Learning outcomes

After studying this unit, you should be able to:

- Define Multiplier
- Identify Investment Multiplier
- Know the working of Multiplier
- Identify the leakages of Multiplier
- Identify Assumptions of multiplier
- Identify criticism of multiplier

INTRODUCTION:

The Concept of Multiplier

The concept of multiplier was first developed by R.F. Kahn in his article "The Relation of home Investment, to Unemployment" in the Economic Journal of June 1931. Kahn's multiplier was the Employment Multiplier. Keynes took the idea' from Kahn and formulated the Investment Multiplier.

THE INVESTMENT MULTIPLIER

Keynes considers his theory of multiplier as an integral part of his theory of employment. The multiplier, according to Keynes, "establishes a precise relationship, given the propensity to consume, between aggregate employment and income and the rate of investment. It tells us that, when there is an increment of investment, income will increase by an amount which is K times the increment of investment" i.e., \( L'' Y=KL''I \). In the words of Hansen, Keynes' investment multiplier is the coefficient relating to an increment of investment to an increment of income, i.e., \( K=\frac{L'' Y}{L'' I} \). where \( Y \) is income, \( I \) is investment, is change (increment or decrement) and \( K \) is the multiplier.

In the multiplier theory, the important element is the multiplier coefficient, \( K \) which refers to the power by which any initial investment expenditure is multiplied to obtain a final increase in income. The value of the multiplier is determined by the marginal propensity to consume. The higher the marginal propensity to consume, the higher is the value of the multiplier, and vice versa. The relationship between the multiplier and the marginal propensity to consume is as follows:

\[
\Delta Y = \Delta c + \Delta I \\
\Delta Y = c \Delta Y + \Delta I \quad [ \Delta c = c \Delta Y ] \\
\Delta Y - c \Delta Y = \Delta I \\
\Delta Y(1-c) = \Delta I \\
\Delta Y = \Delta I / 1-c \\
\Delta Y / \Delta I = 1 / 1-c
\]
\[ K = \frac{1}{1-c} \quad \text{[ } K = \frac{\Delta y}{\Delta I} \text{]} \]

Since \( c \) is the marginal propensity consume, to multiplier \( K \) is, by definition, equal to \( 1-1/c \). The multiplier can also be derived from the marginal propensity to save (MPS) and it is the reciprocal of MPS, \( K = d/MPS \)

**TABLE I: DERIVATION OF THE MULTIPLIER**

The table shows that the size of the multiplier varies directly with the MPC and inversely with the MPS. Since the MPC is always greater than zero and less than one (i.e., \( 0 < \text{MPC} < 1 \)), the multiplier is always between one and infinity (i.e., \( 1 < K < \infty \)). If the multiplier is one, it means that whole increment of income is saved and nothing is spent because the MPC is zero. On the other hand, an infinite multiplier implies that MPC is equal to one and the entire increment of income is spent on consumption. It will soon lead to full employment in the economy and then create a limitless inflationary spiral. But these are rare phenomena. Therefore, the multiplier coefficient varies between one and infinity.

**Working of the Multiplier**

The multiplier works both forward and backward. First, we study its forward working. The multiplier theory explains the cumulative effect of a change in investment on income via its effect on consumption expenditure.

We first take the "sequence analysts" which shows a "motion picture" of the process of income propagation. An increase in investment leads to increased production which creates income and generates consumption expenditure. This Process continues in dwindling series till no further increase in income and expenditure IS possible: This is a lag less instantiates process in a static framework, as explained by Keynes.

