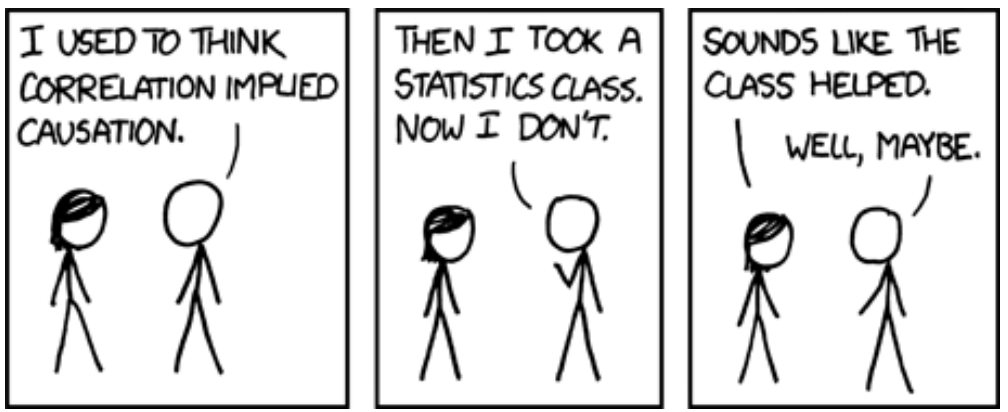
ECON 0150 | Economic Data Analysis

How economists do data analysis.



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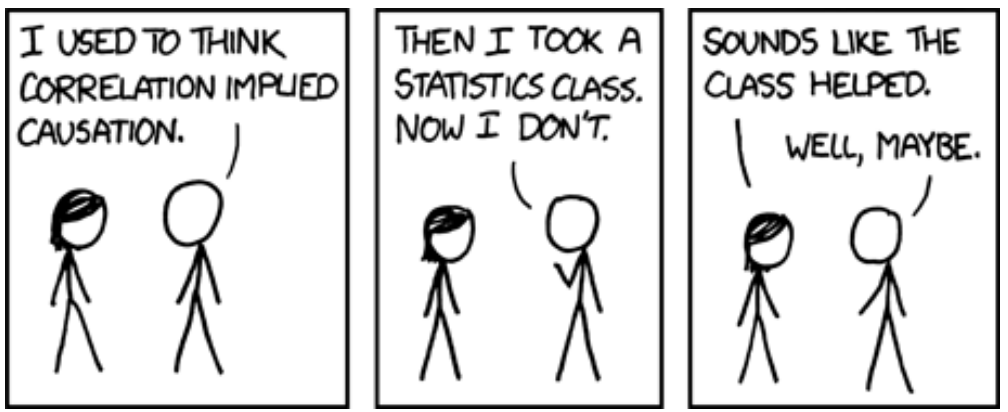

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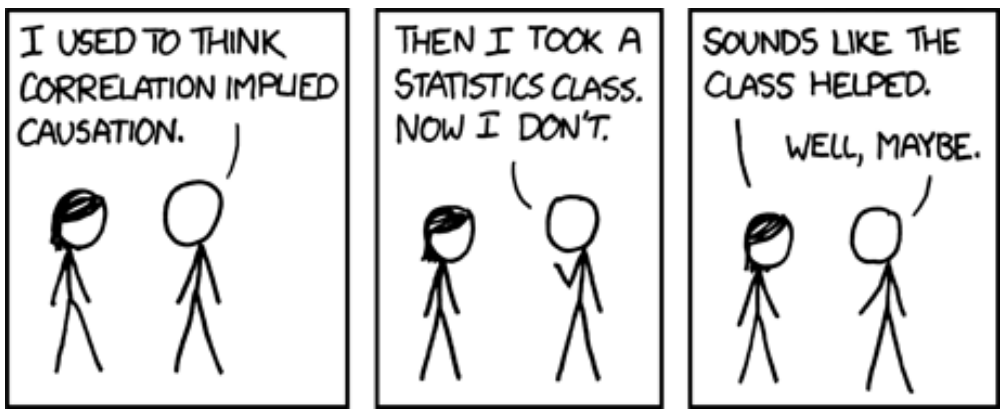

