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## CONSUMPTION, SAVING AND INVESTMENT

Production, consumption and capital formation are three basic economic activities of an economy. This lesson deal with the study of consumption and capital formation in the economy as a whole. It should be noted that ‘capital formation’ can be referred to as saving or investment depending on the context in which the term is being used. You have already gone through the study of consumption at a micro level in the lessons on utility analysis, indifference curve approach and demand analysis. *The theory of consumption at micro level courses on consumption behaviour of the economy as a whole at an aggregate level. Also saving and investment at aggregate level will be dealt with.*



### OBJECTIVES

After completing this lesson, you will be able to:

- define consumption function and saving function;
- explain propensity to consume and save;
- identify the factors determining propensities to consume and save; and
- distinguish between autonomous and induced investment.

### 26.1 CONSUMPTION FUNCTION

Everybody needs income to purchase goods and services. Higher the level of income, higher will be the capacity to buy the goods and services. So for an individual, the total amount of goods and services to be purchased depends on the available disposable Income of the Consumes. Similarly, taking all the individuals living in the society or economy as whole into consideration, it can be said that the

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aggregate consumption of all depends on the total income generated in the economy. When the total income of the economy increases total consumption of the economy will also increase. In the same way, it can also be said that economy with higher level of national income consumes more than the economy which has lower level of national income.

**Example 1:** In India the household final consumption expenditure as percentage of GDP increased from 59 per cent in 2011 to 60 per cent in 2012 with increase in GDP. In USA, which is a developed economy the share of household consumption expenditure in its GDP is 69 per cent in 2012 which was higher than that of India.

**The relationship between consumption and the level of income is called consumption function. Consumption function tells that consumption is a function of income, or in other words, consumption depends on the level of income.**

It should be noted here that, when we talk about income, we normally mean disposable income. Disposable income is that part of total income which is available for consumption and saving. To elaborate it further, note that when a person receives income in return of factor services rendered by him/her, he/she may not spend all the income on consumption only. There are certain compulsory payments he/she has to make out of the income received, such as tax to the government, fines if any etc. As a result the income available for consumption needs is reduced. Disposable income is defined as the income remained after payment of tax and fines etc. If tax payment is high, disposable income will be lower and vice versa. Accordingly, the level of consumption will be affected.

It should be noted that disposable income and total income will be same if tax payment and fine are not existing or zero.

**Example 2:** Individual A receives an income of Rs 10,000. He paid income tax at a rate of 2 per cent. What is his disposable income?

**Ans:**  $2\%$  of 10,000 = tax paid = 200

Hence disposable income =  $10000 - 200 = \text{Rs. } 9,800$ .

**Example 3:** Individual B receives an income of Rs 5000. He has not paid any tax. What is his disposable income?

**Ans:** Since tax paid = 0, disposable income is same as total income, i.e.

$5000 - 0 = \text{Rs } 5000$ .

In this lesson we will treat income and disposable income as one and the same.

**26.2 PROPENSITY TO CONSUME**

The relationship between consumption and (disposable) income can be further elaborated by studying propensity to consume. Under this we compare the figures of consumption and income in each time period. In order to establish the nature of relationship between them, two important calculations are made in this context. One, Average propensity to consume (APC) and two, Marginal propensity to consume (MPS).

**Notes****APC (Average Propensity to Consume)**

APC is defined as the ratio of consumption to income. This ratio is calculated to know the proportion of income devoted for consumption purposes in the specific period of time for which data is given. So APC is calculated for each time period. Let consumption for any particular time is denoted as 'C'. Let income of that period is denoted as Y. Then

$$APC = \frac{C}{Y}$$

**Example 4:** If consumption is Rs 300 Cr. and income is Rs 600 crore, what is APC? What does this imply?

**Ans:**  $APC = \frac{300}{600} = \frac{1}{2} = 0.5$

This implies that on an average 50 percent of the total income has been spent on consumption.

**Example 5:** In the country X, 70 percent of the income has been devoted to consumption. If income is Rs 1000 crore, find out consumption?

