A Closed Economy Medium-Scale DSGE Model for Euro Area

Written by Katherine Dai
Contact: kdai@imf.org

Variables/Data setup:

- Input: Data US and euro area- update 2024.xlsx
- Run Construct_data.m to setup and log data→ extract seven variables
- Output data.mat

Solve DSGE:

Before run it, please download dynare 6.0 into ur C.Drive

Execute Dynare, command:

>> addpath("C:\dynare\6.0\matlab")

>> cd C:\Users\kdai\Desktop\RStar\DSGE

>> dynare NRI_baseline_euro_area_new

- Run NRI_baseline_euro_area.mod for Inference (MCMC should take 2 hours)
- Obtain r star estimates in GeraliNeri_full_sample_results.xlsx.
- Output GeraliNeri_euro_area_full_sample_results.mat.

Estimation:

Main script: AAA_replicate_all.m

AAA_ReplicationFile1:

- Input: 'GeraliNeri_euro_area_full_sample_results.mat';
- Export a table (GeraliNeri_euro_area_full_sample_result.xlsx) of structural parameters: prior and posterior summary statistics. ***Tab EA_params*** was appended into excel file.

AAA_ReplicationFile2:

- Compute Bayesian IRFs; 4 vars (plus gap = Real rate – Real rate flex price econ) resp to 4 shocks: 1) labor-augmenting tech shock 2) preference shock; marginal efficiency of investment shock; 4) risk premium
- Export a IRFs panel and data into ***Tab EA_irfs*** result excel file.

AAA_ReplicationFile3/compute_NR.m:

- Plot natural interest rate
- Compute natural interest rate.

Factor Driver:

- Run read_hist_decomp.m to plot shock decompositions.