MYUNGHYUN SONG

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Placement Chairs:
Mark Dean (mark.dean@columbia.edu)
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EDUCATION

Columbia University — New York, NY
Ph.D. in Economics — 2021–2027 (expected)
M.Phil. in Economics — 2024
M.A. in Economics — 2023

Seoul National University — Seoul, Korea
M.A. in Economics — 2019–2021
B.A. in Economics, B.S. in Mathematics, *summa cum laude* — 2012–2016

RESEARCH FIELDS

Econometrics, Applied Microeconomics, Machine Learning

JOB MARKET PAPER

"Examiner and Judge Designs with Multiple Treatments." **Myunghyun Song**

Research designs exploiting quasi-random assignment of cases to judges and other examiners are increasingly popular, often using examiner leniency as instruments. Interest is also growing in identifying causal effects with multiple unordered treatments, beyond the binary treatment framework. Identification can benefit from instruments that shift cases toward a single alternative without inducing selection into any other treatment. Examiner designs, however, do not directly provide such instruments. We construct them by developing a discrete choice model in which examiners choose the treatment they assess most favorably. Slutsky symmetry of treatment propensities helps identify the model's coefficients without exclusion restrictions, and we develop a semiparametrically efficient estimator of these coefficients. Predicted assessments provide instruments for nonparametrically identifying mean potential outcomes and pairwise treatment effects at margins between two treatments. We develop estimation and inference procedures for the treatment effects and establish their asymptotic properties. Revisiting a recent study of Virginia courts, we obtain different findings on how noncarceral and carceral convictions affect reoffending.

PUBLICATIONS AND FORTHCOMING PAPERS

"SGMM: Stochastic Approximation to Generalized Method of Moments." Xiaohong Chen, Sokbae Lee, Yuan Liao, Myung Hwan Seo, Youngki Shin, and **Myunghyun Song**. *Journal of Financial Econometrics*, 23 (1). 2025.

"Inference for Parameters Identified by Conditional Moment Restrictions Using a Generalized Bierens Maximum Statistic." Xiaohong Chen, Sokbae Lee, Myung Hwan Seo, and **Myunghyun Song**. *Review of Economics and Statistics*, forthcoming.

WORKING PAPERS

"Identification and Inference in General Bunching Designs." **Myunghyun Song**. (Latest version:

February 2025).

I present point and partial identification results for a general class of structural models in bunching designs. Both results allow for continuous and discrete covariates without partitioning the sample into covariate cells, and bunching moments weighted by functions of the covariates can identify more than one structural parameter. The key condition for point identification is the analyticity of the counterfactual density and of the conditional quantiles of the upper end of the bunching interval given the counterfactual choice. I propose an asymptotically valid inference procedure that generalizes the widely used polynomial strategy and accounts for approximation bias. Revisiting the U.S. tax data used in Saez (2010), I find results that differ substantially from those of the original polynomial strategy.

"SLIM: Stochastic Learning and Inference in Nonlinear GMM Models." Xiaohong Chen, Min Seong Kim, Sokbae Lee, Myung Hwan Seo, **Myunghyun Song**, and Ling Zhong. (Latest version: October 2026).

We propose a scalable stochastic approximation algorithm for nonlinear GMMs with many nonseparable moments and parameters. SLIM is shown to be consistent and asymptotically normal without a consistent initial estimator or a globally convex GMM criterion. Random-scaling and plug-in based confidence set constructions remain valid when computational uncertainty can be non-negligible relative to sampling uncertainty. An optional second-order refinement achieves full-sample GMM efficiency. We develop J-tests for SLIM. Monte Carlo experiments for a nonlinear demand system with 576 moments and 380 parameters demonstrate computational gains and scalability to one million observations. A LinkedIn application with 4.8 million college graduates illustrates clustered estimation and inference for first employment destinations.

"Empirical Bayes Estimation in Heterogeneous Coefficient Panel Models." **Myunghyun Song**, Sokbae Lee, and Serena Ng. (Latest version: October 2026).

We develop an empirical Bayes (EB) G-modeling framework for short-panel linear models with nonparametric prior for the random intercepts, slopes, dynamics, and non-spherical error variances. We establish identification and consistency of the nonparametric maximum likelihood estimator (NPMLE) under general conditions, and provide low-level sufficient conditions for several models of empirical interest. Conditions for regret consistency of the EB estimators are also established. The NPMLE is computed using a Wasserstein-Fisher-Rao gradient flow algorithm adapted to panel regressions. Using data from the Panel Study of Income Dynamics, we find that the slope coefficient for potential experience is substantially heterogeneous and negatively correlated with the random intercept, and that error variances and autoregressive coefficients vary significantly across individuals. The EB estimates reduce mean squared prediction errors relative to individual maximum likelihood estimates.

TEACHING EXPERIENCE

Teaching Assistant, Columbia University

Introduction to Econometrics I (PhD)	2023, 2024, 2025
Advanced Econometrics (Undergraduate)	2025
Advanced Microeconomics (Undergraduate)	2024
Introduction to Econometrics II (PhD)	2023
Math Methods for Economists (PhD)	2022
Math Camp (PhD)	2022

Honors and Awards

Anna J. Schwartz Award for Best Job Market Candidate, Columbia University	2026
Dissertation Fellowship, Department of Economics, Columbia University	2026–2027
Vickrey Award for Best Third-Year Paper, Runner-Up, Department of Economics, Columbia University	2024
Young-Iob Chung Fellowship, Columbia University	2023
Presidential Award, Seoul National University	2016
Gold Prize (Top 5%), University Student Mathematics Competition (Math Majors Section), Korean Mathematical Society	2014

Presentations

2026: Midwest Econometrics Group Annual Meeting (Cincinnati)
2025: Econometric Society World Congress (Seoul)

Referee Service

Journal of Econometrics; Journal of Financial Econometrics

Personal Information

Languages:	Korean (native), English (fluent)
Programming:	Python, MATLAB, R, Julia
Citizenship:	Republic of Korea
Military Service:	Republic of Korea Auxiliary Police (2017–2018)

References

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