University Grants Commission

Subject: Economics Code: 01

Unit-8: Growth and Development Economics

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Sub Unit 1: Economic Growth and Economic Development

8.1. Introduction (Concepts of Economic Growth and Economic Development):

In recent years, there has come into existence a new branch of economics known as the "Economics of Development". It refers to the problems of the economic development of underdeveloped or backward countries. In addition to the illuminating reports of the U.N.O. on the subject, some top-ranking economists like Nurkse, Dobb, Staley, Buchanan, Rostow and Ellis have made some original contributions to the Economics of Development. The main reason for the growing popularity of "Economics of Development" as a separate branch of economic theory is the increasing tendency on the part of the newly independent countries of Asia and Africa to resort to developmental planning as a means to eliminate their age-old poverty and raise living standards.

8.1.1 Definitions of Economic Development:

The term 'economic development' is generally used in many other synonymous terms such as economic growth, economic welfare, secular change, social justice and economic progress. As such, it is not easy to give any precise and clear definition of economic development. But in view of its scientific study and its popularity, a working definition of the term seems to be quite essential. Economic development, as it is now generally understood, includes the development of agriculture, industry, trade, transport, means of irrigation, power resources, etc. It, thus, indicates a process of development. The sectoral improvement is the part of the process of development which refers to the economic development. Broadly speaking, economic development has been defined in different ways and as such it is difficult to locate any single definition which may be regarded entirely satisfactory.

8.1.2 Characteristics of a Developed Economy:

A developed economy is the characterised by increase in capital resources, improvement in efficiency of labour, better organisation of production in all spheres, development of means of transport and communication, growth of banks and other financial institutions, urbanisation and a rise in the level of living, improvement in the standards of education and expectation of life, greater leisure and more recreation facilities and the widening of the mental horizon of the people, and so on. In short, economic development must break the poverty barrier or the vicious circle and bring into being a self-generating economy so that economic growth becomes self-sustained.

8.1.3 Distinction between Developed and Underdeveloped Economies:

We may now distinguish between the features of an underdeveloped economy from that of developed one as follows:

i. Underdeveloped economies are distinguished from developed economies on the basis of per capita income. In general, those countries which have real per capita incomes less than a quarter of the per capita income of the United States, or roughly less than 5000 dollars per year, are categorized as under-developed countries.

ii. An underdeveloped economy, compared with an advanced economy, is underequipped with capital in relation to its population and natural resources. The rate of growth of employment and investment in such an economy lags behind the rate of growth of population. The resources are not only employed but also underemployed.

iii. High rate of growth of population is an important characteristic of most of the underdeveloped economies. Population growth in underdeveloped countries neutralises economic growth. In advanced economies, the case is different. As Prof. Hansen points out, one of the empirical tests of secular stagnation in advanced economies is the declining rate of population growth. The stagnation problem in a developed economy is a problem of population, natural resources and technology failing to keep pace with capital accumulation.

iv. The central problem of underdeveloped economies is the prevalence of mass poverty which is the cause as well as the consequence of their low level of development. Shortage and scarcity are the main economic problems in these economies, whereas the affluent societies of advanced countries have economic problems resulting from abundance.

8.1.4 Difference between Economic Growth and Economic Development:

Economic	Development	Economic Growth
Concept	Normative concept	Narrowed concept than economic development
Scope	Concerned with structural changes in the economy	Growth is concerned with increases in the economy's output
Growth	Development relates to growth of human capital indexes, a decrease in inequality figures, and structural changes that improve the general population's quality of life	It refers to an increase in the real output of goods and services in the country like increase the income in savings, in investment etc.
Implication	It implies changes in income, saving and investment along with progressive changes in socio-economic structure of country	It refers to an increase in the real output of goods and services in the country like increase the income in savings, in investment etc.
Measurement:	Qualitative. HDI (Human Development Index), gender-related index (GDI), Human poverty index (HPI), infant mortality, literacy rate etc.	Quantitative Increase in real GDP Shown in PPF.
Effect	Brings qualitative and quantitative	Brings quantitative changes the economy

Sub Unit 2: Theories of Economic Development

8.2 Theories of Economic Development (Some theories)

8.2.1 Adam Smith

Introduction:

Adam Smith is regarded as the foremost classical economist. His monumental work, An Enquiry into the Nature and Causes of the Wealth of Nations published in 1776, was primarily concerned with the problem of economic development. Though he did not expound any systematic growth theory, yet a coherent theory has been constructed by later day economists which is explained below.

