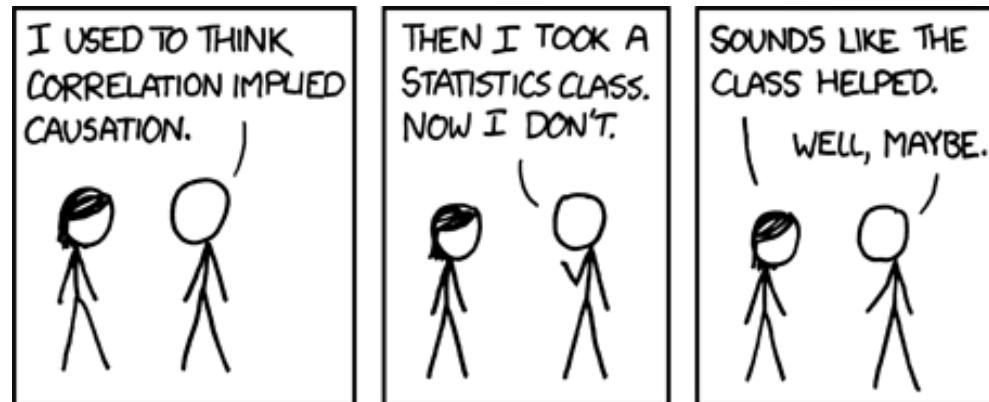


ECON 0150 | Economic Data Analysis

The economist's data analysis skillset.

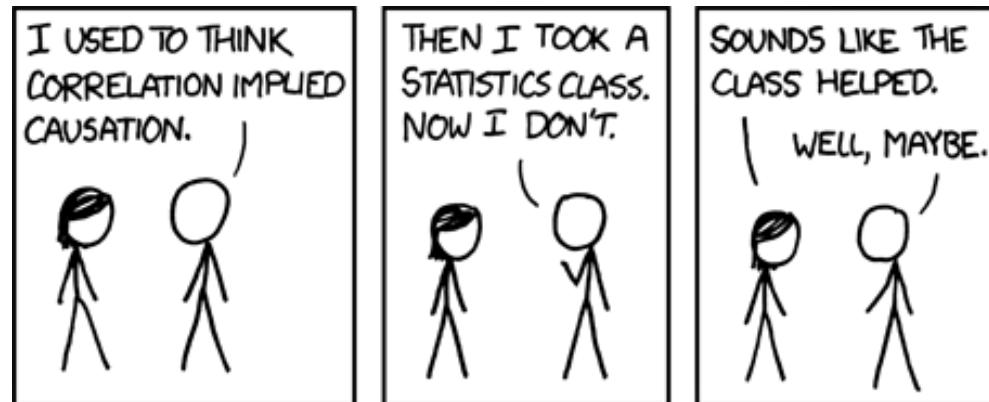


Dr. Taylor Weidman

taylorjweidman@pitt.edu | 4702 Posvar Hall

ECON 0150 | Economic Data Analysis

How economists do data analysis.

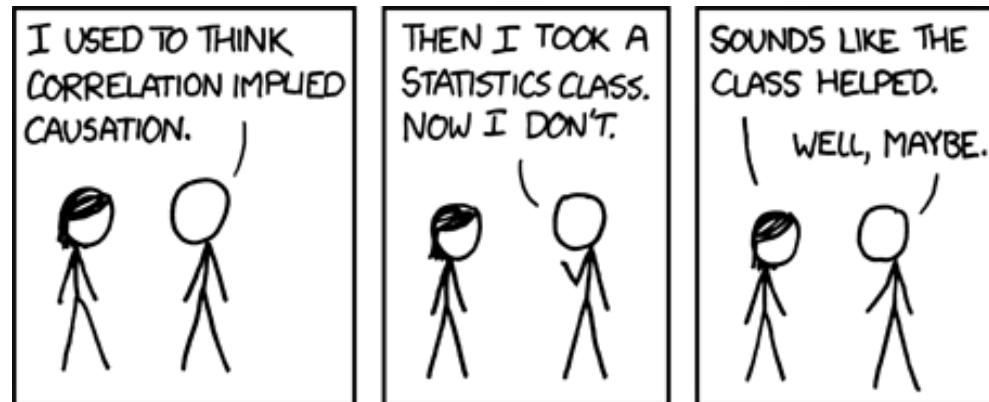


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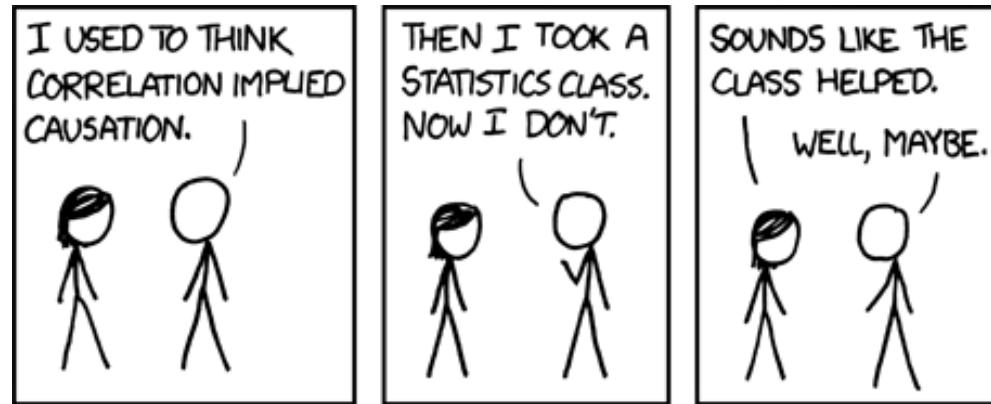


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ECON 0150 | Economic Dada Analysis

How economists do data analysis.



