POLS 205
Political Science as a Social Science

Qualitative & Quantitative Research Design

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April 19, 2010

Outline

Distinguishing Qualitative & Quantitative Methods

Methods of Observation

Inference in Qualitative Research

Case Selection Strategies

Qualitative vs. Quantitative: How to choose

What is *quantitative analysis*?

Use of statistical methods to understand relationships among numerically* coded variables

*Numerically coded $\neq$ Intrinsically numeric.

Examples of numerically coded variables:

- What is your personal income in dollars
- What is the consensus of an expert panel on whether a country was a majoritarian democracy ?
- What is the degree of ethnic division in a society, as defined by ethno-linguistic fractionalization?

  (Ethnolinguistic fractionalization is the probability that two randomly drawn people either self-identify as different ethnicities or speak different native languages.)

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3. **Can even code subjective variables as numbers, as long as we do so consistently across cases**

Quantitative methods can study quantitative *or* qualitative data!

What are qualitative methods, then?

Use of systematic but non-statistical methods to understand relationships among qualitative or quantitative variables

Note several things:

- Qualitative methods are varied. “Non-statistical” covers a lot of ground.
- Variables need not be numerically coded. May be precisely qualitatively coded, but might not. Could be “thick”, or detailed.
- Description may be as important or more important than inference of relationships. May be laying foundation for later measurement & inference.

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$N = 1$ These are always qualitative: *Case studies*.
What is a "case"? Chance to measure the dependent variable.
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$N > k$ This is a *"large"-N* design. Usually quantitative

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Example: Survey of day-laborers at a street-corner, versus hours spent in free-form conversation

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Ethnography/Fieldwork Invest many hours in following actors in the field; collect detailed, qualitative observations; soaking-and-poking

Example: Richard Fenno's *Homestyle*; followed 17 members of Congress over 1970–76, personally observing styles of interaction with constituents over thousands of hours

Fenno, *Homestyle*

Congressman J: Person-to-person, constituent service

Congressman J comes from a hetereogenous district. . . . "It's in effect four different districts. . . "

[Congressman J's] preferred presentational style was (and is) person to person. "It doesn't fit my temperament to handshake without stopping to talk with each person. Then I feel like I can understand them and they can understand me."

. . . the segmented district he swallowed in small, sequential bites now protects him. No one can swallow it whole. . . "Each area is only interested in its own problems. That's what makes it so easy for an incumbent. He can provide services in each of the towns. . . In a totally suburban district someone can move in and take over. You can't do that with mine. It's too big and diverse.

Fenno, *Homestyle*

Congressman E: Public events, constituent service

"This district", [Congressman E] says, "is a microcosm of the nation. We are geographically southern and politically northern. We have agriculture. . . We have big business like Union Carbide and General Electric. We have unions. We have a city and we have small towns. . .

Congressman E is not a native of the area. So he does not view the district with Congressman B's ingrained local-boy sensitivity. . .

When asked to select the most important event of a busy campaign weekend, he chose walking in a parade. "Whenever you get 10,000 people, that's important.. . . But the most productive use of my time was my news conference. That got me more coverage—all the TV stations and two newspapers."

Classifying methods of observation

Approach	Direct?	Participant?	Overt?	Structured?
Archives				

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Archives	Indirect*			

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* Usually, but not always

A large debate on inference in qualitative methods

1. King, Keohane, & Verba: Qualitative Inference is subject to all the same rules as quantitative inference

   Same pitfalls, same dangers

   So should adapt strategies from quantitative to combat them
2. Brady & Collier & others: Not so simple

   Qualitative methods may tackle some problems quantitative can't

   Examples: Better at tracing causal processes, thickly describing cases

Your instructor is a.) quantative and b.) closer to the KKV camp, but you should keep an open mind

If qualitative researchers don't feed their data into a statistics package, how do they infer causation?

Mill's Methods of Inference

A key starting point for qualitative inference is 19th c. political philosopher J. S. Mill

J. S. Mill (1843, *A System of Logic*) proposed five methods of inference:

1. Method of Agreement
2. Method of Difference
3. Joint Method of Agreement and Difference
4. Method of Concommitant Variation
5. Method of Residues

1, 2, and 4 predate Mills: Abu Ali Sina Balkhi (Avicenna), *The Canon of Medicine*, 1025 CE.