Assumptions

1. Population growth was taken as an endogenous variable. It was considered to be a function of subsistence available to accommodate increasing work force.
2. Investment was also taken as an endogenous variable and was considered to be a function of rate of savings.
3. Land growth could take place either by conquest of new land via colonization which prevailed then or improvement in the fertility of old lands.
4. Specialization increases the productivity and enhances the rate of growth.
5. Smith assumed that there existed perfect competition in the market.

1. Natural Law: Adam Smith strongly believed in the efficiency of laissez faire market system. He proposed maximization of self-interest automatically leads to maximization of social interest. When each individual tries to maximize his own individual interest, he is led by an 'invisible hand'. When each individual will maximize his own wealth in a free Laissez faire economy, then all individuals, if left free, will maximize aggregate wealth. He supported free trade and criticized any form of government intervention.

2. Division of Labour: Division of labour increases the specialization of a worker and thereby increases the overall productivity. Division of labour: (a) increases the dexterity of every worker; (b) saves time of producing goods; (c) leads to invention f large number of labour-saving machines. However, increase in productivity also stems from capital through improved technology which depends on the size of market.

3. Process of Capital Accumulation: Division of labour leads to capital accumulation and this capital accumulation leads to a higher rate of development. But it is capital accumulation which must precede division of labour because it will stimulate specialization. Smith assumed that only capitalists and landlords were capable of savings. Labourers could not save because of 'Iron Law of Wages' which states that at any point of time wages tend to equal to the amount necessary for subsistence of labourers. If it is more than this, then there will be increase in competition for employment and wages will decrease.

4. Investment is made to earn Profits: Classical economists stated that capitalists made investment in an expectation to earn profits on them and these expectations depended on the present climate for investment and actual profits in the present. Smith also proposed that profits tend to fall with increase in the rate of capital accumulation. As economy's capital stock grows, demand for labour force increases, it increases competition for getting labour which leads to increase in wage bill and thereby reduces profits.

5. Interest: Quantity of capital for lending will increase with the fall in interest rates and vice versa. Interest rates will fall with progress and prosperity and hence supply of capital will go up.

6. Agents of Growth: Smith believed that farmers, producers and business man are agents of economic growth. The functions performed by these agents of economic growth are interrelated.

Despite this, Smith's theory of economic development points toward certain factors that are helpful in the process of developing underdeveloped countries. Farmers, traders and producers, the three agents of growth mentioned by Smith, can help in developing the economy by raising productivity in their respective spheres. In the absence of a free market economy, the state can induce them to produce more, as is being done in India. Their interdependence also points toward the importance of balanced growth for such economies.

8.2.2 Ricardo

Like Smith, David Ricardo also presented his views on economic development in an unsystematic manner in his book The Principles of Political Economy and Taxation. This book was published in 1917. It was its third edition of 1921 and Ricardo's correspondence with a number of economists that contain his ideas on which his model of development has been built. Ricardo never propounded any theory of development. He simply discussed the theory of distribution. Therefore, Ricardo's analysis is a detour. The Ricardian theory is based on the marginal and the surplus principles. The marginal principle explains the share of rent in the national output, and the surplus principle explains the division of the remaining share between wages and profits.

Assumptions

1. All land is used for the production of one crop say, corn.
2. Land is subject to diminishing returns to a factor;
3. Supply of land is fixed; 4. Labour and capital both are variable inputs;
5. Technology is given and remains unchanged;
6. Wage rate is equal to subsistence level;
7. There exists perfect competition in the market;
8. Wage rate and quantity supplied of labour is given and constant;
9. Demand for labour is a function of accumulations;

10. Capital accumulations occur from profits

Important Features:-

1. **Rent, Profit and Wages:** Ricardo defined rent as that portion of the produce of the earth which is paid to the landlord for the use of original and indestructible powers of the soil. The wage rate is determined by wage fund divided by number of workers employed at subsistence level. Ricardo opined that in total produce of the corn, the first payment is made to landlord; the residual is distributed between wage and profits (interest is included in profits). Had land been in unlimited supply and uniform it would have earned no interest.

