CW2016-CreditFrictionsOptMonPol

These codes reproduce the results in:

Cúrdia, V., and M. Woodford (2016)
The Central-Bank Balance Sheet as an Instrument of Monetary Policy
Journal of Monetary Economics, 84, pp. 30-65.

Technical Appendix

These replication codes are available online at:
https://github.com/vcurdia/CW2016-CreditFrictionsOptMonPol

Requirements

Matlab (R)

The codes were tested using Matlab (R) R2016b with the following toolboxes

- Symbolic Toolbox
- Optimization Toolbox

LaTeX

LaTeX is used by some tools to compile certain documents.

`epstopdf`, included in most LaTeX releases, is used by some tools.

Additional codes

Codes by Vasco Cúrdia:

- VC-Tools, version v3.0.3
- ACR-LQ joint with Filippo Altissimo and Diego Rodriguez Palenzuela, version v1.0.0

Codes by Chris Sims:

- gensys
- optimize

All auxiliary codes included in this repository in subfolders.

Description of Replication Codes

`plotmgutil.m` Generates Figure 1 of the paper showing the shape of the marginal utility for the two types of households.

`RunAllModels.m` Script that runs all models for a given parameterization. It generates simulations for all shocks under optimal policy and alternative policy rules as described in the paper and appendix.

Simulations are generated for three models:

- `FF` : model with financial frictions Simulations are generated by the function `IntModelFF.m`
- `NoFF` : model with heterogeneous households but no financial frictions Simulations are generated by the function `IntModelNoFF.m`
- `RepHH` : model with representative households. Simulations are generated by the function `IntModelRepHH.m`

Parameterization Flags:

- `End` Set to 0 to simulate linear financial intermediation technology, as in Figure 2 of the paper and Figures H1 through H9 of the appendix. Figure names are appended with '_Exo'. Set to 1 to simulate convex financial intermediation technology, as in the remainder of the Figures. Figure names are appended with '_End'.
- `SmSigma` Set to 0 in baseline calibration, implying that the ratio of sigma_b to sigma_s is 5. Set to 1 in order to generate the 'low-sigma_b' calibration, which sets sigma_b equal to sigma_s. Figures are appended with '_SmSigma'.

For each model the codes simulate responses to shocks under different policy rules. The figure names are appended according to which rule is being used according to the following:

- `LQ` : Optimal Policy
- `Pi` : Strict inflation stabilization (PiStab)
- `T` : Taylor rule as described in the paper
- `FT` : Flexible targeting criterion as described in the paper (FlexTarget)
- `TYn` : Taylor rule with output gap (instead of output deviations from trend) (TaylorYn) The results under this rule are shown in the appendix.

`PlotAll.m` Script that generates all the figures in pdf format. Figures for each parameter configuration are stored in a subfolder with the appropriate name. It requires that `RunAllModels` was run before hand with the same parameter flags.

`MakePlotsPDF.m` Script that uses the figures generated with PlotAll and creates a tex report with the following sections:

- One section for each policy comparing all three models.
  These are useful to compare how adding household heterogeneity and financial frictions affect responses to the shocks.
- One section comparing all policy rules for the `FF` model.
  These are useful to compare outcomes under alternative policies. Each section has a subsection for each shock considered.