## Dr. Surendra Kumar J.E. Meade’s Model (Part-I) Introduction:

The ***model of economic growth which has been constructed by J.E. Meade*** describes those conditions which will be helpful for a sustainable economic growth in the presence of constant technical progress and a constant increase in population of a country. According to Meade along with economic growth:

(i) The production of capital equipments increases because savings are made out of current incomes.

(ii) The ratio of working force increases.

(iii) Because of technical progress it is possible to produce goods and services in the presence of fixed resources.

**Assumptions:**

(i) There is a closed economy having no financial and trade links with other countries.

(ii) 'Laisseze Fair' economy where govt. neither imposes taxes, nor makes expenditures.

(iii) There exists perfect competition in goods and factor markets.

(iv) Constant returns to scale exist.

(v) The machines constitute the capital goods and all machines are alike.

(vi) The ratio of labor to machines can easily be changed in short run and long run.

(vii) The production of consumer goods and capital goods is substitutable.

(viii) A certain proportion of machines becomes prey to depreciation. Therefore, there rises the need for replacement of machines.

**Production Function:**

The ***production function in Meade's model*** is as:

**Y = f (K, L, N, t)**

Where:

Y = Net production of the economy.

K = Stock of machines.

L = Amount of labor.

N = Land or productive resources.

t = State of technology which goes on to change along with change in time.

According to ***Meade the production of the economy can increase*** if:

(i) The stock of capital goods (K) increases in the economy. The increase in capital stock will increase the savings of the people leading to increase the real capital accumulation in the economy. The increase in stock of capital is represented by ΔK. If we represent the value of marginal product of machine by "V", the increase in the output of the economy will be represented as: **VΔK.**

(ii) The working force of the economy (L) increases which is represented by ΔL. If we accord W as the value of marginal product of labor then the increase in production of the economy will be represented as: **WΔL.**

(iii) Even no change occurs in capital, labor and natural resources the production of the economy can change due to technical progress which is shown by **ΔY/.**

Thus the ***increase in the production of the economy*** can be represented as:

**ΔY = VΔK + WΔL + ΔY/**

Dividing this equation by basic factors of production of the economy shown in production function. In other words, by dividing ΔY/s equation by Y/s equation:

**ΔY//Y = VK/Y . ΔK/K +  WL/Y .  ΔL/L + ΔY//Y**

Here ΔY/Y shows annual rate of growth of income of the economy. While ΔK/K shows the annual rate of growth of stock of capital. ΔL/L represents the annual rate of growth of labor and ΔY//Ymeans the annual rate of growth of income due to technical progress.

We use the symbols like y, k, l and r to represent such propornate rates of growth. The term VK/Y shows the proportion of capital in total output while WL/Y shows the relative share of labor in total production of the economy. Out of VK/Y a certain percentage of national income is accrued to the owners of the capital in the form of net profits which is shown by 'U'. While a certain proportion of national income which is accrued to labor in the form of wages is shown by 'Q'. Therefore, in the light of these symbols the ***national income equation*** is written as:

**y = Uk + Ql + r**

According to this equation the total output of the economy (y) is summation of three outputs:

(i) Uk [the product of rate of capital growth (k) and proportion of profits (U)].

(ii) Ql [the product of rate of labor growth (l) and proportion of wages (Q)].

(iii) The growth of technical progress (r).

Subtracting (l) from the both sides of above equation:

**y = Uk + Ql + r**

**y - l = Uk - l + Ql + r**

**y - l = Uk - l (1 - Q) + r**

Where y - l shows the difference in between growth rate of production and growth rate of labor force. Thus it shows the growth of per capita income. The above equation shows that y - l can be increased with Uk and r. Whereas y - l decreases with l (1 - Q).

Now we introduce ***savings*** in this equation. The Uk is presented in some other way. As we assumed that all of savings are invested. Therefore, the increase in the amount of capital (ΔK) will be equal to the savings made out of national income (SY). It is as:

**ΔK = SY where SY = annual savings**

Dividing both sides by K.

**ΔK/K = SY/K**

As Uk = VK/Y . ΔK/K putting SY/Kin place of ΔK/K, then:

**Uk = VK/Y . SY/K or UK = Vs**

Putting the value VS in place of Uk in the above equation:

**y - l = Vs - l (1 - Q) + r**

**Changes in Growth Rate:**

After analyzing the determinants of growth rate of income we discuss those conditions whereby growth rate of the economy will increase or decrease. As Meade assumed the constancy of growth rate of population (l) and growth rate of technology (r), then the changes in y - l would be depending upon the behavior of s, V and Q.

As no change occurs in population and technology and savings increase the amount of capital. But in this way, the MPK will come down. Thus because of increase in savings there will be a slower increase in the production. In such state of affairs the 'Vs' will decrease. If technical progress takes place such negative effect on V will be offset. It means that if with the passage of time the changes in 'r' occur it will have an effect on V. It is so because that the productivity of all factors will increase because of 'r' leading to increase savings. Moreover, the savings in an economy also depend upon distribution of income. If the share of profits in national income distribution increases the savings will increase.