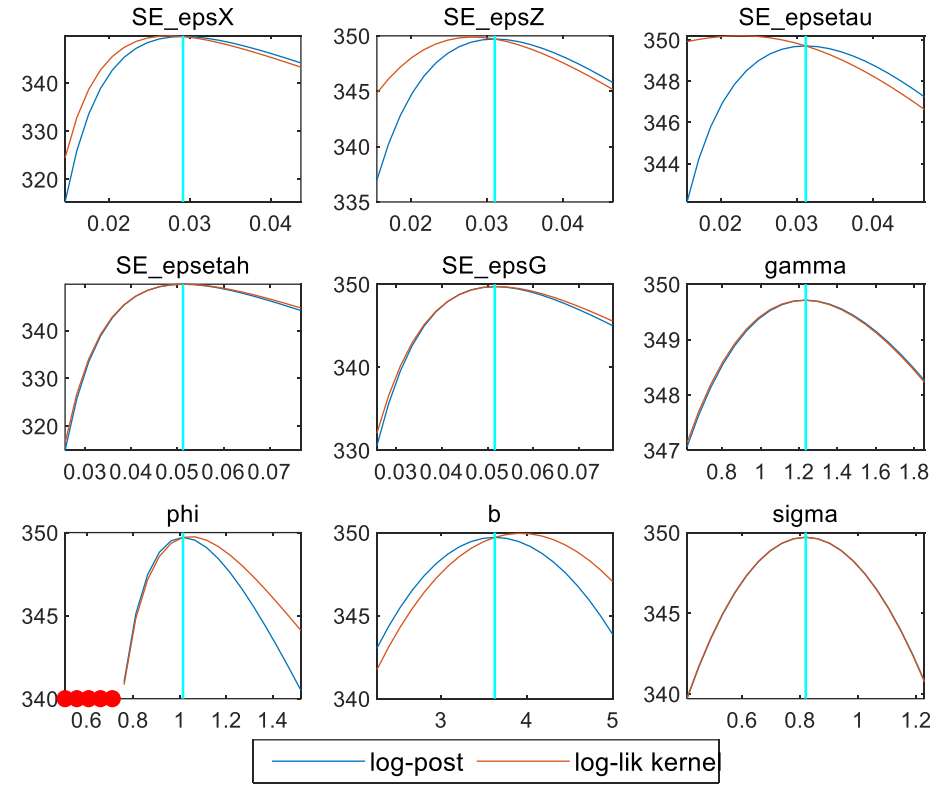
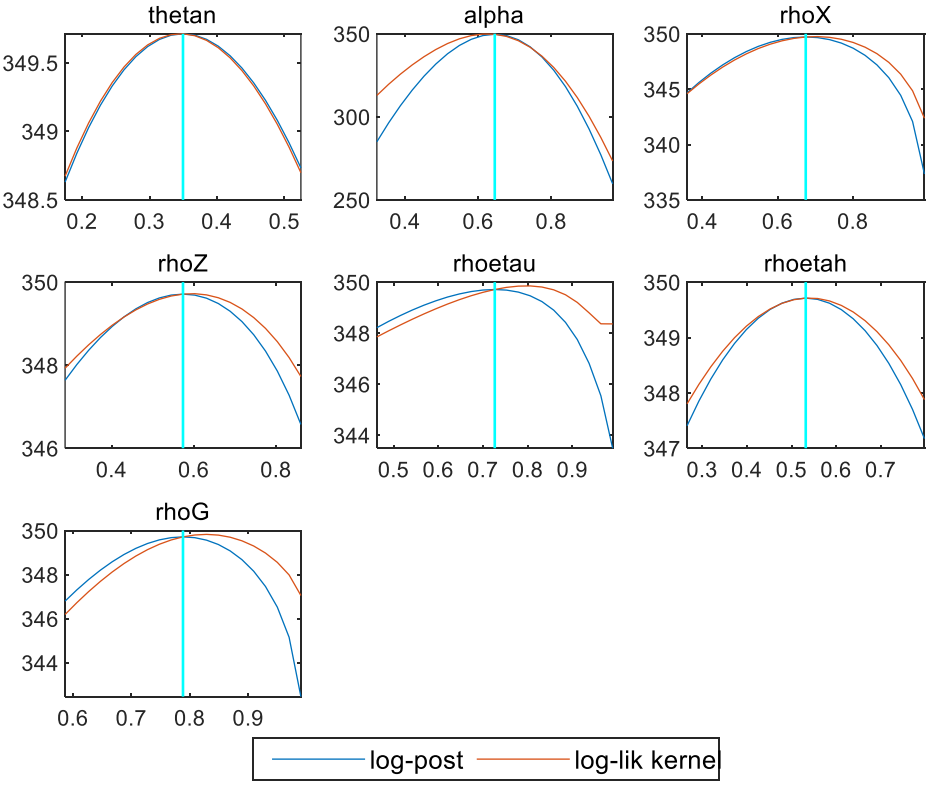
