

```

1 clear all
2 close all
3
4 global beta delta alpha1 alpha2 Hs He bank rp eta mu
5
6 % set parameters
7 beta = 0.99;
8 delta = 0.02;
9 alpha1 = 0.36;
10 alpha2 = 0.6399;
11 Ls = 0.3; % target value of L
12 bank = 0.00974;
13 rp = 0.0187/4; % risk premium, need to put at quarterly frequency
14 %rp = (1.0187)^(1/4)-1;
15 eta = 0.1; % share
16 He = eta;
17 Hs = (1-eta)*Ls;
18 mu = 0.25;
19
20 % guess omegab and sigma
21 omegabb = 0.6039;
22 sigmaa = 0.2070;
23
24 guess = [omegabb;sigmaa]
25 [ss,fval] = fsolve(@find_cf,guess);
26
27 omegab = ss(1);
28 sigma = ss(2);
29
30
31 M = - 0.5*sigma^2;
32 PHIs = normcdf((log(omegab) - M)/sigma);
33 phis = normpdf((log(omegab) - M)/sigma)/(omegab*sigma);
34 gs = normcdf((log(omegab)-M-sigma^2)/sigma) - PHIs*mu + (1-PHIs)*omegab;
35 fs = 1-mu*PHIs-gs;
36 qs = (1-PHIs*mu-phis*mu*fs/(1-PHIs))^(-1);
37 gamma = (1-qs*gs)/(qs*fs);
38 rs = qs*(1-beta*(1-delta))/beta;
39 Ks = (rs/(alpha1*Hs^(alpha2)*He^(1-alpha1-alpha2)))^(1/(alpha1-1));
40 Ys = Ks^(alpha1)*Hs^(alpha2)*He^(1-alpha1-alpha2);
41 ws = alpha2*Ks^(alpha1)*Hs^(alpha2-1)*He^(1-alpha1-alpha2);
42 xs = (1-alpha1-alpha2)*Ks^(alpha1)*Hs^(alpha2)*He^(-alpha1-alpha2);
43 Is = delta*Ks/((1-PHIs*mu));
44 is = Is/eta;
45 ns = is*(1-qs*gs);
46 kes = (ns-xs)/(rs+qs*(1-delta));
47 ces = qs*fs*is - qs*kes;
48 cs = (1/(1-eta))*(Ys - eta*ces - eta*is);
49 nu = ws/cs;
50 rks = omegab*(is/(is-ns))-1;
51 kcs = (1/(1-eta))*(Ks - eta*kes);
52
53 % targets
54 bankr = PHIs - bank;
55 spread = qs*(1+rks)-1 - rp;
56
57 % stochastic process
58 rho = 0.95;
59 st = 1;
60 sn = 1;
61
62
63 save params_cf M sigma omegab mu nu beta delta eta alpha1 alpha2 Hs gamma rho st sn
64
65
66 dynare cf97_ers noclearall nolog
67
68 T = size(logY_et,1);
69 t = 1:T;

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70
71
72 figure
73 subplot(3,3,1)
74 plot(logY_et, '-k', 'Linewidth', 2)
75 title('Output')
76
77 subplot(3,3,2)
78 plot(logC_et, '-k', 'Linewidth', 2)
79 title('Consumption')
80
81 subplot(3,3,3)
82 plot(logI_et, '-k', 'Linewidth', 2)
83 title('Investment')
84
85 subplot(3,3,4)
86 plot(logH_et, '-k', 'Linewidth', 2)
87 title('Hours')
88
89 subplot(3,3,5)
90 plot(logq_et, '-k', 'Linewidth', 2)
91 title('q')
92
93 subplot(3,3,6)
94 plot(r_et, '-k', 'Linewidth', 2)
95 title('r')
96
97 subplot(3,3,7)
98 plot(n_et, '-k', 'Linewidth', 2)
99 title('Net Worth')
100
101 subplot(3,3,8)
102 plot(PHI_et, '-k', 'Linewidth', 2)
103 title('Bankruptcy Rate')
104
105 subplot(3,3,9)
106 plot(spr_et, '-k', 'Linewidth', 2)
107 title('Spread')
108 legend('Productivity Shock')
109
110 figure
111 subplot(3,3,1)
112 plot(logY_en, '-k', 'Linewidth', 2)
113 title('Output')
114
115 subplot(3,3,2)
116 plot(logC_en, '-k', 'Linewidth', 2)
117 title('Consumption')
118
119 subplot(3,3,3)
120 plot(logI_en, '-k', 'Linewidth', 2)
121 title('Investment')
122
123 subplot(3,3,4)
124 plot(logH_en, '-k', 'Linewidth', 2)
125 title('Hours')
126
127 subplot(3,3,5)
128 plot(logq_en, '-k', 'Linewidth', 2)
129 title('q')
130
131 subplot(3,3,6)
132 plot(r_en, '-k', 'Linewidth', 2)
133 title('r')
134
135 subplot(3,3,7)
136 plot(n_en, '-k', 'Linewidth', 2)
137 title('Net Worth')
138

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```
139 subplot(3,3,8)
140 plot(PHI_en, '-k', 'Linewidth', 2)
141 title('Bankruptcy Rate')
142
143 subplot(3,3,9)
144 plot(spr_en, '-k', 'Linewidth', 2)
145 title('Spread')
146 legend('Net Worth Shock')
147
148
149
```