Lecture 18

Chapter 19: Open Economy Macro: Fixed Exchange Rates

- Linking each country's model to the other countries' models

- Balance of payments

- Import demand

- Twin deficits

- Export demand

- Trade feedback effect

- Price feedback effect

Next in the current account is trade in services. Like most other countries, the United States buys services from and sells services to other countries. For example, a U.S. firm shipping wheat to England might purchase insurance from a British insurance company. A Dutch flower grower may fly flowers to the United States aboard a U.S. airliner. In the first case, the United States is importing services and therefore using up foreign exchange; in the second case, it is selling services to foreigners and earning foreign exchange. In 2014 the United States exported $709.4 billion in services and imported $478.3 billion, thus earning more foreign exchange than it used up regarding trade in services.

The difference between a country's exports of goods and services and its imports of goods and services is its **balance of trade**. When exports of goods and services are less than imports of goods and services, a country has a **trade deficit**. Table 19.1 shows that the U.S. trade deficit in 2014 was fairly large at $504.7 billion.

Next in Table 19.1 comes investment income. U.S. citizens hold foreign assets (stocks, bonds, and real assets such as buildings and factories). Dividends, interest, rent, and profits paid to U.S. asset holders are a source of foreign exchange. Conversely, when foreigners earn dividends, interest, and profits on assets held in the United States, foreign exchange is used up. In 2014 the United States earned $819.7 in investment income and paid out $601.8 billion.

Last in the current account comes transfer payments. Transfer payments from the United States to foreigners are another use of foreign exchange. Some of these transfer payments are from private U.S. citizens, and some are from the U.S. government. You may send a check to a relief agency in Africa. Many immigrants in the United States send remittances to their countries of origin to help support extended families. Conversely, foreigners make transfer payments to the United States, which earns income for the United States. In 2014 the United States received $127.1 billion in transfer payments from abroad and sent $250.9 billion abroad.

Line (10) in Table 19.1 shows the balance on current account. This is the balance of trade plus investment and transfer income and minus investment and transfer payments. Put another way, the **balance on current account** is the sum of income from exports of goods and services and income from investments and transfers minus payments for imports of goods and services and payments for investments and transfers. The balance on current account shows how much a nation has spent on foreign goods, services, investment income payments, and transfers relative to how much it has earned from other countries. When the balance is negative, which it was for the United States in 2014, a nation has spent more on foreign goods and

balance of trade A country's exports of goods and services minus its imports of goods and services.

trade deficit Occurs when a country's exports of goods and services are less than its imports of goods and services.

balance on current account The sum of income from exports of goods and services and income from investments and transfers minus payments for imports of goods and services and payments for investments and transfers.

MyEconLab Real-time data

TABLE 19.1   U.S. Balance of Payments, 2014

Current Account	Billions of dollars
(1) Goods exports	1,635.1
(2) Goods imports	−2,370.9
(3) Exports of services	709.4
(4) Imports of services	−478.3
(5) Balance of trade: $(1) - (2) + (3) - (4)$	−504.7
(6) Investment income	819.7
(7) Investment payments	−601.8
(8) Transfer income	127.1
(9) Transfer payments	−250.9
(10) Balance on current account: $(5) + (6) - (7) + (8) - (9)$	−410.6
Capital Account	
(11) Change in net U.S. liabilities	88.1
(12) Net receipts from financial derivatives	53.5
(13) Statisical discrepancy	269.0
(14) Balance of payments: $(10) + (11) + (12) + (13)$	0.0

Item (11) is the change in foreign assets in the United States minus the change in U.S. assets abroad. In 2014 this number was positive, which means that there was an increase in net U.S. liabilities.

Source: Bureau of Economic Analysis, March 19, 2015.

NOTATION

- Y output or income

- C consumption

- I investment

- G government purchases of goods and services—exogenous

- TR government spending on transfer payments (a negative tax)—exogenous

- t tax rate—exogenous

- TAX taxes

- T net taxes $(TAX - TR)$

- Y_d disposable income $(Y - T)$

- r interest rate

- P price level

- PM price of imports (cost variable)—exogenous

- Z "Z" variables in Fed rule—exogenous

- IM imports
- EX exports

AS/AD MODEL WITH IMPORTS

- $Y_d \equiv Y - T$ Definition

- $C = a + bY_d$ Behavioral (households)

- $I = d - e \cdot r$ Behavioral (firms)

