Policy Evaluation

BSc in Economics — ISEG

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This course in 5 seconds

https://x.com/KhoaVuUmn/status/1959614687147860025

Why evaluate?

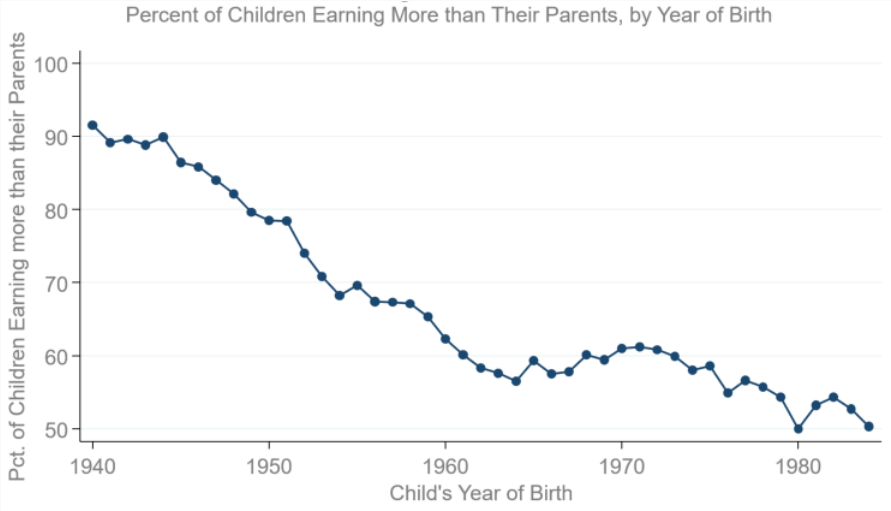
Policy is designed to change outcomes
E.g.: increase income, reduce mortality, improve test scores,...
In general: improve well-being!

Impact evaluation: Assessment of the changes in well-being of individuals that can be attributed to a particular policy
In practice: very often no impact evaluation, just a focus on inputs and immediate outputs: How much money is spent? How many textbooks are distributed? This is just monitoring!

Evidence-based policy making is part of broader agenda:
Comprises monitoring and evaluation
Shift in focus from inputs to outcomes & results

Goal: Enhance accountability, inform budget allocation, and guide policy decisions

The Fading American Dream?
(Chetty et al., 2017 Science)



Why?

Central policy question: why are children's chances of climbing the income ladder falling in America?

And what can we do to reverse this trend. . . ?

Difficult to answer this question based solely on historical data on macroeconomic trends

Numerous changes over time make it hard to test between alternative explanations

Economics WAS a theoretical social science

Until recently, social scientists have had limited data to study policy questions like this

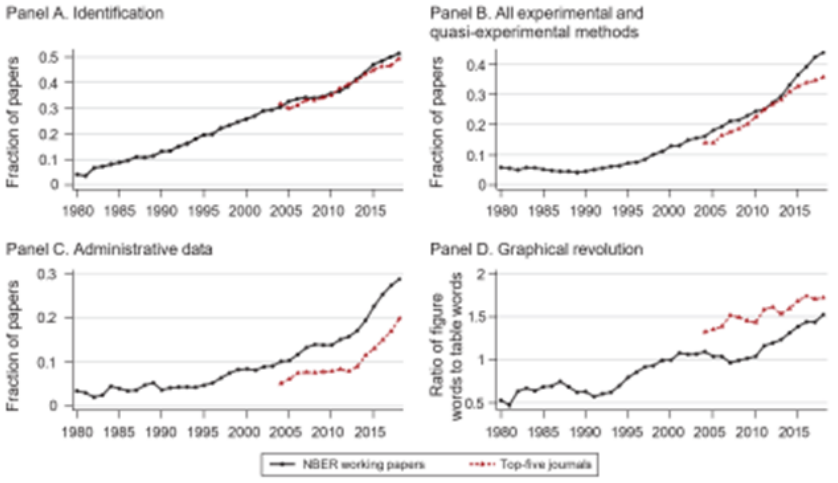
Social science has therefore been a theoretical field:

- Develop mathematical models (economics) or qualitative theories (sociology)
- Use these theories to explain patterns and make policy recommendations, e.g. to improve upward mobility

Problem: theories untested $\Rightarrow$ politicization of questions that in principle have scientific answers

"In God we trust, all others must bring data."

The Rise of Data and Empirical Evidence (Currie, Kleven, Zwiers, 2020 AER:P&P)



Social Science in the Age of Big Data

Large datasets are starting to transform social science, as they have transformed business

Companies like Amazon, Uber, Airbnb, Spotify,... have succeeded in solving major private market problems using technology and big data

Examples:

- Government/ Administrative data: (historical) population census, tax records, linked employer-employee, balance sheet, housing transactions, invoice transactions, voting results, standardised national exams, ...
- Corporate data: Google, Uber, retailer data, ...
- Unstructured data: Twitter (recently, not so easy), newspapers, maps, ...


Economists: everything the light touches is our kingdom
law
public health
statistics
history
computer science
political science
geography
psychology
sociology
math

Why is Big Data Transforming Social Science?

1. Test theories with far greater reliability than with surveys (less selection problems)
2. Heterogeneity: Universal coverage allows us to "zoom in" to subgroups
3. Ability to measure new variables and combine knowledge from different perspectives (e.g., night-time light satellite imagery intensity, emotions, ...)
4. Better methodologies that can approximate scientific experiments and estimate causal parameters

What do Economists bring to the table?

An appreciation for the study of behavior, incentives, expectations, and constraints

An appreciation for the importance of equilibrium interactions and their often non-trivial unintended consequences

An appreciation for the importance of identification, causal statements, and counterfactuals

An appreciation for the fact that all participants maximize welfare, which makes it difficult to change an equilibrium

Why do we use Econometrics?