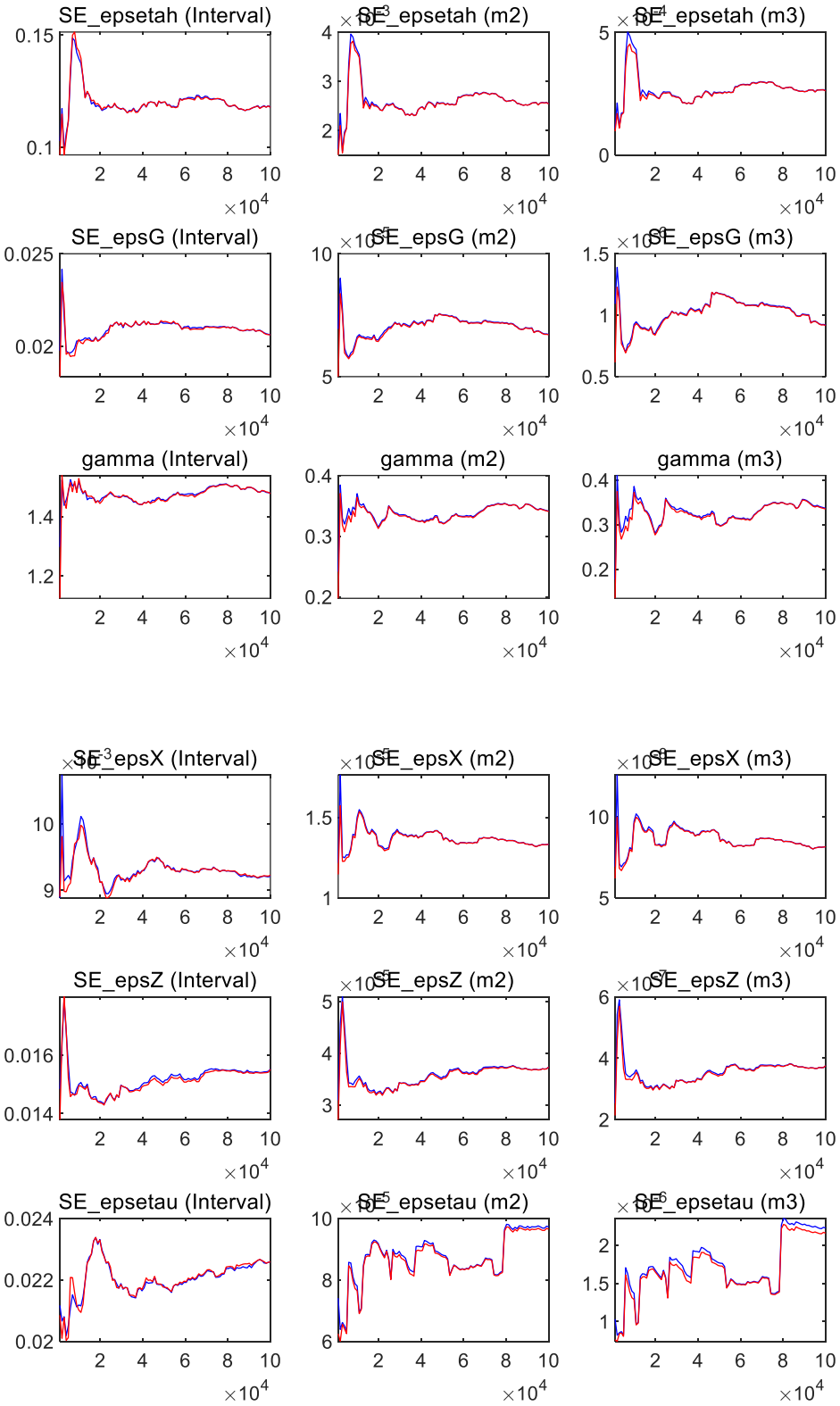
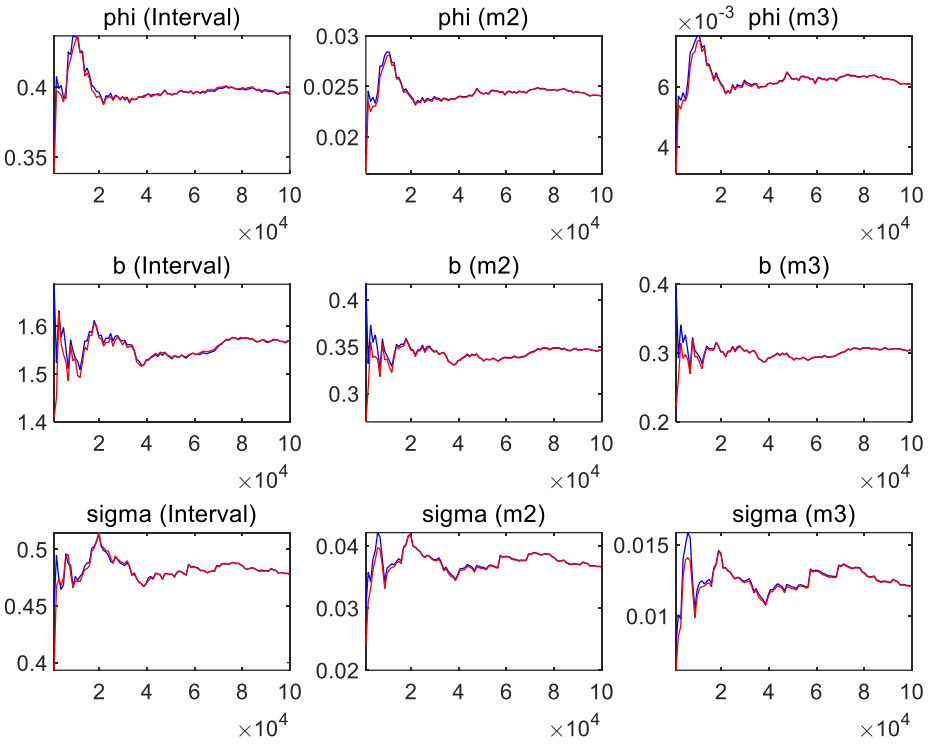