2. **Capital Accumulation:** According to Ricardo, capital accumulation depends on following factors:

(a) The Profit Rate: Profit divided by capital employed gives us the rate of profit. As long as, rate of profit is positive, capital accumulation will continue to take place. Since depend on wages which in turn depend on the price of corn and fertility of land. Hence, profits and wages are inversely related.

(b) Increase in wages: If the cost of subsistence increases, wage rate will increase. With the increase in demand for food more land will have to be brought under agriculture. It will increase the demand for labour and wages will rise. With rise in wages, price of crop will also rise and hence rent will increase. But profits will fall leading to a decline in capital accumulation.

(c) Declining Profits in Other Industries: Ricardo took agriculture as the determining sector. The profits in agriculture determine profits in other industries. Therefore, the profit rate in both agriculture and industrial sector must be same.

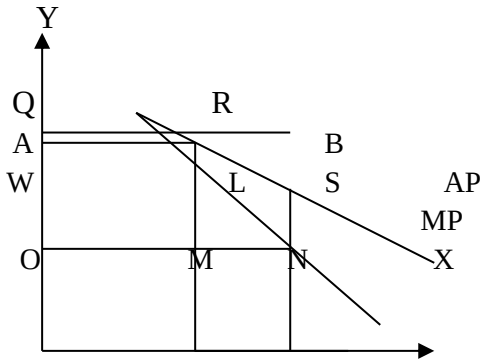
3. Other Sources of Capital Accumulation: Ricardo states that higher will be the difference between production and consumption, higher will the rate of profits. Hence, capital accumulation can be increased by increasing production or by decreasing unproductive consumption. Productivity of labour can increase through technological progress and better organization. However, use of capital intensive techniques will lead to unemployment. Ricardo considered following as additional sources of capital accumulation:

(a) **Taxes**: Ricardo suggested that taxes should be levied to reduce conspicuous consumption as it is unproductive consumption and no how increases the productivity of labour. These taxes can be used by government for capital accumulation. The taxes which affect incomes of landlords or labourers were not favoured by Ricardo.

(b) **Free Trade:** Ricardo is in favour of free trade as it promotes capital accumulation.

Stationary State: According to David Ricardo, in the long run, profits have a natural tendency to fall so that country ultimately reaches a stationary state. Rise in profits → Rise in Capital Accumulation → Rise in production → Increased wage fund → Increase in population → increase in demand for corn and price of corn goes up → Demand for land increases → rent increases and profits and wages decrease → wage become equal to subsistence level It is shown

with the help of following figure. Labour is measured on x axis and AP and MP on y-axis. It is shown that as demand for labour rises, leading to-rise in wage bill from OWLM to OQRM, all profits disappear. Share of rent increased.



8.2.3 Marxian Theory of Economic Development:

Karl Marx's contribution in the theory of economic development is critical because he provided his famous reproduction schema in a multi-sector growth model and introduced the concept of "SteadyState" growth equilibrium. He also took labour as exogenous to wages. He proposed that wages are determined by the bargaining between capitalists and workers. However, the bargaining ability of workers depends on the number of unemployed labourers in the economy. He called it "reserve army of labour". He also advocated that savings and capital accumulation depends on profits.

Organic Composition of Capital and Surplus Value

Marx proposed that in the long run profits tend to fall due to "rising organic composition of capital".

Organic composition of capital is the ratio of constant capital to variable capital. Constant capital means circulating capital like raw material. Variable capital means advancement to labour i.e. total wage bill.

So, Marx gave total value of output as:

$y = c + v + s$ where y is output; c is constant capital; v is variable capital; s is surplus value.

