Disciplines: Operations and Information Systems

1 Title
Econometrics – Multivariate Empirical Analysis

2 Faculty
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Onsite support: tbd., PhD candidate, ESMT

3 Outline
3.1 Issues
This course covers important methods used in the multivariate analysis of data. The course revisits basic concepts of the linear regression model and its properties and covers selected advanced topics such as the analysis of duration data and (quasi) experimental designs as well as methods to deal with the problems of endogeneity and sample selection. The theoretical basis of these methods is discussed but the focus of the course is on the application of the methods to data sets. Applications will be studied with the help of data provided by the lecturers and with reference to recent publications.

After the course, participants will...

- have a basic understanding of the theoretical underpinnings of multiple regression models.
- be able to apply regression methods to the investigation of economic relationships and processes.
- understand the econometric methods, approaches, ideas, results and conclusions met in the majority of economic books and articles.
- be aware of common pitfalls and mistakes to avoid when conducting regression analysis.
- be able to use the software program STATA to carry out empirical analysis based on regression analysis.
3.2 Course format

The course will consist of a combination of lectures, exercise sessions, and a final exam. Lecturers will use recent journal articles as well as book chapters to teach the participants common regression methods. Participants are advised to carefully read the assigned materials before the class.

4 Administration

4.1 Schedule

**Day I (10.4.2013)**

- 10:00 – 10:30 Arrival of participants, reception, check-in and introduction
- 10:30 – 12:00 Introduction and overview – 1st steps with STATA
- 13:00 – 14:30 Recap: Basic concepts from statistics (random variable, statistical inference, point estimators and statistical simulation)
- 14:45 – 16:15 Recap: multiple regression analysis, the OLS-estimator and interpretation of coefficients
- 16:45 – 18:15 Exact and asymptotic properties of the OLS estimators, statistical inference in regression models

**Day II (11.4.2013)**

- 09:00 – 10:30 Functional form, qualitative information and dummy-variable approach, and transformations in multivariate analyses
- 11:00 – 12:30 Diversions from the classical model: heteroscedasticity, omitted variables and endogeneity
- 15:30 – 17:00 Probability models: Probit and Logit (Harhoff/Reitzig 2004)

**Day III (12.4.2013)**

- 09:00 – 10:30 Models for survival times – accelerated failure time and hazard rates
- 13:30 – 15:00 Panel data estimation
- 15:30 – 17:00 Exercise session II: Applying Panel Data Estimators

**Day IV (13.4.2012)**

- 09:00 – 10:30 (Quasi) experiments in econometrics
- 11:00 – 12:30 Exercise session III: Difference-in-Difference estimators
- 13:30 – 15:00 In-class exam
- 15:30 – 16:00 Wrap-up & Feedback
4.2 Location
ESMT European School of Management and Technology
Room: tbd.
Schlossplatz 1
10178 Berlin
www.esmt.org

4.3 Max. number of participants
The number of participants is limited to 20.

4.4 Cost
The course fee amounts to EUR 600.--.

5 Content
The course covers several important methods and approaches of econometric analysis. The derivation and proofs of basic formulas and models are presented which allows students to understand principles of econometric theory. The main emphasis of the course is on the economic interpretations and applications of considered econometric models. The methods selected are increasingly used in applied research by management scholars. In addition to standard cross section models we cover selection and duration models as well as experimental designs in econometrics.

Participants will be actively involved with computer exercises in this course using the STATA econometrics program. Throughout the course they will use STATA to implement a series of econometrics exercises designed to provide experience with various tests and estimation procedures. The instructions for these exercises and the data required for their implementation will be sent to participants weeks prior to the course.

6 Prerequisites
The course requires basic skills in statistics and multivariate data analysis techniques. Concepts such as mean values, standard deviations and covariance matrices should be familiar to the participants. In addition, a basic understanding of regression analysis and testing procedures is helpful but not an essential requirement for understanding the contents.

Participants should be prepared to use their own laptops during the course in order to directly follow important parts of the course related to the application of important concepts to data set using the statistical software STATA. Therefore, an installation of STATA version 10.0 or higher is required. In Germany, student versions of STATA can be obtained from DPC (http://www.dpc-software.de) for about 100 EUR.
7 Course Material

7.1 Essential Reading Material


We also ask the participants to familiarize them with STATA before the course starts. There are excellent tutorials available online at

http://www.stata.com/links/resources-for-learning-stata/

http://www.ats.ucla.edu/stat/stata/

http://www2.lse.ac.uk/methodology/tutorials/Stata/home.aspx

http://www.princeton.edu/~otorres/Stata/

7.2 Additional Reading Material


If applicable: Further literature will be sent to the participants weeks prior the starting date of the course.
8 To Prepare
All participants are required to read the essential reading material prior to the course.

9 Assessment
A 90-minute in-class exam will be offered at day IV.

10 Credits
The course (including the exam) is eligible for 6 ECTS.