Suppose that in an economy MPC is \( 1/2 \) and investment is raised by Rs100 crores. This will immediately lead to a rise in production and income by Rs100 crores. One-half of
this new income will be immediately spent on consumption goods which will lead to increase in production and income by the same amount, and so on. The process is set out in Table II. It reveals that an increment of Rs 100 crores of investment in the primary round leads to the same increase in income. Of this, Rs 50 crores are saved and Rs 50 crores are spent on consumption which go to increase income by the same amount in the second round. This dwindling process of income generation continues in the secondary rounds till the total income generated from Rs 100 crores of investment rises to Rs 200 crores. This is also clear from the multiplier formula, \( 6Y = K \times I \) or \( 200 = 2 \times 100 \).

\[ X = 100, \text{ where } K = 2 \text{ (MPC=1/2) and } I = \text{Rs 100 crores. This process of income propagation as a result of increase in investment is shown diagrammatically in Figure 11.1.} \]

\[ \text{The C curve has a slope of 0.5 to show the MPC equal to one-half: } C+I \text{ is the investment curve which intersects the } 45^\circ \text{ line at } E' \text{ so that the old equilibrium level of income is } OY'. \text{ Now there is an increase in investment of 6.1 as shown by the distance between } C+I \text{ and } C+I+\Delta I \text{ curves. This curve intersects the } 45^\circ \text{ line at } E'' \text{ to give } OY'' \text{ as the new income. Thus the rise in income } Y'' \text{ as shown by } \Delta Y \text{ is twice the distance between } C+I \text{ and } C+I+\Delta I, \text{ since the MPC is one-half.} \]

\[ \text{The same results can be obtained if MPS is taken so that when income increases, savings also increase to equal the new investment at a new equilibrium level of income.} \]

**Backward Operation.** The above analysis pertains to the forward operation of the multiplier. If, however, investment decreases, instead of increasing, the multiplier operates backward. A reduction in investment will lead to contraction of income and consumption which, in turn, will lead to cumulative decline in income and consumption till the contraction in aggregate income is the multiple of the initial decrease in investment. Suppose investment decreases by Rs 100 crores. With an MPC = 0.5 and K = 2, consumption expenditure would keep on declining till aggregate income is decreased by Rs 200 crores. In terms of multiplier formula, \( -\Delta = K(-\Delta I) \), we get \( -200 = 2(-100) \).

\[ \text{The magnitude of contraction due to the backward operation of the multiplier depends on the value of MPC. The higher the MPC, the greater is the value of the multiplier and the greater the cumulative decline in income, and vice versa. On the contrary the higher the MPS, the lower is the value of the multiplier and the smaller the cumulative decline in income, and vice versa. Thus, a community with a high propensity to consume (or low propensity to save) will be hurt more by the reverse operation of the multiplier than one with a low propensity to consume (or high propensity to save). Diagrammatically, the reverse operation can be explained in terms of Figures 11.1 and 11.2. Taking figure 11.1 when investment decreases, the investment function } C+I+\Delta I \text{ shifts downward to } C+I \text{. As a remit, the equilibrium level also shifts from } E'' \text{ to } E' \text{ and income declines from } OY'' \text{ to } OY'. \text{ The MPC being 0.5, the fall in income } Y'' \text{ is exactly double the decline in investment as shown by the distance between } C+\Delta I+\Delta I \text{ and } C+I. \text{ Similarly, in Figure 11.2 when investment falls, the investment function } I+\Delta I \text{ shifts downward as I curve and income decreases from } OY'' \text{ to } OY'. \text{ The MPS being 0.5, the decrease in income } Y'' \text{ is double the decline in investment as measured by the distance between } I+\Delta I \text{ and I curves.} \]
Assumptions of Multiplier

Keynes's theory of the multiplier works under certain assumptions which limit the operation of the multiplier. They are as follows:

1. There is change in autonomous investment and that induced investment is absent.
2. The marginal propensity to consume is constant.
3. Consumption is a function of current income.
4. There are no time lags in the multiplier process. An increase (decrease) in investment instantaneously leads to a multiple increase (decrease) in income.
5. The new level of investment is maintained steadily for the completion of the multiplier process.
6. There is net increase in investment.
7. Consumer goods are available in response to effective demand for them.
8. There is surplus capacity in consumer goods industries to meet the increased demand for consumer goods in response to a rise in income following increased investment.
9. Other resources of production are also easily available within the economy.
10. There is an industrialised economy in which the multiplier process operates.
11. There is a closed economy unaffected by foreign influences.
12. There are no changes in prices.
13. The accelerator effect of consumption on investment is ignored.
14. There is less than full employment level in the economy.

