Defining and Estimating Causal Direct and Indirect Effects
When Setting the Mediator to Specific Values is Not Feasible

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Abstract

Natural direct and indirect effects decompose the effect of a treatment into the part that is mediated by a covariate (the mediator) and the part that is not. Their definitions rely on the concept of outcomes under treatment with the mediator "set" to its value without treatment. Typically, the mechanism through which the mediator is set to this value is left unspecified, and in many applications it may be challenging to fix the mediator to particular values for each unit or individual. Moreover, how one sets the mediator may affect the distribution of the outcome. This article introduces "organic" direct and indirect effects, which can be defined and estimated without relying on setting the mediator to specific values. Organic direct and indirect effects can be applied for example to estimate how much of the effect of some treatments for HIV/AIDS on mother-to-child transmission of HIV-infection is mediated by the effect of the treatment on the HIV viral load in the blood of the mother.

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Note: Taking photos during the seminar is prohibited

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