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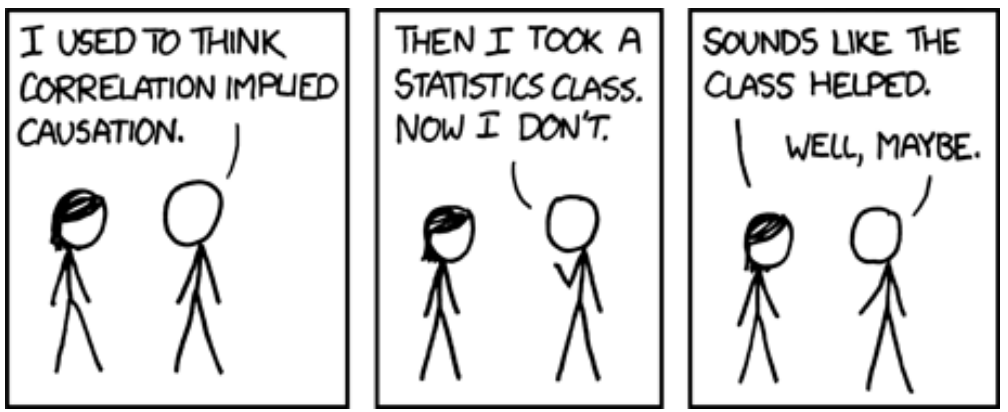
ECON 0150 | Economic **Dada** Analysis

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 (writting 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**.*

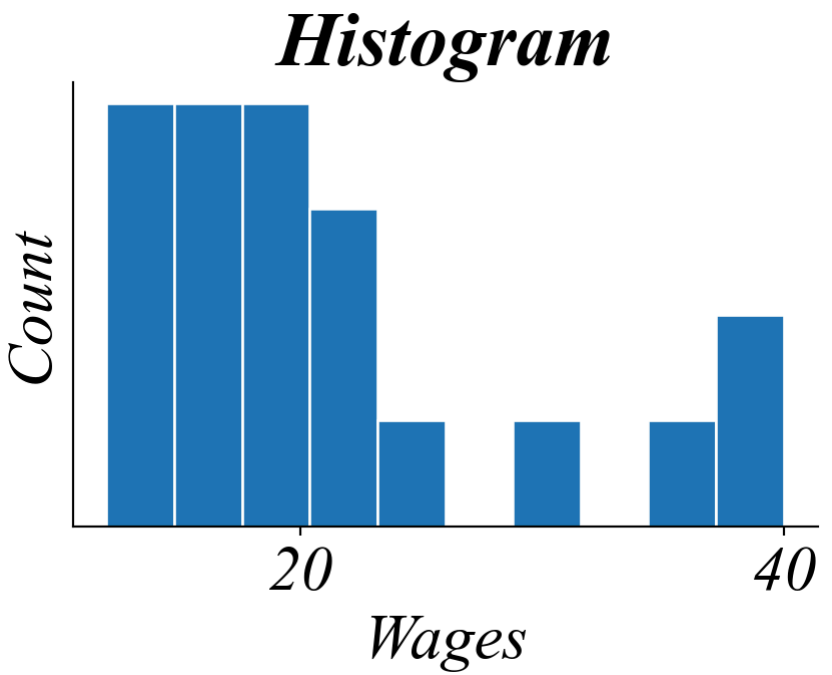
Part 1: *Summary Exploratory Data Analysis (EDA)*
Part 2: *Pattern Exploratory Data Analysis (EDA)*
Part 3: *Building Linear Models*
Part 4: *The General Linear Model*
Part 5: *Advanced GLM*
Part 6: *Communicating with Data*

Part 1: Summary EDA

***Focus**: Understanding data through summarization (eg. tables and figures).*

Example: Analyzing a dataset of wages.

