



A BRIEF ON HARROD-DOMAR ECONOMIC GROWTH THEORY

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Abstract

The Harrod Domar model demonstrates the significance of saving and interest in a creating economy. The model was grown freely by Roy F. Harrod in 1939. The development of an economy is decidedly identified with its reserve funds proportion and contrarily identified with the capital-yield proportion. It proposes that there is no characteristic purpose behind an economy to have adjusted development. Under the hypotheses of fiscal improvement, advertise investigators have cleared up money related factors and their impact on financial advancement. The progression of money related advancement theories can be ventured indeed from Adam Smith's book, Wealth of Nation. In his book, he underlined a view that the improvement of an economy endless supply of work.

Key Words: Economic, Harrod, Theory

Introduction

The most necessary condition for the growth of an economy is that the demand created due to newly generated income should be sufficient enough, so that the output produced by the new investment (increase in capital) should be fully absorbed"-Harrod-Domar theory.

From that point forward, the view exhibited by Smith was additionally prevailing by established business analysts, for example, Ricardo, Malthus, and Mill. The hypothesis created by these financial experts is known as traditional hypothesis of monetary development.

Further, in late nineteenth and twentieth hundreds of years, Karl Marx exhibited a hypothesis called hypothesis of authentic development and Schumpeter built up a development hypothesis of mechanical advancements. At long last, in late 1930s, R. F. Harrod and E. Domar exhibited progressively pertinent hypothesis of monetary development prevalently known as Harrod-Domar hypothesis. Afterward, neo-traditional hypothesis of financial development was additionally presented. Harrod-Domar hypothesis and neo-traditional hypothesis clarify current development conduct all the more obviously by breaking down various financial angles.

Harrod-Domar Theory:

Harrod-Domar hypothesis is considered as the expansion of Keynes' momentary investigation of full business and pay hypothesis. The Harrod-Domar development model gives a long haul hypothesis of yield. The financial specialists began giving their consideration toward



monetary solidness after the Great Depression of 1930s and monetary ruin brought about by World War II. Harrod and Domar have given a model that centres around the prerequisites fundamental for enduring monetary development. As indicated by them, capital aggregation establishes a central point for the development of an economy.

They likewise stressed that capital aggregation creates pay, yet in addition expands the generation limit of the economy. For example, if a development plant is built up, it would create salary for providers of various materials, for example, bond, blocks, steel, and hardware with synchronous increment in capital and generation limit of the economy.

The recently created salary from capital aggregation produces interest for products and enterprises. As per Harrod-Domar hypothesis, the most fundamental condition for the development of an economy is that the interest made because of recently created salary ought to be sufficiently adequate, so the yield delivered by the new venture (increment in capital) ought to be completely consumed.

In the event that the yield isn't completely retained, there would be overabundance or inert generation limit. This condition ought to be fulfilled continuously to keep up full business level and accomplish unfaltering financial development in the long haul

Following are the main assumptions of Harrod-Domar model:

(a) Constant Capital-Output Ratio:

Assumes that the relationship between capital and output always remains the same.

According to this assumption, the national output (which is equal to national income) is directly proportional to capital stock, which is expressed as follows:

$$Y = Kk, (k>0)$$

Where, Y = national output

K = total capital stock

k= output/capital ratio (constant)

As Harrod-Domar model has assumed that the output/capital ratio is constant, therefore, any type of increase in the national output would result in the k time increase in capital stock, which is as follows:

$$\Delta Y = k \Delta K$$

Therefore the increase in the growth of national output per unit time is equal to the increase in the growth of capital stock per unit time. In case the economy is in equilibrium and the



capital stock is utilized completely, then the capital/output ratio (k) can be easily determined. After that, the extra capital required to produce the extra output can also be obtained. The capital stock and net investment (I) are equal to each other.

Therefore, the change in national output can be represented as follows:

$$\Delta Y = kI$$

(b) Constant Saving-Income Ratio:

Assumes that society saves a constant proportion of national income.

