Starting Dynare (version 5.0).

Calling Dynare with arguments: none

Starting preprocessing of the model file ...

Found 26 equation(s).

Evaluating expressions...done

Computing static model derivatives (order 1).

Computing dynamic model derivatives (order 2).

Processing outputs ...

done

Preprocessing completed.

MODEL_DIAGNOSTICS: The Jacobian of the static model is singular

MODEL_DIAGNOSTICS: there is 1 colinear relationships between the variables and the equations

Colinear variables:

e

Colinear equations

1 2 3 4 13 14 15 26

MODEL_DIAGNOSTICS: The singularity seems to be (partly) caused by the presence of a unit root

MODEL_DIAGNOSTICS: as the absolute value of one eigenvalue is in the range of +-1e-6 to 1.

MODEL_DIAGNOSTICS: If the model is actually supposed to feature unit root behavior, such a warning is expected,

MODEL_DIAGNOSTICS: but you should nevertheless check whether there is an additional singularity problem.

MODEL_DIAGNOSTICS: The presence of a singularity problem typically indicates that there is one

MODEL_DIAGNOSTICS: redundant equation entered in the model block, while another non-redundant equation

MODEL_DIAGNOSTICS: is missing. The problem often derives from Walras Law.

STEADY-STATE RESULTS:

c 0

n 0

wr	0
mcr	0
pi	0
a	0
i	0
psip	0
r	0
v	0
Dep	0
pih	0
s	0
y	0
e	0
pistar	0
pstar	0
q	0
dx	0
dq	0
ystar	0
d	0
z	0
ynat	0
rro	0
x	0

EIGENVALUES:

Modulus	Real	Imaginary
0	0	0
0	0	0
0	0	0

3.177e-17	3.177e-17	0
7.296e-17	-7.296e-17	0
3.176e-16	-3.176e-16	0
0.5158	0.5158	0
0.5385	0.5385	0
0.6	0.6	0
0.8	0.8	0
0.92	0.92	0
1	1	0
1.113	1.113	0
1.916	1.916	0
54.04	-54.04	0
Inf	-Inf	0
Inf	-Inf	0

There are 5 eigenvalue(s) larger than 1 in modulus

for 5 forward-looking variable(s)

The rank condition is verified.

Initial value of the log posterior (or likelihood): -71.3679

==========

Change in the posterior covariance matrix = 0.24999.

Change in the posterior mean = 0.77146.

Current mode = -549.0215

Mode improvement = 620.3894

New value of jscale = 0.0096268

==========

```
=========================================================
  Change in the posterior covariance matrix = 0.010063.
  Change in the posterior mean = 1.5652.
  Current mode = -463.4886
  Mode improvement = 85.5329
  New value of jscale = 0.21043
=========================================================

=========================================================
  Change in the posterior covariance matrix = 0.0098447.
  Change in the posterior mean = 1.4784.
  Current mode = -423.877
  Mode improvement = 39.6116
  New value of jscale = 0.42164
=========================================================

Optimal value of the scale parameter = 0.42164


Final value of minus the log posterior (or likelihood):-423.876956

RESULTS FROM POSTERIOR ESTIMATION
parameters
      prior mean     mode    s.d.  prior pstdev

m1         1.0000   1.0012  0.0088   gamm 0.1500
m2         1.0000   0.8429  0.0578   gamm 0.1500
thetap     0.5000   0.6586  0.0404   beta 0.1000
rho_i      0.7000   0.2420  0.0043   beta 0.1000
rho_a      0.8000   0.9983  0.0003   beta 0.1000
cof1       1.5000   1.5225  0.0147   gamm 0.2000
```

cof2 0.1250 0.7379 0.0230 gamm 0.0500

cof3 0.0500 0.0492 0.0021 gamm 0.0100

standard deviation of shocks

prior mean mode s.d. prior pstdev

e_a 1.0000 0.2526 0.0313 invg 0.5000

e_v 1.0000 0.9428 0.0095 invg 0.5000

Log data density [Laplace approximation] is 376.585732.

Estimation::mcmc: Multiple chains mode.

Estimation::mcmc: Old mh-files successfully erased!

Estimation::mcmc: Old metropolis.log file successfully erased!

