
UNIT 8 BALANCE OF PAYMENTS*

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8.0 OBJECTIVES

After going through this unit you will be in a position to

- explain the Balance of Payments accounting principles in an open economy;
- identify the implications of trade deficit and surplus;
- explain how capital flows facilitate BoP equilibrium; and
- explain how equilibrium in the goods market takes place when net exports are added to domestic demand.

8.1 INTRODUCTION

A closed economy is one which does not import or export goods and services. In this sense, in the present day world, all countries are open economies; only the degree of openness varies. Openness has three distinct dimensions, viz., 1)

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Openness in goods market which provides an option to consumers and firms to choose between domestic goods and foreign goods, 2) Openness in financial markets which provides an option to financial investors to choose between domestic assets and foreign assets, and 3) Openness in factor markets which provides an option to firms to choose where to locate production and to workers to choose where to work.

We will concentrate on openness in the goods markets in this Unit. In an open economy, the residents have to choose between domestic goods and foreign goods. This brings in the role of the relative price of domestic goods in terms of foreign goods – the real exchange rate. In this Unit, we will include exports and imports in national income identity. In a closed economy there was no need to distinguish between the domestic demand for goods and the demand for domestic goods. However, in an open economy, exports are to be added and imports are to be subtracted to arrive at the demand for domestic goods. The factors which influence exports and imports; will also influence the demand for domestic goods and also the IS curve. The open economy IS curve includes net exports as a component of aggregate demand.

The present Unit also includes the balance of payments accounting principles. Openness in financial markets allows financial investors to hold both domestic assets and foreign assets. Openness in financial markets allows a country to have either trade surplus or trade deficit. A country running a trade deficit is buying more from the rest of the world than it is selling to the rest of the world. In order to pay for the difference between what it buys and what it sells, the country must borrow from the rest of the world. It borrows by making it attractive for foreign investors to increase their holdings of domestic assets. Let us begin with the relation between trade flows and financial flows.

8.2 BALANCE OF PAYMENTS ACCOUNTING PRINCIPLES

The demand for foreign exchange arises because its citizens want to buy things whose prices are quoted in foreign currencies. Whenever you (Indian citizen) purchase foreign goods, you first buy foreign currency (Dollar, Euro or Yen) and then make the purchases. The next question is where the supply of foreign exchange comes from. The domestic country, say India, earns foreign exchange when it exports goods, services or assets to another country.

Balance of payments (BoP) is the record of the transactions of the residents of the country with the rest of the world. The simple rule for BoP accounting is that any transaction that gives rise to a payment by a country's residents is a deficit item in that country's BoP.

Table 8.1: Account of a Country's Balance of Payments (BoP)**Balance of
Payments**

Credits	Debits
(1) Exports of goods	(5) Imports of goods
(2) Exports of Services	(6) Imports of Services
(3) Unrequited receipts (gifts, indemnities etc. from foreigners)	(7) Unrequited payments (gifts, indemnities etc. to foreigners)
(4) capital receipts (borrowings from, capital repayments by, or sale of assets to foreigners)	(8) capital payments (lending to, capital repayments to, or purchase of assets to foreigners)
Total Receipts	Total Payments

The left side of Table 8.1 shows the sources of acquiring foreign currency and the right hand side shows how the foreign currency is spent. The most straight forward way in which a country can acquire foreign currency is by exporting goods (row 1). In an analogous way row (5) shows the value of imported goods. These two rows describe the country's visible trade. Row (2) lists the receipts of the country from the sale of services to foreigners during the period in question. These services include shipping, banking and insurance services, income through tourism, interest and dividends earned on investments abroad. Analogously row (6) covers payments which residents of the country make to foreigners for similar services. Items in row (1), (2), (5) and (6) together form the trade items. The items in row (3) and (7) are referred to as transfer items. The items in row (3) are the receipts which the residents of a country receive "for free" without having to make any present or future payments in return. In a purely analogous way, row (7) describes payments which the country in question makes as gifts, assistance, indemnities etc. Items in rows (1), (2), (3), (5), (6) and (7) enumerate all the payments and receipts made for the current period of time; they all have a flow dimension and refer to a certain value of exports and imports per time period.

Items (4) and (8) are different. They express changes in stock magnitudes and refer to capital receipts and payments. They play a critical role. When a government, a corporation or an individual borrows money from abroad, the country acquires foreign currency. This is recorded as capital inflow. On the other hand, foreign nationals might acquire assets in the domestic country in the form of land, houses, productive plants, shares. All these items are recorded by row (4) along with changes in the country's stock of gold or reserves of foreign currency. Analogously, if residents of the country were to acquire foreign assets or if the government were to lend money to a foreign government, this would give rise to an outflow of foreign currency and are accounted as capital transfers under row (8).

8.3 CURRENT AND CAPITAL ACCOUNTS

There are several ways in which the BoP can be broken down vertically. We can first be concerned only with the export and import of goods. This gives us the 'balance of trade'. The balance of trade need not always be balanced. If the country exports more goods than it imports, it is said to have a favourable (or surplus) balance of trade. If it imports more goods than it exports, it has a unfavourable (or deficit) balance of trade.

Table 8.2: Disaggregation of Balance of Payments

Credits	Debits
(1) Exports of goods	(5) Imports of goods
(2) Exports of Services	(6) Imports of Services
(3) Unrequited receipts (gifts, indemnities etc. from foreigners)	(7) Unrequited payments (gifts, indemnities etc. to foreigners)
(4) Capital receipts (borrowings from, capital repayments by, or sale of assets to foreigners)	(8) Capital payments (lending to, capital repayments to, or purchase of assets to foreigners)
Total Receipts	Total Payments

Balance of current account is a broader concept than the balance of trade, as it includes i) the balance of trade, ii) the balance of services, and iii) the balance of unrequited transfers. The balance of current account can show a surplus or a deficit. The current account is in surplus if exports exceed imports plus net transfers to foreigners that is if receipts from trade in goods and services and transfer exceed payments on this account. Balance of current account is a very important concept, as it shows the flow aspect of a country's international transactions. We could say that all the goods and services produced within the country during the time period in question and exported, are entered on the credit side of the balance of current account. Similarly, all the goods and services imported and consumed within the country during the same period are entered on the debit side of the balance of current account.

