

TIME SERIES ECONOMETRICS II

UNIT ROOTS AND COINTEGRATION

This course is about the econometric analysis of nonstationary data. While it continues Time Series Econometrics I, all the background material from the previous course that is needed will be made available in some Review Lecture Notes at the beginning of this course. The subject is nonstationary time series and its applications in econometrics. We will cover asymptotic methods for nonstationary processes including functional limit theory and stochastic integration, unit root tests, tests of stationarity, spurious regression, cointegrated systems, cointegration tests, reduced rank regression and estimation of models with cointegration. We will also look at long memory models, nonparametric estimation of fractional integration, and introduce some new work on spatial density analysis for nonstationary data, nonlinear integration and panel cointegration. We will not be able to cover all the topics given in the readings below in the same depth but we will try to touch on each of these topics at some point in the course. Credit is obtained from a take home examination and an empirical application.

A set of my past lecture notes and some printed lectures I gave at the IMF in 1998 will be available. These notes will cover many of the topics that we will talk about in lectures. With these, the course should be fairly self contained.

0. General References¹: The reading guide of Time Series Econometrics I has a more complete list of references in time series. The items below are largely supplementary to that general list. An annotated bibliography on unit root nonstationarity and unit root tests is provided in Phillips (1997), and Phillips and Xiao (1998).

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¹ Asterisked references are more important to the course. Double-asterisked references are principal sources.

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1. Review: Stationary Time Series, Prediction, Ergodicity, Linear Processes, Limit Theory and Martingales

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