UNIT 6 FISCAL POLICY IN KEYNESIAN MODEL[*]

Structure

6.0 OBJECTIVES

After going through this Unit, you should be in a position to

- identify the changes in the Keynesian model when government sector is introduced;
- explain the government spending multiplier and how it is different from investment multiplier;
- explain the change in equilibrium output level due to introduction of government sector;
- discuss the role of automatic stabilizers;
- explain the change in AD curve when government expenditure or tax rate change;
- identify the components of government budget; and
- explain how the budget surplus changes as government expenditure or tax rate change.

6.1 INTRODUCTION

This Unit is an extension of the previous one. In this Unit we introduce the government sector in the Keynesian model. We extend our two-sector model to a three sector model; thus there are three economic agents, viz., households, firms and government. Thus $AD = C + I + G$.

Once we introduce the government sector, certain changes are needed to be carried out in the Keynesian model. Government has the power of earning revenue by imposing taxes. Government also spends money for the welfare of people.

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Sometimes, government needs to borrow when its revenues are less than expenditure. Such a situation is called *budget deficit*. When revenue exceeds government expenditure, it is a situation of *budget surplus*. Government exercises *fiscal policy* by varying the tax rate or changing the level of government expenditure. The objective of government intervention is to smoothen the operation of the economy.

6.2   THE GOVERNMENT SECTOR

Government affects the equilibrium level of income and output as it purchases goods and services. Hence, government purchases (G) is an important component of the aggregate demand (AD).

$$AD = C + \bar{I} + G \qquad \qquad \text{…(6.1)}$$

where, $\bar{I}$ is planned or autonomous investment, which is independent of income. In other words, we assume that investment is fixed or constant.

As government sector collects tax from individuals, there may be certain changes in the consumption function ($C = \bar{C} + cY$). Consumption is dependent upon disposable income (Y_D) instead of total income. We know that

$$Y_D = Y - TA$$

where Y is the aggregate income and TA is the tax. Another component which finds its way in the disposable income is government transfers (TR) such as subsidies, pensions, scholarships, etc. These are an addition to the individual's income (Y) but there is no corresponding output. So,

$$Y_D = (Y - TA + TR) \qquad \qquad \text{…(6.2)}$$

By substituting Y_D in place of Y in (6.1), we get AD as

$$AD = \bar{C} + cY_D + \bar{I} + G$$

By substituting the value of Y_D from (6.2) we have

$$AD = \bar{C} + c(Y - TA + TR) + \bar{I} + G \qquad \qquad \text{…(6.3)}$$

We assume that government expenditure is fixed at $\bar{G}$; also government makes a constant amount of transfer $\overline{TR}$. Government collects a fraction of income (tY) as taxes.

So, $G = \bar{G}$

$$TR = \overline{TR}$$

$$TA = tY$$

Now the consumption function can be written as:

$$C = \overline{C} + c(Y + \overline{TR} - tY)$$
$$= \overline{C} + c\overline{TR} + c(1 - t)Y \qquad \qquad …(6.4)$$

It is important to note here is that transfers ($\overline{TR}$) are increasing the consumption spending by ($c\overline{TR}$), i.e., marginal propensity to consume times the amount of transfers. On the other hand, income tax lowers the consumption spending at each level of income. This is because taxes affect disposable income (Y_D) and not the income (Y) as such. So, the marginal propensity to consume (mpc) out of disposable income remains *c* but marginal propensity to consume out of income is c(1 – t) where (1 – t) is a function of income after deduction of taxes. Let us explain this with the help of an example.

Let us assume that marginal propensity to consume from disposable income is 80 per cent and tax rate is 20 per cent. Thus c = 0.8 and t = 0.2; and *mpc* out of income is c(1 – t) = 0.8(1 – 0.2) = 0.8(0.8) = 0.64.

Now, going back to the AD in equation (6.3) we find that

$$AD = [\overline{C} + c\overline{TR} + \overline{I} + \overline{G}] + c(1 - t)Y$$

$$AD = \overline{A} + c(1 - t)Y \qquad \qquad …(6.5)$$

We have taken all the autonomous terms together and denote it by $\overline{A}$. As pointed out earlier, income and output levels get affected with the introduction of the government sector. We will see the change algebraically as well as with the help of a diagram. As you know from the previous Unit, equilibrium is attained when

Y = AD.

Thus, by substituting values from equation (6.5), we obtain

$Y = \bar{A} + c(1 - t)Y$
Or, $Y - [c(1 - t)Y] = \overline{A}$
Or, $Y - (c - ct)Y = \overline{A}$
Or, $Y(1 - c + ct) = \overline{A}$

This gives us $\quad Y = \dfrac{\overline{A}}{1 - c + ct} \qquad \qquad …(6.6)$

In Fig. 6.1 we present two AD curves; AD_1 shows absence of government sector and AD_2 in the presence of government sector. Thus AD_2 includes taxes and transfers. We observe that AD_2 is flatter than AD_1 and has a higher y-intercept than AD_1. It is because the slope of AD_2 is c(1– t) instead of c. The vertical intercept includes

($c\overline{TR} + \overline{G}$) in addition to $(\overline{C} + \overline{I})$, the vertical intercept of AD_1.

