ECONOMETRICS II: FORECASTING & IDENTIFICATION

IE University
Professor: **OURANIA DIMAKOU**

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Academic year: 23-24
Degree course: FOURTH
Semester: 2º
Category: COMPULSORY
Number of credits: 3.0
Language: English

PREREQUISITES

In general, there are no formal prerequisites for the subject, however, it will be assumed that students have a good understanding of the following:

1. Basic estimation and interpretation of results

2. Extensions to the basic linear regression model (multicollinearity, non-normality, heteroskedasticity, autocorrelation)

3. Basic familiarity with the econometric software STATA

SUBJECT DESCRIPTION

This module will go one step beyond the basic econometrics course to provide students with hands-on training in time series analysis, causal identification, and economic forecasting. We will focus on common econometric challenges faced by economists, and on learning practical solutions to these methodological obstacles, utilising the software STATA. In particular, there are four main themes that the course will cover:

1. Time series Analysis
2. Endogeneity and Instrumental Variables
3. Logit and Probit Analysis
4. Economic Predictions and Forecasting

OBJECTIVES AND SKILLS

This module aims to provide a study of selective topics in advanced econometrics and develop understanding of how particular econometric techniques are used in empirical research, while dwelling on the assumptions these are based and implications therein. The module enables students to gain practical experience and aims to create competence in carrying out grounded empirical work.

On successful completion of the course, students should be able to

- Explain core concepts and techniques in tackling time-series econometrics, endogeneity

  problems, limited dependent variables and forecasting.

- Address the problems of time dependence, integration and cointegration in time series data, and decompose time series variables.
- Apply statistical identification strategies (in particular, IV estimation) to strengthen causal results.
- Apply estimation techniques for binary and limited dependent variables
- Apply forecasting techniques to predict future economic trends using past economic data.
- Use the course's software (STATA) to implement the various techniques taught employing secondary data and demonstrate ability to analyse and assess empirical results
- Interpret and evaluate applied work and econometric findings.

METHODOLOGY

This subject is applied-modelling oriented, hence theoretical formality and mathematical derivation are kept to a minimum. ECONOMETRICS II: FORECASTING & IDENTIFICATION provides students with practical experience in modelling economic relationships, and enhances their competence in critically evaluating research results, and carrying out good quality empirical work. This is done by blending theoretical lectures with applied real-problem examples and exercise-style applications using the econometric software STATA 15.

Teaching methodology	Weighting	Estimated time a student should dedicate to prepare for and participate in
Lectures	26.67 %	20 hours
Discussions	10.67 %	8 hours
Exercises	26.67 %	20 hours
Group work	9.33 %	7 hours
Other individual studying	26.67 %	20 hours
TOTAL	100.0 %	75 hours

PROGRAM

SESSION 1 (LIVE IN-PERSON)

Introduction to the subject and introduction to STATA

SESSION 2 (LIVE IN-PERSON)

Time Series Analysis 1 - Components

SESSION 3 (LIVE IN-PERSON)

Time Series Analysis 1 - Components

SESSION 4 (LIVE IN-PERSON)

Time Series 2 - Spurious estimation, stationarity and integration

SESSION 5 (LIVE IN-PERSON)

Time Series 2 - Integration

SESSION 6 (LIVE IN-PERSON)

Time Series 3 - Cointegration

SESSION 7 (LIVE IN-PERSON)

SESSION 8 (LIVE IN-PERSON)

Endongeneity Problems and Instrumental Variables

SESSION 9 (LIVE IN-PERSON)

Endongeneity and Instrumental Variables estimation (2SLS)
Cross sectional and time series examples in STATA

SESSION 10 (LIVE IN-PERSON)

Limited Dependent Variable Analysis

SESSION 11 (LIVE IN-PERSON)

Logit and Probit Models in STATA

SESSION 12 (LIVE IN-PERSON)

Introduction to Forecasting

SESSION 13 (LIVE IN-PERSON)

One-Step-Ahead Forecasting and Multiple-Step-Ahead Forecasts

SESSION 14 (LIVE IN-PERSON)

One-Step-Ahead Forecasting and Multiple-Step-Ahead Forecasts

SESSION 15 (LIVE IN-PERSON)

