Daniela Mendirichaga

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PROFESSIONAL OBJECTIVE: Master's candidate in Quantitative Economics (STEM) at UCLA specializing in machine learning, experimentation, causal inference, and large-scale analytics. 3+ years of experience building predictive models, experimentation frameworks, and reproducible analytical workflows using behavioral and transactional data across international markets. Experienced in Python, SQL, statistical modeling, and operational decision systems supporting pricing, consumer behavior, and product strategy. Seeking full-time roles starting December 2026 in Data science (causal / experimentation / product), Analytics, or Decision Science.

PROFESSIONAL EXPERIENCE:

Research Analyst. Global Development Policy Center – Boston University (BU) *May 2022 – September 2025*

Three-year, multi-project collaboration with Heineken (global market leader in the alcoholic beverage industry)

- Ran cross-market analysis across 5 countries on advertising, product-placement, and pricing interventions; engineered LLM-generated, census-anchored synthetic datasets to overcome real-data infeasibility and built price-sensitivity models, with treatments delivering 8–20 pp lift on the target KPI.
- Developed reproducible Python/R pipelines for cleaning, feature engineering, modeling, and evaluating high-dimensional behavioral, transactional, survey, and experimental datasets, enabling scalable predictive and statistical modeling across 10+ treatments and rapid cross-functional reporting.
- Advised senior Heineken leadership across multiple engagement sessions; presenting and defending experimental findings to shape product, pricing, and behavioral strategy, while coordinating reporting, data access, and paper co-authorship across the IDB, BIT, and OECD.

Research Assistant and Teacher Assistant. Anahuac University *Mexico City, Mexico. August 2020 – May 2022*

- Advanced Macroeconomics course. Economics Department, Anahuac University

TECHNICAL PROJECTS:

- **Replication: Dynamic Pricing and Demand Model** Replicated a published structural demand model of how firms in storable-goods markets (beer) use temporary sales and pack-size pricing jointly to price-discriminate across consumers with varying storage costs. Generated simulated data calibrated to the paper's setup (original data unavailable) and reproduced headline results: combining volume discounts with inter-temporal pricing lifts seller profits by up to 10%.
- **Forecasting Airbnb Booking Probability in Los Angeles** Built an end-to-end pipeline predicting LA Airbnb listing-night bookings from snapshot and calendar data. Designed the booking-proxy label, engineered time-varying and listing-level features (price, neighborhood, amenities, seasonality, holidays, weather, events), and benchmarked L1-logistic against XGBoost under chronological split.
- **Structural Estimation of Demand and Supply in the Pizza Market** Built an economic model of consumer demand and firm pricing competition in Python/pyblp, using instrumental variables to isolate the causal effect of price on demand. Recovered firms' implied costs, margins, and competitive dynamics, and simulated how prices, market shares, and consumer welfare would shift under alternative market conditions.
- **Econometric Analysis of Data Centers and Residential Electricity Prices** Investigated whether county-level data center activity correlates with U.S. residential electricity prices, controlling for weather, demographics, regional effects, and renewable resources; assembled the dataset from public sources (OpenEI, Census, NOAA, employment, solar/wind) and estimated OLS specifications with regional controls, interactions, and transformations for nonlinearity.
- **Camping Park Demand & Price Sensitivity Modeling (Mixed Logit Choice Model)** Modeled how travelers choose between camping parks based on site features, price, and travel time, recovering how much campers are willing to pay for amenities and how much they value time saved on the road. Estimated own- and cross-price sensitivity to understand how parks compete for visitors. Implemented in Python using mixed logit choice models (xlogit).
- **Used-Car Price Prediction with Tree-Based Machine Learning (XGBoost & Regression Trees)** Built and tuned machine-learning models to predict used-car prices from a Southern California listings dataset, using regression trees and XGBoost. Compared models on out-of-sample accuracy against a regularized linear baseline (LASSO) to identify which approach best captured nonlinear patterns in vehicle features.
- **Customer Churn Prediction with Logistic Regression** Built a logistic regression model from scratch, coding the underlying optimization rather than calling a library, and applied it to a telecom dataset to predict which customers were likely to leave. Generated bootstrap-based uncertainty estimates and benchmarked the from-scratch implementation against standard regularized models for classification accuracy.
- **Forecasting U.S. Construction Employment Flows (Prophet Time-Series Modeling)** Forecast monthly employment flows in U.S. residential construction, modeling seasonal patterns and the effect of holidays and major events on the labor market.

