

ECONOMICS 7344 – MACROECONOMIC THEORY II, Spring 2015

Homework 8. Thursday March 26th. Due Wednesday April 1st. (This material may be on Midterm 2 on the 6th.)

1. (10% of core exam January 2008) Consider an IS/LM framework. The demand for money is

$$M^d = 0.6Y - 0.2i$$

where  $Y$  is output and  $i = r + \pi$  where  $r$  is the real rate of interest and  $\pi$  is the rate of inflation. Further assume that output demand is

$$Y = C + G + I$$

where  $C = 0.8Y$  and  $I = 0.1Y - 0.1r$ .

a) Derive the IS-curve (you need to find the exact coefficients implied by the information you are given).

b) If  $G = 1$ ,  $M = 4$ , and  $\pi = 0$  find  $Y$ .

c) Derive the aggregate demand curve; i.e., a relation between  $Y$  and  $\pi$ . (Again, you need to find the exact function implied by the information given.)

2. Romer (4th edition), Problem 6.3.

3. Romer (4th edition), Problem 6.6.

4. Assume that a representative agent has a utility function

$$U(C, L) = C - \delta L^3,$$

where  $\delta$  is a positive parameter. Assume that agents of type  $i$  supplies output  $Q_i$  produced by the production technology  $Q = L$  and earns  $P_i Q_i$ . Further assume that the agents are price takers and that  $C = \frac{P_i Q_i}{P}$ . The demand function is

$$Q_i = Y \left( \frac{P_i}{P} \right)^{-2}.$$

Assume that  $P = \bar{P}_i$  and there are many types  $i = 1, \dots, N$  which all face the same environment (symmetry).

- a) Find the agent's labor supply as a function of the real "wage" ( $P_i/P$ ).
- c) Find the equilibrium level of output in the economy.
- d) Does the equilibrium level of output increase or decrease with the parameter  $\delta$ . Explain the intuitive logic behind this result.