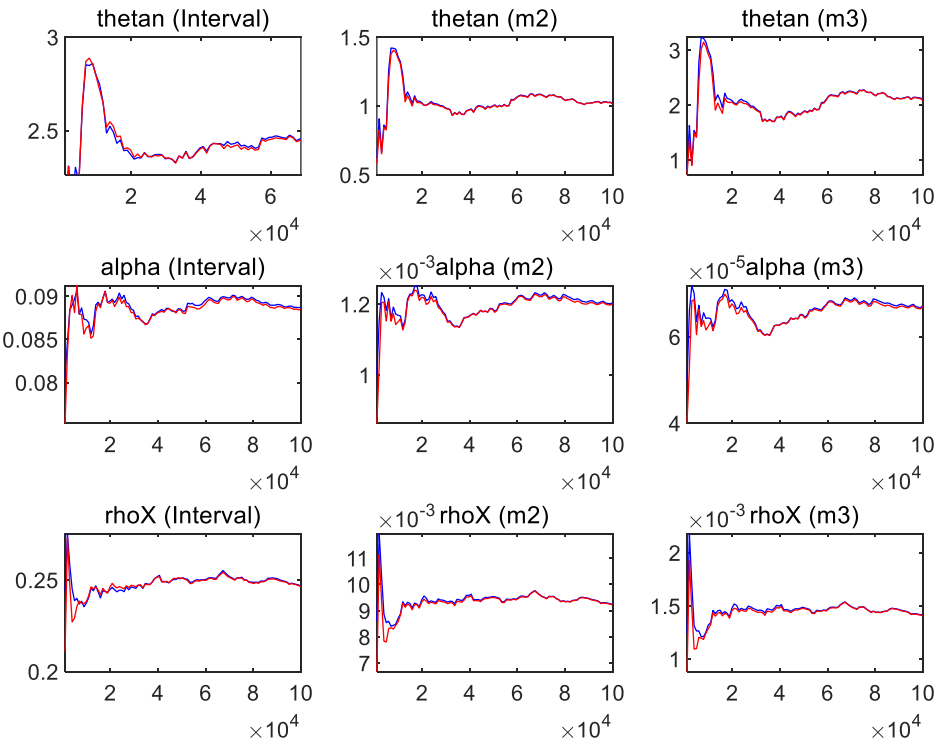
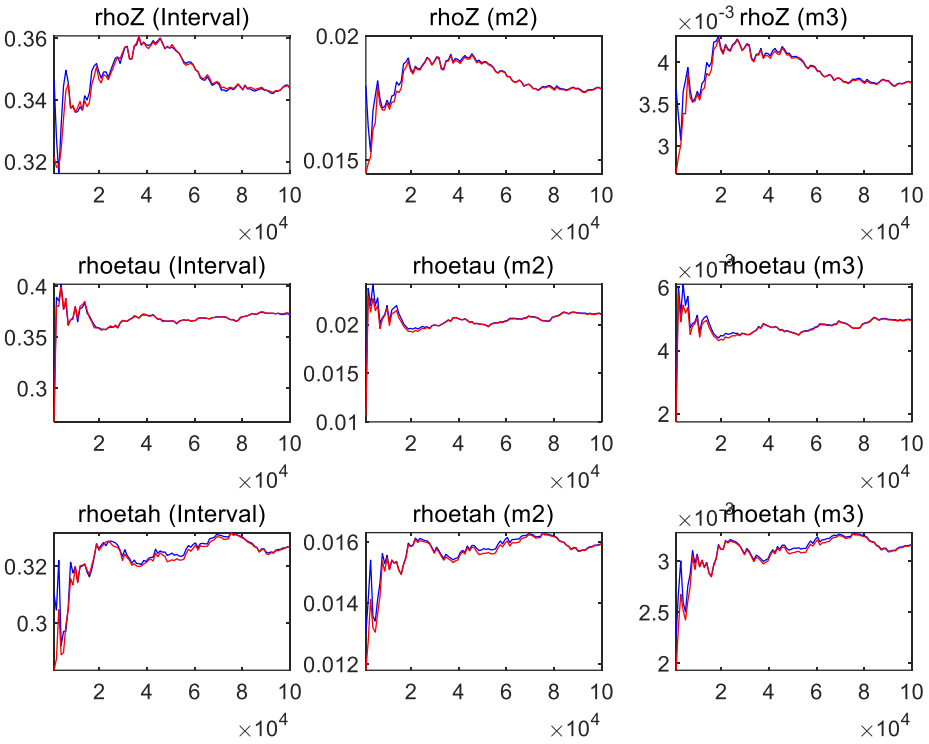