Thus $\overline{A_1} = \bar{C} + \bar{I}$, and $\overline{A_2} = \bar{C} + \bar{I} + c\overline{TR} + \bar{G}$
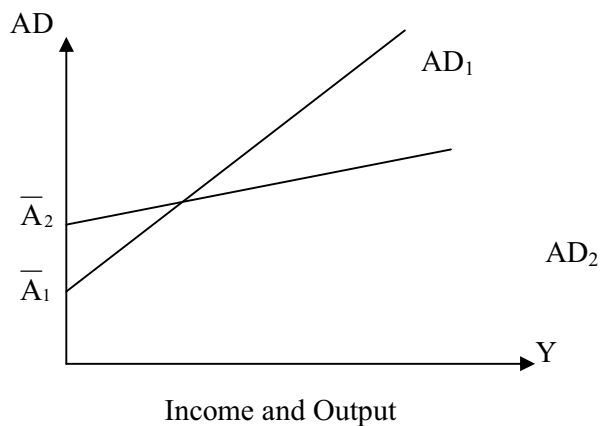
Fig. 6.1: Government Sector and the AD Curve

Fig. 6.2 shows the effect of government sector's presence on equilibrium levels of income and output. We consider two cases. In the first case, when the government sector is not present, equilibrium takes place at point E_1 where the 45° line intersects AD_1.
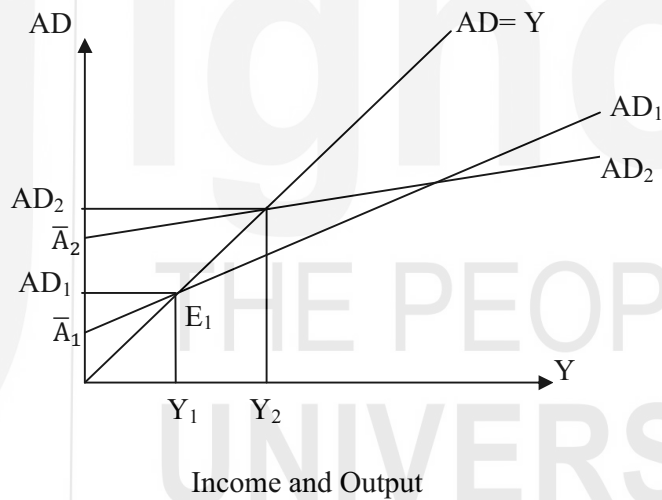
Fig. 6.2: Government Sector and Equilibrium

This intersection gives us Y_1 as the equilibrium output. Now as government spending $\bar{G}$ and other components like taxes and transfers come into existence, AD_1 becomes flatter and changes its y-intercept also. The new curve is labeled as AD_2. The second Keynesian cross happens at point E_2.

This new equilibrium gives us the equilibrium output as Y_2. We notice that Y_2 is greater than Y_1. Hence, we can say that introduction of the government sector increases the level of income and output in the economy.

6.2.1 Government Spending and the Multiplier

Let us re-write the multiplier by introducing the government sector.

$$\frac{\Delta Y}{\Delta \bar{A}} = \frac{1}{1 - c + ct} \qquad \text{or} \qquad \frac{1}{1 - c(1 + t)}$$

As seen in the previous Unit, in the absence of the government sector, the multiplier is $\dfrac{1}{1-c}$. We see that the government purchases of goods and services make a substantial difference in the economy. The value of the multiplier is reduced. Let us denote the government multiplier as α_G. So, we can say that $\alpha_G < \alpha$. Let us explain with the help of an example.

If $c = 0.8$ and $t = 0.2$ then

$$\alpha = \frac{1}{1-c} \quad = \frac{1}{1-0.8} = 5.$$

Now let us find out $\alpha_G = \dfrac{1}{1-c+ct}$

$$= \frac{1}{1-0.8+0.8(0.2)}$$

$$= \frac{1}{0.2+0.16}$$

$$= \frac{1}{0.36} = 2.77$$

Thus we observe that the value of the multipler gets reduced in the presence of the government sector.

6.2.2 Automatic Stabilizers

Automatic stabilizers are the revenue and expenditure items in the government budget which automatically change with the state of the economy in such a way as to stabilize GDP. We found that imposition of income tax lowers the value of the multiplier, α. Why does income tax reduce the value of the multiplier? It reduces the value of the multiplier because the increase in consumption out of changes in income gets reduced due to imposition of taxes. When such stabilizers are in place, the change in autonomous expenditure (for example, $\bar{I}$) will have smaller effect on output. Presence of such stabilizers reduces the volatility in the economy, particularly during various phases of business cycle. When the economy is passing through the expansion phase of a business cycle and income is increasing, imposition of progressive taxes on income increases government revenue automatically and consumption is reduced. On the other hand, when the economy is passing through the recession phase, tax burden is automatically reduced because of reduced income. These stabilizers act as *shock absorbers* to the economy.

6.2.3 Effect of Change in Government Spending and Tax Rate

Let us now consider the changes in fiscal policy. Fiscal Policy tools are government spending, transfers and tax rate. Government changes the magnitude of these tools as per the situation of the economy.

Let us consider the diagrammatic representation of fiscal policy initiative. Initial level of equilibrium output is Y_0 as shown in Fig. 6.3. Autonomous spending i.e., $\overline{G}$ changes, hence $\overline{A}_0$ shifts up to $\overline{A}_1$ and AD_0 shifts parallel upwards to AD_1. As per the equilibrium condition, the equilibrium income and output becomes Y_1 from Y_0. Is the increase in income same as increase in autonomous spending? By how much has the income expanded?

