

# Econ 222 Assignment 2

## Spring 2011

Due: June 16th

No late submissions will be accepted

No group submissions will be accepted

No "Photocopy" answers will be accepted

June 15, 2011

**Question 1:** Growth in China (15 Marks)

During the past two decades, China has grown rapidly as a result of a high saving rate. To describe this event using the growth model of chapter 6, suppose that the population growth rate is  $n = 1\%$ , the depreciation rate is  $d = 10\%$ , and  $y = k^{0.3}$ .

1. The saving rate is  $s = 20\%$ . Find the steady-state capital labour ratio,  $k^*$ , and output per capita,  $y^*$ .
2. If the saving rate rises to  $s = 50\%$ , find the new, steady-state value of  $y^*$ .
3. Suppose that the transition from part (1) to part (2) takes 8 years. What is the total growth in output per capita over that time? What is the average annual rate of growth during this period?

**Question 2:** IS-LM model (25 Marks)

Imagine a closed economy, with consumption behaviour following this pattern:

$$C = 30 + 0.5Y$$

and investment spending following this pattern:

$$I = 40 - 2i$$

The expected inflation rate is constant at  $\Pi^e = 2$ . Government spending is  $G = 20$ . The money market is described by:

$$\frac{M}{P} = Y - 10i$$

The full-employment level of output is given by

$$\bar{Y} = 160$$

The money supply is  $M^s = 110$ .

1. Find expressions for the IS curve and the LM curve.
2. Solve for the real interest rate  $r$ , for investment,  $I$ , and for the price level,  $P$ .
3. Central bank wants to change the real interest rate to  $r = 2$ . Find the change in money supply that will have this effect in the short-run.
4. What is the effect in the long-run. (Discuss the changes in nominal and real variables.)

**Question 3:** Greece and IMF recommendations (35 Marks)

Suppose that the economy of Greece can be represented by the following set of equations:

$$C^d = 400 + 0.5Y - 300r$$

$$I^d = 300 - 300r$$

$$NX = 200 - 0.2Y - 0.5e$$

$$\frac{M}{P} = Y - 100i$$

Suppose further that  $\bar{Y} = 900$ ,  $G = 150$ ,  $M = 700$ ,  $P = P_{for} = 1$ ,  $r = 0.2$  and  $\Pi^e = 0$ . The exchange rate  $e_{nom}$  is flexible and the interest rate  $r$  does not deviate from the foreign interest rate.

1. If the economy is initially operating at full employment, solve for the equilibrium values of  $e$  and  $NX$ .
2. If the IMF requires that the government reduce  $G$  by 20%, solve for the new short run equilibrium value of  $e$  and  $NX$ .
3. Suppose that the exchange rate  $e$  is **fixed** at the value found in part (1). Describe the action that must be taken by the monetary authority when  $G$  falls and solve for the short run equilibrium values of  $Y$  and  $M$ . Illustrate this short-run equilibrium using an IS-LM-FE diagram.
4. In this particular case, is the country better off with a flexible or fixed exchange rate? Explain.

**Question 4:** A speculative run on currency (25 Marks)

Suppose that the supply and demand curves for the Indonesian Rupiah are given by:

$$Q^s = 100 + 30e$$

$$Q^d = 180 - 10e$$

Suppose further that the official value for the Indonesian Rupiah is 4.

1. Foreign investors suspect that the Indonesian Rupiah is overvalued. Are they correct? Explain.
2. Anticipating a devaluation of the Indonesian Rupiah, investors increase their supply of the currency in the foreign exchange market, so that

$$Q^s = 120 + 30e$$

Find the new fundamental value for the currency and explain how this change makes a devaluation more likely.

3. Compare the amount of the central bank's reserve that is lost for the above cases.