FLS 6441 - Methods III: Explanation and Causation

Week 11 - Comparative Case Studies & Process Tracing

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Classification of Research Designs

		Independence of Treatment Assignment	**Researcher Controls Treatment Assignment?**
Controlled Experiments	Field Experiments	✓	✓
	Survey and Lab Experiments	✓	✓
Natural Experiments	Natural Experiments	✓	
	Instrumental Variables	✓	
	Discontinuities	✓	
Observational Studies	Difference-in-Differences		
	Controlling for Confounding		
	Matching		
	Comparative Cases and Process Tracing		

Section 1

Comparative Case Studies

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- We need counterfactuals to estimate treatment effects: **Comparative** Cases

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- Common error: "research that tries to explain the outbreak of war with studies only of wars" (KKV)

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  - **Controlling:** Not enough observations
  - **Matching:** More useful

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- **Our Large-N dataset after matching might look very similar to comparative case studies**

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  3. Inequality
  4. Slow economic growth

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	Variable	Case A	Case B
Outcome	Democracy	?	?
Treatment	Development	Low	High
Controls	Religion	Christian	Christian
	Continent	Europe	Europe
	Inequality	0.45	0.44
	Economic growth	1.2%	5%
	National dish	Pasta	Corn
	Length of Railways	400km	120km

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  - Statistical Inference: Non-random case-selection, so generalization is harder

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  - Our goal is not to explain why outcome Y happened in one case, but why it happens generally

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    - Randomized sampling is not the same as randomized treatment
  - Probably easier to 'block' on key confounders and impose variation in treatment - purposive sampling

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  - But: If we select cases explicitly for a *range* of values of the outcome, that's better

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  - Pick units with 'median' values - or a range of values - on the confounding and outcome variables
  - At the same time as balancing confounders - hard!

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  - **Extreme cases:** Highest and lowest values of treatment, eg. Lieberman

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  - **Influential cases:** How sensitive is our relationship to mismeasurement of a key case?

Section 2

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  2. Comparative cases to identify explanation, then **tested for generalizability** in Large-N sample (Lieberman)
  3. Large-N analysis to show **causal effect within-case**, then generalized using comparative case studies (Ziblatt and Slater)

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  - What observable implications are there of theory A? How do they differ from the implications of theory B?
  - Is the evidence consistent with theory A? Or inconsistent with theory B?

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5. Can we eliminate all other theories except our treatment?
   - Sherlock Holmes' Method of Elimination

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- But we don't have any counterfactual to compare against
- The outcome could instead have been caused by a confounder

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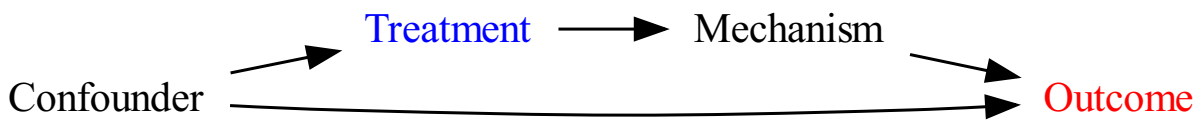
- One way to support our theory is to test the mechanisms along the causal path of treatment:
  - Evidence of M NOT occurring is proof Treatment did not have a causal effect
  - Evidence of M occurring is consistent with Treatment having a causal effect



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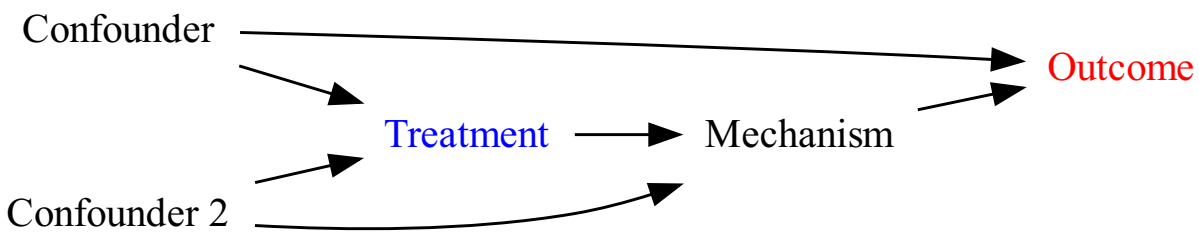
- This is a 'hoop' test



