Econometrics of DSGE models

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1 Course description

This is a course on the econometric techniques used in estimating dynamic macroeconomic models (DSGE models).

2 Topics

1. Motivation: DSGE models and their applications
2. Approximating and solving DSGE models
   (a) State space representation
   (b) Constructing log-linear approximation
   (c) Higher order approximation techniques
3. Time series properties of the model and data
4. Classical estimation of DSGE models
   (a) Generalized Method of Moments (GMM)
   (b) Simulated Method of Moments (SMM)
   (c) Impulse response functions matching
5. Bayesian estimation of DSGE models
   (a) (log-)linear models

i. Likelihood function through the Kalman-Filter

ii. posterior distribution

iii. Model assessment: prior and posterior checks

(b) Non linear models

i. Particle filters

6. The twilight zone of DSGE estimation

(a) Identification

(b) Feasible non linear estimation

(c) VAR and DSGE

(d) Limited information estimation

3 Readings

Textbooks:

- Canova, F. (2007), Methods for Applied Macroeconomic Research, Princeton: Princeton University Press.
- Dejong, D.N. and C. Dave (2007), Structural Macroeconomics, Princeton: Princeton University Press

Papers:

- An and Schoerfheide (2007) Bayesian Analysis of DSGE Models, Econometric Reviews, 26(2-4), 2007, 113-172