Leakages of Multiplier.

Leakages are the potential diversions from the income stream which tend to weaken the multiplier effect of new investment. Given the marginal propensity to consume, the increase in income in each round declines due to leakages in the income stream and ultimately the process of income propagation "peters out." The following are the important leakages:

1. Saving. Saving is the most important leakage of the multiplier process. Since the marginal propensity to consume is less than one the whole increment in income is not spent on consumption: A part of it is saved which peters out of the income stream and the increase. In income in the next round declines. Thus the higher the marginal propensity to save, the smaller the size of the multiplier and the greater the amount of leakage out of the income stream, and vice versa. For instance if MPS=1/6, the multiplier is 6, according to the formula \( K = \frac{1}{\text{MPS}} \); and the MPS of 1/3 gives a multiplier of 3.

2. Strong Liquidity Preference. If people prefer to hoard the increased income in the form of idle cash balances to satisfy a strong liquidity preference for the transaction, precautionary and speculative motives, that will act as a leakage out of the income stream. As income increases people will hoard money in inactive bank deposits and the multiplier process is checked.
(3) Purchase of Old Stocks and Securities. If a part of the increased income is used in buying old stocks and securities instead of consumer goods, the consumption expenditure will fall and its cumulative effect on income will be less than before. In other words, the size of the multiplier will fall with a fall in consumption expenditure when people buy old stocks and shares.

(4) Debt Cancellation. If a part of increased income is used to repay debts to banks, instead of spending it for further consumption, the part of the income peters out of the income stream. In case, this part of the increased income is repaid to other creditors who save or hoard it, the multiplier process will be arrested.

(5) Price Inflation. When increased investment leads to price inflation, the multiplier effect of increased income may be dissipated on higher prices. A rise in the prices of consumption goods implies increased expenditure on them. As a result, increased income is absorbed by higher prices and the real consumption and income fall. Thus price inflation is an important leakage which tends to dissipate increase in income and consumption on higher prices rather than in increasing output and employment.

(6) Net Imports. If increased income is spent on the purchase of imported goods it acts as a leakage out of the domestic income stream. Such expenditure fails to effect the consumption of domestic goods. This argument can be extended to net imports when there is an excess of imports over exports thereby causing a net outflow of funds to other countries.

(7) Undistributed Profits. If profits accruing to joint stock companies are not distributed to the shareholders in the form of dividend but are kept in the reserve fund, it is a leakage from the income stream. Undistributed profits with the companies tend to reduce the income and hence further expenditure on consumption goods thereby weakening the multiplier process.

(8) Taxation. Taxation policy is also an important factor in weakening the multiplier process. Progressive taxes have the effect of lowering the disposable income of the taxpayers and reducing their consumption expenditure. Similarly commodity taxation tends to raise the prices of goods, and a part of increased income may be dissipated on higher prices. Thus increased taxation reduces the income stream and lowers the size of the multiplier.

(9) Excess Stocks of Consumption Goods. If the increased demand for consumption goods is met from the existing excess stocks of consumption goods there will be no further increase in output, employment and income and the multiplier process will come to a halt till the old stocks are exhausted.

(10) Public Investment Programmes. If the increase in income as a result of increased investment is affected by public expenditures. It may fail to induce private enterprise to spend that income for further investment due to the following reasons.
(a) Public investment programmes may raise the demand for labour and materials leading to a rise in the costs of construction so as to make the undertaking of some private projects unprofitable.
(b) Government borrowing may, if not accompanied by a sufficiently liberal credit policy on the part of the monetary authority, increase the rate of interest and thus discourage private investment.
(c) Government operations may also injure private investors confidence by arousing animosity or fears of nationalisation

**Criticism of Multiplier**

The multiplier theory has been severely criticised by the post-Keynesian economists on the following grounds.