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

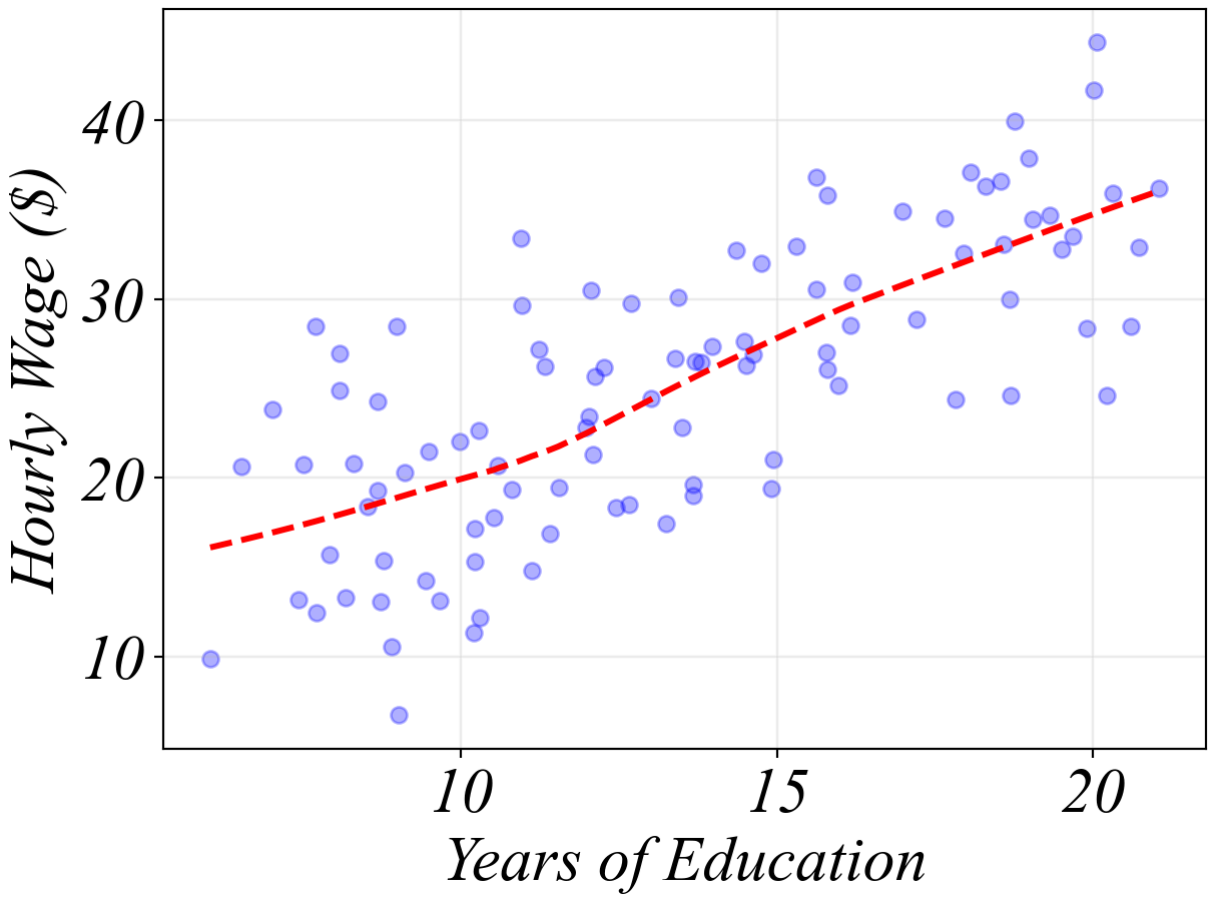


Part 2: Pattern EDA

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

Example: Exploring a relationship - education and wages.