Mill's Method of Agreement

Potential causes							Potential effects						
A	**B**	**C**	**D**	**E**	**F**	**G**	**t**	**u**	**v**	**w**	**x**	**y**	**z**
•	•	•	•				•	•	•	•			
•				•	•	•				•	•	•	•

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In symbols, we infer:

$$A \Leftarrow w \qquad or \qquad A \Rightarrow w \qquad or \qquad A \Leftrightarrow w$$

Mill's Method of Agreement: Example

	Potential causes				Potential effects
Subjects	Spinach	Curry	Shrimp	Tuna	Sick?
Me	•	•	•	•	•
E.	•			•	•
S.	•	•			•
A.	•		•		•

If we apply Mill's Method of Agreement, what do we conclude?
Which potential causal variable(s) is common to all cases of sickness?
Spinach is a likely cause/contributor/effect of being Sick

Are you persuaded?

Suppose I tell you that the Method of Agreement supports my hypothesis. Are you persuaded?

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But wait! Wouldn't a sample of non-murderers say the same during a recession?

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Last attempt: "Murder is always the result of drug abuse." . . . At least in my 5 cases. . .

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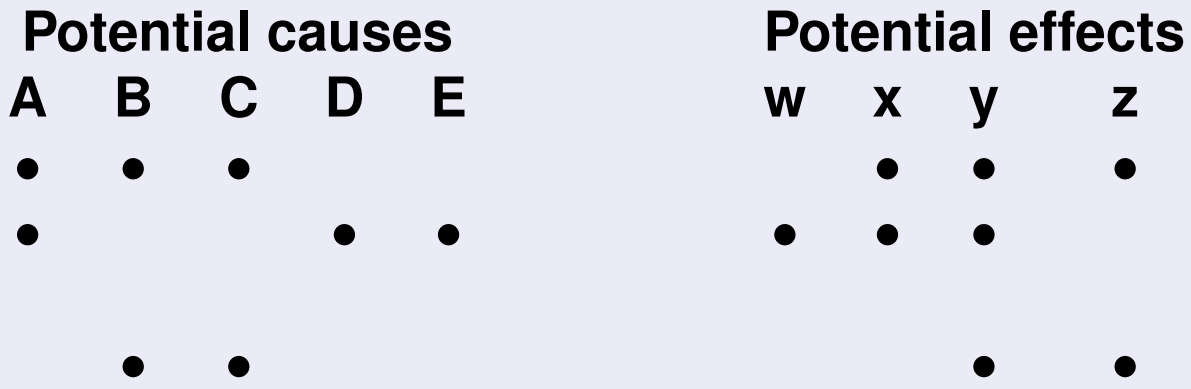

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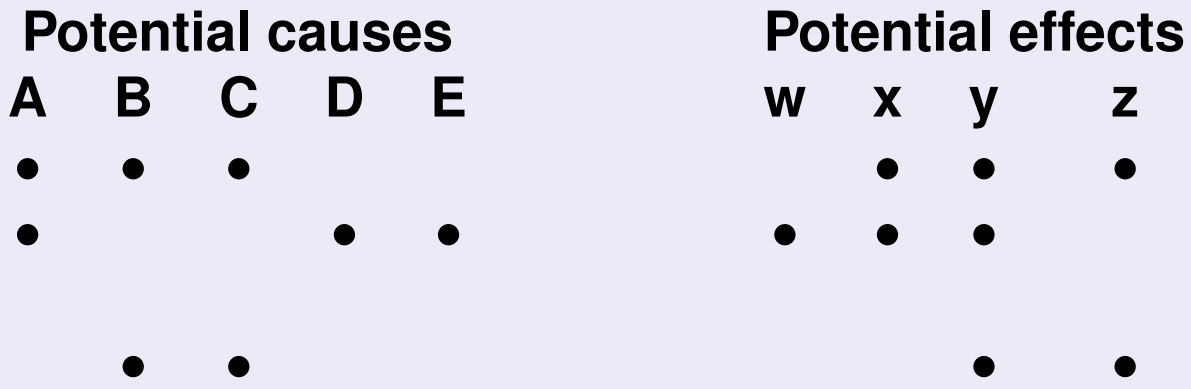