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ECON 0150 | Economic Dada Analysis

How economists do data analysis.



What is economic dada analysis?

The data analysis done by economist fathers :)

What is economic data analysis?

The data analysis done by economists :)

Economists use data to build models and inform decisions.

Describing the landscape of economics

- *Have incomes risen in the last year?*
- *How has unemployment changed?*
- *Has the racial wealth gap narrowed?*

Distinguishing between economic theories

- *Do voters with neighbors of the same party vote more?*
- *Does the gender of a Lyft driver impact rates of tipping?*
- *Is cooperation higher in ‘easier’ repeated prisoner’s dilemmas?*

Course Goals

Developing the data analysis pipeline used by economists.

Skillset 1. *Summarize data (tables and figures).*

Skillset 2: *Build and interpret models (general linear model).*

Skillset 3: *Communicate findings (writing and presentations).*

Goal: *I want you to be able to build appropriate statistical models for new problems and interpret their results.*

Course Structure

The course is divided into six parts.

Part 1: *Exploring Variables*

Part 2: *Exploring Relationships*

Part 3: *Univariate General Linear Model*

Part 4: *Bivariate General Linear Model*

Part 5: *Multivariate General Linear Model*

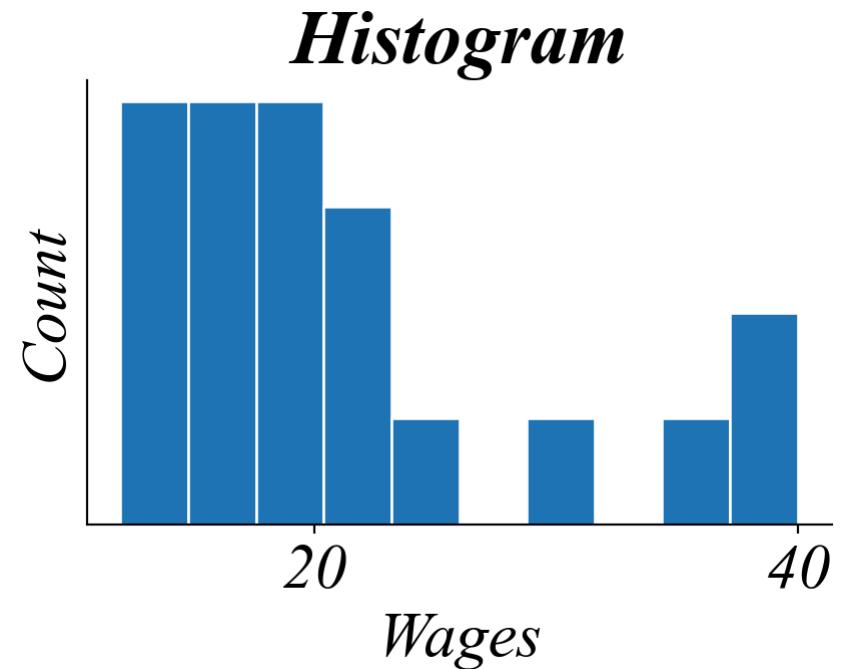
Part 6: *Communicating with Data*

Part 1: Exploring Variables

Focus: Understanding single variables through summarization (eg. tables and figures).

Example: Analyzing a dataset of wages.