Marx defined rate of profit is equal to

$$r = s/(v + c) \text{ and,}$$
$$s = y - (c + v)$$

Marx called s/v, the ratio of surplus value to variable capital as "rate of exploitation". Given $r = s/(v + c)$; if we divide this equation by v on both sides, it will be equal to:

$r = [(s/v)\ (v/(v + c))]$

Therefore, rate of profit is a positive function of exploitation rate (s/v) and a negative function of organic composition of capital (c/v).

Declining Rate of Profit

Marx claimed that rate of profit tends to fall because s/v tend to be same and c/v tends to fall. In a static economy, when the surplus accrues to capitalists, they reinvest it and output expands. It exerts a pressure on constant labour supply pushing wages upward therefore v i.e. variable capital rises and r i.e. rate of profits fall. Rise in wages motivate capitalists to introduce labor-saving machinery and profits increase and unemployment increases.

It will have two effects

(a) Variable capital will fall and constant capital will increase therefore, c/v remains constant.

(b) "Reserve army of labour" will affect wage rate and reduce it to subsistence level. Therefore, it declines further. It will increase c/v and the rate of profit will fall. However, introduction of labour saving machinery and laying off of labour would mean rise in c and fall in v i.e. organic composition of capital rises. Therefore r, rate of profit falls.

Increasing Rate of Exploitation Capitalists make an effort to compensate themselves for this declining rate of profit by increasing the rate of exploitation. The rate at which labour is released is higher than the rate at which it is reabsorbed. Therefore, it creates permanent technological unemployment. However, there is a limit to which this rate of exploitation can be increased. As large firms will buy small firms, there will be concentration of capital in fewer hands. This in combination with the misery of labour would create giant crisis leading to destruction of capitalism as a whole.

A Critical Appraisal Strengths

(a) Smith, Ricardo and Marx all concluded that increasing share of rent in total output leads to declining rate of profits and results in stationary state.
(b) It proved that capitalism can't sustain for long.
(c) He explained class struggle through his version of economic growth.

Weaknesses

(a) Fall in profit is possible but not inevitable.
(b) Marx's rate of exploitation is limited by the length of working day. It is not plausible.
(c) Technological progress may not necessarily increase organic composition of capital.

Important Notes

- *The classical school of economic thought was formally propounded by Adam Smith, who is called 'father of Economics', Malthus, David Ricardo, John Mill and J. B. Say. Each thinker has put forward a view which is different from others but still has some similarities.*
- *Adam Smith wrote a book 'An inquiry into the nature and causes of wealth of nations' which was published in 1776.*
- *Like Smith, Ricardo also never gave a systematic theory of development but gave his views in an unsystematic manner in his book 'The Principles of Political Economy and Taxation'.*
- *Malthus in his book 'The Progress of Wealth' gave a more systematic theory of growth. Malthus in his theory of population states that unchecked population growth always exceeds the growth and the means of subsistence which makes means more and more scarce.*
- *Karl Marx's contribution in the theory of economic development is critical because he provided his famous reproduction schema in a multi-sector growth model and introduced the concept of "steady-State" growth equilibrium.*

8.2.4 Schumpeter Model of Growth:

Joseph Alois Schumpeter first presented his theory of economic growth in "Theory of Economic Development" published in German in 1911 (its English edition appeared in 1934) which was elaborated and refined but in no way altered in any essential respect in his Business Cycles (1939) and Capitalism, Socialism and Democracy (1942).

Schumpeter's Theory of Capitalistic Development

All theories given by classical economists emphasized on the supply side of the production. They claimed that economic growth meant increase in productive capacity or supply of greater goods and services. Schumpeter was not different. But classical economists believed that output increases by increase in capital formulation; Schumpeter claimed it happens due to Innovations. According to Schumpeter, innovation means the ability of entrepreneurs to use the new ideas or invention to create a new combination of factor inputs which reduces cost and increases profits. In other words, innovation is the capability of organizers to use resources in a different combination which increases their efficiency. Schumpeter did not give so much importance to capital formation. He claimed that innovation in an economy is a continuous process. More effective innovation leads to more efficient utilization of resources and thereby higher profits. Innovations can take form of:

(a) Introduction of a new good
(b) Introduction of new method of production
(c) Innovating a new market
(d) Finding new source of supply of raw material
(e) Designing a new form of organization

Schumpeter called his theory 'a creative destruction' because every new innovation makes the old things obsolete. And this creative destruction leads to a process of incessant revolutionary change from within. For example, telecommunication from landline to wireless, then mobile and now mobile is a mini computer and every new creation in the industry makes the older one obsolete.

