14.02 Principles of Macroeconomics
Fall 2004

Quiz 2
Thursday, November 4, 2004
7:30 PM – 9 PM

Please, answer the following questions. Write your answers directly on the quiz. You can achieve a total of 100 points. There are 5 multiple-choice questions, followed by 2 long questions (both weighted 40/100 points). You should read all of the questions first. There is a blank page attached at the end of the quiz to be used for scratch paper.

Good Luck!

NAME: _____

MIT ID NUMBER: _____

TA: _____

CLASS TIME: _____

EMAIL: _____

(Table is for corrector use only)

	1	2	3	Total
Multiple Choice				
Question 1				
Question 2				
Total				

Multiple-Choice Questions (20/100 points)

Please, circle the correct answer for each of the following 5 multiple-choice questions. For each question, only one of the answers is correct. Each question counts 4/100 points.

1) Consider the wage-setting and price-setting equations we studied in class. Suppose the markup, μ, equals 0.25, and $F(u,z) = 1-u$. What is the natural rate of unemployment in this economy?

   A) 0.2
   B) 0
   C) 0.25
   D) 0.1
   E) 0.5

2) In the medium-run/long-run, a decrease in the budget deficit will produce:

   A) No effect
   B) An increase in investment
   C) An increase in consumption
   D) A decrease in output
   E) No effect on the price level

3) Suppose that workers in the Republic of Communia are highly unionized, while workers in the Republic of Individuela are not. In all other respects, the two countries are exactly the same. Which statement is true?

   A) Communia is likely to have a higher natural level of output than Individuela.
   B) Communia is likely to have a higher natural rate of unemployment than Individuela.
   C) Wages are probably lower in Communia than in Individuela.
   D) In the short-run, the price level is always lower in Communia than in Individuela.
   E) In the short-run, output is always higher in Communia than in Individuela.

4) Suppose the Phillips curve is given by $\pi_t = \pi_t^e + 0.1 - 3u_t$ where $\pi_t^e = \theta\pi_{t-1}$ Assume that only for the first two periods (t=1 and t=2) people form their expectations using $\theta=0$. From t=3 on, they start using $\theta=1$ forever. Assume that the government still wants to keep unemployment at 2%. What is the expected rate of inflation for t=4?

    A) 2%
    B) 4%
    C) 8%
    D) 12%
    E) 16%

5) You observe that the domestic interest rate increases from 5% to 15%, and you are in a credible fixed exchange rate system, then this implies that

    A) The level of the international interest rate increased by 5%
    B) Agents are expecting a nominal appreciation of 5%
    C) Agents are expecting a nominal depreciation of 5%
    D) Both A) and B)
    E) Both A) and C)

Long Question I (40/100 points)
Open Economy IS-LM

Assume that the economy is described by the following model:

- $C = c_0 + c_1(Y-T)$, where C is consumption; Y is income; T represents taxes; and c_0 and c_1 are positive constants
- $I = b_1Y - b_2i$, where I is investment; i is the interest rate; and b_1 and b_2 are positive constants
- $G = \overline{G}$, where $\overline{G}$ is a positive constant
- $IM = im_1Y$, where IM is imports; and im_1 is a positive constant
- $X = x_1Y^*$, where X is exports; Y^* is foreign income (exogenous); and x_1 is a positive constant
- The LM equation in this economy is $i = (1/m_2)(m_1Y - M^s)$, where M^s is money supply; and m_1 and m_2 are positive constants
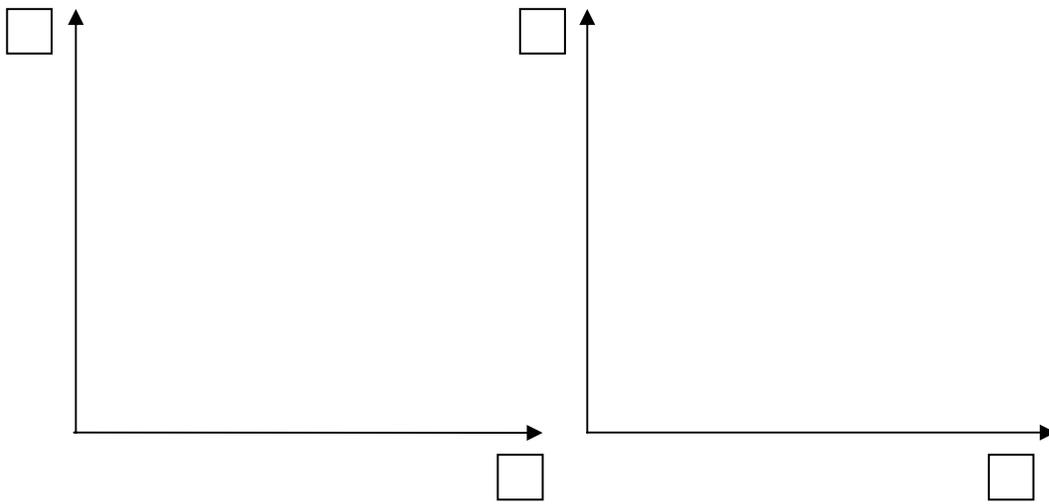- Let $P^*=P=1$