Estimation::mcmc: Creation of a new metropolis.log file.

Estimation::mcmc: Searching for initial values...

Estimation::mcmc: Initial values found!

Estimation::mcmc: Write details about the MCMC... Ok!

Estimation::mcmc: Details about the MCMC are available in model10/metropolis\model10_mh_history_0.mat

Estimation::mcmc: Number of mh files: 2 per block.

Estimation::mcmc: Total number of generated files: 12.

Estimation::mcmc: Total number of iterations: 2000000.

Estimation::mcmc: Current acceptance ratio per chain:

Chain 1: 30.0312%

Chain 2: 21.6862%

Chain 3: 29.7795%

Chain 4: 30.1109%

Chain 5: 30.1026%

Chain 6: 29.9158%

Estimation::mcmc: Total number of MH draws per chain: 2000000.

Estimation::mcmc: Total number of generated MH files: 2.

Estimation::mcmc: I'll use mh-files 2 to 2.

Estimation::mcmc: In MH-file number 2 I'll start at line 158334.

Estimation::mcmc: Finally I keep 800000 draws per chain.

MCMC Inefficiency factors per block

Parameter	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6
SE_e_a	592.379	704.990	615.695	606.526	595.866	608.318
SE_e_v	112.479	366.072	123.834	124.271	125.372	128.761
m1	711.816	749.285	723.815	719.542	729.551	723.305
m2	593.449	749.237	600.513	573.324	587.716	597.283
thetap	696.676	748.907	712.425	708.211	717.770	712.248
rho_i	682.222	720.879	675.600	685.509	696.218	690.691
rho_a	680.147	695.042	682.675	685.643	672.576	671.270
cof1	736.043	747.420	741.156	738.307	743.782	735.447
cof2	345.330	694.152	384.399	362.943	358.451	376.525
cof3	686.367	741.050	692.096	699.940	689.581	688.594

Estimation::mcmc::diagnostics: Univariate convergence diagnostic, Brooks and Gelman (1998):

Parameter 1... Done!

Parameter 2... Done!

Parameter 3... Done!

Parameter 4... Done!

Parameter 5... Done!

Parameter 6... Done!

Parameter 7... Done!

Parameter 8... Done!

Parameter 9... Done!

Parameter 10... Done!

Estimation::marginal density: I'm computing the posterior mean and covariance... Done!

Estimation::marginal density: I'm computing the posterior log marginal density (modified harmonic mean)... Done!

ESTIMATION RESULTS

Log data density is 594.867329.

parameters

	prior mean	post. mean	90% HPD interval		prior	pstdev
m1	1.000	0.9915	0.9335	1.2083	gamm	0.1500
m2	1.000	0.9006	0.5988	1.7228	gamm	0.1500
thetap	0.500	0.6577	0.1123	0.8057	beta	0.1000
rho_i	0.700	0.1369	0.1025	0.1751	beta	0.1000
rho_a	0.800	0.9954	0.9920	0.9990	beta	0.1000
cof1	1.500	2.9704	2.7538	3.1413	gamm	0.2000
cof2	0.125	0.7188	0.6944	0.7380	gamm	0.0500
cof3	0.050	0.0467	0.0187	0.0653	gamm	0.0100

standard deviation of shocks

	prior mean	post. mean	90% HPD interval		prior	pstdev
e_a	1.000	0.3364	0.2500	0.4228	invg	0.5000
e_v	1.000	0.2284	0.2261	0.2315	invg	0.5000

Estimation::mcmc: Smoothed variables

Estimation::mcmc: Smoothed variables, done!

Estimation::mcmc: Smoothed shocks

Estimation::mcmc: Smoothed shocks, done!

Estimation::mcmc: Trend_coefficients

Estimation::mcmc: Trend_coefficients, done!