Wage	EduYrs
12	8
13	10
14	10
14	11
15	12

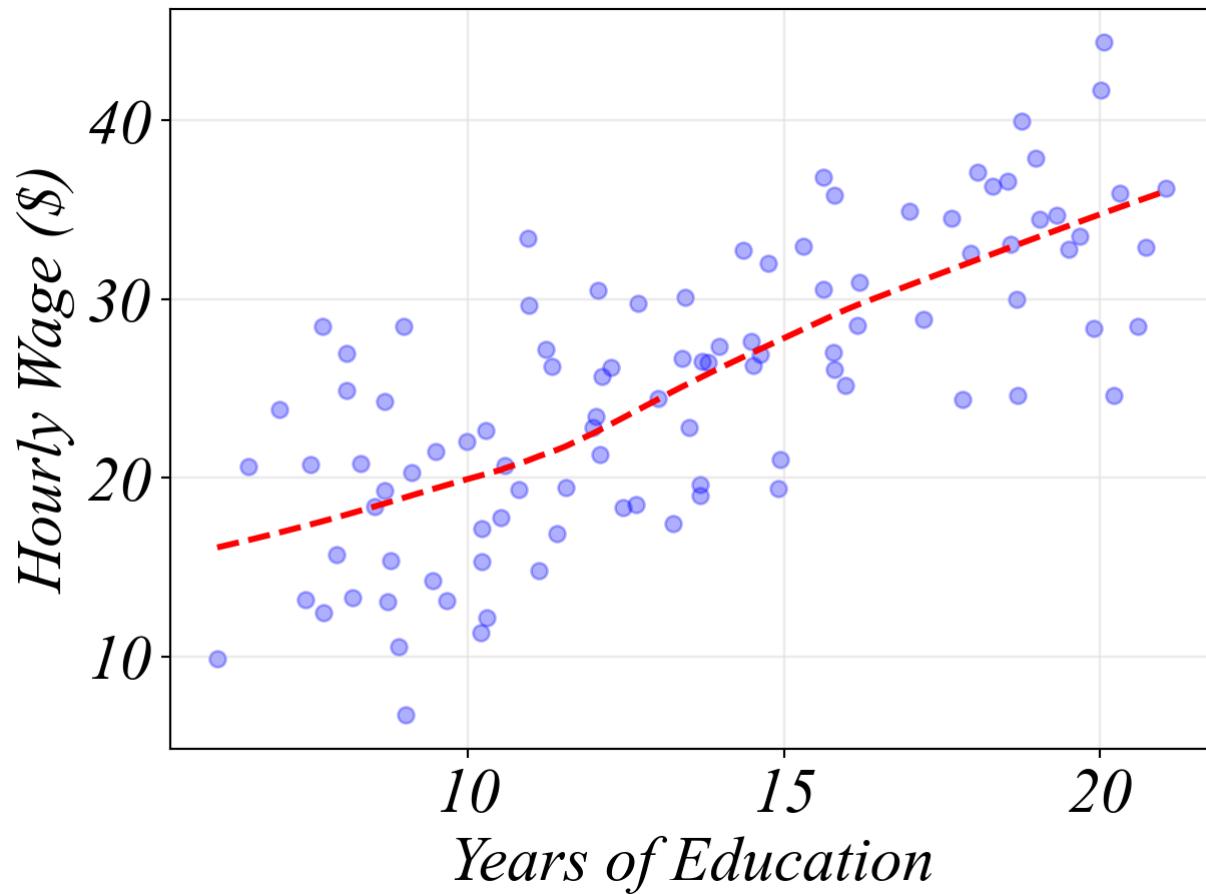


Part 2: Exploring Relationships EDA

Focus: Understanding relationships between variables (eg. scatterplot).

Example: Exploring a relationship - education and wages.

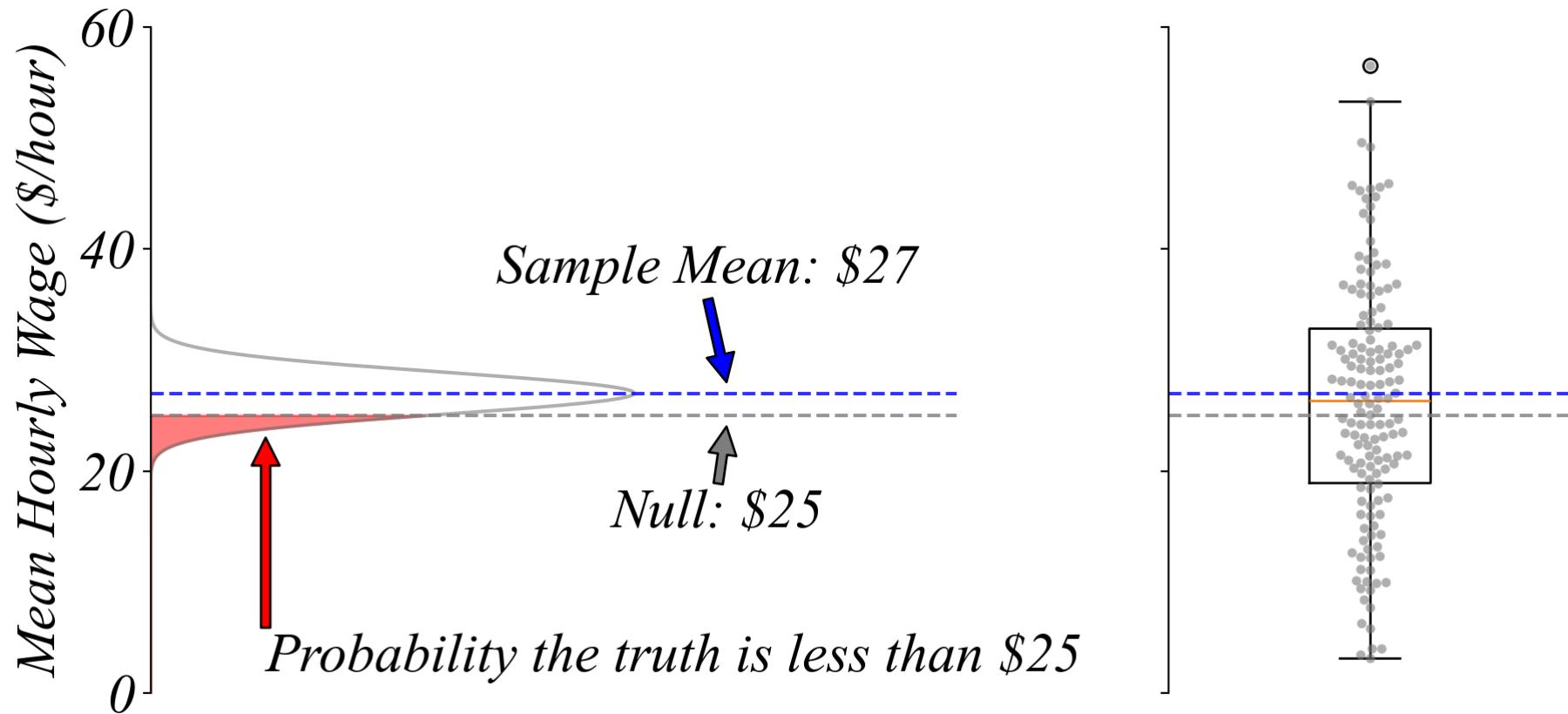
Wage	EduYrs
14	10
15	12
16	12
18	13
18	14
20	14
22	15



Part 3: Univariate General Linear Model

Focus: Sampling variation, Central Limit Theorem, and basic testing.