Income and Output
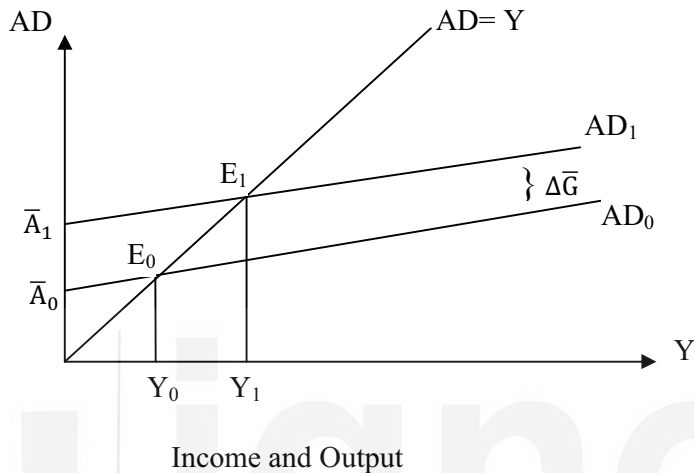
Fig. 6.3: Equilibrium Output and Government Spending

Change in autonomous government spending is equal to the change in AD,

$$\Delta Y_0 = \Delta \overline{G} + c(1 - t) \Delta Y_0$$

We have assumed that $\overline{C}$, $\overline{TR}$ and $\overline{I}$ are constant. Thus, the change in equilibrium income is,

$$\Delta Y_0 = \frac{1}{1 - c(1 + t)} \Delta \overline{G}$$

$$= \alpha_G . \Delta \overline{G}$$

The other tool, i.e., income tax, is generally reduced so that individuals get higher disposable income. Fig. 6.4 shows the effects of reduction in income tax rate. It means that there is a decrease in 't', which in turn increases the slope of the AD curve. Initial equilibrium income is Y_0, i.e., intersection between AD_0 and the 45° line. As AD_0 swivels out to AD_1, the new equilibrium occurs at E_1 which gives us the new equilibrium level of output as Y_1. As income tax rate decreases, the equilibrium income and output increases.

To find out the change in equilibrium income, we need to equate the change in income to the change in AD. There are two components of change in AD, namely,

1) Change in spending at the initial level of income due to reduction in the tax rate;

2) Change in spending due to higher income.

Income and Output
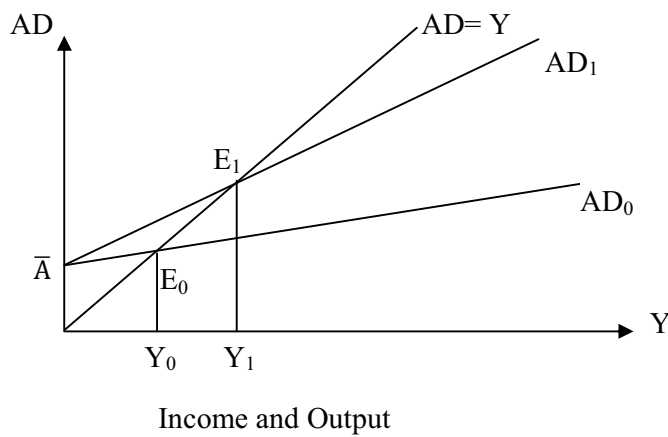
Fig. 6.4: Changes in the Income Tax Rate

By combining the two components, we can write,

$\Delta Y_0 = -cY_0\Delta t + c(1 - t')\Delta Y_0$

where, t' is the new tax rate. As,

$$Y_0 = \left(\frac{1}{1 - c + ct}\right).\overline{A}$$

So,

$$\frac{\Delta Y_0}{\Delta t} = \frac{-c}{(1 - c + ct)^2}.\overline{A}$$

and $\overline{A} = Y_0(1 - c + ct)$

Using the value of $(\overline{A})$, we get

$$\frac{\Delta Y_0}{\Delta t} = \frac{-c}{(1 - c + ct)^2}.Y_0(1 - c + ct)$$

$$\frac{\Delta Y_0}{\Delta t} = \frac{-cY_0}{(1 - c + ct)}$$

or $\quad \Delta Y_0 = \frac{-cy_0}{(1 - c + ct)}.\Delta t$

where $\dfrac{-cy_0}{1 - c + ct}$ is the income tax multiplier, which is normally denoted by α_t.

Similarly, the effect from transfer payment can be written as:

$$\frac{\Delta Y_0}{\Delta TR} = \frac{c}{1 - c + ct} = \alpha_{TR}$$

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$$\Delta Y_0 = \left(\frac{c}{1-c+ct} \right) . \Delta TR$$

because

$$Y_0 = \frac{c\overline{TR} + \overline{A}}{(1-c+ct)}$$

where $c\,\overline{TR}$ is separately written as $\overline{A}$ comprising of other autonomous spending. A reduction in the transfer would lower the equilibrium output and vice-versa. A rise in the transfers will shift the AD curve parallel upwards and a fall in the transfers will shift the AD curve parallel downwards.

Check Your Progress 1

1) Explain the changes in the consumption function when we introduce the government sector.

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2) Write down the AD equation in the presence of government sector.

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3) Explain the new equilibrium income in the presence of government sector.

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6.3 GOVERNMENT BUDGET

Budget is a term which is very important for every individual. The households are interested in knowing how much of income they will receive and what is their expenditure for a given time period.