Estimation::mcmc: Smoothed constant

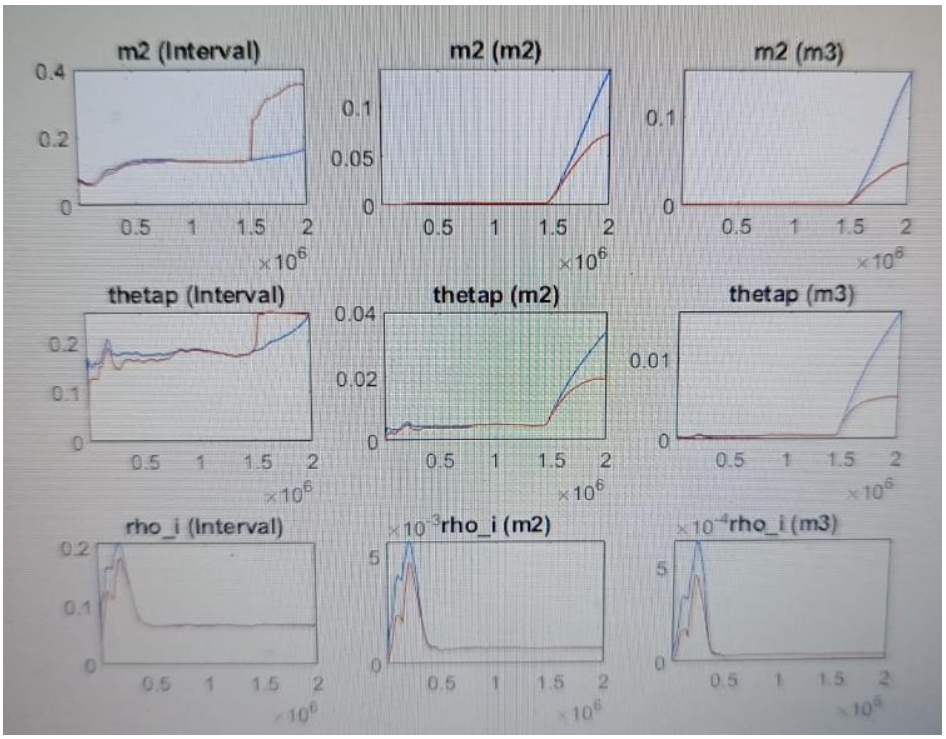
Estimation::mcmc: Smoothed constant, done!

