UAB
Universitat Autònoma de Barcelona

Econometrics	2016/2017

Code: 102105
ECTS Credits: 6

Degree	Type	Year	Semester
2501231 Accounting and Finance	OB	3	1

Contact

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Use of languages

Principal working language: catalan (cat)

Some groups entirely in English: No

Some groups entirely in Catalan: Yes

Some groups entirely in Spanish: No

Prerequisites

It is highly recommended that the student has successfully completed Mathematics I, II and Statistics I, II. Having full command of the materials presented in these courses is essential to succeed in Econometrics.

Objectives and Contextualisation

Econometrics presents basic tools for the empirical analysis of relationships between economic variables. The course begins with the simple regression model, already introduced in Statistics II, and continues with multiple regression, including both quantitative and qualitative regressors.

The goal of this course is for students to learn how to extract information from economic data using basic regression analysis, being able to rigorously assess the advantages and limitations of this tool. Major emphasis shall be placed on understanding the intuition behind the theoretical aspects of econometric analysis. Throughout the course numerous applications using real data will be presented to help students learn to value the empirical applications of the tools introduced.

Skills

- Applying the appropriate econometric methodology in order to find an answer to the problems of the empirical study of certain economic data.
- Being capable of autonomously carry on studying in the future, deepening in the acquired knowledge or commencing new areas of knowledge.
- Communicating in oral and written form in Catalan, Spanish and English, in order to be able to summarise and present the carried out project in both forms.

Learning outcomes

1. Analysing the behaviour of economic time series and making predictions.
2. Being capable of autonomously carry on studying in the future, deepening in the acquired knowledge or commencing new areas of knowledge.
3. Communicating in oral and written form in Catalan, Spanish and English, in order to be able to summarise and present the carried out project in both forms.
4. Identifying and applying the appropriate econometric methodology in order to find an answer to the problems of the empirical study of certain economic data.

5. Preparing the obtained data of those sources in order to carry out later a quantitative analysis.
6. Specifying models, and estimation and inference methods.
7. Using economic information coming from several sources: databases, Internet, etc.
8. Using software in order to carry out the quantitative analysis of the data.

Content

Unit 1: Introduction to econometric analysis

- What is econometrics? Objectives
- Nature and structure of economic data
- Causality versus correlation

Unit 2: The simple regression model

- The simple linear regression model. The regression line
- Least squares estimation. The fitted regression line
- Goodness of fit. The coefficient of determination
- Numerical properties of the estimator
- Distribution of the estimator
- Statistical properties of the estimator
- Applications

Unit 3: The multiple linear regression model: estimation

- The multiple linear regression model: goals and notation
- Least squares estimation. Fitted model.
- The coefficient of determination and the adjusted coefficient of determination
- Regression model and functional form
- Distribution and properties of the estimator
- The components of the variance of the OLS estimator
- Estimation under the presence of collinearity
- Applications.

Unit 4: The multiple linear regression model: inference and prediction

- Hypothesis testing with the t statistic. Individual significance test
- Confidence intervals for a single regression parameter
- Hypothesis testing using the F statistic
- The F statistic using restricted least squares estimation. Global significance test
- Testing for structural change
- Inference under the presence of collinearity
- Point prediction
- Confidence intervals for the prediction
- Applications

Methodology

The course will be structured as follows:

1. Lectures

In the lectures, the key concepts and methods will be presented using examples to facilitate a clear understanding of the materials presented.

2. Lab sessions in computer room

In order to better grasp the different econometric concepts and methods, some of the sessions will take place in the computer room. Labs can take place during additional extra sessions officially programmed for Econometrics. The econometric package Gretl, an open source software program already used in Statistics II, will be used extensively. Students will learn additional menu options and the use of scripts.

3. In class problem solving

An exercise list will be provided for each unit. Students will be asked to work on them in small groups or on their own. This activity is crucial to assimilate the theoretical aspects and the applications of the tools presented. The instructor will select some exercises from the list to be discussed in class, although students are expected to complete the entire exercise list in their own time. The instructor might use some of the sessions of in class problem solving for evaluation.

4. Office hours

Students can use instructor's office hours to solve specific questions. Office hours will be announced in either the intranet (Campus Virtual) or in the instructor's webpage.

5. Studying

It is expected that activities 1 to 4, described above, take about one third of the time that the student is supposed to dedicate to Econometrics. In order to succeed in this course, students should anticipate spending an additional 100 hours or more of independent work in problem solving and studying.

Important:

-To successfully pass this course, class attendance is critical.
-For a good class environment: Everybody should arrive on time and plan on staying for the entire class.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Content presentation	30	1.2	1, 6, 4, 8
In class problem solving and applications	14	0.56	1, 6, 4, 5, 7, 8
Type: Supervised			
Computer room work	8	0.32	1, 4, 5, 7, 8
Type: Autonomous			
Study and exercise solving	90	3.6	1, 6, 4, 5, 3, 7, 8

Evaluation

1. Midterm exam

There will be a midterm covering the contents of Unit 1 and 2. It will be a closed book exam. Grades will be given on a scale of 0 to 10. This exam will represent 20% of the overall course grade.

2. Final exam

There will be a final exam covering the contents of Unit 1, 2, 3 and 4. It will be a closed book exam. Grade will be given on a scale of 0 to 10. This exam will represent 70% of the overall course grade.

3. Submission of exercises

Occasionally, students will be asked to submit some exercises. The instructor might ask students to solve these exercises during class or during a lab session. Grades will be given on a scale of 0 to 10. Exercise solving will represent 10% of the overall course grade.

Grading Policy

a. After the final exam grade is available, a course grade will be given to assigned to each student. As explained, the course grade is calculated according to the following expression:

COURSE GRADE=0.1*EXERCISES + 0.2* MIDTERM + 0.7*FINAL

b. To pass the course the course grade should be at least 5.

c. All students must take exams and turn in assignments on their specified dates. No exceptions possible.

Assessment Calendar

The exam dates are set by the academic calendar of the Facultat d'Economia i Empresa.

Grades and Exam Review

After each grading activity, grades will be posted either in Campus Virtual or in the instructor's webpage. The date and place for each exam review will also be posted in the same manner.

Post-assessment

For those students who have obtained a course grade greater or equal to 4 but smaller than 5, therewill be a post-assessment exam. The date of this post-assessment exam is established by the Facultat of Economia i Empresa and included in the exam calendar list. This post-assessment exam is of the PASS/NOPASS form. Students who get a PASS will pass the course and will get a course grade equal to 5. Students who get a NO PASS will fail the course and their course grade will remain unchanged.

Honor Code

Aside from other disciplinary measures that are considered appropriate, and according to the present academic rules, students that copy from another's examination, solicit or give unpermitted collaboration during grading activities will be awarded with a zero. Furthermore, it will not be possible for them to sit for any further grading activity during the same academic year.

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Exams (Midterm, Final)	90	4	0.16	1, 2, 6, 4, 3, 8
Exercises	10	4	0.16	1, 2, 6, 4, 5, 3, 7, 8

Bibliography

Course textbooks:

- Wooldridge, J. M., Introductory Econometrics: A Modern Approach. South-Western Cengage learning. 6ed. 2015.

- Uriel Jiménez, E., Introduction to Econometrics. Electronic book. Universidad de Valencia.