Making Causal Critiques

Day 1 - Deconstructing an Argument

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Causal Critiques

- Political science is about *explaining* outcomes
  - Do parliamentary systems last longer than presidential ones?
  - Does development lead to democracy?
  - Does democracy prevent war?
  - Did voters support President Trump because of jobs lost to immigration?

Causal Critiques

- What is a causal critique?

Do parliamentary systems last longer than presidential ones?	"No, Parliamentary systems last longer because they are in Europe, not because they are parliamentary"

Causal Critiques

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Causal Critiques

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Does development lead to democracy?	"No, democracy causes development"
Does democracy prevent war?	"Of course not, India and Pakistan were democracies and had a war in 1999"

Causal Critiques

- What is a causal critique?

Do parliamentary systems last longer than presidential ones?	"No, Parliamentary systems last longer because they are in Europe, not because they are parliamentary"
Does development lead to democracy?	"No, democracy causes development"
Does democracy prevent war?	"Of course not, India and Pakistan were democracies and had a war in 1999"
Did voters support President Trump because of jobs lost to immigration?	"Obviously not, jobs were lost to technological change"

Causal Critiques

- What is a causal critique?
  - A comment at a seminar
  - A critique of a policy
  - A response as a journal referee
  - Advice to a friend
  - A worry about your own research paper

What makes an Argument?

- Explanation requires:
  1. Evidence
  2. Theory

What makes an Argument?

- Why does a ball always fall downwards?
  - What is the evidence?

What makes an Argument?

- Why does a ball always fall downwards?
  - What is the evidence?
  - What is the theory?

What makes an Argument?

- Why does a ball always fall downwards?
- Evidence can be:
  - **Quantitative**: We take a series of numeric measurements of the direction of the ball's travel
  - **Qualitative**: We observe or ask people about the direction of the ball's travel
- But the same **Logic of Inference** applies to both
  - We want to gather information to reliably evaluate if a theory is correct
  - Our conclusions are always uncertain, but we want to limit the uncertainty

What makes an Argument Convincing?

- To be good causal explanations, theories need to be **logically consistent**
  - All policemen wear hats. This person is a policeman. Therefore this person is wearing a hat.
  - $\forall p : h, p \Rightarrow h$

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  - All policemen wear hats. This person is wearing a hat. Therefore this person is a policeman.
  - ~~$\forall p : h, \Rightarrow p$~~

What makes an Argument Convincing?

- Logical Fallacies
  1. **False syllogism**: Conclusions do not follow from premises
     - Eg. Some cats are black. Some black things are televisions. Therefore some cats are televisions.
  2. **False dichotomy**: Restricting the possible options to only two
     - Eg. "Either we attack them first or they attack us first"
  3. **Circular reasoning**: The conclusions just restate the premises
     - Eg. "Abortion should be legal because women have the right to an abortion."

What makes an Argument Convincing?

- Logical Fallacies
  4. **Over-generalization**: Extending the conclusions beyond the scope of the evidence
     - Eg. "All of my friends support party X so of course they will win the election"
  5. **Post hoc Fallacy**: Just because something happened earlier does not mean it was the cause
     - Eg. "You moved into this apartment yesterday and now the cooker is broken. It must be your fault."
  6. **Appeal to Authority**: Assuming the author is right because they are senior
     - Eg. Assuming that political science professors know what they are doing!

What makes an Argument Convincing?

- Does the introduction of mobile phone service reduce price variation in Kerala's fishing industry?
  - Jensen et al 2007

