

Econometrics of DSGE models

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Instructor:

Giuseppe Ragusa

gragusa at luiss dot it

Teaching Assistants:

web page: <http://gragusa.org/teaching/>

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