Economic 100B
Macroeconomic Analysis
Professor Steven Wood
Fall 2006

Exam #3 ANSWERS

Please sign the following oath:

The answers on this test are entirely my own work. I neither gave nor received any aid while taking this test. I will not discuss the questions on this test until after 3:30 p.m. on December 19, 2006.

________________________________________
Signature

Any test turned in without a signature indicating that you have taken this oath will be assigned a grade of zero.

Graph Instructions

When drawing diagrams, the following rules apply:

a.  Completely, clearly and accurately label all axis, lines, curves, and equilibrium points.

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

c.  The first shift of any line(s) and the new equilibrium points MUST be drawn in red.

d.  The second shift of any line(s) and new equilibrium points MUST be drawn in blue

e.  The third shift of any line(s) and new equilibrium points MUST be drawn in green.

Do NOT open this test until instructed to do so.

Good Luck!
A. **Multiple Choice Questions.** Mark the letter corresponding to the best answer in the corresponding space at the bottom of the page. (3 points each; total of 30 points.)

1. Suppose the balance of payments is 20 and the current account is 10. Then, all of the following are true **EXCEPT:**
   a. The central bank has accumulated foreign reserves of 20.
   b. The capital account is 10.
   c. Foreign residents have invested 10 in the country.
   d. **The exchange rate is flexible.**
   e. We do not know whether sterilization has occurred.

2. Suppose that the central bank adopts an *inflation target*, i.e., commits to keeping inflation at a fixed rate and doing whatever is necessary to prevent deviations from it. If inflation suddenly falls below the central bank’s target value, and exchange rates are flexible, then the best stabilization policy (and explanation) is:
   a. Expansionary fiscal policy since net exports will increase too.
   b. **Expansionary monetary policy since net exports will increase too.**
   c. Contractionary fiscal policy since net exports will fall too.
   d. Contractionary monetary policy since net exports will fall too.
   e. None of the above.

3. With fixed exchange rates, all of the following are true **EXCEPT:**
   a. The money supply is an endogenous variable.
   b. The central bank cannot use interest rates to stabilize the economy.
   c. **The central bank will accumulate reserves when the currency wants to weaken.**
   d. The central bank will accumulate reserves when the currency wants to strengthen.
   e. The central bank can always cause the currency to weaken.

4. Suppose that interest rates abroad rise, prompting investors to take advantage of those higher returns. Then, after the adjustment process in the IS-LM-BP analysis with flexible exchange rates and partial capital movbility is complete, all of the following are true **EXCEPT:**
   a. The BP line has shifted to the left.
   b. Net exports are now higher.
   c. The currency is now weaker.
   d. The interest rate is higher.
   e. **Output is lower.**

5. All of the following statements regarding the Mundell Fleming model are true **EXCEPT:**
   a. **The US economy is well described by this model.**
   b. The BP line is horizontal since the equilibrium interest rate is exogenous.
   c. The equilibrium interest rate is not determined in the domestic economy.
   d. Monetary policy is ineffective under fixed exchange rates.
   e. With flexible exchange rates fiscal policy is less effective than in a closed economy model.

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6. Suppose that a rise in inflation induces uncertainty and, consequently, always causes a rise in precautionary savings. Now, if unemployment is at the NAIRU and tax rates are lowered, then in the new equilibrium:
   a. Inflation is higher than in the standard analysis.
   b. **Inflation is lower than in the standard analysis.**
   c. a. or b.
   d. Output is now lower than in the standard analysis.
   e. The interest rate is higher than in the standard analysis.

7. In the 1990s Japan experienced deflation, i.e., falling prices. In the DAD-SAS model, to have an equilibrium with deflation:
   a. The SAS curve would have to move upwards faster than usual.
   b. The DAD curve would have to shift less than usual.
   c. **The DAD and SAS curve would have to intersect below the Y-axis (i.e., the income axis).**
   d. Potential output would be falling.
   e. The NAIRU would be falling.

8. Suppose that the central bank adopts an inflation target, i.e., commits to keeping inflation at a fixed rate and doing whatever is necessary to prevent deviations from it. If inflation is currently at its target value and productivity increases, the central bank should:
   a. Increase the money supply.
   b. Reduce the money supply.
   c. Shift the DAD curve inwards.
   d. Shift the SAS curve upwards.
   e. b. or c.

9. In the standard DAD-SAS model, inflation occurs with a lag. However, if changes in output affect also inflation in the *current* period, then we would represent this as:
   a. A steeper DAD curve.
   b. A flatter DAD curve.
   c. **An upward sloping SAS curve.**
   d. A downward sloping SAS curve.
   e. None of the above.

10. Suppose an economy is at the NAIRU. Then, a contraction in the money supply combined with a permanent increase in the government’s budget balance would have all of the following effects EXCEPT:
    a. It will lead to a permanently lower inflation rate.
    b. It will lead to a lower interest rate in the long run.
    c. It will lead to more investment in the long run.
    d. It will lead to a higher level of potential output in the long run.
    e. **Unemployment will fall below the NAIRU in the short-run.**
B. **IS-LM-BP & DAD-SAS Model Problems.** Answer **BOTH** of the following questions in the space below.

1. In 1996, Thailand was a small open economy with a fixed exchange rate and a high degree of capital mobility. Thailand had a large current account deficit and a small capital account surplus. The Bank of Thailand (Thailand’s central bank) sterilized all of its foreign exchange interventions. The economy was at potential output. (35 points.)

   a. Based only on this information, use an IS-LM-BP Model diagram to accurately and clearly show Thailand’s economic situation in 1996.
b. Describe what the Thai central bank had to do in the foreign exchange markets in order to maintain a fixed exchange rate. Explain how long the central bank could maintain this policy.

