

University of Vienna
Vienna Graduate School of Economics

Empirical Macroeconomics: Models and Methods

Spring Semester 2013

Thomas A. Lubik
thomas.lubik@rich.frb.org

Course Outline

This course covers various topics in empirical macroeconomics. It will be a mixture of economic theory and applied econometrics, with an emphasis on structural estimation. The applied portion of the course requires the use of software such as Gauss, Matlab, or Rats.

Evaluation

The course grade will be determined by:

1. (20%) several problem sets which I will hand out at irregular intervals throughout the semester.
2. (80%) a final take-home exam.

Textbooks

There is no required textbook for the course. The textbooks by Fabio Canova and David DeJong & Chetan Dave cover most of the material in the class. Hamilton's Time Series Analysis text is a useful general reference for anyone interested in time series. Other recommended texts and readings are listed below.

An, Sungbae, and Frank Schorfheide (2007): "Bayesian Analysis of DSGE Models". *Econometric Reviews*, 26(2-4), 113-172.

Canova, Fabio (2007): *Methods for Applied Macroeconomic Research*. Princeton University Press. Princeton, NJ.

DeJong, David and Chetan Dave (2007): *Structural Macroeconometrics*. Princeton University Press. Princeton, NJ.

Del Negro, Marco and Frank Schorfheide (2010): "Bayesian Macroeconometrics". Forthcoming, *Handbook of Bayesian Econometrics*.

Hamilton, James D. (1994): *Time Series Analysis*. Princeton University Press. Princeton, NJ.

Harvey, Andrew C. (1993): *Time Series Models*. The MIT Press. Cambridge, MA.

Sargent, Thomas J. (1987): *Macroeconomic Theory*. Second Edition. Academic Press, Inc. San Diego, CA.

Syllabus

1. A Refresher of Linear Rational Expectations Models
 - a) Forward Solution
 - b) System methods: Gensys

2. Two Useful Models
 - a) The Basic Search and Matching Model of the Labor Market
 - b) The Standard New Keynesian Model
 - c) A Neoclassical Synthesis Model of Inflation and Unemployment Dynamics

3. Vector Autoregressive Models
 - a) Representation and Estimation
 - b) Impulse Response Functions, Variance Decompositions and Forecasting
 - c) Identification and Structural VARs
 - d) Examples and Applications

4. Generalized Methods of Moments (GMM)
 - a) Asymptotic Theory
 - b) Weak Identification and Small Sample Issues
 - c) Examples and Applications

5. State Space Models
 - a) State Space Representation of a Time Series Model
 - b) The Kalman Filter
 - c) Maximum Likelihood Estimation

6. Introduction to Bayesian Econometrics
 - a) The Likelihood Principle
 - b) Priors
 - c) Bayesian VARs
 - d) Model Comparison
 - e) Markov-Chain Monte-Carlo Methods (MCMC)

7. Bayesian Estimation of DSGE Models
 - a) Priors and Model Specification
 - b) Posterior Evaluation
 - c) Application and Examples

8. A Smorgasbord of Interesting Research Topics
 - a) The Great Moderation Debate
 - b) Monetary Policy in DSGE Models
 - c) Inventories
 - d) Labor Market Dynamics
 - e) International Business Cycles