PhD in Economics and Management 2023-24
MICROECONOMETRICS

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OBJECTIVES

The course offers an introductory take on recent advances in the analysis of microeconomic data. The focus of the course is on identification and estimation of causal effects using microdata. The course covers both theory and applications.

PRE-REQUISITES

Knowledge of OLS, IV, and panel data models at the level of a first-year graduate course in econometrics. I will briefly touch issues related with non-linear models as well.

EXAM AND GRADING

Possibly a written exam. Students will also carry out an empirical replication exercise, and present selected papers in front of the class at the end of the course.

TOPICS

1. Talking about causality: potential outcomes and treatment effects. Research designs and their different shades of validity.
2. Randomization and randomized trials. Inference in randomized trials. Power calculation and minimum detectable effects. Randomization inference. Clustering and the Moulton problem. The problem of multiple testing.
3. Instrumental variables. Constant treatment effects (brief review). Heterogeneous treatment effects: the LATE theorem. Counting and characterizing compliers. Monotonicity and defiance. Testable implications of the LATE theorem: external validity and instrument validity. The case of variable treatment intensity: average causal response.
4. Sharp and fuzzy regression discontinuity designs: identification and inference. The regression probability kink design.
5. Difference – in – differences. Staggered designs. Testing for parallel trends. Synthetic control methods.
6. Making do with observables: saturated regressions, the propensity score, matching and weighting. (Big data, machine learning and the challenges and opportunities they offer for impact evaluation.)

REFERENCES

The key textbooks are Angrist, J. D. and Pischke J.S. (2009). *Mostly Harmless Econometrics* and Cunningham, S. (2020) *Causal Inference: The Mixtape (https://mixtape.scunning.com/)*