TIME SERIES ANALYSIS:
APPLICATIONS IN AGRICULTURAL AND FOOD ECONOMICS

1 Instructors

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N.N.: guest lecturers

2 Course Description

Modern tools in time series analysis have become increasingly popular over the last decades in agricultural economics and rural development studies. This course will give an overview of the methods in these fields from an applied econometrics perspective. The significance and the advances in these fields have recently found their peak in honoring the work of the two most known researchers in time series analysis, namely Robert F. Engle and Clive W. Granger, by the Nobel Prize Committee in 2003. Thus, in this course we try to bridge the gap between standard introductory econometrics at the MSc level and modern time series techniques as used in concurrent publications in the AgEcon literature by presenting some theoretical background of these methods and illustrating applications in agricultural economics in order to enable participating PhD students to apply these tools in their research.

3 Course Outline

I. Introduction and motivation
- Overview and classical methods
- Econometric foundations

II. Stochastic Processes
- Stationary process versus non-stationary processes
- Testing for Unit Roots
- Bivariate and multivariate models

III. Co-integration
- Theorem by Engle and Granger
- Testing Co-integration
- Estimation and Testing
  - Engle-Granger Two Step
  - Error Correction Models (ECM)

IV. Extensions
- ARCH-Type Models
- Non-linear models
  - Asymmetric ECM

- Threshold models
- Markov-Switching VAR/VEC models

V. Applications
- Forecasting
- Price Transmission Models

Teaching methods
Lectures (60 %), exercises (20 %), group work (20 %)

Grading
Final examination (written, 50 %), Computer assignment (50 %)

Credit points
3

Requirements
Statistics, microeconomics (master level),

References
Patterson, Kerry D. (2000): An introduction to applied econometrics : a time series approach. Basingstoke, Hampshire.
Enders, Walter (1995): Applied econometric time series. New York, Wiley.
Kirchgässner, Gebhard & Jürgen Wolters (2006): Einführung in die moderne Zeitreihenanalyse, Vahlen. (available in English (2007): Introduction to modern time series analysis, Springer,

Greene, W.H., 2003. *Econometric Analysis.* 5th edition. Prentice-Hall, Upper Saddle River, New Jersey.
Selected journal articles.

Software
JMulTi (download at http://www.jmulti.org), OxMetrics, Gauss (if required).

Organization and time
The course is organized as a one-week block module. It will be held preferably at the University of Göttingen.

Language
English or German