All classical economists took mobilization of savings as a source of capital formation and economic growth. However, Schumpeter felt that innovations involve risk. So, the funds for trying innovations come through credit. This credit is provided by the capital market. Hence, Schumpeter gave importance to existence of well-organized capital market in the economy to ensure innovations and introduction of newer products, better technology and thereby enhanced output and increased rate of economic growth.

Schumpeter's theory is an endogenous theory. It takes capital formation as a social process through the working out of a system in which there is win-lose competition. He did not agree to Neo-Classical economists who restored to perfect competition and competition without rivalry. The differences between views of Schumpeter and Neo-Classical Economists can be summarized as follows:

(a) Neo-Classical Economists claim that there is perfect competition prevailing in the market and hence no super normal profits exist in the long run; Schumpeter claims the existence of monopoly (through intellectual property rights) and Monopolistic competition and super normal profits do exist.

(b) Neo-Classical Economists discussed short run and a static model; Schumpeter discussed long rum and a dynamic model.

(c) Neo-Classical Economists claimed that there will more savings which will be better mobilized and bring about economic growth. However, Schumpeter explained two forces for economic growth; (a) availability of intellectual man power and organizers;
(b) innovations and technological progress.

Important

- J.A. Schumpeter is an economist who emphasized the role of innovations in economic growth and development.
- All theories given by classical economists emphasized on the supply side of the production.
- They claimed that economic growth meant increase in productive capacity or supply of greater goods and services.
- Schumpeter called his theory 'a creative destruction' because every new innovation makes the old things obsolete.
- All classical economists took mobilization of savings as a source of capital formation and
- economic growth.
- Schumpeter did not use mathematical tools to find the quantitative relationships between
- innovations and critical economic variables.
- Schumpeter's theory also gives an explanation for business cycles.
- Sometimes it is very much possible that new innovations do come but do not make the old ones obsolete.
- Schumpeter believed money to have a vital and role in the economic system here he agreed to Keynes but he criticized Keynes for not considering the basic structural change in the economy in his theories.
- There are some models in which research and development process has been taken as a force for economic growth and development.

8.2.5 Rostow Stages of Economics Growth theory

Prof. W.W. Rostow has sought an historical approach to the process of economic development. He distinguishes five stages of economic growth, viz., (1) the traditional society; (2) the pre-conditions for take-off; (3) the take- ff; (4) the drive to maturity; and (5) the age of high mass-consumption.

Traditional society: This is an agricultural economy of mainly subsistence farming, little of which is traded. The size of the capital stock is limited and of low quality resulting in very low labour productivity and little surplus output left to sell in domestic and overseas markets

Pre-conditions for take-off: Agriculture becomes more mechanized and more output is traded. Savings and investment grow although they are still a small percentage of national income (GDP). Some external funding is required - for example in the form of overseas aid or perhaps remittance incomes from migrant workers living overseas

Take-off: Manufacturing industry assumes greater importance, although the number of industries remains small. Political and social institutions start to develop - external finance may still be required. Savings and investment grow, perhaps to 15% of GDP. Agriculture assumes lesser importance in relative terms although the majority of people may remain employed in the farming sector. There is often a dual economy apparent with rising productivity and wealth in manufacturing and other industries contrasted with stubbornly low productivity and real incomes in rural agriculture.

Conditions for Take-off: The requirements of take-off are the following three related but necessary conditions:
(1) A rise in the rate of productive investment from, say, 5 per cent or less to over 10 per cent of national income or net national product;

(2) the development of one or more substantial manufacturing sectors with a high rate of growth;

(3) the existence or quick emergence of a political, social and institutional framework which exploits the impulses to expansion in the modern sector and gives to growth an outgoing character.