Assume that the Marshall-Lerner condition is satisfied (that is, following a depreciation of the exchange rate, the trade balance improves).

Part I. Fixed Exchange Rate.

Assume for now that the real exchange rate is fixed at one ($\varepsilon = 1$). Assume that the interest rate parity condition holds, and the interest rate in the foreign country is i*.
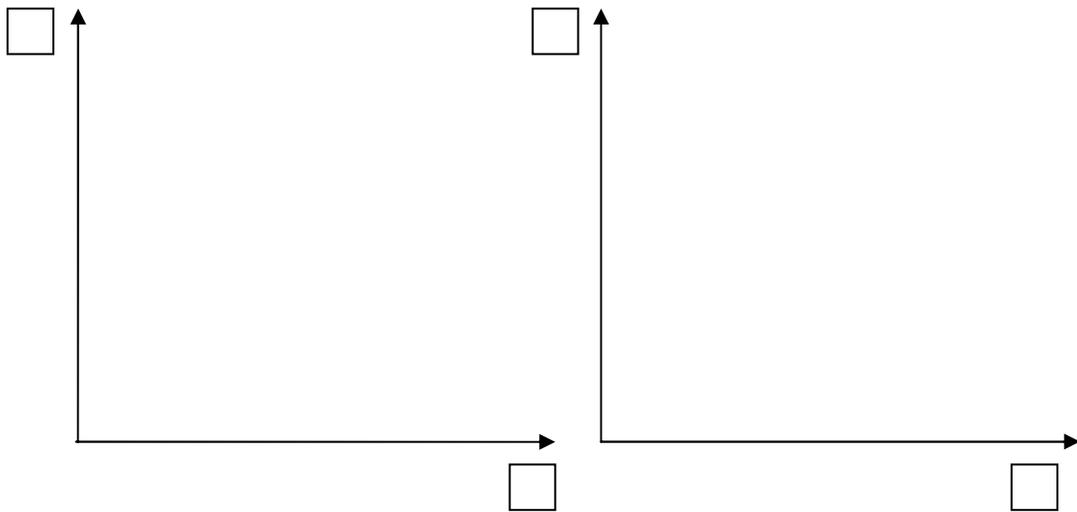
1. Find the expression for equilibrium income. (3 points)

2. Calculate the change in output (Y), net exports (NX), the domestic interest rate (i), and the real exchange rate if taxes increase by ΔT. Also, draw a diagram. (6 points)

