Causal methods with observational data

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Roadmap

Intro and overview

Re-cap

Re-cap

1. Problem/topic
2. Stories, arguments about mechanisms
3. Research question
4. Proper theory, concepts and operationalization
5. Measurement, unit of analyses, data sources, etc
6. Inference strategy
7. Results & interpretation

Methods and causal inference

- Most of the time is **impossible** to control for all relevant variables (i.e. not able to close all back-door paths)
- But there are other methods often related to causal inference, not because they uncover causal relationships, but because they allow you to exploit 'typical' exogenous sources of variation
- (In H-K's *The Effect*, they're called 'template causal diagrams')

Methods and causal inference

- This is *something* that introduces variation in the treatment that is independent from confounders and you can exploit to analyse (so, like randomization in an experiment). For example:

1. Time
   → we can exploit changes over time in treated vs control units, e.g. imagine checking effect of good nutrition on a child who is growing anyway
2. Cut-offs
   → sometimes something happens just when you cross a cut-off (getting into university, winning an election, a geographical border, being born Jan 1st...)
3. A third, unrelated variable
   → you win the lottery, you get a sudden increase in disposable income

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Re-cap and final essay