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1  clear all
2  close all
3
4  % set parameters
5  beta = 0.99;
6  delta = 0.025;
7  alpha = 0.35;
8  Omega = 0.64/(1-alpha);
9  sp = 0.02/4; % quarterly spread
10 eta = 3;
11 Xs = 1.1; % steady state markup
12 gy = 0.2; % government consumption share
13 iy = 0.18;
14 cy = 0.50;
15 cey = 1-cy-gy-iy;
16 varphi = 0.25;
17 theta = 0.75;
18 kappa = (1-theta)*(1-theta*beta)/theta;
19 kns = 2; % capital-net worth ratio
20 gamma = 1-0.0272; % death rate
21 Rs = beta^(-1); % steady state safe rate
22 Hs = (1+eta)^(-1);
23 Rks = beta^(-1) + sp;
24 RRs = Rks - (1-delta);
25 RRks = Rs*kns;
26 rho = 0.9; % monetary policy smoothing
27 zeta = 0.11; % taylor rule inflation reaction
28 rhoa = 0.95; % AR productivity
29 rhog = 0.95; % AR government spending
30 sa = 1;
31 sg = 1;
32 srn = 0.25/4;
33 nu = 0.2; % key parameter for accelerator
34 epsi = (1-delta)/(RRs + (1-delta));
35
36 save bbg_param cy iy gy cey nu epsi varphi alpha Omega eta kappa beta delta gamma RRks
rho zeta rhoa rhog sa sg srn
37
38 dynare bbg_ers noclearall nolog
39
40 spread_ern = rk_ern(2:13)-r_ern(1:12);
41 spread_ea = rk_ea(2:13) - r_ea(1:12);
42 spread_eg = rk_eg(2:13) - r_eg(1:12);
43 spread_en = rk_en(2:13) - r_en(1:12);
44
45 % save IRFs
46 YY = [-y_ern(1:12) -i_ern(1:12) -4*rn_ern(1:12) -spread_ern -4*pi_ern(1:12)
-q_ern(1:12) -n_ern(1:12) -k_ern(1:12) -lev_ern(1:12)];
47 XX = [y_ea(1:12) i_ea(1:12) 4*rn_ea(1:12) spread_ea 4*pi_ea(1:12) q_ea(1:12) n_ea(1:12)
k_ea(1:12) lev_ea(1:12)];
48 ZZ = [y_eg(1:12) i_eg(1:12) 4*rn_eg(1:12) spread_eg 4*pi_eg(1:12) q_eg(1:12) n_eg(1:12)
k_eg(1:12) lev_eg(1:12)];
49 WW = [y_en(1:12) i_en(1:12) 4*rn_en(1:12) spread_en 4*pi_en(1:12) q_en(1:12) n_en(1:12)
k_en(1:12) lev_en(1:12)];
50
51
52 % now resolve with nu = 0;
53 nu = 0;
54
55 save bbg_param cy iy gy cey nu epsi varphi alpha Omega eta kappa beta delta gamma RRks
rho zeta rhoa rhog sa sg srn
56
57 dynare bbg_ers noclearall nolog
58
59 spread_ern = rk_ern(2:13)-r_ern(1:12);
60 spread_ea = rk_ea(2:13) - r_ea(1:12);
61 spread_eg = rk_eg(2:13) - r_eg(1:12);
62 spread_en = rk_en(2:13) - r_en(1:12);
63

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64 % save IRFs
65 YY2 = [-y_ern(1:12) -i_ern(1:12) -4*rn_ern(1:12) -spread_ern -4*pi_ern(1:12)
        -q_ern(1:12) -n_ern(1:12) -k_ern(1:12) -lev_ern(1:12)];
66 XX2 = [y_ea(1:12) i_ea(1:12) 4*rn_ea(1:12) spread_ea 4*pi_ea(1:12) q_ea(1:12)
        n_ea(1:12) k_ea(1:12) lev_ea(1:12)];
67 ZZ2 = [y_eg(1:12) i_eg(1:12) 4*rn_eg(1:12) spread_eg 4*pi_ea(1:12) q_eg(1:12)
        n_eg(1:12) k_eg(1:12) lev_eg(1:12)];
68 WW2 = [y_en(1:12) i_en(1:12) 4*rn_en(1:12) spread_en 4*pi_eg(1:12) q_en(1:12)
        n_en(1:12) k_en(1:12) lev_en(1:12)];
69
70 T = size(YY,1);
71 t = 1:T;
72
73 % plot Q responses
74 figure
75 subplot(2,2,1)
76 plot(t,YY(:,6),'-k',t,YY2(:,6),'--k','Linewidth',2)
77 title('Monetary Shock')
78
79 subplot(2,2,2)
80 plot(t,XX(:,6),'-k',t,XX2(:,6),'--k','Linewidth',2)
81 title('Productivity Shock')
82
83 subplot(2,2,3)
84 plot(t,ZZ(:,6),'-k',t,ZZ2(:,6),'--k','Linewidth',2)
85 title('Gov. Spending Shock')
86
87 subplot(2,2,4)
88 plot(t,WW(:,6),'-k',t,WW2(:,6),'--k','Linewidth',2)
89 title('Net Worth Shock')
90
91
92 % policy shock
93 figure
94 subplot(2,2,1)
95 plot(t,YY(:,1),'-k',t,YY2(:,1),'--k','Linewidth',1.5)
96 title('Y')
97
98 subplot(2,2,2)
99 plot(t,YY(:,2),'-k',t,YY2(:,2),'--k','Linewidth',1.5)
100 title('I')
101
102 subplot(2,2,3)
103 plot(t,YY(:,3),'-k',t,YY2(:,3),'--k','Linewidth',1.5)
104 title('r^{n}')
105
106 subplot(2,2,4)
107 plot(t,YY(:,4),'-k',t,YY2(:,4),'--k','Linewidth',1.5)
108 title('rk-r')
109
110 % productivity shock
111 figure
112 subplot(2,2,1)
113 plot(t,XX(:,1),'-k',t,XX2(:,1),'--k','Linewidth',1.5)
114 title('Y')
115
116 subplot(2,2,2)
117 plot(t,XX(:,2),'-k',t,XX2(:,2),'--k','Linewidth',1.5)
118 title('I')
119
120 subplot(2,2,3)
121 plot(t,XX(:,3),'-k',t,XX2(:,3),'--k','Linewidth',1.5)
122 title('r^{n}')
123
124 subplot(2,2,4)
125 plot(t,XX(:,4),'-k',t,XX2(:,4),'--k','Linewidth',1.5)
126 title('rk-r')
127
128 % government spending shock

