

14.02. – Fall 2001 – QUIZ 1

STOP! READ INSTRUCTIONS FIRST:

- Read all questions carefully and completely before beginning the exam.
- Label all of your graphs, including axes, clearly; if we can't read the graph, you will lose points on your answer.
- Show your work on all questions in order to receive partial credit.
- The quiz is worth a total of 100 points.
- Please use two blue books, one for questions 1 and 2, and one for 3 and 4. Write your name, TA name, and section or recitation time on each book.
- Also, return your copy of the quiz to the TA's when you complete the test.
- No notes, calculators, or books may be used during the quiz.
- You will have 2 hours to complete the quiz. Good luck!

QUESTION 1: TRUE, FALSE OR UNCERTAIN? 20 points

Explain your answer completely but briefly.

1. James Bond is about to retire and is thinking of selling his Aston Martin DB4 (his car). He spends £1,000 in repairing and tuning the engine, and finally agrees to sell it to Miss Money Penny for £10,000. As a result, GDP increases by £11,000. (5 points)
2. The introduction of ATM machines has made it easier to withdraw cash from checking accounts. As a result, the Central Bank now has to buy more bonds in the market every time it wants to increase the stock of money in the economy by a certain amount. (5 points)
3. The Central Bank can decrease the interest rate by either buying bonds or by decreasing the reserve ratio requirement. (5 points)
4. Given that investors' confidence has been decreasing in the US economy during the first half of 2001 (which implies that they are willing to invest less no matter what their income is), the Federal Reserve is more likely to pursue an expansionary monetary policy. (5 points)

QUESTION 2: IS-LM MODEL. 40 Points

Consider an economy described by the following equations:

$$C = c_0 + c_1 Y_d, Y_d = Y - T$$

$$I = d_0 + d_1 Y - d_2 i$$

$$G = \bar{G}, T = \bar{T}, 0 < c_1 < 1, 0 < d_1 < 1$$

$$M^d = e\$Y - fi, M^s = H$$

where $\$Y$ defines nominal income. Also assume there are no commercial banks in the economy.

1. Explain the economic intuition behind the two behavioral equations of the goods market (4 points).
2. Derive the equilibrium output in the goods market as a function of the interest rate (4 points).
3. Identify the multiplier and the expression for autonomous spending. Assume that autonomous spending is positive, do you have to assume any further restrictions on the parameters? Why? (4 points).
4. Explain the economic intuition behind the behavioral equation in the money market.(4 points)
5. Derive the equilibrium interest rate in the money market as a function of output. (4 points)
6. Draw a graph in the (i, y) space of the equilibrium in the two markets. Describe the equilibrium in this economy. (10 points)
7. How does a government implement an expansionary fiscal policy? Show the effects on the previous graph. (5 points)
8. How does the central bank implement an expansionary monetary policy? Show the effects on the graph from part 6. (5 points)

STOP! Please use a new blue book for Questions 3 and 4.

QUESTION 3: GOODS MARKETS. 20 Points

Consider the following equations describing the components of demand and equilibrium in the goods market:

$$\begin{aligned}Y_{t+1} &= Z_t \\Z_t &= C_t + I_t + G_t \\C_t &= c_0 + c_1(Y_t - T_t)\end{aligned}$$

At time $t=0$, government expenditure equals 100 units and taxes amount to 80. Investment equals 60 and marginal propensity to consume is 0.5. Finally, people will consume a minimum of 40, no matter what their income is.

1. Solve for the equilibrium level of output in this economy. (5 points)
2. Assume that at time t producers accommodate aggregate demand from the previous period ($t-1$). Assume taxes are permanently cut by one unit at time $t=1$. How does this affect aggregate demand at time $t=1$? How does this affect production at $t=1$? How do aggregate demand and production change in $t=2$? And in $t=3$? Write the overall change in output that results from the initial decrease in taxes after many periods. What does this converge to, and how does it relate to the multiplier? (10 points)
3. How would your answer to 3.2 change, qualitatively, if we assumed that investment is not exogenously given but depends on output? Explain using your own words, without making any further calculations. (5 points)

QUESTION 4: FINANCIAL MARKETS. 20 Points

$$\begin{aligned}M^d &= \text{\$}YL(i) \\M^s &= \overline{M} = H\end{aligned}$$

1. Assume consumer confidence goes up, what happens to the equilibrium in the money market? Plot a graph illustrating this. (5 points)
2. Suppose the central bank wants to keep the interest rate stable (for example to stabilize investment). What should it do? Show this on the graph. How can the central bank achieve the previous policy? (5 points)
3. Suppose money pays an interest rate: i_m , $i_m < i$. Now the demand for money is $M^d = \text{\$}YL(i, i_m)$. If i_m goes up, what happens to M^d ? What is the new equilibrium? (10 points)