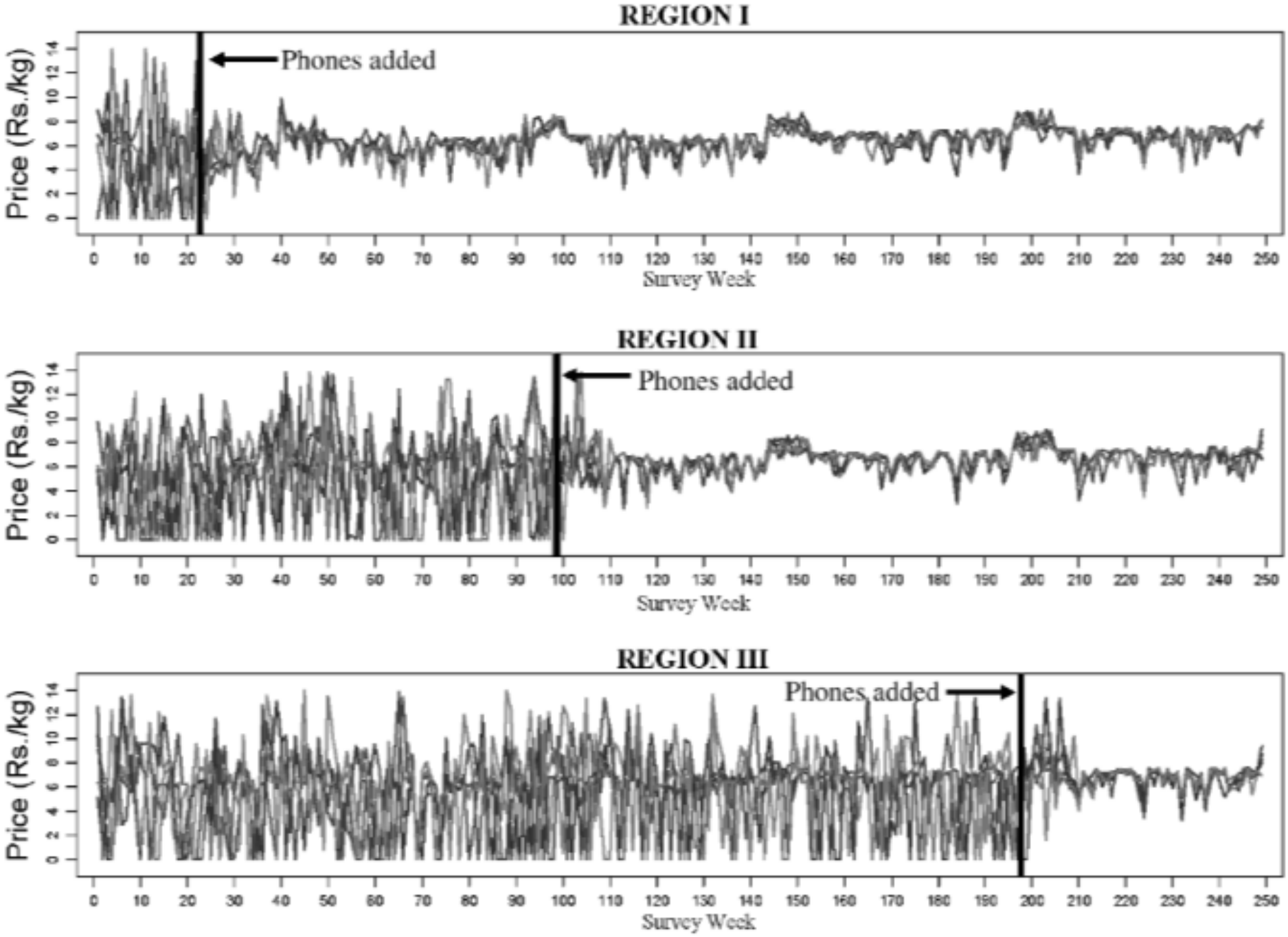


FIGURE IV

Prices and Mobile Phone Service in Kerala

What makes an Argument Convincing?

- Gathering evidence in political science is particularly hard:
  1. Humans are complex and unpredictable, unlike the natural sciences
  2. Societies are even more complex interactions of millions of humans
  3. Everyone has an opinion, including researchers
  4. Ethical constraints on the data we can gather
  5. Political explanations in one place may not work in another

Deconstructing a Political Science Paper

- Before we can critique an argument we have to understand its content
  - What concepts it uses
  - How those concepts are measured
  - What theory connects the concepts
  - Where did the data come from?
  - What methodology produced the evidence?
  - What is the scope of the argument's application?

Deconstructing a Political Science Paper

- How to read a political science paper:
  - Actively, intentionally
  - Not like a Harry Potter book!
  - Read the abstract, conclusion, charts many times
  - Look for keywords: "We can conclude that...", "Our argument is that..."
  - Make notes *only* of what you have learnt
  - Summarize the paper in your own words

Deconstructing a Political Science Paper

- Elements of a political science paper:
  - **Research question** - the authors are engaging with a specific literature/puzzle
  - **Answer/Causal argument** - "We argue that increases Y"
  - **Scope of argument** - Does the argument apply only to democracies, Asian countries, since World War II, only to women?

Deconstructing a Political Science Paper

- Elements of a political science paper:
  - **Concepts/Variables** - What political factors do the authors think matter?
  - **Measures** - What political factors do the authors actually measure?
  - **Units of Analysis** - At what level are these measures taken; individuals, countries, city-years?
  - **Role of Variables** - Which is the outcome variable and which the explanatory? What controls are used?

Deconstructing a Political Science Paper

- Elements of a political science paper:
  - **Theory** - What social, economic or psychological process links the explanatory and outcome variables?
  - **Methodology** - What strategy do the authors use to gather evidence to evaluate the theory?
  - **Evidence** - What evidence does the methodology produce?

