

Publication

Identification of causal mechanisms based on between-subject double randomization designs

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Understanding the mechanisms through which treatment effects come about is crucial for designing effective interventions. The identification of such causal mechanisms is challenging and typically requires strong assumptions. This paper discusses identification and estimation of natural direct and indirect effects in so-called double randomization designs that combine two experiments. The first and main experiment randomizes the treatment and measures its effect on the mediator and the outcome of interest. A second auxiliary experiment randomizes the mediator of interest and measures its effect on the outcome. We show that such designs allow for identification based on an assumption that is weaker than the assumption of sequential ignorability that is typically made in the literature. It allows for unobserved confounders that do not cause heterogeneous mediator effects. We demonstrate estimation of direct and indirect effects based on different identification strategies that we compare to our approach using data from a laboratory experiment we conducted in Kenya.

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