**Ans:** Consumption =  $\frac{70}{100} \times 1000 = 700$

Consumption = Rs 700 crore.

**Hint:** Here APC = 70 percent, Y = 1000

since  $APC = \frac{C}{Y}$ ,  $C = APC \times Y$

**Example 6:** In a country, consumption amount is Rs. 800 crore which is 80 percent of its total disposable income? What is the amount of disposable income?



**Notes**

**Ans:** Disposable Income = Rs 1000 crore.

[Hint: Here APC = 80 percent, C = 800

$$\text{Since } APC = \frac{C}{Y}, Y = \frac{C}{APC}. \text{ So } Y = \frac{800}{\frac{80}{100}} = 800 \times \frac{100}{80} = 1000$$

**MPC (Marginal propensity to Consume)**

MPC is the ratio of change in consumption to change in income between two time periods. Denote “increase in” as “Δ”, We can write

$$MPC = \frac{\Delta C}{\Delta Y}.$$

Since consumption depends on income, increase in income will bring about increase in consumption over time period. In this context, MPC measures the increase in the amount of consumption due to increase in the amount of income in the country.

**Example 7:** If consumption in period 1 is 200 and income is 300 and the same for period 2 stands at 250 and 400 respectively, find MPC?

$$\text{Ans: } MPC = \frac{\Delta C}{\Delta Y} = \frac{250 - 200}{400 - 300} = \frac{50}{100} = 0.5$$

From the above example, you can make out that Δ is the difference between the values of two periods i.e.

$$\Delta = \text{Value of current period} - \text{value of last period.}$$

The famous economist, Keynes, who gave the concept of propensity to consume, said that, MPC is normally less than unity. Symbolically,

$$MPC < 1.$$

$$\text{Since } MPC = \frac{\Delta C}{\Delta Y}, \text{ this implies that } \frac{\Delta C}{\Delta Y} < 1.$$

This further implies that  $\Delta C < \Delta Y$ .

Putting it in words, it can be said that increase in consumption is less than the corresponding increase in income. Note that in example 6 above, MPC = 0.5 which is less than 1.

**Psychological law of consumption:** Let us ask why MPC is less than 1?

To answer this question, Keynes has provided the “Psychological law of consumption.”

According to this law, as income increases over time, consumption on also increases, but at a slower rate as compared to that of income.

So the reason behind MPC being a fraction (less than one) is given in terms of psychological behaviour of the individuals taken together in the economy. It is commonly observed that people do not consume the entire part of increase in their income. They, certainly increase the amount of consumption with increase income as they get a scope to increase their level of satisfaction. But, at the same time, they do wish to save a part of the increase in income for future needs. Saving a part of income for future reflects a sense of security which is psychological in nature.

So increase in income is divided between increase in consumption and increase in saving. Symbolically, we can write that

$$\Delta Y = \Delta C + \Delta S.$$

i.e. increase in income = increase in consumption + increase in saving. From this it is clear that  $\Delta C$  is less than  $\Delta Y$ . So MPC or in less than one.



### INTEXT QUESTION 26.1

1. Consumption depends on (a) saving, (b) disposable income, (c) needs (d) none of the above
2. A person pays 20 percent of his income as tax. If income is 2000, find out disposable income?
3. Total income is same as disposable income if
  - (a) consumption = 0,
  - (b) Saving = 0
  - (c) tax and fines = 0,
  - (d) income = 0.
4. Given that consumption is 500 and income in 700. Find out APC?
5. Give to increase in income from 1000 to 1500, consumption has increased from 750 to 900. Find out MPC?

## 26.3 EQUATION OF CONSUMPTION FUNCTION

Economist Keynes, provided the equation of consumption function. He assumed a short run period in which the economy is functioning. He argued that short run is more important because people are more concerned about their immediate consumption needs. He argued that even consumption depends on the level of income, people still manage to consume the necessities needs to sustain oneself, even if there is no income for the time being. To explain this further, think that an



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individual is waiting to receive his income after two months. Does it mean that he will start consuming only after two months! No. He has to take food and wear clothes which are bare necessities of life. He has to purchase these either by borrowing money or by arranging the money by selling some of his assets. He will repay the loan or recover the asset after he gets his income after two months but as of now, he is having some consumption even if his income is zero for the time being.

