CHAPTER 17 (7e)

1. Using the information in this chapter, label each of the following statements true, false, or uncertain. Explain briefly.

   a. If there are no statistical discrepancies, countries with current account deficits must receive net capital inflows.
   b. While the export ratio can be larger than one—as it is in Singapore—the same cannot be true of the ratio of imports to GDP.
   c. That a rich country like Japan has such a small ratio of imports to GDP is clear evidence of an unfair playing field for U.S. exporters to Japan.
   d. Uncovered interest parity implies that interest rates must be the same across countries.
   e. If the dollar is expected to appreciate against the yen, uncovered interest parity implies that the U.S. nominal interest rate will be greater than the Japanese nominal interest rate.
   f. Given the definition of the exchange rate adopted in this chapter, if the dollar is the domestic currency and the euro the foreign currency, a nominal exchange rate of 0.75 means that 0.75 dollars is worth 0.75 euros.
   g. A real appreciation means that domestic goods become less expensive relative to foreign goods.

**Answer:**

   a. True.
   b. False.
   c. False.
   d. False.
   e. False.
   f. The statement should read: “Given the definition of the exchange rate adopted in this chapter, if the dollar is the domestic currency and the euro the foreign currency, a nominal exchange rate of 0.75 means that one dollar is worth 0.75 euros.”
       This statement is True.
   g. False.

2) Consider two fictional economies, one called the domestic country and the other the foreign country. Given the transactions listed in (a) through (g), construct the balance of payments for each country. If necessary, include a statistical discrepancy.

   a) The domestic country purchased $100 in oil from the foreign country.
b) Foreign tourists spent $25 on domestic ski slopes.
c) Foreign investors were paid $15 in dividends from their holdings of domestic equities.
d) Domestic residents gave $25 to foreign charities.
e) Domestic businesses borrowed $65 from foreign banks.
f) Foreign investors purchased $15 of domestic government bonds.
g) Domestic investors sold $50 of their holdings of foreign government bonds.

**Answer:**

**Domestic Country Balance of Payments ($)**

**Current Account**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports</td>
<td>25</td>
</tr>
<tr>
<td>Imports</td>
<td>100</td>
</tr>
<tr>
<td>Trade Balance</td>
<td>-75 (=25-100)</td>
</tr>
<tr>
<td>Investment Income Received</td>
<td>0</td>
</tr>
<tr>
<td>Investment Income Paid</td>
<td>15</td>
</tr>
<tr>
<td>Net Investment Income</td>
<td>-15 (=0-15)</td>
</tr>
<tr>
<td>Net Transfers Received</td>
<td>-25</td>
</tr>
<tr>
<td>Current Account Balance</td>
<td>-115 (= -75-15-25)</td>
</tr>
</tbody>
</table>

**Capital Account**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in Foreign Holdings of Domestic Assets</td>
<td>80 (=65+15)</td>
</tr>
<tr>
<td>Increase in Domestic Holdings of Foreign Assets</td>
<td>-50</td>
</tr>
<tr>
<td>Net Increase in Foreign Holdings</td>
<td>130 (=80-(-50))</td>
</tr>
<tr>
<td>Statistical Discrepancy</td>
<td>-15 (=115-130)</td>
</tr>
</tbody>
</table>

**Foreign Country Balance of Payments ($)**

**Current Account**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports</td>
<td>100</td>
</tr>
<tr>
<td>Imports</td>
<td>25</td>
</tr>
<tr>
<td>Trade Balance</td>
<td>75 (=100-25)</td>
</tr>
<tr>
<td>Investment Income Received</td>
<td>15</td>
</tr>
<tr>
<td>Investment Income Paid</td>
<td>0</td>
</tr>
<tr>
<td>Net Investment Income</td>
<td>15 (=15-0)</td>
</tr>
<tr>
<td>Net Transfers Received</td>
<td>25</td>
</tr>
<tr>
<td>Current Account Balance</td>
<td>115 (=75+15+25)</td>
</tr>
</tbody>
</table>
Capital Account

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in Foreign Holdings of Domestic Assets</td>
<td>-50</td>
</tr>
<tr>
<td>Increase in Domestic Holdings of Foreign Assets</td>
<td>80 (=65+15)</td>
</tr>
<tr>
<td>Net Increase in Foreign Holdings</td>
<td>-130 (= -50 - 80)</td>
</tr>
<tr>
<td>Statistical Discrepancy</td>
<td>15 (=130-115)</td>
</tr>
</tbody>
</table>

5) The exchange rate and the labor market

Suppose the domestic currency depreciates (E falls). Assume that P and P* remain constant.

