Ec402: Introduction

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Practicalities

- **E-mail:**
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- **Office hour:**
  Th. 14:00-15:00, Room S587

- **The Golden Rule:**
  If I don't lecture on a topic, you are not responsible for it.

Focus

We will focus on time series data and models.

⇒ The typical dataset will be a macroeconomic or financial time series.

- In time series, observations are generally dependent (e.g. GDP or unemployment)
- Such data series are modeled as random sequences (random or stochastic processes)
  - ⇒ That is, we'll work in a context in which past, present and future have dynamic links

Textbooks

Most of what you need is contained in either:

- W.H. Greene, *Econometric Analysis*, 4th Edition (EA), chapters 13, 16, 17 and 18, 5th edition (EAI) chapters 12, 16, 17, 19, 20.
- J. Johnston and J. Dinardo, *Econometric Methods*, 4th Edition (EM)

Useful (but more advanced) books to consult are:

- J.D. Hamilton, *Time Series Analysis* (Princeton) (a 'must have' for the ones with a particular interest in time series)(TSA).
- A.C. Harvey, *The Econometric Analysis of Time Series*, 2nd edition (EATS) (out of print but many copies in library)

Outline

Regression with Autocorrelated Disturbances

- Properties of:
  - OLS
  - GLS and Feasible GLS (FGLS)
  - Cochrane Orcutt
  - Maximum Likelihood
- MLE of time series data

References: EM 188-192; EA 543-553; EATS 191-198, 264-275; TSA 221-226; EAI, 250-77.

Tests and Model Selection

- Testing in Maximum Likelihood models.
  - Wald, Likelihood Ratio and Lagrange Multiplier Tests.
- Tests for serial correlation. Post Sample prediction tests.

References: EM 147-149, 179-187; EA 150-160, 538-542; EATS 160-177, 200-203, 210-212, 275-280; TSA 142-145, 213-214, 429-430; EAI, 484-92, 175-78, 269.

Properties of distributed Lag Models

- Estimation of distributed lag models
- Error Correction
- Cointegration and Unit Roots
- Stochastic Trends

References: EM 244-279; EA 712-724, 726-730, 733-740, 789-796; EATS 225-246, 257-261, 280-296; TSA 571-575, 580-581, 582- 592; EAI, 558-76, 579-86, 649-61.

Multivariate Regression

- Multivariate regression and seemingly unrelated regression equations (SURE or SUR)

References: EM 318-319; EA 590-594, 614-622; EATS 65-69; TSA 315-318; EAI, 339-47.

Simultaneous Equation Models

- Structural vs. Reduced Form
- Identification
- OLS and Indirect Least Squares
- Instrumental Variables and Two Stage Least Squares

References: EM 305-318; EA 652-688; EATS 313-328, 75-78, 332-336; TSA 233-247; EAI, 378-401.

Dynamic Simultaneous Equation Models

- Structural, Reduced and Final Form
- Rational Expectations
- VAR, S-VAR and VECM
- Causality and Causal Priority

References: EM 287-298; EA 702- 710, 740-747; EATS 343-51; TSA 257-261, 291-296, 302-309; EAI, 415-21, 586-95.