3. Calculate the effect of a change in foreign output (Y*) on domestic output (Y), net exports (NX), the domestic interest rate (i), and the real exchange rate. (Assume that $c_1 + b_1 < 1$.) (6 points)
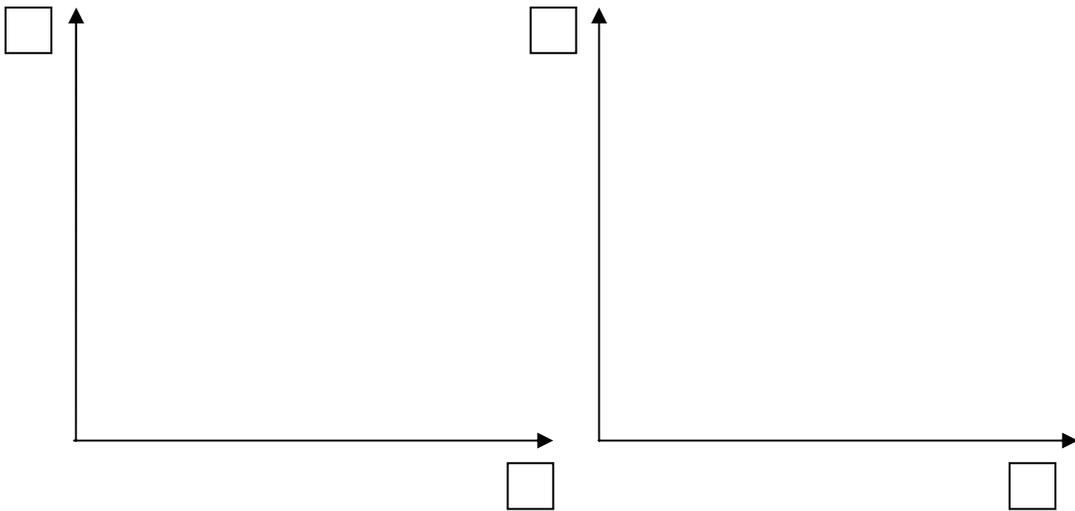
4. Suppose the Central Bank implements expansionary monetary policy. What effect will this have on output (Y), net exports (NX), the domestic interest rate (i), and the real exchange rate. Also draw a diagram. (5 points)
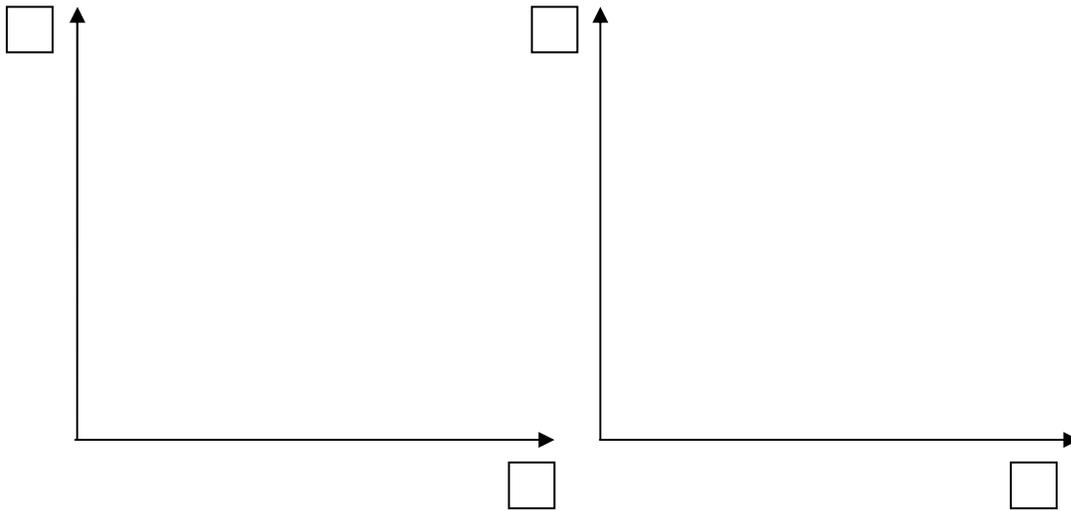
Part II. Flexible Exchange Rate.