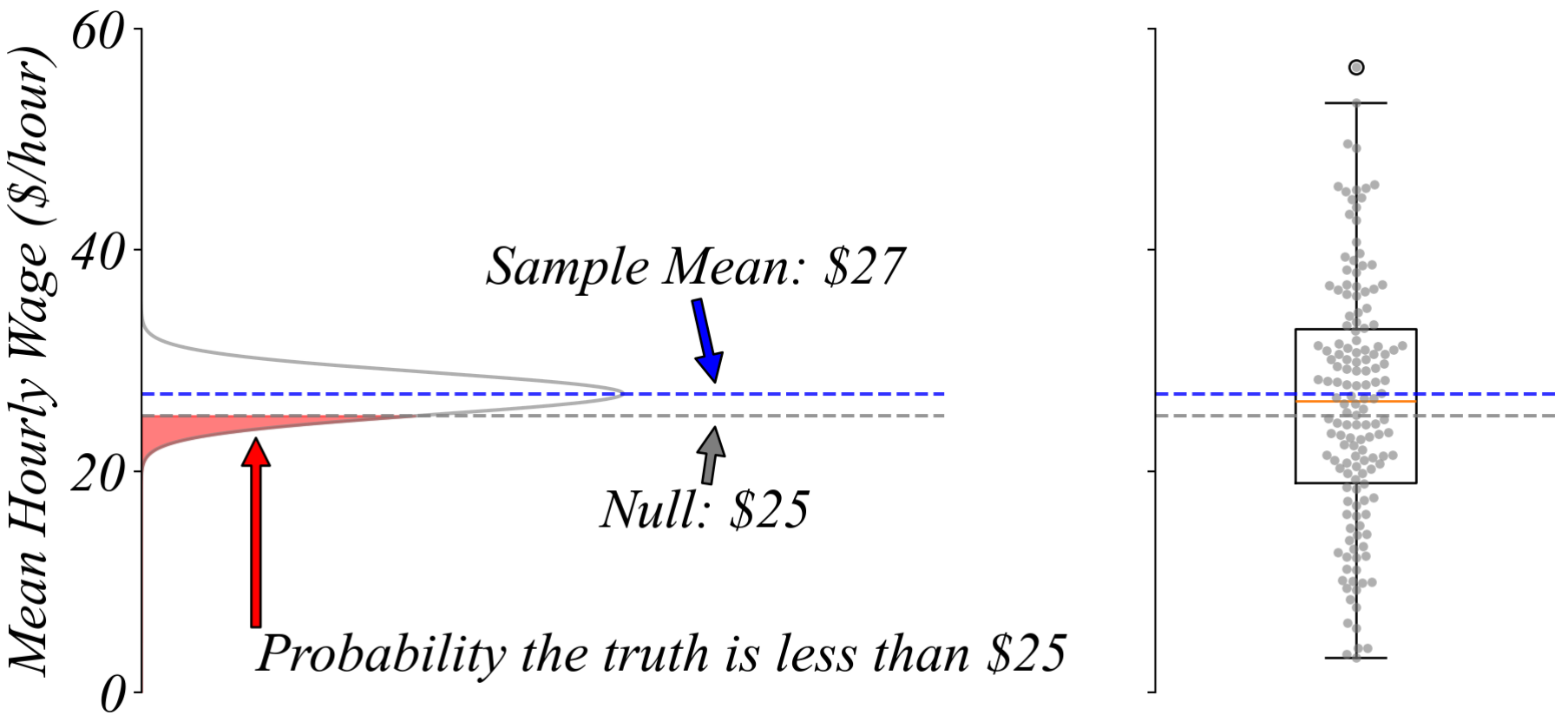
Wage	EduYrs
14	10
15	12
16	12
18	13
18	14
20	14
22	15



