Sample Final Question 1 Leftovers

(a) The foreign interest rate is 3% and the home interest rate is 6%. According to uncovered interest parity, what is the expected rate of depreciation of the home currency?

Solution. UIP gives

$$i = i^* + \left(\frac{E^e_{H/F}}{E_{H/F}} - 1\right).$$

Plug things in and rearrange to get

$$\begin{aligned}\left(\frac{E^e_{H/F}}{E_{H/F}} - 1\right) &= i - i^* \\ &= 6\% - 3\% \\ &= 3\%.\end{aligned}$$

(b) In a hyperinflation, the rate of inflation exceeds _____% per month.

Solution. 50%. Just an arbitrarily chosen (but large) number.

(c) What three mutually inconsistent policy goals make up the trilemma?

Solution. The trilemma means that a country cannot simultaneously have:

- a fixed exchange rate,
- capital mobility,
- independent monetary policy.

In practice, capital controls are difficult to impose, so in this class we tend to assume high degrees of capital mobility. Therefore most of our focus has been on how a fixed exchange rate obviates monetary autonomy but a floating exchange rate allows monetary autonomy.

(d) What is the difference between GNE and GDP? Briefly explain.

Solution. GNE $= C + I + G$, which accounts for all home expenditure. And then GDP $= C + I + G +$ TB, which accounts only for domestic production. Exports are domestic production that is not consumed (i.e. not expenditure), so it is a plus for GDP; whereas imports are expenditure that is not domestically produced, so it is a minus for GDP.

(e) What is the difference between GDP and GNI? Briefly explain.

Solution. GNI takes the value of domestic production, adds the value of production of home factors located in another country (EX_{FS}), and subtracts the value of production of foreign factors located in home country (IM_{FS}), so that GNI $=$ GDP $+$ NFIA. The idea here is to account for all productive value of home factors, and *only* home factors, regardless of where they are located.

(g) After a fiscal expansion, will a floating exchange appreciate or depreciate?

Solution. A fiscal expansion means the IS curve shifts to the right. That means i goes up and therefore E goes down. So if the exchange rate is allowed to float, that means an appreciation.

Sample Final Question 2

The foreign country has a fixed price level of $P^* = 1$ and a fixed interest rate of i^*. The home country initially has an interest rate $i = i^* = 8\%$ and a price level of $P = 1$. There are no changes in monetary policy in the foreign country at any time. Home and foreign output are assumed fixed at Y and Y^* respectively. At present the exchange rate is at its PPP value of $E = 1$ (home per foreign currency). Home real money demand responds to the interest rate in such a way that a 2 percentage point drop in the home nominal interest rate would cause home real money demand to rise by 10%. The home country contemplates a change in monetary policy to increase the home money supply M by 10%.

(a) Suppose the increase in M is temporary, and the price level remains anchored at $P = 1$ forever. What is the impact of the policy change on the home interest rate?

Solution. The shape of the money demand function implies that when the money supply goes up by 10%, the interest rate will fall from 8% to 6%. In other words, shift MS_1 to the right by 10% and the new equilibrium is at $i = 6\%$.

(b) Suppose that the policy will endure for one year. According to UIP, what will be the expected rate of appreciation of the home currency in that year (approximately)?

Solution. UIP is $i = i^* + (E^e/E - 1)$. Since i goes down by 2% points and i^* is unchanged, $(E^e/E - 1)$ must go down by 2% ponts. That means an expected appreciation of 2%.

(c) In this case, what will be the spot exchange rate E today (approximately)?

Solution. The long-run (i.e. PPP) exchange rate is $E = 1$, which will remain true as long as the increase in the money supply is temporary (because then neither P_H nor P_F change in the long run.) Therefore $E^e = 1$. We have just determined that $E^e/E - 1 = -0.02$, from which it follows that

$$1/E - 1 = -0.02 \quad \Longrightarrow \quad E \approx 1.02.$$

(d) Now suppose the policy change is permanent. Assume that prices adjust after one year to their new long-run level. What will be the new long-run (future expected) level of the home price level P^e? Of the home exchange rate E^e?

Solution. If the change is permanent, then an increase in the money supply by 10% implies a long-run increase in the price level by 10%, so $P^e = 1.10$. And because $E^e = P_H^e/P_F^e$ where $P_F = 1$ is always unchanged, it follows that $E^e = 1.10$ as well.

(e) In this case, what will be the spot exchange rate E today (approximately)?

Solution. We have determined the long-run value $E^e = 1.10$. We know that the increase in money supply implies $E^e/E - 1 = -0.02$, from which it follows that

$$1.10/E - 1 = -0.02 \quad \Longrightarrow \quad E \approx 1.12.$$

Today's spot rate overshoots the long-run exchange rate: from $E = 1.00$ initially, to $E = 1.12$ after the permanent change, to eventually $E = 1.10$ in the long run.