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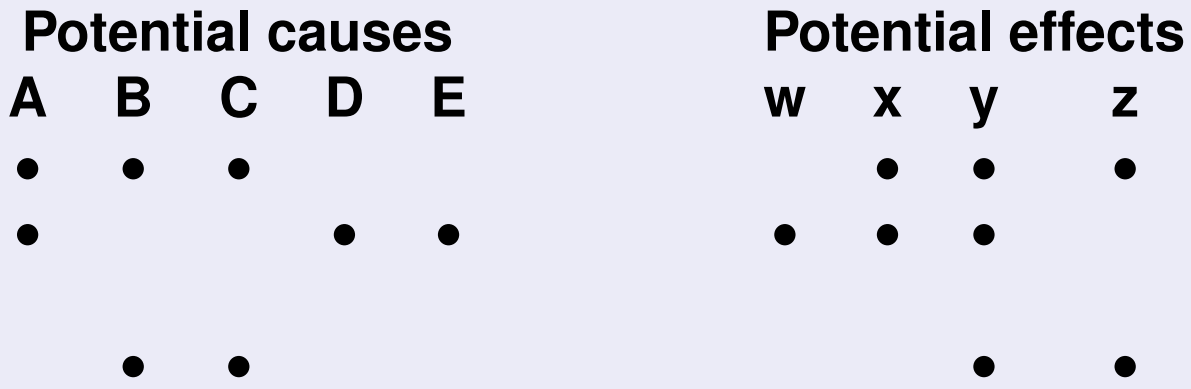

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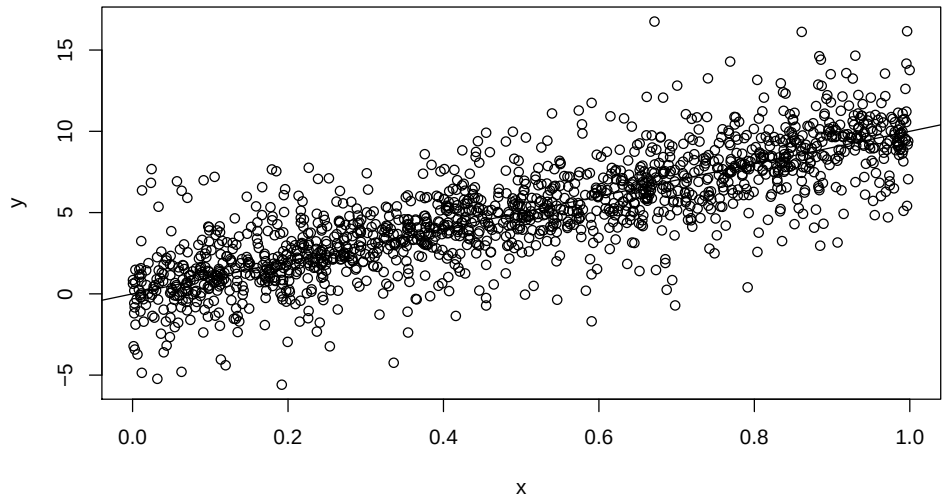
If we *then* apply Mill's Method of Agreement, what do we conclude?
Only Curry is a likely cause/contributor/effect of being Sick



Mill's Method of Concommitant Variation says that if X and Y are correlated, they may be causally related

We know this one, and know how to make it *probabilistic*

Mill's Method of Residues

If we already know that $A \Rightarrow X$ *and* $B \Rightarrow Y$*, then* $C \Rightarrow Z$

Example: A doctor sees a patient who has a rash, a headache, and a stomach ache.

The previous day, that patient had oysters (which the doctor "knows" cause rashes), wine (which the doctor "knows" cause headaches) and fish.

The doctor deduces the fish caused the stomach ache.

