

Economics 153

**Monetary Economics**

Fall 2006 Homework 8

Due November 8

1. Do exercise 2.2 in chapter 2 (page 46) of Champ and Freeman.
2. Consider an overlapping generations economy. Consumers are two-period lived. Each period there are 1000 old consumers and 1000 young consumers. Consumers are endowed with 20 units of goods when young and with 0 units when old. The initial old is endowed with 50 units of gold. The utility function of an individual born in period  $t = 1, 2, 3, \dots$  is given by

$$\ln(c_{1,t}) + \ln(c_{2,t+1} + 0.1c_{t+1}^g).$$

where  $c_{1,t}$  denotes consumption of goods by the young in period 1,  $c_{2,t+1}$  denotes consumption of goods of the old in period  $t + 1$ , and  $c_{t+1}^g$  denotes consumption of gold of the old in period  $t + 1$ . The utility function of the initial old is given by

$$\ln(c_{2,1} + 7c_1^g).$$

where  $c_{2,1}$  denotes consumption of goods by the old in period 1, and  $c_1^g$  denotes consumption of gold by the old in period 1. Each old individual in period 1 is endowed with 50 units of gold.

Characterize a stationary equilibrium in which consumption of the young, consumption of the old born in period 1 or later, and the price of gold, denoted  $v_t$ , are constant over time. Specifically, find the equilibrium values of consumption of goods by the young and the old, consumption of gold, the price of gold, and holdings of gold.