Deconstructing a Political Science Paper

- Methodology is crucial
- Where did the dataset come from?
  - Sampling strategy
  - Questionnaire and survey protocol
  - Measurement error
  - Data entry, cleaning
  - Statistics/statistical model chosen
- How does this data help us answer the question?

Deconstructing a Political Science Paper

- Methodologies for gathering evidence:
- Observational Studies:
  - Case Study, Process Tracing
  - Comparative Cases
  - Regression with controls
  - Matching

Deconstructing a Political Science Paper

- Methodologies for gathering evidence:
- Experimental Studies:
  - Field Experiment
  - Lab/Survey Experiment

Deconstructing a Political Science Paper

- Methodologies for gathering evidence:
- Quasi-Experimental Studies:
  - Natural Experiment
  - Instrumental Variable
  - Regression Discontinuity
  - Difference-in-Differences

Title:

Authors: **Year:**

Research Question:

Answer/Causal Argument:

Scope of Argument (in Time, Space, Demographics etc.)**:**

Concept/Variable	Measure	Unit of Analysis	Role (DV, XV, Control)

Theory:

Evidence:

Methodology:

- ❑ Case Study, Process Tracing
- ❑ Comparative Cases
- ❑ Regression with Controls
- ❑ Matching
- ❑ Field Experiment
- ❑ Lab/Survey Experiment
- ❑ Natural Experiment
- ❑ Instrumental Variable
- ❑ Regression Discontinuity
- ❑ Difference-in-Differences

Title: Making Democracy Work

Authors: Robert Putnam **Year:** 1993

Research Question: Why are some parts of Italy governed better than others?

Answer/Causal Argument: Places with more civic social interactions have better government

Scope of Argument (in Time, Space, Demographics etc.): Advanced Democracies

Concept/Variable	Measure	Unit of Analysis	Role (DV, XV, Control)
Civil Society	Density of sports clubs, newspapers, electoral turnout	Region	Explanatory Variable
Government Performance	12 Indicators, eg. Budget on time, number of day care centres per child	Region	Dependent Variable
Wealth	GDP per capita	Region	Control Variable

Theory: Civic interactions between people and groups create trust and more 'horizontal' relationships that prevent government from being predatory

Evidence: Regions of Italy with similar institutional rules and similar wealth but with more civil society have, on average, better performing government

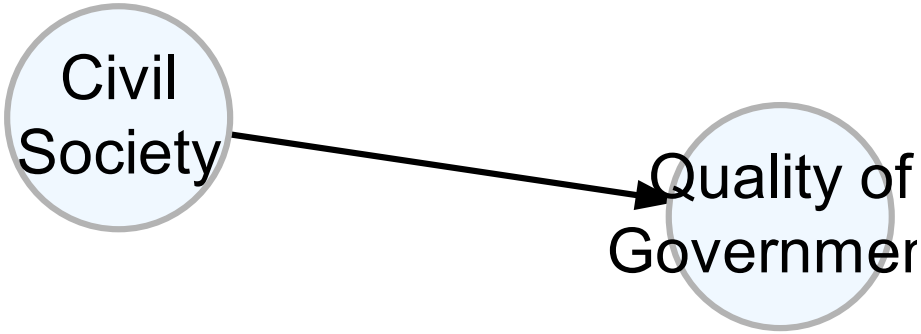
Methodology:

- ❑ **Case Study, Process Tracing**
- ☒ **Comparative Cases**
- ❑ **Regression with Controls**
- ❑ **Matching**
- ❑ **Field Experiment**
- ❑ **Lab/Survey Experiment**
- ❑ **Natural Experiment**
- ❑ **Instrumental Variable**
- ❑ **Regression Discontinuity**
- ❑ **Difference-in-Differences**