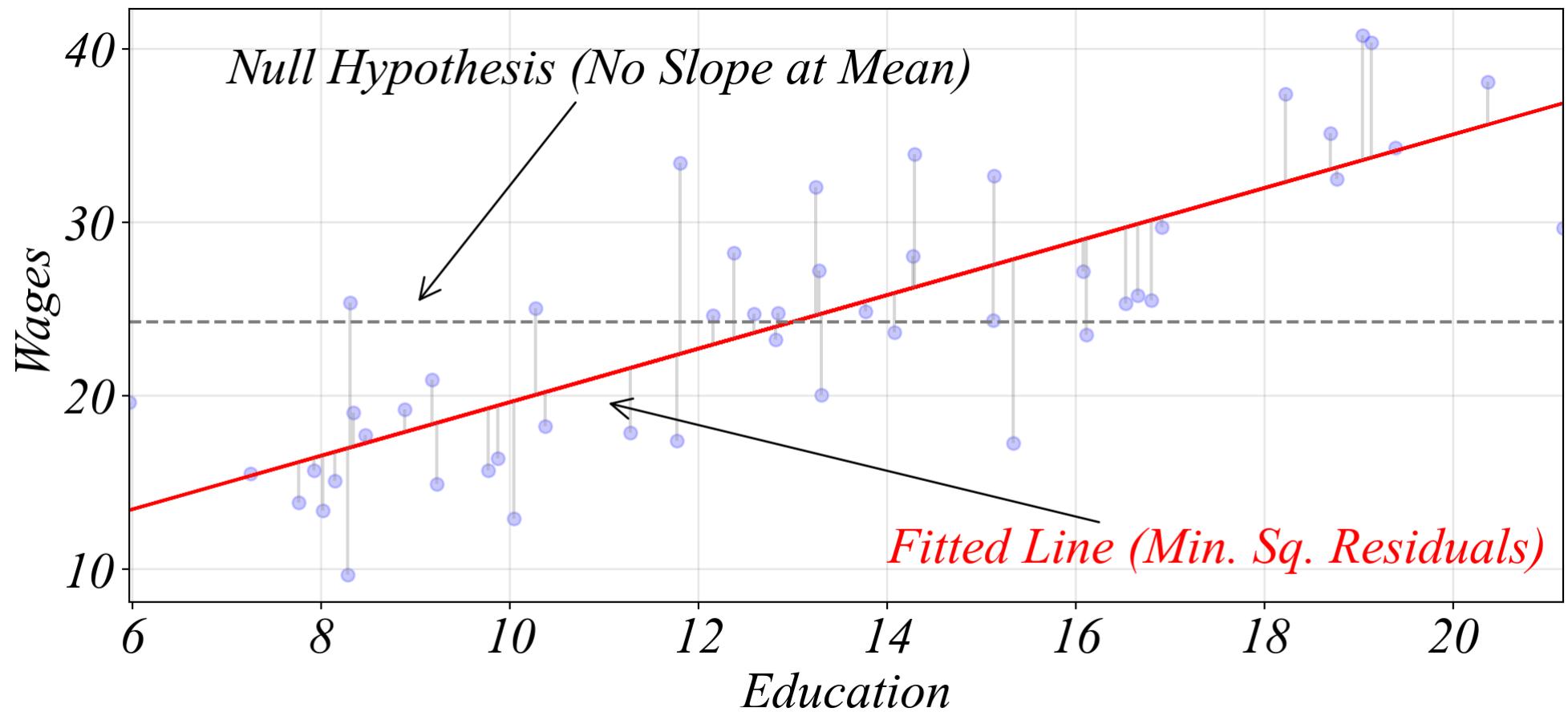
Example: Is the difference from \$25 a real pattern or just noise?



Part 4: Bivariate General Linear Model

Focus: Regression and residual analysis.

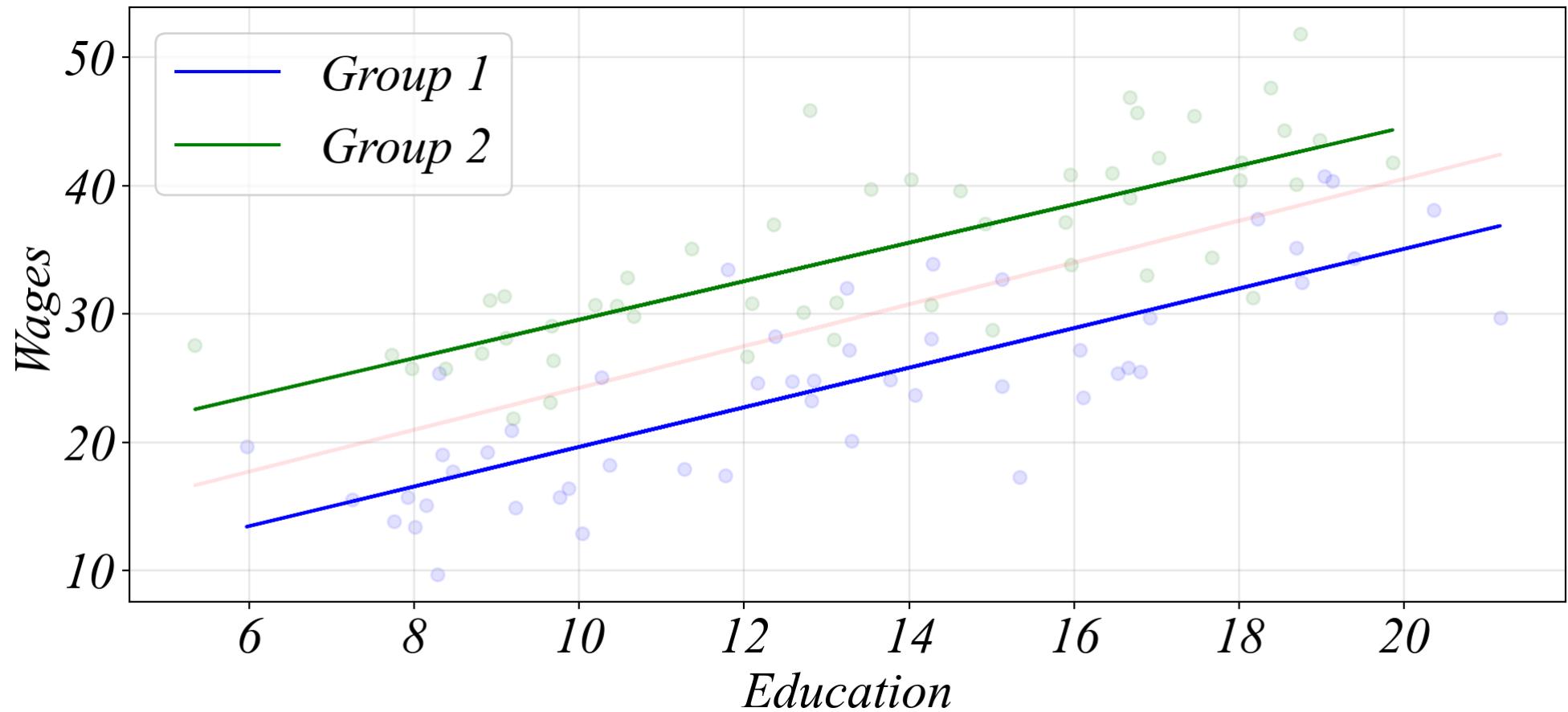
Example: Is the positive slope a real pattern or just noise?