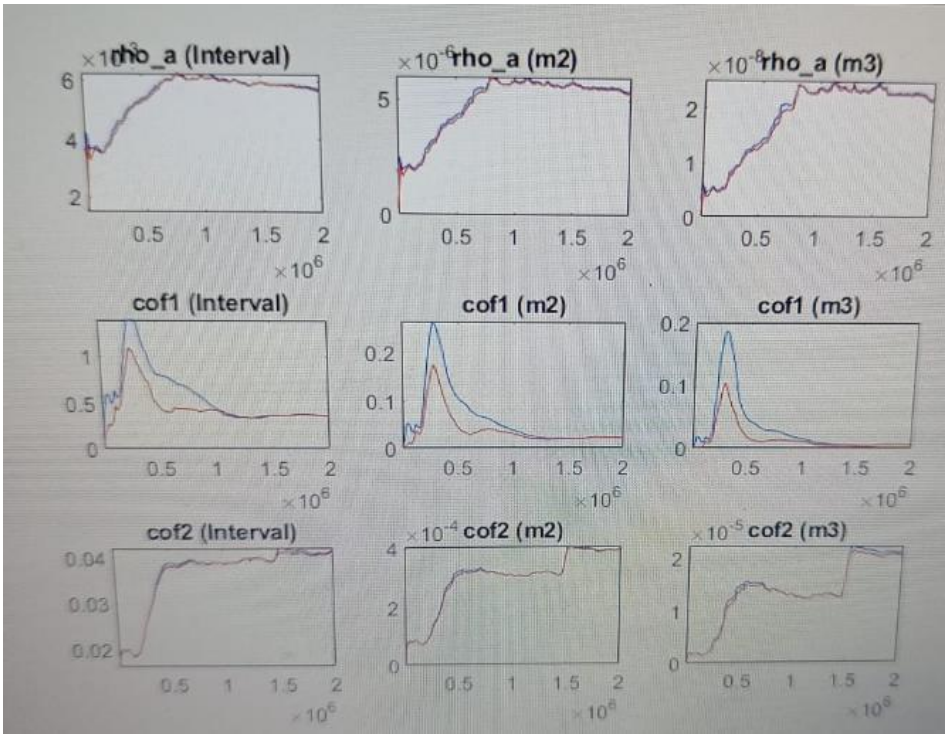
Estimation::mcmc: Smoothed trend

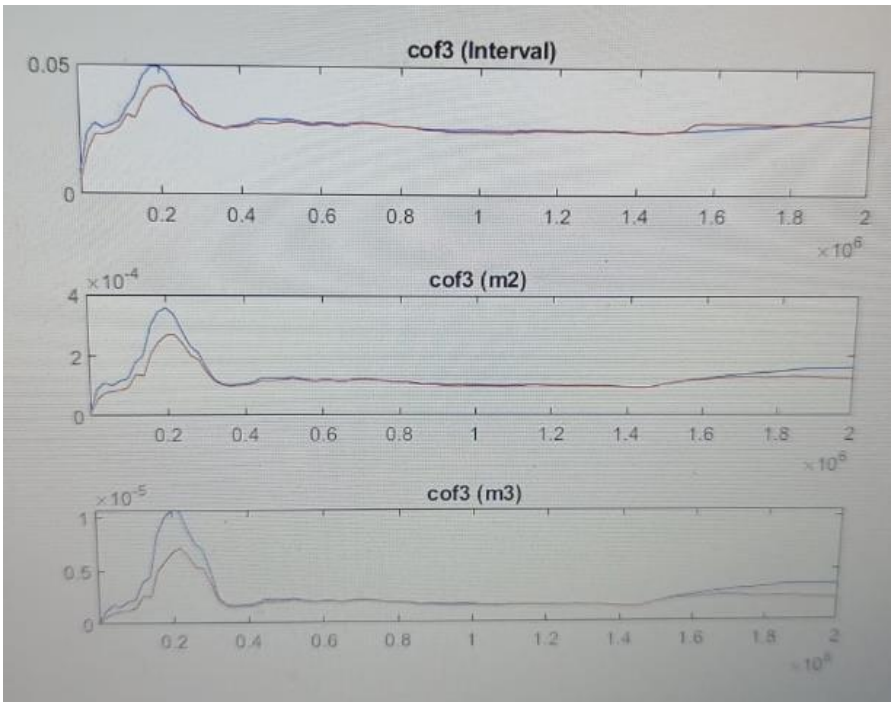
Estimation::mcmc: Smoothed trend, done!

