

## Ch. 9 Theory of Multiplier

INTRO: The theory of multiplier is one of the central concepts of modern macroeconomics. It was developed by R.F. Khan in 1931 and further developed by Keynes. The multiplier given by Keynes is called the income multiplier or investment multiplier and it explains the cumulative effect of changes in investment on income via its effect on consumption expenditure. It is useful in understanding income generation, policy making and in stabilizing aggregate demand.

INCOME/ INVESTMENT MULTIPLIER: The multiplier shows that the ultimate increase in income, output and employment is more than the initial increase in investment. It is the ratio of final change in income due to the initial change investment. This can be expressed as,  $k = \Delta Y / \Delta I$ , where  $k$  is the multiplier,  $\Delta Y$  is the change or increase in income and  $\Delta I$  is the change or increase in investment. For eg- if there is Rs.100 cr investment in the economy because of which national income increases to Rs. 400 cr, then value of multiplier is 4, thereby showing that the increase in income is a multiple of the increase in investment. This process of rise in income happens because of the effect of increase in investment on consumption. Thus, multiplier is determined by marginal propensity to consume and is given by,  $k = 1 / (1 - mpc)$ . As  $(mpc + mps = 1)$ ,  $k$  can also be written as,  $k = 1 / mps$ . If  $mpc = 4/5$ ,  $mps = 1/5$  and  $k = 5$ . The value of multiplier varies directly with  $mpc$ . If  $mpc$  is high, multiplier is also high. The value of multiplier lies between 0 and  $\infty$  ( $0 < mpc < 1$ ) and value of  $k$  lies between 1 and  $\infty$  ( $1 < k < \infty$ ).

The working of the multiplier can be explained through the following example. Let,  $mpc = 4/5$ . Thus,  $k = 1 / (1 - 4/5) = 5$ . Suppose there is an increase in investment by Rs. 1000 cr { Eg- by creating a new factory or production unit} which will result in a rise in income by Rs. 5000 cr. The increase of investment initially increases the incomes of all the people whose factors of production get employed because of the rise in investment by Rs. 1000 cr {for eg- the people employed in the factory will get wages, the machinery will generate revenue, the money invested will generate interest rate, etc. All of this will happen initially by Rs. 1000 cr. i.e. by the amount of the initial investment.} As the marginal propensity to consume {which shows the amount by which consumption increases due to increase in income} is assumed to be  $4/5$ , the people whose incomes have risen spend altogether Rs. 800 cr on consumption and save Rs. 200 cr. The Rs. 800 cr which was one group of people's expenditure becomes another group of people's income, out of which this 2<sup>nd</sup> group spends  $4/5$  of 800 cr i.e. 640 cr on consumption which becomes another group's income and so on till income has increased to Rs. 5000 cr.

ASSUMPTIONS: The theory is based on the following assumptions:

- 1) Unemployment is present in the economy
- 2) MPC is constant
- 3) It is a closed economy
- 4) There should be a net increase in investment
- 5) goods are available aplenty
- 6) there is excess capacity in the industries
- 7) multiplier period is absent

LIMITATIONS: The theory of multiplier is a very ideal scenario. In reality there are a number of limitations because of which the final increase in income can sometimes be lesser than what it should be as per the theory.

- a) Availability of consumer goods: The theory depends on availability of consumption goods as that is what people spend their money on. If there isn't enough consumer goods then mpc will fall and lower the value of multiplier.
- b) Continuous net investment: Multiplier effect depends on net investment. There needs to be continuous net investments in all sectors. If there is rise in investment in one sector but fall in investment in another sector, it won't result in rise in income.
- c) Multiplier period: Multiplier period is the time interval between getting income and spending it. Keynes assumes there to be no multiplier period, but in reality it exists. Greater the multiplier period lower will be value of multiplier due to lesser secondary expenditure on consumption.
- d) Full employment ceiling: The multiplier can work only upto full employment ceiling, beyond which output and employment will stop expanding.
- e) Availability of resources: lack of resources will affect consumption and multiplier will be low. In reality resources are limited and have alternate uses

LEAKAGES: In the multiplier analysis, savings is the only leakage that is taken into consideration. In reality there are various other leakages in the process of income generation that reduces the size of multiplier.

- 1) Paying off debts
- 2) Holding idle cash balances
- 3) Imports: If some portion of the increase in income due to increase in investment is spent on imports, value of multiplier will be low as the money is spent not on consumption of goods of domestic country but of foreign country. Thus, the expenditure of one group of people is not increasing income of another group of people in the domestic country. Eg- Without imports, if  $mpc = 3/4$ , value of  $k$  will be  $1/1-(3/4) = 4$ . If there is imports in the country, there will be another variable called marginal propensity to import (mpi). If  $mpi = 1/4$ , then  $k = 1/1-(3/4 - 1/4) = 2$ . Hence, multiplier falls.
- 4) Taxation: It is a leakage as it reduces the disposable income of the people thereby reducing consumption. However, this leakage may be offset if appropriate Government expenditure is undertaken in the country.
- 5) Increase in prices: If there's an increase in prices, consumption will fall and value of multiplier will be low.
- 6) Purchase of old stocks and securities