Problem Set #6 ANSWERS

Due Tuesday, May 6, 2008

Problem Sets MUST be word-processed except for graphs and equations.

When drawing diagrams, the following rules apply:

1. Completely, clearly and accurately label all axes, lines, curves, and equilibrium points.

2. The original diagram and any equilibrium points MUST be drawn in black or pencil.

3. The first change in any variable, curve, or line and any new equilibrium points MUST be drawn in red.

4. The second change in any variable, curve, or line and any new equilibrium points MUST be drawn in blue.

5. The third change in any variable, curve, or line and any new equilibrium points MUST be drawn in green.
QUESTIONS

A. Multiple Choice Questions. Circle the letter corresponding to the best answer. (1 point each.)

1. Assume that the currency holding ratio is 0.15, the required reserve ratio is 0.1, and the excess reserve ratio is 0.05. The Federal Reserve carries out open market operations, purchasing $1 billion worth of bonds from commercial banks. This action will increase the money supply by:
   a. $1 billion.
   b. $2 billion.
   c. $3 billion.
   d. $4 billion.

2. Suppose there is a banking crisis. The money supply would shrink by the greatest amount if the public _______ their currency holding ratio and the commercial banks _______ their excess reserve ratio.
   a. Decreased; decreased.
   b. Decreased; increased.
   c. Increased; decreased.
   d. Increased; increased.

3. In the Keynesian model, suppose the Federal Reserve sets a target for the money supply. If the IS curve shifts to the left, and the Fed wants to keep output unchanged, then the Fed should:
   a. Reduce taxes.
   b. Reduce the money supply.
   c. Increase taxes.
   d. Increase the money supply.

4. Which of the following statements would a monetarist DISAGREE with?
   a. Monetary policy has few short-run effects on the real economy.
   b. In the long run, changes in the money supply primarily affect the price level.
   c. In practice, there is little scope for using monetary policy actively to smooth out business cycles.
   d. The Federal Reserve cannot be relied on to effectively smooth out business cycles.

5. According to the Taylor rule, if inflation in the past year was 6% and output was 2% below its full-employment level, the nominal federal funds rate should be:
   a. 3%.
   b. 5%.
   c. 7%.
   d. 9%.
6. There is _______ relationship between inflation and central bank independence and _______ relationship between long-run rates of unemployment and central bank independence.

   a. A negative; no.
   b. A negative; a negative.
   c. A positive; no.
   d. A positive; a negative.

7. The primary current deficit is:


8. Because of automatic stabilizers, in recessions the government budget balance _______ while in expansions the balance _______.

   a. Falls; rises.
   b. Falls; falls.
   c. Rises; falls.
   d. Rises; rises.

9. Increases in the debt-to-GDP ratio are primarily caused by:

   a. A higher growth rate of GDP.
   b. A high government deficit relative to GDP.
   c. Increases in government borrowing through bonds.
   d. Increases in interest rates.

10. Suppose that the unemployment rate is below the natural rate of unemployment. Then we know that for sure that:

    a. The actual budget balance is below the structural budget balance.
    b. The actual budget balance is above the structural budget balance.
    c. The actual budget is in surplus.
    d. The cyclical budget is in deficit.
B. Answer BOTH of the following questions. In both questions, assume a Keynesian short-term situation. (10 points each.)

1. IS – LM Model with Monetary Policy. Suppose that the economy is initially above its full-employment output level.

   The government then uses fiscal policy to move the economy to its potential output level. Once the economy reaches potential output, consumer and business confidence suddenly collapses.

   Use 3 separate IS-LM diagrams to accurately and clearly show and briefly explain what happens to economic output and the real interest rate when these events happen and the Fed’s response to them is to:
a. Keep the money supply unchanged at its initial level.