Similarly in the economy, there are children and old people who do not have any income but they consume by depending on others who are earning. For example in a family, children depend on their working parents to consume goods and services. An old person depends on the income of his son or daughter or pension from the government to consume things he needs now.

Hence, at any point of time in the short run there is some fixed amount which the population of the economy spent on consumption even if income is zero or nothing. This part of consumption is called autonomous or fixed consumption. It is a constant and can take any numerical value. Let us denote this value as  $a$ .

The other part of consumption comes from the income and the manner in which it increases over time. Once people start getting their income, they use it to repay the loans taken earlier, save for future and spend a fraction on consumption, over and above the fixed amount of consumption which they had already made earlier. The additional consumption over and above the fixed consumption on necessary things is influenced by the level of income received and MPC of the people. MPC comes into picture here because it reflects the consumption behaviour of the population out of their income.

On the basis of the above arguments as provided by Keynes, we can write the equation of consumption function in the following manner:

Consumption = Some fixed amount plus MPC times the current level of income.

Symbolically,

$$C = a + MPC \times Y$$

where  $C$  = Consumption

or  $a$  = fixed consumption

(Fixed consumption is also called Autonomous consumption i.e. Consumption at Zero level of Income)

$Y$  = Income (disposable Income)

$$MPC = \frac{\Delta C}{\Delta Y}$$

MPC is less than one.

Denote MPC as 'b'.

Then equation for consumption is given as

$$C = a + bY.$$

**Example 8:** In an economy, the population spend Rs 500 crore on absolute necessities needed to sustain themselves. The current income is Rs 2500 crore and MPC is 0.5. What is the level of consumption?

**Ans:**

$$\begin{aligned} C &= 500 + 0.5 \times 2500 \\ &= 500 + 1250 = 1750 \end{aligned}$$

So consumption is Rs. 1750 crore.

Now, find, the value of consumption (C) If income is zero i.e.

$$Y = 0,$$

Since  $C = a + bY$

Putting  $Y = 0$ , it becomes

$$C = a + b.0$$

or  $C = a.$

So when income is nothing, consumption is equal to the fixed amount which people require to sustain themselves.

In the above example, putting  $Y = 0$ ,

We get  $C = \text{Rs } 500$  crore.

What will happen if  $Y$  is changed to Rs 3000 cr. Then  $C = 500 + 0.5 \times 3000$  so  $C = 500 + 1500$  i.e.  $C = \text{Rs } 2000$  cr.

This implies that given the value of 'a' and MPC (b), C will be determined as per the value of Y.

**Diagram of consumption Function:** The above equation of consumption function can be shown diagrammatically. Note that in the above equation there are two variables—consumption (C) and income (Y). Consumption (C) is determined depending on the value of Y, given the value of 'a' and MPC. While drawing the diagram of consumption function on a graph paper, take C values along the vertical axis and the income or Y values along the horizontal axis. The diagram is shown below.



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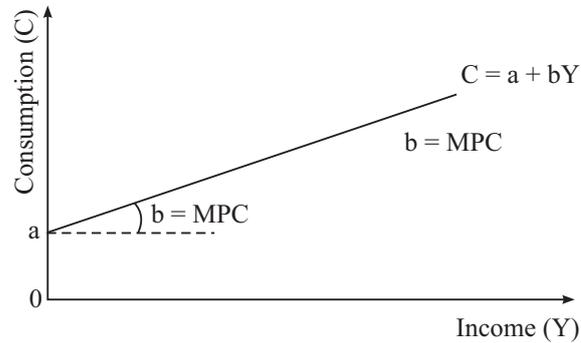


Fig. 26.1

As shown in the fig. 26.1 above, consumption function ( $C$ ) starts from a point at 'a' on the vertical axis. This means that, if we put income  $Y$ , equal to zero, then  $C$  equals  $a$  as said above. The distant '0' a is the measure of fixed consumption amount in the economy when income is zero. When  $Y$  increases along horizontal axis, then  $C$  will also increase at a rate equal to MPC ( $b$ ) along the line  $aC$ .  $aC$  is the consumption function.