Part 5: Multivariate General Linear Model

Focus: Fixed effects, control variables, interactions.

Example: Do different groups have different relationships?



Part 6: Communicating with Data

Focus: Clear narratives, effective visualization, presentation skills.

Examples: Some student work from last semester!

Course Logistics

Resources & Tools

Software: Excel & Python

Website: [ECON_0150](#)

Optional Textbooks:

- *Data Visualization and Analysis in R by Dustin Fife*
- *How Charts Lie by Alberto Cairo*
- *Analysis of Economic Data (2nd ed.) by Gary Koop*

Your Work

Exercises (10%)

- *Together in class; lowest 3 dropped.*

Homework (10%)

- *Fridays by 5PM; lowest 3 dropped.*
- *No-questions-asked extensions through Sunday at Midnight.*

MiniExams ($1 \times 20\% + 1 \times 15\% + 1 \times 10\% + 1 \times 5\% + 1 \times 0\% = 50\%$)

- *Roughly every two weeks; beginning of class*
- *Open-book, open-note (no electronics).*

Your Work

Final Project (30%)

- *One small project per part.*
- *Presentation + paper at the end of the semester.*
- *Demonstrate full analysis from start to finish.*

Attendance (1% extra)

- *Just a small gift*

Policies

Email Policy:

- *Response may take up to 1-2 days.*
- *Be concise with your questions.*
- *My email is off evenings and weekends.*

AI Policy:

- *Encouraged as a learning and coding tool :)*
- *Your work must be your own.*
- *Cite your source.*

Academic Conduct: Adhere to the [Academic Integrity Code](#).

Looking Ahead

First Homework:

- *Due (next) Friday Jan 23rd at 5PM on Gradescope*

First MiniExam:

- *First class of Week 4 (Feb 3) during the first 20 minutes.*
- *Bonus “preview” question on material not yet covered.*

Getting Set Up

Excel:

- *Free for students through Pitt's institutional access*

Python:

- *Google Colab Notebooks (recommended)*

Survey Fall 2025

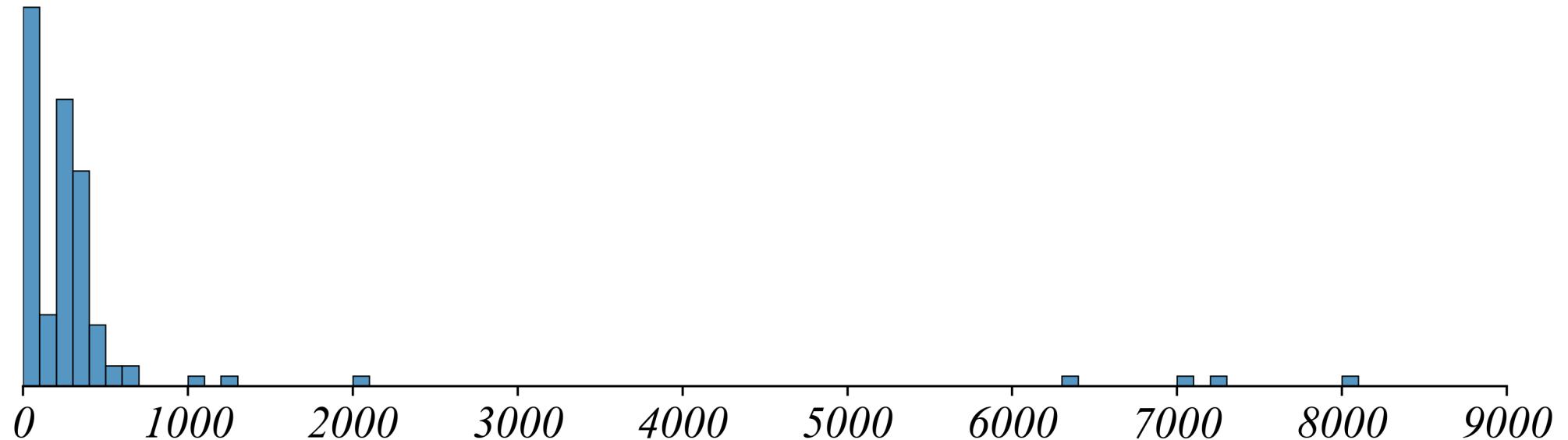
Where are students coming from?

Lets measure hometown using distance

Where are students coming from?

Lets measure hometown using distance

How far away is your hometown?