Therefore, saving is a function of income, and saving function can be written as follows:

$$S = sY, (s > 0)$$

Where, S = saving per unit time

s = constant propensity to save

Y = national income

At equilibrium, savings get equal to investment, which is as follows:

$$S = I = sY$$

On the basis of these assumptions, Harrod-Domar has determined the growth rate, which is as follows:

$$\Delta Y_t = kI_t$$

In such case, ΔY_t can be calculated with the help of following formula:

$$\Delta Y_t = Y_t - Y_{t-1}$$

Or

$$Y_t - Y_{t-1} = kI_t$$

Where, Y_t = income in time period t

Y_{t-1} = income in lime period $t-1$

According to the assumption of Harrod-Domar model, at equilibrium in time period t :

$$I_t = S_t = sY_t$$

As $I_t = sY_t$, therefore, we can substitute sY_t in place of I_t while calculating the income in time period t , which is represented as follows:

$$Y_t - Y_{t-1} = k*sY_t$$

The warranted growth rate can be calculated as follows:

$$Gw = Y_t - Y_{t-1}/Y_t = k. s$$

Or

$$Gw = \Delta Y/Y_t = k. s$$



As the former condition of justified development rate demonstrates that the development rate is comparable to the yield/capital proportion (k) times the steady affinity to spare. The development rate, $\Delta Y/Y$, is identified with the balance condition where $I = S$; along these lines, the development rate in such condition can likewise be viewed as harmony development rate.

The harmony development rate demonstrates the limit of using capital stock. Justified development rate alludes to the development rate at which the measure of creation is exact neither an excessive amount of nor excessively less.

One more development rate given by Harrod-Domar model was target development rate, which happens because of increment in negligible inclination to spare and speculation or yield/capital proportion. The expansion in minor penchant to spare would result in the expansion of sparing, which further prompts an expansion in speculation.

Thus, the pay and generation limit of a country likewise increment, which further builds the yield of the country. The expansion in the generation limit in a specific period expands the salary for coming years.

The expansion in pay prompts increment in sparing and speculation, and higher salaries in succeeding years. As indicated by the rule of speeding up, the speculation increments at a quicker rate.

In previously mentioned dialog, we have clarified the Harrod-Domar model of monetary development regarding capital aggregation. Be that as it may, another significant viewpoint that has been examined in the model is the work of work.

The assumptions of the employment of labor aspect as per the Harrod-Domar model are as follows:

- a. Considers that labor and capital are complementary to each other not substitutes
- b. Regards capital/output ratio as constant

As indicated by such suspicions, alongside the capital/yield proportion, the financial development would happen when the potential work power IS not totally used. This means the potential work supply confines monetary development at full business condition.

Thusly, monetary development would happen when the expansion in labor surpasses the full business condition. What's more, the genuine development rate winds up equivalent to justified development rate just when the justified development rate ends up equivalent to development rate of work power. On the off chance that the expansion in the development



rate of work is moderate, at that point the development must be standardized with the assistance of work sparing innovation.

In such a condition, the growth in the long term is dependent on the growth rate of labor force ($\Delta L/L$) and labor-saving technology. Therefore, maximum growth rate in the long run would be equal to $\Delta L/L$ plus m , which is the rate of substitution of capital in place of labor.

This growth rate is termed as the natural growth rate (G_n) that can be calculated with the help of the following formula:

$$G_n = \Delta L/L + m$$

The Harrod-Domar model provides more relevant theory of economic growth.

However, the model is not free from limitations. Some of the shortcomings of the model are as follows:

(c) Impractical Assumptions:

Refer to one of the major shortcomings of the model. The Harrod-Domar model involves assumptions that cannot be applied in practical situations. According to the Harrod-Domar Model, savings becomes equal to investment when warranted and actual growth rate are equal to each other.

This can be possible only under certain conditions, which are as follows:

- I. Keeping minimal inclination to expend at consistent
- ii. Accepting yield/capital proportion at consistent
- iii. Accepting that the innovation for generation is given
- iv. Keeping economy at balance at first
- v. Thinking about government consumption and remote exchange irrelevant
- vi. Accepting that there are no alteration holes among interest and supply just as venture and sparing

Be that as it may, these conditions can't generally be satisfied; hence, the justified development may not be equivalent to real development rate dependably. This makes the model impossible.

(d) Razor-Edge Model:

Alludes to another name of the Harrod-Domar model. The financial elements that are utilized in the Harrod-Domar model are capital/yield proportion, peripheral inclination to devour, development rate of work power, and improvement in labor-sparing innovation.