The deficit/ surplus on the current account must be settled. If a country has a deficit on the balance of current account, the country has spent more abroad during the period than it has earned. A way to settle this is by a transaction on the capital account. The capital account records purchases and sales of assets such as stocks, bonds and land, and borrowings and lending from/ to foreigners by government, corporations and individuals, any change in country's gold stock or reserves of foreign currency. The deficit in current account can thus be financed by borrowing abroad, by selling assets or by depleting the reserves of foreign currency.

8.4 TYPES OF CAPITAL FLOWS: AUTONOMOUS AND ACCOMODATING

Balance of
Payments

In case a country has a deficit in its balance of current account, there will always be offsetting transactions on the capital account to bring the balance of payments into equilibrium. This can be done either through autonomous or accommodating capital flow. The implications of these two flows for BoP are quite different. Hence we must distinguish between these two flows. Autonomous capital flows are ordinary capital flows which take place regardless of other items in the balance of payments. These flows can be caused by a foreigner paying back a loan, or a person/company taking up a loan abroad by issuing bonds. These transactions have an effect on the country's balance of payments but they are in no way caused by balance of payments consideration. These flows are planned capital movements. The individuals, firms or government for different reasons plan to engage in capital transactions with the rest of the world giving rise to autonomous capital flows.

Accommodating capital movements are capital flows that take place specifically to equalise the balance of payments in the book keeping sense. These flows can take various forms. Foreign firms might accept short term claims on firms in the country or perhaps a foreign government extends a loan to the country. In all these cases the accommodating capital movements are direct consequences of the balance of payments situations. Accommodating capital flows are unforeseen capital flows, which are needed to bring the balance of payments into equilibrium. These flows are ex post in nature. Only at the end of the period can one discover whether accommodating movements have taken place. In the sense they are unplanned and appear as a result of the economic activity which has taken place during that period. If a deficit is settled by an accommodating capital flow, it can be viewed as warning signal for the country. The deficit could have been settled by a short term loan or a depletion of reserves. Usually this condition cannot continue forever. Lenders are seldom willing to extend short term loans forever, and reserves have a tendency to become depleted. The government must in such a situation change its economic policy to abolish the deficit in the balance of payments that has caused the accommodating inflow.

8.5 EQUILIBRIUM/ DISEQUILIBRIUM IN BALANCE OF PAYMENTS

In a trivial sense the balance of payments will always be in equilibrium. A deficit on the current account will have to be financed by either borrowing abroad or by depleting the reserves of foreign currency. On the contrary, if the country has a surplus on the current account, it will have to export capital by lending money abroad for instance. In this book keeping sense the balance of payments will always balance.

Current Account + Capital Account = 0

In what sense can we then have disequilibrium in balance of payments? If the government has to take recourse of accommodating capital inflow to finance a current account deficit, then it is usually a warning signal. The government must change its economic policy to reduce the deficit in the balance of payments that has caused accommodating inflow. Surpluses do not usually create great problems. The increase in official reserves of the country is referred to as an overall balance of payments surplus. Analogously depletion of reserves through accommodating capital flows is referred to as balance of payments deficit. When the central bank is losing reserves, the balance of payments is in deficit.

Check Your Progress 1

- 1) Explain how surplus on the current account is settled.

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- 2) Enumerate the difference between Balance of Trade, Balance of Current Account, and Balance of Capital Account.

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- 3) Do you agree with the statement, "Balance of Payments always balances". List your reasons.

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8.6 NATIONAL INCOME ACCOUNTS FOR AN OPEN ECONOMY

Consider the expenditure on an economy's output of goods and services. In a closed economy, all output is sold domestically, and expenditure is divided into three components: consumption (C), investment (I) and government purchases (G). In an open economy some output is sold domestically and some is exported to be sold abroad. We can divide expenditure on an open economy's output, Y, into four components: 1) Cd, consumption of domestic goods and services; 2) Id, investment in domestic goods and services; 3) Gd, Government purchases of

domestic and goods and services; 4) X, Exports of domestic goods and services. We assign subscripts 'd' for domestic and 'f' for foreign, respectively.

The division of expenditure into these components is expressed in the identity

$$Y = C_d + I_d + G_d + X \quad \dots (8.1)$$

The sum of first three terms, $(C_d + I_d + G_d)$, is domestic spending on domestic goods and services. The fourth term, X, is foreign spending on domestic goods and services.

Note that domestic spending on all goods and services equals domestic spending on domestic goods and services plus domestic spending on foreign goods and services. Hence, total consumption equals consumption of domestic goods and services, C_d , plus Consumption of foreign goods and services, C_f ; total investment, I equals investment in domestic goods and services, I_d , plus investment in foreign goods and services, I_f ; and total government expenditure equals government purchases of domestic goods and services, G_d , plus government purchases of foreign goods and services, G_f . Thus,

$$C = C_d + C_f \quad \dots (8.2)$$

$$I = I_d + I_f \quad \dots (8.3)$$

$$G = G_d + G_f \quad \dots (8.4)$$

We substitute these three equations into the equation 8.1:

$$Y = (C - C_f) + (I - I_f) + (G - G_f) + X \quad \dots (8.5)$$

We can rearrange to obtain

$$Y = C + I + G + X - (C_f + I_f + G_f) \quad \dots (8.6)$$

The sum of domestic spending on foreign goods and services $(C_f + I_f + G_f)$ is expenditure on imports (M). We can write the national income accounts identity as

$$Y = C + I + G + X - M \quad \dots (8.7)$$

Because spending on imports is included in domestic spending $(C + I + G)$ and because goods and services imported from abroad are not a part of a country's output, this equation subtracts spending on imports. Defining net exports to be exports minus imports $(NX = X - M)$, the identity becomes

$$Y = C + I + G + NX \quad \dots (8.8)$$

This equation states that expenditure on domestic output is the sum of consumption, investment, government purchases and net exports. The above equation can be rearranged as

$$NX = Y - (C + I + G) \quad \dots (8.9)$$

Net Exports = (Output – Domestic Spending)

Equation (8.9) shows that in an open economy, domestic spending need not equal domestic product, or goods produced in the country. If output exceeds domestic spending, we export the difference: net exports are positive. If output falls short of domestic spending, we import the difference: net exports are negative. The key macroeconomic difference between open and closed economies is that, in an open economy a country's spending in any given year need not equal its output of goods and services, a country can spend more than it produces by borrowing from abroad, or it can spend less than it produces and lend the difference to foreigners.

