DSGE Modelling and Financial Frictions

Practice session 1

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Estimation Codes

- In the Estimation folder you have two sub folders.

  NK codes for the estimation and validation of the NK model.

  FF codes for the estimation and validation of the three banking models.

- For each model you have three sub folders
  - **First stage** Estimation of the posterior mode.
  - **Identification** Code for the identification check.
  - **Second Stage** Full MCMC estimation with post estimation simulations and variance decomposition.
- The folder **Second Moments** contains some extra files for second moment comparisons (one folder inside NK and a common folder for the three banking models).

First Stage Estimation: NK Model

- Go to Estimation→NK→First Stage
- Open **NK_RES_Course_est_PI.mod**

Estimation commands and options

- In Dynare, observed variables are declared after *varobs* (i.e. *varobs VARIABLE_NAME...;*) and must be available in the data file.
- Estimated parameters are declared in the *estim_params; ... end;* block. For each estimated parameter, declare the initial value and, optionally, a lower and upper bound for the ML estimation. If their prior distributions are further declared, Dynare chooses to perform the Bayesian estimation.
- Computing the estimation is triggered by the keyword *estimation* and the only required option in brackets after *estimation* is *datafile=FILENAME*.

Estimation commands and options

- In the process of parameter estimation, the mode of the posterior is first estimated using Chris Sim's csminwel after the models' log-prior densities and log-likelihood functions have been obtained by running the Kalman recursion and maximized (this is triggered by the option *mode_compute=4*).
- *first_obs* = # sets the starting point of the data to be used in the estimation.
- *presample* = # sets the number of observation to be used to initialize the Kalman filter.
- *prefilter=0 or 1.* tells Dynare whether or not to demean the data (0 default; 1 demean).

Identification: NK Model

- Go to Estimation→NK→Identification
- Open **NK_RES_Course_est_PI.mod**
- here the estimation command is commented out.
- identification; is the command to trigger identification analysis and goes straight after the estimated parameters block.