Similarly, the government needs to find out its sources of revenues and areas where it needs to spend. Hence, the government budget is of great importance. In this context, we will use the term budget to represent government budget. Budget is a record of revenues and expenditure. If government is experiencing a budget deficit, it means government is spending more than earning. In case it experiences a budget surplus, then the government spending is less than the revenue. Generally, budget deficit is faced by majority of the governments. . Algebraically,

$$\text{Budget Surplus (BS)} = \overline{TA} - \overline{G} - \overline{TR}$$
$$= tY - \overline{G} - \overline{TR}$$

where $TA = tY$

It is common knowledge that when income level is low, the revenue also becomes low, which lead to budget deficit and vice versa. Fig. 6.5 shows that the sum of $\overline{G}$ and $\overline{TR}$ exceeds tY when income levels are low and vice-versa.
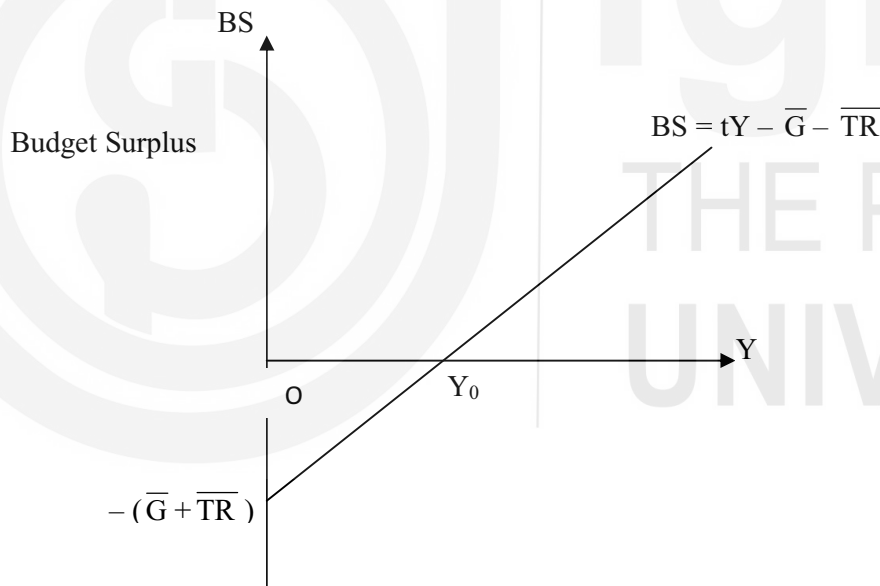

Fig. 6.5: Government Budget

The income level Y_0 shows no deficit and no surplus. On the left of Y_0, government runs in deficit and on the right of Y_0, surplus exists. This is because, at high income level, the government tax receipts are large. If the income does not increase due to fiscal policy tools, government deficit can still decrease. An increase in the investment (I) will lead to an increase in Y which in turns raises the tax receipts and that is how the budget deficit decreases. It follows that, during the time of recession, budget deficits are observed.

Impact of Budget, Taxes and Government Spending

It seems logical to think that an increase in the government spending $\left(\overline{G}\right)$ would decrease the budget surplus (BS), however it does not hold true always. Because increase $\overline{G}$ has a multiplier effect on the equilibrium level of income and output, this leads to higher tax receipts. There is a possibility that, the negative effect of such rising $\left(\overline{G}\right)$ is compensated by the positive effect of rising tax receipts, which does not reduce the budget surplus. Let us see, algebraically, how the increased government spending reduces the budget surplus.

$\Delta Y_0 = \alpha_G . \Delta G$ (due to higher government spending)

Due to change in income, tax revenues also change, i.e.,

$$\Delta TA = t.\Delta Y_0$$
$$= t. \alpha_G . \Delta G$$

Change in the budget surplus (BS), will be

$$\Delta BS = \Delta TA - \Delta \overline{G}$$

$$= t\alpha_G .\Delta \overline{G} - \Delta \overline{G} \qquad = (t.\alpha_G - 1)\Delta \overline{G}$$

$$= \left[\frac{t}{1-c+ct} - 1\right]\Delta \overline{G}$$

or

$$= \left[\frac{t}{1-c(1-t)} - 1\right]\Delta \overline{G}$$

$$= \left[\frac{t-1+c(1-t)}{1-c(1-t)}\right]\Delta \overline{G}$$

$$= (-)\left[\frac{1-t-c(1-t)}{1-c(1-t)}\right]\Delta \overline{G}$$

$$= (-)\left[\frac{(1-t)-c(1-t)}{1-c(1-t)}\right]\Delta \overline{G}$$

$$= (-)\left[\frac{(1-t)(1-c)}{1-c(1-t)}\right]\Delta \overline{G}$$

Now, let us consider a numerical example, where $c = 0.8$, $t = 0.25$ and $\Delta G = Re.1$

$$\Delta BS = (-)\left[\frac{(1-0.8)(1-0.25)}{1-0.8(1-0.25)}\right]Re.1$$

$$= (-)\frac{(0.2)(0.75)}{1-0.8(0.75)}$$

$$= -\frac{0.15}{1-0.6}$$

$$= -\frac{0.15}{0.4}$$

$$= \text{Rs.} - 0.375.$$

So a one rupee increase in government spending reduces the government surplus by Rs. 0.375. Similarly, the tax hike will lead to a positive effect on the budget surplus.

If the government raises the tax rate and government purchases by the same amount, then what will be impact on the budget surplus? The response will include the explanation of a concept called '*balanced budget multiplier*'. The equilibrium budget will be unchanged as the multiplier will be equal to 1.

