Social Science Inquiry II

Week 2: Summarizing data numerically and visually, part I

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Reading papers

What to get out of reading a research paper:

- What is the main question of the paper?
- What method do the authors use to address the question? For empirical papers:
  - Data (Where does it come from/how is it generated? What is the sample population? What is being measured?)
  - Research design/strategy
  - Statistical tools
- What is the answer that the authors get to the main question?

How would you answer these questions with the Card and Krueger (1993) paper?

(Reviewing) Group discussion

- Is social science *science*? Justify your answer.
- What does it mean for something to cause something else? Come up with your own definition.
- Holland emphasizes focusing on the effects of causes, rather than the causes of effects. Why do you think this is? Do you think there are cases when we should focus on the latter? If so, when?
- Give an example when you think each of the below causal assumptions would hold.
    - Temporal stability
    - Causal transience
    - Unit homogeneity
    - Constant causal effect
    - Independence

Temporal stability and causal transience

- The value of response will not change based on *when* you apply treatment to an observation.
- The value of response will not change if you had at some point previously applied a different treatment to an observation.

Unit homogeneity

- The value of response under a given treatment is the same for two observations; and the value of response for a different treatment is also the same.
- You can observe response on the comparable units under one of each version of treatment.

Constant causal effect

- The difference between the value of the response variable under one version of treatment as compared to another version of treatment is the same for *every* observation.
- How does this relate to the unit homogeneity assumption?
- Does this allow us to back out the value of the causal effect, without other assumptions?

Independence

- There are a “large” number of observations.
- On average, the units that are assigned one version of treatment look like the units that receive another version of treatment.
- (What does $\mathrm{E}[Y_s|S = t]$ mean?)

References I

Card, D. and Krueger, A. B. (1993). Minimum wages and employment: A case study of the fast food industry in New Jersey and Pennsylvania.