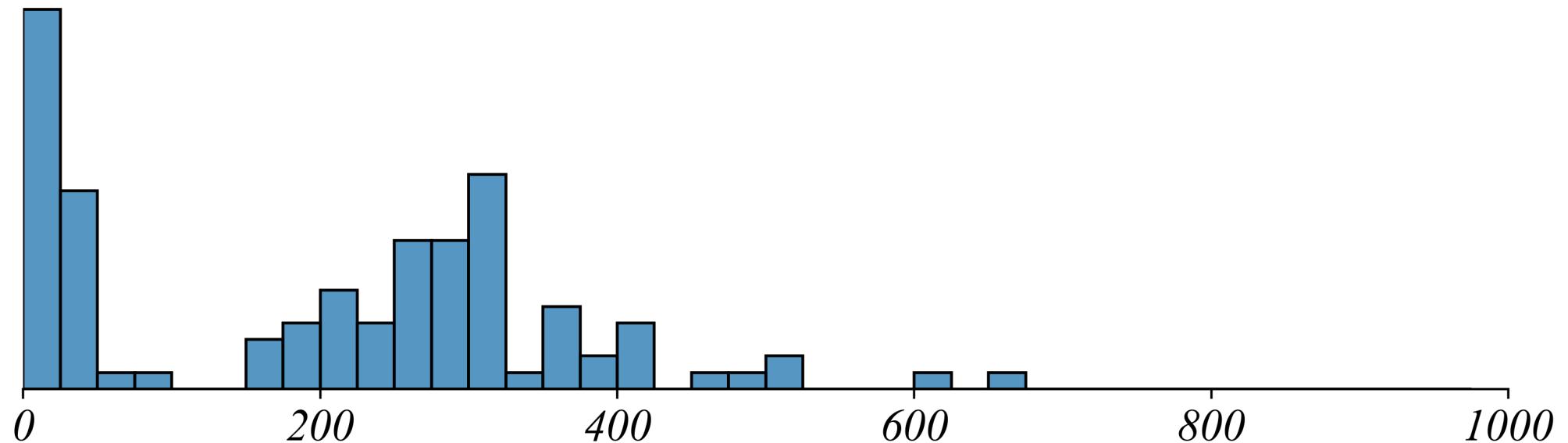


- > quite a few people come internationally :)
- > lets zoom in a bit to see more details about closer distances

Where are students coming from?

Lets measure students hometown using distance

How far away is your hometown?



> many from Pittsburgh and the Philly area

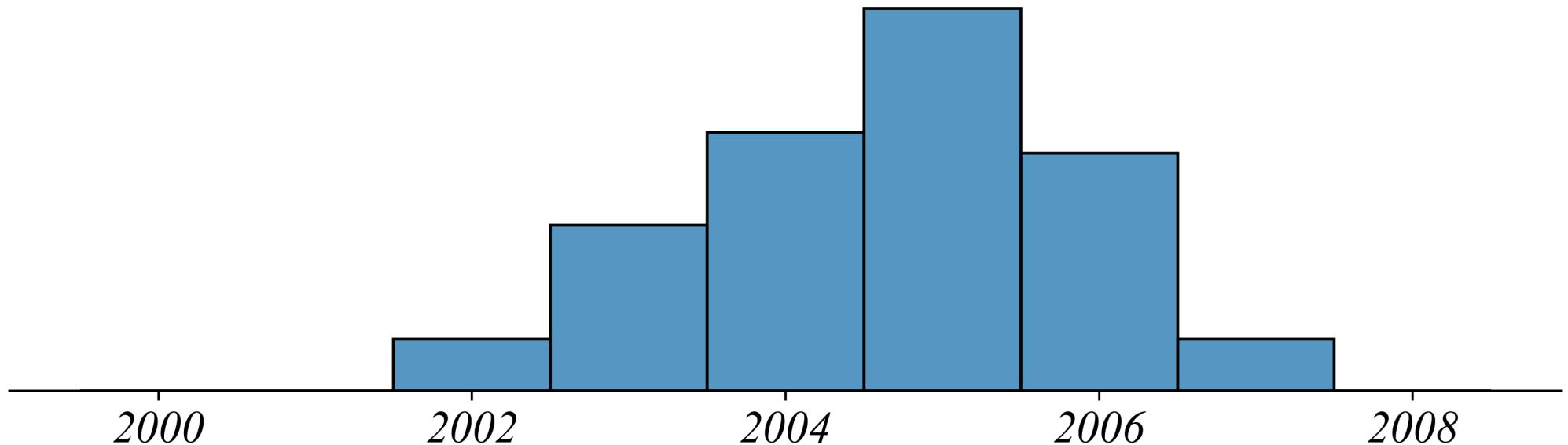
When were students born?

Lets use birthyear

When were students born?

Lets use birthyear

When is your birthyear?



