Practical Tools for DSGE Modeling

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Introduction

Participants will learn how to set up, solve and analyze dynamic, stochastic, general equilibrium (DSGE) models. Hands-on guidance on how to use a computer to solve and analyze DSGE models will be provided.

The class starts with setting up the canonical real business cycle (RBC) model. We study three approaches to solve the linearized model: i) with pencil and paper, ii) by using Harald Uhlig's toolkit and iii) by using Dynare.

Next, we review the canonical New Keynesian (NK) model and solve and analyze it using Dynare. We proceed in two steps.
First, we compute and compare stochastic solutions of the model based on first- and second-order approximations.
Second, we calculate and compare deterministic solutions of the linearized and fully non-linear model, also taking the zero lower bound constraint on nominal interest rates into account.

Requirements

Basis dynamic programming knowledge and basic knowledge of MATLAB are appreciated.

Please bring along a laptop with MATLAB installed. Dynare code, example code and handouts will be available on-site.

Literature

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Hansen, G. D., 1985, "Indivisible Labor and the Business Cycle", Journal of Monetary Economics, Elsevier, vol. 16(3), pages 309-327, November.

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Woodford, M., "Interest and Prices: Foundations of a Theory of Monetary Policy", Princeton University Press, 2003.

Dynare Manual and User Guide

Adjemian, S., H. Bastani, M. Juillard, F. Karamé, F. Mihoubi, G. Perendia, J. Pfeifer, M. Ratto and S. Villemot, 2011, "Dynare: Reference Manual, Version 4," Dynare Working Papers, 1, CEPREMAP, http://www.dynare.org/wp-repo/dynarewp001.pdf

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