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Last updated: November 5, 2023

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References

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Education

2019 – 2024 (*expected*)	**PhD Candidate in Economics and Finance** Universitat Pompeu Fabra and Barcelona School of Economics *Provisional thesis title*: Essays on Semiparametric and Nonparametric Methods of Analyzing Unobserved Heterogeneity *Advisors*: Christian Brownlees, Kirill Evdokimov
2018 – 2019	**Master of Research (MRes) in Economics and Finance** Universitat Pompeu Fabra
2017 – 2018	**Master of Science (MSc) in Economics** Barcelona School of Economics

Research Interests

- Econometrics: econometrics of heterogeneity, panel data econometrics
- Mathematical statistics

Job Market Paper

Estimating The Moments and the Distribution of Heterogeneous Marginal Effects Using Panel Data

Abstract: This paper considers estimation of the moments and the distribution of heterogeneous marginal effects using panel data. We impose no restrictions on the form or dimension of time-invariant heterogeneity. In this setting, we identify the mean, variance, higher-order moments, and the distribution of marginal effects using two periods of data. We propose simple nonparametric estimators for the moments and the distribution, and study their asymptotic properties. The moment estimators are consistent and asymptotically normal. For the distribution estimator, we establish consistency by developing novel results that connect the convergence of distributions to the convergence of their moments. We illustrate the methodology with an application to Engel curves for food at home. Our analysis of variance, higher moments, and the distribution of marginal effects reveals significant heterogeneity. In particular, some households have upward-sloping sections in their Engel curves for lower values of expenditures. In contrast, the average Engel curve is downward-sloping for all expenditure values, in line with the previous literature.

Working Papers

- **Unit Averaging For Heterogeneous Panels** (with C. Brownlees)

  Revise and Resubmit at Journal of Business and Economic Statistics

  In this work we introduce a unit averaging procedure to efficiently recover unit specific parameters in a heterogeneous panel. The procedure consists in estimating the parameter of a given unit using a weighted average of all the unit-specific parameter estimators in the panel. The weights of the average are determined by minimizing an MSE criterion that we derive. We analyze the properties of the minimum MSE unit averaging estimator in a local heterogeneity framework inspired by the literature on frequentist model averaging. The analysis of the estimator covers both the cases in which the cross-sectional dimension of the panel is fixed and large. In both cases, we obtain the local asymptotic distribution of the minimum MSE unit averaging estimators and of the associated weights. A GDP nowcasting application for a panel of European countries showcases the benefits of the procedure.

- **Inference on Extreme Quantiles of Unobserved Individual Heterogeneity**

  Submitted

  Abstract: We develop a methodology for conducting inference on extreme quantiles of unobserved individual heterogeneity (heterogeneous coefficients, heterogeneous treatment effects, etc.) in a panel data or meta-analysis setting. Inference in such settings is challenging: only noisy estimates of unobserved heterogeneity are available, and approximations based on the central limit theorem work poorly for extreme quantiles. For this situation, under weak assumptions we derive an extreme value theorem and an intermediate order theorem for noisy estimates and appropriate rate and moment conditions. Both theorems are then used to construct confidence intervals for extremal quantiles. The intervals are simple to construct and require no optimization. Inference based on the intermediate order theorem involves a novel self-normalized intermediate order theorem. In simulations, our extremal confidence intervals have favorable coverage properties in the tail. Our methodology is illustrated with an application to firm productivity in denser and less dense areas.

Works in Progress

- **Deconvolution Estimation and Inference on the Distribution of Heterogeneous Marginal Effects Using Panel Data**
- **Distribution Equality Tests With Noisy Observations** (with A. Sy)
- **Loss-Driven Confidence Sets**

Teaching Experience

2023	Python for Data Science	Graduate/BSE
2018-2022	TA: Advanced Econometric Methods I	Graduate/BSE
2018-2021	TA: Advanced Econometric Methods II	Graduate/BSE
2022	TA: Forecasting Techniques	Undergraduate/UPF
2021	TA: Econometrics 2	Undergraduate/UPF
2018-2021	TA: Probability and Statistics	Undergraduate/UPF
2019	TA: Data Science BSE Summer School (Text Analysis with R)	Graduate/BSE
2018	TA: Econometrics 1	Undergraduate/UPF

Conference Participation

2023 Zaragoza Workshop in Time Series Econometrics (Zaragoza, Spain), 10th Italian Congress of Econometrics and Empirical Economics (Cagliari, Italy), 3rd Catalan Economic Society Conference (Barcelona, Spain), BSE Summer Forum (Barcelona, Spain), IAAE Annual Conference (Oslo, Norway), 28th International Panel Data Conference (Amsterdam, The Netherlands), European Summer Meeting of the Econometric Society-Meeting of the European Economic Association (Barcelona, Spain), 2023 SMYE (Turin, Italy)

2022 Conference of the Royal Economic Society (virtual), 27th International Panel Data Conference (Bertinoro, Italy), BSE Summer Forum (Barcelona, Spain)

2021 Symposium of the Spanish Economic Association (Barcelona, Spain), European Winter Meeting of the Econometric Society (virtual), BGSE Jamboree (Barcelona, Spain), ERFIN (Warsaw, Poland), 9th WEEE (Bertinoro, Italy), 26th International Panel Data Conference (Virtual), 7th RCEA Time Series Workshop (Rimini, Italy)

Skills

- Languages – English (C2), Russian (C2), Spanish (C1), Catalan (A2)
- Programming – MATLAB, R, Python, LaTeX, T-SQL and PostgreSQL, Stata