Econometrics of Policy Evaluation: Overview

Cristian Huse

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"Lucky is he who has been able to understand the causes of things."

Virgil (not van Dijk)

- This course has two main objectives:
  1. Provide a brief **introduction to the statistical software R**
  2. Present **empirical (econometric) methods** used in the evaluation of policies, e.g., in Environmental and Energy Economics
  3. Provide an illustration of how those methods are applied

- To do so, it will be organized in the following parts:
  1. **Introduction to R**
  2. **Standard empirical methods**
     - OLS review, Causality, Randomization, RD, DD, Matching, Instrumental Variables
  3. **Advanced empirical methods** (time allowing)
     - RD in time, Alternative DD designs, Synthetic control methods

- Given the above and the way the course will present applications, an interesting by-product of this course is that it can help you getting started with a thesis topic
  - driving restrictions in Germany and how they affect air pollution, car fleet, health outcomes, educational performance
  - effect of the COVID pandemic (X) on Y

- **Cristian Huse**
  - Room A5 0-015
  - Office hours by appointment
- **Research areas**
  - Applied Econometrics, Applied Microeconomics, Environmental & Energy Economics, Industrial Organization
- **Research topics**
  - Markets: transportation (e.g., cars, fuels), durables (e.g., refrigerators)
  - Program evaluation: market impacts, costs etc
  - Webpage
- **Other teaching**
  - Environmental Economics & Policy
  - Industrial Organization
  - Econometrics
  - ...

Main References

- **Introduction to R**
  - Several references listed and linked in the course documents
- **Empirical methods**
  - Gertler et al (2016). Impact Evaluation in Practice, 2nd. Edition. Washington, DC: Inter-American Development Bank and World Bank
  - Gertler et al (2016). Impact Evaluation in Practice, 2nd. Edition, Technical Companion (Version 1.0). Washington, DC: Inter-American Development Bank and World Bank.
    - Tools ("how to run a regression")
    - Used for training of policy-makers worldwide
  - Additional reading: Huntington-Klein, N. (2022). The Effect: An Introduction to Research Design and Causality. Routledge. Webpage
- **Applications**
  - Several papers and reports

- Teaching will be **hybrid**, i.e.,
  - **Asynchronous component:** course material will be made available one week in advance, ideally in slides and recorded lectures – you will use it to prepare for the weekly session in the subsequent week
  - **Synchronous component:** weekly *"live session"* whereby we will essentially flip the classroom
- What does it mean in practice?
  - We expect you to go through the slides, recordings, lab sessions in advance on a weekly basis
  - Please post your questions up to 24 hours before the lecture on the forum
  - The live sessions will be used to answer you questions and for discussion
  - While we may need to adapt as the term develops, that is the current plan and we will aim to be flexible

- We aim to have one folder per week (date on YYYY-MM-DD format)
- We aim to post the material for each week one week in advance
- A week will typically start with a topic (e.g., Top_OLSReview) with associated pdf (slides) and webm files (video with explanation of slides)
- A topic may have a lab session associated to it, typically in Rmd and/or R format. Often, a lab session will also be recorded
- A topic may also have a problem set associated to it. Answers may or may not be recorded, but a solution will be provided
- Finally, we may have empirical projects. These will be discussed in broader terms since there are often no "right answers" for them

- This is a demanding but also very exciting course
  - You will learn new methods, be able to think about real-life questions, and acquire real-life skills
- The area has also been recognized with a "Nobel Prize in Economics" by researchers who contributed to its development
- The tools covered here are used by academics and professionals in many different areas
  - Maybe you will also use it if you write an empirical thesis

Final remark

- **Make sure to read the syllabus**
  - It often happens that we receive basic questions about the course which are available on the syllabus in the final weeks of term (or after the end of the lectures), e.g., *"how do I calculate my grade?"*