

# Mock Midterm Exam 2, Fall 2000

## Short Answers:

1. Before the 1980s the velocity of money increased every year. Can you think of some changes in the economic environment that might have generated this increase?
2. What are the most important leading indicators?
3. What is the *expected rate of inflation*?
4. What are the different kinds of *interest rates* found in an economy? Which interest rate(s) does the Federal Reserve directly control? Which interest rates are most important as determinants of aggregate demand?
5. What are "static expectations of inflation"? How are they different from "adaptive expectations of inflation"?
6. Suppose that the *tax rate* is 25%, that the *marginal propensity to consume* is  $\frac{2}{3}$ , and there are no imports in the economy. What is the value of the *multiplier*?

## Problems:

1. Suppose that the consumption and investment functions for an economy is (with all variables in billions of dollars):

$$C = \$1000 + .75 \times Y$$

$$I = \$1500 - 10000 \times r \text{ (so that an interest rate of } 1\% = .01 \text{ means an investment level of } \$1400)$$

$$G = \$500$$

Suppose further that this economy is *closed*, so that:

$$NX = \$0$$

and are unaffected by the exchange rate.

And suppose, last, that prices are completely flexible, expectations are consistent, the level of potential output given by the production function is:

$$Y^* = \$8000$$

What is the equilibrium level of the real interest rate  $r$ ? What is the equilibrium level of consumption spending? What is the equilibrium level of investment?

Suppose that government purchases were to fall to 0. What would be the new equilibrium level of the real interest rate  $r$ ? What would be the new equilibrium level of consumption spending? What would be the new equilibrium level of investment?

2. Suppose that you have an economy in which total real GDP is \$4 trillion, the nominal money stock is \$500 billion, and the velocity of money is 10.

What is nominal GDP?

What is the price level?

Suppose that the rate of increase of the money stock is 5% per year, and the rate of increase of the velocity of money is 2% per year. What is the rate of growth of nominal GDP?

Suppose further that the rate of growth of real GDP is 3% per year. What is the rate of inflation?

Suppose that the "Fisher effect" holds, and that the equilibrium real interest rate is 4% per year. What is the nominal interest rate likely to be?

3. A full-employment flexible-price economy with no foreign trade has:

$$G = 1200$$

$$C = 3600 + 0.10 \times Y$$

$$I = 1200 - 6000 \times r$$

$$Y^* = Y = 6000$$

What is the equilibrium real interest rate  $r$ ? What is the equilibrium level of investment  $I$ ? What is the equilibrium level of consumption spending  $C$ ?

Suppose that the government were to boost government purchases  $G$  to 1440. What then would be the equilibrium levels of real interest rates, investment, and consumption?

Suppose that a sudden boom in productivity were then to raise potential output  $Y^*$  from 6000 to 6300. What would then be the equilibrium levels of real interest rates, investment, and consumption?

4. Suppose that the economy can be modelled as:

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|--|--------------------|
| (a) $u_t - u_{t-1} = -.4(gy_t - .03)$  | (Okun's Law)       |
| (b) $\pi_t - \pi_{t-1} = -(u_t - .06)$ | (Phillips' Curve)  |
| (c) $gy_t = gm_t - \pi_t$              | (Aggregate Demand) |

Where “ $u$ ” is the unemployment rate, “ $\pi$ ” is the inflation rate, “ $gy$ ” is the annual growth rate of real output, and “ $gm$ ” is the annual growth rate of the money stock.

- (i) What is the natural rate of unemployment in this economy?
- (ii) Suppose that inflation is ten percent per year, and the economy is operating at the natural rate of unemployment. What must the growth rate of output be to keep the economy at the natural rate of unemployment? What must the growth of the money stock be to keep the economy at the natural rate of unemployment?
- (iii) Suppose the central bank reduces the money growth rate to 8% per year in year  $t$ , and keeps it at 5% per year thereafter. What will happen to unemployment and output growth in years  $t$ ,  $t+1$ , and  $t+2$ ?