

PSC 400

SYRACUSE UNIVERSITY

DATA ANALYTICS

FOR POLITICAL

SCIENCE

**ESTIMATING CAUSAL EFFECTS WITH
RANDOMIZED EXPERIMENTS**

ASSIGNMENTS

- **Review Exercise 1 due next week Thursday**
- **Problem Set 1 due next week Friday**
- **Will post both later today**

DATASET: STAR.CSV

variable	description
<i>classtype</i>	class size the student attended: "small" or "regular"
<i>reading</i>	student's 3rd-grade reading test scores (in points)
<i>math</i>	student's 3rd-grade math test scores (in points)
<i>graduated</i>	identifies whether the student graduated from high school: 1=graduated or 0=did not graduate

ANOTHER EXPERIMENT

- **Is there racial discrimination in the labor market?**
 - **What is the causal effect of applicants' race on whether they are hired or not?**

CAUSALITY

- **How can we estimate the causal effect of race on hiring?**
 - **Want to compare Black and white applicants that are the same in terms of education, skills, experience, fit, etc.**
 - **Only difference: their race**

ANOTHER EXPERIMENT

- **Researchers sent out resumes of fictitious job candidates**
 - **Resumes identical, except names of applicant**
 - **Some names e.g. Allison, Emily, Matthew**
 - **Other names e.g. Tyrone, Rasheed, Lakisha**
 - **Outcome: Was applicant invited for interview?**

RESUME.CSV

Table 2.1. Résumé Experiment Data.

<i>Variable</i>	<i>Description</i>
firstname	first name of the fictitious job applicant
sex	sex of applicant (female or male)
race	race of applicant (black or white)
call	whether a callback was made (1 = yes, 0 = no)

RESUME.CSV

Table 2.1. Résumé Experiment Data.

<i>Variable</i>	<i>Description</i>
firstname	first name of the fictitious job applicant
sex	sex of applicant (female or male)
race	race of applicant (black or white)
call	whether a callback was made (1 = yes, 0 = no)

- **What is the difference-in-means of callback rates between black and white respondents?**

RESUME.CSV

Table 2.1. Résumé Experiment Data.

<i>Variable</i>	<i>Description</i>
firstname	first name of the fictitious job applicant
sex	sex of applicant (female or male)
race	race of applicant (black or white)
call	whether a callback was made (1 = yes, 0 = no)

- **What is the difference-in-means of callback rates between *male* black and white respondents?**

RESUME.CSV

Table 2.1. Résumé Experiment Data.

<i>Variable</i>	<i>Description</i>
firstname	first name of the fictitious job applicant
sex	sex of applicant (female or male)
race	race of applicant (black or white)
call	whether a callback was made (1 = yes, 0 = no)

- What is the difference-in-means of callback rates between *female* black and white respondents?

ANOTHER "EXPERIMENT"

Table 2.5. Minimum-Wage Study Data.

<i>Variable</i>	<i>Description</i>
chain	name of the fast-food restaurant chain
location	location of the restaurants (centralNJ, northNJ, PA, shoreNJ, southNJ)
wageBefore	wage before the minimum-wage increase
wageAfter	wage after the minimum-wage increase
fullBefore	number of full-time employees before the minimum-wage increase
fullAfter	number of full-time employees after the minimum-wage increase
partBefore	number of part-time employees before the minimum-wage increase
partAfter	number of part-time employees after the minimum-wage increase

- minwage.csv
- Effect of minimum wage increase in NJ (\$4.25 to \$5.05) on employment in fast food restaurants

ANOTHER "EXPERIMENT"

Table 2.5. Minimum-Wage Study Data.

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partBefore	number of part-time employees before the minimum-wage increase
partAfter	number of part-time employees after the minimum-wage increase

- What is the average wage in PA and NJ before the minimum wage increase?
- What is the average wage in PA and NJ after the minimum wage increase?

ANOTHER "EXPERIMENT"

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- What is the proportion of full-time employees in PA and NJ before/after the minimum wage increase?