Universidad Zaragoza

Academic Year/course: 2024/25

30628 - Econometrics Applications for the Company

Syllabus Information

Academic year: 2024/25
Subject: 30628 - Econometrics Applications for the Company
Faculty / School: 109 - Facultad de Economía y Empresa
Degree: 432 - Joint Law - Business Administration and Management Programme
ECTS: 5.0
Year: 6
Semester: First semester
Subject type: Optional
Module:

1. General information

The main goal of the subject is that, at the end of the term, the student has strengthened his knowledge of various econometric techniques that are applied both in the resolution of problems of Economic Theory and others that may have application in business problems. To this end, the student will be provided with knowledge that will consolidate the knowledge already acquired in the Econometrics subject, both in relation to the problems that may appear after estimation, as well as other new topics, such as the treatment of univariate time series and regression with time series that take into account the possible cointegration relationships between variables. The knowledge will be established with the resolution of practical cases that the students will solve with the help of the computer and that they will then expose.

These approaches and goals are aligned with the Sustainable Development United Nations (https://www.un.org/sustainabledevelopment/es/), in particular, the activities planned in the subject will contribute to the achievement of objectives 4.3, 4.4 and 4.5 of Goal 4 and Goal 8.

2. Learning results

- Know the basic techniques of econometric analysis and adapt them to the company's scope of application.
- Know how to collect data from different sources and transform them to be used in econometric analysis.
- Apply the appropriate econometric techniques that, with the help of an econometric program such as Gretl, will help the student to solve problems of interest in the business field.
- Distinguish time series data from cross-sectional data and what problems may arise with each of them.
- Know how to test different economic hypotheses through restrictions in the model parameters.
- Know how to introduce dummy variables in econometric models and interpret their estimation.
- Identify common problems that can occur in the error term of an econometric model

(autocorrelation, heteroscedasticity and normality) and know how to correct them.

- Know how to work with univariate time series, knowing the basic steps of Box-analysis

Jenkins.

- Know how to use the sample correlogram of a time series to identify the underlying stochastic process.
- Know the different types of time trends, properly identifying the time trends of stochastic trends.
- Know how to treat series with stochastic trends and determine if they present any cointegration relationship.
- Know how to write an applied econometric paper in a rigorous and comprehensible way.
- Summarize and group the main ideas of a paper and translate them into a Powerpoint presentation.
- Publicly defend the resolution of the cases that will be presented during the term.

3. Syllabus

PART I. The problems of the company. Case studies.

Econometrics topics to be covered in the case studies:

- Contrast of individual and joint hypotheses.
- Selection of nested models.
- Detection and treatment of problems in the error term.
- Dummy variables.
- Estimation, validation and interpretation of results in all cases.

PART II. The microeconomic environment of the company. Case studies.

Econometrics topics to be covered in the case studies:

- Estimation of functional forms.
- Contrasting economic hypotheses using dummy variables.
- Estimation with binary dependent variable.
- Estimation, validation and interpretation of results in all cases.

PART III. The macroeconomic environment of the company. Case studies.

Econometrics topics to be covered in the case studies:

- Identification and estimation of ARIMA models.
- Identification of the order of integration of time series.
- Estimation of cointegration relationships.
- Estimation of short- and long-term effects. Error correction mechanism.

4. Academic activities

Participative master class: sessions with the teacher in which the subject will be explained, 22 hours **Problems and cases:** sessions to solve practical cases presented by the teacher, 8 hours

Assessed teaching assignments: time dedicated by students to solve assessabble cases, part of it in class with the support of the teacher and part of it individually, 40 hours

Personal study: 45 hours

Assessment tests: including in-class presentations and written tests, 10 hours

In principle, the teaching methodology and its evaluation is planned to be based on face-to-face classes . However, if circumstances so require, they may be carried out online.

5. Assessment system

Students have two evaluation options:

Option 1: Continuous Assessment.

- Written and oral presentation of cases assigned by the professor.
- 90% of the continuous assessment grade is based on a written assignment (weighted at 60%) and its oral presentation in class (weighted at 40%). Evaluation considers correct answers, theoretical justification, clear economic and econometric writing, and public presentation.
- The remaining 10% is based on an individual written empirical study proposal. Originality of the proposal and feasibility of implementing econometric techniques are considered here.

Option 2: Comprehensive Exam.

- Theoretical and practical questions based on course content, including a computer-based exam.

The theoretical section is worth 5 points, and the practical computer section is worth 5 points. A passing grade is achieved with a minimum of 5 points, with a minimum of 3.5 points in each section. Second Examination Session: Comprehensive exam, similar to the first session.

6. Sustainable Development Goals

4 - Quality Education
8 - Decent Work and Economic Growth