- $Y = C + I + G + EX - IM$ Equilibrium condition

- $TAX = tY$ Behavioral (government)

- $T \equiv TAX - TR$ Definition

- $P = \delta + \epsilon Y + \zeta PM$ Behavioral (AS curve, firms)

- $r = \alpha Y + \beta P + \gamma Z$ Behavioral (Fed rule)

- $IM = \theta + mY$ Import demand (households, firms, government)

SOLUTION of MODEL

$$Y = C + I + G + EX - IM$$
$$= a + b(Y - tY + TR) + d$$
$$-e \cdot (\alpha Y + \beta[\delta + \epsilon Y + \zeta PM] + \gamma Z) + G$$
$$+EX - \theta - mY$$

Let $q = 1 - b + bt + e\alpha + e\beta\epsilon + m$.

Reduced form equation is:

$$Y = \frac{a}{q} + \frac{b}{q}TR + \frac{d}{q} - \frac{e\beta\delta}{q} - \frac{e\beta\zeta}{q}PM - \frac{e\gamma}{q}Z + \frac{1}{q}G$$
$$+\frac{1}{q}EX - \frac{\theta}{q}$$

If $b = .75, t = 1/3, e = .3, \epsilon = .3, \alpha = .3,$
$\beta = .3, m = .2$, then $q = 0.817$ and so $\frac{1}{q} = 1.22$.
This compares to $q = 0.617$ and $\frac{1}{q} = 1.62$ when
$m = 0$.

Why is the government spending multiplier smaller when import demand is added?

GDP

$$Y \equiv C_0 + I_0 + G_0 + EX$$

$$C \equiv C_0 + C_F$$

$$I \equiv I_0 + I_F$$

$$G \equiv G_0 + G_F$$

$$Y \equiv C - C_F + I - I_F + G - G_F + EX$$

$$\equiv C + I + G + EX - \underbrace{(C_F + I_F + G_F)}_{IM}$$

$$\equiv C + I + G + EX - IM$$

Current Account

$$CA \equiv PX \cdot EX - PM \cdot IM \quad | \quad Real: CA' = EX - IM$$

$$CA_{us} + CA_{CA} + CA_{SA} + \cdots \equiv 0$$

$$NW \equiv A - L$$

$$NW \equiv NW_{-1} + CA$$

TWIN DEFICITS

$CA' = EX - IM$

$D = G - T$

Say $G\uparrow$. Then $D\uparrow$ and $CA'\downarrow$ (because $IM\uparrow$ because $Y\uparrow$)

Say Stock Prices $\uparrow$.
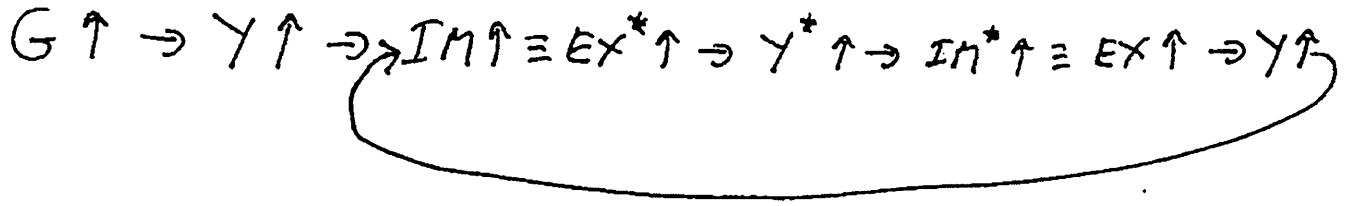
$Y\uparrow, D\downarrow, IM\uparrow, CA'\downarrow$

More on IM

IM: same as C
plus P vs PM $\left(\dfrac{P}{PM} \uparrow \rightarrow IM\uparrow \right)$

EX: same as IM but different country

TRADE FEEDBACK EFFECT

$$G\uparrow \rightarrow Y\uparrow \rightarrow IM\uparrow \equiv EX^*\uparrow \rightarrow Y^*\uparrow \rightarrow IM^*\uparrow \equiv EX\uparrow \rightarrow Y\uparrow$$

—— PRICE FEEDBACK EFFECT

$$P\uparrow \rightarrow PX\uparrow \equiv PM^*\uparrow \rightarrow P^*\uparrow \rightarrow PX^*\uparrow \equiv PM\uparrow \rightarrow P\uparrow$$

$$\underset{\text{fixed } e}{\uparrow}$$