Poli 30D Political Inquiry
Research Design: Application

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Contact Information

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We have someone to help you every day!

Professor Desposato	M	1330-1500 (Latin American Center)
Shane Xuan	Tu	1600-1800 (SSB332)
Cameron Sells	W	1000-1200 (SSB352)
Kelly Matush	Th	1500-1700 (SSB343)
Julia Clark	F	1200-1400 (SSB326)

Supplemental Materials
Our class oriented
ShaneXuan.com
UCLA SPSS starter kit
www.ats.ucla.edu/stat/spss/sk/modules_sk.htm
Princeton data analysis
http://dss.princeton.edu/training/

Announcement

(1) Second SPSS lab on 11/9 – 11/10 at ERC 117 (same as our last lab)!

(2) No section during the Thanksgiving break

(3) Office hour change

Learning Outcome

Here is the course plan:

   – Causality

   – Experimental studies

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- – Causality
- – Experimental studies
- – Observational studies
- – Application: crosstabs

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Here is the section plan:

- – Building blocks: definitions, causality …
- – Applications: experiments, observational studies, SPSS(!)

Quiz

Before we start moving on, I want to make sure that you understand the building blocks of research design

- Explain the difference between population parameters and sample statistics
- Again, please have your name and email written

LAST NAME, FIRST NAME
EMAIL

ANSWER

Road Map

We focus on the applications of research design today:

1) Randomized experiment
2) Quasi-experiment
3) Natural experiment
4) Observational study

Key Concepts

Randomized Experiment
Researchers control the independent variable, and subjects are randomly assigned to treatment or control groups.

Control Group
The treatment group receives the treatment, the control groups receives a placebo. And the control group is used as a benchmark to measure how the other tested subjects do.

Internal Validity
Internal validity refers to how well an experiment is done, especially whether it avoids confounding (so that the relationship IV $\rightarrow$ DV is plausible).

External Validity
External validity judges how confident we can be that a causal relationship identified in our cases can be generalized to the outside world.

Research design

1) Randomized experiment

Research design

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2) Observational study
   - Independent variable is outside researchers' control
   - Sample ⤳ inference ⤳ population
   - Diamond (1999)

Research design

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2) Observational study
    - Independent variable is outside researchers' control
    - Sample $\rightsquigarrow$ inference $\rightsquigarrow$ population
    - Diamond (1999)
3) Quasi-experiment
    - Lacks random assignment to treatment or control
    - Campbell & Ross (1968) $\rightsquigarrow$ Time-series

Research design

1) Randomized experiment
2) Observational study
   - Independent variable is outside researchers' control
   - Sample ⤳ inference ⤳ population
   - Diamond (1999)
3) Quasi-experiment
   - Lacks random assignment to treatment or control
   - Campbell & Ross (1968) ⤳ Time-series
4) Natural experiment
   - Treatment and control conditions are determined by factors outside researchers' control
   - Angrist (1990) The institution of a draft lottery was created in 1970 to determine draft eligibility. In each year from 1970–1972, random sequence numbers were *randomly* assigned to each birth date in cohorts of 19 year olds. As a result, we can treat one's Vietnam-era military service *as if* random.

Gerber & Green 2000

– Context: 30,000 registered voters in New Haven, Connecticut
– Logistics: Nonpartisan get-out-the-vote messages were conveyed through personal canvassing, direct mail, and telephone calls shortly before the November 1998 election.
– Finding: Voter turnout was increased substantially by personal canvassing, slightly by direct mail, and not at all by telephone calls.

Gerber & Green 2000

– Model: The probability that a randomly selected member of the control group will vote equals

$$P_C = \alpha p_r + (1 - \alpha)p_{nr}$$

where α is probability that an individual member of the control group is "reachable", p_r is probability a reachable person votes, and p_{nr} is the probability a person of a non-reachable person voting. The probability that a randomly selected member of the treatment group will vote equals

$$P_E = \alpha(p_r + t) + (1 - \alpha)p_{nr}$$

where the difference is due to the effect of the experimental treatment

$$t = \frac{P_E - P_C}{\alpha}$$

Diamond 1999

Observational Study
Data come from naturally occurring cases in the real world. There is *no* random assignment.

- Puzzle: Why have Eurasian civilizations survived and conquered others?

- Argument: In a comparison of societies, structural factors that promote agriculture and conflict lead to a dominant society while cold and isolation lead to subjugation.

$$\text{Agriculture \& Conflict} \rightarrow \text{Domination}$$
$$\text{Cold \& Isolation} \rightarrow \text{Subjugation}$$

Controlled Comparison

Controlled Comparison examines relationship between an independent and a dependent variable, while holding other variables constant.

