INVESTMENT FUNCTION

INVESTMENT FUNCTION

Goods that are produced to be used for further production of other goods are called capital goods.

Capital goods that are at the disposable for the production process of any commodity is called stock of capital goods. The addition to the stock of capital or capital in a fixed period is called aggregate investment.

Investment can be divided into three groups

- Fixed business investment
- Residential investment
- Inventory investment

Fixed business investment: the most important element of investment is the fixed business investment. The meaning of the term fixed implies the use of investment for a reasonable period of time. Therefore, the importance of fixed business investment is maximum in the process of long term economic development.

Residential investment: persons who purchase new house for residential use or who purchase it for the purpose of renting it out is called residential investment. The amount of residential investment depends on the relative price of the house which further depends on the demand of the house and this depends on the expected rent of the house. Another import factor which determines the demand of the house is the rate of interest. If the rate of interest is low then there will be more residential investment which will increase the demand of the house resulting in increase in the price of it.

Inventory investment: inventory investment occurs for the inventory of the commodities which are used in the production process and for the produced goods which wait for sale after production.

TYPES OF INVESTMENT

Investment is classified into the following types

- Nominal investment and real investment: if the amount of investment of any country in a fixed period of time is calculated on the basis of the price level of that fixed period or the current prices then such investment is called nominal investment.

  Nominal investment in a fixed time period when divided by the price level of that time period is called real investment

  Real investment = $\frac{\text{nominal investment}}{\text{price level}}$

- Gross investment and net investment: the amount of addition to the stock of capital or capital of any country in a fixed period. Of time is called gross investment.

  The difference between the amount of increase in capital of any country in a fixed period of time and the decrease in the amount of capital due to depreciation (wear and tear of capital) is called net investment.

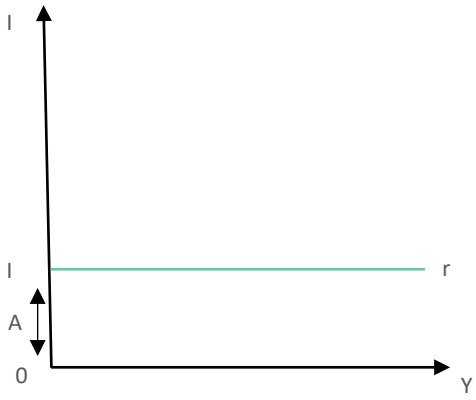
- Autonomous investment and induced investment: investment which is depended on the will and desire of the investors and doesn't depend on the level of income, rate of interest and other economic factors is called autonomous investment. It temporarily remains fixed at a particular level and hence is constant. It is expressed in the following way.

  $$I = A$$

  Where,

  I =autonomous investment

  A = constant amount.

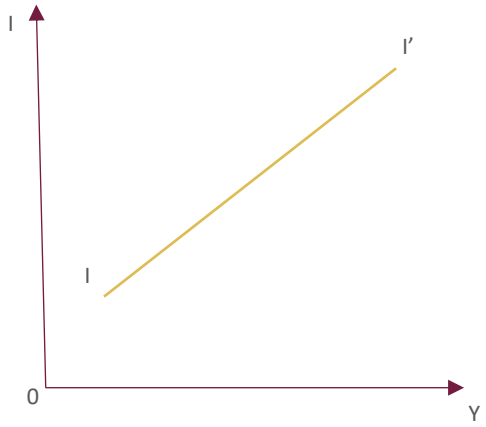


Investment is given in the y-axis and income is given in x-axis. Amount of autonomous is constant and horizonal to the x-axis. It remains the same even when the income is changing.

Investment which depends on the economic factors is called induced investment. It is dependent on the possibility to earn more income. Here the investment function can be written as

$$I = I(Y)$$

For induced investment we have an upward rising straight line which shows that investment increases with the increase in income.



Marginal Efficiency of Capital (MEC): maximum rate of income which is expected from one extra unit of capital good after deducting the cost is called marginal efficiency of capital. This concept was introduced by Keynes to understand the relationship between interest rate and investment. Investment in any country depends on the interest rate and we have an inverse relation between the two. Higher rates of interest offsets the investment and so the level of investment decreases.

