

## **The Econometrics of Nonstationary Time Series: Unit Root and Cointegration Analysis**

Many master's programs contain by now some discussion of unit root and cointegration analysis. In typical MA/MSc courses, however, such courses do not contain a detailed discussion of the underlying mathematical and statistical concepts. In this course unit root and cointegration analysis will be presented in a formally concise way. The course will start with unit root analysis and will thereafter continue with a detailed discussion of cointegration and will characterize the presence of cointegration in several widely-used statistical model (e.g. in the so-called triangular representation, in vector autoregressive models and state space models). After the structure theoretical analysis tools for estimating models for cointegrated time series as well as tests for the dimension of the cointegrating space will be discussed. The discussion will be augmented by also touching upon topics relevant for empirical research (including e.g. impulse response analysis in structural vector autoregressive models with cointegration). The described program is the maximum possible and experience has shown that typically not all topics listed can be covered in a two-hour course.