8.7 TRADE IN GOODS, MARKET EQUILIBRIUM, BALANCE OF TRADE

When we assumed that the economy is closed to trade, there is no need to distinguish between the domestic demand for goods and the demand for domestic goods: they meant the same thing. Now, we must distinguish between the two. Some domestic demand falls on foreign goods, and some of the demand for domestic goods comes from foreigners.

In an open economy, the demand for domestic goods is given by

$$Z = C + I + G + X - M/R \quad \dots (8.10)$$

The first three terms – consumption (C), investment (I), and government spending (G) – constitute the domestic demand for goods. If the economy were closed, $C + I + G$ would also be the demand for domestic goods. First, we must subtract imports – that part of the domestic demand that falls on foreign goods rather than on domestic goods. We must be careful here: foreign goods are different from domestic goods, so we cannot just subtract the quantity of imports, M . If we were to do so, we would be subtracting apples (foreign goods) from oranges (domestic goods). We must first express the value of imports in terms of domestic goods. The real exchange rate, R , is defined as the price of domestic goods in terms of foreign goods. $1/R$ is the price of foreign goods in terms of domestic goods. So, M/R is thus the value of imports in terms of domestic goods. Second, we must add exports (X), that part of the demand for domestic goods that comes from abroad. This is captured by the term X in equation (8.10).

8.7.1 Determinants of C, I and G

Consumption, investment and government spending decisions are not affected by the openness of the economy. Real exchange rate affects the composition of consumption spending between domestic goods and foreign goods; however it does not affect the overall level of consumption. Similarly, real exchange rate may affect the composition of investment demand – whether firms buy domestic machines or foreign machines, but it should not affect total investment. Therefore,

$$\text{Domestic Demand: } C + I + G = C(Y-T) + I(Y, r) + G \quad \dots (8.11)$$

(+) (+, -)

The (+) and (–) signs below a variable indicates the nature of relationship between variables in a function. In equation (8.11) the (+) sign below the variable (Y–T) indicates that there is a positive relationship between the variables C and (Y–T). Similarly, investment, I, depends positively on production, Y, and negatively on the interest rate, r. We assume government spending, G, as given (i.e., exogenous).

8.7.2 Determinants of Imports

Imports are domestic demand for foreign goods. It depends positively on both domestic income and exchange rate. Higher domestic income leads to a higher domestic demand for all goods, both domestic and foreign. So a higher domestic income leads to higher imports. Imports also depend on real exchange rate. Depreciation in domestic currency makes foreign goods more expensive. This leads to a decline in demand for foreign goods compared to domestic goods. Thus an increase in the real exchange rate, R, leads to an increase in imports, M. Thus, we write imports as

$$M = M(Y, R) \quad \dots (8.12)$$

(+, +)

8.7.3 Determinants of Exports

Exports are foreign demand for domestic goods. It depends on foreign income and exchange rate. Higher foreign income means higher foreign demand for all goods, both foreign and domestic. So, higher foreign income leads to higher exports. Higher the price of domestic goods in terms of foreign goods the lower the exports. In other words, the higher the real exchange rate (appreciation in domestic currency), the lower are exports. We therefore write exports as

$$X = X(Y_f, R) \quad \dots (8.13)$$

(+, –)

An increase in foreign income, Y_f , leads to an increase in exports. An increase (appreciation) in the real exchange rate, R, leads to a decrease in exports.

8.7.4 Putting the Components Together

We assume that the price level is given and that output demanded will be supplied. We do not include capital account at this stage, so for the time being current account and balance of payments are the same. Fig. 8.1 plots the various components of demand against output, keeping constant all other variables (interest rate, taxes, government spending, foreign output and real exchange rate) that affect demand. In Fig. 8.1(a), the line DD plots domestic demand, $C + I + G$, as a function of output, Y. Under our standard assumptions, the slope of the relation between demand and output is positive but less than 1. An increase in output (equivalently, an increase in income) increases demand but less than one-for-one. To arrive at the ‘demand for domestic goods’, we subtract imports and add exports.

Fig. 8.1: Panel a: Domestic Demand

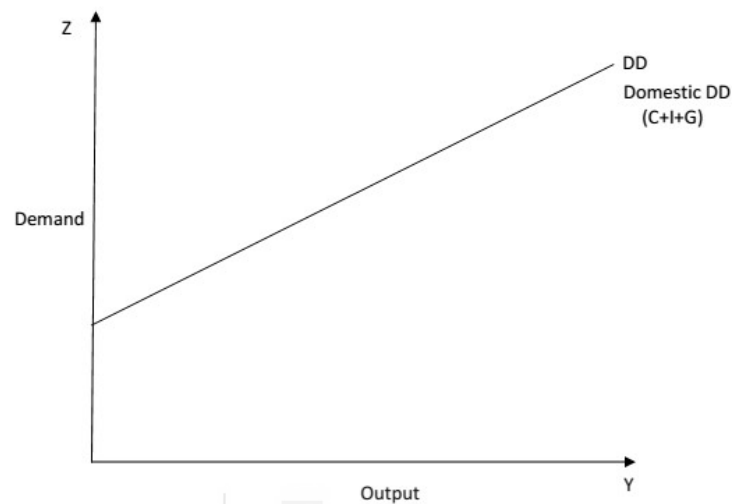


Fig. 8.1 (a) shows the line DD which plots the domestic demand, $C + I + G$ as a function of output, Y .

