
14.02 Principles of Macroeconomics

Spring 03

Quiz 2

Thursday, April 10, 2003
7.30 pm – 9 pm

Please answer the following questions. Write your answers directly on the exam. You can achieve a total of 100 points. There are 10 multiple-choice questions, followed by 2 long questions.

Good luck!

NAME: _____

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Multiple Choice Questions (30/100):

Please circle the correct answer for each of the multiple-choice questions. In each question, only one of the answers is correct. Each question counts 3 points.

1. The natural rate of unemployment depends on all of the following **except**:
 - a) The level of unemployment insurance
 - b) The mark-up
 - c) The bargaining power of workers with firms
 - d) Money supply

2. In the AS-AD model, a deficit reduction without monetary accommodation leads to all of the following **except**:
 - a) A change in the composition of output
 - b) A reduction in the natural rate of unemployment
 - c) A reduction in the price level in the short run
 - d) A reduction in the price level in the medium run

3. In the AS-AD model, a supply shock such as an increase in the price of oil leads to all of the following **except**:
 - a) A decrease of output in the short run
 - b) An adjustment of expectations to a lower level of prices in the medium run
 - c) An increase of the interest rate in the short run
 - d) An increase of the interest rate in the medium run

4. The aggregate supply equation is a relation that comes out of the price-setting behavior of firms and
 - a) the wage-setting outcome of firms and workers
 - b) the Phillips curve
 - c) Okun's law
 - d) the supply of products to the foreign markets

5. Fiscal policy has no effect on the level of output in the medium run **unless**
 - a) it affects aggregate demand
 - b) it changes the price-expectations of the agents in the economy
 - c) it changes the way firms and workers bargain over the wage
 - d) it changes government spending together with taxes

6. The "original" Phillips curve is a relation that captures a trade-off between
 - a) inflation and unemployment
 - b) accelerating inflation and unemployment
 - c) inflation and price levels
 - d) output and accelerating unemployment
 - e) output and price levels

7. The “original” Phillips curve can be obtained from
- the aggregate supply equation and inflation expectations set to zero
 - the aggregate demand equation and inflation expectations set equal to previous period inflation
 - the aggregate supply equation and inflation expectations set equal to previous period inflation
 - the aggregate demand equation and inflation expectations set to zero
8. The modified Phillips curve tell us that the **only way** to reduce inflation is through
- unemployment rates higher than the natural rate
 - expansionary fiscal policy
 - unemployment rates lower than the natural rate
 - contractionary fiscal policy
9. Stock prices increase if:
- Money supply increases, and this increase was anticipated a long time ago
 - The nominal interest rate increases unexpectedly
 - It becomes known that profits two years from now will be higher than expected
 - The economy enters a recession
10. Holding money supply fixed, the impact of an unexpected increase in government spending on the stock market is
- An increase in stock prices, as output increases unexpectedly in the short run
 - A drop in stock prices, as interest rates increase unexpectedly in the short run
 - Ambiguous, as both the interest rate and output increases unexpectedly in the short run
 - No effect, as output is unaffected in the medium run

Long Question I (40/100):

A new source of energy has been discovered in Macronesia. This new technology will reduce the costs of production of macronesian firms, and as a consequence will reduce the mark-up of price over wage charged by firms. (The change in the mark-up is the only way in which the new technology affects the economy.)

As the finance minister of Macronesia, you would like to analyze the impact of this shock on the economy.

Answer the following questions a) – h), which count 5 points each.

a) In the AS-AD set up, the reduction in production costs shifts which curve, the AS or the AD? How? Explain in words.

b) What happens in the short-run? Show in a graph and describe the effect on the price and the level of output.

c) What happens in the medium run?

d) Describe the adjustment from the initial equilibrium towards the medium-run.
Show in the graph.

- e) Compare the composition of spending (consumption, investment, and government spending) in the medium run with the initial pre-shock situation.

Suppose now that after the initial discovery, you as finance minister would like to accelerate the transition to the medium run by using fiscal or monetary policies.

- f) What kind of policies would you recommend? Can you stabilize the economy to its new medium run equilibrium level of output and keep prices constant at the initial level? Show in a graph.

g) Suppose that you achieved the objective in part (f) by changing government spending. What can you say about the new composition of spending (consumption, investment and government spending)?

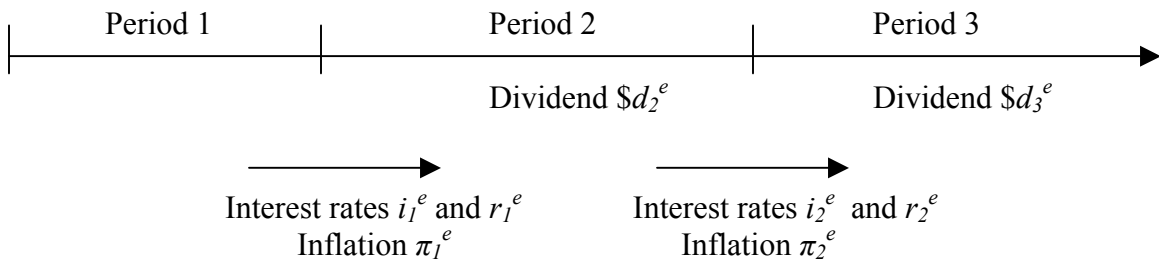
h) Compare the composition of spending (Y,C,I,G) and the interest rate in parts (c) and (g).

Long Question 2 (30/100):

This question is about the determination of stock prices. Imagine that we live in a world with only 3 periods, $t=1$, $t=2$, and $t=3$. Use the following notation:

- The expected nominal interest rate between period t and $t+1$ is denoted i_t^e
- The expected real interest rate between period t and $t+1$ is denoted r_t^e
- Expected inflation between period t and $t+1$ is denoted π_t^e
- The expected nominal dividend in period t is denoted $\$d_t^e$

The timing is the following:



Assume that the stock price equals the expected present discounted value of dividends.

Answer the following questions, which count 5 points each:

- a) What is the relationship between $1+i_t^e$, $1+r_t^e$, and $1+\pi_t^e$?

- b) Write down the nominal expected present value (in period 1) of a stock that pays an expected dividend of \$1 in each period 2 and 3; and denote it $\$Q$. (Hint: $\$Q$ is a function of $\$d_2^e$, $\$d_3^e$, i_1^e , i_2^e)

- c) Using your answers from parts a) and b), what is the impact on the dollar value Q of an increase in expected inflation from period 1 to 2, assuming that the real interest rate does not change and that the nominal value of expected dividends do not change? Explain in words.
- d) Assume that the real interest rate is fixed, and that the dividend in period 2 and 3 are fixed in **real** terms. What is the impact on the **real** value of the discounted stream of dividends of an increase in expected inflation from period 1 to 2?

e) Assume that there is an unexpected increase in money supply in period 1. What is the short run impact of this policy on i_1^e , r_1^e and π_1^e ?

f) Finally, the central bank president wants to change the stock price. Using your answer from part e), and assuming that d_2^e is an increasing function of output and expected inflation, what is the impact of the unexpected increase in money supply on the present discounted value of dividends?