

# SHENG CHAO HO

## Contact Information

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## Academic Appointments

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2024 – Assistant Professor of Economics, Singapore Management University

## Education

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2024 Ph.D. in Economics, University of Pennsylvania  
*Committee: Xu Cheng (advisor), Frank Schorfheide (advisor), Petra Todd*

2019 MPhil in Economics, University of Oxford, Nuffield College

2017 B.Sc in Economics, National University of Singapore

## Research Interests

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Econometrics, Empirical Bayes Methods

## Research

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### Working Papers

1. Large-Scale Estimation under Unknown Heteroskedasticity (*Submitted*)

Abstract: This paper studies nonparametric empirical Bayes (EB) methods in a heterogeneous parameters framework that features unknown means and variances. Heterogeneous variances are not only empirically more plausible but also facilitates meaningful comparisons of quantiles across units, which we argue are policy-relevant generalizations of the commonly targeted means. We provide extended Tweedie's formulae that express the (infeasible) optimal estimators of these heterogeneous parameters in terms of the density of certain sufficient statistics. These are used to propose feasible versions and provide regret bounds of the order of  $(\log n)^\kappa/n$ . Therefore there is little cost to adopting nonparametric EB estimators that allow for unknown heteroskedasticity, and in fact much to be gained in terms of risk reduction which we validate using numerical experiments. The estimators are then employed in a study of teachers' effects on student test outcomes, where we find that allowing for heterogeneous variances across teachers is crucial for delivering optimal estimates of teacher quality and detecting low-performing teachers.

2. Optimal Estimation of Two-way Effects under Limited Mobility ( with Xu Cheng & Frank Schorfheide)

Abstract: This paper develops a shrinkage estimator for a panel data model with two-way fixed effects. The hyperparameters that control the variance (degree of shrinkage) and the location of the prior are determined by minimizing an unbiased risk estimate. We established optimality of the proposed estimator by showing that it asymptotically attains the same loss as an oracle estimator with a hyperparameter that is chosen based on the knowledge of the fixed effects. In a Monte Carlo study we show that the proposed estimator outperforms a number of competitors, including the least squares estimator. The method is applied to the estimation of teacher values-added from a linked student-teacher data set obtained from the North Carolina Education Research Data Center.

## Conferences

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2023 Asia Meeting of the Econometric Society, Singapore

## Grants and Awards

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2023	Teece Research Award, University of Pennsylvania
2019-2024	Overseas Postgraduate Scholarship, Singapore Management University

## Skills

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Programming: R, Julia,  $\text{\LaTeX}$   
Languages: English (Native), Chinese (Fluent)