Lecture 10: Hypothesis Testing 3

Jacob M. Montgomery

Quantitative Political Methodology

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Roadmap

Last class:

- Hypothesis tests with small samples
- Types of errors
- Discussion of one-sided/two-sided tests

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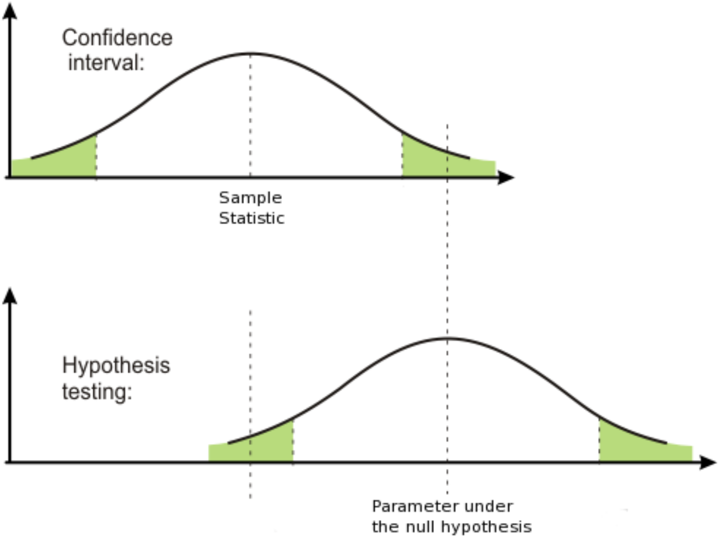
This class:

- Relationship between CI and NHPT
- Working more examples

Visualizing confidence intervals and null-hypothesis testing



Example: Confidence interval approach #1

According to a union agreement, the mean income for all senior-level assembly-line workers in a large company equals \$525 per week. A representative of a women's group decides to analyze whether the mean income μ for female employees matches this norm. For a random sample of 36 female employees, $\bar{y} = \$495$ and $s = \$75$.

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- $95\%\ \text{CI} = [500.5, 549.5]$

Since we observed $\bar{y} = 495$, we can reject the null hypothesis.

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Since $H_0 : \mu = 525$ is not in that interval, we can reject the null hypothesis.

Research projects

First, think of a research question!

- What topics interest you?
- What phenomenon do you want to explain?
- If you don't care about the question itself, then the project will be miserable to complete.

Once you have a question...

1. Research hypothesis needs to be falsifiable by you.
2. This precludes giant questions:
    - Why do Americans vote?
    - What causes peace?
3. However, smaller questions are interesting too!
    - Do roommates with different partisan beliefs get along worse?
    - Does knowing about mental health issues on campus lower support for more campus buildings?
4. The data may not support your theory. That is fine.

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- Do not sample on the dependent variable
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Things that are encouraged (but not required)

- Conduct your own experiment
  - Do “please recycle” signs cause people to recycle more?
- Take your own survey
  - Political beliefs of WashU undergrads
- Things your fellow students might find interesting
- Talking to me