In Fig. 8.1(b) we subtract imports from domestic demand, and it gives us the line AA. The line AA represents the domestic demand for domestic goods. The distance between DD and AA equals the value of imports, (M/R) . Because the quantity of imports increases with income, the distance between the two lines increases with income.

Fig. 8.1: Panel b: Domestic Demand and Imports

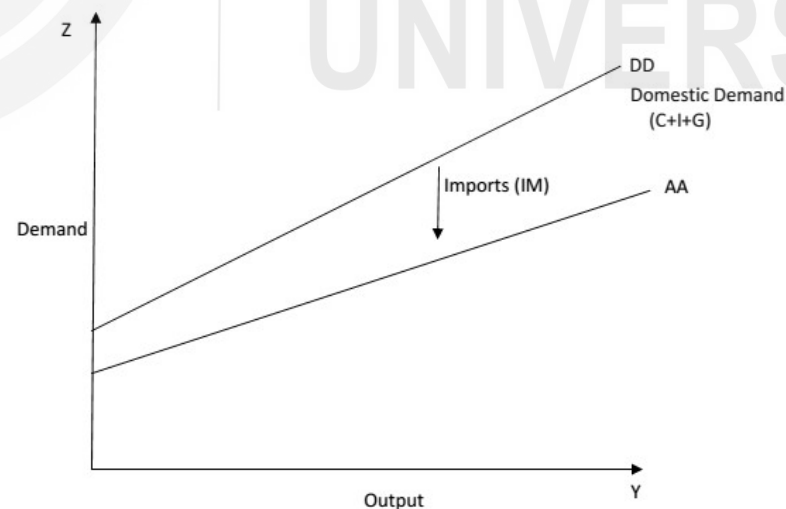


Fig. 8.1 (b) plots AA line which represents the domestic demand for domestic goods. The distance between DD and AA equals the value of imports.

We observe that AA is flatter than DD; as income increases, part of the additional domestic demand is for foreign goods rather than for domestic goods. In other words, as income increases, the domestic demand for domestic goods increases less than total domestic demand. Further, AA has a positive slope – an increase in income leads to some increase in the demand for domestic goods.

Fig. 8.1: Panel c: Demand for Domestic Goods and Net Exports

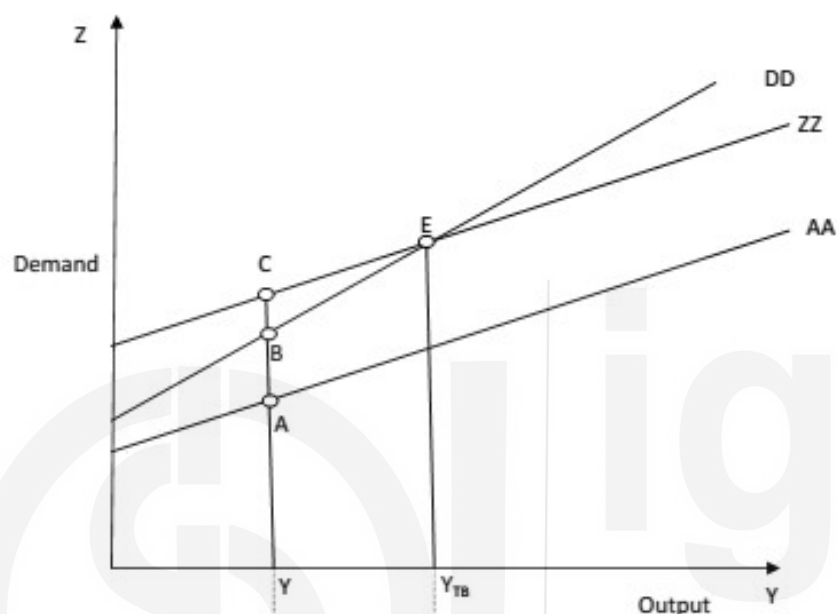


Fig. 8.1: Panel d: Trade Balance

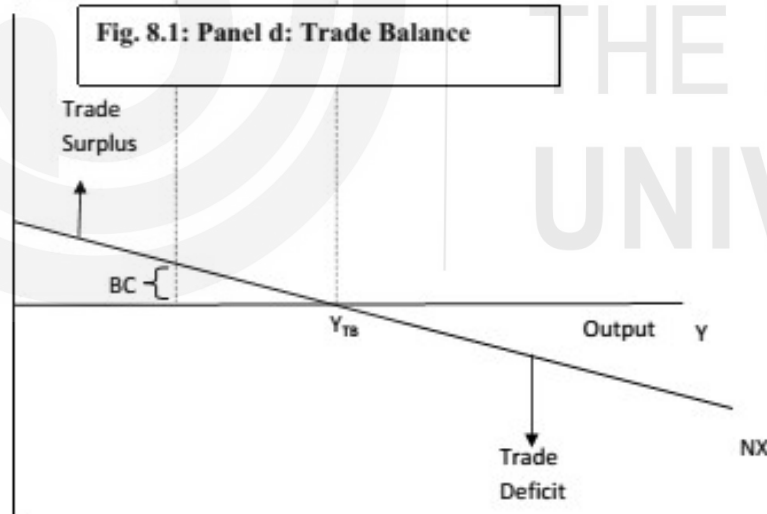


Fig. 8.1 (c) plots ZZ line which represents demand for domestic goods and is arrived by adding exports to the ZZ line. At output level, Y , exports are given by the distance AC and imports by the distance AB so net exports are given by the distance BC.

Fig. 8.1 (d) shows net exports as a decreasing function of output. Y_{TB} is the level of output at which the value of imports equals the value of exports.

