

Juan C. Yamin Silva

CONTACT INFORMATION

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RESEARCH OVERVIEW

Ph.D. candidate in Economics at Brown University working in causal inference, statistical decision theory, empirical Bayes, and experimental design. My current research develops methods for decision-making under uncertainty, with projects on poverty targeting with imperfect information, nonparametric empirical Bayes methods for two-way effects models, and pilot-informed treatment assignment in two-wave experiments.

EDUCATION

Brown University, Providence, Rhode Island

Doctor of Philosophy (Ph.D.) in Economics

Expected 05/2026

- Research fields: Causal Inference, Statistical Decision Theory, Experimental Design
- Teaching Assistant:
 - *Applied Econometrics I* (Ph.D. level) - Toru Kitagawa
 - *Applied Econometrics II* (Ph.D. level) - Peter Hull
 - *Using Big Data to Solve Economic and Social Problems* (Undergraduate) - John Friedman
- Relevant coursework: Applied Econometrics, Bayesian and Structural Econometrics, Deep Learning, Econometric Theory, and Design of Experiments

Master of Arts (M.A.) in Economics

05/2022

Universidad de los Andes, Bogotá, Colombia

Master of Science (M.Sc.) in Economics

03/2019

- Teaching Assistant:
 - *Political Underpinnings of Prosperity and Poverty* (Graduate level) - James Robinson
 - *Advanced Econometrics* (Graduate level) - Raquel Bernal
 - *Thinking Problems* (Undergraduate) - Tomas Rodriguez

Bachelor of Science (B.Sc.) in Economics

10/2017

WORKING PAPERS

- **Poverty Targeting with Imperfect Information.** [Working Paper \(ArXiv\)](#).
- **Two-Way Effects Models: a Nonparametric Empirical Bayes Approach.** With Cole Davis.
- **When and How to Pilot: Design Rules for Two-Wave Experiments.**
- **Birds of a Feather Collude Together: Subnational Alignment and Corruption.** With Leopoldo Fergusson, Arturo Harker, and Carlos Molina. Revise and Resubmit, *American Political Science Review*. [Working Paper](#).

CONFERENCES AND PRESENTATIONS

- 2025 World Congress of the Econometric Society, Seoul, South Korea
- 2025 Advances with Field Experiments (AFE) Conference, Chicago, Illinois

RESEARCH EXPERIENCE

Amazon, Delivery Experience (DEX Team), Bellevue, Washington

Economist Intern, mentored by Jake Torcasso and Nate Tefft

05/2025 to 08/2025

- Evaluated the spillover effects of a U.S. delivery speed program using granular geographic data and difference-in-differences designs that allow for geographic spillovers
- Developed an empirical strategy incorporating shift-share instrumental variables to isolate variation in program exposure and strengthen causal identification
- Quantified both direct and spillover effects to recover the program's total impact on delivery experience, improving internal measurement of the program's true customer benefit

Brown University, Department of Economics, Providence, Rhode Island

Research Assistant for Professor Soonwoo Kwon

06/2023 to Present

- Contributed to simulation analyses for “Optimal Shrinkage Estimation of Fixed Effects in Linear Panel Data Models”
 - Designed diverse data-generating processes to compare the mean squared error of alternative estimators under varying assumptions
 - Adapted and coded a version of nonparametric empirical Bayes teacher value-added estimators based on Gu, Gilraine, and McMillan
- Led the empirical implementation for “Inference in Regression Discontinuity Designs under Monotonicity”
 - Conducted simulations using multiple datasets, including Lee (2008) and Matsudaira, to evaluate confidence intervals under different polynomial specifications and assumptions
 - Generated and interpreted simulation results on coverage, interval length, and bandwidth choice, and visualized empirical findings to support methodological refinements
- Assisted with “Bias-Aware Inference in Regularized Regression Models”
 - Identified and implemented empirical applications to illustrate the practical relevance of the methodology
 - Adapted and extended simulation exercises to new data-generating processes to assess robustness and flexibility

