

15E030

6 ECTS

Econometric Methods III

Overview and Objectives

This is an introductory course in time series econometrics. The course deals with econometric methods for estimation and testing of economic relationships among macro-economic variables, as well as forecasting. Emphasis is given on application of the techniques to relevant macro-economic problems.

Students are assumed to have an understanding of probability theory, linear algebra, and mathematical statistics. Prior knowledge of the linear regression model is also required.

Course Outline

Univariate Stationary Time Series Processes

Forecasting

Nonstationary Time Series Processes, Trends and Cycles

Vector Auto Regressions

Structural Vector Auto Regression

Cointegration, Multivariate Trend-Cycle decomposition

Required Activities

The course will comprise of 40 hours of lectures; the first 20 hours will be taught by Elmar Mertens, the second 20 hours by Giovanni Ricco. In addition, the students will have to hand in problem sets that are discussed in tutorial sessions. Problem sets will include both theoretical and empirical exercises, therefore some basic knowledge of statistical software is required (solutions to the empirical problem sets will consist of Matlab codes). Problem sets should be handed in individually.

Evaluation

Grades will be based on the problem sets (20%) and a final exam (80%)

Materials

The main reading materials are lecture notes, which are based on the following references:

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Diebold, F. (2006), Elements of Forecasting, available freely online at <http://www.ssc.upenn.edu/~fdiebold/Teaching221/FullBook.pdf>

Hamilton, J. D. (1994), Time Series Analysis,

Hayashi, F. (2000), Econometrics, Princeton University Press

Hansen, B. (2015), Econometrics, available freely online at:
<http://www.ssc.wisc.edu/~bhansen/econometrics/Econometrics.pdf>

Kilian, L. and H. Lütkepohl. (2017), Structural Vector Autoregressive Analysis, Cambridge University Press

Lütkepohl, H. (2005), New Introduction to Multiple Time Series Analysis, Springer Edition

White, H. (2001), Asymptotic Theory for Econometricians: Revised Edition, Academic Press, New York