SE_epsX
SE_epsZ
SE_epsetau
SE_epsetah
SE_epsG
gamma
phi
b
sigma
log-post
log-lik kernel

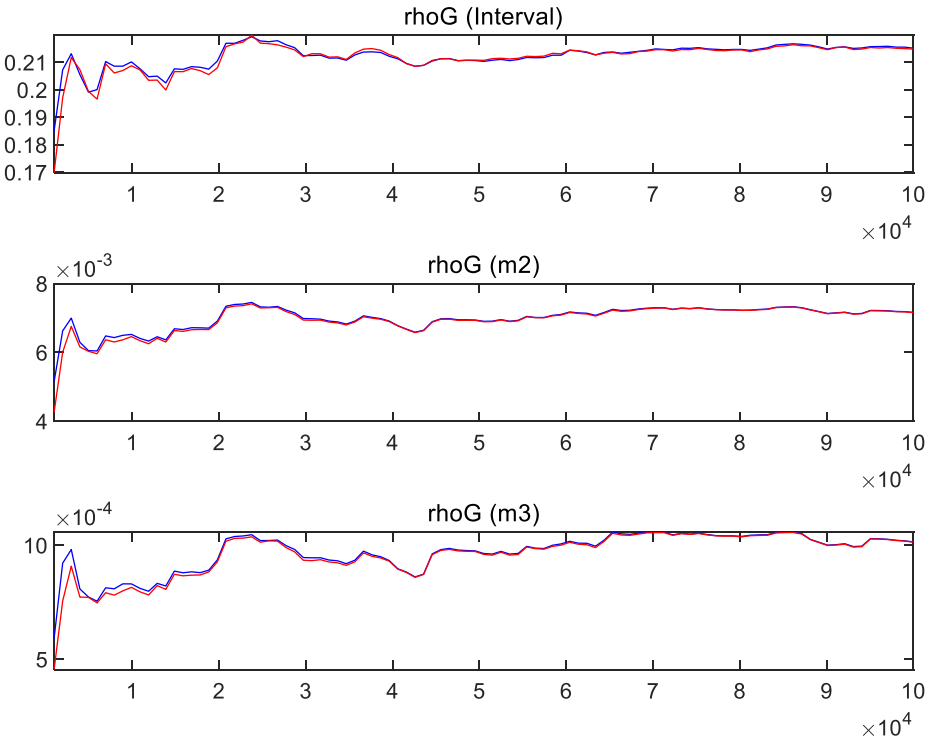

thetan
alpha
rhoX
rhoZ
rhoetau
rhoetah
rhoG
log-post
log-lik kernel

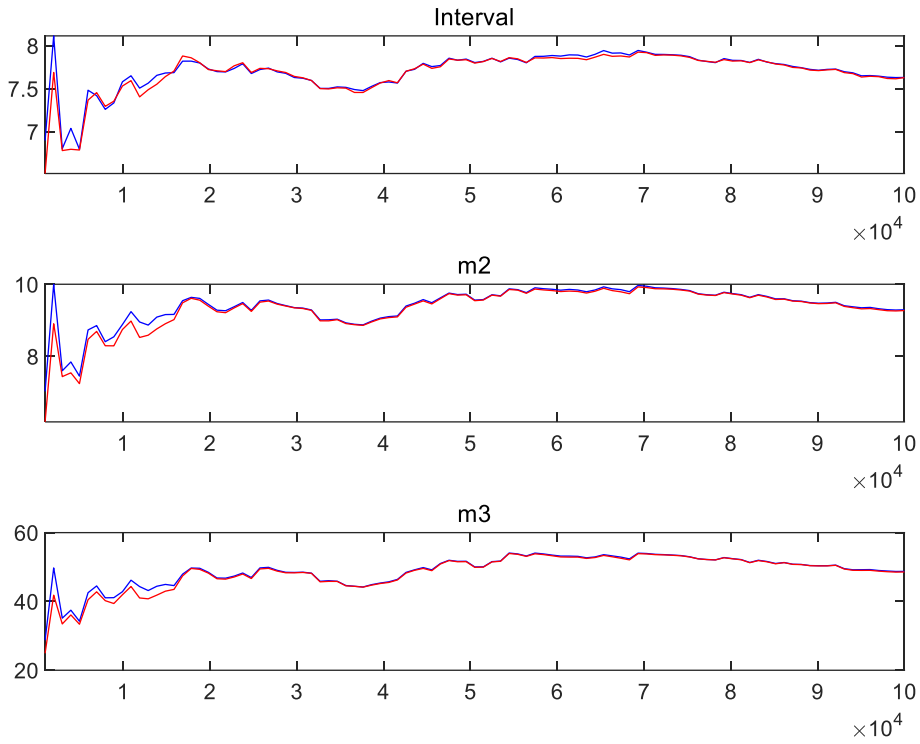

SE_epsetah (Interval)
SE_epsetah (m2)
SE_epsetah (m3)
SE_epsG (Interval)
SE_epsG (m2)
SE_epsG (m3)
gamma (Interval)
gamma (m2)
gamma (m3)
SE_epsX (Interval)
SE_epsX (m2)
SE_epsX (m3)
SE_epsZ (Interval)
SE_epsZ (m2)
SE_epsZ (m3)
SE_epsetau (Interval)
SE_epsetau (m2)
SE_epsetau (m3)


