Hirotaka Ito

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Education

PhD	**Universitat Pompeu Fabra**, Economics Advisor: Professor Geert Mesters	2022–2027 (expected)
MRes	**Universitat Pompeu Fabra**, Economics	2021–2022
MS	**Barcelona School of Economics**, Economics	2020–2021

Research Visits

Brown University, Visiting Research Fellow — 2024
Host: Professor Toru Kitagawa

Research Interests

Primary field: Econometric theory

Secondary field: Applied econometrics

Topics: Partial identification, Bayesian inference, Nonparametric inference, Statistical decision theory

Job Market Paper

Asymptotic Minimax Optimality of Set Estimation

Abstract: Non-convex identified sets of parameters arise naturally in econometric models through nonlinear relationships and structural identifying restrictions. Yet existing efficiency theory for set estimation relies on convexity, leaving open the fundamental question of how accurately these sets can be estimated from data. This paper develops a general theory of asymptotically efficient set estimation that accommodates a wider class of identified sets. I first derive the local asymptotic minimax efficiency bound under risk functions based on the Hausdorff metric. A key ingredient in the analysis is a limit experiment framework tailored to the local geometry of the identified set. I then establish the limiting distribution of a set estimator based on a criterion function. Unlike existing approaches that rely on support functions, the analysis preserves the full geometry of non-convex sets. The limiting distribution motivates a bootstrap-based confidence set, whose finite-sample performance is examined through Monte Carlo simulations. An application to optimal top income taxation with behavioral agents illustrates the empirical relevance of my framework.

Working Papers

Uniform and Locally Adaptive Quasi-Bayesian Inference for Conditional Moment Models

Abstract: This paper proposes a quasi-Bayesian method to construct confidence bands for a nonparametric function in conditional moment models. Importantly, we allow the true function to possess inhomogeneous smoothness over its domain, reflecting the locally varying complexity of the function of interest. Our confidence bands are constructed from quasi-Bayes posteriors with sieve GMM criterion functions and spike-and-slab priors. We show that the quasi-Bayes posteriors contract to the true function in the supremum norm at a rate that adapts to the unknown local smoothness. Based on this result, we derive a nonparametric Bernstein–von Mises-type result for the quasi-Bayes

posteriors, in which the well-known covariance mismatch is avoided through the use of GMM criterion functions. The resulting confidence bands are shown to achieve exact asymptotic coverage, while their widths, measured in the supremum norm, shrink at a nearly locally adaptive rate.

Teaching Experience

Barcelona School of Economics

Advanced Econometric Methods I	Graduate (PhD)	TA	2022, 2023
Master's Thesis	Graduate (Master)	TA	2022

Universitat Pompeu Fabra

Econometrics 1	Undergraduate	TA	2024, 2026
Econometrics 2	Undergraduate	TA	2022, 2023
Econometrics 3	Undergraduate	TA	2026
Introduction to Economics	Undergraduate	TA	2024

Conferences and Seminars

2024	BSE Summer Forum: Macroeconometrics and Policy Evaluation (Poster) Brown (Econometrics coffee, internal)
2023	BSE Summer Forum: Macroeconometrics and Policy Evaluation (Poster) UPF (internal)
2022	BSE Summer Forum: Advances in Econometrics (Poster) UPF (internal)

Awards and Scholarships

Barcelona School of Economics: Tuition Waiver 2020-2021

Skills

Languages: English (fluent), Japanese (native)

Programming: R, MATLAB, Python, Stata

References

Geert Mesters (advisor)
Economic Research Advisor
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Adam Lee
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