Assume that the exchange rate is allowed to float, the interest rate parity condition holds, and that $E^e = 1$.
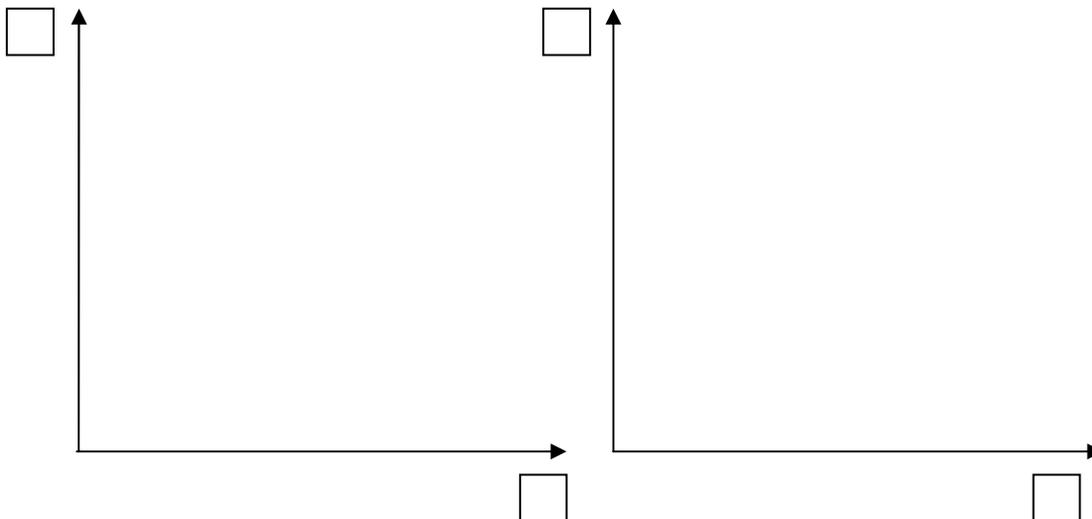
5. What is the effect on output (Y), net exports (NX), the domestic interest rate (i), and the real exchange rate if taxes increase? Use intuition and draw a diagram (no calculations required). (5 points)
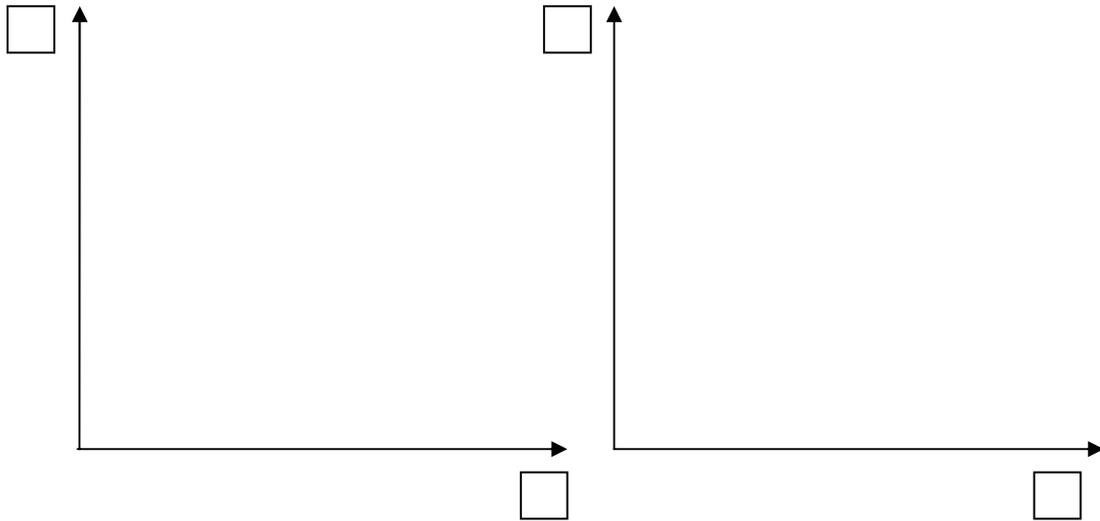
6. What is the effect of an increase in foreign output on domestic output (Y), net exports (NX), the domestic interest rate (i), and the real exchange rate? Use intuition and draw a diagram (no calculations required). (5 points)

7. What is the effect of an increase in the money supply on output (Y), net exports (NX), the domestic interest rate (i), and the real exchange rate? Use intuition and draw a diagram (no calculations required). (5 points)
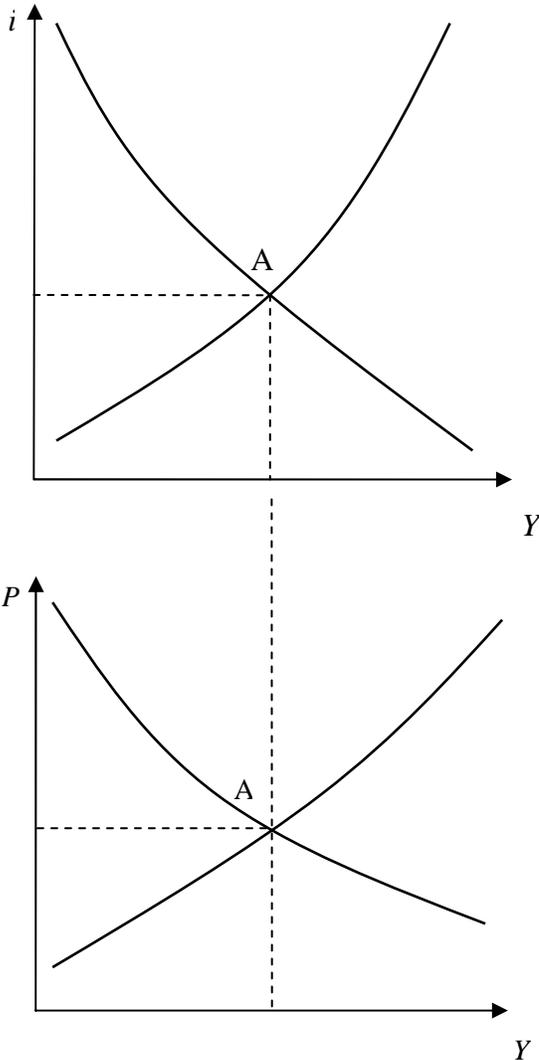
8. Suppose that investors' expectations of the future exchange rate increase (E^e increases). However, the Central Bank does not want the exchange rate to depreciate today. What effect will this have on the economy (no calculations required)? Draw a diagram.
(5 points)