phi (Interval)
phi (m2)
×10^-3 phi (m3)
b (Interval)
b (m2)
b (m3)
sigma (Interval)
sigma (m2)
sigma (m3)
×10^4


thetan (Interval)
thetan (m2)
thetan (m3)
alpha (Interval)
×10^-3alpha (m2)
×10^-5alpha (m3)
rhoX (Interval)
×10^-3 rhoX (m2)
×10^-3 rhoX (m3)
×10^4


rhoZ (Interval)
rhoZ (m2)
×10^-3 rhoZ (m3)
rhoetau (Interval)
rhoetau (m2)
×10^-3 rhoetau (m3)
rhoetah (Interval)
rhoetah (m2)
×10^-3 rhoetah (m3)
×10^4


rhoG (Interval)
×10^-3 rhoG (m2)
×10^-4 rhoG (m3)
×10^4



dynare MODLESHEBEI
Starting Dynare (version 5.4).
Calling Dynare with arguments: none
Starting preprocessing of the model file ...
WARNING: in the 'steady_state_model' block, variable 'etau' is declared twice
WARNING: in the 'steady_state_model' block, variable 'Y_obs' is not assigned a value
WARNING: in the 'steady_state_model' block, variable 'C_obs' is not assigned a value
WARNING: in the 'steady_state_model' block, variable 'I_obs' is not assigned a value
WARNING: in the 'steady_state_model' block, variable 'h_obs' is not assigned a value
Found 19 equation(s).
Evaluating expressions...done
Computing static model derivatives (order 2).
Computing static model derivatives w.r.t. parameters (order 2).
Computing dynamic model derivatives (order 2).
Computing dynamic model derivatives w.r.t. parameters (order 2).
Processing outputs ...
done
Preprocessing completed.

警告: Some of the parameters have no value (lambdan, psi, zeta, theta, Gs) when using steady. If these parameters are
not initialized in a steadystate file or a steady_state_model-block, Dynare may not be able to solve the model. Note
that simul, perfect_foresight_setup, and perfect_foresight_solver do not automatically call the

steady state file.

STEADY-STATE RESULTS:

C	0.207278
h	0.333333
K	0.381144
I	0.0647946
Y	0.34701
M	0.0234274
U	1
D	0.17
W	0.728721
R	0.273133
etau	1.5
etah	3
Z	1
X	1
G	0.0515102
Y_obs	0
C_obs	0
I_obs	0
h_obs	0

EIGENVALUES:

Modulus	Real	Imaginary
0.5	0.5	0
0.5	0.5	0
0.5	0.5	0
0.5	0.5	0
0.5	0.5	0
0.8984	0.8984	0
1.16	1.16	0
4.474e+16	-4.474e+16	0
9.92e+16	9.92e+16	0
2.653e+17	-2.653e+17	0
4.868e+17	4.868e+17	0
5.436e+17	5.436e+17	0
2.146e+18	2.146e+18	0
6.044e+18	-6.044e+18	0

There are 8 eigenvalue(s) larger than 1 in modulus

for 8 forward-looking variable(s)

The rank condition is verified.

Residuals of the static equations:

Equation number 1 : 0 : 1labor supply
Equation number 2 : 0 : 2utilizaiton rate
Equation number 3 : 0 : 3Maintain rate
Equation number 4 : 0 : 4depreciation euqation
Equation number 5 : 0 : 5Euler eq.
Equation number 6 : 0 : 6labor demand
Equation number 7 : 0 : 7capital demand
Equation number 8 : 0 : 8Production
Equation number 9 : 0 : 9resource constraint
Equation number 10 : 0 : 10CAE
Equation number 11 : 0 : 11Investment specific shock
Equation number 12 : 0 : 12preference shock
Equation number 13 : 0 : 13labor supply shock
Equation number 14 : 0 : 14labor-augmenting techonology shock
Equation number 15 : 0 : 15Goverment shock
Equation number 16 : 0 : 16 观测方程 Y
Equation number 17 : 0 : 17 观测方程 C
Equation number 18 : 0 : 18 观测方程 I
Equation number 19 : 0 : 19 观测方程 H

MODEL SUMMARY

Number of variables: 19
Number of stochastic shocks: 5
Number of state variables: 6
Number of jumpers: 8
Number of static variables: 8

MATRIX OF COVARIANCE OF EXOGENOUS SHOCKS

Variables	epsetau	epsetah	epsZ	epsX	epsG
epsetau	0.010000	0.000000	0.000000	0.000000	0.000000

epsetah	0.000000	0.010000	0.000000	0.000000	0.000000
epsZ	0.000000	0.000000	0.010000	0.000000	0.000000
epsX	0.000000	0.000000	0.000000	0.010000	0.000000
epsG	0.000000	0.000000	0.000000	0.000000	0.010000

