SIMPLE KEYNESIAN MODEL OF INCOME DETERMINATION IN A CLOSED ECONOMY.

In an economic system there are four main sectors, household, firm, government and the foreign sector. A closed economy is one in which there is no trade with the foreign sector, which means the foreign sector is absent. First, we will see the two sector model of income determination which includes the household and the firms and later on we will introduced government.

Keynes discuss two approaches to determining the level of income in an economy,

- Total expenditure/ aggregate demand/ income-expenditure method
- Saving-investment function

DETERMINATION OF EQUILIBRIUM LEVEL OF INCOME IN A CLOSED ECONOMY: TOTAL EXPENDITURE METHOD

Equilibrium level of income through this method is determined where the national income is equal to the national expenditure. The money value of the total amount of goods and services produced in a given period of time in any country is called the total income or the national income (Y).

When we see the expenditure side there are two types of expenditure. Expenditure on consumer goods which is done by the household when they purchase goods and services and the expenditure on capital goods which is done by the firms when they purchase capital goods.

The total amount of money spend on the purchase of goods and services by all the people in the country is called total consumption expenditure. Consumption of any country depends on the level of income(Y). The consumption function shows the relation between the consumption and income and is given as

$$C = c_0 + C(Y)$$

Where, c_0 = y intercept of the curve

C = marginal propensity to consume

Y = national income.

Consumption increases as the income increases. c_0 shows the amount of consumption even when the income is zero, as even the basic commodities are needed to consume to survive. Marginal propensity to consume (mpc) shows how much consumption changes when the income changes, $\frac{\Delta C}{\Delta Y}$. MPC always lies between 0 and 1. $0 < \frac{\Delta C}{\Delta Y} < 1$.

In this model we assume that the investment level is autonomous (doesn't depend on the internal factors like roi) and is fixed, so the investment function is constant and doesn't change with the roi. Here the level of investment an investor wishes to invest on depends on the will of the investors.

Therefore, the total expenditure of a closed economy is the aggregate of the consumption function and the investment function.

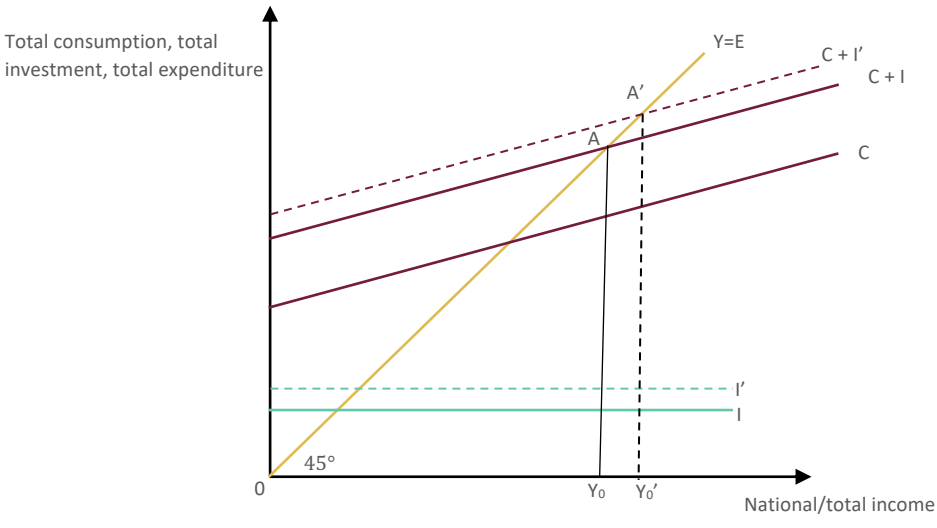
The equilibrium condition of national income determination is-

Total nation income = total national expenditure

$$\Rightarrow \quad Y = C + I$$

Here Y shows the total supply of goods and services because the national income is always equal to the national product and C + I shows the total demand for consumer goods and capital goods. Therefore, equilibrium level of national income is determined when the aggregate supply is equal to the aggregate demand.

The equilibrium level of income can be explained with the help of the following diagram.



The 45°line 0E shows total expenditure is equal to total income. I show the investment function and C show the consumption function. C + I show the aggregate expenditure of an economy. Equilibrium occurs when the aggregate expenditure line intersects the 45° line. In the diagram the aggregate expenditure line intersects the 45° line at A and the national income corresponding to the equilibrium point is Y_0. Here Y = C + I can be seen.

When there is deviation from the equilibrium point there is a tendency to come back to the equilibrium level of income. This is called stable equilibrium.

If the national income is not in equilibrium, then going through a series of process it deviates back to the equilibrium point. When there is deviation from the equilibrium, the tendency to move towards and come back to the equilibrium is called stable equilibrium.

Let's say to the right of A, the total supply is greater than the total demand, Y > C + I. Since the entire product isn't sold there is be an increase in the level of inventory, so the producer in the next level of production process lowers the amount of investment and hence the total supply decreases and as a result the level of income falls. This process will continue till it reaches back to the equilibrium point where Y = C + I.

Opposite will be the case to the left side of A. Y = C + I, total demand will be greater than the total supply. To meet the excess demand the producers will increase the production and as a result the income grows and the process continues till the equilibrium is reached.

Changes in C or I will lead to a change in the equilibrium level of output/income. Let's say the level of investment increases from I to I'. this results in the upward shift of the total expenditure. The new total expenditure will be C + I', and the new equilibrium level of income is Y_0' which is higher than the previous one. Reverse scenario happens when the C or I fall.