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Econometrics 220e - Time Series

Course Description

We will review and extend limit theory for time series processes and apply it to a range of topics. Students will gain ability to work with standard tools of time series econometrics as well as cover a number of areas currently or recently of interest in the □eld.

Books

There is no text for the course. See citations below for background material and further reading.

Course Outline.

The papers listed are those we cover more closely in class as well as secondary/further readings. The plan is to give a more comprehensive list than we have time to go through. It is also likely that we will not have time to cover all the topics.

A. Groundwork.

1. Introduction.

Review asymptotic theory for time series processes, introduce ARMA(p,q) models and related concepts.

White, H. (2001) chapters 1-6 (i.e. ec220d material) Hamilton, J.H.(1994), Chapters 1-4 Further reading on ARIMA modelling Brockwell and Davis (1991).

2. Functional Central Limit Theory.

White, H. (2001) chapter 7 sections 1-3. Hamilton (1994) chapter 17 sections1-3. Davidson (1994) has an extensive examination of this topic.

3. Spectral Densities.

For an introduction see Hamilton (1994) chapter 6.

Berk (1974), Newey and West (1987), Andrews (1991),

B. Topics

1. Vector Autoregressions

Sims (1980), Granger (1969), A comprehensive analysis is in Lutkepohl (1993). Gourieroux and Monfort (1989) Chapter 22 gives a good overview of Information Criteria..

2. HAC estimation revisited.

Hansen (1992), Kiefer et. al (2000,2002),

3. Breaks and nonstationarities.

For feasible tests for a break see Andrews (1993). For optimal tests with nontrending covariates see Nyblom (1989), Andrews and Ploberger (1994), Elliott and Mueller (2004). For issues with trending covariates see Hansen (2000). For estimation of break points see Bai(1997), Bai and Perron (1998), Elliott and Mueller (2004). Testing for stationarity see Stock (1994) for a review.

4. Unit Roots

Regression with unit root processes. Testing for unit roots, spurious regression, cointegration.

For testing for a unit root Dickey and Fuller (1979), Phillips (1987), , Elliott, Rothenberg and Stock (1996), Phillips (1987b). A review is available in Stock (1994). For spurious regression see Granger and Newbold (1974) and Phillips (1986). For linear regression with unit root processes see Sims, Stock and Watson (1990). For cointegration see Engle and Granger (1987), Stock (1987), Johansen (1991), Saikkonen (1991), Watson (1994), Elliott (1998).

5. Trend Estimation and Identi□cation

For decomposing a trend where there is a unit root Watson (1986) and Quah (1992). For □ltering out long run components see King and Rebelo (1993).

6. Forecasting and Forecast Evaluation.

TBA

5. Nonlinear stationary models

A textbook review is available in Granger and Terasvirta (1993)

6. Continuous time econometrics

TBA

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