The equilibrium income can be affected by due to change in the autonomous expenditure which includes the autonomous investment, autonomous government kspending and government transfers and tax policy or tax rates. To evaluate the impact of change in government sending we need to assume that only one component of the autonomous spending changes that is the government expenditure. Hence, like investment multiplier, the government expenditure multiplier is

$$\alpha_G = \frac{1}{1-c} \text{ and or } \Delta Y_0 = \frac{1}{1-c} \Delta \overline{G}$$

Similarly for the change in tax rate, the tax multiplier is

$$\alpha_T = \frac{-c}{1-c}$$

$$\text{or } \Delta Y_0 = \frac{1}{1-c}(-c * \Delta \overline{T}) = \frac{-c}{1-c} \Delta \overline{T}$$

Now change in income due to both the changes in government expenditure and tax rate is:

$$\Delta Y = \alpha_G.\Delta G + \alpha_T.\Delta T$$

$$\Delta Y = \alpha_G.\Delta G + \alpha_T.\Delta G \text{ (as } \Delta G = \Delta T)$$

$$\Delta Y = (\alpha_G + \alpha_T)\Delta G$$

$$\Delta Y = \left[\frac{1}{1-c} + \left(\frac{-c}{1-c}\right)\right]\Delta G$$

$$\Delta Y = \left(\frac{1-c}{1-c}\right)\Delta G$$

$$\Delta Y = \Delta G$$

We found that output rises exactly by the amount of increase in government spending. Thus, $\Delta Y/\Delta G$, the balanced budget multiplier, is equal to 1.

Check Your Progress 2

1) What are automatic stabilizers? Explain.

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2) Calculate the government spending multiplier given the following:

$c = 0.6$ $t = 0.12$

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3) How does AD curve changes when there is a change in government spending? Does it also change equilibrium level of income and output?

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4) Explain, in short, the concept of Budget Surplus.

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5) How does the balanced budget multiplier work?

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6.4   LET US SUM UP

In this Unit we introduced the government sector into the Keynesian model and re-defined the aggregate demand. As the government sector is included, the fiscal policy tools like taxes, transfers and government spending are exercised by the government. The government multiplier and the tax multiplier were found to be smaller than the investment multiplier. Due to automatic stabilizers, the volatility in the economy is reduced. Subsequently, we understood the concept of government budget.

Government borrows at the time of deficit which makes it difficult for the private firms to arrange funds. As government spending increases, the budget will go in deficit. At the same time, however, equilibrium output increases, which in turn increases the tax receipts. The balanced budget multiplier shows how the output increases by the same amount as the government spending increases.

6.7   ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) $C = \overline{C} + c(Y - \overline{TR} + tY)$

  $= \overline{C} + c\overline{TR} + c(1 - t)Y$

2) $AD = \overline{A} + c(1 - t)Y$, where $\overline{A} = \overline{C} + c\overline{TR} + \overline{I} + \overline{G}$

3)   Refer to Fig. 6.2.

Check Your Progress 2

1)   Refer to Sub-section 6.2.2.

2) $\dfrac{1}{1 - c + ct} = \dfrac{1}{1 - 0.6 + 0.6(0.12)}$

3)   Refer to Sub-section 6.2.3. Yes, it changes equilibrium level of income and output. It increases.

4)   Budget surplus is excess of government revenue over government spending.

5)   Refer to Sub-section 6.3.1.

UNIT 7   EXTERNAL SECTOR[*]

Structure

7.0   OBJECTIVES

After going through this Unit you should be in a position to

- identify the types of flows in an open economy;
- explain the concept of net exports function;
- describe the aggregate demand curve in the presence of external sector; and
- find out the equilibrium level of output in an open economy.

7.1   INTRODUCTION

Let us recapitulate what we have leant so far in this course. In Unit 4 we described the important features of the classical economic system. We pointed out how output, price level and wage rate are determined in the classical system. In that Unit we gave a brief idea of the Keynesian economic system also. We brought out the important differences between the classical economic system and the Keynesian economic system. In Unit 5 we further elaborated on the Keynesian system of output determination. In this framework we assumed that there are two economic agents – the firm (the private sector) and the household. Thus we have two sectors in the economy – firms and household sector. The firms (the private sector) carry out production. For production of goods and services the firms undertake investment in capital goods. The household sector

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provides labour input to the firms and receives wages (income) from the firms. The households consume goods and services produced by the firms. Thus the circular flow of income and output (see Unit 2) takes place.

The aggregate demand (AD) in the Keynesian system thus includes consumption (C) and investment (I). As you know, demand plays a dominant role in the Keynesian system. Also, demand creates its own supply; if there is unemployment in the economy (see Unit 4). Thus, whatever is demanded (i.e., aggregate demand, AD) gets supplied (i.e., aggregate supply, AS). The equality between AD and AS determines the equilibrium level of output in the Keynesian system. The 45^0 line in the 'Keynesian Cross' diagram (see Unit 5) ensures that there is equality between AD and AS.

You should remember two important issues about the Keynesian model. First, an increase in aggregate demand leads to an increase in equilibrium output level. Such increase in demand could be through any of the economic agents, viz., households, firms, and government. Going by the same logic, a decrease in aggregate demand leads to a fall in the equilibrium output level. Second, the value of the marginal propensity to consume (mpc) is very important. A higher value of mpc, *ceteris paribus*, leads to a higher level of equilibrium output, due to the multiplier effect. Similarly, a lower value of mpc, *ceteris paribus*, implies a lower level of equilibrium output.

In Unit 6 we introduced another economic agent apart from the households and firms, i.e., the government. The role of the government is threefold, viz., (i) it collect taxes from households, (ii) it provides subsidies to households and firms, and (iii) it carries out production activities. When there is an increase in government expenditure (G), there is an increase in aggregate demand in the economy. A higher level of AD leads to an increase in equilibrium output. However, government collects taxes to meet its expenditure. Collection of taxes from households results in a decrease in disposable income of the households. The third activity of the government mentioned above (production activities) implies that the government undertakes investment (similar to the firms). For simplicity in analysis, we added up government expenditure on all heads and assumed government expenditure to be fixed ($\bar{G}$). When there is a balanced budget of the government, the multiplier is equal to 1. An implication of the above is that if government expenditure increases by ΔG, equilibrium output increases by ΔG only.