1. Prof. Haberler has criticised Keynes' multiplier as tautological. It is a truism which defines the multiplier as necessarily true as

   \[ K = \frac{1}{1 - (\Delta C / \Delta Y)} \]

   As pointed by Professor Hansen, "Such a coefficient is a mere arithmetic multiplier (i.e., a truism) and not a true behavior multiplier based on a behavior pattern which establishes a verifiable relation between consumption and income. A mere arithmetic multiplier, \( 1 / (1 - (\Delta C / \Delta Y)) \) is tautological."

2. Keynes's logical theory of the multiplier is an instantaneous process without time lag. It is a timeless static equilibrium analysis in which the total effect of a change in investment on income is instantaneous so that consumption goods are produced simultaneously and consumption expenditure is also incurred instantaneously. But this is not borne out by facts because a time lag is always involved between the receipt of income and its expenditure on consumption goods and also in producing consumption goods. Thus "the timeless, multiplier analysis disregards the transition and deals only with the new equilibrium income level" and is therefore unrealistic.

3. According to Hazlitt, the Keynesian multiplier "is a strange concept about which some Keynesians make more fuss than about anything else in the Keynesian system." It is a myth for there can never by any precise, predeterminable or mechanical relationship between investment and income. Thus he regards it is a worthless theoretical toy."

4. One of the weaknesses of the multiplier theory is that it studies the effects of investment on income through changes in consumption expenditure. But it ignores the effect of consumption on investment which is known as the acceleration principle. Hicks, Samuelson and others have shown that, it is the interaction of the multiplier and the accelerator which helps in controlling business fluctuations.

5. Gordon points out that the greatest weakness of the multiplier concept is its exclusive emphasis on consumption. He favours the use of the term 'marginal propensity to spend' in place of marginal propensity to consume to make this concept more realistic. He also objects to the constancy of the because in a dynamic economy, it is not likely to remain
constant. If it is assumed to be constant, it is not possible "to predict with much accuracy the multiplying effects over the cycle of a given increase in private investment or public spending."

(6) Keynes's multiplier theory establishes a linear relation between consumption and income with the hypothesis that the, M PC is less than one and greater than zero. Empirical studies of the behavior of consumption in relation to income show that the relationship between the two is complicated and nonlinear. As pointed out by Gardner Ackley, "The relationship does not run simply from current income to current consumption, but rather involves some complex average of past and expected income and consumption. There are other factors than income to consider."

Other economists have not been lagging behind in their, criticisms of the multiplier concept. Prof. Hart considers it "a useless fifth wheel" To Stigler, it is the fuzziest part of Keynes's theory. While Hutt calls it a "rubbish apparatus" which should be expunged from text books.

But despite its scathing criticism, the multiplier principle has considerable practical, applicability to economic problems as given, below.

**Importance of Multiplier**

The concept of multiplier is one of the important contributions Keynes's to the income and employment theory. As aptly observed by Richard Goodwin. "Lord Keynes did discover the multiplier; that honor goes to Mr. RF. Kahn. But he gave it the role it today by transforming it from an instrument for the analysis of road building into one for the analysis of income building. It set a fresh wind blowing through the structure of economic thought" Its importance lies in the following:

(1) Investment. The multiplier theory highlights the importance of investment in income and employment theory. Since the consumption function is stable during the short run fluctuations in income and employment are due to fluctuations in the rate of investment. A fall in investment leads to a cumulative decline in income and employment the multiplier process and vice versa. Thus it underlines the investment and explains the process of income propagation.