Take the example given above where we have said that  $C = 500 + 0.5 \times 2500$ .

It can be shown in the following fig. 26.2.

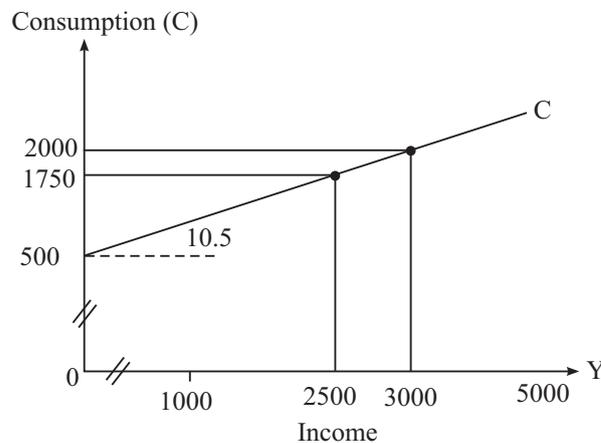


Fig. 26.2

Since  $a = \text{Rs } 500$  crore in the example, the consumption function will start from 500 on the vertical axis. The function will rise at an angle 0.5 as  $\text{MPC} = 0.5$ . See that when  $Y = 0$ ,  $C = a = 500$ . At  $Y = 2500$ ,  $C = 1750$  and at  $Y = 3000$   $C = 1500$  as calculated earlier. Note that with increase in income, consumption rises at a rate equal to MPC. So the slope of consumption function in MPC.

Diagrammatically, consumption function can be described as a straight line

originating from a point on the vertical axis and slopping upwards from left to right rising at an angle equal to MPC.

### Break even point

We saw that when income  $Y = 0$ ,  $C = a$  ( positive value). When income increases above zero then  $C$  will also increase at the rate of MPC. Initially  $C$  may be more than  $Y$  due to the presence of the fixed value 'a'. But when  $Y$  starts in-creasing,  $C$  will also increase at a lower rate than that of  $Y$  as per psychological law of consumption. So, a time will come when  $C$  will fall below  $Y$  after getting equal to it. The point where income and consumption are equal, is called the “break even ” point in the economy.

Take the earlier equation again.

$$C = 500 + 0.5 \times Y.$$

Where  $a = 500$ ,  $MPC = 0.5$ . Now, put different values of  $Y$ , starting from zero and determine the values of  $C$  accordingly. You can easily find the point where  $C = Y$  as given in the table below.

**Table 26.1: Break even point**

$Y$	$C$	Remark
0	500	$C > Y$
500	750	$C > Y$
1000	1000	$C = Y$ break even
1500	1250	$C < Y$
2000	1500	$C < Y$

As show in the table using the equation we find that when  $Y = 0$ ,  $C = 500$ . Then when  $Y$  takes the value **500**,  **$C$  becomes low,  $C$  also becomes 1000**. This is the break even point. After that when  $Y$  further increases beyond 1000,  $C$  increases but remains below  $Y$  as shown in the table. At  $Y = 1500$ ,  $C = 1250$  and so on.



### INTEXT QUESTION 26.2

1. Write the equation for consumption function,  $C$  given that fixed consumption amount is 100,  $MPC = 0.75$  and income is denoted as  $Y$ .
2. If fixed consumption is 50,  $MPC = 0.8$  and income is 200, what will be the value of consumption?
3. What is the slope of consumption function called?



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4. Consumption function is a downward sloping line. True or False.
5. The distance between the origin and the point from which the consumption function starts on the vertical axis is a measure of—
  - (a) saving
  - (b) income
  - (c) fixed consumption
  - (d) disposable income.