In the present Unit we introduce the external sector. Often it is termed as the Rest of the World (RoW). We bring out the changes required in our analysis due to introduction of the external sector, particularly the changes in equilibrium level of output.

7.2 TYPES OF FLOWS IN AN OPEN ECONOMY

In the previous unit we assumed that the economy is a closed one. An implication of the above is that the country does not have external trade with other countries. Thus there are no exports and imports of goods and services. Such an assumption, in the present scenario, is highly unrealistic. Countries do trade with one another. When there are flows of goods and services, from and into the country, we call it an 'open economy'.

In an open economy the domestic economic agents (namely, households, firms and government) interact with the rest of the world (RoW) or the external sector. Goods and services sold to the external sector are called exports (X). Similarly goods and services purchased from the rest of the world are called imports (M). When we subtract imports from exports, we obtain 'net exports' (NX) or 'balance of trade'. Thus,

$$NX = (X - M) \qquad \qquad \qquad \text{…(7.1)}$$

We can observe from (7.1) that NX is positive when exports exceed imports. Similarly, NX is negative if exports are less than imports.

7.2.1 Gross Domestic Product (GDP) and Gross National Product (GNP)

As pointed out in Unit 2, there is a difference between GDP and GNP (Gross National Product) in the case of an open economy. GDP refers to aggregate output produced (or aggregate income earned, or aggregate expenditure incurred) by domestic residents and foreign nationals within the geographical boundaries of the country. GNP, on the other hand, is defined as the aggregate income (or expenditure incurred, or output produced) of citizens of the country. Suppose a citizen of India is working in the United States. Whatever she earns, is part of the GNP of India. Similarly, suppose a German citizen is working in a firm in India. His income is part of the GDP of India (because it takes place within the geographical boundary of India), but it is not part of GNP of India (because it is not earned by an Indian citizen). There could be many other factors (such as services) that could be traded among countries. The returns to these factors of production are part of the GNP of the country to which they originally belong to.

Let us define the term 'net factor income from abroad' (NFIA). The NFIA is given as follows:

NFIA = Income earned by domestic factors of production in foreign country *minus* income earned by foreign factors of production in the domestic economy.

We obtain GNP from GDP as follows:

$$GNP = GDP + NFIA \qquad \qquad \text{…(7.2)}$$

You should note that NFIA can be either positive or negative. Further, the difference between GDP and GNP can be quite large. For example, GDP may exceed GNP in countries where most production units are owned by foreign multinationals (so that a large share of the incomes generated within the economy, accrue to foreigners) or which have a sizeable migrant population employed abroad. In the case of India, NFIA has been positive for many years. It was about 4.5 per cent of GDP in 2019.

7.2.2 Balance of Trade

The types of flows among countries are described in Unit 2 through the circular flow of income and expenditure. Exports bring money (foreign currency) into the country in the form of receipts from exports. On the other hand, imports cause outflow of money (foreign currency) from the country in the form of payments towards imports. There exists a 'balance of trade', if exports and imports are equal. Generally, exports are not equal to imports. 'Trade surplus' occurs, if the value of exports exceeds the value of imports. On the other hand, if the value of exports is less than the value of imports then 'trade deficit' arises. Whenever we refer to exports and imports we visualize about external trade in goods, as these are tangible or visible.

7.2.3 Invisibles

In addition to trade in goods, countries trade in services such as consultancy, tourism, shipping, etc. Further, there is migration of labour from one country to another. A large number of Indians work in foreign countries. Similarly, many foreign citizens work in India. Indian citizens working abroad often send or remit money to their family members in India. These are unilateral transfers, accounted separately under the heading 'remittances'. The payment towards trading in services and the remittances by migrant workers are often termed as 'invisibles'. If you carefully look into India's balance of payments data, you will notice that invisibles constitute a major part of India's trade balance. Surplus in 'invisibles' has helped India in closing its trade deficit substantially.

7.2.4 Current and Capital Accounts

There are two constituents of the Balance of Payments (BoP) account, viz., current account and capital account. The current account records the flow of income from one country to another. The capital account records the flow of capital and finance from one country to another.

The balance of trade and the balance of invisibles (or, the balance of services, as it is called at times) together form the 'current account'. There could be a deficit or a surplus in the current account. Thus we find that

Current Account Balance = Balance of Trade + Invisibles   …(7.3)

The capital account of the BoP includes transactions involving cross-border purchase and sale of real and financial assets. The assets in question could be (i) physical assets such as land, factories, houses, etc., or (ii) financial assets such as stocks and bonds. You should note that each transaction is recorded twice in the capital account – once as a 'credit' and again as a 'debit' entry, thereby capturing the two aspects of each transaction. For example, purchase of a foreign financial asset such as foreign government bond or shares of a foreign firm by a domestic resident involves an asset import and a capital outflow (payment made by the domestic resident for the foreign asset).

Let us discuss this point further. Suppose the value of imports by India exceeds the value of exports by India. Thus, the net exports (NX) are negative for India. In order to pay for its extra imports, India has to borrow from foreign countries. It implies, foreign currency is coming to India's account. Therefore, such borrowings of foreign currency are shown as 'credit' in the capital account. When interest is paid to the lender country on such debt on a yearly basis, there is an outflow of capital from India. Such servicing of debt (interest payments) is recorded as a debit item in the current account of India. Going by the same logic, when capital moves out of the country, it is shown as a debit (say, Indian telecom company Airtel makes some investment in Nigeria). However, the investment made in Nigeria by Airtel will provide returns to Airtel on a yearly basis. That return will be counted as income for Airtel and it will be shown as a credit in the current account.