In Fig. 8.1 (c) we add exports, and it gives us the line ZZ, which is above AA. The line ZZ represents the demand for domestic goods. The distance between ZZ and AA equals exports. As exports do not depend on domestic income (they depend on foreign income), the distance between ZZ and AA is constant, i.e., both lines are parallel. Since AA is flatter than DD, ZZ is also flatter than DD.

From Fig. 8.1 (c), we can characterise net exports as a function of output. At output level Y, for example, exports are given by the distance AC and imports by the distance AB, so net exports are given by the distance BC.

This relation between net exports and output is represented as the line NX (for Net Exports) in Fig. 8.1(d). Net exports are a decreasing function of output: as output increases, imports increase, and exports are unaffected, so net exports decrease. Call YTB (TB for trade balance) the level of output at which the value of imports equals the value of exports, so that net exports are equal to 0. Levels of output above YTB lead to higher imports and to a trade deficit. Levels of output below YTB lead to lower imports and to a trade surplus.

8.7.5 Goods Market Equilibrium

For the goods markets to be in equilibrium, output (the left side of the equation 8.14) must be equal to the demand for domestic goods (the right side of the equation 8.14).

$$Y = C(Y-T) + I(Y, r) + G + X(Y_f, R) - M(Y, R)/R \quad \dots(8.14)$$

(+) (+,-) (+,-) (+,+)

The demand for domestic goods is equal to consumption, C plus Investment, I plus Government spending, G plus the value of exports, X minus the value of imports, M.

Consumption, C, depends positively on disposable income, (Y-T).

Investment, I, depends positively on output, Y and negatively on the real interest rate, r.

Government spending, G, is taken as given.

The quantity of exports, X, depend positively on foreign output, Y_f and negatively on the real exchange rate, R (a rise in real exchange rate implies and increase in the value of domestic goods in terms of foreign goods that is, a real exchange rate appreciation. This real exchange rate appreciation will make domestic goods costlier in terms of foreign goods and will make foreign goods cheaper for domestic residents. It will thus reduce the volume of exports and raise the volume of imports).

The volume of imports, M, depends positively on output, Y. When domestic income goes up, the spending by domestic residence increase on all goods

including imports. Imports depend positively on real exchange rate. An increase in the real exchange rate that is real exchange rate appreciation will raise the volume of imports by making them cheaper for domestic residents. The value of imports in terms of domestic goods is equal to the quantity of imports divided by the real exchange rate.

Fig. 8.2: Equilibrium in the Goods Market

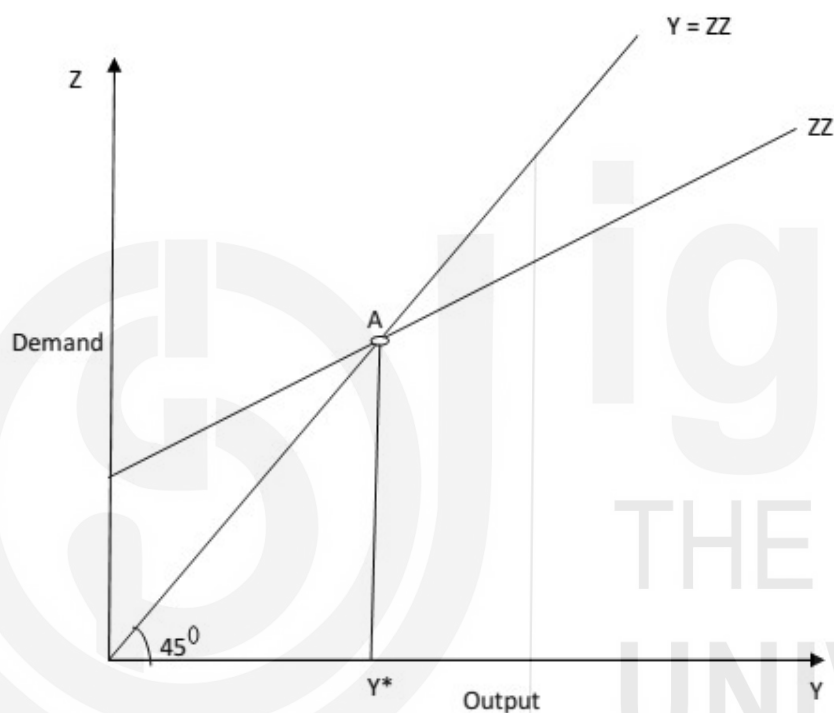


Fig. 8.2 shows the equilibrium in the goods market is attained at the intersection of the ZZ line (represent the demand for domestic goods) and the $Y = ZZ$ line. Y^* is the equilibrium level of output.

This equilibrium condition determines output as a function of all the variables we take as given, from taxes to the real exchange rate to foreign output. In Fig. 8.2, demand is measured on the vertical axis, and output (equivalently production or income) is measured on the horizontal axis. The line ZZ plots demand as a function of output; this line simply replicates the line ZZ in Fig. 8.1; ZZ is upward-sloping but with slope less than 1. Equilibrium output is at the point

where demand equals output, at the intersection of the line ZZ and the 45° line, $Y=ZZ$, point A in the figure, with associated output level Y^* .

8.7.6 Net Exports

The difference between exports and imports ($X - M$) is called net exports (NX) or the trade balance. If exports exceed imports, the country is said to run a trade surplus. If exports are less than imports, the country is said to run a trade deficit.

Net exports or the excess of exports over imports; depend on our income, Y , which determines import spending; on foreign income, Y_f , which affects foreign demand for domestic goods (exports) and on real exchange rate, R .

$$NX = X(Y_f, R) - M(Y, R) \quad \dots(8.15)$$

$$= NX(Y, Y_f, R) \quad \dots(8.15a)$$

(-, +, -)

Three important results follow from equation (8.15a).

A rise in foreign income other things being equal raises the demand for exports. It improves the home country's trade balance and therefore raises the home country's aggregate demand.

An increase in the real exchange rate leads to a decrease in net exports. A real appreciation of dollar against euro will make imports cheaper for the US residents and US exports costlier for Europeans by raising the price of domestic currency in terms of foreign currency.