(2)Trade Cycle. As a corollary to the above, when there are fluctuations. In the level of income and employment due to variations the rate pf investment, the multiplier process throws a spotlight on the different phases of the trade cycle. When there is a fall in investment, income and employment decline in a cumulative manner leading recession and ultimately to depression, on the contrary, an increase in invest my deads to reveal and, if this process continues, to a boom. Thus the multiplier is regarded as an indispensable tool in trade cycles
(3) Saving-Investment Equality. It also helps in bringing the equality between saving and investment. If there is a divergence between saving and investment, an increase in investment leads to a rise in income via the multiplier process by more than the increase in initial investment. As a result of the increase in income, saving also increases and equals investment.

(4) Formulation of Economic Policies. The multiplier is all important tool in the hands of modern states in formulating economic policies. Thus this principle presupposes state intervention in economic affairs.

(a) To achieve full employment. The state decides upon the amount of investment to be injected into the economy to remove unemployment and achieve full employment. An initial increase in investment leads to the rise in income and employment by the multiplier time the increase in investment. If a single dose of investment is insufficient to bring full employment, the state can inject regular doses of investment for this purpose till the full employment level is reached.

(b) To control trade cycles. The state can control booms and depressions in a trade cycle on the basis of the multiplier effect on income and employment. When the economy is experiencing inflationary pressures, the state can control them by a reduction in investment which leads to a cumulative decline in income and employment via the multiplier process. On the other hand, in a deflationary situation, an increase in investment can help increase the level of income and employment through the multiplier process.

(c) Deficit financing. The multiplier principle highlights the importance of deficit budgeting. In a state of depression, cheap money policy of lowering the rate of interest is not helpful because the marginal efficiency of capital is so low that a low rate of interest fails to encourage private investment. In such a situation, increased public expenditure through public investment programmes by creating a budget deficit helps in increasing income and employment by multiplier time the increase in investment.

Public Investment. The above discussion reveals the importance of the multiplier in public investment policy. Public investment refers to the state expenditure on public works and other works meant to increase public welfare. It is autonomous and is free from profit motive. It therefore, applies with greater force in overcoming inflationary and deflationary pressures in the economy, and in achieving and maintaining full employment. Private investment being induced by profit motive can help only when the public investment has created a favorable situation for the former. Moreover, economic activity cannot be left to the vagaries and uncertainties of private enterprise. Hence, the importance of multiplier in public investment lies in creating or controlling income and employment. The state can have the greatest multiplier effect on income and employment by increasing public investment during a depression where the MPC is high (or the MPS is low). On the contrary, in periods of overfull employment, a decline in investment will have a serious effect on the levels of income and employment where the MPS is high (or MPC is low). The best policy is to reduce investment where the MPC is low (or MPS is high), to have gradual decline in income and employment.

The important thing, however: if the timing of public investment is such a manner that the multiplier is able to work with full force and, there is little scope for the income,
stream to peter out. Moreover, I public investment should not supplant but supplement private investment so that it could be increased during depression and reduced during inflation. As a result, the forward and backward operation of the multiplier will help in the two situations.

2. THE DYNAMIC OR PERIOD MULTIPLIER

Keynes's logical theory of the multiplier is an instantaneous process without time lag. It is a timeless static equilibrium analysis in which the total effect of a change in investment on income is instantaneous so that consumption goods are produced simultaneously and consumption expenditure is also incurred instantaneously. But this is not; borne out by facts because a time lag is always involved between the receipt of income and its expenditure on consumption goods and also in producing consumption goods. Thus "the timeless multiplier analysis disregards the transition and deals only with-the new equilibrium income level" and is, therefore, unrealistic.

