Kunal Garg

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SUMMARY

Ph.D. candidate in Economics (Industrial Organization) who studies how households and firms respond to risk and to new information, with a focus on insurance and credit markets.

Research interests: Industrial organization, applied microeconomics, information frictions.

SKILLS

Programming and tools: **Python** (pandas, NumPy, SciPy, scikit-learn, XGBoost), **SQL**, Stata, R, MATLAB, Git, HPC/SLURM.
Methods and data: **causal inference**, structural estimation, survival and hazard modeling, record linkage at scale, model calibration and out-of-time validation; Compustat, CRSP, WRDS.

EDUCATION

Ph.D. in Economics — TEXAS A&M UNIVERSITY, 2022–2027 (EXPECTED)

M.Sc. in Quantitative Economics — INDIAN STATISTICAL INSTITUTE (DELHI), 2018–2020

B.A. in Economics — UNIVERSITY OF DELHI, 2015–2018

RESEARCH

"Belief Stabilization and the Flood Insurance Gap: Evidence from the National Flood Insurance Program" JOB MARKET

PAPER, SOLE-AUTHORED, ONGOING

- Built a longitudinal policy-level panel from **67 million FEMA NFIP records** with no native policy identifier, constructing a property-level linkage key and deduplicating across state partitions, and implemented a temporal claims-to-policy match across 53.5 million records without a cartesian join.
- Found that flood risk fades as a driver of insurance retention over time: nearby flood shocks move renewal behavior by 3.2 percentage points at first renewal, but the effect disappears by year seven.
- Estimated a tenure-dependent Bayesian belief-updating model of insurance renewal by simulated method of moments (coarse grid then Nelder–Mead), with bootstrapped moment covariance, Jacobian-based analytic standard errors, an overidentification test, parameter recovery on simulated data, and four policy counterfactuals.

"The Impact of Greenhouse Gas Reporting Requirements on Corporate Board Membership" WITH COAUTHORS

- Examines whether mandatory greenhouse gas disclosure changes firm emissions and board composition, and whether effects spread to unregulated firms through shared directors.
- Built the analysis dataset for a study of mandatory emissions disclosure, resolving entities across EPA pollution registries, BoardEx governance records and Compustat with no shared identifier, on cleaned company names across a 127,000-firm universe, and built a board-interlock network from director career histories with degree and eigenvector centrality.
- Implemented synthetic control and synthetic difference-in-differences estimation on a firm-level panel on the university's HPC cluster, and diagnosed that a favorable pre-treatment fit statistic can be mechanically driven by near-zero outcomes rather than a valid comparison group.

PROJECTS

"Predicting Corporate Default: A Dynamic Logit Benchmark versus Machine Learning" WITH RAJIB ORAON, 2026

github.com/gargk98/credit-risk-default-prediction

- Benchmarked a dynamic logit against XGBoost for corporate default prediction, building the full pipeline on a 157,556 firm-year US panel under a strictly out-of-time design. Discrimination stays stable across regimes (**AUC-ROC 0.90–0.93**) while calibrated probability levels fail inside macro-shock episodes in opposite directions: understating defaults by roughly half in 2007–08, overstating by an order of magnitude in 2020–22.
- Estimated a dynamic logit and XGBoost classifier on identical features under a time-series validation split, correcting for severe class imbalance and calibrating probabilities by Platt scaling.
- Translated model output into expected-loss terms and showed how the model's calibration failures would look under supervisory stress testing and model-risk review.
- Published the analysis as a reproducible public repository alongside a 25-page paper: documented notebooks running end to end, a pinned cross-platform environment, and guardrails preventing licensed data or local paths from leaking.

PROFESSIONAL EXPERIENCE

Research Assistant DEPARTMENT OF ECONOMICS, TEXAS A&M UNIVERSITY, 06/2023–08/2025

- Implemented a **structural model of firm entry** under strategic interaction in Python, solving a sequential-move entry game as a nested fixed point and estimating it by maximum likelihood.
- Built establishment-level record linkage matching a Houston merchant panel against Harris County property records and commercial business data, using two-tier precision/coverage design and fuzzy-match threshold calibration, validated throughout by hand-adjudicated samples.
- Built a multi-stage business-record collection pipeline against the Yelp and Google APIs with automatic fallback between providers, matching returned records back to an internal merchant list and consolidating the results, to support verification of firm openings and closures.
- Encoded the Texas unemployment-benefit formula from federal wage statistics into a firm-level eligibility dataset, computing weekly and maximum benefit amounts under the statutory floor and ceiling.

Research Associate CAFRAL, RESERVE BANK OF INDIA, 05/2021–04/2022

- Supported research on post-crisis regulatory forbearance and zombie lending in Indian banking, estimating panel regressions and reviewing identification choices on bank–firm matched supervisory credit data (**~38,000 firm-bank-year observations**).
- Worked with supervisory banking data, including the RBI's CRILC credit registry, contributing descriptive analysis to a group study of India's NBFC sector growth.
- Prototyped a CNN in Python to classify Sentinel-2 daylight imagery against VIIRS nightlights-derived activity bins, as an exploratory test of remote-sensing methods for measuring local economic activity where survey data is unavailable.

Research Associate GRADUATE SCHOOL OF BUSINESS, KREA UNIVERSITY, 03/2021–04/2021

- Supported field implementation of a randomized controlled trial in Bihar, India evaluating gender-sensitization training for police officers: supervised training delivery, coordinated with participating police stations, and ran field logistics.

TEACHING EXPERIENCE

Instructor, "The Organization of Industry" TEXAS A&M UNIVERSITY, FALL 2025

- Designed and taught an undergraduate course covering market structure, pricing, and strategic behavior, as **sole instructor**.

Teaching Assistant and Grader TEXAS A&M UNIVERSITY, FALL 2022, SPRING 2023, SPRING 2026

- Ran office hours and graded for undergraduate microeconomic theory and economic development.
- Graded four substantial Python projects and several in-class assignments for an applied data science in economics course, reading student code directly and writing the grading rubric from the assignment briefs and reference scripts.

Teaching Fellow DEPARTMENT OF ECONOMICS, ASHOKA UNIVERSITY, 08/2020–05/2021

- Supported four undergraduate and graduate economics courses: ran weekly discussion sections across two sections each of statistics and mathematics for economists, wrote and graded the statistics exams, and graded for development economics and a graduate Python programming elective.

AWARDS, GRANTS AND PRESENTATIONS

- Lechner Graduate Grant, awarded by the Department of Economics, Texas A&M University, 2022–23.
- Presented the job market paper at the Southern Economic Association Annual Meeting, Tampa, November 2025, supported by a departmental travel grant.

LANGUAGES

English (fluent), Hindi (native).