There are several heads in the capital account, viz., (i) External Assistance, (ii) External Commercial Borrowings, (iii) Short-Term Credit, (iv) Banking Capital, (v) Foreign Investment, and (vi) other flows. The flows under each of the above heads are in both the directions. For example, if we consider the capital account of India, foreign investment is both directions. There are many foreign multinational companies which invest in India. At the same time, there are many Indian multinational companies which invest in foreign countries. Thus, we consider the 'net' amount under each of the above heads.

There are time lags involved in the international transactions; e.g., data on exports is collected from customs, at the time goods are shipped, whereas payments for the same may be received six months later and hence may not be recorded in BoP of that year. Therefore, in order to balance the BoP account an entry for *errors and omissions* is included.

When capital inflows exceed capital outflows, the country has a capital account surplus. In the opposite case, when outflows exceed inflows it has a capital account deficit.

7.3.5 Balance of Payments

When we combine the current account and the capital account we obtain the 'Balance of Payments' (BoP). In Table 7.1 we present the balance of payments of India for the year 2018-19. You should notice that the trade deficit for India is

$180283 million during 2018-19. Net invisibles during that period however are positive at $123026 million (it means net inflow of invisibles to India after deducting the outflow of invisibles from India). When we add up these two we obtain the current account deficit for India, which stands at $57257.

The capital account of India for the year 2018-19 shows a surplus of $54403 million (see Table 7.1). There are some 'errors and omissions' in the accounting process, which is to the tune of $ 486 million. When we add up the current account and capital account we obtain an overall balance of (-) $3339 million. This results in an increase in the foreign exchange reserve of India to the tune of $3339 million.

Table 7.1: India's Balance of Payments for 2018-19

Items	2018-19(in US $ million)
I Current Account	
1. Imports	517519
2. Exports	337237
3. Trade Balance (1-2)	− 180283
4. Invisibles (net)	123026
5. Current Account Balance (3+4)	− 57257
II Capital Account	
1. Capital Account	
a) External Assistance (net)	3413
b) External Commercial Borrowings (net)	10416
c) Short-Term Credit	2021
d) Banking Capital (net)	7433
e) Foreign Investment (net)	30094
f) Other Flows (net)	1026
Capital Account Balance (a+b+c+d+e+f)	54403
III Errors and Omission	**− 486**
IV Overall Balance	**− 3339**
V Change in Foreign Exchange Reserve [Increase(-)/ Decrease (+)]	− 3339

Source: Economic Survey 2019-20, Vol. 2, Page 104

You should note that balance of payments always balances, since it is an accounting identity. Even though the BoP always balances, we can talk about an overall BoP surplus or deficit. Overall BoP balance is obtained by adding the current and capital account balances. A country records a BoP surplus in the following cases: (i) there is current account surplus as well as capital account surplus; (ii) there is a current account deficit but a capital account surplus that is larger in magnitude; (iii) there is a current account surplus and a relatively smaller capital account deficit. There would be a BoP deficit, either when there is a deficit on both current and capital accounts; or when there is a relatively large deficit in either one of the current or capital accounts.

Apart from transactions made by private and government agents, the capital account of the BoP also includes *official reserve transactions* that involve change in the stock of foreign exchange reserves held by the central bank. When there is a BoP surplus, the country experiences a net inflow of foreign exchange, leading to a corresponding increase in foreign exchange reserves. In case of a BoP deficit, there is net outflow of foreign exchange and a corresponding reduction in foreign exchange reserves. Thus we obtain the following equation:

Current Account Balance + Capital Account Balance + Change in Foreign Exchange Reserve = 0   …(7.4)

There are certain advantages of an open economy. As goods can be imported, an open economy allows its citizens to consume a variety of goods; even those not produced in the country. You may be aware of mangoes being exported to other countries and Kiwis being imported to India. Secondly, inputs such as raw materials, capital goods and technology can be imported which enhances production in the country. Thirdly, the country can export its goods and services; thereby an expansion of market and increase in aggregate demand take place. There are certain disadvantages of an open economy also – the country is interdependent on other economies. It is exposed to economic risks such as business cycles in other economies. A country may have a lot of foreign investments, because of which its output is at a higher level. Because of some unexpected international developments (say, higher returns in another country) there could be a 'capital flight', that is, foreign capital is withdrawn from the market.

Check Your Progress 1

1. Explain the term, 'Net Factor Income from Abroad'.

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2. Can GNP be smaller than GDP? Explain.

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3. Define the term 'invisibles' in the balance of payments account. Give two examples of invisibles.

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4. Explain why balance of payments always balances.

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5. State whether the following statements are 'True' or 'False', giving reasons for your answer in each case:

   a) A country can have a current account surplus, even when it has a negative trade balance (or merchandise trade deficit).

   b) When Indian firms invest in foreign firms ('outward FDI'), it is shown as 'credit' in the capital account.

   c) A country can have an overall BOP deficit even when it has a current account surplus.

   d) When a country has a current account deficit (of say –$20,000) and a capital account surplus (of say $8000), its foreign exchange reserves would increase.