Evaluating Forecasting

BIBLIOGRAPHY

Compulsory

- J Wooldridge. (2019). *Introductory Econometrics: A modern Approach.* 7th edition. South-Western Cengage Learning. ISBN 9781337558860 (Printed)

Recommended

- D. Asteriou and S. G. Hall. *Applied Econometrics.* Palgrave. ISBN 978135030614 (Printed)

- D. Gujarati. *Basic Econometrics.* McGraw Hill. ISBN 9780070660052 (Printed)

EVALUATION CRITERIA

Class participation 10%
Essay 20% - reading and evaluating an econometric paper
Practical Exercise 20% - using data and STATA
Final exam 50% - In-person via blackboard using data and STATA

Criteria	Percentage	Comments
Final Exam	50 %	In-person via blackboard using data and STATA
Class Participation	10 %	
Intermediate Tests	20 %	Practical Exercise - using data and STATA
Individual Work	20 %	Essay - read and evaluate an econometric paper

GENERAL OBSERVATIONS

Each student has four attempts over two consecutive academic years to pass this course.

For every BIE Program mandatory class, students are required to obtain the minimum grade of 5 required to pass the course. Students whose grade in the Final Exam (or the largest assignment) is below 5 will fail the course. The rule applies to whichever assignment carries the greatest weight to the final grade. Dates and location of the final exam will be posted in advance and will not be changed.

Students must attend at least 70% of the sessions. Students who do not comply with the 70% attendance rule will receive a 0.0 on their first and second attempts and go directly to the third one (they will need to enroll in this course again the following academic year).

Students who are in the third or fourth attempt must contact the professor during the first two weeks of the course.

ATTENDANCE

In-person attendance is mandatory at IE University, as it is an essential factor of IE´s learning methodology. While we do closely monitor attendance in each course, we also consider our students responsible for their own agenda and commitments, as adult university students. With that in mind, each student may miss up to 30% of the sessions within a given course and still maintain the possibility of passing that given course. This 30% "buffer" is to be used for any absences, such as: illnesses, personal emergencies, commitments, official/governmental matters, business and/or medical appointments, family situations, etc. Students should manage their various needs, and situations that may arise, within that 30% buffer. If a student is absent to more than the allowed 30% of the sessions (regardless of the reason), s/he will obtain a 0.0 grade for that course in both the ordinary and extraordinary calls of the current academic year, and s/he will have to retake the course during the following academic year.

Please pay close attention to your attendance. The program strongly encourages attending 100% of the sessions as it will improve your learning outcomes, it will increase the class performance and it will benefit your participation grade. Noncompliance with deadlines for Non-Classroom Learning activities or assignments will result in an absence for the session.

Extreme cases involving emergencies such as: extended hospitalizations, accidents, serious illnesses and other cases of force majeure, are to be consulted with the Program Management (bir.biemadrid@ie.edu) for assessment of the situation and corresponding documentation, in order to support and guide each student optimally.

For more information about the university attendance policy, please check; https://www.ie.edu/student-guide/bir/policies-and-guidelines/attendance/

RETAKE POLICY

Any student whose weighted final grade is below 5 will be required to sit for the retake exam to pass the course (except those not complying with the attendance rules, whom are banned from this possibility).

Grading for retakes will be subject to the following rules:

- The retakes will consist of a comprehensive exam or equivalent assignment. The grade will depend only on the performance on this exam; continuous evaluation over the semester will not be taken into account.
- Dates and location of the retakes will be posted in advance and will not be changed.
- The exam/assignment will be designed bearing in mind that the passing grade is 5 and the maximum grade that can be attained is 8 out of 10.

PLAGIARISM / ACADEMIC HONESTY

Plagiarism is the dishonest act of presenting another person's ideas, texts or words as your own. This includes in order of seriousness of the offense:

- providing faulty sources;
- copy-pasting material from your own past assignments (self-plagiarism) without the instructor's permission;
- copy-pasting material from external sources even while citing them;
- using verbatim translations from sources in other languages without citing them;
- copy-pasting material from external sources without citing them;
- and buying or commissioning essays from other parties.

