The Harrod-Domar Model

The Harrod-Domar models of economic growth are based on the experiences of advanced economies. Both Harrod and Domar are interested in discovering the role of income growth necessary for a smooth and uninterrupted working of the economy. Though their models differ in details, yet they arrive at similar conclusions.

Assumptions

(1) There is an initial full employment equilibrium level of income.

(2) There is the absence of government interference.

(3) These models operate in a closed economy which has no foreign trade.

(4) There are no lags in adjustment between investment and creation of productive capacity.

(5) The average propensity to save is equal to the marginal propensity to save.

(6) The marginal propensity to save remains constant.

(7) The capital coefficient, i.e, the ratio of capital stock to income is assumed to be fixed.

(8) There is no depreciation of capital goods which are assumed to be that possess infinite life.

(9) Saving and investment relate to the income of the same year.

(10) The general price level is constant i.e the money income and real income are the same.

(11) There are no changes in interest rates.

(12) There are fixed proportions of capital & labour in the productive process.

(13) Fixed and circulating capital are lumped together under capital.

(14) There is only one type of product.

The Domar Model
Domar builds his model around following question:

Since investment generates income on the one hand and increases productive capacity on the other at what rate investment should increase in order to make the increase in income equal to the increase in productive capacity, so that full employment is maintained?

Increase in productive capacity

Let the annual rate of investment be I, and the annual productive capacity per dollar of newly created capital be equal on the average to S. Then the productive capacity of I dollar investment will $I.S$ dollars per year.

But Since new investment will be at the expense of the old. It will therefore, compete with the latter for labour markets and other factors of production. As a result, the output of old plants will be curtailed and the increase in the annual output of the economy will be Some what less than $I.S$.

This can be indicated as $I\sigma$,

σ : net potential social average productivity of investment $(= \Delta Y/I)$.

Accordingly $I\sigma$ is less than Is. $I\sigma$ is the total net potential increase in output of the economy and is known as the "sigma" effect. [supply side]

Required increase in Aggregate Demand

The demand side is explained by the Keynesian multiplier. Let the annual increase be denoted by ΔY and the increase in investment by ΔI. and the propensity to Save $\alpha = \Delta S/\Delta Y$. Then the increase in income will be equal to the multiplier $(1/\alpha)$ times increase in investment

$$\Delta Y = \Delta I \, 1/\alpha .$$

Equilibrium

To maintain full employment equilibrium level of income, aggregate demand should be equal to aggregate supply.

$$\Delta I \frac{1}{\alpha} = I\alpha$$

Solving this equation by dividing both sides by I and multiplying by α we get:

$$\frac{\Delta I}{I} = \alpha\sigma.$$

This equation shows that to maintain full employment, the growth rate of net autonomous investment must be equal to $\alpha\sigma$. This is the rate at which investment must grow to assure the use of potential capacity in order to maintain a steady growth rate of the economy at full employment.