ZHANYUAN TIAN

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EDUCATION

Ph.D., Economics, Boston University, Boston MA, May 2026 (expected)
Dissertation Title: *Essays on robust inference methods*
Main advisor: Hiroaki Kaido
Dissertation Committee: Hiroaki Kaido, Iván Fernández-Val, and Kevin Lang

M.A., Economics, CEMFI, Madrid, Spain, 2019

B.A., Economics, University of International Business and Economics, Beijing, China, 2017

FIELDS OF INTEREST

Econometrics, Applied Microeconomics

PUBLICATIONS

"Gaussian rank correlation and regression", with Dante Amengual and Enrique Sentana, in A. Chudik, C. Hsiao and A. Timmermann (eds.) Essays in Honor of M. Hashem, Pesaran, *Advances in Econometrics*, Vol. 43B, Emerald, pp. 269-306, January 2022

WORKING PAPERS

"Policy Learning with Biased Quasi-experimental Data" October 2025. Job Market paper.

WORK IN PROGRESS

"Sensitivity Analysis for Functional Parallel Trends Assumption"
"Moment Selection and Inference in Misspecified Moment Inequality Model"

FELLOWSHIPS AND AWARDS

Dean's Fellowship, Boston University, 2019-2024

WORK EXPERIENCE

Research Assistant for Prof. Hiroaki Kaido, Boston University, Fall 2023, Fall 2025
Research Assistant for Prof. Linh To, Boston University, Fall 2021, Fall 2024, Spring 2025
Research Assistant for Prof. Enrique Sentana, CEMFI, Summer 2018

TEACHING EXPERIENCE

Teaching Assistant, Advanced Econometrics I, Department of Economics, Boston University, Spring 2024
Teaching Assistant, Econometrics, Department of Economics, Boston University, Spring 2021, Spring 2022, Spring 2023
Teaching Assistant, Empirical Economics II, Department of Economics, Boston University, Fall 2022

Teaching Assistant, Empirical Economics I, Department of Economics, Boston University, Fall 2020

LANGUAGES

English (Fluent), Mandarin (Native), Cantonese (fluent).

COMPUTER SKILLS: MATLAB, Python, R, STATA, LaTeX

CITIZENSHIP/VISA STATUS: China/F1

REFERENCES

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Policy Learning with Biased Quasi-experimental Data (Job Market Paper)

Many empirical research efforts aim to provide policymakers with optimal treatment assignment rules using quasi-experimental methods, such as the Difference-in-Differences (DiD) approach. When observational data is used, researchers may be concerned that the data is not randomly selected from the target population. In this paper, I discuss how to learn the optimal treatment assignment rules robustly when the bias of the observed sample is upper bounded in the selection sense — that is, for observations with different characteristics in the target population, the ratio of being observed or not observed in the sample is upper bounded by some constant. Different welfare criteria, including utilitarian maximization, maximizing gains, and minimizing regrets, are considered, and the worst-case welfare-maximizing rules are derived. For estimation and inference, I propose estimators based on Conditional Value-at-Risk (CVaR) estimators and provide results for both panel and repeated cross-sectional data structures. Finally, I illustrate the practical application by revisiting a quasi-experiment on tariff reductions between South Africa and Mozambique, demonstrating how to obtain the optimal policy under various welfare criteria while accounting for sample bias.

Sensitivity Analysis for Functional Parallel Trends Assumption

The validity of the Difference-in-Differences (DiD) estimator hinges on the parallel trend assumption, but its necessary functional form is often an arbitrary and unclear choice for researchers. A misspecified functional form can severely bias results. This paper develops a robust inference framework for DiD estimators when the functional parallel trend assumption does not hold exactly, applicable to both panel and repeated cross-section data. Specifically, we assume the functional parallel trend holds only after conditioning on a set of confounders, some of which remain unobserved. We establish the sharp range of the treatment effect by bounding the plausible degree of unobserved confounding using Rosenbaum's Γ sensitivity model. Based on these sharp bounds, we propose a method for conducting sensitivity analysis of DiD treatment effects with respect to the researcher's choice of functional form.

October 2025