THOMAS CHAN

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Education

University of British Columbia — 2019 – 2026 (expected)
Ph.D., Economics

University of British Columbia — 2018 - 2019
M.A., Economics

University of Warwick — 2013 - 2017
MMath

Fields

Econometric Theory
Applied Econometrics

Job Market Paper

"Adaptive Experiment Design for Estimating Causal Effects"

This paper considers a sequential experiment setting in which units arrive over time and outcomes are rapidly observed. It proposes an adaptive procedure that updates treatment randomization based on accumulated data to efficiently estimate a target parameter from a general class. This class includes not only average and quantile treatment effects but also distributional effects, inequality measures, and other policy-relevant parameters. Treatment randomization in the procedure is shown to converge to an optimal scheme, yielding estimators that achieve minimum asymptotic variance or minimize a designer-specified loss function. As experiments increasingly inform real-world decisions with diverse objectives, this approach broadens the scope of adaptive experiment designs for practical policy-making. Theoretical guarantees of optimality are supported by empirical illustrations using data from the Oregon Health Experiment and simulation evidence.

Working Papers

"Policy Learning with Compliance Guarantee"
With Vadim Marmer and Kyungchul Song

We study optimal policy learning where a policy maker uses policy outcome data from a source population to design treatment assignments for a target population under budget constraint. Due to the budget constraint, the policy maker needs to consider both the treatment effects and individuals' incentives for treatment participation to minimize wasted resources. The main challenge is that treatment participation incentives may differ between the two populations. We develop a maximin approach that maximizes the minimum expected treatment outcome across all possible incentive configurations. We find that this optimal policy learning problem transforms into one with stochastic dominance constraints, where optimal assignment prioritizes individuals most likely to comply with the treatment assignment.

Work in Progress

"Asymmetric and Optimal Bandwidth Selection in Estimation for First Price Auctions"

I analyze bandwidth selection in the estimator proposed by Guerre, Perrigne, and Vuong (2000), and extend the inference framework of Ma, Marmer, and Shneyerov (2019) to cases where the ratio of the first- to second-stage bandwidths converges to either zero or infinity. In such regimes, the asymptotic normality is governed by the stage with the slower bandwidth rate. Further analysis shows that minimizing the pointwise mean squared error requires the bandwidth ratio to converge to zero. This result is driven by a bias-variance tradeoff that arises across the two estimation stages under certain conditions.

Experience

Research Assistant — 2025 - present
University of British Columbia

Teaching Assistant — 2019 – 2024
University of British Columbia

- ECON 101 Principles of Microeconomics
- ECON 325 Introduction to Empirical Economics
- ECON 326 Introduction to Econometrics II
- ECON 356 Introduction to International Finance
- ECON 398 Introduction to Applied Economics
- ECON 514 Information and Incentives
- ECON 527 Econometric Methods of Economic Research

Fellowships & Awards

Faculty of Arts Graduate Award

Bank of Montreal Graduate Fellowship

Seminars & Conferences

2025: WEAI , CalMetrics, MEG, CESG, NABE (scheduled)

Academic Service

Referee: Econometric Reviews, Journal of Econometric Methods

References

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Languages

English (native), Cantonese (native), Mandarin (fluent)

Personal Information

Citizenship: Hong Kong

Permanent Residency: Canada