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Education

COLUMBIA UNIVERSITY	Sept. 2014 – May 2020
Ph.D. Economics	May 2020 (expected)
M.Phil. Economics	May 2017
M.A. Economics	May 2016
RENMIN UNIVERSITY OF CHINA	Sept. 2008 – June 2014
Courseworks in Hanqing M.A. in Economics Program	Sept. 2012 – June 2014
B.A. Economics	June 2012
B.S. Mathematics	June 2012

Research Interest

Econometrics (Primary), Applied Microeconomics, Causal Inference, Machine Learning.

Job Market Paper

["Matching Points: Supplementing Instruments with Covariates in Triangular Models"](#), 2019.

Abstract: We consider triangular models with a discrete endogenous variable and an instrumental variable (IV) taking on fewer values. Addressing the failure of the order condition, we develop the first approach to restore identification for both separable and nonseparable models in this case by supplementing the IV with covariates, allowed to enter the model in an arbitrary way. For the separable model, we show that it satisfies a system of linear equations, yielding a simple identification condition and a closed-form estimator. For the nonseparable model, we develop a new identification argument by exploiting its continuity and monotonicity, leading to weak sufficient conditions for global identification. Built on it, we propose a uniformly consistent and asymptotically normal sieve estimator. We apply our approach to an empirical application of the return to education with a binary IV. Though under-identified by the IV alone, we obtain results consistent with the literature using our approach. We also illustrate the applicability of our approach via an application of preschool program selection where the supplementation procedure fails.

Working Papers

"Robust Principal Component Analysis with Non-Sparse Errors" (with Jushan Bai), *working paper*, 2019.

Abstract: We show that when a high-dimensional data matrix is the sum of a low-rank matrix and a random error matrix with independent entries, the low-rank component can be consistently estimated by solving a convex minimization problem. We develop a new theoretical argument to establish consistency without assuming sparsity or the existence of any moments of the error matrix, so that fat-tailed continuous random errors such as Cauchy are allowed. The results are illustrated by simulations.

"Regularized Quantile Regression with Interactive Fixed Effects", *working paper*, 2019.

Abstract: I consider nuclear norm penalized quantile regression for large N and large T panel data models with interactive fixed effects. The estimator solves a convex minimization problem, not requiring pre-estimation of the (number of the) fixed effects. Uniform rates are obtained for both the slope coefficients and the low-rank common component of the interactive fixed effects. The rate of the latter is nearly optimal. To derive the rates, I show new results that establish uniform bounds of norms of certain random matrices of jump processes. These results may have independent interest. Finally, I conduct Monte Carlo simulations to illustrate the estimator's finite sample performance.

Conference Presentations

2019: Econometric Society Asian Meeting (Xiamen, China).

Research Assistantship

Research Assistant to Jushan Bai: 2016-2019.

Teaching Assistantship

Econometrics II (M.A. level, instructor Ronald Miller): Spring 2017.

Introduction to Econometrics (Ph.D. level, instructor Jushan Bai): Fall 2016.

Introduction to Econometrics (instructor Seyhan Erden): Spring 2016.

Intermediate Microeconomics (instructor Susan Elmes): Fall 2015.

Fellowships & Awards

GRADUATE SCHOOL OF ARTS AND SCIENCES, COLUMBIA UNIVERSITY

Dissertation Fellowship, 2019-2020.

Dean's Fellowship, Columbia University, 2014-2020.

DEPARTMENT OF ECONOMICS, COLUMBIA UNIVERSITY

The Dhrymes Econometrics Award, 2018.

Annual Wueller Teaching Award for Ph.D. Courses (runner-up), 2017.
Annual Wueller Teaching Award for M.A. Courses (runner-up), 2017.
Harriss Prize for Best Second Year Paper (runner-up), 2016.

Miscellaneous

Programming Languages: Matlab, R, Stata, L^AT_EX.

References

[Professor Jushan Bai](#)
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[Professor Sokbae \(Simon\) Lee](#)
Columbia University
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[Professor Bernard Salanié](#)
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