#### Determinants of propensity to consume

It is commonly asked that what are the factors that influence consumption behaviour in the economy besides income? In other words what are the determinants of propensity to consume other than income? Let us identify some important factors as follows:

(i) Rate of interest, (ii) Wealth (iii) Distribution of income (iv) consumer credit.

##### (i) Rate of interest

Commercial bank offer a certain rate of interest on the deposits held by public and charges rate of interest on the loans given to public. When people donot want to purchase goods and services, they keep their money in the bank to earn rate of interest. But when they want to buy goods and services, they with draw money from the bank and loose interest in the process. In this way rate of interest play an important role in influencing a person's decision to consume now or in futrue.

It should also be noted here that, according to Keynes, rate of interest may not be an important factor in influencing consumption decision in a short run time period. Urgent and immediate consumption needs have to be satisfied without considering the rate of interest factor. This happens because consumption is directly related to satisfaction of wants at present which is more important than earning rate of interest in future by deferring consumption today.

For investors and producers, however, rate of interest play an important role in their decision making regarding capital investment. To make investment producers need loan from bank. If the rate of interest in high the cost of borrowing will be high. This may discourage them to invest as per their desire and or need. On the otherhand, if the rate of interest is low, producers may be encouraged to invest more.

##### (ii) Wealth

Propensity to consume is influenced by a person's holding of wealth. People who have wealth in the form of gold, jewellery, ownership of land and building, shares and bonds etc enjoy a higher level of income generated from the wealth, Accordingly their consumption level will be higher.



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### (iii) Distribution of Income

Propensity to consume is affected by the distribution of income in the economy. You know that national income is distributed in the form of wage, rent, interest and profit. It is often observed and experienced that wage earners are exploited by the people who own property and business and earn rent, interest and profit. As a result there exist inequality in income distribution leading to division of the society into poor and rich. It is obvious that rich people consume more than poor people. Accordingly the economy's propensity to consume will be affected.

### (iv) Consumer credit

Finally, availability of consumer credit influences consumption behaviour to a large extent in the economy. There are many durable goods which consumers want to buy. But due to lack of credit facility, they are not able to buy them as they are costly items. Items such as car, scooter, TV, refrigerator, washing machine etc. are costly durable goods and also necessary for satisfaction of wants. Working people in urban area have got high demand for these goods.

With easy credit facility provided by banks, now people are buying these items in large quantities by paying easy instalments to the banks.

### Saving Function

Both consumption and saving form two parts of a person's disposable income. The way consumption depends on the level of disposable income, saving also depends on the same.

Saving function gives the relationship between saving and income in the economy. Saving can be defined as that part of income (or disposable income) which is not consumed. This follows from the psychological law of consumption stated earlier. Let us denote saving as  $S$ .

In order to calculate saving, use example 7 given earlier in this lesson. In that example we had written that

$C = 500 + 0.5 Y$ . Taking  $Y$  as 2500 we calculated that ( $C = 1750$ ).

From this example we can calculate saving by deducting consumption from income. That is

$$S = Y - C$$

or  $S = 2500 - 1750 = 750$ .



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**26.4 PROPENSITY TO SAVE**

Saving behaviour of people can be studied by calculating propensity to save in two ways.

- (i) Average propensity to save (APS)
- (ii) Marginal propensity to save (MPS).

**APS:** APS is defined as the ratio of saving and income at any point of time. Symbolically

$$APS = \frac{S}{Y}$$

APS gives the idea about the proportion of income devoted towards saving MPS.

**MPS**

MPS is defined as the ratio of change in saving and change in income. Over a period of time. MPS is a rate of change in saving vis-a-vis income. Symbolically

$$MPS = \frac{\Delta S}{\Delta Y}$$

where  $\Delta S$  = current period saving - last period saving

$\Delta Y$  = current income – last period income

MPS is always less than 1.