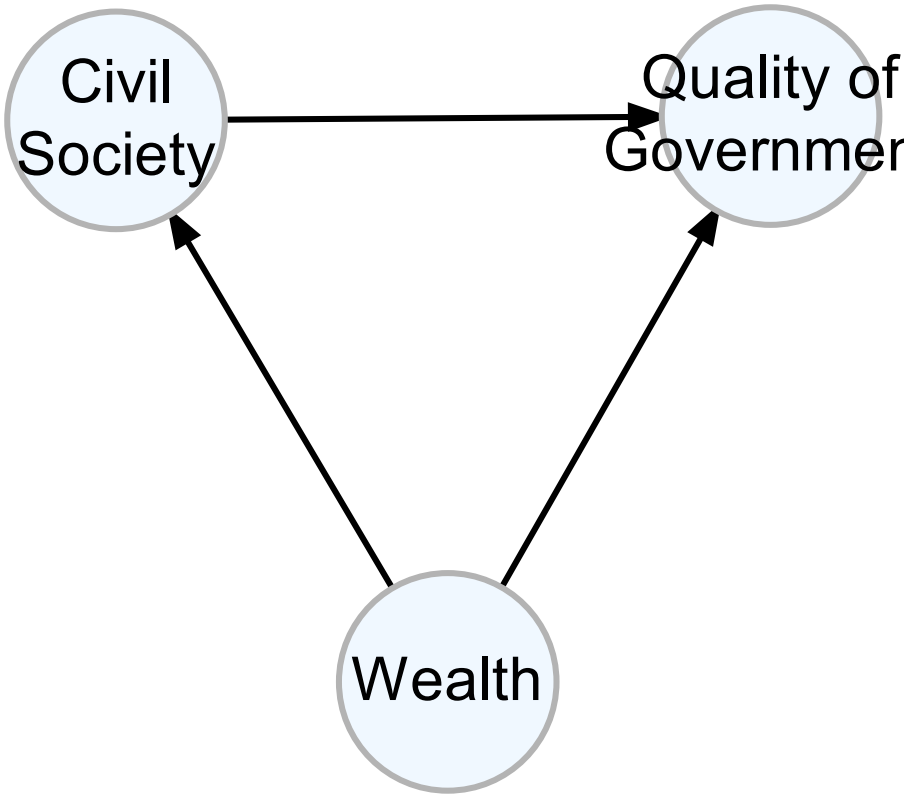
Deconstructing a Political Science Paper

- Using Causal Diagrams to clarify arguments
- Technically, "Directed Acyclical Graphs" (DAGs)
  - Write all the variables on the paper
  - Connecting them with arrows to represent the author's **causal** argument
  - And also the *threats* to the author's argument
    - Even if they can't be measured

Deconstructing a Political Science Paper



Deconstructing a Political Science Paper



Types of Causation

1. **Deterministic Causation** - If x then y
2. **Probabilistic Causation** - If x then the probability of y increases
3. **Conjuctural Causation** - If $x1$ and $x2$ then y
4. **Equifinality Causation** - If $x1$ or $x2$ then y
5. **Non-Linear Causation** - If $x > 1000$ then y
6. **Path-Dependent Causation** - If x and $t = 10$ then y
7. **Granger Causation** - If x before y, x causes y

What makes a Good Causal Argument? (Gerring 2005)

1. **Specificity** - Is the argument clear and internally consistent?
2. **Parsimony** - Is the argument simple?
3. **Power** - How much does y change?
4. **Precision** - How much uncertainty is there about how much y changes?
5. **Scope** - What is the breadth of conditions under which the effect occurs
6. **Differentiation** - Is the x sufficiently different from the y
7. **Normality** - Is x a common event?
8. **Mechanism** - Do we understand what connects x to y?
9. **Consistency** - Is the argument consistent with our other knowledge about the world?
10. **Policy-relevance** - Can the argument help us design better policy?

What makes a Good Causal Argument? (Gerring 2005)

- Evaluate these causal arguments based on the above criteria:
  - Every extra $1000 of income per person makes democracy 10% more stable, +/-8
  - Tall presidents are more successful
  - Non-African countries with open-list proportional representation in the Southern hemisphere always pass their budgets late

What makes Good Causal Evidence? (Gerring 2005)