> *the most common birthyear was 2005*

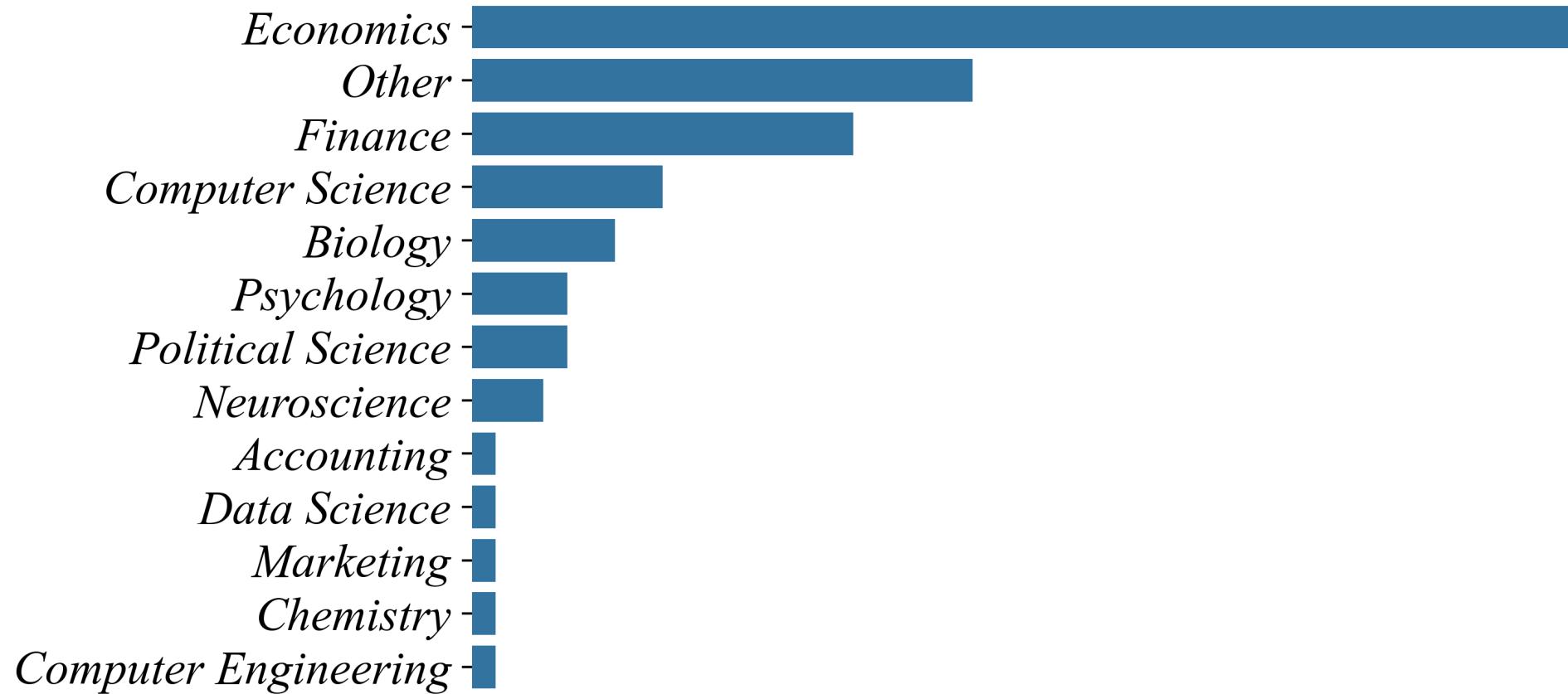
What are students majors?

Sorry if you're not on the list or have multiple :)

What are students majors?

Sorry if you're not on the list or have multiple :)

What is your (primary) major?



> most are Econ and many not on my limited list

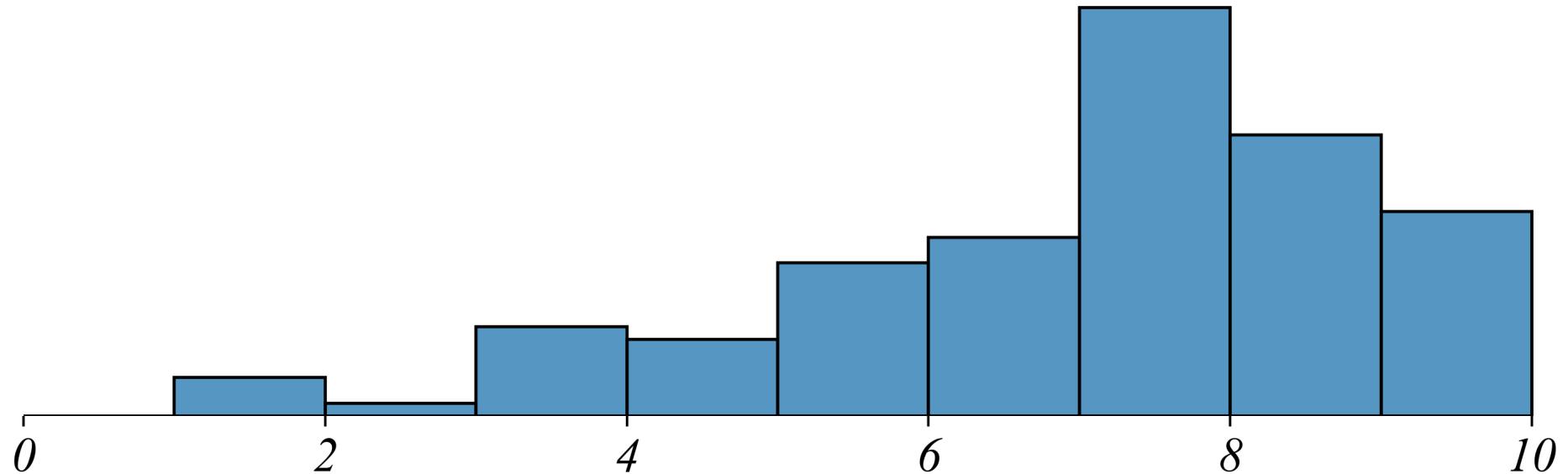
Did you like your stats class?

It's a prereq for the class

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Did you like your stats class?



