

**Economics 614: Macroeconomics II**  
Spring 2005  
Cornell University  
**Problem Set #10**  
Due: Monday, April 4, 2005

## 1 Overlapping Generations with Government Budget Restrictions:

2-period lives.

1 commodity per period,  $\ell = 1$ .

Stationary endowments:

$$\begin{aligned}\omega_0^1 &= 1 > 0 \text{ for } t = 0 \\ (\omega_t^t, \omega_t^{t+1}) &= (1, 1) > 0 \text{ for } t = 1, 2, \dots\end{aligned}$$

Stationary preferences:

$$\begin{aligned}u_0(x_0^1) &= 2 \ln x_0^1 \text{ for } t = 0 \\ u_t(x_t^t, x_t^{t+1}) &= \ln x_t^t + 2 \ln x_t^{t+1} \text{ for } t = 1, 2, \dots\end{aligned}$$

Passive fiscal policy:

$$m_0^1 = 7 \quad m_t^s = 0 \text{ otherwise}$$

Goods price of money is  $p^m \geq 0$ .

- (a) What is the deficit in period  $t, t = 1, 2, \dots$ ?
- (b) Find the monetary steady-state allocation  $x = (x_0^1, x_1^1, x_1^2, \dots, x_t^t, x_t^{t+1}, \dots)$  and the associated goods price of money  $p^m$ .
- (c) Can this allocation be achieved as an equilibrium with an active fiscal policy (in which the  $m_t^s$ 's are not necessarily zero) that meets the constitutional restriction that the government budget deficit be zero. What is this restriction in terms of the  $m_t^s$ 's? If you can, solve for the  $m_t^s$ 's.