**Example:** If income changes from 1000 to 1500 and saving changes from 200 to 250, then calculate APS and MPS?

$$\begin{aligned} \text{Ans: } MPS &= \frac{\Delta S}{\Delta Y} = \frac{250 - 200}{1500 - 1000} = \frac{50}{500} \\ &= \frac{5}{50} = \frac{1}{10} = 0.1 \end{aligned}$$

We can calculate APS for both time period. In the first time period,  $S = 200$  and  $Y = 1000$

$$\text{So, } APS = \frac{S}{Y} = \frac{200}{1000} = 0.2$$

In the second time period

$$APS = \frac{S}{Y} = \frac{250}{1500} = \frac{1}{6} = 0.16$$

**Relationship between propensity to consume and save**

APC and APS are related in the following manner.

(i) The sum of APC and APS is unity.

i.e.  $APC + APS = 1$

This implies that

$$APC = 1 - APS$$

$$APS = 1 - APC$$

**Proof :**

$$APC = \frac{C}{Y}$$

$$APS = \frac{S}{Y}$$

$$APC + APS$$

$$= \frac{C}{Y} + \frac{S}{Y}$$

$$= \frac{C+S}{Y} = \frac{Y}{Y} = 1 \quad (\text{Since } C + S = Y) \text{ Proved.}$$

(ii) The sum of  $MPC$  and  $MPS$  is unity.

i.e.  $MPC + MPS = 1$

This means that

$$MPC = 1 - MPS$$

$$MPS = 1 - MPC$$

**Proof:**

$$MPC = \frac{\Delta C}{\Delta Y}$$

$$MPS = \frac{\Delta S}{\Delta Y}$$



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MPC + MPS

$$= \frac{\Delta C}{\Delta Y} + \frac{\Delta S}{\Delta Y}$$

$$= \frac{\Delta C + \Delta S}{\Delta Y} \quad (\because \Delta C + \Delta S = \Delta Y)$$

$$= \frac{\Delta Y}{\Delta Y} = 1 \text{ proved.}$$

### Deriving the Equation for Saving

We have already given the consumption function equation as:

$$C = a + b Y.$$

We also said that Saving is calculated by deducting consumption from income.

i.e.  $S = Y - C$

Now substitute value of  $C$  as given in the equation.

$$\begin{aligned} \text{So, } S &= Y - \{ a + b Y \} \\ &= Y - a - b Y \\ &= - a + Y - b Y \end{aligned}$$

Factor out  $Y$  to give

$$S = - a + (1 - b) Y.$$

The saving equation consists of the negative value of the fixed consumption ‘ $a$ ’ and  $(1-b)$  times the value of income. Which is the value of saving itself out of income.

Note that, we have said earlier that, a constant amount of money ‘ $a$ ’ is always denoted for consumption, even if income is zero. this amount can be a borrowed amount or can be acquired by reducing or selling asset of the person. Borrowing or reduction of asset is an act of dis-saving or opposite to saving activity or negative saving. In any case when income  $Y = 0$ , then  $C = a$ . So  $S = Y - C = 0 - a = - a$ .

Hence the first part of saving equation is a negative of the constant  $a$ . The second part of saving equation is  $(1-b) Y$ . Here  $b = MPC$ . So  $1 - b = MPS$ . Hence  $(1 - b) Y = MPS \times Y$ . This implies that the value of saving out of income is calculate of as  $MPS$  times the value of income.



In the example given above, we gave that

$$C = 500 + 0.5 Y$$

where  $a = 500$

$$MPC = 0.5$$

So  $MPS = 1 - MPC = (1 - 0.5)$

Now we can write the saving function

$$S = -500 + (1 - 0.5) Y$$

$$S = -500 + 0.5 Y$$

Solving for  $S$ , We can easily find that  $S = 750$  as calculated earlier.

### Diagram of Saving Function

The saving function will start from the negative quotient from a value equal to ‘ $-a$ ’ on the vertical axis and then it will be upward sloping at a slope (or angle) equal to  $1 - b$  or  $MPS$ . See the diagram of saving function below.

