Bayesian techniques in macroeconomics

ECTS : 3

Description du contenu de l'enseignement :

The lectures provide a self-contained introduction to the building, simulation and estimation of the Dynamic Stochastic General Equilibrium models that constitute the main workhouse of today's financial macroeconomics. These models, which incorporate micro-foundations, dynamic relations and rational expectations in a macroeconomic framework, have now became a powerful tool used in central banks for policy projections. The course will present the recent developments in Bayesian econometrics that are commonly used to estimate these models. After recalling the standard VAR (Vector Autogressive) model *à la* Sims (1980), the course will present the Bayesian VAR model *à la* Sims & Zha (1998). These class of atheoretical models is then compared to theoretical DSGE models *à la* Smets & Wouters (2003, 2007).

Compétence à acquérir :

The objective of the course is to equip the students with the more advanced estimation techniques of macroeconomic models. It will provide the most up-to-date tools to allow the students to get a deep knowledge of these models and to be able to read and understand policy and research papers using these approaches.

After having attended the classes, the students will master the up-to-date estimation techniques of the macroeconomic models which are now employed in policy institutions such as the ECB, the Banque de France or the IMF. Using the estimated models, students will be able to perform business cycles analysis (variance decomposition, inspecting propagation mechanisms, variance forecast error decomposition), as well as forecasting exercises using both VAR, B-VAR and DSGE models. These types of skills are typically required in a growing number of policy-making institutions.

Bibliographie, lectures recommandées :

Articles:

An, S., & Schorfheide, F. (2007). Bayesian analysis of DSGE models.?*Econometric reviews*,?*26*(2-4), 113-172.

Sims, C. A., & Zha, T. (1998). Bayesian methods for dynamic multivariate models.?*International Economic Review*, 949-968.

Smets, F., & Wouters, R. (2003). An estimated dynamic stochastic general equilibrium model of the euro area.?*Journal of the European economic association*,?*1*(5), 1123-1175.

Textbooks:

Galí, J. (2015).?*Monetary policy, inflation, and the business cycle: an introduction to the new Keynesian framework and its applications*. Princeton University Press.

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