Abstract

Evaluations of policy interventions frequently use a difference-in-differences design to estimate the causal effect of a policy change (intervention). The pre- to post-intervention change in the outcome of the treated group is compared to the change over the same time period in an untreated control group. Causal conclusions must rely on the assumption that the control group’s change is a valid counterfactual for what would have happened in the treatment group in the absence of intervention. A small literature in health services research and economics addresses the statistical properties of difference-in-differences estimators. We contribute to this literature by investigating three questions: 1) What is the impact of matching treated and control units on baseline variables? 2) What is the correct specification of a test of the counterfactual assumption (using pre-intervention data)? and 3) What features of pre-intervention data can guide the choice of valid control groups?