IEU students must contact the professor if they don't know whether the use of a document constitutes plagiarism. For help with your academic writing, contact the Writing Center (writingcenter@faculty.ie.edu). The professor will also advise the student on how to present said material. All written assignments must be submitted through Turn-it-in, which produces a similarity report and detects cases of plagiarism. Professors are required to check each student's academic work in order to guarantee its originality. If the originality of the academic work is not clear, the professor will contact the student in order to clarify any doubts. Students using external tutorial support should report it to the professor and the BIR Program from the moment they began receiving this support. In the event that the meeting with the student fails to clarify the originality of the academic work, the professor will inform the Director of the Bachelor Program about the case, who will then decide whether to bring the case forward to the BIR Academic Review Panel. Very high similarity scores will be automatically flagged and forwarded to the Academic Review Panel. Plagiarism constitutes a very serious offense and may carry penalties ranging from getting a zero for the assignment to expulsion from the university depending on the severity of the case and the number of times the student has committed plagiarism in the past.

PROFESSOR BIO

Professor: **OURANIA DIMAKOU**

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OURANIA DIMAKOU

I am currently a lecturer in Economics at Universidad Rey Juan Carlos, and a visiting professor at IE University. I have a PhD in Economics from Birkbeck, University of London and I have worked at SOAS University of London as a Lecturer in Economics between 2011-2020. My research interests include macroeconomic theories and policies, public debt and International Financial Institutions, Central Banking theories, History of Economic Thought, public health policies employing a pluralism of theoretical and empirical methodologies. I have published articles in various peer-reviewed international journals, as well as a book co-authored by prof Ben Fine (Macroeconomics. A critical companion. 2016, Pluto Press).

I have completed a series of PhD theses as first and second supervisor. I have served as reviewer for international journals and as a member in committees for conferences and other institutions (such as IIPPE, Reteaching Economics). I undertook a research fellowship at the Bank of Spain and also visited Universidad Autónoma de Madrid during my sabbatical in 2014-15. Furthermore, I have ample teaching experience at various undergraduate and postgraduate levels in subjects such as Econometrics, Macroeconomics, Microeconomics, Economic Policy.

OTHER INFORMATION
CONTACT INFORMATION

Office Hours: I can hold office hours on Fridays 11:00-12:00. Alternatively, you can email me and we can set up an online meeting.

Contact details: odimakou@faculty.ie.edu

CODE OF CONDUCT IN CLASS

1. Be on time. Students arriving more than 5 minutes late will be marked as "Absent". Only students that notify in advance in writing that they will be late for a specific session may be granted an exception (at the discretion of the professor). Students attending online must always have their cameras on during the session or risk being marked absent.

2. If applicable, bring your name card and strictly follow the seating chart. It helps faculty members and fellow students learn your names.

3. Do not leave the room during the lecture: Students are not allowed to leave the room during lectures. If a student leaves the room during lectures, he/she will not be allowed to re-enter and, therefore, will be marked as "Absent". Only students that notify that they have a special reason to leave the session early will be granted exception (at the discretion of the professor).

4. Do not engage in side conversation. As a sign of respect toward the person presenting the lecture (the teacher as well as fellow students), side conversations are not allowed. If you have a question, raise your hand and ask it. It you do not want to ask it during the lecture, feel free to approach your teacher after class. If a student is disrupting the flow of the lecture, he/she will be asked to leave the classroom and, consequently, will be marked as "Absent".

5. Use your laptop for course-related purposes only. The use of laptops during lectures must be authorized by the professor. The use of Social Media or accessing any type of content not related to the lecture is penalized. The student will be asked to leave the room and, consequently, will be marked as "Absent".

6. No cellular phones: IE University implements a "Phone-free Classroom" policy and, therefore, the use of phones, tablets, etc. is forbidden inside the classroom. Failing to abide by this rule entails expulsion from the room and will be counted as one absence.

7. Escalation policy: 1/3/5. Items 4, 5, and 6 above entail expulsion from the classroom and the consequent marking of the student as "Absent." IE University implements an "escalation policy": The first time a student is asked to leave the room for disciplinary reasons (as per items 4, 5, and 6 above), the student will incur one absence, the second time it will count as three absences, and from the third time onward, any expulsion from the classroom due to disciplinary issues will entail 5 absences.