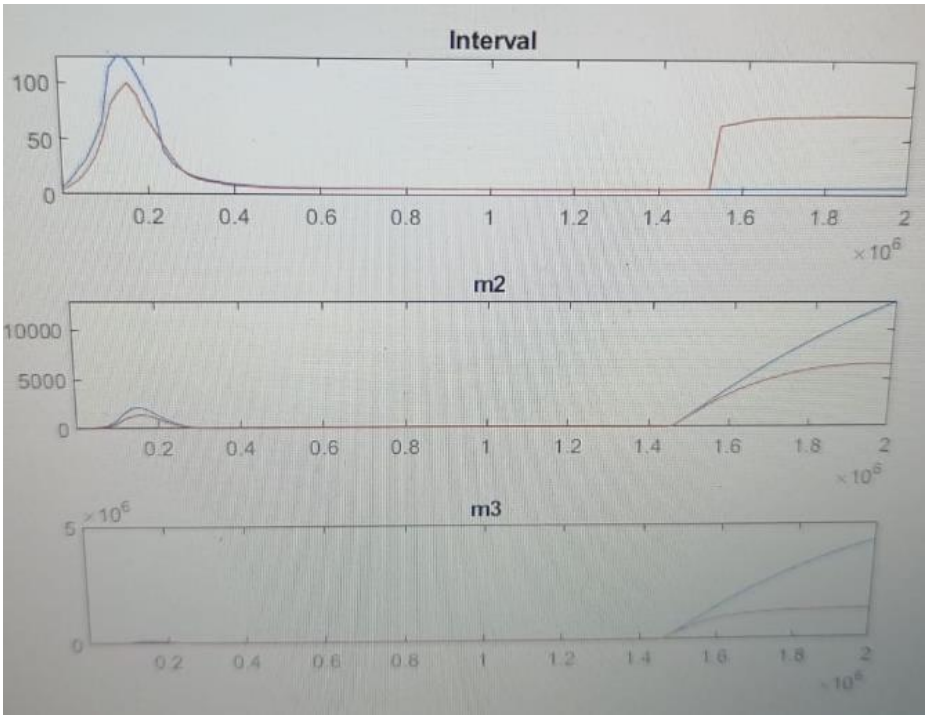
Estimation::mcmc: Updated Variables

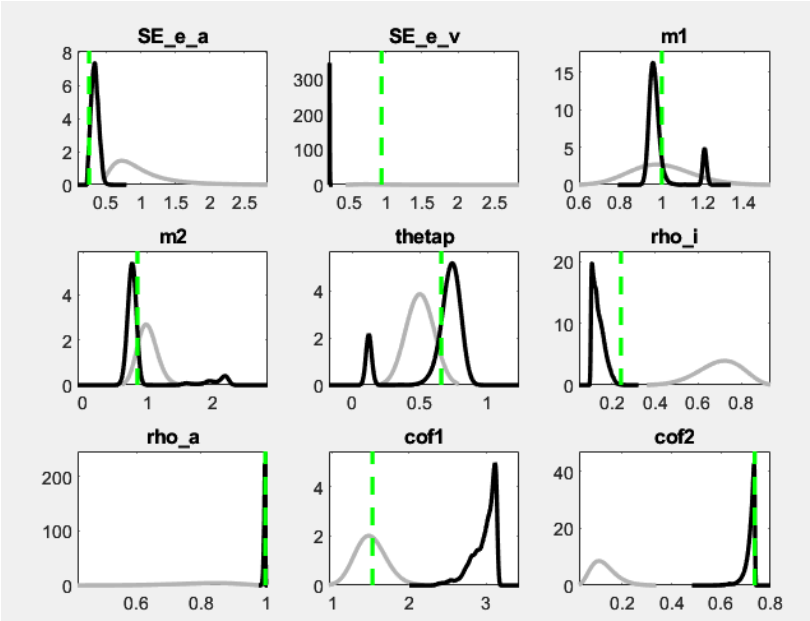
Estimation::mcmc: Updated Variables, done!