Consider the following three scenarios:
- Spurious relationship
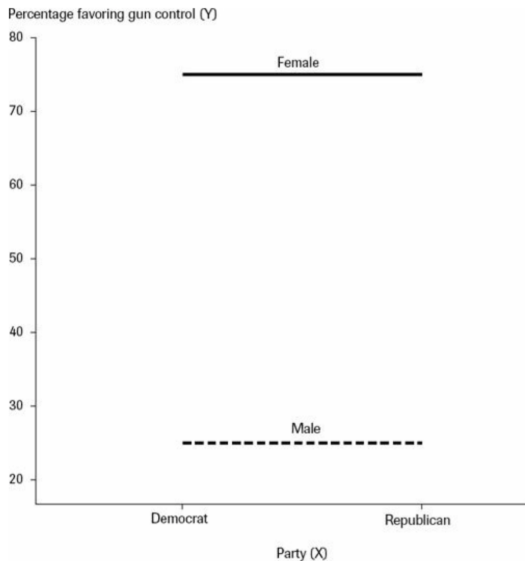- Additive relationship
- Interactive relationship

Controlled Comparison

Spurious Relationship

Figure: Partisanship and Gun Control (Source: Pollock)

Spurious Relationship
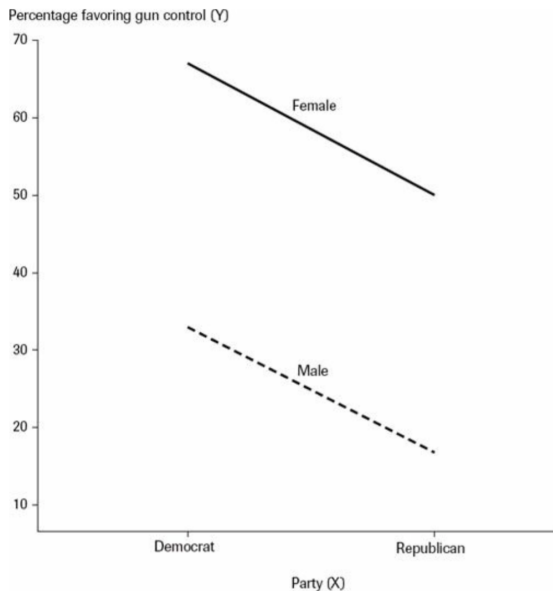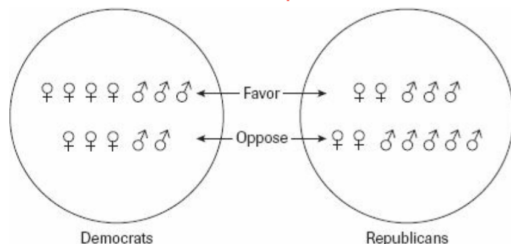
Controlled Comparison

Additive Relationship
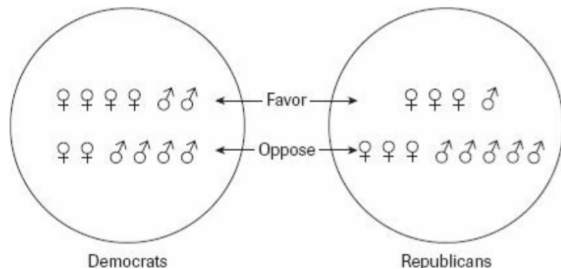
Controlled Comparison

Additive Relationship

Controlled Comparison
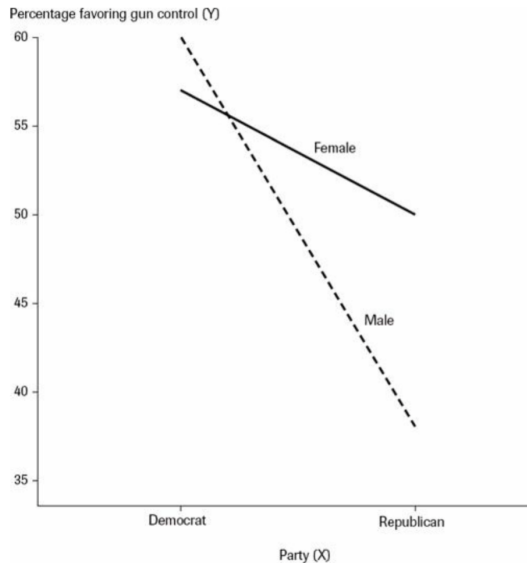
Interactive Relationship

Interactive Relationship

Controlled Comparison

Wrap-up

1) Does DV-IV persist within at least one control?
   No ⇝ Spurious
   Yes ⇝ Check criterion 2)

2) Does DV-IV run in the same direction in all control categories?
   No ⇝ Interactive
   Yes ⇝ Check criterion 3)

3) Is strength of DV-IV similar in each control category
   No ⇝ Interactive
   Yes ⇝ Additive

SPSS(!)

- We will hold our second SPSS lab soon
    a) Recoding (wrap up)
    b) Regression
- For today, let's talk about cross-tabs!

Crosstabs in SPSS

Syntax: CROSSTABS TABLES = var1 BY var2

Example:
CROSSTABS TABLES = V43 by V1

Example:
CROSSTABS TABLES = V43 by V1 / CELLS = COUNT COL

Crosstabs in SPSS

			Gender		
			1	2	Total
Federal Budget Spending: aid to the poor	1	Count	448	670	1118
		% within Gender	51.2%	59.1%	55.7%
	2	Count	322	370	692
		% within Gender	36.8%	32.7%	34.5%
	3	Count	105	93	198
		% within Gender	12.0%	8.2%	9.9%
Total		Count	875	1133	2008
		% within Gender	100.0%	100.0%	100.0%