

Political Science 104

Lecture 2: Studying Politics Scientifically

Why do we call it political *science* ?

- Politics uses the methods of rhetoric and advocacy to persuade people to adopt a certain point of view.
- Political science uses the scientific method to uncover the true state of the world.
- Analogy from a courtroom: lawyers versus the jury.

Differences in Subject and Method

- Normative versus non-normative (or positive) concerns.
 - Positive: The way the world *is*.
 - Normative: The way the world *should be*.
- Rhetoric and advocacy versus the scientific method.

“[T]he field of science is unlimited; its material is endless; every group of natural phenomena, every phase of social life, every stage of past or present development is material for science. The unity of all science consists alone in its method, not in its material.”

-Pearson, 1892

Our Goal is *Inference*

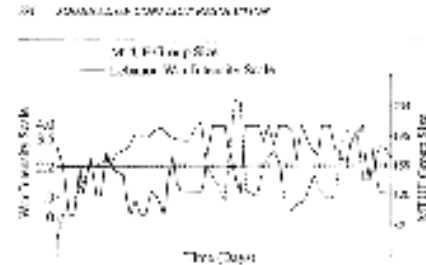
- Inference is the process of using facts we do know to learn facts we didn't know before.
- *Descriptive* inference is using these facts to learn something about the state of the world.
- *Causal* inference is using these facts to learn something about how the world works.

The Scientific Method

- Begin with a *theory* : a general statement about how the world works that specifies a causal mechanism.
- Form a *hypothesis* : a specific prediction that can be empirically verified.
- Gather data.
- Test the hypothesis.
- Reject or fail to reject the hypothesis.
- Integrate the results into your theory.

The Key is Hypothesis Testing

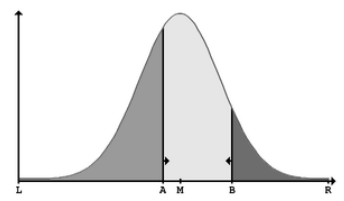
- The hypothesis needs to be *falsifiable*. That is, there needs to be a chance that our known facts will prove the hypothesis wrong. If not, we aren't really learning anything.
- The hypothesis needs to be *testable*. That is, we need to be able to use *empirical* facts to determine if the hypothesis is false.
- Specify a plausible causal relationship. ("A causes B" – B is the *dependent* variable, A is the *independent* variable.)



Membership in meditation group and war in Lebanon. Is this empirical data? A plausible causal relationship?

Example: Rational Choice

- Theory of rational choice: individuals rationally analyze options, choose the one best for them.
- Hypothesis: median voter theorem.



Gathering Data

- *Observation* : A single unit or thing among the type of things you are studying.
- *Unit of analysis* : The type of thing you are studying.
- *Variable* : A characteristic of an observation that can vary across observations.

Test the Hypothesis

- Data for rational choice example:

Person	Vote	Dist A	Dist B
1	B	4	2
2	B	2	3

- Which observation is consistent with our hypothesis?
- Reject or fail to reject hypothesis based on data.

Characteristics of Scientific Knowledge

- *Empirical* : Based on observable data.
- *Replicable* : If I tell you how I collected my data and how I tested it, you should be able to get the same result as me.
- *Explanatory* : Tells us about the state of the world or how things work.
- *Probabilistic* : Tells us how strong the evidence is, never 100% certain.

Deduction versus Induction

- The deductive approach moves from the general to the specific. We start with a general theory, form a hypothesis, and test it.
- The inductive approach moves from the specific to the general. We observe some empirical regularity, form a theory about it, and then test hypotheses related to that theory.