The dynamic multiplier relates to the time lags in the process of income generation. The series of adjustments in income and consumption may take months or even years for the multiplier process to complete, depending upon the assumption made about the period involved. This is explained in Table III where if each round is of one month and it takes seventeen rounds for an initial investment of Rs 100 crores to generate an income of Rs 200 crores, given the value of M PC to be 0.5, then the multiplier process will take 17 months to complete

<table>
<thead>
<tr>
<th>Period in Months</th>
<th>I (increment in Investment)</th>
<th>C=CY=0.5 (increment in Investment)</th>
<th>Y (increment in income)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>t+1</td>
<td>100</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>t+2</td>
<td>100</td>
<td>50</td>
<td>100+50</td>
</tr>
<tr>
<td>t+3</td>
<td>100</td>
<td>25</td>
<td>150+25</td>
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<td>.</td>
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<tr>
<td>t+n</td>
<td>100</td>
<td>100</td>
<td>200</td>
</tr>
</tbody>
</table>

The Table shows that if the MPC remains constant at 0.5 throughout, an initial increase of Rs 100 crores of investment will first raise income by 100 crores in the first month. Out of this Rs 50 crores will be spent on consumption. This will raise income in the second month to Rs 50 crores, and out of this Rs 25 crores will be spent on consumption. This will go to increase income in the third month by Rs 25 crores, and successive increments in income get smaller and smaller in each period till in the seventeenth month the income increases by Rs 0.001 corer. This can also be explained algebraically as:
\[ \Delta y = \Delta I + \Delta IC + \Delta IC^2 + \Delta IC^3 \ldots + \Delta IC^{n-1} \]

\[ \Delta Y = 100 + 100 \times (0.5) + 100 \times 0.5^2 + 100 \times 0.5^3 \ldots + 100 \times 0.5^{n-1} \]

\[ \Delta Y = 1 - 0.5^2 / 1 - 0.5 \times 100 = 1 / (1-0.5) \times 100 = \text{Rs. 200 Crores} \]

This process of dynamic income propagation assumes that there is a consumption lag and no investment lag so that consumption is a function of the income of the preceding period i.e.,

\[ C_t = f Y_{t-1} \]

and investment is a function of time (t) and of constant autonomous investment \( \Delta I \), i.e., \( I_t = f \times \Delta I \)

In Figure 11.3, \( C+I \) is the aggregate demand function and the 45° line is the aggregate supply function.

If we begin in period to where with an equilibrium level of \( OY_0 \) income, investment is increased by \( \Delta I \) then in period t income rises by the amount of the increased investment (from to \( t_0 \) to \( t \)). The increased investment is shown by the new aggregate demand function \( C + I + \Delta I \)

But in period to consumption lags behind, and is still equal to the originate income \( E_0 \). But at \( Y_0 \) level total demand rises from \( Y_{o,t_0} \) to \( Y_{o,t} \). There is now an excess of demand over supply equal to \( Y_{o,t} \). In period t consumption rises due to the rise in demand to \( Y_{o,t} \). Now investment increases income still higher to \( 0 Y1 \) in period \( t+1 \) and to increase in consumption from t to E1. But at this level, total demand is \( Y1E1 \) which exceeds total supply by \( AE_1 \). This will further tend to raise income to \( OY_2 \) in period \( t+2 \) and to increase in consumption to \( E2E2 \). This leads to a rise in demand to \( Y_2E2 \), leading to an excess of total demand over total supply by \( BE2 \). This process' of income generation will continue till the: aggregate demand function \( C + I + \Delta I \) equals the aggregate supply function 45° line at \( E_n \) in the nth period, and the new equilibrium level of income is determined at \( OY_n \). The curved steps \( E_0 \) to \( E_n \) is the path of income propagation showing the dynamic process of multiplier. The lower portion of the figure shows the time dimension of the multiplier process.

### 3. THE EMPLOYMENT MULTIPLIER

The concept of Employment Multiplier was introduced by R.F. Kahn in 1931 as a ratio between the total increase in employment and primary employment, i.e., \( K_1 = \Delta N / \Delta N_1 \) where \( K_1 \) stands for the employment multiplier, \( \Delta N \) for the increase in total employment and \( \Delta N_1 \) for the increase in primary employment. Thus the "employment multiplier is a coefficient relating an increment of primary employment on public works to the resulting increment of total employment, primary and secondary combined." To illustrate it,
suppose 200000 additional men are employed in public works so that the (secondary) employment is increased by 400000. The total employment is increased by 600000 (=200000 primary+400000 secondary). The employment multiplier would be 600000/200000= 3.