Silly, and deeply flawed

Mill's Methods

At their best (ie, discarding "method of residue" and "direct method of agreement") Mill's Methods have some serious flaws:

1. Work poorly if causal processes are noisy
2. Work poorly if covariates are correlated
3. Tend towards monocausal explanations

However, not a terrible place to start, especially if you are using your qualitative study to build a theory, and plan to quantitatively test later (mixed methods)

Aside on Necessary & Sufficient Conditions

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Consider the following *deterministic* relationships:

1. $(A\&B) \mid (A\&C) \Rightarrow X$
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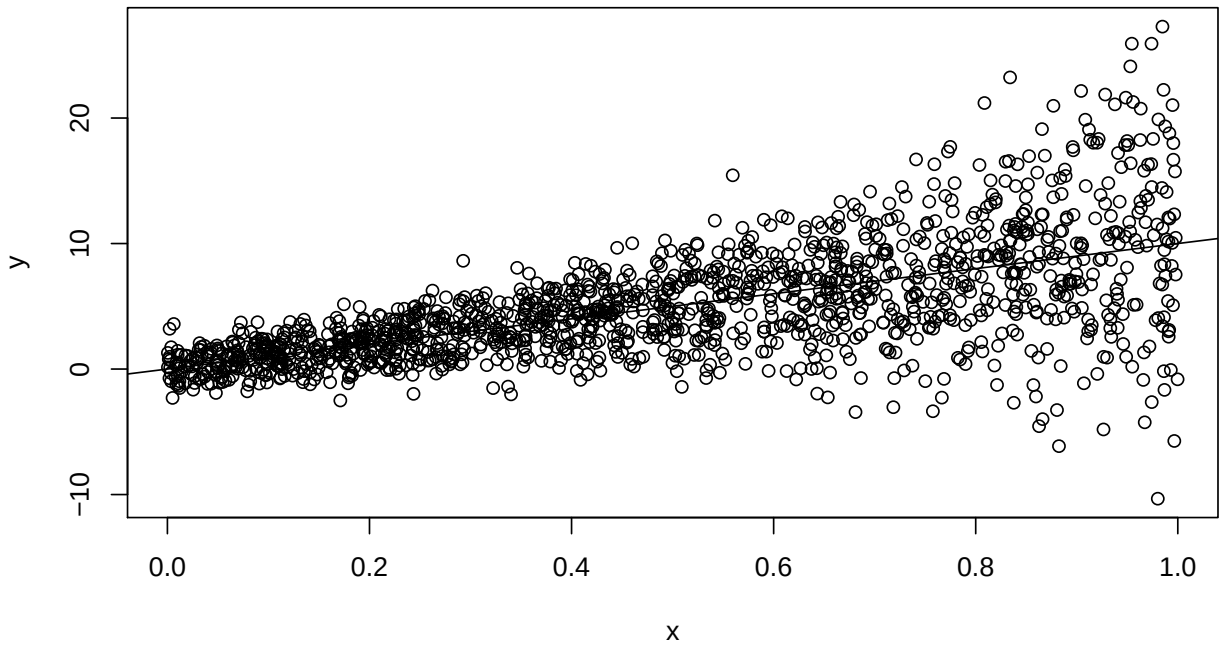
   E.g., X is "person voted" and A is "benefit of voting exceeded cost" and B is "social pressure to vote"

   Easy to add trivial necessary conditions here too; but only worth adding if substantively interesting



What a *probabilistic* necessary but not sufficient conditions looks like
Very common pattern in social data
Potential examples: War & power balance; Large welfare states & industrialization; Close roll call votes and controversy

Selection bias

If we select observations non-randomly from the world, our inferences may be *biased*

- Average children per marriage is 2.5. How many were in your family growing up? Are these numbers different? Who is "left out" in the second sample?

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- Average children per marriage is 2.5. How many were in your family growing up? Are these numbers different? Who is "left out" in the second sample?
- In testimony to HI state senate, motorcyclists testified that in their (multiple) crashes, helmets would not have prevented injuries. Who didn't testify?