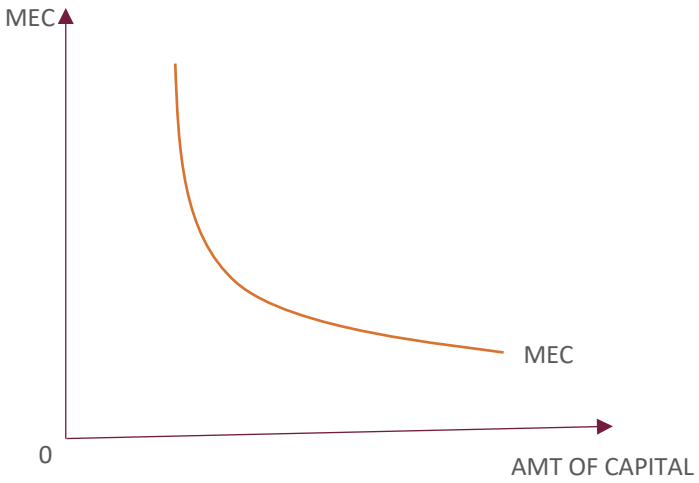
If an investor decides to buy a machine which will work for 10 years with a certain cost. For 10 years the machine will be giving returns, so in order to see if the investment is worthwhile or not, we find the value of the entire returns at the present value and equate it with the cost. The minimum returns expected over a period of 10 years is the cost of the machine. The rate at which the future value is discounted at the present time is called the marginal efficiency of capital.

Let the return in first year be R_1, second year be R_2 up to n year R_n. Rate of return means income after deducting the cost. Let the price or cost of the capital good be C. The returns are discount at a rate 'i'.

Discount returns = cost of the capital good.

$$\frac{R_1}{(1+i)} + \frac{R_2}{(1+i)^2} + \frac{R_3}{(1+i)^3} + \ldots\ldots + \frac{R_n}{(1+i)^n} = C$$

The marginal efficiency of capital curve is a downward sloping curve with the MEC on the vertical axis and the amount of capital on the horizontal axis. This curve shows that as the amount of capital increases the MEC decreases and this happens because of the law of diminishing marginal product. With the other inputs remaining fixed if more and more of capital is being used then the returns it gets keep on decreasing.



KEYNESIAN THEORY OF INVESTMENT: RELATION BETWEEN MEC AND INVESTMENT

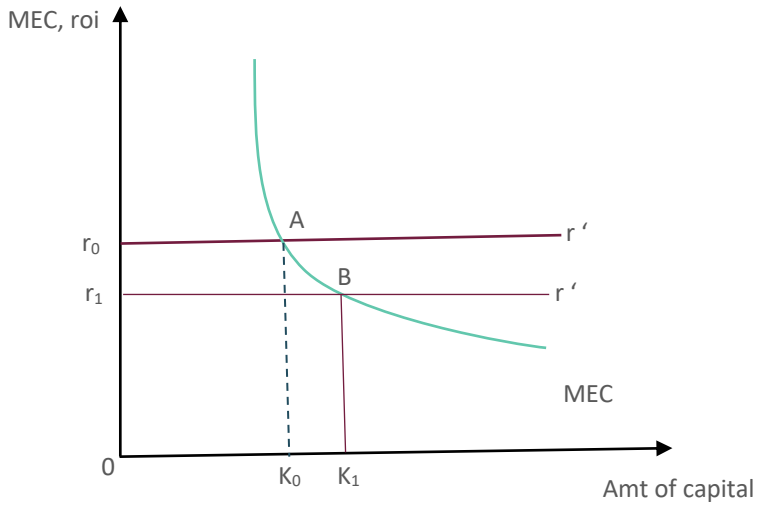
Investment of any country depends and the rate of interest of that country. There is an inverse relation between the investment and the rate of interest, as the rate of interest increases the level of investment decreases and vice versa.

According to Keynes, investment depended on two factors, the rate of interest (roi) and the MEC. He introduced the concept of MEC to explain the relation between roi and investment. In order to invest the investors take money at a certain rate (roi) and purchase capital. If the MEC from the purchase of capital is greater than the roi, then it is profitable for the investors and vice versa, eg if the roi is 14 % and the MEC is 20 % then the amount of profit is 6%.

The following diagram shows the relation between roi and investment with through MEC.

On the vertical axis we have MEC and the roi and on the horizontal axis we have the amount of capital. We have drawn a downward sloping MEC curve. Let's say the roi is $0r_0$, so have the roi curve as r_0r'. Equilibrium will be at point A where the roi intersects the MEC curve. At this point the roi is equal MEC so at $0r_0$ level of interest we have $0K_0$ level of capital. If the amount of capital is less than $0K_0$ MEC is greater than the roi and the investors can keep adding more capital to increase profit. This process will continue up to the point where the amount of capital is $0K_0$ and the

maximum amount of profit can be enjoyed. Beyond $0K_0$ the MEC will be lower than the roi and hence it won't be profitable to use more capital. MEC curve can be used as investment curve as well. More capital can be use if the roi decrease, thus we can say as the roi decreases the investment increases.



When the roi falls to $0r_1$ equilibrium will happen at B and the amount of capital employed is $0k_1$. As the roi decreases the amount of capital increases which means the level of investment increases.