a) How does the nominal depreciation affect the relative price of domestic goods (i.e., the real exchange rate)? Given your answer, what effect would a nominal depreciation likely have on (world) demand for domestic goods? On the domestic unemployment rate?

b) Given the foreign price level, P*, what is the price of foreign goods in terms of domestic currency? How does a nominal depreciation affect the price of foreign goods in terms of domestic currency? How does a nominal depreciation affect the domestic consumer price index? (Hint: Remember that domestic consumers buy foreign goods (imports) as well as domestic goods.)

c) If the nominal wage remains constant, how does a nominal depreciation affect the real wage?

d) Comment on the following statement. “A depreciating currency puts domestic labor on sale.”

Answer


b. The price of foreign goods in terms of domestic currency is P*/E. A nominal depreciation (a fall in E) increases the price of foreign goods in terms of domestic currency. Therefore, a nominal depreciation tends to increase the CPI.

c. The real wage falls.

d. Essentially, a nominal depreciation stimulates output by reducing the domestic real wage, which leads to an increase in domestic employment.

CHAPTER 18 (7e)

1. Using the information in this chapter, label each of the following statements true, false, or uncertain. Explain briefly.

   a. The current U.S. trade deficit is the result of unusually high investment, not the result of a decline in national saving.

   b. The national income identity implies that budget deficits cause trade deficits.

   c. Opening the economy to trade tends to increase the multiplier because an increase in expenditure leads to more exports.

   d. If the trade deficit is equal to zero, then the domestic demand for goods and the demand for domestic goods are equal.

   e. A real depreciation leads to an immediate improvement in the trade balance.
f. A small open economy can reduce its trade deficit through fiscal contraction at a smaller cost in output than can a large open economy.

g. The experience of the United States in the 1990s shows that real exchange rate appreciations lead to trade deficits and real exchange rate depreciations lead to trade surpluses.

h. A decline in real income can lead to a decline in imports and thus a trade surplus.

**Answer**

a. False. When savings declines consumption increases, both on domestic and imported goods.

b. False. An increase in the budget deficit will lead to an increase in the trade deficit, but we can't conclude that from the national income accounting identity. We have to use our model to make that prediction.

c. False. An increase in spending will now be spread between domestic and foreign goods.

d. True.

e. False. Econometric evidence suggests that a real depreciation does not lead to an immediate improvement in the trade balance. Typically, the trade balance improves six to twelve months after a real depreciation.

f. True.

g. True

h. True

2) Real and nominal exchange rates and inflation

Using the definition of the real exchange rate (and Propositions 7 and 8 in Appendix 2 at the end of the book), you can show that

\[
\frac{\varepsilon_t - \varepsilon_{t-1}}{\varepsilon_{t-1}} = \frac{E_t - E_{t-1}}{E_{t-1}} + \frac{\pi_t - \pi^*_t}{\varepsilon_{t-1}}
\]

In words, the percentage real appreciation equals the percentage nominal appreciation plus the difference between domestic and foreign inflation.

a) If domestic inflation is higher than foreign inflation, but the domestic country has a fixed exchange rate, what happens to the real exchange rate over time? Assume that the Marshall-Lerner condition holds. What happens to the trade balance over time? Explain in words.

b) Suppose the real exchange rate is constant—say, at the level required for net exports (or the current account) to equal zero. In this case, if domestic inflation is higher than foreign inflation, what must happen over time to maintain a trade balance of zero?

**Answer**

a. There is a real appreciation over time. Over time, the trade balance worsens.

b. The currency appreciates at the rate of \(\pi - \pi^*\).

5) Net exports and foreign demand

a) Suppose there is an increase in foreign output. Show the effect on the domestic economy (i.e., replicate Figure 18-4). What is the effect on domestic output? On domestic net exports?
b) If the interest rate remains constant, what will happen to domestic investment? If taxes are fixed, what will happen to the domestic budget deficit?

c) Using equation (18.5), what must happen to private saving? Explain.

d) Foreign output does not appear in equation (18.5), yet it evidently affects net exports. Explain how this is possible.

**Answer**

a. The ZZ and NX lines shift up. Domestic output and domestic net exports increase.

b. Domestic investment will increase because output increases. Assuming taxes are fixed, there is no effect on the deficit.

c. \(NX=S-I+T-G\). Since the budget deficit is unchanged, and \(I\) and \(NX\) increase, \(S\) must increase.

d. Except for \(G\) and (for our purposes) \(T\), the variables in equation (19.5) are endogenous. An exogenous shock such as an increase in foreign output can affect all of the endogenous variables simultaneously.