A rise in domestic income raises consumption of all goods including imports. Higher import spending worsens net exports and trade balance.

Using equation (8.15a), we can rewrite the equilibrium condition in equation (8.14) as

$$Y = C(Y-T) + I(Y, r) + G + NX(Y, Y_f, R) \quad \dots(8.16)$$

(+) (+, -) (-, +, -)

The implications of equation (8.16) are as follows:

An increase in interest rate leads to a decrease in investment spending, and as a result, to a decrease in the demand for domestic goods. It leads, through the multiplier, to a decrease in output.

An increase in the exchange rate leads to a shift in demand toward foreign goods and, as a result, to a decrease in net exports. A decrease in net exports decreases the demand for domestic goods. It leads, through the multiplier, to a decrease in output.

Check Your Progress 2

Balance of Payments

- 1) What are the factors that affect the exports, imports and net exports?

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- 2) Distinguish between domestic demand for goods and demand for domestic goods.

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8.8 THE IS CURVE IN OPEN ECONOMY

The IS curve shows the equilibrium level of GDP associated with each interest rate. The GDP is in equilibrium when desired expenditure/ aggregate demand equal actual output, Y or when injections equal withdrawals. The open economy IS curve includes net exports as a component of aggregate demand. Therefore, the equation of the IS curve is derived by equating output to aggregate demand which includes consumption, investment, government expenditure and net exports. In equation form we can say

$$Y = C(Y - T) + I(Y, r) + G + NX(Y, Y_f, R)$$

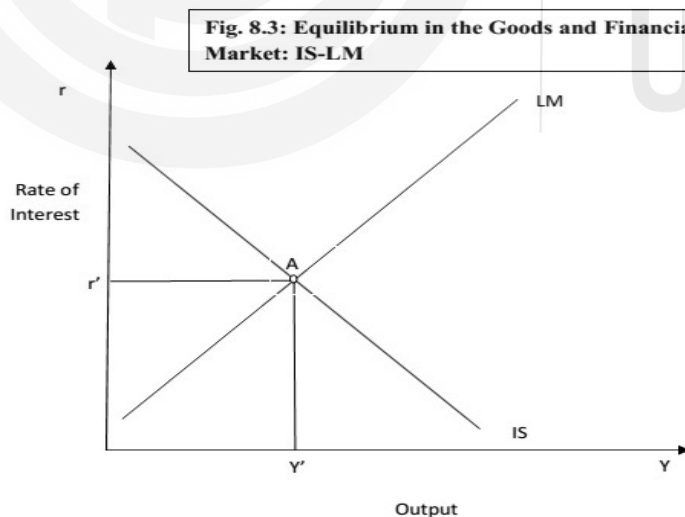


Figure 8.3 illustrates the IS curve which shows the combinations of interest rate and output for which goods market is in equilibrium and the LM curve which shows the combinations of interest rate and output for which money market is in equilibrium. Equilibrium occurs at point A with equilibrium level of output equal to Y' .

The IS curve depicted in Fig. 8.3, is negatively sloped because higher interest rates cause investment to fall, which shifts ZZ down and lowers equilibrium GDP. In contrast, lower interest rates cause investment to rise, which shifts ZZ up and raises equilibrium GDP. The curve looks very much the same as in the closed economy, but it hides a more complex relation than before. In all cases, the IS curve shows the relationship between interest rates and level of income at which desired expenditure flows are equal to actual output or desired withdrawals are equal to desired injections. However, the flows of withdrawals and injections are different in a closed economy from an open economy. In a closed economy with no government sector, the IS curve shows the combinations of interest rate and GDP for which saving and investment are equal. In an open economy with government sector, the IS curve shows the combinations of interest rate and GDP for which withdrawals in the form of savings, S ; taxes, T ; and imports, M ; ($S + T + M$) are equal to injection in the form of investment, I ; government purchases, G ; and exports, X ; ($I + G + X$). In this case the IS curve is drawn for given values of government spending, exports, autonomous consumption as well as the tax rate.

The LM relation in an open economy is exactly the same as in a closed economy. The LM curve is upward sloping. For a given value of real money stock, M/P , an increase in output leads to an increase in the demand for money, and to an increase in the equilibrium interest rate.

Equilibrium in the goods and financial market, is attained at point A in Fig. 8.3 with output level, Y' and interest rate, r' .

Shifts in the IS Curve

An increase in the exogenous spending, shifts the ZZ curve up in Fig. 8.4, so it shifts the IS curve to the right. In an open economy, changes in real exchange rate, R and foreign income, Y_f shift the IS curve, in addition to changes in autonomous consumption, government expenditure and tax rate. A depreciation (increase in real exchange rate) increases the demand for domestic goods, shifting the IS curve out and to the right. Likewise, an increase in foreign income and with it, an increase in foreign spending on our goods will increase net exports or demand of our goods.

