

Crisis Diplomacy

**A Crash Course in
Empirical Analysis**

February 19, 2015

Snow-Induced Schedule Changes

- Midterm is still on Tuesday**
 - Only covers up to last week (Cuban Missile Crisis)**
- Read the Huth/Russett and Lebow/Stein exchange for next Thursday**
- Alliance material will start week after next**

Why Do Empirical Analysis?

- **Lots of variation in the social world**
- **We want to know what accounts for this variation**
 - **Description**
 - **Explanation**
 - **Prediction**
- **Theories suggest where to look**

Caveats

- **No single analysis is conclusive**
- **Testing doesn't tell us which theories are "right"**
- **Theories are valuable in their own right**

A Procedure for Empirical Analysis

- 1. State hypotheses**
- 2. Collect data**
- 3. Perform statistical inference**

Hypotheses

Definitions

***A variable* is a feature of the world whose value may differ.**

***A hypothesis* is a statement about the relationship among certain variables.**

Hypotheses

Unit of Analysis

The *unit of analysis* is the kind of entity the hypothesis is about.

- International system**
- Pair of states**
- Single state**
- State leader**

Hypotheses

Unit of Analysis

"The more states have nuclear weapons, the more often crises will end in war."

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"Crises between nuclear-armed states are more likely to end in war."

Hypotheses

Independent and Dependent Variables

The *dependent variable* is the phenomenon you want to explain variation in.

An *independent variable* is a variable that may account for variation in the dependent variable.

Hypotheses

Falsifiability

A hypothesis is *unfalsifiable* if there is no conceivable set of evidence that would contradict it.

To be testable, a hypothesis must be falsifiable.

Hypotheses

Falsifiability

Falsifiable: In a crisis, nuclear threats increase the risk of war.

Not Falsifiable: In a crisis, nuclear threats increase the risk of war, except when the leaders are dedicated to keeping peace.

Data Collection

Universe of Cases

What data is relevant to the hypothesis?

- Same unit of analysis**
- Meets all background conditions**

Data Collection

Universe of Cases

"Crises between nuclear-armed states are more likely to end in war."

→ All crises

"In a crisis between nuclear-armed states, threats increase the risk of war."

→ All crises between nuclear states

Data Collection

Sampling

- **Good samples**
 - **Full universe of cases**
 - **Random selection of cases**
- **Bad samples**
 - **Convenient/cherry-picked cases**
 - **No variation in the dependent variable**

Data Collection

Operationalization

***An operationalization* is a concrete measurement of an abstract variable.**

Data Collection

Operationalization

How would we operationalize...

- a nuclear threat?**
- an international crisis?**
- the outbreak of war?**

Statistical Inference

You've got a hypothesis, you've collected relevant data—now what?

You want to use the data to draw an inference about the hypothesis.

Statistical Inference

Statistical Significance

How likely would we be to observe data like this if the hypothesis *weren't* true?

- Low enough chance → "statistically significant"**
- Most common means of inference (but others exist!)**

Summary

- 1. Develop hypothesis**
 - What to explain? (dependent variable)**
 - What explains it? (independent variables)**
- 2. Collect appropriate data**
 - Operationalize variables**
- 3. Draw inferences**

For Next Time

- **Midterm exam**
 - **Short essay**
 - **Choice among prompts**
 - **Open-book, open-note**
 - **No electronic devices**

Image Sources

- **Unix workstations: Anil Bawa-Cavia, via Flickr**
- **Nashville snowfall 2010: Rex Hammock, via Flickr**