Intro to Social Science Data Analysis

Research Question Design & Data Download

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Quick Quiz 1

What are the three three minimum criterion for establishing a **causal relationship**?

Quick Quiz 2

Why do we often need to use tools for **statistical control**?

What is the main tool we learned last week for statistical control?

Quick Quiz 3

What is a reference category?

Quick Quiz 4

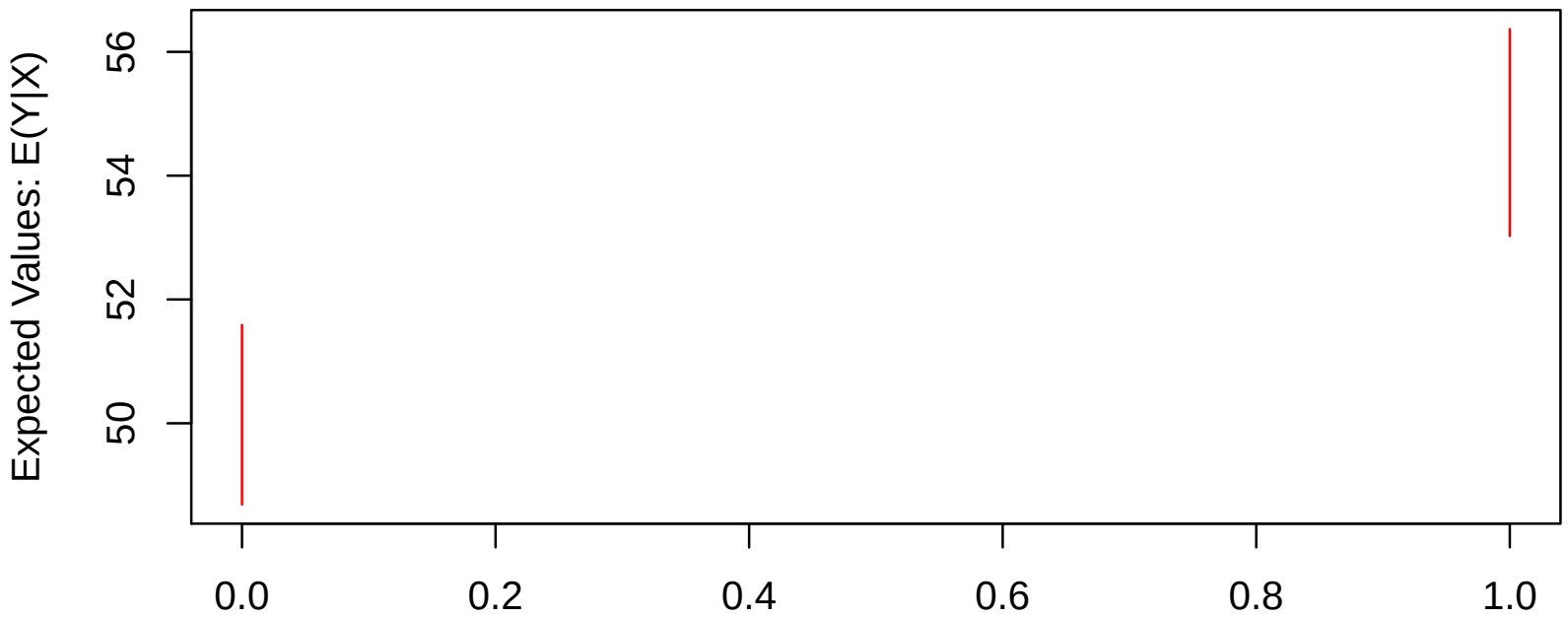
Why do King et al. (2000) recommend simulating expected outcomes and graphing the results?

Simulating Expected Values for Categorical Variables

```
library(openintro)
library(Zelig)

data(hsb2)

M1 <- zelig(read ~ as.factor(gender)
            + write, model = "normal",
            data = hsb2, cite = FALSE)

Values <- c("male", "female")

XOut <- setx(M1, gender = Values)

ZSim <- sim(M1, XOut)
```

Plot Expected Values

```
plot(ZSim)
```



Goals:

With a partner, answer a **social science research question** primarily using the **data analysis tools** covered in this course.

Present your results in both a:

- **short paper** (max 1,000 words),
- **short presentation** (max 15 minutes).

As always, it must be **reproducible**.

Schedule

We are dedicating **all** of the class time for the rest of the course to the research project.

Schedule:

- Week 13: Research question, design, & data download,
- Week 14: Statistical Analysis & Results Visualization,
- Week 15: Write up.
- Week 16: Presentations.

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Due:

- Paper: 18 December
- Presentation: 19 or 20 December

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Paper Structure

Your paper should have the following structure:

- **Introduction**: Research Question, Thesis Statement, Paper Outline.
- **Literature Review**: Brief discussion of previous research on this topic (including possible alternative explanations).
- **Data & Methods**: Describe the data you collected (sources, variable meaning) & the methods that you use to test your hypothesis.
- **Results**: Show and discuss you results.
- **Conclusion:** Wrap up & discuss your research **limitations**.

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Note:

Your presentation's structure will mostly be the same as your paper's.

This week:

You will develop your research question and the research design you will use to try to answer it.

This is **Assignment 4**.

Due: Friday 30 November

Research Design

With your partner plan your research by answering the following questions:

1. What **difference** do you want to explain?
2. What is your **best guess** explanation (i.e. thesis statement)?
3. Can you **test your hypothesis using data**? If so, what data do you need to collect and what tests could you use?
4. What **rival explanations** are their?
5. How could you use data to test whether your best guess or the rival explanations are better? Write this as an **equation**.

Questionnaire from: modified from Cheryl Schonhardt-Bailey

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