Statistical toolkit that economists use to answer questions with data

Examples of economic questions:

Has economic inequality increased since 1960?
Descriptive Q: asks about how things are (or were) in reality

How do increases in the minimum wage affect employment?
Causal Q: asks what would have happened in a counterfactual

What will the unemployment rate be next quarter?
Forecasting Q: asks what will happen in the future

We will focus on descriptive and causal questions in this course

Econ posits some underlying models that generate the data we see; to do science/policy, we'd like to know model parameters

Causality is an old philosophical question

I would rather discover one causal law than be King of Persia.
— Democritus

We have knowledge of a thing only when we have grasped its cause.
— Aristotle, Posterior Analytics

We do not have knowledge of a thing until we have grasped its why, that is to say, its cause.
— Aristotle, Physics

We may define a cause to be an object followed by another, and where all the objects, similar to the first, are followed by objects similar to the second. Or, in other words, where, if the first object had not been, the second never had existed.
— David Hume (1748, Section VII)

Intended Learning Goals

- Distinguish **causality** vs. correlation; identify assumptions
- Discuss when and why the **State** should act
- Critically consider **accountability**: from spending to *measured* impact
- Consume **evidence-based** policy analysis
- Apply **(quasi-)experimental** methods
- Work with **micro-data** to evaluate policy effects
- Incorporate **behavioral** insights (biases, heuristics, nudges)
- Use and criticize **LLMs**

Tools

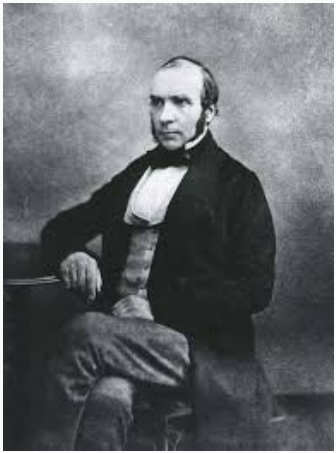
- Stata (in-class demos)
- R/Python

Readings

- Cunningham *Mixtape*
- AP *Mostly Harmless*

Motivating from History to...

Ignaz Semmelweis (1818 – 1865)



John Snow (1813 – 1858)

... frontier knowledge for policy

Methods

- **RCTs**: random assignment; field & survey experiments; limitations
- **DiD**: assumptions and the new literature
- **RDD vs. Bunching**: design & diagnostics
- **SCM & Synthetic DiD**: data-driven counterfactual
- **ML** for prediction, targeting, fairness & ethics

Motivating Examples

- *Hiring discrimination* (field experiment)
- *Climate policy attitudes* (surveys/RCTs)
- *Place-based policies* (RCT/ DiD)
- *Child penalty* (DiD)
- *Attending elite education* (RCT)
- *Tax salience/incidence/ enforcement/ externalities* (DiD/ Bunching/ SCM)
- *Migration* (DiD)
- *Human vs. machine predictions* (ML)

Skill emphasis

interpret *policy-relevant* effect sizes

How I Teach

- **Start from the questions to motivate the methods rather than the traditional approach of doing the reverse**

  Inspired in materials by Raj Chetty, Nathaniel Hendren, Henrik Kleven, Goldsmith-Pinkham, Kirill Borusyak, Martin Halla, Michal Kolesár, Susan Athey, Esther Duflo, J-Pal, ...
- **Empirical demos** with real data
- **Reproducibility** mindset
- **Project-based** learning: feasible designs
- **Policy translation**: evidence to recommendations and fine-tune public policies

Outcomes

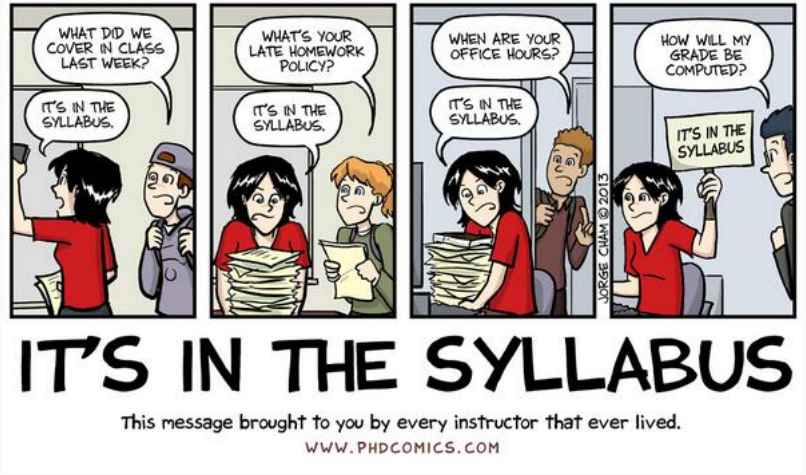
- Design credible evaluations
- Diagnose assumptions
- Communicate to policymakers

Assessment & Engagement

- **Final Exam** (2h): 50%
- **Group work Research Design**: 2–3 students: 25%
- **Individual Paper presentation**: 25%

  Mostly very recent papers in the "so-called" top 5s, AEJ: Economic Policy, REStat, Economic Journal, Journal of Public Economics,...
- Active participation encouraged: + 1 point

Everything you always wanted to know about this course and were (not) afraid to ask...



I am just kidding, you have my e-mail

Let me show you the main deadlines and what we will cover in this course

Kick off

You can learn more about me in
https://sites.google.com/site/joaorpereirasantos/home

Please send me an email with:
1. Your (econometric) background
2. What you would like to do after the MSc?
3. What would you like to learn with this course? Which topics would be more interesting for you?

Think about this before the exam

https://www.youtube.com/watch?v=DaOFUc5miAk&t=4s