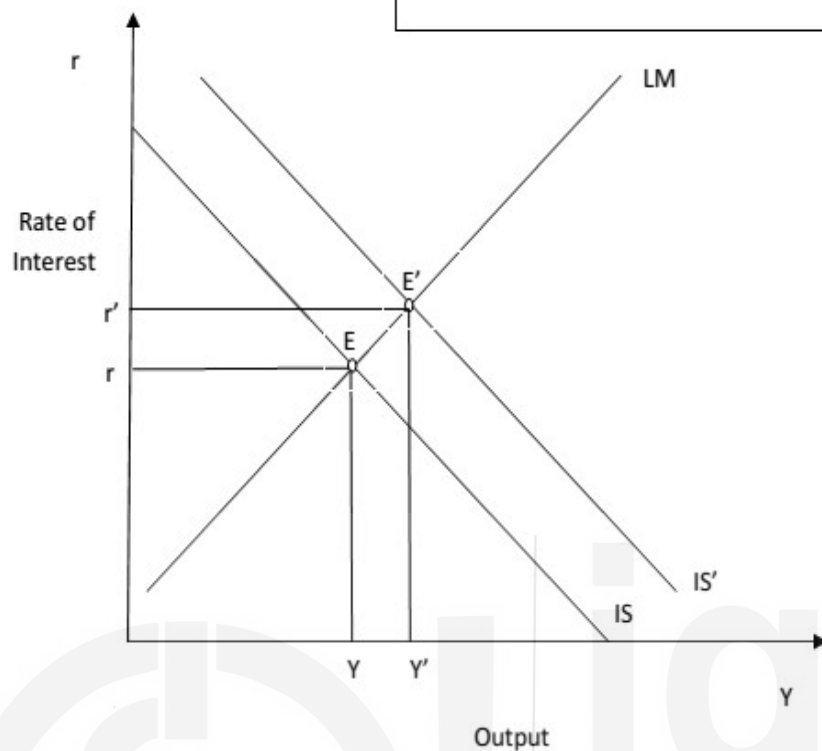
Fig. 8.4: Shifts in the IS Curve

Fig. 8.4 shows rightward shifts in IS curve on account of rise in foreign demand leading to an increase in interest rate and domestic output.

Fig. 8.4 shows the effect of a rise in foreign income. Higher foreign spending on domestic goods raises domestic country's exports and hence, at unchanged interest rate, requires an increase in output. This is shown by the rightward shift of the IS curve. The full effect of an increase in foreign demand, thus, is an increase in interest rate and an increase in domestic output and employment. On other hand, a weakening of foreign economies reduces their imports and hence pulls down domestic demand. It leads to decrease in equilibrium output and interest rate.

Fig. 8.4 can also help explain the effect of depreciation in exchange rate. A depreciation raises the net exports at each level of income and hence shifts the IS curve upward to the right. Thus depreciation leads to a rise in our equilibrium output.

Table 8.3 below summarises the effect of different disturbances on the level income and net export.

Table 8.3: Effects of Disturbance on Income and Net Exports

	Increase in Domestic Income, Y	Increase in Foreign Income, Y _f	Increase in Real Exchange Rate (real appreciation), R
Income	+	+	–
Net Exports	–	+	–

Table 8.3 summarises the effect of disturbances (changes in domestic income, foreign income and real exchange rate) on the level income and net export.

8.9 CAPITAL MOBILITY

In the simplest world, in which exchange rates are fixed forever, taxes are the same everywhere, and foreign asset holders never face political risks, we would expect all asset holders to pick the asset that has the highest return. That would force asset returns into strict equality everywhere in the world capital markets because no country could borrow for less. For now we will assume perfect capital mobility. Capital is perfectly mobile internationally when investors can purchase assets in any country they choose, quickly, with low transaction costs and in unlimited amounts. When capital is perfectly mobile, asset holders are able to move funds across borders in search of highest returns or lowest borrowing costs.

8.9.1 International Capital Flows and the Trade Balance

To see the relationship between international capital flows and the trade balance, let us look at the national income accounts identity in terms of saving and investment.

$$Y = C + I + G + NX$$

Subtract $(C + G)$ from both sides to obtain

$$Y - C - G = I + NX \quad \dots (8.17)$$

Since $(Y - C - G)$ is national saving, S,

$$S = I + NX, \text{ or } (S - I) = NX \quad \dots (8.18)$$

This form of national income accounts identity shows that an economy's net exports always equal the difference between its saving and investment. The right hand side of the identity, NX, the net export of goods and services, is also called

the trade balance. It tells us how our trade in goods and services departs from the benchmark of equal imports or exports.

The left hand side of the identity is the difference between domestic saving and domestic investment, $(S - I)$, the net capital outflow. Net capital outflow equals the amount that domestic residents are lending minus the amount that foreigners are lending to us. The national income accounts identity shows that net capital outflows always equals the trade balance.

If $(S - I)$ and NX are positive, we have a trade surplus. In this case, we are net lenders in the world financial markets and we are exporting more goods than we are importing. If $(S - I)$ and NX are negative, we have a trade deficit. In this case we are net borrowers in the world, and we are importing more goods than we are exporting. If $(S - I)$ and NX are exactly zero, we are said to have a balanced trade because the value of imports equal the value of exports.

8.9.2 Balance of Payments and Capital Flows

We now introduce the role of capital flows within a framework in which we assume that the home country faces a given price of imports and a given export demand. In addition we assume that the world rate of interest, r_f , is given. With perfect capital mobility, capital flows into the country at an unlimited rate if the country's interest rate is above the foreign rate of interest, capital outflows will be unlimited.

The Balance of Payments surplus, BP , is equal to the trade surplus, NX , plus the capital account surplus, CF :

$$BP = NX(Y, Y_f, R) + CF(r - r_f) \quad \dots(8.19)$$

Equation (8.19) shows the trade balance as a function of domestic and foreign income and the real exchange rate, and the capital account as a function of the interest rate differential. An increase in income worsens the trade balance and an increase in interest rate above the world level pulls in capital from abroad and thus improves the capital account. It follows that when income increases, even the tiniest increase in the interest rates is enough to maintain overall balance of payments equilibrium. The trade deficit would be financed by capital inflow.

8.9.3 Policy Dilemmas

Countries frequently face policy dilemma, in which a policy designed to deal with one problem worsens another problem. Very often there is a conflict between the goals of external and internal balance.