Long Question II (40/100 points)
Closed Economy AS-AD

Price Setting Relation: $W = P^e \, F(u,z)$
Wage Setting Relation: $P = (1 + \mu) \, W$

Goods Market: $Y = C(Y, T) + I(Y, i) + G$
Financial Market: $M^s = M^d(Y, i) \, P$

1. Find the aggregate supply relation. Describe the channel through which the AS curve slopes up/down. (5 points)

2. Assume that the economy is at a point such that the unemployment rate is equal to the natural rate of unemployment. What does this imply about the price level and output? Explain. (5 points)

3. If the Fed carries out a monetary contraction, what happens in the short-run and the medium-run/long-run? Start from point A where $P = P^e$. (10 points)
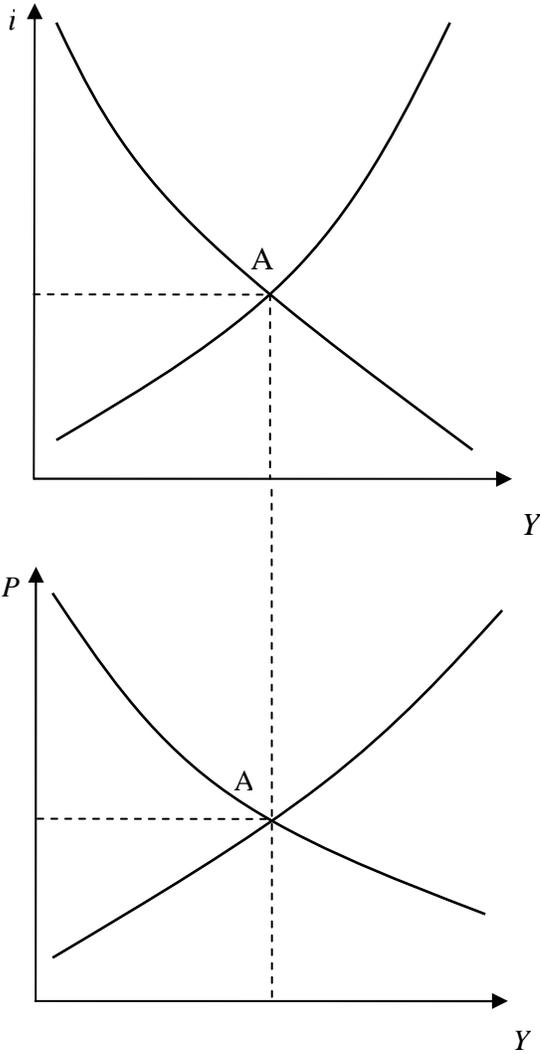
Label the following: all curves including (IS_0, IS_{SR}, IS_{MR}, LM_0, LM_{SR}, LM_{MR}, AD_{SR}, AD_{MR}, AS_{SR}, AS_{MR}), the short-run equilibrium as point B, the medium-run/long-run equilibrium as point C, and output associated with natural rate of unemployment.

4. What does neutrality of money imply about the effectiveness of contractionary monetary policy in affecting output in the short- and medium-run/long-run? Define neutrality of money. (4 points)

5. If the price of oil increases sharply, what happens in the short-run and the medium-run/long-run? Start from point A where $P = P^e$. (10 points)

   Label the following: all curves including (IS_0, IS_{SR}, IS_{MR}, LM_0, LM_{SR}, LM_{MR}, AD_{SR}, AD_{MR}, AS_{SR}, AS_{MR}), the short-run equilibrium as point B, the medium-run/long-run equilibrium as point C, and output associated with natural rate of unemployment.

6. Indicate whether these variables increase, decrease or remain the same when the price of oil rises sharply. (You may use arrows.) (6 points)

	Y	Y_n	P	i	I	P^e
short-run						
medium-run/long-run						