

Econometrics for the MA in Applied Economics

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For empirical research knowledge and practice in econometrics are indispensable. In almost all economic fields, researchers apply econometric methods to confront theory with empirical evidence and to provide empirical results useful for economic policy. The large field of econometrics provides the tools necessary for empirical research in economics.

This course gives a self-contained introduction to econometrics at the graduate level, i.e., at a more advanced level than a BA-course. In addition, we will discuss basic concepts from probability theory and statistics that are often used in econometrics.

The main aim of the course is to help students to learn how to do empirical research in economics and to obtain the basic knowledge necessary for applying econometric methods properly. In addition, we will discuss material that is important for the more specialized econometric courses like microeconometrics, time series analysis and advanced regression analysis.

Organization

There will be a lecture and a proseminar consisting of six sessions. For the proseminar part, there will be problem sets for sessions 2 to 6, which are to be solved in groups. In each session, one group will present the solution of the problem set. The second part of the proseminar is an empirical project that is to be handed in on June 30th. As software tool STATA is used, but

using other software (like R) is of course allowed.

Course prerequisites

Students should have basic knowledge of statistics and econometrics.

Grading

Grades are based on the final exam at the end of the course, on the work on the problem sets and the project. Grades are credit ECTS weighted averages of all parts of the course.

Lecture

Monday, 14.00 - 16.45, HS I (Theologie)

First meeting , Mo 04.03.2019, 14.00 - 16.45, HS I (Theologie)

Proseminar: There will be six sessions on the following dates:

Fr 15.03.2019	09.00 - 11.45	SR 4
Fr 29.03.2019	09.00 - 11.45	SR 4
Fr 12.04.2019	09.00 - 11.45	SR 4
Fr 10.05.2019	09.00 - 11.45	SR 4
Fr 24.05.2019	09.00 - 11.45	SR 4
Fr 21.06.2019	09.00 - 11.45	SR 4

Literature

As main underlying literature the following book is used. Additional material will be provided in the lecture.

Greene, William H. (2003), *Econometric Analysis*, 6th or newer edition, Prentice Hall, New Jersey.

The following chapters will be discussed in the course:

1. Some concepts of Probability Theory and Statistics
2. Large Sample Distribution Theory
3. The Multiple Linear Regression Model
 - (a) Finite-Sample Properties of the Least Squares Estimator
 - (b) Large Sample Properties of the Least Squares and Instrumental Variables Estimators
4. The Generalized Regression Model
5. Generalized Method of Moments
6. Maximum Likelihood Estimation

Seminar

At the first seminar on March 15th, we will go through all organizational points and (after a short break) there will be an introduction to basics in empirical work using STATA. While participation is not compulsory on the introduction part, students are expected to attend all the remaining sessions. For each following sessions you will have to prepare examples which you can find on OLAT. As part of the organizational points I will hand out a list regarding the presentation of the problem sets. This will be done as group work, and every member of the group will be graded equally. It is not essential that the solution is flawless, rather it is important to see that it has been tried thoroughly to find one.

Assignments will include theoretical as well as practical examples. For the latter, the use of STATA is recommended. Of course you may also use other statistical software like **R**, Matlab, or EViews.

The grading of the seminar is twofold. One half is determined by the presentation of the problem sets. The plan is to stay behind the lecture so that you can apply what you have heard there on the problem sets. Thus, the first Assignment will be discussed March 29th.

The second part of the grade is based on a short empirical project. The aim of this exercise is to go through all the necessary steps in empirical work.

You may do the project in pairs or alone. Also, you may choose the topic of the project yourselves. However, it is beneficial (for your work, not the grade) to have a benchmark-paper. If you have problems to come up with a topic, we may help you find one. Some helpful sources of data are:

- Eurostat
- Penn World Table
- CEPII (trade and geographical data)
- UN Comtrade
- Worldbank and a helpful STATA interface to directly download WB-data
- EU KLEMS Growth and Productivity Accounts
- WIFO business cycle data
- American Economic Review

The project is to be handed in at the latest on June 30th and should consist of the dataset, the do.file (or equivalent), and a written report which need not exceed 8 pages, excluding graphs/tables. Mainly for self-monitoring, you are asked to hand in a report on June 1st. This report should include your ideas and a roadmap for what you plan to do (topic, **data**, model, expected results, problems, etc.), first results, etc.