Md Tahmeed Hossain

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EDUCATION

Ph.D. in Economics, Southern Methodist University (GPA: 3.67/4.0) Aug 2021 - Dec 2025
M.S. in Applied Economics, Montana State University (GPA: 3.83/4.0) Aug 2019 - May 2021
B.S.S. in Economics, University of Dhaka (GPA: 3.71/4.0) Jan 2011 - Dec 2014

SKILLS

- **Programming & Tools:** Python (NumPy, Pandas, Scikit-learn, PyTorch, PySpark), SQL, Git, Tableau, Power BI, QGIS
- **Cloud Data Engineering :** AWS (Certified Cloud Practitioner), Databricks
- **Causal Inference & Experimentation:** A/B Testing, Difference-in-Differences (DiD), Instrumental Variables (IV), Regression Discontinuity Design (RDD), Synthetic Control, Propensity Score Matching (PSM), Uplift Modeling
- **Machine Learning:** Supervised & Unsupervised Learning (Regression, Classification, Clustering), Deep Learning, Time Series Forecasting, Feature Engineering, Model Interpretability
- **Data Science & Analytics:** End-to-End Data Pipelines (ETL, Data Cleaning, Wrangling, Modeling, Interpretation), Experiment Design, Statistical Modeling, Hypothesis Testing

SELECTED PAPERS

Historical Religious Conflicts and Contemporary Socio-Economic Outcomes in India (Manuscript under development)

- Developed a novel instrumental variables (IV) approach using least-cost paths (LCPs) of medieval military campaigns to estimate the causal effect of historical religious conflicts and temple destruction on contemporary communal violence.
- Integrated high-resolution spatial datasets (5m digital elevation models, historical river networks, temple destruction sites) and engineered a least-cost path (LCP) model using Python libraries (GeoPandas, Rasterio, NetworkX), incorporating terrain costs, river barriers, and visibility factors.
- Identified a fourfold increase in communal violence (1950–1995) in districts historically exposed to temple destruction, alongside heightened Hindu-Muslim occupational and residential segregation, revealing long-term socio-economic fragmentation.

Sporting Events and Road Accidents: A Case Study from NFL Games

- Designed a quasi-experimental study using fixed-effects Poisson regression to estimate the causal impact of NFL games on traffic incidents.
- identified a 15.6% increase in accidents within 0–5 miles of stadiums on game days, with sharper increases during the 3 hours before (+60.3%) and after (+123%) games, offering actionable insights for urban traffic safety policies.

The Effect of School Safety Tip Lines on Youth Suicide Prevention

- Applied difference-in-differences and synthetic control frameworks to evaluate the impact of school safety tip lines on youth suicides, providing empirical evidence for policy interventions.
- Engineered robust ETL pipelines to clean, merge, and standardize large-scale county-level datasets from CDC, SEER, and BLS, ensuring high-quality data for econometric modeling.

EXPERIENCE

Teaching Assistant, Southern Methodist University Aug 2021 - Present

- Led recitations on econometrics topics including regression analysis, panel data, and causal inference
- Mentored students in statistical programming and data analysis techniques

Research Intern (Department of Justice Grant), Southern Methodist University Jan 2023 - Aug 2023

- Developed an ML-driven risk assessment pipeline to analyze 24.4M+ foster care and child abuse records, identifying patterns linked to child welfare risks and informing policy interventions.
- Built a scalable ETL pipeline in Python (Pandas, PySpark) and SQL to clean, integrate, and preprocess multi-state administrative datasets, improving data accessibility for predictive modeling.
- Designed and deployed interactive Tableau dashboards, enabling state-level stakeholders to streamline decision-making.

Research Assistant, Montana State University Aug 2019 - May 2021

- Applied NLP techniques (TF-IDF, sentiment analysis, topic modeling) to analyze historical government policy records, extracting key legislative trends and policy impact insights.
- Implemented probabilistic record linkage using Levenshtein distance and Soundex phonetic matching, achieving a 96% match rate in merging fragmented historical datasets for longitudinal policy analysis.
- Constructed and standardized a historical farmland tax dataset (1956–1985) to support quasi-experimental analysis of Use-Value Assessment (UVA) policies, contributing to a peer-reviewed publication in *Regional Science and Urban Economics*.

Assistant Manager, Palli Karma-Sahayak Foundation (PKSF), Bangladesh Apr 2017 - Jul 2019

- Designed and led large-scale randomized controlled trials (RCTs) across 20+ villages to evaluate the causal impact of different credit products on poverty reduction and financial inclusion.
- Built an early warning system using Python (scikit-learn, XGBoost) and SQL to predict at-risk borrowers based on historical repayment behavior, reducing default rates by 15% through risk scoring and intervention modeling.
- Developed credit risk monitoring dashboards to optimize fund allocation and improve microfinance partner performance tracking, enabling proactive decision-making.