Introduction to Econometrics

Lecturer: Dali Laxton

Dates: 29.09.2023 – 22.12.2023

Lectures, Seminars: Friday 9:00 – 11:50

Office hours: Saturday 17:00-18:00 (online by appointment)

Course Description

The course is designed to give students experience of using basic econometric methods important in economics and other business subjects. It provides skills in regression essential for understanding much of the literature of economics, finance, and empirical studies in other areas of business.

The main textbook:

- Wooldridge, J.M. *Introductory Econometrics – A Modern Approach*. 5th ed. Michigan State University, 2013. ISBN-13: 978-1-111-53104-1.
- Studenmund, A. H. (2011): Using Econometrics: A Practical Guide. 6th Edition, Pearson Addison Wesley. ISBN: 978-0-13-136773-9.

Pre-requisites

Basic matrix algebra, elementary probability and mathematical statistics.

Course objectives

The course is designed to give students experience of using econometric methods important in economics, finance and other business subjects. It provides skills in regression essential for understanding much of the literature of economics, finance, and empirical studies in other areas of business.

We begin with the simple regression and multiple regression models. They are treated in depth and in range of applications. Careful attention is given to the interpretations of regression results and hypothesis testing. A part of the course introduces various modern tools for analyzing economic time series regression. Moreover, further topics in regression analysis are presented including regression with panel data and binary dependent variable.

By the end of the course, students should be able to use regression models in many different applications and to critically examine reported regression results in empirical research in economics and other business studies. They will be able to identify and deal with a number of econometric problems in the analysis of time series and cross-section data and will have experience of a range of basic econometric methods.

The course is designed to give students an understanding of why econometrics is necessary and to provide them with a working knowledge of basic econometric tools so that: they can apply these tools to modelling, estimation, inference, and forecasting in the context of real-world economic problems; they can evaluate critically the results and conclusions from others who use basic econometric tools; they have a foundation and understanding for further study of econometrics and they have an appreciation of the range of more advanced techniques that exist and that may be covered in later econometric courses

Grading (Tentative)

Quick Quizzes 10%

These quizzes will be held every week. The goal is to ensure that the students prepare for the classes regularly. Students, who will write <u>less than 3 quizzes</u> in total, will have to take the <u>final exam at additional 10% weight</u> and this component of grading will be cancelled. During quiz students are not allowed to use any textbook, any notes and help from classmates. Final grade will be decided based on 4 best quiz grades among total submitted quizzes.

Home assignment: 20 %

There will be two home assignments that accounts for 10 points each. These exercises will enhance your problem-solving skills and prepares you for exams.

Class participation: 10%

The grading will be decided in the end of the course based on the activeness and responsiveness of the students during the classes. Therefore, attending the seminars is essential. Students who have <u>near zero participation</u> will have to take <u>final exam at additional 10% weight</u> and this component of grading will be cancelled.

Midterm exam: 30 %

The midterm exam will take place during regular seminar time on **November 3rd**. You are not allowed to use any textbook, any notes or electronic devices. There will be no make-up or alternative dates for the midterm exam. Students who fail to attend the midterm will have to take final exam with additional 30% weight.

Final Exam: 30 %

Final exam will take place on **December 22nd**. Alternative date is **January 5th**. Students are highly encouraged to take the final exam during the first offered slot since grades are adjusted based on average class performance. There are no such adjustments for the exams taken during the alternative date. Students can also take a make-up exam if they are not satisfied with their initial grade, however, the maximum latter grade in make-up exam is **B**.

Grade distribution:

A: 85 – 100

B: 70 - 84

C: 60 – 69

D: 50 – 59

F: 0 – 49

Outline

(This is a tentative schedule to be updated based on students' progress.)

1. Introduction to econometrics and working with data

2. A non-technical introduction to regression

3. Simple regression model

4. Multiple regression model

5. Freeing up the classical assumptions – heteroskedasticity

6. Instrumental variables method

7. Qualitative choice and limited dependent variable models

8. Regression with time series variables

9. Vector autoregressive models

10. Models for panel data

11. Other models, methods and issues