Econ 413R: Computational Economics

Spring Term 2013

Overlapping Generations Models
Homework Set

Week 1

Homework 1

Using the calibration from Section 1.6 and the steady-state equilibrium Definition 1, solve for the steady-state equilibrium values of $\{\bar{c}_i\}_{i=1}^{3}$, $\{\bar{k}_i\}_{i=2}^{3}$, $\bar{w}$, and $\bar{r}$ numerically.

Homework 2

What happens to each of these steady-state values if all households become more patient $\beta \uparrow$ (an example would be $\beta = 0.55$)? That is, in what direction does $\beta \uparrow$ move each steady-state value $\{\bar{c}_i\}_{i=1}^{3}$, $\{\bar{k}_i\}_{i=2}^{3}$, $\bar{w}$, and $\bar{r}$? What is the intuition?

Homework 3

Use time path iteration (TPI) to solve for the non-steady state equilibrium transition path of the economy from $(k_{2,1}, k_{3,1}) = (0.8\bar{k}_2, 1.1\bar{k}_3)$ to the steady-state $(\bar{k}_2, \bar{k}_3)$. You'll have to choose a guess for T and a time path updating parameter $\xi \in (0, 1)$, but I can assure you that $T < 50$. Use an L^2 norm for your distance measure, and use a convergence parameter of $\varepsilon = 10^{-9}$. Use a linear initial guess for the time path of the aggregate capital stock from the initial state K_1^1 to the steady state K_T^1 at time T.

Homework 4

Plot the equilibrium time path of the aggregate capital stock $\{K_t\}_{t=1}^{T+5}$. How many periods did it take for the economy to get within 0.0001 of the steady-state aggregate capital stock $\bar{K}$? That is, what is T?