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Sommersemester 2015



Syllabus – Version May 28, 2015

Advanced Econometrics 2 / Part 2

Course Description:

This part of the course, part of the first-year MSQ/Ph.D. Program course sequence at GSEFM, will primarily focus on two sets of issues:

- (i) econometric modelling in the presence of integrated and cointegrated variables; and
- (ii) econometric modelling of systems of equations, in particular vector autoregressions and vector error correction models.

While a sizeable fraction of class time will be devoted to learn about the theoretical underpinnings of the relevant estimation and inference techniques, the course will also feature a hands-on component involving application of various of the methods discussed to time series data in economics and finance. The applications will involve estimation, inference and forecasting routines in *Stata*.

Regular Class Time and Location:

- Wednesday, 10:15 am – 11:45 am, Room: HoF E.20 (“DZ Bank”).
- Thursday, 10:15 am – 11:45 am, Room: HoF E.20 (“DZ Bank”).

Note: The first class will be on Wednesday, June 3, and the last class on Thursday, July 16.

Additional Time and Location (Exact dates will be announced in the class):

- Friday, 12:15 pm – 13:45 pm, Room: HZ 15.

In addition, to help review your work on the problem sets, there will be optional discussion sections (run by Sebastian Kripfganz, kripfganz@wiwi.uni-frankfurt.de). These discussion sections, depending on the progress, will take place on some of the aforementioned dates.

Course Website:

<https://olat.server.uni-frankfurt.de/olat/url/RepositoryEntry/3046965249>

The course website beyond this syllabus will contain course news/administrative announcements, slides used in the classes and discussion sessions, problem sets, *Stata* files/data sets.

The course website is password protected. The password will be announced in class, and must not be passed on to anybody not attending the course this semester.

Course Requirements:

Grading will be based on the final examination for this part of the course (problem sets will be given regularly but will not be graded). The overall course grade will combine the 50% weight for this second part of the course with the 50% weight for the first part of the course.

The overall course carries 8 credit points according to the European Credit Transfer System (ECTS).

Course Logistics:

Office Hours: Sulkhan Chavleishvili: Thursday, 2:00 pm – 3:00 pm, HoF, 3.61.
Sebastian Kripfganz: Wednesday, 1:30 pm – 2:30 pm, HoF, 3.54.

Texts:

The following books (in combination) cover most of the material to be discussed in this part of the course:

Primary References:

- Hamilton, J.D. (1994): *Time-Series Analysis*, Princeton: Princeton University Press.
- Hayashi, F. (2000): *Econometrics*, Princeton: Princeton University Press.
- Lütkepohl, H. (2010): *New Introduction to Multiple Time Series Analysis*, Berlin: Springer Verlag, Corrected 2nd Printing.

Secondary References:

- C. Becketti (2013): *Introduction to Time Series Using Stata*, Stata Press. [For working with *Stata* on time-series econometric issues.]
- Greene, W.H. (2011): *Econometric Analysis*, Upper Saddle River: Prentice Hall, 7th Edition. [Broad coverage of econometric methods.]
- Cameron, A.C. and P.K. Trivedi (2010): *Microeconometrics Using Stata*, Revised Edition, Stata Press. [For working with *Stata* in econometrics in general.]

Further references will be provided as needed later in the course.

Course Outline:

I. Unit Root Econometrics

1. Motivation
2. Review of Large Sample Theory
3. Unit Root Processes: Definitions and Properties
4. Large Sample Theory for Unit Root Processes
5. Unit Root Tests
6. Forecasting with Integrated Autoregressive Moving Average Models

II. Vector Autoregressions and Vector Error Correction Models

1. Specification and Representation of Possibly Cointegrated VARs
2. Estimation and Inference with and without Parameter Restrictions (Vector Autoregressions, Vector Error Correction Models and Autoregressive Distributed Lag Models)
3. Forecasting with Autoregressive Distributed Lag Models, Vector Autoregressions and Vector Error Correction Models
4. Impulse Response Analysis