Chapter 12  #4

a) A depreciation of the currency makes American goods more competitive. This is because a depreciation means that the same price in dollars translates into fewer units of foreign currency. That is, in terms of the foreign currency, American goods become cheaper so that foreigners buy more of them. For example, suppose that the exchange rate between yen and dollars falls from 200 yen/dollar to 100 yen/dollar. If an American can of tennis balls costs $2.50, its price in yen falls from 500 yen to 250 yen. This fall in price increases the quantity of American-made tennis balls demanded in Japan. That is, American tennis balls are more competitive.

b) Consider first the case of floating exchange rates. We know that the position of the LM curve determines output (is ‘superpotent’ for floaters with capital mobility). Hence, we know that we want to keep the money supply fixed. As shown in the figure below, we want to use fiscal policy to shift the IS curve to the left to cause the exchange rate to fall (depreciate). We can do this by reducing government spending or increasing taxes.

Using the model from class:

Fiscal contraction shifts the IS curve to the left. At $\beta$, $i'<i^*$ inducing capital outflows. The decreased demand for the domestic currency depreciates the real exchange rate ($\varepsilon$ falls). The real depreciation makes domestic goods more competitive, increasing exports and increasing net exports. This causes the IS curve to shift back until the current account and capital account are back in balance, at $\alpha$. Here, we are back to the original level of $Y^e$, but the exchange rate has been depreciated as desired.

Now suppose that the exchange rate is fixed. If we want to increase competitiveness, we need to reduce the exchange rate, that is, we need to fix it at a lower level. The first step is to devalue the dollar, fixing the exchange rate at the desired lower level. This increases net exports and tends to
increase output, as shown in the figure below. We can offset this rise in output with contractionary fiscal policy that shifts the IS curve to the left:

Depreciating the exchange rate will stimulate exports, NX rises and the IS curve shifts right to \( \beta \). Now the \( I > I^* \), inducing capital inflows. Now the capital account is in surplus and ORS is in deficit: the increased demand for domestic currency causes IR to rise. HPM rises, the Money Supply increases and the LM curve shifts right to \( \gamma \). Here, we have the lower exchange rate we wanted but we need to reduce output back to \( Y_e \). Contractionary fiscal policy (either a decline in \( G \) or an increase in \( T \)) will shift the IS curve to the left to \( \delta \). Here \( I < I^* \) inducing capital outflows. Now the capital account is in deficit and ORS is in surplus: the decreased demand for domestic currency causes IR to fall, the Money Supply falls and the LM curve shifts left, back to \( \alpha \). Now we have the same level of income \( Y_e \), and we have devalued the exchanged rate as desired.
Chapter 12  #6

We want to consider the effects of a tax cut when the LM* curve depends on disposable income instead of income:

\[ \frac{M}{P} = L [r, Y-T] \]

For floating exchange rates:
The IS curve shifts right in the standard way (for the in-class model, the multiplier falls, increasing output.)
To figure out what happens to the LM curve, think about how it would be derived if 
\[ \frac{M}{P} = L [r, Y-T] \]. A decrease in taxes would increase disposable income, causing the demand for money to rise. Since the Money Supply is fixed, the LM curve must shift left (we have lower Y at every level of interest rates) as in the figure below. Or, think of it this way: \( \frac{M}{P} \) is fixed, and the interest rate is equal to the world interest rate. If taxes fall, then income Y must also fall to keep disposable income at the same level that equilibrates money supply and money demand.

A tax cut now shifts both the IS* and the LM* curves to point \( \beta \). However, here \( i > i^* \) inducing capital inflows and an exchange rate appreciation. The higher exchange rate reduces Net Exports, shifting the IS curve back left until the capital and current accounts are in balance. As a result, here a decrease in taxes actually lowers income/output.

If there are fixed exchange rates: IS shifts right and LM shifts left for the same reasons discussed above, and we end up at point \( \beta \). Here, \( i > i^* \) inducing capital inflows and a capital account surplus, so in deficit (IR is rising). As IR rises, HPM rises, the supply rises and the LM curve shifts to the right until we are back at \( \alpha \) where the capital account and ORS are in balance, as in the figure below.
Since people demand money balances in order to buy goods and services, it makes sense to think that the price level that is relevant is the price level of the goods and services they buy. This includes both domestic and foreign goods. But the dollar price of foreign goods depends on the exchange rate. For example, if the dollar rises from 100 yen/dollar to 150 yen/dollar, then a Japanese good that costs 300 yen falls in price from $3 to $2. Hence, we can write the condition for equilibrium in the money market as

\[ M/P = L(r, Y), \]

where

\[ P = \lambda P_d + (1 - \lambda)P_f/e. \]

a. A higher exchange rate makes foreign goods cheaper. To the extent that people consume foreign goods (a fraction \(1 - \lambda\)), this lowers the price level \(P\) that is relevant for the money market. This lower price level increases the supply of real balances \(M/P\). To keep the money market in equilibrium, we require income to rise to increase money demand as well.

Hence, the \(LM^*\) curve is upward sloping.

b. In the standard Mundell–Fleming model, expansionary fiscal policy has no effect on output under floating exchange rates. As shown below, this is no longer true here. A cut in taxes or an increase in government spending shifts the \(IS^*\) curve to the right, from \(IS\) to \(IS\). Since the \(LM^*\) curve is upward sloping, the result is an increase in output.

c. The suggested answer in the textbook reads as follows: “A central assumption in this chapter is that the price level is fixed in the short run. That is, we assumed that the short-run aggregate supply curve is horizontal at \(P = P\). A supply shock is something that shifts the \(AS\) curve. If the price level \(P\) depends on the exchange rate, then as shown in the Figure, an appreciation of the exchange rate \(e\) causes the price level \(P\) to fall—that is, the aggregate supply curve shifts down from \(AS_1\) to \(AS_2\). In other words, it looks exactly like a supply shock, except that the “shock” is endogenous, not exogenous.”

Personally, I’d model things a different way. I’d argue that the increase in the country premium increases the interest rate at which the country can borrow. This shifts the \(IS^*\) curve to the left (because investment declines) and the \(LM^*\) curve down and to the right (since the demand for money declines). The overall effect is still a depreciation of the exchange rate. However, it is now possible that output declines, unlike the case discussed in the textbook pp328. The reason is that the domestic price level increases with the depreciation of the exchange rate (imported goods are more expensive) and this is equivalent to a monetary contraction (\(M/P\) declines).