Thailand has a balance of payments deficit. The balance of payments is the sum of the current account and the capital account. The current account is a large deficit while the capital account is a small surplus. Consequently, the demand for Thai baht (the currency) is less than the supply of Thai baht and the currency wants to depreciate.

In order to fix the exchange rate, the Bank of Thailand will have to buy up the excess supply of Thai baht (its domestic currency) and sell some of its foreign exchange reserves. This will reduce the domestic money supply.

The Bank of Thailand can do this as long as it has foreign exchange reserves to sell. However, once there foreign exchange reserves are gone, Thailand will have to change its foreign exchange policy.

c. Describe what the Thai central bank had to do to sterilize this foreign exchange intervention. Also explain why the central bank would want to sterilize their foreign exchange interventions.

In order to sterilize this foreign exchange market intervention, the Bank of Thailand would have to simultaneously engage in a domestic open market purchase of government securities. This will increase the domestic money supply. This open market operation needs to be of the same order of magnitude as its foreign exchange intervention.

Thailand would want to sterilize its foreign exchange intervention because it would not want that intervention to affect the domestic money supply (thereby keeping the LM curve steady) and economic output. By keeping economic output steady at its potential level, this sterilization would also keep inflation constant.
d. In 1997, the Thai central bank decided to let the currency float freely, i.e., to become flexible. Based only on this information and the information given above, accurately and clearly show on your IS-LM-BP diagram above what happens to equilibrium income and interest rates in Thailand.

e. Provide an economic explanation of what happens to Thailand’s equilibrium income, interest rates, and balance of payments as a result of this decision to let the currency float.

Once the Thai central bank stops intervening in the foreign exchange market, the Thai baht (currency) will depreciate, perhaps substantially. This depreciation will have two effects.

First, it will shift the BP curve to the right from BP0 to BP1 because a lower exchange rate will increase net exports.

Second, it will shift the IS curve to the right from IS0 to IS1 because a lower exchange rate will increase net exports.

If the currency depreciation is to the market clearing exchange rate, it will produce joint equilibrium in the economy. Equilibrium income will rise from Y0 to Y1, interest rates will increase from R0 to R1, and the balance of payments will increase from a deficit to balance.

With the balance of payments now in equilibrium there is no further pressure for the currency to depreciate.
2. Edmund Phelps, the 2006 winner of the Nobel Prize in Economics, has a hypothesis that a substantial increase in wealth and income inequality will lead to less work effort by the most productive members of a society. Suppose that the economy is at its potential, that any long run effects on potential output are initially greater than any short-run effects on inflation, and that the central bank offsets any aggregate demand fluctuations with a one year lag. Now assume that Phelps’ hypothesis is correct and there is a sudden and permanent increase in equity prices. (35 points.)

a. Based only on this information, use a DAD-SAS Model diagram to accurately and clearly show the effects on equilibrium output and the rate of inflation of the events described above and what happens during the first 2 years of the adjustment process. Also be sure to clearly identify where the economy and inflation settle when the adjustment process is complete.
b. Provide a brief economic explanation for what happened to economic output and inflation because of the events described above and during the first 2 years of the adjustment process. Also be sure to discuss where economic output and inflation finally settle at the end of the adjustment process.

In Year 1, there is a sudden and permanent increase in equity prices that increases wealth and income inequality. Greater wealth will increase consumer spending and the demand for money but the effect on consumer spending will be much larger. This will shift the DAD curve to the right from DAD0 to DAD1.

Assuming that the Phelps hypothesis is correct, the increase in wealth and income inequality would decrease potential output, shifting the Yn line to the left from Yn0 to Yn1 and shifting the SAS curve upward from SAS0 to SAS1.

This combination of DAD and SAS shifts increases equilibrium output from Y0 to Y1 and increases inflation from $\pi_0$ to $\pi_1$. Y1 > Yn1.

In Year 2, because the output gap in year 1 is positive, that is Y1 > Yn1, the SAS curve will shift upward from SAS1 to SAS2 and inflation will rise from $\pi_1$ to $\pi_2$.

Higher inflation reduces the real money supply, which increases interest rates and reduces interest-sensitive spending and equilibrium output from Y1 to Y2a.

In addition, the central bank offsets the increase in aggregate demand that occurred in year 1 because it (the central bank) reacts with a one year lag. This shifts the DAD curve to the left from DAD1 to DAD2 = DAD0.

This combination of DAD and SAS shifts reduces equilibrium output from Y1 to Y2 while inflation has increased from $\pi_1$ to $\pi_2$.

Higher inflation reduces the real money supply, which increases interest rates and reduces interest-sensitive spending and equilibrium output from Y1 to Y2. Y2 > Yn1.

In Year 3, because Y2 > Yn1, the SAS curve shifts upward from SAS2 to SAS3 and inflation rises from $\pi_2$ to $\pi_3$. This increase in inflation is less than it was in year 2 because the output gap in year 2 is smaller than it was in year 1.

Higher inflation reduces the real money supply, which increases interest rates and reduces interest-sensitive spending and equilibrium output from Y2 to Y3. However, Y3 > Yn1.

This adjustment process continues in smaller and smaller steps until the economy has reached the new, lower potential output at Yn1, that is, equilibrium output continues to fall until Yx = Yn1. Inflation continues to rise until $\pi_x$, which is determined by the intersection of DAD2 and Yn1.
Have a

Wonderful Winter Break

and

a Joyous Holiday.