Validated forecast accuracy with rolling time-series cross-validation. Implemented in Python using Facebook's Prophet library.

- **Transportation Mode Choice Modeling (Multinomial Logit via Maximum Likelihood Estimation)** Built a multinomial choice model from scratch to predict how commuters choose between transportation modes based on cost and travel time, coding the estimator's underlying optimization directly. Compared model specifications statistically to identify which best fit observed commuting decisions.
- **Transportation Mode Choice Prediction (Linear Probability vs. Logistic Regression)** Modeled how commuters choose transportation modes based on cost and travel time, comparing linear-probability and logistic-regression specifications. Interpreted how each variable shifted the likelihood of choosing one mode over another.
- **Used-Car Price Prediction with Regularized Regression** Built OLS, Ridge, and LASSO regression pipelines to predict used-car prices from a Southern California listings dataset, comparing models on out-of-sample accuracy and using L1 penalization to identify which vehicle features actually drove price.

ACADEMIC BACKGROUND:

University of California, Los Angeles (UCLA)– Master of Quantitative Economics (STEM) *Los Angeles, CA. September 2025 – December 2026*

- Departmental Merit Award — UCLA Economics Department
- Advanced Tracks: Econometrics and Machine Learning (selective; top third of cohort)
- Relevant Coursework: Machine Learning & Big Data for Economists; Advanced Machine Learning for Economists; SQL & Data Management; Advanced Econometrics; Empirical Industrial Organization; Mathematical Industrial Organization (PhD course)
- AI Agents Workshop: AI agents, tool calling, RAG/document intelligence, multi-agent orchestration, and MCP-based deployment

Anahuac University – B.S. in Economics *Mexico City, Mexico. August 2017 – May 2022*

Thesis: "Quantifying the Tax Collection Effects of the Criminal-Fiscal Mexican Reform prior to its repeal". Modeled firm-level transaction behavior and estimated policy impact using a Difference-in-Differences framework.

- Fellowship — Universidad Anahuac
- Special Selection Award — CitiBanamex National Economics Prize Nominee (2022)

HONORS & INVITATIONS

Delegate – Financial Action Task Force (FATF) Plenary & Working Groups *OECD Headquarters, Paris | February 2025*

Selected to represent the Inter-American Development Bank (IDB).

PUBLICATIONS AND WORK IN PROGRESS:

Released working papers

- Lagarda, G., & Mendirichaga, D. (2023). Quantifying the tax collection effects of the criminal-fiscal Mexican reform prior to its repeal. SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4601784

Work in Progress

- Boniface, S., Lagarda, G., & Mendirichaga, D. Behavioral research program evaluating substitution from alcoholic to no-/low-alcohol alternatives (with IDB, BIT).
- Boniface, S., Lagarda, G., & Mendirichaga, D. Evaluating advertising sponsorship effects on alcoholic and non-alcoholic alternatives (with OECD, IDB).
- Boniface, S., Lagarda, G., & Mendirichaga, D. Simulation-based evaluation of advertising influence using large language models (LLMs).

TOOLS & LANGUAGES:

Programming: Python (Pandas, NumPy, scikit-learn), SQL, R, Stata, Jupyter Notebooks
Data Processing & Analytics: Data Cleaning, Feature Engineering, Reproducible Analytical Workflows, Predictive Modeling, Experimental Design, Causal Inference, A/B Testing
Machine learning & AI Systems: Regression, Regularization (Lasso/Ridge), Classification, Tree-Based Models, Feature Engineering, Model Evaluation, AI Agents, Prompt Engineering, Tool Calling.
Languages: Spanish (Native), English (Fluent).