7) Multipliers, openness, and fiscal policy

Consider an open economy characterized by the equations below.

\[
C = c_0 + c_1(Y - T) \\
I = d_0 + d_1Y \\
I - M = m_1Y \\
X = x_1Y^* 
\]

The parameters \(m_1\) and \(x_1\) are the propensities to import and export. Assume that the real exchange rate is fixed at a value of 1 and treat foreign income, \(Y^*\), as fixed. Also assume that taxes are fixed and that government purchases are exogenous (i.e., decided by the government). We explore the effectiveness of changes in \(G\) under alternative assumptions about the propensity to import.

a) Write the equilibrium condition in the market for domestic goods and solve for \(Y\).

b) Suppose government purchases increase by one unit. What is the effect on output? (Assume that \(0 < m_1 < c_1 + d_1 < 1\). Explain why.)

c) How do net exports change when government purchases increase by one unit?

Now consider two economies, one with \(m_1 = 0.5\) and the other with \(m_1 = 0.1\). Each economy is characterized by \((c_1 + d_1) = 0.6\).

d) Suppose one of the economies is much larger than the other. Which economy do you expect to have the larger value of \(m_1\)? Explain.

e) Calculate your answers to parts (b) and (c) for each economy by substituting the appropriate parameter values.

f) In which economy will fiscal policy have a larger effect on output? In which economy will fiscal policy have a larger effect on net exports?

**Answer**
a. $Y = C + I + G + X - IM$

$$Y = c_0 + c_1(Y - T) + d_0 + d_1Y + G + x_1Y^* - m_1Y$$

$$Y = \frac{1}{1 - (c_1 + d_1 + m_1)} \left[ c_0 + c_1T + d_0 + G + x_1Y^* \right]$$

b. Output increases by the multiplier, which equals $1/(1 - c_1 - d_1 - m_1)$. The condition $0 < m_1 < c_1 + d_1 < 1$ ensures that the multiplier is defined, positive, and greater than one. As compared to the original multiplier, $1/(1 + c_1)$, there are two additional parameters: $d_1$, which captures the effect of an additional unit of income on investment, and $m_1$, which captures the effect of an additional unit of income on imports. The investment effect tends to increase the multiplier; the import effect tends to reduce the multiplier.

c. When government purchases increase by one unit, net exports fall by $m_1 \Delta Y = m_1/(1 - c_1 - d_1 + m_1)$. Note that the change in output is simply the multiplier.

d. The larger economy will likely have the smaller value of $m_1$. Larger economies tend to produce a wider variety of goods, and therefore to spend more of an additional unit of income on domestic goods than smaller economies do.

e. \begin{tabular}{|c|c|c|}
\hline
 & $\Delta Y$ & $\Delta NX$ \\
\hline
small economy ($m_1 = 0.5$) & 1.1 & 0.6 \\
large economy ($m_1 = 0.1$) & 2 & 0.2 \\
\hline
\end{tabular}

f. Fiscal policy has a larger effect on output in the large economy, but a larger effect on net exports in the small economy.
7) *Net exports and foreign demand*

a) Suppose there is an increase in foreign output. Show the effect on the domestic economy (i.e., replicate Figure 19-4). What is the effect on domestic output? On domestic net exports?

b) If the interest rate remains constant, what will happen to domestic investment? If taxes are fixed, what will happen to the domestic budget deficit?

c) Using equation (19.5), what must happen to private saving? Explain.

d) Foreign output does not appear in equation (19.5), yet it evidently affects net exports. Explain how this is possible.

**Answer**

a. The $Z$ and $NX$ lines shift up. Domestic output and domestic net exports increase.

b. Domestic investment will increase because output increases. Assuming taxes are fixed, there is no effect on the deficit.

c. $NX = S - I + T - G$. Since the budget deficit is unchanged, and $I$ and $NX$ increase, $S$ must increase.

d. Except for $G$ and (for our purposes) $T$, the variables in equation (19.5) are endogenous. An exogenous shock such as an increase in foreign output can affect all of the endogenous variables simultaneously.

