



Causal Inference Program Opening Workshop December 9-11, 2019

SPEAKER TITLES/ABSTRACTS

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“A Bracketing Relationship between Difference-in-Differences and Lagged-Dependent-Variable Adjustment”

Difference-in-differences is a widely used evaluation strategy that draws causal inference from observational panel data. Its causal identification relies on the assumption of parallel trends, which is scale-dependent and may be questionable in some applications. A common alternative is a regression model that adjusts for the lagged dependent variable, which rests on the assumption of ignorability conditional on past outcomes. In the context of linear models, Angrist and Pischke (2009) show that the difference-in-differences and lagged-dependent-variable regression estimates have a bracketing relationship. Namely, for a true positive effect, if ignorability is correct, then mistakenly assuming parallel trends will overestimate the effect; in contrast, if the parallel trends assumption is correct, then mistakenly assuming ignorability will underestimate the effect. We show that the same bracketing relationship holds in general nonparametric (model-free) settings. We also extend the result to semiparametric estimation based on inverse probability weighting.