Because the economy starts above its full-employment output level at Y0, the government needs to use a contractionary fiscal policy, i.e., lower G and/or higher t, in order to move the economy back to full-employment output. This shifts the IS curve to the left to IS1 and decreases economic output. Because of the decrease in economic output/income, the demand for money falls. With a fixed supply of money, interest rates decline to R1, which stimulates some interest-sensitive spending, and limits the decrease in equilibrium income to Y1, which equals Y*.

Once full-employment output is reached both consumer and business confidence collapse. This decreases autonomous consumption and investment and shifts the IS curve to the left to IS2 and decreases economic output. Because of the decrease in economic output/income, the demand for money falls. With a fixed supply of money, interest rates decline to R2, which stimulates some interest-sensitive spending, and limits the decrease in equilibrium income to Y2.

Net Result: Lower income, lower interest rates.
b. Keep the real interest rate unchanged at its initial level.

Same as in part a except that now the Federal Reserve reduces the money supply in order to keep interest rates unchanged at R0. This shifts the LM curve to the left to LM3. With the supply of money now less than the demand for money, interest rates rise back to R3 = R0. Higher interest rates restrain some interest-sensitive spending and decreases economic output further to Y3.

Net Result: Even lower income and much higher interest rates than in scenario #1.
c. Keep economic output unchanged at its initial level.

Same as in part a except that now the Federal Reserve increases the money supply in order to keep economic output at its initial level. This shifts the LM curve to the right to LM3. With the supply of money now greater than the demand for money, interest rates fall even further to R3. Lower interest rates stimulate some interest-sensitive spending by exactly enough to fully offset the decline in economic output caused by the contractionary fiscal policy and the decrease in consumer and business confidence. Economic output rise back to Y3 = Y0.

Net Result: Income is much higher but interest rates are much lower (than in either scenario #1 or #2).

Be sure to compare and contrast the outcomes of each of these 3 scenarios.
2. **IS – LM Model with Budget Balance Line.** The theory of “expansionary fiscal contraction” claims that when the government reduces the budget deficit, consumer confidence improves by more than enough to offset the negative effects on economic output of the budget reduction.

Assume that this theory is correct, that the country is in a deep recession and the actual budget is in substantial deficit.

a. Based only on this information, use an IS – LM model diagram with a Budget Balance line to accurately and clearly show:

1. The economy’s initial short-term equilibrium situation (in black).

2. What happens in the short-term to economic output, the real interest rate, the actual budget balance, and the structural budget balance if taxes are increased (in red).
b. Provide a brief economic explanation for the changes you showed in your diagram above. Be sure to describe the adjustment process that the economy undergoes with respect to economic output, the real interest rate, the actual budget balance, and the structural budget balance.

[I have drawn my diagram with an initial structural budget surplus. However, there is no information regarding whether the structural budget is in surplus or deficit so either is possible.]

An increase in the tax rate will shift the IS curve to the left from IS0 to IS1. Higher taxes reduce disposable income which causes consumer spending to decline and lead to a decrease in economic output from Y0 to Y1. Because economic output/income declined, the demand for money decreased. Because the supply of money is fixed, interest rates must decline from R0 to R1 in order to re-establish equilibrium in the money market.

In addition, the Balance Budget line rotates higher from BB0 to BB1. The combination of a higher tax rate and lower economic output/income increases the actual budget balance from ABB0 to ABB1 while the structural budget balance also improves from SBB0 to SBB1.

Assuming that the “expansionary fiscal contraction” theory is correct, the reduction in the actual budget balance increases consumer confidence. An increase in consumer confidence will increase desired consumption and shift the IS curve to the right and increase economic output from Y1 to Y2. Because economic output/income has increased, the demand for money has also increased. Because the supply of money is fixed, interest rates must rise from R1 to R2 in order to re-establish equilibrium in the money market. This increase in interest rates will crowd out some interest-sensitive spending.

In addition, the increase in equilibrium income will increase tax revenues at the new higher tax rate. This will increase the actual budget balance from ABB1 to ABB2 but the structural budget balance will not change from SBB1.