Algebraically, the Keynesian multiplier. \( \Delta Y = K \Delta I \) is analogous to Kahn's multiplier \( \Delta N = K^1 \Delta N_1 \). But Keynes points out that there is no reason in general to suppose that \( K = K^1 \) because income in terms of wage units may rise more than employment, if in the process, non wage earners income should rise proportionately more than wage earners income. Moreover, with decreasing returns, total product would rise proportionately less than employment. In short, income in terms of wage units would rise most, employment next and output the least. Still, according to Hansen, in the short-run, all three would tend to rise and fall together as envisaged by the Keynesian income and employment theory. He concludes that thus for practical purposes we do no great violence to the facts if we assume that the employment multiplier equals the investment multiplier.

If, however, output increases towards the full employment output, per unit of labour will fall due to decreasing returns. In such a situation, \( K^1 \) is larger than \( K \) when the multiplier is working to increase output and employment. But \( K^1 \) is smaller than \( K \) if the multiplier is working in the opposite direction.

Dillard points out the employment multiplier is useful for showing the relation between primary and secondary employment from public works. But Keynes' conception is superior to Kahn's for in the words of Goodwin,"He gave it the role it plays today by transforming it from an instrument for the analysis of road building into one for the analysis of income building,
Multiplier
Meaning:
- The concept of multiplier was first developed by R.F. Kahn in his article "The Relation of home Investment, to Unemployment" in the Economic Journal of June 1931.

Multiplier concept
- The multiplier, according to Keynes, "establishes a precise relationship, given the propensity to consume, between aggregate employment and income and the rate of investment. It tells us that, when there is an increment of investment, income will...

The Investment Multiplier
- Keynes took the idea from Kahn and formulated the Investment Multiplier.
- Investment multiplier is the coefficient relating to an increment of investment to an increment of income, i.e., \( K = \frac{dY}{dI} \) [L*I]. where \( Y \) is income, \( I \) is investment, \( d \) is change (increment or decrement) and \( K \) is the multiplier.
Working of the Multiplier

The multiplier works both forward and backward. First, we study its forward working. The multiplier theory explains the cumulative effect of a change in investment on income via its effect on consumption expenditure.

Assumptions of Multiplier

Some of the Assumptions of multiplier are as follows:
- The marginal propensity to consume is constant.
- Consumption is a function of current income.
- There is a net increase in investment.
- There are no changes in prices.
- The accelerator effect of consumption on investment is ignored.

Leakages of Multiplier

- Strong Liquidity Preference
- Purchase of Old Stocks and Securities
- Debt Cancellation
- Taxation
- Excess Stocks of Consumption Goods
- Public investment programmes
QUESTIONS FOR SELF ASSESSMENT:

Q1. Define Multiplier?

Q2. Short notes on:
   Investment Multiplier:

   Employment Multiplier:

Q3. Why Multiplier is needed:

Q4. Multiplier is based on certain assumption, what are the various assumptions of Multiplier:
EXERCISE

1. What is the significance of the statement that the value of the multiplier is the reciprocal of the marginal propensity to save?

2. Discuss the concept of "investment multiplier" and its role in the theory of income and employment.

3. Discuss the concept of multiplier as put forward by Kahn and Keynes. What subsequent use has been made of the concept?'

4. For serving what analytical purposes are the notions of "leakages" and "lags" employed in the theory of income propagation?

5. Define the "Multiplier" and distinguish it from the 'Super Multiplier. Show the way the multiplier has been used in the Keynesian theory of employment.
6. The higher the marginal propensity to consume the higher will be the value of the multiplier." Discuss this statement,