bounds dominate the Ciliberto and Tamer bounds in detecting deviations from the true parameter of interest, while the Lasso-based first stage consistently improves the identification power as well.

Research in Progress

“Using BLP-2LASSO to Select Relevant Random Coefficients in High Dimensional Aggregate Discrete Choice Models.”

Research Experience and Other Employment

Summer 2021 Airbnb, Data Scientist
2016-2017 University of Miami, Research Assistant to Professor Christopher Parmeter

Honors, Scholarships, and Fellowships

2020-2022 L. Edwin Smart Student Teaching Excellence Award, The Ohio State University
2017-2018 University Fellowship, The Ohio State University
2013-2017 President’s Scholarship, University of Miami

Teaching Experience

Spring, Fall 2020 Econ 3400: Analysis and Display of Data, The Ohio State University
Spring, Fall 2021 Independent instructor with full responsibility (class format, design of content, creation of assessments, and grading). Two time recipient of the L. Edwin Smart award for student teaching excellence, have only ever been evaluated by students as excellent or good with an overall rating of 4.7/5 and a last semester rating of 4.86/5.

Skills

Python, R, SQL, Presto, Hive, Superset, and MATLAB.

References

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