Kirill Ponomarev

Contact Information

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References

Rosa Matzkin	matzkin@econ.ucla.edu
Andres Santos	andres@econ.ucla.edu
Denis Chetverikov	chetverikovdenis@gmail.com

Education

Ph.D. in Economics, University of California, Los Angeles, 2016−present (expected June 2022)
Advisors: Rosa Matzkin, Andres Santos

B.S. in Economics, *summa cum laude*, Higher School of Economics, Moscow, Russia, 2012−2016
Major: Mathematical Economics

Fields

Primary: Econometrics

Secondary: Industrial Organization, Economic Theory

Research

Working Papers:

- **Efficient Estimation of Directionally Differentiable Functionals (Job Market Paper)**
  This paper studies estimation of parameters of the form $\phi(\theta_0)$, where ϕ is a known directionally differentiable function, and θ_0 is an estimable feature of the observed distribution of the data. Such parameters are abundant in econometric models and typically take the form of maxima or minima of some estimable objects. Examples include bounds on the average treatment effects in non-experimental settings, identified sets for the coefficients in regression models with interval-valued data, bounds on the distribution of wages accounting for selection into employment, and many others. In this paper, I show that the efficient (Locally Asymptotically Minimax) estimators for such parameters take the form $\phi(\hat{\theta}_n + \hat{v}_{1,n}) + \hat{v}_{2,n}$, where $\hat{\theta}_n$ is the efficient estimator for θ_0, and $\hat{v}_{1,n}, \hat{v}_{2,n}$ are suitable adjustment terms. I show that the optimal adjustment terms depend on the chosen loss function and develop a general procedure to compute them from the data. A simulation study suggests that the proposed estimator may have lower finite-sample bias and variance than the existing alternatives. I apply the developed theory to construct efficient estimators for the bounds on the distribution of valuations and the optimal reserve price in English auctions with independent private values.

- **Peer Effects in Endogenous Networks with Positive Spillovers**
  This paper studies a class of network games in which each player chooses both an activity level and a set of connections, and the activity levels exhibit positive spillovers. Examples include peer

effects in education, labor market participation, criminal activity, and R&D collaboration. The contribution of this paper is twofold. First, I provide a detailed characterization of the equilibrium (Pairwise Nash Stable) networks, activity levels, and welfare distribution. Importantly, I allow for heterogeneous players with different types, defined by ex-ante ability level and linking costs, and do not impose strong separability restrictions on payoffs. I show that the equilibrium networks consist of several interlinked components with simple structures: each component contains central and peripheral players of the same type; central players of different types may be interlinked; within each type, central players exhibit higher activity levels and receive higher payoffs. The resulting network structures closely resemble the asymmetric and weakly connected networks observed in the data. Second, I discuss the implications of the above results for empirical analysis and construct identified sets for the payoff parameters that remain tractable in networks of moderate size. A simulation study suggests that the proposed identified sets can be sufficiently informative.

– **Selecting Inequalities for Identification in Finite Games**

The empirical analysis of finite games (i.e., games with a finite number of possible outcomes) is complicated by the multiplicity of equilibria. In such settings, the underlying structural parameters of the game are typically partially identified. In the recent literature, sharp identified sets for such parameters have been characterized by moment inequalities of a special kind. However, even in games with a relatively small number of players, checking all of the inequalities may be computationally hard or infeasible. This paper develops a more practical characterization by identifying the smallest subset of the inequalities that guarantees sharpness. This subset is entirely determined by the structure of the game (i.e., payoff functions and the notion of equilibrium) and can be efficiently computed using graph propagation techniques. In a class of finite games, the proposed characterization can substantially simplify identification, estimation, and inference. In the settings where checking even the smallest set of inequalities is computationally infeasible, the result can inform inequality selection and help avoid unnecessary information losses.

Publications (prior to Ph.D.)

– "From Correlation to Causation: Econometric vs Computer Science Approaches"
HSE Economic Journal, 19(3) (2015) pp. 457-496 (in Russian, with N. Arefiev and S. Kuznetsov)

Teaching Experience

Instructor:

– Statistics for Economists (undergraduate), UCLA 2019−2021

Teaching Assistant:

– Introduction to Econometrics (first-year Ph.D. sequence), UCLA 2018−2020

– Summer Preparation Course (masters) Anderson School of Management, UCLA 2019−2020

– Statistics for Economists; Introduction to Econometrics (undergraduate), UCLA 2017−2020

– Linear Algebra; Probability and Statistics; Econometrics (undergraduate), HSE 2013−2016

Fellowships and Awards

Graduate Dissertation Year Fellowship, UCLA 2021−2022

Best Proseminar Paper Award, Department of Economics, UCLA	2020
TA Awards for Outstanding Performance, Department of Economics, UCLA	2018−2021
Graduate Summer Research Mentorship Award, UCLA	2017
Department of Economics Fellowship, UCLA	2016−2017

Seminars and Conferences

2021 University of California Los Angeles, Bristol Econometric Study Group

Skills

Software:	R, Julia, Python, Stata, Matlab, Git
Languages:	English (fluent), Russian (native)