PhD in Economics and Management 2020-21
MICROECONOMETRICS

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OBJECTIVES

The course offers an applied economist's take on recent advances in the analysis of microeconomic data. We will see theory and – most important – applications. The focus of the course is on identification and estimation of causal effects using microdata.

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 binary response 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: clustering and the Moulton problem, randomization inference, the problem of multiple testing. Power calculation and minimum detectable effects.
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. Linear (and non-linear) difference – in – differences. Event studies. Testing for parallel trends. Synthetic control methods. Inference in difference-in-differences and synthetic control methods.
6. Making do with observables: matching and regression. Big data, machine learning and the challenges and opportunities they offer for impact evaluation.

REFERENCES

The key textbook is Angrist, J. D. and Pischke J.S. (2009). *Mostly Harmless Econometrics.*
I will also present several journal articles and many applied examples.