Professor Dr. Robert Jung   Summer 2023

Institute of Economics
Department of Econometrics and Statistics
University of Hohenheim

Advanced Topics in Econometrics II

Summer 2023

Description:

In this course we discusses classical core topics in modern time series econometrics. Throughout the course we emphasise the essential interplay between econometric theory and applications in economics and finance. The basic inferential method employed is the maximum likelihood principle. Course participants are expected to conduct their own empirical analyses using their preferred software package.

Prerequisites:

Minimum: Introductory Econometrics at the level of *Introductory Econometrics* by Jeffrey Wooldridge.

Grading:

The course grading is based on three graded individual homework assignments. The first assignment, which is due on 5.5.2023, is mandatory for participating in the main part of the course. The second assignments can be handed in at the recommended deadline (16.6.23), or, together with the third assignment July, 31st.

Course Timetable:

- Course registration via Ilias is open.
- KICK-OFF meeting: 4.4.23 18:00 via zoom (zoom-link on Ilias)
- **Submission deadline first mandatory assignment: 4.5.23 23:59 am**
- Lecture Friday 5.5.2023 10:15 to 14:00 via zoom
- Lecture Friday 12.5.2023 10:15 to 14:00 via zoom
- Lecture Friday 26.5.2023 10:15 to 14:00 via zoom
- **Recommended submission deadline for the second assignment: 15.6.23 23:59 am**
- Lecture Friday 16.6.2023 10:15 to 14:00 via zoom
- Lecture Friday 23.6.2023 10:15 to 14:00 via zoom
- Lecture Friday 30.6.2023 **13:00 to 16:00** via zoom
- **Submission deadline for the third (and possibly the second) assignment: 31.7.2023 23:59**

<u>Textbook:</u>

The main reference for the course is

Martin, V.; Hurn, S. and Harris, D. [MHH] (2013) Econometric Modelling with Time Series. Cambridge UP

Further references are provided throughout the course.

<u>List of Topics:</u>

- Maximum Likelihood (ML)

  MHH, Part 1. The ML Principle, Properties of ML estimators, Numerical estimation methods, hypothesis testing.

- Quasi-Maximum Likelihood (QML) Estimation *MHH Ch. 9*

- Linear Time Series Models

  MHH Ch. 13 and 14 Linear univariate (ARMA) and multivariate (VARMA) models; structural VARs.

- Nonstationary Time Series Model

  MHH Ch. 16, 17 and 18. Nonstationary distribution theory, unit root testing, cointegration

- Latent Factor Models

  MHH Ch. 15

- Volatility Models

  MHH Ch. 20