POLI210: Political Science Research Methods

Lecture 3.2: Building Theory

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Boring admin stuff

- Discussion board for R questions
- Learning R: try to keep up – it's cumulative
- Office hours: use them!
  - Polling question
- Assignment 1 out – MC status will not update

What is theory?

B&R, p.55: "a theory states that concepts are related, how they are related, and why they are related."

A theory sets the stage for your formal hypothesis

- It justifies why we should think your hypothesis makes sense

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Theories **guide observation**

- There are simply too many observations to be made
- We need theory to help narrow down the search for empirical relationships
- Think of the survey you took: any pair of questions could be analyzed

Why do we need theory? Toshkov's answer

"It is instructive to consider at this point what an atheoretical science would look like. Imagine you arrange to spend a month at a public organisation (say, a ministry) with the purpose of understanding how the organization works. Furthermore, imagine that you manage to lose, on purpose or not, all the theoretical background you had acquired over years of schooling – you forget all concepts such as hierarchy, coordination, and authority; all knowledge of organizational structures, roles, culture, and so on. You approach the organization with your mind as a blank slate, tabula rasa, with the intention to observe and record everything as it is without the interference of theory. But, of course, once you started this atheoretical observation, you would be promptly overwhelmed by a cacophony of impressions, overloaded with information, dizzy from the lack of focus."

(Toshkov 2016, 59)

What qualities should our theories have?

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Why? Multiple reasons (often left implicit) (Gunitsky 2019)

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- Aesthetic: "parsimony as elegance and clarity"
- Ontological: "parsimony as description of the world"
- Epistemological: parsimony as instrumentally valuable
  - There are some things we can safely leave out
  - What does "safely" mean?
  - The theory can still fulfill its intended purpose

Parsimony: making assumptions

In seeking parsimony, we will make *assumptions*

The role of assumptions is often debated...

- Scientific instrumentalism: scientific theory is valuable insofar as it allows for prediction and explanation, regardless of whether or not it is literally true
  - i.e. we know that the assumptions are unreasonable, but we don't care!

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- "Theories 'lie' in the same ways that maps lie, but they do so for a reason: to highlight the salient features of the world." (Gunitsky 2019, 707)
- This is fine! As long as we are being explicit

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- General theories are good, **up to a point**
- There are conditions under which our theory no longer applies (or performs poorly)

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  - Availability of coffee shops
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- The point: there are multiple theories compatible with the association
  - Availability of coffee shops
  - Income
  - Gender
  - Nationalism
- We want to...
  - list the relevant theories
  - derive testable implications for each
  - systematically test them

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- How do we learn if we don't come up with a theory beforehand?

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The problem: not the inductive approach itself! But lack of honesty about how we arrived at our results

References i

Friedman, Milton. 1953. "The Methodology of Positive Economics." In *Essays in Positive Economics*, edited by Milton Friedman, 3–43. University of Chicago Press.

Gerring, John. 2011. *Social Science Methodology: A Unified Framework*. 2nd edition. Cambridge: Cambridge University Press.

Gunitsky, Seva. 2019. "Rival Visions of Parsimony." *International Studies Quarterly* 63 (3): 707–16. https://doi.org/10.1093/isq/sqz009.

King, Gary, Robert O. Keohane, and Sidney Verba. 1994. *Designing Social Inquiry*. Princeton: Princeton University Press.

Toshkov, Dimiter. 2016. *Research Design in Political Science*. Palgrave Macmillan.