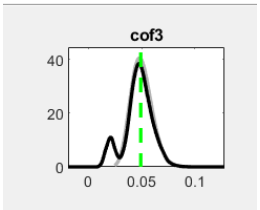


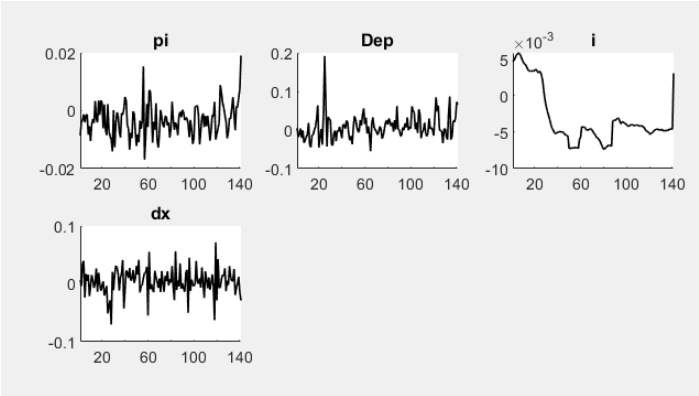


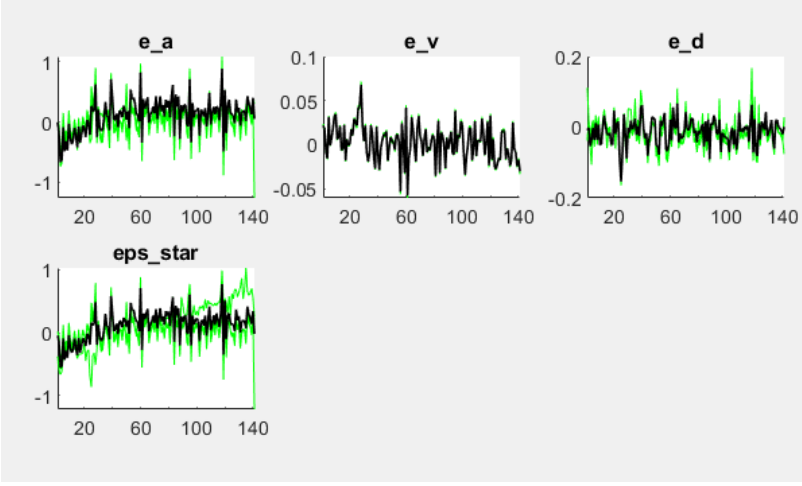

cof3 (Interval)
0.05
0
0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2
×10^6
cof3 (m2)
×10^-4
4
2
0
0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2
×10^6
cof3 (m3)
×10^-5
1
0.5
0
0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2
×10^6

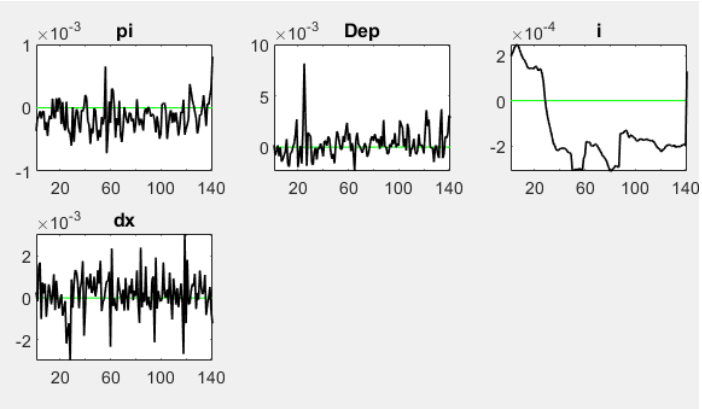

Interval
100
50
0
0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2
×10^6
m2
10000
5000
0
0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2
×10^6
m3
×10^6
5
0
0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2
×10^6


SE_e_a
SE_e_v
m1
m2
thetap
rho_i
rho_a
cof1
cof2

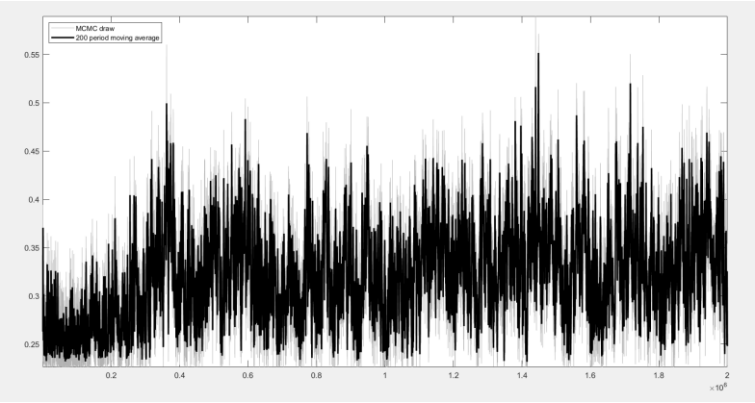

cof3


pi
Dep
i
dx

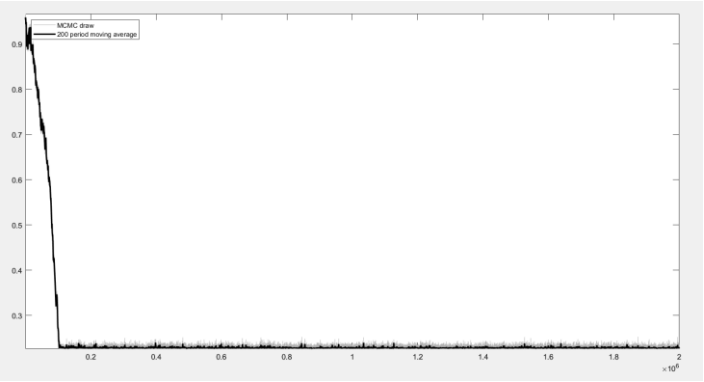

e_a
e_v
e_d
eps_star


pi
Dep
i
dx

e_a


MCMC draw
200 period moving average

e_v


MCMC draw
200 period moving average