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CHAPTER 20 (6e)

1) *Flexible exchange rates and foreign macroeconomic policy. Consider an open economy with flexible exchange rates.*

Let *UIP* stand for the uncovered interest parity condition.

a) In an IS–LM–UIP diagram, show the effect of an increase in foreign output, $Y^*$, on domestic output, $Y$. Explain in words.

b) In an IS–LM–UIP diagram, show the effect of an increase in the foreign interest rate, $i^*$, on domestic output, $Y$. Explain in words.

c) Given the discussion of the effects of fiscal policy in this chapter, what effect is a foreign fiscal expansion likely to have on foreign output, $Y^*$, and on the foreign interest rate, $i^*$? Given the discussion of the effects of monetary policy in this chapter, what effect is a foreign monetary expansion likely to have on $Y^*$ and $i^*$?

d) Given your answers to parts (a), (b), and (c), how does a foreign fiscal expansion affect domestic output? How does a foreign monetary expansion affect domestic output? (Hint: One of these policies has an ambiguous effect on output.)

**Answer**

a. The IS curve shifts right, because net exports tend to increase. Domestic output increases.

b. The IS curve shifts right, because the increase in $i^*$ tends to create a depreciation of the domestic currency and therefore an increase in net exports. Domestic output increases. The interest parity line also shifts up.

c. A foreign fiscal expansion is likely to increase $Y^*$ and to increase $i^*$. A foreign monetary expansion is likely to increase $Y^*$ and to reduce $i^*$. 

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7
d. A foreign fiscal expansion is likely to increase home output. A foreign monetary expansion has an ambiguous effect on home output. The increase in $Y^*$ tends to increase home output, but the fall in $i^*$ tends to reduce home output.

2) In this chapter, we showed that a monetary expansion in an economy operating under flexible exchange rates leads to an increase in output and a depreciation of the domestic currency.

   a) How does a monetary expansion (in an economy with flexible exchange rates) affect consumption and investment?

   b) How does a monetary expansion (in an economy with flexible exchange rates) affect net exports?

Answer

   a. Consumption increases because output increases. Investment increases because output increases and the interest rate falls.

   b. A monetary expansion has an ambiguous effect on net exports. The nominal depreciation tends to increase net exports, but the increase in output tends to reduce net exports.

3) Consider an open economy with flexible exchange rates. Suppose output is at the natural level, but there is a trade deficit. What is the appropriate fiscal and monetary policy mix?

Answer

   The appropriate mix is a monetary expansion to lessen the value of the currency (and thereby to improve the trade balance) and a fiscal contraction to prevent output from increasing.

4) Using the information in this chapter, label each of the following statements true, false, or uncertain. Explain briefly.

   a) A fiscal expansion tends to increase net exports.

   b) Fiscal policy has a greater effect on output in an economy with fixed exchange rates than in an economy with flexible exchange rates.

   c) Other things being equal, the interest parity condition implies that the domestic currency will appreciate in response to an increase in the expected exchange rate.

   d) If financial investors expect the dollar to depreciate against the yen over the coming year, one-year interest rates will be higher in the United States than in Japan.

   e) If the Japanese interest rate is equal to zero, foreigners will not want to hold Japanese bonds.

   f) Under fixed exchange rates, the money stock must be constant.

Answer

   a. False.

   b. True.

   c. True.

   d. True.
e. Uncertain. If expected appreciation of the yen is greater than or equal to the interest rate in other countries, than foreign investors will hold yen bonds.

f. False. The money stock will change in response to shocks (including policy shocks) so that the home interest rate equals the foreign interest rate.

5) Fixed exchange rates and foreign macroeconomic policy

Consider a fixed exchange rate system, in which a group of countries (called follower countries) peg their currencies to the currency of one country (called the leader country). Since the currency of the leader country is not fixed against the currencies of countries outside the fixed exchange rate system, the leader country can conduct monetary policy as it wishes. For this problem, consider the domestic country to be a follower country and the foreign country to be the leader country.

a) Redo the analysis of Problem 1(a).

b) Redo the analysis of Problem 1(b).

c) Using your answers to parts (a) and (b) and Problem 1(c), how does a foreign monetary expansion (by the leader country) affect domestic output? How does a foreign fiscal expansion (by the leader country) affect domestic output? (You may assume that the effect of $Y^*$ on domestic output is small.) How do your answers differ from those in 1(d)?

Answer

a. An increase in $Y^*$ shifts the IS curve to the right. The incipient rise in the home interest rate creates a monetary expansion as the home central bank purchases foreign exchange to prevent the domestic currency from appreciating. So, the LM curve shifts right. Output increases.

b. The interest parity line shifts up, and the LM curve shifts left as the central bank sells foreign exchange to prevent the domestic currency from depreciating. Output falls.

c. A fiscal expansion in the Leader country, which increases $Y^*$ and $i^*$, reduces domestic output, if the effect of $Y^*$ on domestic output is small. A monetary expansion in the Leader country, which increases $Y^*$ and reduces $i^*$, increases domestic output.