POLICY AND TRANSITION FUNCTIONS

	C	h	K	I	Y	M	U	D
Constant	0.207278	0.333333	0.381144	0.064795	0.347010	0.023427	1.000000	0.170000
etah(-1)	-0.007559	-0.023384	-0.009481	-0.011050	-0.022248	-0.003639	-0.050024	-0.004117
X(-1)	0.051024	-0.008824	0.063999	0.074590	0.150175	0.024560	0.337659	0.027788
G(-1)	-0.128173	0.308546	-0.146983	-0.126280	0.293556	0.048009	0.660043	0.054319
K(-1)	0.066937	-0.104790	0.898367	0.002653	-0.021329	-0.090918	-2.095029	-0.172414
etau(-1)	0.010572	-0.025450	-0.029118	-0.030826	-0.024214	-0.003960	-0.054443	-0.004480
Z(-1)	-0.007794	0.030249	0.062235	0.065391	0.044756	-0.012841	0.218175	0.093282
epsetau	0.031717	-0.076350	-0.087355	-0.092478	-0.072641	-0.011880	-0.163329	-0.013441
epsetah	-0.045355	-0.140305	-0.056888	-0.066303	-0.133489	-0.021831	-0.300141	-0.024701
epsZ	-0.015589	0.060498	0.124470	0.130782	0.089512	-0.025682	0.436350	0.186563
epsX	0.102049	-0.017647	0.127998	0.149181	0.300350	0.049120	0.675318	0.055576
epsG	-0.013204	0.031786	-0.015142	-0.013009	0.030242	0.004946	0.067998	0.005596

MOMENTS OF SIMULATED VARIABLES

VARIABLE	MEAN	STD. DEV.	VARIANCE	SKEWNESS	KURTOSIS
C	0.208395	0.014451	0.000209	0.079608	0.481666
h	0.332370	0.020370	0.000415	-0.067097	0.183154
K	0.397766	0.081685	0.006672	-0.219308	-0.422233
I	0.066703	0.026184	0.000686	0.014289	

-0.004164

Y	0.348814	0.039753	0.001580	0.121294	0.166007
M	0.021786	0.009558	0.000091	-0.068903	-0.378902
U	0.972916	0.181289	0.032866	0.062973	-0.429555
D	0.169587	0.024453	0.000598	-0.053923	-0.048625

CORRELATION OF SIMULATED VARIABLES

VARIABLE	C	h	K	I	Y	M	U	D
C	1.0000	-0.0774	0.5306	0.5331	0.7652	0.2165	-0.0266	-0.0433
h	-0.0774	1.0000	-0.1074	0.4266	0.3512	0.2914	0.4561	0.4849
K	0.5306	-0.1074	1.0000	0.4846	0.3751	-0.5975	-0.6578	-0.2026
I	0.5331	0.4266	0.4846	1.0000	0.8949	0.1654	0.3266	0.6090
Y	0.7652	0.3512	0.3751	0.8949	1.0000	0.4382	0.4096	0.4538
M	0.2165	0.2914	-0.5975	0.1654	0.4382	1.0000	0.8190	0.2501
U	-0.0266	0.4561	-0.6578	0.3266	0.4096	0.8190	1.0000	0.7342
D	-0.0433	0.4849	-0.2026	0.6090	0.4538	0.2501	0.7342	1.0000

AUTOCORRELATION OF SIMULATED VARIABLES

VARIABLE	1	2	3	4	5
C	0.5811	0.3508	0.2441	0.2289	0.1523
h	0.4744	0.2518	0.1053	0.0431	0.0048
K	0.9581	0.8814	0.7909	0.6982	0.6094
I	0.5071	0.2579	0.1265	0.0500	-0.0001
Y	0.4990	0.2271	0.1068	0.0500	-0.0144
M	0.6997	0.5220	0.4448	0.4013	0.3282
U	0.7479	0.5883	0.4843	0.4052	0.3305
D	0.4994	0.2764	0.1587	0.0918	0.0415

VARIANCE DECOMPOSITION SIMULATING ONE SHOCK AT A TIME (in percent)

	epsetau	epsetah	epsZ	epsX	epsG	Tot. lin. contr.
C	7.07	15.67	6.21	76.39	1.40	106.75
h	17.90	58.92	13.77	8.14	3.79	102.53
K	19.65	7.96	45.33	35.28	0.62	108.84
I	16.24	8.37	31.52	42.04	0.35	98.52
Y	4.17	14.47	6.04	72.92	0.82	98.42
M	11.55	9.02	45.33	44.98	0.92	111.81
U	16.52	8.39	38.00	40.16	0.91	103.98
D	6.15	3.12	69.46	14.95	0.34	94.02

Note: numbers do not add up to 100 due to non-zero correlation of simulated shocks in small samples

Parameter beta is not estimated (the value provided in estimated_params_init is not used).

The steadystate file changed the values for the following parameters:
lambdan
psi
zeta
theta
Gs
The derivatives of jacobian and steady-state will be computed numerically
(re-set options_.analytic_derivation_mode= -2)

======== Identification Analysis ========

Testing prior mean
WARNING: Komunjer and Ng (2011) failed:
There are more shocks and measurement errors than observables, this is not implemented (yet).
Skip identification analysis based on minimal state space system.