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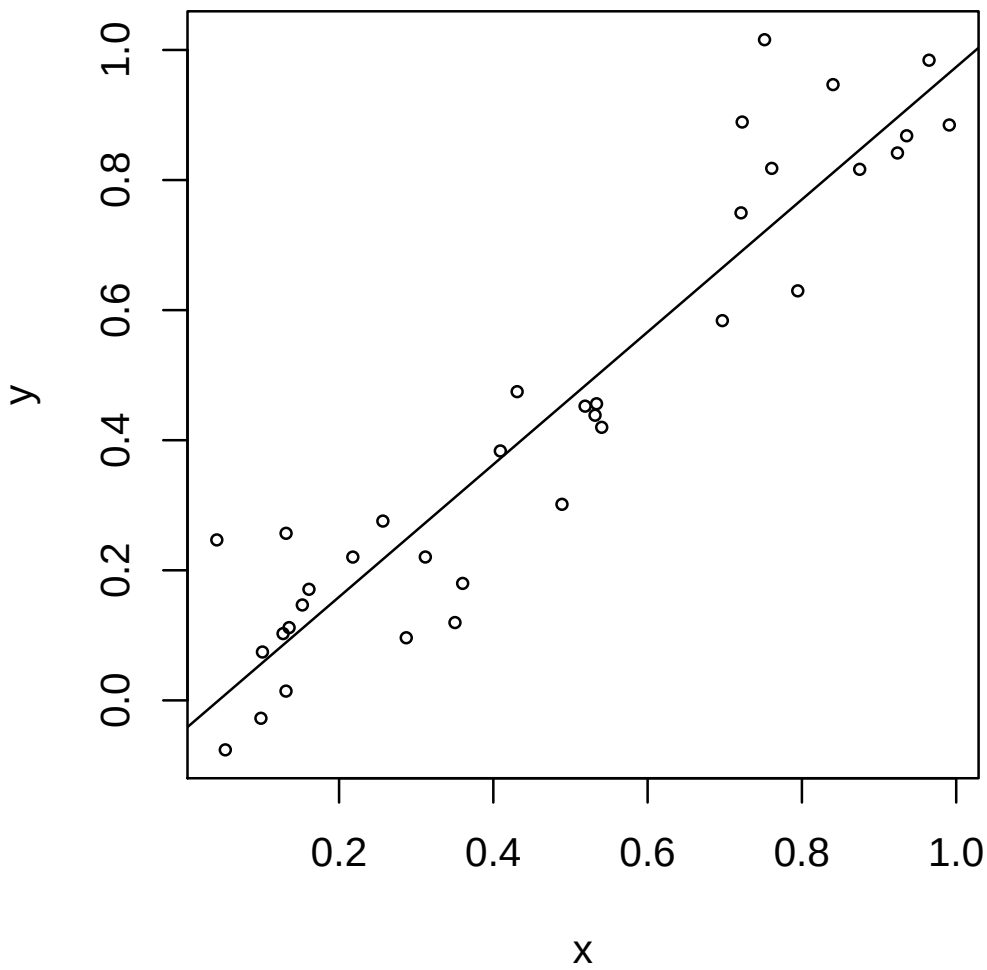
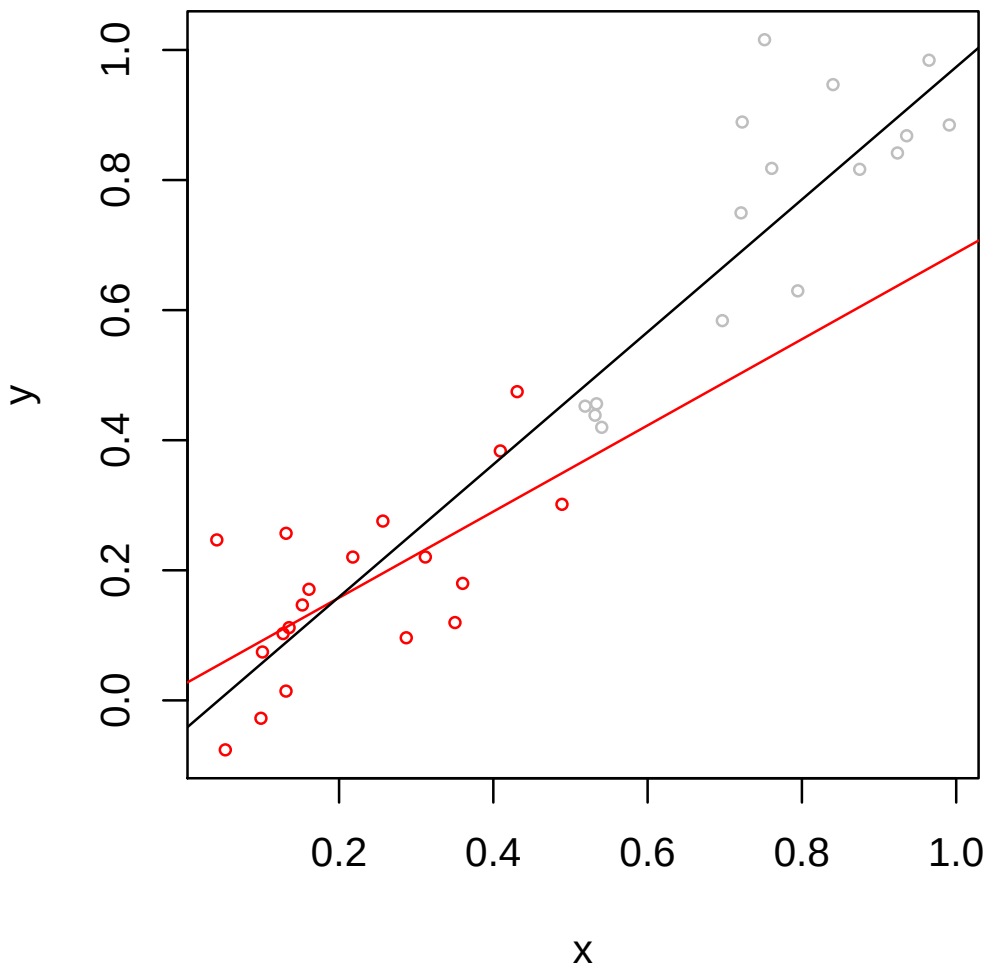
If we select observations non-randomly from the world, our inferences may be *biased*