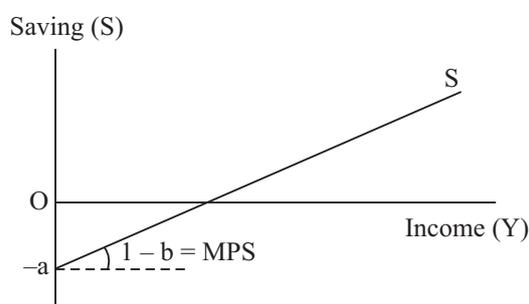


Fig. 26.3

In fig. 26.3  $-aS$  is the saving function which starts from  $-a$  (below origin) and slope upward at a rate equal to  $1 - b$  or  $MPS$ . The distance ‘ $0$  to  $-a$ ’ is the amount of fixed consumption or dissaving when income is zero.

### Consumption, saving and Income

Now we can see how consumption and saving are determined for different values of income. We can also see the values of saving at the break even point. For this go back to table 1. and add the saving column. Table 1 was constructed on the basis of the consumption function equation  $C = 500 + 0.5 Y$ .

Now add, saving function as  $S = -500 + 0.5 Y$ . Construct Table 2, showing values

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of consumption and saving for various level of income. Then check the remark column.

**Table 26.2: Consumption, Saving and Income**

Time	Y	C	S	Remark
1	0	500	- 500	$C > Y, S < 0$
2	500	750	- 250	$C > Y, S < 0$
3	1000	1000	0	$C = Y, S = 0$ (BE)
4	1500	1250	250	$C < Y, S > 0$
5	2000	1500	500	$C < Y, S > 0$

As given in the table 2 above, when  $Y = 0$ ,  $C$  is equal to a positive constant 500 (i.e.  $a$ ). So saving is  $-500$ . When  $Y$  increase,  $C$  and  $S$  both increase. At  $Y = 1000$ ,  $C = Y = 1000$  which is called break even as already told. At the break even point, Saving is zero. After that, when  $Y$  further increases,  $C$  falls below  $Y$  as per psychological law of consumption. When  $C$  becomes less than  $Y$ , automatically saving becomes positive. For example at  $Y = 1500$ ,  $C = 1250$  So,  $S = 250$  and at  $Y = 2000$ ,  $C = 1500$ ,  $S = 500$  and so on.



### INTEXT QUESTION 26.3

1. Name two factor influencing consumption behaviour in the economy?
2. If  $MPC = 0.8$  and fixed consumption 'a' is 200, write the saving equation.
3.  $APC = 1 - MPS$ . True or False
4.  $MPS = 1 - APS$ . True or False
5.  $MPC = 1 - MPS$ . True or False
6. Given income as 500 and consumption as 300, find out APC?
7. Change in income is 150.  
Saving changes from 200 to 280.  
Find out MPS.
8. At break even point , consumption equals zero. True or False.

### 26.5 INVESTMENT

Investment is a basic economic activity in the economy. This activity is carried out by the firms or producers in the economy. Investment is defined as addition to the

existing capital stock. Capital stock include fixed assets such as land, building, machinery and equipment etc and change in stock.

Investment by firms can be expressed in two ways:

(i) Gross investment and (ii) Net investment.

Gross investment is defined as sum of net investment and depreciation. Gross investment = net investment + Depreciation.

It should be mentioned that in order to produce goods and services in the economy for the purpose of consumption, producers or firms need to invest in machinery, equipment, land, building etc and stock of raw material and finished goods. Also due to normal wear and tear, these items loose their value over time period. Hence a producer must spend on depreciation charges against wear and fear of machinery.

The difference between gross and net investment is called depreciation. We can write

Gross investment – Net investment = Depreciation.

### Nature of investment

In macro economics investment can be categorised as autonomous and induced.

Autonomous investment is that part of investment which is fixed and most needed to carry out production activity. It is independent of the level of income or value of output generated in the production process. Expenditure on land, building or machineries needed for production can be treated as constant or fixed as they are required to start production. It can be also treated in the same way as fixed consumption told earlier.

Symbolically autonomous investment can be written as

$$I = I_0$$

where  $I$  = investment

$I_0$  = Autonomous investment which is constant.