Part 3: Building Linear Models

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

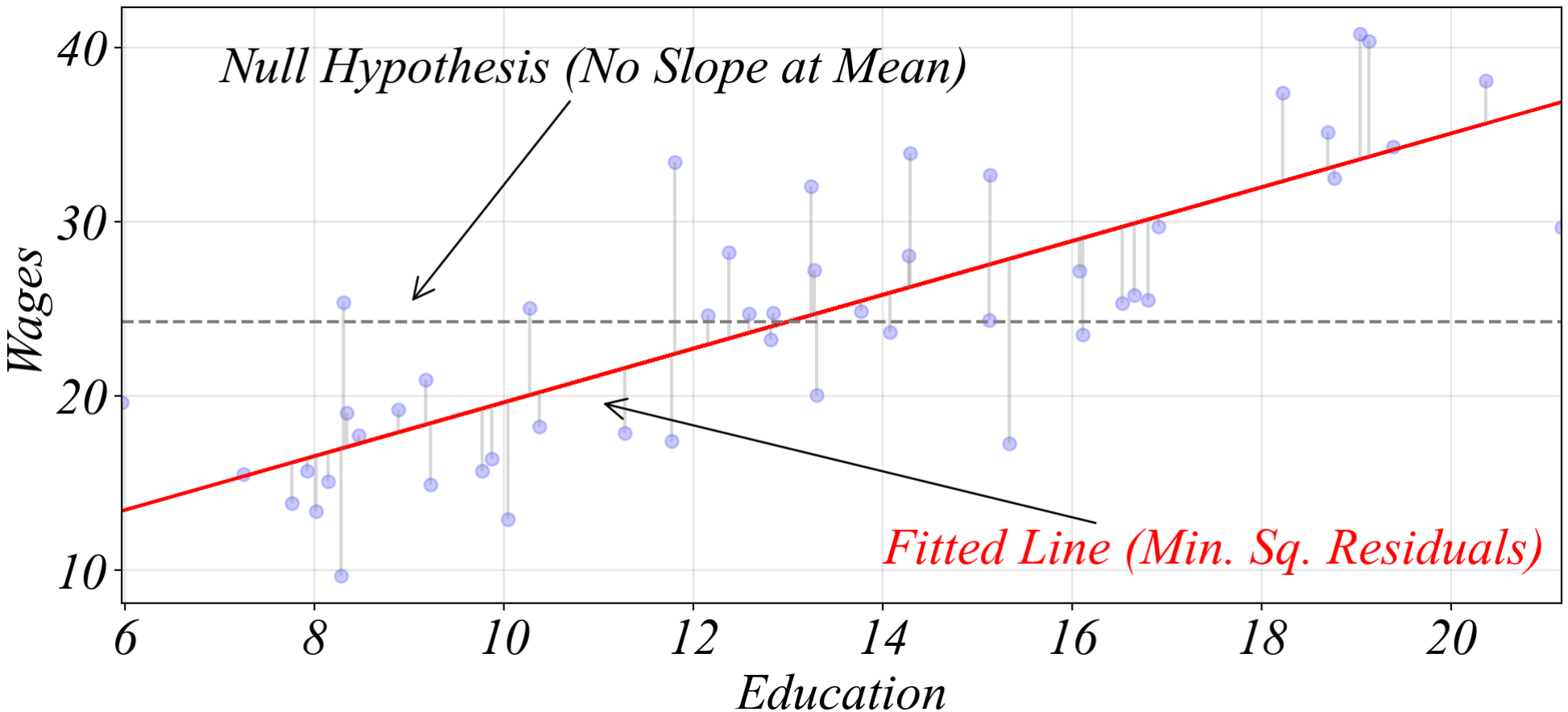
Example: Is the difference from $25 a real pattern or just noise?



