Universitat Pompeu Fabra Barcelona

Academic Year/course: 2019/20

21171 - Applied Econometrics

Syllabus Information

Academic Course: 2019/20
Academic Center: 304 - Faculty of Law and Economics
332 - Faculty of Economic and Business Sciences

Study: 3327 - Bachelor's degree in International Business Economics

Subject: 21171 - Applied Econometrics
Credits: 5.0
Course: 3 and 4
Teaching languages:

Theory:	Group 1: English
Seminar:	Group 101: English
	Group 102: English

Teachers: Sergi Jimenez Martin, Jaime Garcia Villar
Teaching Period: Third Quarter

Presentation

The course will introduce the student into the empirical analysis of some economic issues using econometric techniques. The course will be organized around some economic topics, closely related to some papers in the literature. There will be a general emphasis on the usual stages in applied work in economics:

- How to define the question to be analysed (objective)
- The economic theory framework corresponding to the empirical model
- The type of data necessary (and available) for the analysis
- The econometric techniques adequate for the exercise given the characteristics of the data and the model
- The interpretation of the results
- The elaboration of the conclusions

The course will pay specific attention to the econometric techniques used in the different topics.

Prerequisites

Similar to those in the Econometrics I, II and III courses in the grade of Economics at Universitat Pompeu Fabra, i.e:

- Basic knowledge of the concepts of statistical inference, hypothesis testing and maximum likelihood estimation.
- Knowledge of the regression model and consequences of problems of internal and external validity.
- Basic knowledge of instrumental variables, time series and dynamic causal effects.
- Basic knowledge of microeconometrics: discrete choice models, limited-dependent variables models, panel data.

Contents

1. Policy Evaluation Methods (PEM)
   - Social Experiments
   - Natural Experiments: Diff-in-Diff
   - Matching: Propensity score matching
   - Regression discontinuity design

1. Multinomial discrete choice models (MDCM)

- Multinomial Logit and Conditional Multinomial Logit
- Independence of Irrelevant Alternatives (IIA)
- Nested Logit
- Mixed Logit
- Ordered models

1. Multi-level and Panel data (PD)

- Multi-level Models
- Linear Panel Data Models
- Discrete Choice Panel Data Models
- Dynamic models

5. Introduction to Big data analysis

- Overview
- Introduction to Lasso Regression

There will also be additional empirical references for each topic to be discussed in the presentations.

Teaching Methods

Teaching consists of 20 lectures and 6 seminars of 1.5 hours each. The econometric methodologies and the discussion of an empirical application associated to each topic will be developed in the lectures. Seminars will be devoted to the discussion of empirical homework exercises, one for each topic, and also to the presentation of the contents of published papers related to empirical applications of the econometric techniques of each topic. Students will be asked to write an essay based on an empirical exercise they have to do with real data, to be presented the 9th week of the course. In order to practice teamwork, homework exercises, presentations of papers and the essay are expected to be done in groups of 3-4 people.

The solutions of the assignments should be sent by mail, as a *pdf* file, before the date of the corresponding seminar. The deadline for handing in the essays is June 8th.

Participation and asking questions are highly encouraged in lectures and seminars.

Evaluation

In order to pass the course, the student should obtain at least 50 points out of 100, minimum of 20 from the exam, according to the following distribution:

Assignments/Participation: 10 points

Paper presentation: 15 points

Empirical essay and presentation: 25 points

Exam: 50 points

For those not passing the course in June and who have obtained at least 15 points in the exam and have attended and participated in the seminars, there will be a second chance to take the exam in July.

ALL students enrolled in the course are subject to the criteria described in this PDA, as well as to the dates of delivery of assessable and examinations. This includes those who come from exchange agreements.

Bibliography and information resources

The econometric contents of the topics can be followed using the lecture notes and the following textbooks:

- Jones, A., *Applied Econometrics for Health Economists: A Practical Guide*, Radcliffe Publishing, 2007 (basic)

- Greene, W.H., *Econometric Analysis*, Prentice Hall, 2008 (intermediate)

- Cameron, A.C. and Trivedi, P.K., *Microeconometrics. Methods and Applications*, Cambridge University Press, 2005 (advanced)

- Cameron, A.C. and Trivedi, P.K., *Microeconometrics using STATA*, STATA Press, 2010 (advanced)

- Stock, J.H. and Watson, M.K., *Introduction to Econometrics*, Addison-Wesley, 2010
- Wooldridge, J.M., *Econometric Analysis of Cross-Section and Panel Data*, MIT Press, 2010 (advanced)