

YUKUN MA

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Department of Economics

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EDUCATION

Ph.D. in Economics, Vanderbilt University	Aug 2018 - May 2024(expected)
M.A. in Economics, Peking University	Aug 2016 – May 2018
B.A. in Physics, B.A. in Finance, Nankai University	Aug 2012 – May 2016

RESEARCH

Research Fields: Econometric theory and practice,

- Robust inference for clustered data;
- Nonparametric and machine-learning methods;
- Causal Inference.

Job Market Paper

- (1) “Identification-robust inference for the LATE with high-dimensional covariates” Solo-Authored
- Best Student Paper Award at the 33rd Midwest Econometrics Group (MEG) Conference.
 - Presented at NY Camp Econometrics XVII program (April 2023), Chinese Economist Society North American Conference (March 2023), 1st CIREQ Interdisciplinary Ph.D. Student Conference on Big Data and Artificial Intelligence (June 2023), Asia Meeting of the Econometric Society (July 2023), 38th European Economic Association (August 2023), Midwest Econometrics Group Conference (October 2023), Canadian Econometric Study Group Meeting (October 2023).

Publication

- (2) “Multiway Cluster Robust Double/Debiased Machine Learning” Coauthored with Harold D. Chiang, Kengo Kato, and Yuya Sasaki.
Journal of Business & Economic Statistics, 40 (3), pp. 1046-1056 (2022).

Paper under Revision/Resubmission

- (3) “Double/Debiased Machine Learning for Dyadic Data” joint with Harold Chiang, Joel Rodrigue, and Yuya Sasaki. Revise & Resubmit at *Journal of Business & Economic Statistics*.
- Presented at New York Camp Econometrics XV program (April 2021), Asian Meeting of Econometric Society (June 2021), North American Summer Meeting (June 2021), 73rd European Meeting of the Econometric Society (August 2021), International Association of Applied Econometrics Annual Conference (June 2021), Southern Economics Association 91st Annual Meeting (November 2021), Midwest Economics Association 86th Annual Meeting (October 2022).

Working Paper

- (4) “Doubly robust estimator with weak overleap” joint with Pedro H.C. Sant’Anna, Yuya Sasaki, and Takuya Ura.

AWARDS AND FELLOWSHIPS

Best Student Paper Award, 33 rd Midwest Econometrics Group (MEG) Conference	2023
Vanderbilt University Graduate Fellowship	2018 – present
Kirk Dornbush Summer Research Grants, Vanderbilt University	2021
Graduate Fellowship, Peking University	2016 - 2018

PROFESSIONAL ACTIVITIES

Referee: Journal of Econometric Methods, Econometric Reviews, China Economic Review
Programming: R (main), Stata, Python, MATLAB

TEACHING EXPERIENCE

Vanderbilt University, Department of Economics

TA for Ph.D. Courses

Statistical Analysis	Fall 2020 (4.88/5)
Microeconometrics.	Spring 2023(5/5)
Econometrics I	Spring 2020 (5/5)

TA for Masters Courses

Statistical Analysis	Fall 2020 (4.67/5)
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TA for Undergraduate Courses

Economic Statistics	Fall 2019 (4.33/5)
Principles of Microeconomics	Spring 2020 (4.67/5), Fall 2022(4.50/5)
Economic Statistics	Fall 2021, Spring 2022(4.75/5), Spring 2023
Econometric Methods	Fall 2021(4.74/5), Spring 2021(4.86/5)

Peking University, Guanghua School of Management

Optimization in Economics and Finance	Spring 2017
Macroeconomics & Policy Analysis	Spring 2017

REFERENCES

Yuya Sasaki (Advisor)

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William H.Sewell Social Science Building
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Abstracts

Identification-robust Inference for the LATE with High-dimensional Covariates (job market paper)

This paper investigates the local average treatment effect (LATE) with high-dimensional covariates, irrespective of the strength of identification. We propose a novel test statistic for the high-dimensional LATE and demonstrate that our test has uniformly correct asymptotic size. By employing the double/debiased machine learning method for nuisance parameter estimation, we develop easy-to-implement algorithms for inference and confidence interval calculation of the high-dimensional LATE. Simulations indicate that our test is robust against both weak identification and high dimensionality concerning size control and power performance, outperforming other conventional tests. Applying the proposed method to railroad and population data to study the effect of railroad access on urban population growth, we observe that our methodology yields point estimates for the railroad access coefficients that are smaller in magnitude, and confidence intervals that are by 49% to 92% shorter depending on specifications, when compared to the conventional results.

Multiway Cluster-robust Double/debiased Machine Learning joint with Harold D.Chiang, Kengo Kato, and Yuya Sasaki *Journal of Business and Economic Statistics*

This paper investigates double/debiased machine learning (DML) under multiway clustered sampling environments. We propose a novel multiway cross-fitting algorithm and a multiway DML estimator based on this algorithm. We also develop a multiway cluster robust standard error formula. Simulations indicate that the proposed procedure has favorable finite sample performance. Applying the proposed method to market share data for demand analysis, we obtain larger two-way cluster robust standard errors for the price coefficient than non-robust ones in the demand model.

Double/Debiased Machine Learning for Dyadic Data

joint with Harold Chiang, Joel Rodrigue, and Yuya Sasaki

Revise & Resubmit at *Journal of Business & Economic Statistics*

[For the most updated version of this paper, kindly reach out to me through email]

This paper presents novel methods and theories for estimation and inference about parameters in statistical models using machine learning for nuisance parameters estimation when data are dyadic. We propose a dyadic cross-fitting method to remove over-fitting biases under arbitrary dyadic dependence. Together with the use of Neyman orthogonal scores, this novel cross-fitting method enables root-n consistent estimation and inference robustly against dyadic dependence. We demonstrate its versatility by applying it to high-dimensional network formation models and reexamine the determinants of free trade agreements (FTA).

Doubly Robust Estimator with Weak Overleap

joint with Pedro H.C. Sant'Anna, Yuya Sasaki, and Takuya Ura

In this paper, we derive a new class of doubly robust estimators for treatment effect estimands that is also robust against weak covariate overlap. Our proposed estimator relies on trimming observations with extreme propensity scores and uses a bias correction device for trimming bias. Our framework accommodates many research designs, such as unconfoundedness, local treatment effects, and difference-in-differences. Simulation exercises illustrate that our proposed tools indeed have attractive finite sample properties, which are aligned with our theoretical asymptotic results.