Universitat Autònoma de Barcelona

2019/2020

Econometrics

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: Yes

Teachers

Ana Vazquez Fariñas
Albert Grau Rivas

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.

Competences

- 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.
- Demonstrating a comprehension of the international standards about accounting valuation, preparation of the financial information and tax regulation affecting the financial and accounting valuation in order to determine the tax incidence in the accounting and financial operations.
- Efficiently searching information, discriminating irrelevant information.
- Organising the work, regarding order and planning.

- Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
- Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.

Learning Outcomes

1. 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.
2. Describing and analysing the causal relationship between economic variables.
3. Efficiently searching information, discriminating irrelevant information.
4. Organising the work, regarding order and planning.
5. Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
6. Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.

Content

Unit 1: Introduction to econometric analysis

- What is econometrics? Objectives
- The nature of economic data: experimental data versus observational data
- Estimation of causal effects. Causality versus correlation
- The structure of economic data

Unit 2: The simple regression model: estimation

- The simple regression model. The regression line
- Least squares estimation. The fitted line. Goodness of fit
- Interpretation of the coefficients. Special cases: dependent variable in logs. Qualitative regressor
- Distribution of the estimator under classical assumptions. Statistical properties
- Applications

Unit 3: The simple regression model: inference

- Inference in a regression model
- Hypothesis testing with the t-statistic
- Confidence intervals
- Applications

Unit 4: The multiple regression model: estimation

- The multiple regression model. The population regression function
- Least squares estimation. The sample regression function
- Goodness of fit. Coefficient of determination. Adjusted coefficient.
- Distribution of the estimator under ideal conditions. Statistical properties
- The components of the variance of the estimator
- Applications.

Unit 5: Linear regression analysis: inference

- Hypothesis testing with the t statistic
- Confidence intervals
- Hypothesis testing using the F statistic
- Inference under the presence of collinearity

- Applications

Unit 6: Multiple regression model: further issues

- Regression models with variables in logs.
- Regression modelswith polynomial forms.
- Regression models with interaction terms
- Qualitative regressors: additional uses
- Test of structural change
- Applications

Methodology

The course will be structured as follows:

1. Lectures

During lectures, key concepts and methods will be presented using many examples to facilitate a clear understanding of the materials presented. An exercise list will be provided for each unit. Students will be asked to work on them, as an independent activity, in small groups or on their own. The instructor will select some exercises from the lists to be discussed in class and can use some of them as an evaluation activity.

2. Lab sessions

In order to better grasp the different econometric concepts and methods, some of the sessions will take place in the computer room, where econometric software will be used. The main goal fo these sessions will be for the student to learn to rigorously apply to tools presented.

3. Tutoring

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

4. Studying

It is expected that the activities described above, take about one a fraction of the time that the student is supposed to dedicate to *Econometrics I*. The rest of the time should be filled with students' independent work (studying, reading the course textbook, problem solving,...). This activity is crucial to assimilate the theoretical aspects and the applications of the tools presented.

Important:

-To successfully pass this course, class attendanceis 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			
Lab sessions	13	0.52	3, 2, 4, 6, 5, 1
Lectures	33	1.32	3, 2, 4, 5
Type: Supervised			
Tutoring	8	0.32	

Type: Autonomous			
Study and exercise solving	92.5	3.7	3, 2, 4, 6, 5, 1

Assessment

Students evaluation will be based on the following activities:

1. Midterm exam

There will be a written test covering the material covered so far. It will be a closed book exam.

2. Final exam

There will be a final exam covering the course content. It will be a closed book exam.

3. Assignments

Students will be asked to turn in assignments. The instructor might require for the exercises to be solved during class or lab sessions.

Grading Policy

a. Course grade is calculated according to the following expression:

COURSE GRADE=0.20*ASSIGNMENTS + 0.30* MIDTERM + 0.50*FINAL

b. To pass the course, the course grade needs to be equal or greater than 5. If the course grade is between 3.5 and 4.9, the student can sit in the retake exam, as established in section Retake process included below. The student will fail the course if the grade is below 3.5.

c. A student who has not participated in any of the assessment activities will be consideredas 'Not evaluable'.

Calendar of evaluation activities

The dates of the evaluation activities (midterm exams, exercises in the classroom, assignments, ...) will be announced well in advance during the semester.

The date of the final exam is scheduled in the assessment calendar of the Faculty.

"The dates of evaluation activities cannot be modified, unless there is an exceptional and duly justified reason why an evaluation activity cannot be carried out. In this case, the degree coordinatorwill contact both the teaching staff and the affected student, and anew date will be scheduled within the same academic period to make up for the missed evaluation activity." ***Section 1 of Article 115. Calendar of evaluation activities (Academic Regulations UAB)****.* Students of the Faculty of Economics and Business, who in accordance with the previous paragraph need to change an evaluation activity date must process the request by filling out an Application for exams' reschedule
https://eformularis.uab.cat/group/deganat_feie/application-for-exams-reschedule

Grade revision process

After all grading activities have ended, students will be informed of the date and way in which the course grades will be published. Students will be also be informed of the procedure, place, date and time of grade revision following University regulations.

Retake Process

"To be eligible to participate in the retake process, it is required for students to have been previously been evaluated for at least two thirds of the total evaluation activities of the subject." Section 3 of Article 112 ter. The recovery (UAB Academic Regulations). Additionally, it is required that the student to have achieved an average grade of the subject between 3.5 and 4.9.

The date of the retake exam will be posted in the calendar of evaluation activities of the Faculty. Students who take this exam and pass, will geta grade of 5 for the subject. If the student does not pass the retake, the grade will remain unchanged, and hence, student will fail the course.

Irregularities in evaluation activities

In spite of other disciplinary measures deemed appropriate, and in accordance with current academic regulations, *"in the case that the student makes any irregularity that could lead to a significant variation in the grade of an evaluation activity, it will be graded with a 0, regardless of the disciplinary process that can be instructed. In case of various irregularities occur in the evaluation of the same subject, the final grade of this subject will be 0"*. ***Section 10 of Article 116. Results of the evaluation. (UAB Academic Regulations).***

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exercise submission and lab tests	20%	0	0	3, 2, 4, 6, 5, 1
Final exam	50%	2	0.08	3, 2, 4, 6, 5, 1
Midterm	30%	1.5	0.06	3, 2, 4, 6, 5, 1

Bibliography

- Stock,J.H. i Watson, M.M., *Introduction to Econoemtrics*.

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

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