Fig. 8.5: External vs. Internal Balance

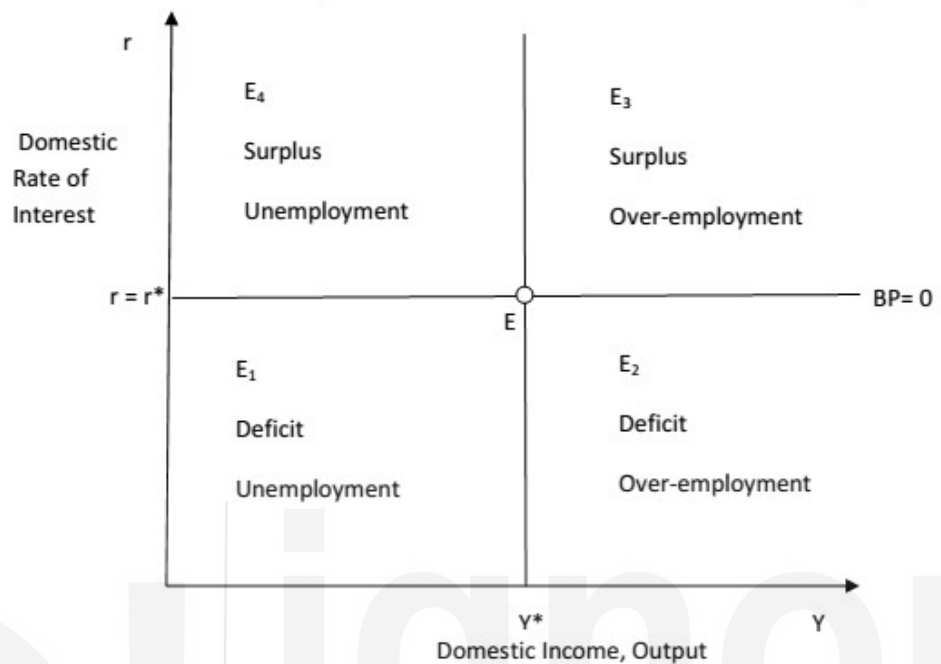


Fig. 8.5 shows $BP = 0$ line along which we have Balance of Payments equilibrium. Points above the $BP = 0$ line correspond to a surplus and points below it to a deficit. The full employment output level is Y^* .

External balance exists when the balance of payments is close to zero. Otherwise, the central bank will run down its reserves in case of net outflow and accumulate reserves in case of net inflow. Internal balance exists when output is at the full employment level. In Fig. 8.5, we show the line $BP = 0$, derived from equation (8.19), along which we have balance of payments equilibrium. Our key assumption, i.e., perfect capital mobility, forces the $BP = 0$ line to be horizontal. Only at a level of interest rate equal to that of the rates abroad, can we have external balance: If domestic interest rates are higher, there is a huge capital inflow resulting in surplus in capital account and overall surplus. On the other hand, if domestic interest rate is below foreign interest rates, there is unlimited capital account deficit.

Thus $BP=0$ must be flat at the level of world interest rates. Points above the $BP=0$ schedule correspond to a surplus, and points below to a deficit. The full employment output level is Y^* . Point E is the only point at which both internal balance and external balance are achieved. Point E1, for example, corresponds to a case of unemployment and a balance of payments deficit. Point E2, by contrast, is a case of deficit and over employment.

We can talk about policy dilemmas in terms of points in the four quadrants of Fig. 8.5 below. For instance, at point E1, there is a deficit in the balance of payments, as well as unemployment. An expansionary monetary policy would deal with the unemployment problem but worsen the balance of payments (Rightward shift of LM curve would increase the equilibrium output/employment but would lower the domestic rate of interest. The lower domestic rate of interest will make the domestic economy less lucrative for foreign investors). If the country can find a way of raising the interest rate, it would obtain financing for the trade deficit. That means that both monetary and fiscal policies would have to be used to achieve external and internal balance simultaneously.

Check Your Progress 4

- 1) Explain how the IS curve is derived.

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- 2) Explain why there could be a conflict between external and internal balance.

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8.10 LET US SUM UP

In an open economy, the residents can consume more than what they produce by borrowing from the rest of the world. All such transactions of the residents with the rest of the world are recorded in the Balance of Payments. Balance of Payments has two main components: the current account and the capital account. A deficit in the current account has to be settled by a transaction in the capital account. A deficit in the current account can be settled by three methods, viz., (i) borrowing abroad, (ii) selling assets, and (iii) depleting foreign exchange reserves.

National Income accounting for an open economy is different from that of a closed economy in the sense that exports are to be added and imports are to be subtracted to arrive at the demand for domestic goods, the ZZ curve. Equilibrium in the goods market is attained by equating national income with the sum of consumption, investment, government expenditure, and net exports. Imports are positively affected by domestic income and real exchange rate. Exports are affected positively by foreign income and negatively by exchange rate. Net

exports, which are the excess of exports over imports, are positively affected by foreign income, and negatively by domestic income and exchange rate. An increase in net exports will raise the domestic demand and equilibrium level of income. It will cause the IS curve to shift rightward.

The unit concluded by presenting a note on capital mobility. Net capital outflows are the amount that domestic residents are lending minus the amount that foreigners are lending to us. The net capital outflow always equals the trade balance. A positive (negative) capital outflow and trade balance implies that we are net lenders (net borrowers).

8.11 ANSWERS/ HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) A surplus in current account is settled by a reverse transaction in the capital account. It must be settled by either lending abroad or buying assets abroad or by accumulating reserves of foreign currency.
- 2) Balance of trade includes exports and imports of goods. Balance of current account includes balance of trade, balance of services, and balance of unrequited transfers. Balance of capital account records purchases and sales of assets such as stocks and bonds; borrowings and lending from/ to foreigners by government, corporations and individuals; any change in country's gold stock or reserves of foreign currency.
- 3) It is true only as an accounting principle. However, if deficit is financed by an accommodating capital inflow then it is a warning signal for the government to change its economic policy.

Check Your Progress 2

- 1) Imports are positively affected by domestic income and real exchange rate, while, exports are positively affected by foreign income and negatively by real exchange rate. Net Exports, which is the excess of exports over imports, are positively affected by foreign income and negatively by domestic income and real exchange rate.
- 2) Go through Section 8.7 and answer.

Check Your Progress 3

- 1) The IS curve is derived by equating national income to the aggregate demand. It is negatively sloped and is drawn for given values of C , G , R , T , r , Y_f .
- 2) Go through Section 8.9 and answer.