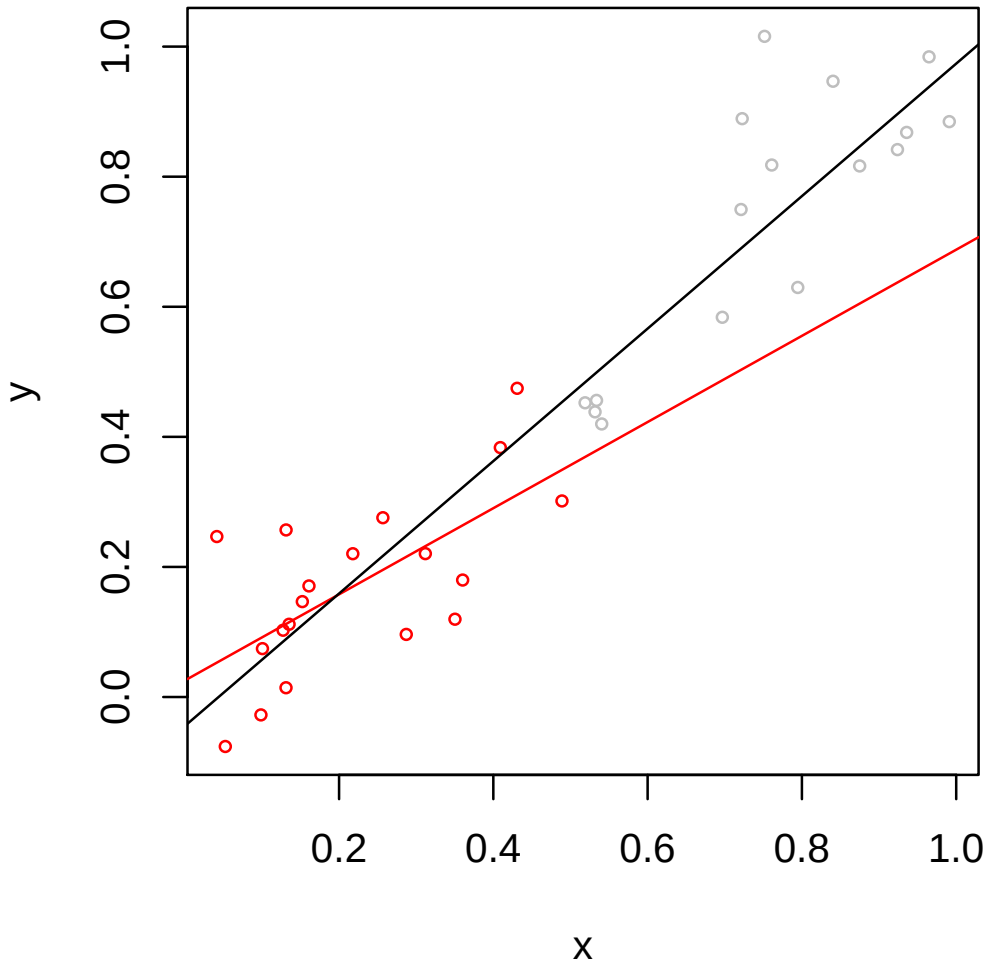
- Average children per marriage is 2.5. How many were in your family growing up? Are these numbers different? Who is "left out" in the second sample?
- In testimony to HI state senate, motorcyclists testified that in their (multiple) crashes, helmets would not have prevented injuries. Who didn't testify?
- In a study of the causes of revolution, a scholar studies only four cases: the French Revolution, the Chinese Revolution, the Mexican Revolution, & the Russian Revolution. What is missing?



