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1 % textbook RBC model with government spending and labor preference shocks
2
3 % set parameters
4 beta = 0.99; % discount factor
5 alpha = 1/3; % capital share
6 delta = 0.025; % depreciation rate
7 chi = 1; % inverse Frisch
8 gs = 0.2; % steady state government spending share of output
9 rhoA = 0.95;
10 rhot = 0.9;
11 rhoG = 0.9;
12 sA = 0.01;
13 st = 0.01;
14 sG = 0.01;
15 Ns = 1/3; % target SS labor
16
17 % solve for SS here to get required SS theta
18 kns = (alpha/(1/beta - (1-delta)))^(1/(1-alpha));
19 cns = (1-gs)*kns^(alpha) - delta*kns;
20 ks = kns*Ns;
21 cs = cns*Ns;
22 thetas = (1/Ns^(chi))*(1-alpha)*kns^(alpha)/cs;
23 ggs = gs*kns^(alpha)*Ns;
24
25 % save parameter values
26 save param_rbc beta alpha delta chi gs ggs thetas rhoA rhot rhoG sA st sG
27
28 dynare rbc noclearall nolog
29
30
31 figure
32 subplot(3,3,1)
33 plot(100*a_eA, '-k', 'Linewidth', 2)
34 title('log(A)')
35
36 subplot(3,3,2)
37 plot(100*y_eA, '-k', 'Linewidth', 2)
38 title('log(Y)')
39
40 subplot(3,3,3)
41 plot(100*c_eA, '-k', 'Linewidth', 2)
42 title('log(C)')
43
44 subplot(3,3,4)
45 plot(100*i_eA, '-k', 'Linewidth', 2)
46 title('log(I)')
47
48 subplot(3,3,5)
49 plot(100*n_eA, '-k', 'Linewidth', 2)
50 title('log(n)')
51
52 subplot(3,3,6)
53 plot(100*w_eA, '-k', 'Linewidth', 2)
54 title('log(w)')
55
56 subplot(3,3,7)
57 plot(100*r_eA, '-k', 'Linewidth', 2)
58 title('log(R)')
59 legend('Productivity Shock')
60
61
62 figure
63 subplot(3,3,1)
64 plot(100*g_eG, '-k', 'Linewidth', 2)
65 title('log(G)')
66
67 subplot(3,3,2)
68 plot(100*y_eG, '-k', 'Linewidth', 2)
69 title('log(Y)')

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70
71 subplot(3,3,3)
72 plot(100*c_eG, '-k', 'Linewidth',2)
73 title('log(C)')
74
75 subplot(3,3,4)
76 plot(100*i_eG, '-k', 'Linewidth',2)
77 title('log(I)')
78
79 subplot(3,3,5)
80 plot(100*n_eG, '-k', 'Linewidth',2)
81 title('log(n)')
82
83 subplot(3,3,6)
84 plot(100*w_eG, '-k', 'Linewidth',2)
85 title('log(w)')
86
87 subplot(3,3,7)
88 plot(100*r_eG, '-k', 'Linewidth',2)
89 title('log(R)')
90 legend('Government Spending Shock')
91
92 figure
93 subplot(3,3,1)
94 plot(100*lt_et, '-k', 'Linewidth',2)
95 title('log(\theta)')
96
97 subplot(3,3,2)
98 plot(100*y_et, '-k', 'Linewidth',2)
99 title('log(Y)')
100
101 subplot(3,3,3)
102 plot(100*c_et, '-k', 'Linewidth',2)
103 title('log(C)')
104
105 subplot(3,3,4)
106 plot(100*i_et, '-k', 'Linewidth',2)
107 title('log(I)')
108
109 subplot(3,3,5)
110 plot(100*n_et, '-k', 'Linewidth',2)
111 title('log(n)')
112
113 subplot(3,3,6)
114 plot(100*w_et, '-k', 'Linewidth',2)
115 title('log(w)')
116
117 subplot(3,3,7)
118 plot(100*r_et, '-k', 'Linewidth',2)
119 title('log(R)')
120 legend('Preference Shock')

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