For example, let a firm wants to produce garments. For this the minimum requirement is a room and sewing machine. Whatever the level of output or income, expenditure on purchasing a room and sewing machine will be taken as autonomous investment. Say this amount is Rs. 20,000. Then autonomous investment is Rs 20,000.

The diagram for autonomous investment is given as a horizontal line as given below in Fig. 26.4.



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Notes

## Consumption, Saving and Investment

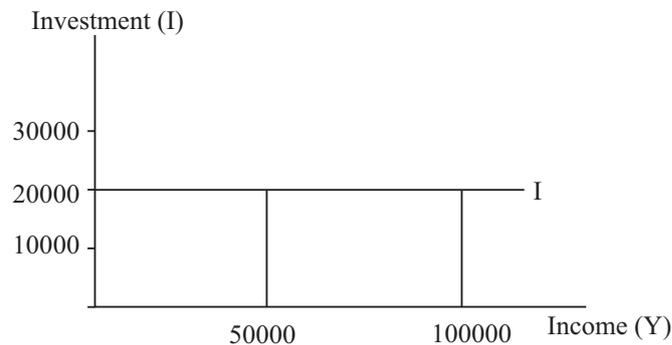


Fig. 26.4

Take investment on vertical axis and income on horizontal axis. In the diagram the autonomous investment line is horizontal at the value 20,000. This means that whatever be the level of income i.e. be it 0, or 50,000 or 100,000, investment will always remain 20,000.

On the otherhand induced investment is that part of investment by firms which is influenced by the level of income and profit motive. It may so happen that when income of firm increases, the firm gets encouragement to increase its business activity and accordingly invest more in capital stock. Hence it is called induced investment.



### INTEX QUESTIONS 26.4

1. Autonomous investment is independent of the level of income. True or false
2. Induced investment is influenced by level of income. True or False.



### WHAT HAVE YOU LEARNT

- Consumption function gives a direct relationship between consumption and income.
- According to psychological law of consumption, Consumption increases at a comparatively slower rate than increase in income.
- Consumption function equation in the short run is given as

$$C = a + b Y$$

where  $a$  = positive constant

$$b = MPC = \text{and } b < 1.$$

$Y$  = Income



- Saving function is given as  

$$S = -a + (1-b)Y$$
 where  $1 - b = MPS$ .
- $APC + APS = 1$  and  $MPC + MPS = 1$ .
- Consumption and saving functions are upward sloping.
- At break even point consumption and income are equal while saving is zero.
- Rate of interest, wealth, distribution of income and consumer credit affect propensity to consume.
- Autonomous investment is independent of the level of income while induced investment depends on the level of income.
- Gross investment = Net investment + depreciation.



**TERMINAL EXERCISE**

1. Define consumption function. Relate it with saving function.
2. State and explain psychological law of consumption?
3. Give the relationship between propensity to consume and save?
4. What are the factors that influence propensity to consume? Discuss.
5. What do you mean by break even point? Compare consumption and income before and after that point. Also compare level of saving before and after the break even point.
6. If  $a = 60$ ,  $MPC = 0.75$  then write down the consumption and saving equations. Find the value of consumption and saving when income is 200.
7. Distinguish between autonomous and induced investment?
8. Draw the diagram of consumption function and saving function and explain these diagrams?
9. Fill in the blanks in the table

Y	C	S	APC	MPC	APs	MPS
0		-50				
100				0.5		
200						

10. Distinguish between gross and net investment?

## MODULE - 10

Theory of Income and  
Employment



Notes



### ANSWER TO INTEXT QUESTIONS

#### 26.1

1. (b)      2. 400      3. (c)      4.  $\frac{5}{7} = 0.71$       5.  $\frac{3}{10} = 0.33$

#### 26.2

1.  $C = 100 + 0.75 y$ ,      2.  $C = 210$       3. MPC,  
4. False,      5. C

#### 26.3

1. Wealth and distribution of income

2.  $5 = 200 + (1-0.8)y = 200 + 0.2y$

3. False,

4. False

5. True

6.  $\frac{3}{5} = 0.6$

7.  $\frac{8}{15} = 0.53$

8. False

#### 26.4

1. True

2. True.