

MPE_ECNM Econometrics

Lecturer: Ketevani Kapanadze

Dates: 21.02.2020 – 31.05.2020

Lectures/Seminars: Friday 13:00 – 16:50 (classroom VT 206)

Office hours: Friday 12:00 – 15:50 (@ VT 206)

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Course Description

The course is designed to give students experience of using basic and advanced 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. Topics of introductory econometrics (covered in "Introduction to Econometrics") will be reviewed and expanded into more advanced level. Advanced econometric topics include non-linear least squares, instrumental variable estimators, maximum likelihood method, and generalised method of moments.

The main textbook:

- Wooldridge, J.M. *Introductory Econometrics – A Modern Approach*. 5th ed. Michigan State University, 2013. ISBN-13: 978-1-111-53104-1.
- Hill, R.C., W.E. Griffiths and G.C. Lim. *Principles of Econometrics*. 4th ed. Hoboken: John Wiley & Sons, 2012. xxvi, 758. ISBN 9780470873724.

Supplementary book:

- Heij, Ch. *Econometric methods with applications in business and economics*. 1st ed. Oxford: Oxford University Press, 2004. xxv, 787. ISBN 9780199268016.

Pre-requisites

Basic matrix algebra, elementary probability and mathematical statistics, passing the course Introduction to econometrics (BPE_INEC or BPE_ZAEK)(recommended).

Course objectives

We start with a short review of linear regression model and least squares method. Careful attention is given to the interpretation of regression results, hypothesis testing and to diagnostic tests. Moreover, further topics in regression analysis are presented including time series econometrics, 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, cross-sectional and panel data, and will have experience of a range of basic and advanced econometric methods.

The course is designed to provide students with a working knowledge of basic and advanced econometric tools so that: They can apply these tools to modelling, estimation, inference, and forecasting in the context of real economic problems; They can evaluate critically the results and conclusions from others who use econometric methods and tools; They have a foundation and understanding for further study of econometric theory.

Grading

Home assignment: 20 %

You will have 2 home assignments. These exercises will enhance your problem-solving skills and prepare you for exams. You are encouraged to work in a group of up to 3 people. However, individual submissions are also possible. Only one submission from a group is required. The grade will be equally assigned to the group members.

Midterm exam: 30 %

The midterm exam will take during regular class on **March 29**. You are not allowed to use any textbook, any notes or electronic devices. There will be no make-up for the midterm exam.

Final Exam: 50 %

Final exam will take place on **May 17**. There will be two make-up exams for the final exam (dates TBA).

Grade distribution:

A: 85 – 100

B: 70 - 84

C: 60 – 69

D: 50 – 59

F: 0 – 49

NOTE: The maximum latter grade in make-up exam is **B**.

Outline

1. Linear regression model, least squares method and classical assumption
2. Modelling issues and further inference in the multiple regression model
3. Freeing up the classical assumptions (heteroskedasticity and autocorrelation)
4. Introduction to non-linear methods (non-linear least square, maximum likelihood estimation, generalised method of moments)
5. Endogenous regressors and instrumental variables
6. Qualitative and limited dependent variable models

7. Regression with time series data (stationary variables)
8. Regression with time series data (nonstationary variables)
9. Panel data models
10. Vector error correction and vector autoregressive models