Bosen Cui

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Education

Bachelor in Science, Statistics   Harbin Institute of Technology, China
Major is Statistics. GPA 88/100, Rank: 3rd out of 60   *Sep. 2016 - Jun .2020*

Ph.D. in Statistics   National University of Singapore, Singapore
Supervised by Professors Jialiang Li and Charumathi Sabanayagam   *Jul. 2021 - Present*

Project

Exponentially Weighted Averaging of Varying-coefficient Partially Linear Models
Submitted to Journal of the American Statistical Association

- In this project, we developed an exponentially weighted model averaging (EWA) method for the varying-coefficient partially linear model (VCPLM), addressing the theoretical aspects of semiparametric model averaging. The EWA method is easy to implement and exhibits a natural Bayesian flavor. Oracle inequalities were derived for finite-sample error bounds of the empirical estimators, and the asymptotic optimality of the proposed weighting criterion was rigorously analyzed. The results were supported by numerical studies that validate the theoretical findings.

Semiparmetric Model Averaging Synthetic Control Method
Submitted to Journal of Business and Economic Statistics

- This work focuses on improving the accuracy of the Synthetic Control Method (SCM), a widely used approach in panel data analysis for estimating treatment effects. We propose a model averaging framework within non-linear SCM, aiming to enhance predictive accuracy. The limiting distribution of our proposed quadratic-loss averaging for VCPLM was established, and both simulation and empirical studies supported the theoretical outcomes.

Additional Experience

Research Assistant   Harbin Institute of Technology, China
Supervised by Professor Shuilin Jin   *Aug. 2020 - Jun .2021*

Visiting Scholar   Peking University, China
Visting scholar to Beijing International Center for Mathematical Research   *Feb. 2023 - Nov. 2023*

Publications

Zhang, Y., Chen, J., Cui, B., & Tian, B. (2022). Nonparametric estimate of spectral density functions of sample covariance matrices generated by VARMA models. Communications in Statistics - Theory and Methods, 51(4), 943-952.

Cui, B., Li, J., & Nott, D. (2023). Exponentially weighted averaging of varying-coefficient partially linear models. Submitted to Journal of the American Statistical Association.

Cui, B., Li, J. (2024). Semiparmetric Model Averaging Synthetic Control Method. Submitted to Journal of Business and Economic Statistics.