Suppose we conducted a survey & asked people their income (x) and conservatism (y)
With the full range of respondents, we find a strong relationship



But suppose high income (or highly conservative) people decline to answer
Then we analyze the red dots only.
And get a result biased towards no effect of income on ideology



Try to maximize variance of covariates, and avoid selecting on response variables

Most selection is unintentional, so think hard about sources of selection bias

Critical case studies

Counter-view: Eckstein (1975) says can test with one case!

Plausibility probes Test the theory in *only* the "easiest" case

Confirmation cases Test the theory in *only* the "hardest" case

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Problems with "critical case studies":

1. Any randomness or measurment error risks huge bias
2. Omitted variable bias potentially enormous
3. Lots of space between minimally plausibility and 100% confirmation. Evidence for scientific theories probably mostly inside the range

Making the most of your cases

Critical case studies can be illuminating, but risky

We get more out of small-*N* studies, but how to choose our cases?

Huge debate. If look to King, Keohane & Verba:

Maximize variance on covariates, and avoid selection on dependent variable

1. Identify key covariates and controls

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3. Ideally, have at least one case for each combination of high and low values on important covariates
4. *Then* code dependent variable, and see which covariates predict

   Vital not to look at DV in advance on this strategy to avoid selection bias

Making the most of your cases

Suppose you are studying countries—lots of effort for each observation

Need a result for all that work:
But what if random variation or measurement error mask your findings?

KKV suggest expanding the number of observations for each country:

1. Find additional testable implications of theory to create add'l dependent variables on the same cases

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Then look at:
a.) both chambers, b.) multiple years, c.) committees and subcommittees?

Making the most of your cases

What if my dependent variable is rare, like war or revolution?

Then applying the above strategy may turn up *zero* positive cases!

Obviously we have to "select on the dependent variable" in some sense here, so what do we do? Borrow from medical studies of rare disease!
Proposed qualitative strategy (KKV & King Zeng):

Study every extent positive case, then randomly sample the same number from the universe of negative cases ("shadow cases")

Selecting the universe is hard, and controversial. Skocpol tried something similar (but non-random); looked at "near-misses" of revolution.

Hold constant the obvious necessary conditions: sufficient economic development, global availability of revolutionary paradigm.
Then askwhat tipped France into revolution but not Britain?

When should you use Qualitative Methods?

One view: strength of small-*N* qualitative studies is developing theory
Things qualitative methods may do better than quantitative:

1. "process trace" (ie, study history!)
2. sift through hundreds of possible variables
3. "thick" description of cases, variables, process (versus "thin" in quantitative)
4. investigate plausibility of conjunctural/contingent causation
   contra common misperception, quant can *test* conjunctural/contingent causes as well as simple ones

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Weakness of qualitative:

1. Hard to do large *N*, so hard to cope with probablistic effects (& everything's probabilistic)
2. Hard to measure uncertainty of results
3. Easier to measure lots of variables, but harder to adjudicate among them

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But why not combine qualitative & quantitative?
Mixed methods give best of both worlds!

1. Develop a theory based on detailed understanding of cases: qualitative
2. Check if that theory works outside original case, with controls: quantitative
3. Return to critical and interesting cases to recheck intuition of final quantative theory: qualitative
4. Repeat!