Analyzing Randomized Experiments with Spillovers

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Abstract

This paper develops a general inferential framework for causal identification in randomized experiments in the presence of spillovers. Existing approaches focus on models of the underlying stochastic process governing spillovers or a priori knowledge of exactly which units share spillovers. This paper shows that the researcher may identify causal quantities of interest, without such strong assumptions, by analyzing the experiment with respect to inclusion probabilities induced by increasingly strong "social distance" restrictions. The social distance approach characterizes a fully general framework for causal identification in the presence of spillovers. Necessary assumptions for causal identification, as well as quantities that can be feasibly estimated, are discussed in detail. Using this framework, this paper develops an estimation strategy for causal identification with spillovers using thin-plate regression splines (TPRS). Above all, this paper demonstrates that the analysis of experiments in the presence of spillovers is feasible under reasonable, intuitive assumptions.

Speaker Profile

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