These components are gotten autonomously from the model. Hence, the harmony development rate idea as per this model can't be affirmed in long-run. Any deviation in these parameters can influence the harmony state of an economy. In this manner, the model is once in a while alluded as the razor-edge model.

Neo-Classical Theory:

The aggregate work of market analysts Tobin, Swan, Solow, Meade, Phelps and Johnson is named as neo-traditional hypothesis of financial development. The presumptions received by these scholars in the neo-established hypothesis depend on the perspectives and standards given by neo-traditional business analysts, for example, Alfred Marshall, Wicksell, and Pigou.

Following are some of the assumptions of the neo-classical theory:

- a. Assuming perfect competition in commodity as well as factor markets
- b. Making factor payments equal to the marginal revenue productivity
- c. Maintaining a variable ratio between capital and output
- d. Assuming full employment condition

The assumptions of the neo-classical theory would be clearer by comparing them with the assumptions of the Harrod-Domar model, which is shown in Table-1:

Assumptions of Harrod-Domar Model	Assumptions of Neo-Classical Theory
The production function comprises only one variable, namely, capital	The production function comprises more than one variables, namely, capital, labor, and technology
The labor and capital are regarded as perfect complements to each other	The labor and capital are regarded as substitutes
The capital/output ratio is assumed to be constant	The capital/output ratio is assumed to be variable

According to the neo-classical theory, the economic growth is determined with the help of certain factors, such as stock of capital, supply of labor, and technological development over time.

The production function for the neo-classical theory can be expressed as follows:

$$Y = F(K, L, T)$$

Where, Y = National output

K = Capital stock

L = Labor supply

T = Scale of technological development

According to the assumption of constant return to scale, increase in national output (ΔY) would be equal to the marginal productivity (MP) times ΔK and ΔL . Therefore,

$$\Delta Y = \Delta K. MP_k + \Delta L. MP_l$$

Where, MP_k = marginal physical product of capital

MP_l = marginal physical product of labor

When the equation of increase in national output is divided by Y, then we get the following equation:

$$\Delta Y/Y = \Delta K (MP_k/Y) + \Delta L (MP_l/Y)$$

The first term in the R.H.S is multiplied by K/K and second term by L/L; the resultant equation would be as follows:

$$\Delta Y/Y = \Delta K/Y (K. MP_k/Y) + \Delta L/Y (L.MP_l/Y)$$

The $K. MP_k$ and $L. MP_l$ represent the total stake of capital and labor in the national output, whereas $K/Y * MP_k$ and $L/Y * MP_l$ represent the relative stake of capital and labor in the national output. Therefore,

$$(K.MP_k/Y) + (L.MP_l/Y) = 1$$

Let us assume that $(K.MP_k/Y) = b$, then

$$(L.MP_l/Y) = 1-b$$

Putting the value of $(K.MP_k/Y)$ and $(L.MP_l/Y)$ in the following equation, we get:

$$\Delta Y/Y = \Delta K/Y (K.MP_k/Y) + \Delta L/Y (L.MP_l/Y)$$

$$\Delta Y/Y = b \Delta K/K + (1 - b) \Delta T/T$$

In the preceding equation, the values of b and $1 - b$ represents the elasticity of output with reference to the capital and labor respectively.

Therefore, according to the neo-classical theory, the economic growth rate is represented as follows:

Economic growth (at a given level of technology) = Elasticity of output with reference to the increase in capital stock + Elasticity of output with reference to the increase in labor

However, in case of technological change, the change in national output can be represented as follows:

$$\Delta Y/Y = b \Delta K/K + (1 - b) \Delta T/T$$

Therefore, in case of technological development, the economic growth rate can be represented as follows:

Financial development (at a given dimension of innovation) = Elasticity of yield with reference to the expansion in capital stock + Elasticity of yield with reference to the expansion in mechanical advancement.

Conclusion



Sees innovation as a consistent factor, which isn't valid. This is because of the way that an innovation continues progressing with time. Considers the factor costs as the central point for deciding financial development. Notwithstanding, the modifications of factor costs can be hindered with an adjustment in liquidity. Does exclude the speculation capacities; subsequently, the neo-traditional hypothesis has neglected to portray the desires for business people and capital collection by them. Thinks about capital resources as homogeneous, which isn't genuine.

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