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7.3   NET EXPORTS FUNCTION

Recall that NX is given by $(X - M)$. Thus, the value of NX depends upon the values of exports (X) and imports (M). Recall that exports lead to expansion of market. Thus aggregate demand (AD) increases when exports increase. Therefore, it is an objective of most countries to promote their exports. How much a country can export, however, is not in the control of the exporting country. Exports of India, for example, depends upon the GDP level of its trading partners. If the United States, for example, has good growth prospects, it may

import more from India. Thus we assume exports to be exogenously determined. It means that exports do not depend on the output level of the domestic economy. The behavior of imports however is different. As output level increases in the country, there are requirements of more imports. Demand for imported raw materials and foreign technology increases as GDP level of a country increases. Therefore, we assume that imports are proportional to output.

$$M = mY \qquad\qquad\qquad\qquad\qquad …(7.5)$$

When we subtract imports from exports (i.e., net exports), we find that NX is an inverse function of output (Y). When Y is low (the economy is operating at a lower level of output), NX will be positive, because X is greater than M. When Y is high (the economy is operating at a higher level of output), NX will be negative, because M is greater than X.

There is another factor that determines exports and imports, i.e., the exchange rate. As the value of domestic currency decreases (i.e., there is depreciation of domestic currency) domestic goods become cheaper in terms of foreign currency. For example, suppose the ongoing exchange rate is US$1 = Rs.70. It means, with 1US$ an American can buy Rs.70 worth of Indian goods. Now, suppose, there is a depreciation of Indian rupee so that 1US$ = Rs.75. Notice that the US dollar has become costlier and Indian rupee has become cheaper. Now, with 1US$ the American can buy Rs. 75 worth of Indian goods. An implication of the above is that prices of Indian goods, in general, have declined. The law of demand will operate and the demand for Indian goods (i.e., Indian exports) will increase.

Depreciation of Indian currency will have an effect on Indian imports also. We mentioned that Indian goods become cheaper due to depreciation. If we see it from the other side, foreign goods (i.e., Indian imports) become costlier because of deprecation of Indian rupee. Thus we observe that due to depreciation of Indian rupee, (i) Indian exports increase, and (ii) Indian imports decrease. As a result, NX increases when Indian currency depreciates.

You should note that NX depends upon domestic output and exchange rate. As domestic output increases there is a decline in NX. Further, depreciation of domestic currency leads to an increase in NX. Similarly, appreciation of domestic currency leads to a decrease in NX. Appreciation means an increase in the value of domestic currency in terms of foreign currency.

7.4 EQUILIBRIUM OUTPUT IN OPEN ECONOMY

As mentioned earlier, addition of external sector leads to expansion of the market for the economy under consideration. Thus there is an increase in aggregate demand when external sector is present. In the three-sector model that we discussed in Unit 6, we obtained the following:

$AD = C + I + G$ …(7.6)

where C = Consumption

      I = Investment

      G = Government Expenditure

In the four-sector model, the aggregate demand curve takes the following form:

$AD = C + I + G + (X - M) = C + I + G + NX$ …(7.7)

We describe the AD curve in Fig. 7.1. In the figure we have shown the (C+I+G) curve. We have added NX to it so that there is a shift in the AD curve. You should notice that it is not a parallel shift. It is because the NX curve is downward sloping. Thus the gap between (C+I+G) and (C+I+G+NX) narrows down with increase in output.

When there was no external sector (the economy was closed), the equilibrium output was Y_1. However, when the economy opens up, there is an increase in equilibrium output from Y_1 to Y_2.
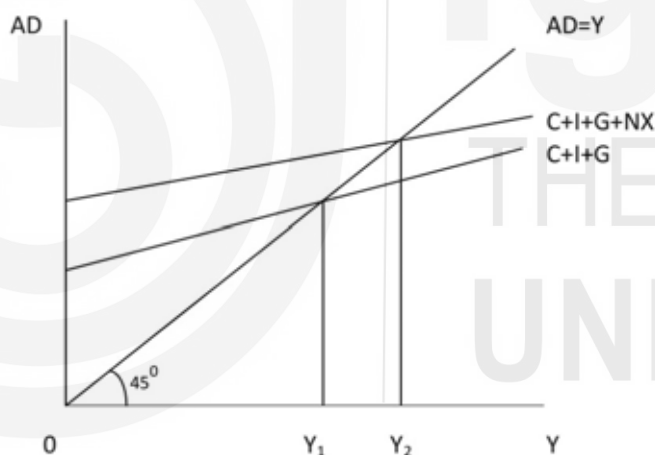

Fig. 7.1: Equilibrium Output

Check Your Progress 2

1. Define net exports. Can it be negative?

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2. Explain the impact of the following on net exports.

(a) There is a depreciation of domestic currency.

(b) There is an increase in domestic output.

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3. Explain how equilibrium output is determined in an open economy.

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7.5 LET US SUM UP

In this unit, we discussed the various flows in an open economy. Trade balance is the difference in the values of exports and imports. Trade balance can be positive or negative depending upon the values of exports and imports. When we add the net invisibles and remittances to the trade account, we obtain current account balance. In addition to current account, there is a capital account also, which records the flow of capital and finance of the country under consideration. When current account and capital account are combined together, we obtain the balance of payments. Remember that that the balance of payments always balances.

7.6 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1
1) Refer to Section 7.2.1 and answer.
2) If net factor income from abroad (NFIA) is negative, GNP will be less than GDP.
3) Refer to Sub-section 7.2.2. Examples could be shipping and international tourism.
4) Refer to Sub-section7.2.4 and answer.
5) (a) True, (b) False, (c) True, (d) True

Check Your Progress 2
1) Refer to Section 7.2.1 and answer. If imports exceed exports, then net exports will be negative.
2) (a) Net exports will increase.
   (b) Net exports will decrease.
3) Refer to Section 7.4 and answer.