

MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Noncompliance and instrumental variables for 2^k factorial experiments

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10:20 AM - 11:10 AM [Eastern Time](#)
Zoom

Abstract

Factorial experiments are widely used to assess the marginal, joint, and interactive effects of multiple concurrent factors. While a robust literature covers the design and analysis of these experiments, there is less work on how to handle treatment noncompliance in this setting. To fill this gap, we introduce a new methodology that uses the potential outcomes framework for analyzing 2^k factorial experiments with noncompliance on any number of factors. This framework builds on and extends the literature on both instrumental variables and factorial experiments in several ways. First, we define novel, complier-specific quantities of interest for this setting and show how to generalize key instrumental variables assumptions. Second, we show how partial compliance across factors gives researchers a choice over different types of compliers to target in estimation. Third, we show how to conduct inference for these new estimands from both the finite-population and superpopulation asymptotic perspectives. Finally, we illustrate these techniques by applying them to a field experiment on the effectiveness of different forms of get out-the-vote canvassing. New easy-to-use, open-source software implements the methodology. Joint work with Matthew Blackwell (Harvard University).

Zoom details can be found at: <https://stt.natsci.msu.edu/stt-colloquium-zoom-info/>

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