

UNIVERSITY OF ALICANTE
ECONOMETRICS I
2011/2012

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Objetives

The objective of this course is to provide an introduction to the application of statistical methods in econometrics. The course covers estimation and inference in linear models, including regression and instrumental variables. The last part of the course is devoted to introduce the students into the analysis of Time Series models.

Evaluation

Students will be given problem sets and will have to hand them in on established dates. The problem sets will be graded, and the solutions to the problem sets will be discussed in class. The grade will be based on a final exam (60%), a midterm exam (30%) and problem sets (10%).

Course outline

1. Introduction

1. Introduction.
2. Conditional expectations. Features and properties.
3. Linear projections.

2. The single-equation linear model. OLS estimation.

1. The single-equation linear model.
2. The OLS estimator.
 - 2.1 Asymptotic properties.
 - 2.2 Finite sample properties.
 - 2.3 Inference.
3. Omitted variables.
4. Measurement errors.

3. Instrumental variables estimation of single-equation linear models.

1. Instrumental variables. The simple IV estimator.
 - 1.1 Asymptotic properties.
 - 1.2 Inference.
2. The generalized method of moments.
 - 2.1 The two-stage least squares estimator.
 - 2.2 Asymptotic properties.
 - 2.3 Inference.
 - 2.4 The optimal GMM estimator.
 - 2.5 Optimal Instruments.
3. IV solutions to the omitted variables and measurement errors problems.

4. Additional single-equation topics.

1. Generated regressors and instruments.
2. Some specification tests.
3. Other sampling schemes.

5. Systems of equations. OLS and GLS estimation

1. Introduction and examples.
2. OLS estimation. Asymptotic properties. Inference.
3. GLS estimation. Asymptotic properties. Inference.
4. The SUR system.
5. Pooled OLS estimation of the linear panel data model.

6. Time series models

1. Basic concepts in time series.
2. ARMA models.
3. Serial Correlation in the linear regression model.

Text Books

- Wooldridge, J. M. (2001), *The Econometric Analysis of Cross-Section and Panel Data*, The MIT Press.
- Hamilton, J.D. 1994. *Time Series Analysis*. Princeton University Press.

Other References

- Goldberger, A.S. (1991), *A Course in Econometrics*, Harvard University Press.
- Greene, H. (2003), *Econometric Analysis*, Prentice Hall.