
14.02 Principles of Macroeconomics
Spring 05
Quiz 2
Thursday April 14, 2005

7:30 pm - 9 pm

Please answer the following questions. Write your answers directly on the quiz. There are 6 True/False questions, followed by 3 long questions. The quiz is for a total of 100 points. There is a blank page 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	4	5	6	Total
I. T/F							
II. LQ 1							
II. LQ 2							
III. LQ 3							
Total							

I. True/ False (30 points)

Answer each as TRUE or FALSE (note - there is no uncertain option), providing a few sentences of explanation for your choice. Each question counts for 5 points.

1. If the growth rate of productivity is zero, then in order to maintain unemployment at the natural rate, the growth rate of output must equal the growth rate of the labor force.

2. If the growth rate of output and the inflation rate are both zero in the medium run, a one-time monetary expansion (i.e., an increase in the level of the nominal money stock) decreases the nominal interest rate in the medium run.

3. The nominal interest rate has always been higher than the real interest in the US since 1978.

4. The higher the level of wage indexation, the steeper the Phillips curve.

5. The more forward looking consumers and firms are, the flatter the IS curve.

6. According to the basic AS-AD model, an increase in the fiscal deficit will have no impact on investment in the medium run, if the central bank keeps nominal money supply constant.

II. AS-AD in levels (30 points)

Consider an economy of the following description

Consumption demand is given by : $C = 4 + 0.3Y$ (no taxes)

Investment demand is given by : $I = 0.2Y - i$

Government spending is : $G = 0$

Money demand is given by : $M/P = Y - i$

Money supply is constant : $M/P = 2$

Wage setting is described by : $W/P^e = 1 - u$

The production function is $Y = N$, and the markup is 25%

The labor force is 10, and in the above description i is stated in %

- (i) Assume that $P^e = P$. Write down equations for the equilibrium in each of the three markets. (5 points)

(ii) Write down the equation for the AS curve. (5 points)

(iii) Write down the equation for the AD curve if the stock of nominal money is 1 unit. (5 points)

(iv) Solve for the short-run equilibrium values for Y , P , and i if $P^e = 1$. (5 points)

(v) Solve for the medium-run equilibrium values for Y , P , and i . (5 points)

(vi) Explain in words how the economy goes from the short-run equilibrium to the medium-run equilibrium. Can a monetary expansion help the adjustment? If so, how? (5 points)

III. Long question - Stock prices rise? (15 points)

Excerpted from a popular financial news website from Friday, April 1, 2005 : "Stocks rose in the first half hour of trading after the release of a weaker-than-forecast March jobs report. While that would seem negative, stock investors worried about possible more aggressive rate hikes from the Federal Reserve took comfort in the numbers, which pointed to moderate economic growth and little upward pressure on wages."

Question : A weaker-than-forecast jobs report implies that employment (and therefore output) is lower than expected. This would ordinarily be bad news ("While that would seem negative...."), yet stocks rose. Explain (note that the answer is in the quote itself, but you must explain what is going on instead of merely reproducing the quote).

IV. Long question - Investment Decision (25 points)

Imagine that you are a medical doctor and want to open your own clinic in year $t + 1$. In order to do so, you need to rent a piece of medical equipment.

The nominal annual rental payment is $\$Z_t$. You *expect* it to increase at rate g (*not* in percentage) per year. For example, $\$Z_{t+2} = \$Z_{t+1} (1 + g)$.

The nominal interest rate this period (from t to $t + 1$) is i_t (again, *not* in percentage). You have no idea whether the nominal interest rate will be higher or not in year $t + 1$. To play safe you form expectations such that $i_{t+1}^e = i_{t+2}^e = \dots = i_{t+N}^e = i_t$.

Suppose that you decide to rent the equipment for m years. The rental contract stipulates that, if for any reason, the equipment does not work, another will be rented to you.

(i) Derive the expected present value of rentals on the equipment for the next m years. (10 points)

(ii) Suppose that you are instead offered the opportunity to buy the equipment today, at price P_t . You expect not to be able to resell it, so $P_{t+m}^e = 0$.

Should you buy or rent? Derive the condition under which you buy, and explain it in words. (10 points)

(iii) Suppose the interest rate (current, and expected) increases. How does this affect your decision? (5 points)

Scratch Paper