Econ 434 Fall 2001

Midterm Exam II: Answer Sheet

Instructions

Here are some brief answers to the second midterm. These are meant to be informative and instructive, but not exhaustive.

1. **(30%)** The government of a small country operating with a flexible exchange rate and perfect capital mobility undertakes an expansionary fiscal policy to bolster the economy ("a stimulus package").

   (a) What happens to the equilibrium levels of output, the rate of interest, the trade balance, and the nominal exchange? Show your answer graphically.

   brief answer Expansionary fiscal policy shifts the IS curve to the right. The tendency for the interest rate to rise is offset by capital inflows due to perfect capital mobility. This capital inflow causes the currency to appreciate. The consequent depreciation of the real exchange rate causes the IS curve to shift back to its original position. Hence, output is unchanged as is the rate of interest, but the nominal exchange rate has depreciated and the trade balance is worsened – indeed, the fiscal expansion crowds out net exports.

   (b) How would your answer change if the exchange rate were fixed?

   brief answer Again the IS curve shifts to the right. With fixed exchange rates the tendency would be for the interest rate to increase. The ensuing capital inflow cannot change the value of the currency – rather, it leads to monetary expansion as the central bank cannot sterilize the inflow. Hence, the LM curve also shifts to the right. Output is higher in the new equilibrium. The trade balance is worse because higher income means greater imports, and as the interest rate and the exchange rate has not changed, the trade balance must have deteriorated.

2. **(35%)** Suppose that initially the level of output in the economy is below the level of full employment, while the trade balance is in deficit. The government wants to remedy these two problems with fiscal and monetary policy. The economy has a flexible exchange rate and there is perfect capital mobility.

   (a) How should the government use monetary and fiscal policy to achieve these two goals? Which policy should be used to expand output and which policy should be used to improve the trade balance? Show your answer graphically. Explain how this works.

   brief answer See figure 1, where the initial level of output, $Y_0 < Y_F$, the full-employment level of output. Because the exchange rate is flexible fiscal policy cannot increase output. So monetary expansion shifting the LM curve to LM_1 deals with domestic

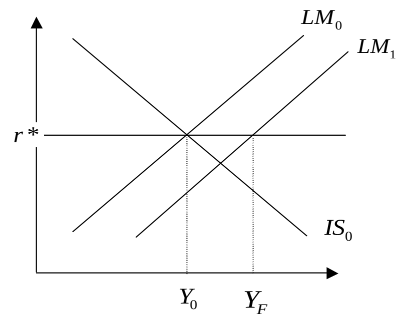

Figure 1:

balance. Of course higher output worsens the trade balance even further. Hence, to improve the trade balance contractionary fiscal policy should be used. This will not increase output due to the flexible exchange rate, but the higher real exchange rate will improve the trade balance. So IS shifts left and LM right. Fiscal policy is used for external balance.

(b) Suppose that the country had a fixed exchange rate, how would your assignment of policies change, if at all? Explain.

brief answer It would change dramatically. With a fixed exchange rate monetary policy is no longer potent, but fiscal policy is. Expansionary fiscal policy can shift the IS curve to the right. This worsens the trade balance. Contractionary monetary policy causes the currency to depreciate and this improves competitiveness. So the opposite policies are required with fixed exchange rates.

3. (20%) What is the difference between the real exchange rate and the nominal exchange rate? Why does the real exchange rate vary?

brief answer The nominal exchange rate is the domestic currency price of foreign exchange. The real exchange rate is the relative price of goods, thus $q = \frac{eP^*}{P}$. It is a measure of the cost of purchasing a basket of goods in two countries. It may change either via a change in the nominal exchange rate or due to factors that impact on the real economy. If all goods were tradeable and there were no frictions then the real exchange rate would not change – we would have PPP. But with non-tradeables one source of changes in q is changes in the relative price of non-tradeables. Differences in productivity growth across countries can effect q by altering the relative price of non-tradeables across countries. Differences in the composition of output across countries can also lead to changes in q when there is a shock to the economy.

How does the real exchange rate respond to:

4. (a) a decrease in the relative demand for US goods. Explain.

brief answer This will raise q. The decrease in the relative demand for US goods creates an excess supply at the current real exchange rate. Prices of US goods must fall relative to foreign goods. Hence, q must rise.

(b) an increase in relative output supply in the rest of the world. Explain.

brief answer With given stocks of capital and labor foreign output rises relative to US output. Hence, at unchanged world demand there is an excess demand for US output. Why? This positive supply shock raises foreign income (wealth), but not all of the increase in income is spent on domestic (that is foreign) goods. Some will be spent on US goods. Hence, there is an increase in the demand for US goods but supply has not risen. To restore equilibrium the relative price of US goods must rise; in other words, q must fall, and the dollar must rise in real terms. Thus relative productivity growth causes the real exchange rate to depreciate and the real value of the currency to appreciate. In this case the situation is given by figure 2. Increased wealth in the rest of the world causes an increase in the demand for US output with no corresponding increase in supply. Hence, the real exchange rate decreases (the relative price of foreign output rises). Notice that you could also analyze this from the perspective of the rest of the world. Then the real exchange rate would rise rather than fall. Try working out this graph.

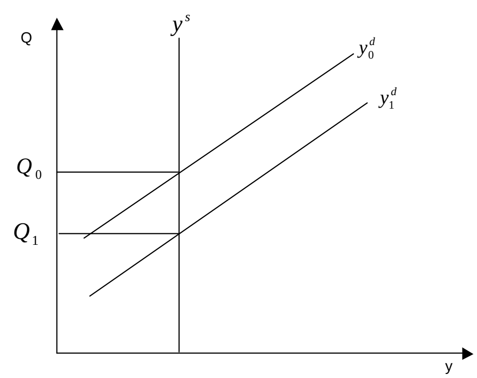

Figure 2: Technology Shock in the Rest of the World

4. (15%) "If a country has a fixed exchange rate it loses the ability to have an independent monetary policy." Do you agree or disagree? Explain.

brief answer Best to agree. With a fixed exchange rate the central bank loses control over monetary policy unless it can sterilize capital flows. When sterilization is not feasible changes in the money stock are offset by changes in international reserves due to capital flows that arise whenever domestic interest rates differ from world interest rates. .