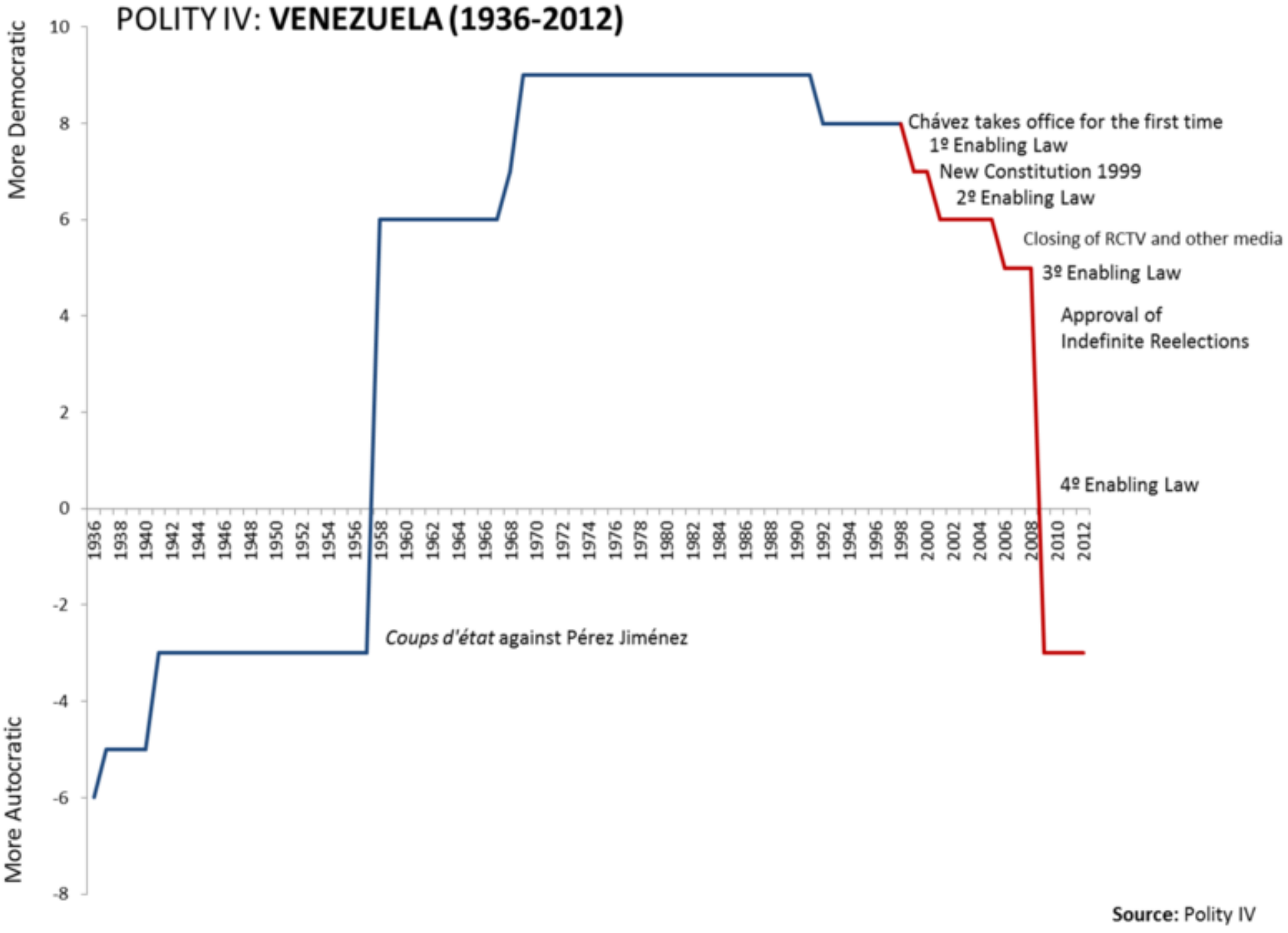
1. **Sample Size** - How many cases are we learning from?
2. **Variation** - Do the causes and outcomes really vary in the sample?
3. **Representative** - Does the sample reflect the population?
4. **Independence** - Are the observations clustered (and therefore less useful)?
5. **Comparability** - Are the units of the same type?
6. **Transparency** - Do the data tell us about the mechanism connecting x and y?
7. **Replicability** - Can we take the same (or similar) data and reach the same conclusion?

What makes Good Causal Evidence? (Gerring 2005)

- Evaluate this causal evidence based on the above criteria:
  - 30 interviews with male politicians in Iraq to understand whether education levels affects how they govern
  - Analysis of secondary data from Africa to understand if drought (measured as rainfall/km^2) causes more violence (measured as number of terrorist attacks)
  - Representative household survey of 20,000 Mexican voters to assess whether perceptions of the economy affect voting behaviour

Fundamental Critiques

-
- **Conceptual Validity** - Competitive authoritarianism vs. Illiberal Democracy
  - Avoid conceptual stetching!
  - We can move "up and down the ladder of generality" (Sartori)
- **Measurement Validity** - when scores "meaningfully capture the ideas contained in the corresponding concept"
  - Does the scale make sense? Is democracy binary or continuous?
  - Are the cases (units) scored correctly? How reliable is the scoring?


POLITY IV: VENEZUELA (1936-2012)
More Democratic
More Autocratic
10
8
6
4
2
0
-2
-4
-6
-8
1936
1938
1940
1942
1944
1946
1948
1950
1952
1954
1956
1958
1960
1962
1964
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
Chávez takes office for the first time
1º Enabling Law
New Constitution 1999
2º Enabling Law
Closing of RCTV and other media
3º Enabling Law
Approval of
Indefinite Reelections
4º Enabling Law
Coups d'état against Pérez Jiménez
Source: Polity IV