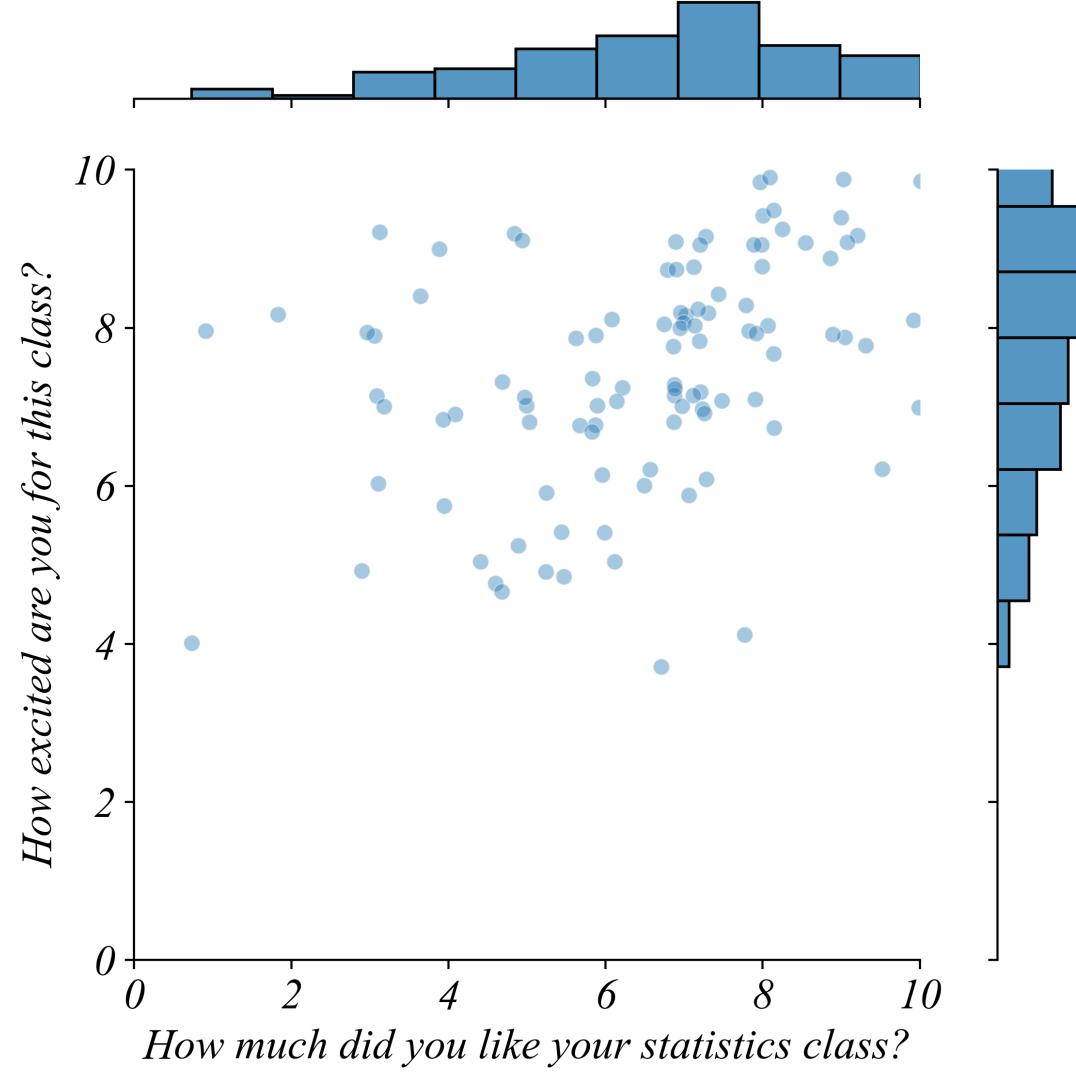
> most generally liked it; some did not

Is stats related to your excitement for this class?

I would suspect a positive relationship

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I would suspect a positive relationship

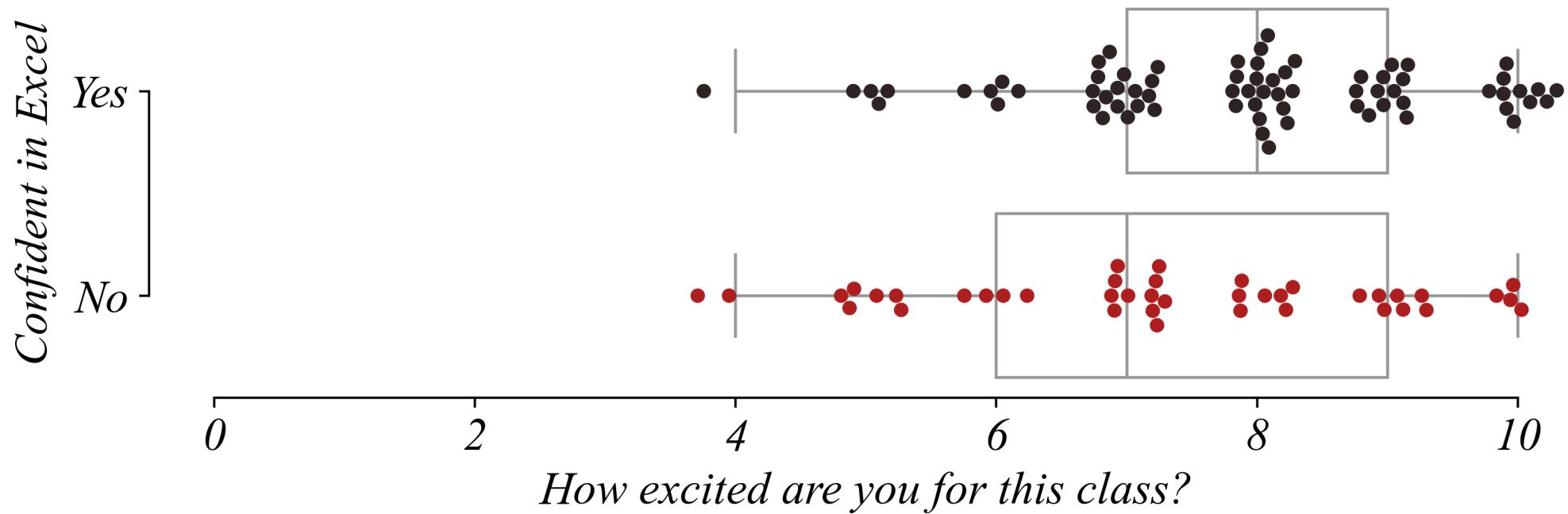


Is confidence in Excel related to class excitement?

I would expect it is

Is confidence in Excel related to class excitement?

I would expect it is



Is confidence in python related to excitement?

Again I would expect it is

