FACUNDO ARGAÑARAZ

WEBPAGE: argafacu.github.io
EMAIL: farganar@eco.uc3m.es
OFFICE: F305, SciencesPo, 28 Rue des Saints-Pères, 75007 Paris

Employment

Sciences Po, Department of Economics
Assistant Professor, September 2025-.

Education

Universidad Carlos III de Madrid
Ph.D. in Economics (Cum laude), 2021-2025.
The University of Chicago Booth School of Business
Academic visit, Spring 2024.
Universidad Carlos III de Madrid
Master's Degree in Economic Analysis (Top GPA in cohort), 2019-2021.
Universidad Nacional de Tucumán
Bachelor's Degree in Economics (Top GPA in cohort), 2013-2018.

Fields

Econometrics; Causal Inference; Semiparametrics; Machine Learning

References

Professor Juan Carlos Escanciano (Ph.D. supervisor)
Universidad Carlos III de Madrid
jescanci@eco.uc3m.es

Professor Jesús Gonzalo
Universidad Carlos III de Madrid
jesus.gonzalo@uc3m.es

Professor Christian Hansen
University of Chicago
chansen1@chicagobooth.edu

Job Market Paper

Automatic Debiased Machine Learning of Structural Parameters with General Conditional Moments (2024)

Abstract: This paper proposes a method for conducting inference on finite-dimensional parameters in models defined by a finite number of conditional moment restrictions (CMRs), with possibly different conditioning variables and endogenous regressors. CMRs are allowed to depend on non-parametric components, which might be flexibly modeled using Machine Learning tools, and non-linearly on finite-dimensional parameters. Inference is based on constructing locally robust/orthogonal/debiased moments, in a data-driven or automatic way, extending these to accommodate CMRs. Those moments are less affected by regularization bias, which is relevant to machine learning first steps and typically invalidates standard inference. The key step in this construction is the estimation of Orthogonal Instrumental Variables (OR-IVs)—"residualized" functions of the conditioning variables, which are then combined to obtain a debiased moment. Our strategy exploits the CMRs implied by the model in a general way and can thus be applied to a wide range of settings, where the construction of orthogonal moments has remained unexplored, including highly non-linear and complex settings with CMRs, prominent in economics. We argue that computing OR-IVs necessarily requires solving potentially complicated functional equations, which depend on unknown terms. However, by imposing an approximate sparsity condition, our method automatically finds the solutions to those equations using a Lasso-type program and can then be implemented straightforwardly. Based on this, we introduce a GMM estimator of finite-dimensional parameters in a two-step framework. We derive theoretical guarantees for our construction of orthogonal moments and show $\sqrt{n}$-consistency and asymptotic normality of the introduced estimator. Our Monte Carlo experiments and an empirical application on estimating firm-level production functions and productivity measures highlight the importance of relying on inference methods like the one proposed.

Teaching

Teaching Assistant - Applied Economics (Master in Economic Analysis), 2021-2024. Teaching Excellent Acknowledgement.
Teaching Assistant - Principles of Economics, 2023.
Teaching Assistant - Econometric Techniques, 2021-2022. Teaching Excellent Acknowledgement.
Teaching Assistant - Econometrics, 2021 and 2025.
Teaching Assistant - Economics I (Microeconomics), 2020.

Working Papers

Debiased Machine Learning for Unobserved Heterogeneity: High-Dimensional Panels and Measurement Error Models (2025), joint with Juan Carlos Escanciano.
Randomly Assigned First Differences? (2025), joint with Clément de Chaisemartin and Ziteng Lei.
Machine Learning Debiasing with Conditional Moment Restrictions: An Application to LATE (2024), joint with Juan Carlos Escanciano.
On the Existence and Information of Orthogonal Moments (2023), joint with Juan Carlos Escanciano.

Awards & Scholarships

Special Prize for being the student with the highest GPA of the Master in Economic Analysis in the academic year 2020-2021. Universidad Carlos III de Madrid, November 2021.
ANCE Award 2018 to the best undergraduate student of the School of Economics at the National University of Tucuman. Academia Nacional de Ciencias Económicas Argentina, December 2019.
First Place - Prize to the Best Student Researcher in Economics Sciences - Argentina 2018. Universidad Nacional del Litoral - Banco Credicoop Argentina, October 2018.
Flag bearer, a distinction granted to outstanding students for their excellent academic performance. Universidad Nacional de Tucumán, May 2017.
Scholarship "Friends of Fulbright". I took courses on English, U.S. Culture, and Economics at the University of Central Arkansas. Fulbright Commission - U.S. Embassy - Ministerio de Educación de Argentina, January 2017 - February 2017.
Stimulus Fellowship for Scientific Vocations. This is a highly prestigious research scholarship in Argentina, which was obtained for my paper "Productivity vs. Management: What Matters in the Export Process?" Consejo Interuniversitario Nacional Argentina, December 2016.

Other Academic/Professional Activities

Reviewer. *Journal of Business & Economic Statistics* (2023-.), Quantitative Economics (2025-.).
Co-organizer of the Paris Econometrics Seminar Series (joint seminar organized by CREST, PSE, and Sciences Po), 2025-.
Participation in the "Econometric Games" representing Universidad Carlos III de Madrid, 2021-2022.

Languages

Spanish (Native)
English (Fluent)

Software

RStudio
Stata
Python