Economics 4905
Financial Fragility and the Macroeconomy
Fall 2018
Problem Set 4
Due before class on Monday, October 29, 2018

1. The Overlapping Generations Model

The model is set up as follow:

- 2 period lives
- 1 commodity per period, $\ell = 1$
- Stationary environment
- 1 person per generation

The utility functions are given as:

$$\begin{aligned} u_0(x_0^1) &= \beta \log x_0^1 \\ u_t(x_t^t, x_t^{t+1}) &= \alpha \log x_t^t + \beta \log x_t^{t+1} \text{ for } t = 1, 2, \ldots \end{aligned}$$

The endowments are 5 units for each period each person is alive:

$$\omega_0^1 = \omega_t^t = \omega_t^{t+1} = 5 \text{ for } t = 1, 2, \ldots$$

Define the excess demands:

$$\begin{aligned} z^t &= \omega_t^t - x_t^t \\ z^{t+1} &= x_t^{t+1} - \omega_t^{t+1} \end{aligned}$$

Case 1: $\alpha = 2, \beta = 8, m_0^1 = 5, m_s^t = 0$ otherwise
Case 2: $\alpha = 10, \beta = 1, m_0^1 = 3, m_s^t = 0$ otherwise

For both of the above cases, solve for the following:

a) The equilibrium demand (x_t^t, x_t^{t+1})

b) The offer curve (OC)

c) The steady states

d) The set of equilibrium money prices, $\mathcal{P}^m$

e) The full dynamic analysis, including the stability of steady states