Universidad de los Andes, Department of Economics, Bogotá, Colombia

Research Assistant for Professors Leopoldo Fergusson and James Robinson

08/2017 to 07/2021

- Contributed to a project by Daron Acemoglu, Leopoldo Fergusson, and Simon Johnson on the effects of population growth on social conflict, published in the *Review of Economic Studies*
 - Cleaned, matched, merged, and prepared 30+ datasets on democracy, socioeconomic development, violence, and international conflict using sources such as Correlates of War, UCDP/PRIO, and Maddison
 - Conducted econometric analyses to study mechanisms linking population growth and conflict, including heterogeneous effects and alternative outcome definitions
 - Created a new empirical section using twentieth-century Mexican data, malaria suitability as an instrument for population growth, and violent protests coded from news stories
 - Presented and synthesized empirical findings for coauthors and assisted with drafting portions of the paper
- Coauthored research on the effect of political alignment between local and regional politicians on corruption
 - Validated RDD assumptions through falsification tests, covariate balance, and the McCrary (2008) test
 - Studied heterogeneous effects by municipal autonomy, institutional weakness, and school governance, and examined robustness to covariates and donut-hole specifications
 - Web scraped qualifications and public records for candidates, school principals, teachers, mayors, and governors
 - Assisted with drafting and presented the paper at the LACEA annual meeting in Medellín, Colombia
- Drafted the second edition of an undergraduate fiscal policy textbook with Leopoldo Fergusson and Gustavo Suárez

- Reviewed 30+ theoretical models and 100+ empirical articles on tax incidence, debt sustainability, optimal taxation, and related topics
- Wrote six new chapters and developed supporting materials, including graphs and reading-comprehension exercises
- Assisted James Robinson, Leopoldo Fergusson, and Francisco de Asís del Villar Ortiz on research about AMLO’s presidency in Mexico and the reduction of federal bureaucracy on policy implementation
 - Identified federal programs tied to campaign promises, the ministries responsible for implementation, and collected 632 speeches and 829 tweets
 - Compiled data on public servants, ministerial organizational structures, and policy implementation
 - Proposed an identification strategy exploiting a law that generated exogenous variation in turnover among federal officers
- Assisted Leopoldo Fergusson, Ruben Enikolopov, and Milan Quentel on research about the effects of a radio education program
 - Collected archival material in 30+ visits to Colombia’s National Library and National Archives
 - Studied radio signal strength and program reach in 1,200 municipalities, and coordinated 15 undergraduate students digitizing more than 382,000 files
- Contributed to a project by Leopoldo Fergusson and Carlos Molina on the effects of Facebook on protests
 - Assembled data on Facebook users, translation dates, and translators
 - Implemented the Romano-Wolf multiple-testing correction with two-way clustered standard errors in Stata and verified robustness of randomization inference with continuous treatment
- Verified empirical analyses, Stata do-files, and manuscripts for several published articles
 - “Segmentary Lineage Organization and Conflict in Sub-Saharan Africa,” Moscona, Nunn, and Robinson (2020)
 - “The Perils of High-Powered Incentives: Evidence from Colombia’s False Positives,” Acemoglu et al. (2020)
 - “The Real Winner’s Curse,” Fergusson, Querubin, Ruiz, and Vargas (2020)

SKILLS

Programming & Data Analysis: Python (pandas, NumPy, scikit-learn, statsmodels), R (tidyverse), Stata, Matlab, LaTeX, SQL (familiar), Git

Causal Inference: Potential Outcomes, Randomized Experiments, Treatment Interference, Propensity Score Methods, Instrumental Variables, Regression Discontinuity, Difference-in-Differences, Synthetic Control, Design-based Inference

Machine Learning: Supervised and Unsupervised Learning, Deep Learning, Nonparametric Methods, Double/Debiased Machine Learning

Econometrics: Bayesian Statistics, Empirical Bayes, Treatment Choice, Policy Learning, Partial Identification, Monte Carlo Simulation, Optimal Experimental Design

Languages: Spanish (native), English (fluent), French (fluent)