Note that differences in the criteria could be due to numerical settings,

numerical errors or the method used to find problematic parameter sets.
Settings:
Derivation mode for Jacobians: Numerical
Method to find problematic parameters: Nullspace and multicorrelation coefficients
Normalize Jacobians: Yes
Tolerance level for rank computations: robust
Tolerance level for selecting nonzero columns: 1e-08
Tolerance level for selecting nonzero singular values: 1e-03

REDUCED-FORM:
All parameters are identified in the Jacobian of steady state and reduced-form solution matrices (rank(Tau) is full with tol = robust).

SPECTRUM (QU AND TKACHENKO, 2012):
All parameters are identified in the Jacobian of mean and spectrum (rank(Gbar) is full with tol = robust).

MOMENTS (ISKREV, 2010):
All parameters are identified in the Jacobian of first two moments (rank(J) is full with tol = robust).

Collinearity patterns with 1 parameter(s)

Parameter	[Expl. params]	cosn
SE_epsX	[phi]	0.9500665
SE_epsZ	[b]	0.9953310
SE_epsetau	[SE_epsZ]	0.9938856
SE_epsetah	[thetan]	0.9670076
SE_epsG	[alpha]	0.7533653
gamma	[rhoZ]	0.9798620
phi	[b]	0.9907878
b	[SE_epsZ]	0.9953310
sigma	[alpha]	0.5165901
thetan	[b]	0.9691900
alpha	[SE_epsZ]	0.9587715
rhoX	[rhoZ]	0.8390227
rhoZ	[gamma]	0.9798620
rhoetau	[rhoZ]	0.9396674
rhoetah	[rhoX]	0.8287366
rhoG	[SE_epsG]	0.6245718

Collinearity patterns with 2 parameter(s)

Parameter	[Expl. params]	cosn

```
SE_epsX          [ SE_epsetau      b                 ]      0.9778096
SE_epsZ          [ SE_epsetau      alpha             ]      0.9992647
SE_epsetau       [ SE_epsZ         alpha             ]      0.9986869
SE_epsetah       [ sigma           thetan            ]      0.9918487
SE_epsG          [ alpha           rhoG              ]      0.9396152
gamma              [ phi             rhoZ              ]      0.9926092
phi              [ gamma             b                 ]      0.9982041
b                [ SE_epsX         SE_epsetau        ]      0.9985230
sigma            [ SE_epsetah      b                 ]      0.8943501
thetan           [ SE_epsetau      SE_epsetah        ]      0.9928250
alpha            [ SE_epsZ         SE_epsetau        ]      0.9912695
rhoX             [ sigma           rhoZ              ]      0.8873771
rhoZ             [ gamma             rhoetau           ]      0.9964281
rhoetau          [ SE_epsZ         rhoZ              ]      0.9895806
rhoetah          [ sigma           rhoZ              ]      0.9360208
rhoG             [ SE_epsG         alpha             ]      0.8550922

==== Identification analysis completed ====

Initial value of the log posterior (or likelihood): 247.743

===============================================================
    Change in the posterior covariance matrix = 10.
    Change in the posterior mean = 1.2281.
    Current mode = -334.4963
    Mode improvement = 86.7532
    New value of jscale = 0.0015074
===============================================================

===============================================================
    Change in the posterior covariance matrix = 0.48511.
    Change in the posterior mean = 1.8689.
    Current mode = -348.0387
    Mode improvement = 13.5424
    New value of jscale = 0.87245
===============================================================

===============================================================
    Change in the posterior covariance matrix = 0.70975.
    Change in the posterior mean = 0.36074.
    Current mode = -349.7119
    Mode improvement = 1.6732
    New value of jscale = 0.4178
===============================================================
```

Optimal value of the scale parameter = 0.4178

Final value of minus the log posterior (or likelihood):-349.711924

MODE CHECK

Fval obtained by the minimization routine (minus the posterior/likelihood)): -349.711924

RESULTS FROM POSTERIOR ESTIMATION
parameters

	prior mean	mode	s.d.	prior pstdev
gamma	2.0000	1.2354	0.5441	norm 3.0000
phi	0.9000	1.0140	0.1565	gamm 0.2000
b	2.0000	3.6271	0.6217	norm 1.0000
sigma	2.0000	0.8191	0.1913	norm 3.0000
thetan	1.2500	0.3496	1.0960	norm 2.0000
alpha	0.7000	0.6452	0.0375	norm 0.0500
rhoX	0.5000	0.6745	0.0933	beta 0.2000
rhoZ	0.5000	0.5736	0.1267	beta 0.2000
rhoetau	0.5000	0.7262	0.1536	beta 0.2000
rhoetah	0.5000	0.5318	0.1289	beta 0.2000
rhoG	0.5000	0.7882	0.0827	beta 0.2000

standard deviation of shocks

	prior mean	mode	s.d.	prior pstdev
epsX	0.1000	0.0291	0.0042	invg Inf
epsZ	0.1000	0.0310	0.0058	invg Inf
epsetau	0.1000	0.0311	0.0102	invg Inf
epsetah	0.1000	0.0512	0.0548	invg Inf
epsG	0.1000	0.0516	0.0087	invg Inf

Log data density [Laplace approximation] is 319.994662.

