

Economics 4905

Financial Fragility and the Macroeconomy

Fall 2017

Problem Set 4

Due before class on Monday, October 30, 2017

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:

$$u_0(x_0^1) = \beta \log x_0^1$$

$$u_t(x_t^t, x_t^{t+1}) = \alpha \log x_t^t + \beta \log x_t^{t+1} \text{ for } t = 1, 2, \dots$$

The endowments are 1 unit for each period each person is alive:

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

Define the excess demands:

$$z^t = x_t^t - \omega_t^t$$

$$z^{t+1} = \omega_t^{t+1} - x_t^{t+1}$$

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

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