Part 4: Basic General Linear Model

***Focus**: Single and multiple regression, residual analysis, and testing.*

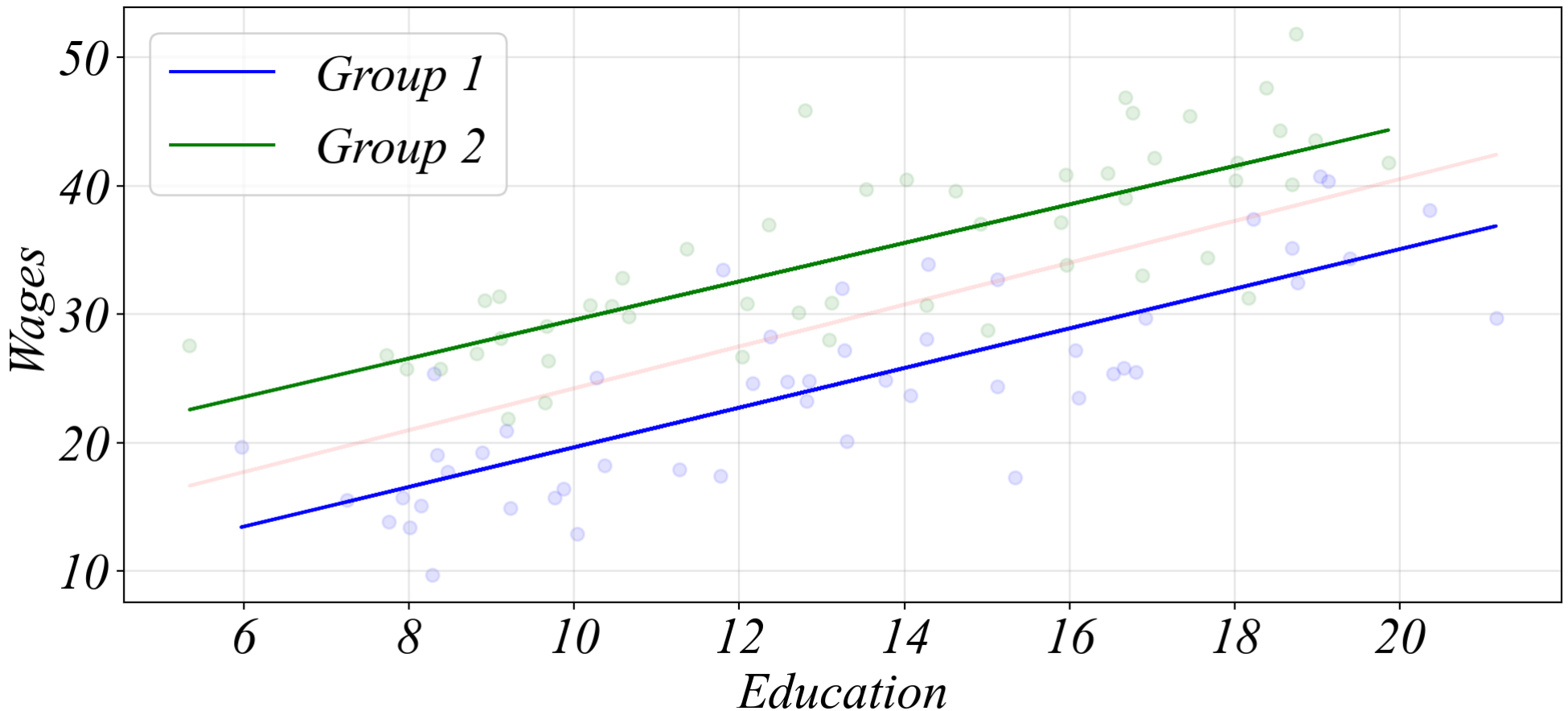
Example: Is the positive slope a real pattern or just noise?



Part 5: More General Linear Model

***Focus**: Fixed effects, repeated measures, time series.*

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*

Grading Breakdown

Homework (20%)

- *Fridays by 5PM; lowest 3 dropped.*

MiniExams (2 × 15% + 1 × 10% + 2 × 5% + 1 × 0% = 50%)

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

Final Capstone (30%)

- *Presentation + paper.*
- *Demonstrate full analysis from start to finish.*

Attenance (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 Friday at 5PM on Gradescope*

First MiniExam:

- *First class of Week 3 (September 8) 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 and Demo