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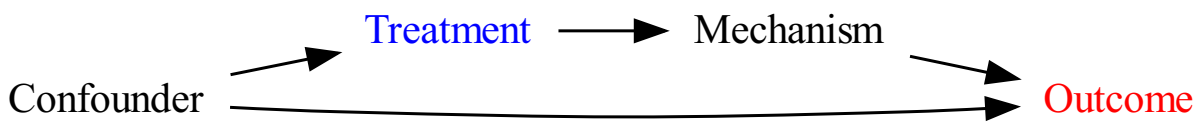
- If there are no other possible confounders consistent with this mechanism, this is a 'Smoking Gun' test



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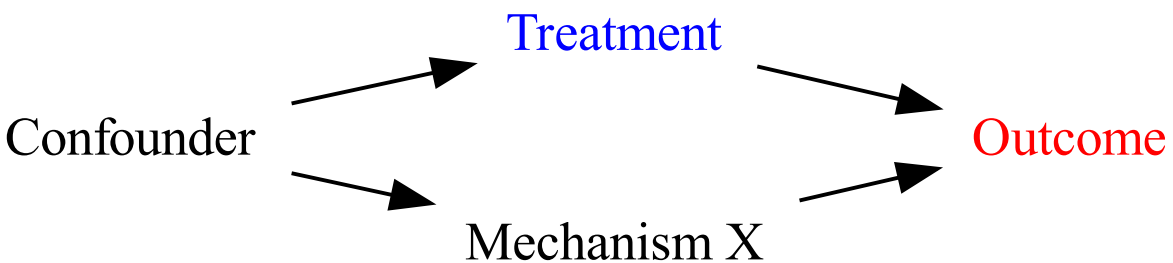
  - Evidence of Mechanism X occurring is consistent with Treatment having a causal effect, but not proof
- This is a 'straw in the wind' test



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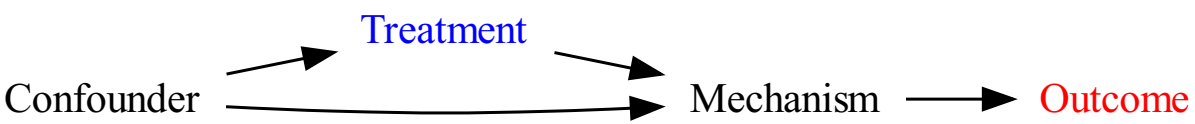
- This is a 'Doubly-Decisive' test



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Process Tracing

- Does Development cause Democracy?
- We only have knowledge about South Korea: It got much richer between 1960 and 1987 when it became a democracy

- But did higher income *cause* democracy?
- Higher incomes raise the demand for democracy, and diversify power away from the state
- If this were true we should see:
  - Opinion polls show increased support for democracy
  - Street protests, especially among the new middle-class
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Process Tracing

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- We still don't know what would have happened if our case had not received the treatment
- We're substituting assumptions/theory for a counterfactual
  - We 'assume' that the only way our treatment could work is through the mechanism we specify
  - And we assume the only way confounding works is through the mechanism we specify
- So everything depends on how confident we are in our theory/assumptions about mechanisms

Process Tracing

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  - Subjective judgment on the weight of each piece of evidence

Process Tracing

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- What are we really learning from process tracing?
- That a treatment caused an outcome **in our specific case**
- But how representative is our case?
- Will the same causal effect occur in other contexts?

Process Tracing

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  - How many voters were **potentially influenced**: 4,200 voters
  - How many voters were **probably treated**: 560 voters

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  - How long was left for the election after treatment?: 10 minutes
  - How many voters were **potentially influenced**: 4,200 voters
  - How many voters were **probably treated**: 560 voters
  - How many voters **likely complied with treatment**: 56 voters

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- Estimated 10,000 lost Republican votes
- The only way the causal effect is true is if there is a causal mechanism connecting the treatment to the outcome:
  - How long was left for the election after treatment?: 10 minutes
  - How many voters were **potentially influenced**: 4,200 voters
  - How many voters were **probably treated**: 560 voters
  - How many voters **likely complied with treatment**: 56 voters < 10,000