Introduction to Applied Empirical Methods

Paul Goldsmith-Pinkham

January 13, 2026

Assumed Background

- This class is targeted towards researchers interested in empirical work
- The course assumes exposure to Ph.D.-level econometrics material already
  - E.g. first year sequence here at Yale
- This is not because the material is deeply technical, but because I want to be able to assume some basic fluency in statistical concepts

Requirements

- There are no exams, I will be assigning problem sets on a (quasi) weekly basis.
- Richard Archer is our TA
  - See syllabus for details
- There are no required readings, but there will be one *highly encouraged* reading for each class. The remaining papers listed in the syllabus are relevant to the material we will cover in class.
  - I will post lecture notes after class on the material along with the class slides.
- I also highly recommend the following texts as supplement but not required:
  - Angrist and Pischke, Mostly Harmless Econometrics
  - Hansen, Econometrics
  - Others on syllabus...

Important caveat

- In the end, this is a graduate course targetted at making you a good empirical researcher
- My goal is to exposed to a wide range of empirical methods, and understand how they connect.
  - We will not drill down deeply into some material
  - I am happy to discuss it more outside of class
- I will also emphasize how to communicate the econometrics underlying your research ideas
  - This includes good graphic design!

Important caveats (Part II)

- The definition of being a good empirical researcher has expanded significantly
  - Not just about methods
  - Also about reproducibilty and replicability

- Cost to do good coding and good coding practice has reduced *dramatically* thanks to LLMs
  - These LLMs will be useful as inputs to research, but also as technologies to improve your research
  - I would encourage you use Copilot in VS Code (or similar coding assistant).
    - Agentic tools like Claude Code can also be useful, but be careful about automation
  - I will *expect* that you can write good code now – the bar has been raised because gravity is lower now!

`https://paulgp.com/2024/06/24/llm_talk.html`
`https://paulgp.com/ai-coding/2025/12/02/ai-coding.html`

Structure of the course

- Six parts, first three are “structure” (12 lectures), second three parts are on different “bespoke” methods (14 lectures)
- We will begin with an overview on the structure for causal inference
- N.B. I am keeping everything on the github repo and will update you via Canvas notifications!

Introductions!