Intermediate Econometrics - Summer term 2015

Instructors

- Prof. Bernd Fitzenberger, Ph.D. (Lectures)
- Christoph Sajons, Ph.D. (Lectures and Exercise session)
- Annabelle Dörr, Stefanie Licklederer (Exercise session)

Lectures

- Friday, 08:30–10:00, HS 1199
- Friday, 10:15–11:45, HS 2006

Exercise Session

- Wednesday, 08:30–10:00, HS 3219
- There will be no PC sessions or additional tutorials.

Credits

- 10 ECTS (M.Sc. VWL PO 2011 & M.Sc. in Economics)
- 6 ECTS (M.Sc. VWL PO 2014)

The first part of the course involves a review of the methods taught in the statistics and econometrics courses in the Bachelor of Science in Volkswirtschaftslehre (Economics). This part is mandatory for the students in the M.Sc. in Economics and M.Sc. VWL PO 2011. The review part is not mandatory for the students in the M.Sc. VWL PO 2014.

Exam

- Wednesday, 29th of July, 12-4 pm, Audimax
- There will be two separate exams for the students taking 6 ECTS (90 minutes) and 10 ECTS (120 minutes)
- The exact starting times will be announced during the final weeks of the semester.

Grade

- 100% Final Exam

Course Material

Course material for the first two sessions can be downloaded from the website of the chair for econometrics and statistics (www.empiwifo.uni-freiburg.de/) under ‘Lehre / Teaching’. For further material, updates, and relevant information, please keep checking ILIAS (https://ilias.uni-freiburg.de/login.php). The access password will be announced during the first exercise session on 22 April and during the first lecture on 24 April!
Prerequisites

Knowledge of calculus, linear algebra, statistics, probability theory, and econometrics as taught in the first three semesters of the bachelor program in economics for the students in the M.Sc. VWL PO 2014. There is a review of the main concepts which is mandatory for the students in the M.Sc. in Economics and M.Sc. VWL PO 2011.

Qualification Target

The course enables students to develop a deep understanding of linear regression methods and involves an intuitive and applied presentation of applied econometrics with reference to examples used in the Economics literature. Additionally, analysis of cross-sectional data and time series data at the graduate level will be presented.

Course Description

The course provides an up-to-date introduction into econometrics at the level of Wooldridge’s textbook on “Introductory Econometrics – A Modern Approach”. The course will review basic concepts from calculus, statistics and probability theory, and matrix algebra. Then, the course will give an introduction into regression analysis based on cross sectional data, time series data, and panel data. The course will also cover selected topics in time series analysis and microeconometrics.

Outline

Part 1: Review of material covered in Bachelor of Science in Economics

1. Basics (First lecture mandatory for all students)
   1.1 Sums and products
   1.2 Statistics and probability theory (WO App. B–C)
   1.3 Matrix algebra (WO App. D)

2. Introduction to Econometrics (WO chapter 1)

3. Regression analysis with cross-sectional data (WO chapters 2–4, 7-8)
   3.1 The simple regression model (WO chapter 2)
   3.2 Multiple regression analysis: Estimation (WO chapter 3)
   3.3 Multiple regression analysis: Inference (WO chapter 4)
   3.4 Multiple regression analysis with qualitative information: Binary (or dummy) variables (WO chapter 7)
   3.5 Heteroskedasticity (WO chapter 8)
Part 2: Mandatory part for all students

4. Regression analysis with cross-sectional data (WO chapters 3–9, App. B–C)
   4.1 Asymptotic analysis and conditional expectations (App. B-C)
   4.2 The simple regression model (WO chapter 2)
   4.3 Multiple regression analysis: Estimation (WO chapter 3)
   4.4 Multiple regression analysis: Inference (WO chapter 4)
   4.5 Multiple regression analysis: OLS asymptotics (WO chapter 5)
   4.6 Multiple regression analysis: Further issues (WO chapter 6)
   4.7 Multiple regression analysis with qualitative information: Binary (or dummy) variables (WO chapter 7)
   4.8 Heteroskedasticity (WO chapter 8)
   4.9 More on specification and data issues (WO chapter 9)

5. Regression analysis with time series data (WO chapters 10–12, 18)
   5.1 Basic regression analysis with time series data
   5.2 Further issues in using OLS with time series data
   5.3 Serial correlation and heteroskedasticity in time series regressions
   5.4 Advanced time series topics

6. Microeconometrics (WO chapters 13, 15, 17)
   6.1 Pooling cross sections across time: Simple panel data methods
   6.2 Instrumental variable estimation and Two-Stage Least Squares (2SLS)
   6.3 Limited dependent variable models and sample selection

The mandatory material for the students in M.Sc. VWL PO 2014 involves the first lecture on 24 April 2015 and all the lectures and exercise sessions related to part 2 of the lecture. The mandatory material for the students in M.Sc. VWL PO 2011 and the Master of Economics comprises the entire course (Parts 1 and 2) including the review part. The review part is also highly recommended for students in M.Sc. VWL PO 2014. Part 2 of the course will build on the reviewed material in part 1.

The course will start with the exercise session on Wednesday, 22 April 2015, where we will begin the review part (Part 1) with a problem set reviewing bachelor material. The lectures will start on Friday, 24 April 2015. The exercise session on Wednesday, 29 April 2015, will be used as lecture because of the public holiday on 1 May 2015. The regular exercise sessions will continue on 6 May 2015.
Main References


Further Information

The course is a required 6 ECTS course in the first year of the M.Sc. VWL PO 2014 and a required 10 ECTS course in the first year of the M.Sc. VWL PO 2011 and of the Master in Economics. It can be chosen as an elective course in some elective areas of the Diploma studies. In the elective area „Empirische Wirtschaftsforschung und Ökonometrie“ the course „Intermediate Econometrics“ can replace the course „Einführung in die empirische Wirtschaftsforschung“ or „Ökonometrie 1“.