Introductory Macroeconomics

Pre-Tutorial #10
Week Starting 17th May 2021

The Tutorial. This week's tutorial looks at exchange rates.

Note that your tutor is under no obligation to go through the answers to the pre-tutorial work in detail. The focus in the tutorial will be on the tutorial work itself – the questions here are preparatory.

Reading Guide. You should look carefully over lectures 19 and 20. You may also find Chapter 17 of BOFAH useful.

Key Concepts. Nominal exchange rates. Real exchange rates. Purchasing power parity. Fixed exchange rates.

Problems.

1. How would each of the following be likely to affect the value of the Australian dollar, all else being equal? Explain, using supply and demand analysis.

   (a) European computer firms switch from software produced in Australia to software produced outside of Australia.

   (b) The Australian government imposes a large tariff on imported automobiles.

   (c) Australian shares are perceived as becoming more risky.

   (d) Australian consumers increase their spending on imported goods.

   (e) The Reserve Bank reports that it is less concerned about inflation and more concerned about an impending recession in Australia.

2. What is the theory of purchasing power parity? What are some of the reasons for why this theory may not hold in the short run?

3. What does the theory of purchasing power parity predict will happen to the nominal exchange rate and the real exchange rate of a country that has a relatively low rate of inflation?

4. How does an increase in real interest rates affect the exchange rate? Describe how the change in interest rates affects the exchange rate using supply and demand analysis. How does this change in the exchange rate affect the macroeconomy? What is the mechanism responsible for this effect?

5. What is the policy trilemma in open economy macroeconomics? What goals are achievable under a flexible exchange rate? What goals are achievable under a fixed exchange rate without capital controls? What goals are achievable under a fixed exchange rate with capital controls? What have been some of the advantages of the adoption of a flexible exchange rate in the early 1980s by the Australian government?

6. Suppose the government decides to maintain a fixed exchange rate at a value that lies above the market equilibrium value of the exchange rate. What action does the government need to undertake to maintain such an exchange rate? What about if the value of the exchange rate lies below the market equilibrium value of the exchange rate?

Solutions to Pre-Tutorial Work.

1. You should be able to draw the associated demand and supply diagrams. I have omitted them for brevity purposes.

   (a) The demand for Australian goods (software) falls, so the demand for AUD falls (a shift in of the demand curve for AUD). The AUD depreciates.

   (b) As Australians are dissuaded from buying imported automobiles, they supply fewer dollars to the foreign exchange market (a shift in of the supply curve for AUD). The AUD appreciates.

   (c) The demand for Australian financial assets falls, so the demand for AUD falls (a shift in of the demand curve for AUD). The AUD depreciates.

   (d) As Australians increase their spending on imported goods they supply more dollars to the foreign exchange market (a shift out of the supply curve for AUD). The AUD depreciates.

   (e) Financial investors would anticipate that the Reserve Bank will lower interest rates, making Australian financial assets less attractive. The demand for dollars falls (a shift in of the demand curve for AUD). Moreover, Australian investors feel Australian financial assets less attractive relative to foreign assets. The supply for dollars increases (a shift out of the supply curve for AUD). The AUD depreciates.

2. The theory of purchasing power parity is based on the idea that prices (in a common currency) for traded goods should be equalised across countries as long as transport costs are small. The basic idea is that if transport costs are small, then producers will sell goods in the region in which they have a higher price. The increased supply of goods in the region in which its price is high puts downward pressure on the good price in that region, eventually equating the prices of goods across countries. There are a number of reasons why the theory may not hold in the short run.

   (i) If transport costs are high, prices of goods across regions remain to be different. The differences in prices reflect transport costs.

   (ii) With goods that are traded across national boundaries, the price of these goods often contains a non-traded component - the service of transporting these goods from port to store shelves is typically a non-traded service that is incorporated into the final price.

   (iii) Many traded goods are not standardised homogeneous goods. So while we may expect the price of iron ore to be similar across regions (up to the cost of transporting), we would not necessarily expect differentiated products to have a similar price.

3. PPP predicts that the nominal exchange rate of a country that experiences relatively low inflation appreciates. The law of one price, which is what PPP is based on, implies that its nominal exchange rate is given by $e = \frac{P^f}{P}$, where P is the price level of a country that experiences relatively low inflation, P^f the price level of a country that experiences relatively high inflation. $e = \frac{P^f}{P}$ implies $1 = \frac{P}{P^f/e}$. Therefore, the real exchange, $\frac{P}{P^f/e}$, is always 1 and so nothing happens to this country's real exchange rate.

4. An increase in the interest rate tends to lead to an appreciation of the domestic currency. To see why, note that an increase in the interest rate leads to higher demand by foreigners for the domestic currency since the return on assets is now higher. This shift in the demand curve leads to an appreciation of the currency.

   Also, an increase in interest rates tends to reduce the supply of the domestic currency. Domestic residents now receive a higher return from domestic investment. As a result, they will be less willing to invest in foreign assets and this will reduce the supply of domestic currency to the foreign exchange market.

   This change in the exchange rate reduces economic activity. An increase in exchange rates makes domestic goods more expensive overseas and it makes foreign goods cheaper in the domestic economy. The first effect, other things equal, should imply that exports decline. The second effect, other things equal, should imply that imports rise. Both effects reduce the value of net exports and reduce the value of output. Hence, a rise in the interest rate raises the exchange rate and lowers the level of economic activity. This operates in the same direction as the effect of a change in interest rates on consumption or investment that were discussed earlier in the course.

5. Monetary policy can achieve three goals: i) independent monetary policy, ii) free capital flows, and iii) a stable exchange rate. The policy trilemma is the argument that monetary policy can only achieve two out of three of these goals. Under a flexible exchange rate, independent monetary policy and free capital flows can be achieved but the exchange rate can be volatile. Under a fixed exchange rate without capital controls, there is a stable exchange rate and free capital movement, but the loss of independent monetary policy. Finally, under a fixed exchange rate with capital controls, the government can achieve independent monetary policy and a stable exchange rate but obviously gives up free capital flows.

   The benefits of adopting a flexible exchange rate have been large. In response to shocks to the demand for Australian goods, the value of the AUD has adjusted to moderate the effects of these shocks.

   For example, during the Asian crisis, when demand for Australian goods fell, the decline in the AUD helped Australian firms compete in overseas markets. It made the price of Australian goods (in overseas markets) relatively low, increasing exports. Similarly, it made the price of foreign goods relatively high, so that Australian consumers and firms shifted demand away from foreign goods towards domestic goods. This process raised net exports, and so moderated a fall in GDP that arose from reduced demand for Australian goods.

   The reverse effect has occurred during the mining boom. A large increase in demand for Australian resources has raised the value of the AUD. This has made Australian resources relatively more expensive overseas and moderated the mining boom.

6. If the government seeks to maintain a fixed exchange rate at a value above the market equilibrium it needs to increase the demand for the domestic currency. It does so by purchasing domestic currency and selling foreign currency in a foreign exchange market.

   If the government seeks to maintain a fixed exchange rate at a value below the market equilibrium it needs to increase the supply of domestic currency. It does so by selling domestic currency and buying foreign currency in a foreign exchange market.