Tianqi Li

Department of Economics - University of North Carolina at Chapel Hill

Gardner Hall, Chapel Hill, NC 27516, U.S.A.

tianqili.econ@gmail.com • www.tianqili.org

Education

University of North Carolina at Chapel Hill 2019 – 2025 (Expected)
Ph.D. Candidate in Economics
Committee: Andrii Babii, Peter Reinhard Hansen, Jonathan B. Hill (co-chair), Désiré Kédagni, Valentin Verdier (co-chair)
Dissertation: Regularized Regression when Boundary Values are Possible

Wuhan University 2015 – 2019
B.A. in Economics and B.S. in Mathematics

Fields on Interest

High-dimensional Econometrics, Microeconometrics, Boundary Inference, Causal Inference

Research

Job Market Paper

"Demand Estimation with High-Dimensional Consumer Demographics"

Random-coefficient multinomial logit models are widely applied to study discrete choices in economics. By assuming random coefficients for each individual, the models can account for unobserved individual heterogeneity and suggest more realistic substitution patterns, compared to standard logit models. In this paper, I find that random coefficients become undetectable (i.e., estimated variances are zero) even if they exist, as many observed individual covariates are incorporated. Having zero estimates of variances not only yields bias in estimating other parameters but also raises the concern of parameters on boundary. To address these issues, I propose l_1-regularized maximum likelihood estimation for simultaneous covariate selection, and develop a debiased machine learning estimator to correct regularization bias while accounting for parameter constraints, such as non-negativity of variance. I derive non-asymptotic probability bounds for the regularized estimator and limiting distributions for the debiased estimator. Finally, I validate the estimators with thorough Monte Carlo simulations, and illustrate the impacts of high-dimensional covariates in an application to soft-drink markets in North Carolina.

Publications

"A bootstrapped test of covariance stationarity based on orthonormal transformations" with Jonathan B. Hill, *Bernoulli* (2025), 31(2), 1527-1551

"Research Collaboration beyond the Boundary: Evidence from University Patents in China" with Jingbo Cui and Zhenxuan Wang, *Journal of Regional Science* (2023), 63, 674-702

Working Papers

"High-dimensional Inference when the True Parameter is On or Near the Boundary", 2024

"Regularized Extremum Estimators on the Boundary" with Jonathan B. Hill, 2022

Conferences and Presentations

2024: Causal Inference Reading Group (UNC-CH), Financial Econometrics Workshop (UNC-CH), Triangle Econometrics Conference (NC State University)

2023: Duke Financial Econometrics Lunch Group Seminar (Duke University), Financial Econometrics Workshop (UNC-CH)

2020: Annual North American Meetings of Regional Science Association International (Online), Chinese Economists Society North America Conference (Online)

2019: IESR-HCEO Summer School and Best Paper Competition (Jinan University)

Teaching

Teaching Assistant

- Econometrics for Ph.D. students (Econ 770)	Fall 2020 to Fall 2024 (5 semesters)
- Applied Statistics and Econometrics for undergraduate (Econ 400)	Summer 2022, Spring 2024
- Principles of Economics (Econ 101)	Spring 2022
- Statistical and Empirical Data Analysis for undergraduate (Econ 470)	Spring 2021
- Macroeconomic Topics for undergraduate (ECON 590)	Spring 2020
- Applied Econometrics for undergraduate (ECON 570)	Fall 2019, Spring 2020, Summer 2020

Grants, Honors & Awards

- Department Teaching Assistantship, UNC Department of Economics	2019 – 2025
- Thomas F. Ferdinand Summer Research Fellowship, UNC Graduate School	2023
- Georges Lurcy Fellowship in Economics, UNC Department of Economics	2022
- Graduate Summer Funding, UNC Department of Economics	2020 – 2021
- Meritorious Winner, COMAP's Mathematical Contest in Modeling	2018

Skills

- Techniques: Econometric Modeling, High-performance Computing, Numerical Optimization

- Programming: Julia, R, Matlab, Stata, Slurm (clusters), Python

- Languages: Chinese (native), English (fluent)

Refereeing

Journal of Regional Science

References

Andrii Babii
Associate Professor of Economics
UNC-Chapel Hill
Department of Economics
+1(919)843-9453
babii.andrii@gmail.com

Jonathan B. Hill
Professor of Economics
UNC-Chapel Hill
Department of Economics
+1(919)966-2383
jbhill@email.unc.edu

Valentin Verdier
Associate Professor of Economics
UNC-Chapel Hill
Department of Economics
+1(517)881-0834
vverdier@email.unc.edu

Peter Reinhard Hansen
Henry A. Latané Distinguished Professor of Economics
UNC-Chapel Hill
Department of Economics
+1(919)445-9013
hansen@unc.edu

Désiré Kédagni
Assistant Professor of Economics
UNC-Chapel Hill
Department of Economics
dkedagni@unc.edu