Estimation::mcmc: Multiple chains mode.
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

MODLESHEBEI/metropolis\MODLESHEBEI_mh_history_0.mat

Estimation::mcmc: Number of mh files: 1 per block.
Estimation::mcmc: Total number of generated files: 6.
Estimation::mcmc: Total number of iterations: 100000.
Estimation::mcmc: Current acceptance ratio per chain:

Chain 1: 31.668%
Chain 2: 31.896%
Chain 3: 31.601%
Chain 4: 31.802%
Chain 5: 31.71%
Chain 6: 32.059%

Estimation::mcmc: Total number of MH draws per chain: 100000.
Estimation::mcmc: Total number of generated MH files: 1.
Estimation::mcmc: I'll use mh-files 1 to 1.
Estimation::mcmc: In MH-file number 1 I'll start at line 50001.
Estimation::mcmc: Finally I keep 50000 draws per chain.

MCMC Inefficiency factors per block

Parameter	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6
SE_epsX	70.367	77.007	53.575	95.244	63.110	64.043
SE_epsZ	100.247	105.317	94.955	109.940	88.242	98.713
SE_epsetau	72.828	377.756	107.346	81.353	85.628	72.691
SE_epsetah	104.739	124.918	123.956	137.042	131.939	78.648
SE_epsG	75.688	123.521	73.490	93.242	77.994	71.174
gamma	101.426	122.393	100.661	121.242	104.395	76.615
phi	94.775	98.627	95.713	117.337	84.154	72.564
b	75.495	95.743	79.965	85.680	77.462	68.069
sigma	77.651	102.028	102.163	95.657	116.770	73.264
thetan	113.329	118.961	111.910	128.287	129.555	81.627
alpha	74.434	72.496	79.378	83.006	64.775	

64.700
rhoX 94.423 121.279 86.795 98.714 93.239
67.781
rhoZ 91.757 90.069 79.595 89.933 94.588
101.336
rhoetau 81.884 130.257 113.516 67.883 108.907
76.080
rhoetah 67.719 82.733 98.757 77.833 95.209
68.827
rhoG 93.715 88.394 118.316 87.995 98.819
80.924

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!
Parameter 11... Done!
Parameter 12... Done!
Parameter 13... Done!
Parameter 14... Done!
Parameter 15... Done!
Parameter 16... 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 318.045918.

parameters
prior mean post. mean 90% HPD interval prior pstdev

gamma 2.000 1.3276 0.3307 2.2204 norm
3.0000

phi	0.900	1.0281	0.7749	1.2775	gamm	0.2000
b	2.000	3.7646	2.8518	4.7906	norm	1.0000
sigma	2.000	0.9279	0.6177	1.2290	norm	3.0000
thetan	1.250	1.2672	0.0105	2.6250	norm	2.0000
alpha	0.700	0.6460	0.5891	0.7029	norm	0.0500
rhoX	0.500	0.6696	0.5157	0.8283	beta	0.2000
rhoZ	0.500	0.5493	0.3359	0.7729	beta	0.2000
rhoetau	0.500	0.6904	0.4695	0.9349	beta	0.2000
rhoetah	0.500	0.5534	0.3443	0.7606	beta	0.2000
rhoG	0.500	0.7648	0.6293	0.9017	beta	0.2000

standard deviation of shocks

	prior mean	post. mean	90% HPD interval		prior	pstdev
epsX	0.100	0.0305	0.0245	0.0362	invg	Inf
epsZ	0.100	0.0331	0.0234	0.0430	invg	Inf
epsetau	0.100	0.0365	0.0220	0.0501	invg	Inf
epsetah	0.100	0.1001	0.0366	0.1718	invg	Inf
epsG	0.100	0.0552	0.0420	0.0683	invg	Inf

Estimation::mcmc: Posterior (dsge) IRFs...
Estimation::mcmc: Posterior IRFs, done!
Estimation::compute_moments_varendo: I'm computing endogenous moments (this may take a while)...

Posterior mean variance decomposition (in percent)

	epsetau	epsetah	epsZ	epsX	epsG
Y_obs	1.59	57.68	1.72	37.14	1.87
C_obs	2.25	54.60	2.22	37.81	3.12
I_obs	18.30	33.45	27.17	20.70	0.39
h_obs	1.67	93.16	0.80	0.99	3.38
M	9.43	39.45	25.51	23.57	2.04
U	18.24	36.59	20.85	22.19	2.13
K	25.99	24.98	28.52	19.64	0.87
D	5.47	10.23	77.44	6.25	0.60

Done!

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!
Estimation::mcmc: One step ahead forecast (filtered variables)
Estimation::mcmc: One step ahead forecast (filtered variables), done!
Estimation::mcmc: Forecasted variables (mean)
Estimation::mcmc: Forecasted variables (mean), done!
Estimation::mcmc: Forecasted variables (point)
Estimation::mcmc: Forecasted variables (point), done!
Total computing time : 0h29m04s