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129 figure
130 subplot(2,2,1)
131 plot(t,ZZ(:,1),'-k',t,ZZ2(:,1),'--k','Linewidth',1.5)
132 title('Y')
133
134 subplot(2,2,2)
135 plot(t,ZZ(:,2),'-k',t,ZZ2(:,2),'--k','Linewidth',1.5)
136 title('I')
137
138 subplot(2,2,3)
139 plot(t,ZZ(:,3),'-k',t,ZZ2(:,3),'--k','Linewidth',1.5)
140 title('r^{n}')
141
142 subplot(2,2,4)
143 plot(t,ZZ(:,4),'-k',t,ZZ2(:,4),'--k','Linewidth',1.5)
144 title('rk-r')
145
146 % net worth shock
147 figure
148 subplot(2,2,1)
149 plot(t,WW(:,1),'-k',t,WW2(:,1),'--k','Linewidth',1.5)
150 title('Y')
151
152 subplot(2,2,2)
153 plot(t,WW(:,2),'-k',t,WW2(:,2),'--k','Linewidth',1.5)
154 title('I')
155
156 subplot(2,2,3)
157 plot(t,WW(:,3),'-k',t,WW2(:,3),'--k','Linewidth',1.5)
158 title('r^{n}')
159
160 subplot(2,2,4)
161 plot(t,WW(:,4),'-k',t,WW2(:,4),'--k','Linewidth',1.5)
162 title('rk-r')
163
164
165 % Leverage and its components
166 % policy shock
167 figure
168 subplot(2,2,1)
169 plot(t,YY(:,7),'-k',t,YY2(:,7),'--k','Linewidth',1.5)
170 title('n')
171
172 subplot(2,2,2)
173 plot(t,YY(:,6),'-k',t,YY2(:,6),'--k','Linewidth',1.5)
174 title('q')
175
176 subplot(2,2,3)
177 plot(t,YY(:,8),'-k',t,YY2(:,8),'--k','Linewidth',1.5)
178 title('k')
179
180 subplot(2,2,4)
181 plot(t,YY(:,9),'-k',t,YY2(:,9),'--k','Linewidth',1.5)
182 title('lev')
183
184 % productivity shock
185 figure
186 subplot(2,2,1)
187 plot(t,XX(:,7),'-k',t,XX2(:,7),'--k','Linewidth',1.5)
188 title('n')
189
190 subplot(2,2,2)
191 plot(t,XX(:,6),'-k',t,XX2(:,6),'--k','Linewidth',1.5)
192 title('q')
193
194 subplot(2,2,3)
195 plot(t,XX(:,8),'-k',t,XX2(:,8),'--k','Linewidth',1.5)
196 title('k')
197

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198 subplot(2,2,4)
199 plot(t,XX(:,9),'-k',t,XX2(:,9),'--k','Linewidth',1.5)
200 title('lev')
201
202 % government spending shock
203 figure
204 subplot(2,2,1)
205 plot(t,ZZ(:,7),'-k',t,ZZ2(:,7),'--k','Linewidth',1.5)
206 title('n')
207
208 subplot(2,2,2)
209 plot(t,ZZ(:,6),'-k',t,ZZ2(:,6),'--k','Linewidth',1.5)
210 title('q')
211
212 subplot(2,2,3)
213 plot(t,ZZ(:,8),'-k',t,ZZ2(:,8),'--k','Linewidth',1.5)
214 title('k')
215
216 subplot(2,2,4)
217 plot(t,ZZ(:,9),'-k',t,ZZ2(:,9),'--k','Linewidth',1.5)
218 title('lev')
219
220 % net worth shock
221 figure
222 subplot(2,2,1)
223 plot(t,WW(:,7),'-k',t,WW2(:,7),'--k','Linewidth',1.5)
224 title('n')
225
226 subplot(2,2,2)
227 plot(t,WW(:,6),'-k',t,WW2(:,6),'--k','Linewidth',1.5)
228 title('q')
229
230 subplot(2,2,3)
231 plot(t,WW(:,8),'-k',t,WW2(:,8),'--k','Linewidth',1.5)
232 title('k')
233
234 subplot(2,2,4)
235 plot(t,WW(:,9),'-k',t,WW2(:,9),'--k','Linewidth',1.5)
236 title('lev')

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