

Academic Year: ( 2020 / 2021 )

Review date: 03-12-2020

Department assigned to the subject: Economics Department

Coordinating teacher: CARRASCO PEREA, RAQUEL

Type: Compulsory ECTS Credits : 9.0

Year : 2 Semester : 1

**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

Graduate courses in Econometrics I and Econometrics II (Master in Economic Analysis)

**OBJECTIVES**

The goal of this course is to link econometric methods for estimation of causal effects to data. We will cover a number of theoretical topics that are important in applied research in labor economics, health economics, industrial organization and related fields.

The course will be organized in lectures to provide the economic framework and the econometric issues for each topic. The lectures will be complemented with problem sets, that include both theoretical and empirical exercises. Students ought to handle the Stata program on their own and read related papers.

**DESCRIPTION OF CONTENTS: PROGRAMME**

1. Empirical strategies for identification of causal effects
  - 1.1. Aims and methods of empirical research
  - 1.2. Microeconomic data structures
  - 1.3. Causal relationships of interest
  - 1.4. The identification problem: potential outcomes and causality
2. Social experiments
  - 2.1. Advantages of randomized experiments: The independence condition.
  - 2.2. Internal and external validity
  - 2.3. Examples
3. Selection on observables
  - 3.1. Identification with observational data
  - 3.2. Conditional independence
  - 3.3. Conditional mean-independence
  - 3.4. Regression and causality
4. Matching
  - 4.1. Introduction
  - 4.2. Matching methods and assumptions
  - 4.3. Propensity score
  - 4.4. Relation with regression
5. Identification using external information
  - 5.1. Natural experiments and instrumental variables (IV)
  - 5.2. Identification using IV. The Wald estimator
  - 5.3. Local average treatment effects (LATE)
  - 5.4. Control function approach
6. Regression Discontinuity (RD) designs
  - 6.1. Discontinuities in assignment rules
  - 6.2. Sharp and fuzzy RD designs
7. Differences in Differences (DD)
  - 7.1. Natural experiments and DD
  - 7.2. The fundamental identification assumption
  - 7.3. Differences in differences in differences (DDD)

- 7.4. Synthetic control methods
- 7.5. DD with panel data
- 8. Quantile methods
  - 8.1. Unconditional and conditional quantiles
  - 8.2. Quantile regression (QR). Interpretation
  - 8.3. Extensions
- 9. Structural estimation
  - 9.1. Policy parameters
  - 9.2. Computational problems
  - 9.3. Methods of estimation
  - 9.4. Applications

#### ASSESSMENT SYSTEM

Grading will be based on a midterm and a final exam

<b>% end-of-term-examination:</b>	60
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	40

#### BASIC BIBLIOGRAPHY

- A. Colin Cameron & Pravin K. Trivedi Microeconometrics: Methods and Applications, Cambridge University Press, 2005
- Jeffrey M. Wooldridge Econometric Analysis of Cross Section and Panel Data Econometric Analysis of Cross Section and Panel Data, MIT Press, 2010
- Joshua D. Angrist & Jörn-Steffen Pischke Mostly Harmless Econometrics. An Empiricist's Companion, Princeton University Press, 2009
- Pravin K. Trivedi & A. Colin Cameron Microeconometrics Using Stata, Revised Edition, Stata Press, 2010