Drive to maturity: Industry becomes more diverse. Growth should spread to different parts of the country as the state of technology improves - the economy moves from being dependent on factor inputs for growth towards making better use of innovation to bring about increases in real per capita incomes

Age of mass consumption: Output levels grow, enabling increased consumer expenditure. There is a shift towards tertiary sector activity and the growth is sustained by the expansion of a middle class of consumers.

IMPORTANCE AND LIMITATIONS OF TAKE-OFF FOR UNDERDEVELOPED COUNTRIES:

The concept of take-off is ideally suited for the industrialization of underdeveloped countries. As Dasgupta has written, “The term lacks precision and yet it is suggestive and can be given interpretation which is useful for an understanding of the process of economic development of an underdeveloped country. It is indeed the vagueness of the term that gives it strength for one can put an interpretation upon it to suit the conditions of the economy in which one is interested Of the three necessary conditions for take-off, the first two, namely, capital formation over 10 per cent of national income and the development of one or more leading sectors, are helpful in the process of industrialization of underdeveloped countries. So far as the first condition is

concerned, there can be little doubt about achieving that percentage. But the second condition can be moulded to suit a country's environments.

For instance, the leading sectors can be in agriculture or in the production of primary products for exports. The last condition is more important in the context of underdeveloped countries where monetary and political institutions, and skills and technology are at a low level whereby they retard the expansion of the modern sector.

8.2.6 Balanced & Unbalanced growth:

A mechanism of endogenous growth suitable for investigation of sectoral or regional interaction is developed. It is shown how the high value placed on production linkages by economic historians might be reconciled with the high value placed on openness (often implying lack of linkages) by observers of contemporary less developed countries. When the output of one sector is traded and the output of the other is non-traded, it is shown how the traded goods sector acts as the 'engine of growth' in the sense that its profitability of knowledge acquisition primarily determines the steady state aggregate growth rate. It is also shown how sectors or regions interact out of steady state through product, labour, and capital markets, and in particular how if the former interaction dominates the growth of one sector 'pulls along' the growth of the other while if the latter two interactions dominate one sector or region booms while the other declines. The unit builds on these results to show why liberalization of foreign trade should lead to a transition from a lower to a higher steady state growth rate and why, during the course of this transition, growth might initially be even slower than before liberalization.

In macroeconomics, balanced-growth equilibrium means that the capital intensity of an economy, its capital stock divided by total output, remains constant. In the standard exogenous growth model, balanced growth is a basic assumption, while other variables like the capital stock, real GDP, and output per worker are growing. Developing economies may adopt a strategy of unbalanced growth to rectify previous investment decisions, as put forward by economist Albert O. Hirschman.

Balanced Growth:

Balanced growth has at least two different meanings in economics. In macroeconomics, balanced growth occurs when output and the capital stock grow at the same rate. This growth path can rationalize the long-run stability of real interest rates, but its existence requires strong assumptions. In development economics, balanced growth refers to the simultaneous, coordinated expansion of several sectors. The usual arguments for this development strategy rely on scale economies, so that the productivity and profitability of individual firms may depend on market size. In macroeconomics, balanced growth is usually associated with constant returns to scale. For most development economists, the term is more strongly associated with increasing returns, and a debate that began with Rosenstein-Rodan (1943). He argued that the post-war industrialization of Eastern and South-Eastern Europe would require coordinated investments across several industries. The idea is that expansion of different sectors is complementary, because an increase in the output of one sector increases the size of

the market for others. A sector that expands on its own may make a loss, but if many sectors expand at once, they can each make a profit. This tends to imply the need for coordinated expansion, or a "Big Push", and potentially justifies a role for state intervention or development planning

Ragnar Nurkse's balanced growth theory:

The balanced growth theory is an economic theory pioneered by the economist Ragnar Nurkse (1907- 1959). The theory hypothesises that the government of any underdeveloped country needs to make large investments in a number of industries simultaneously. This will enlarge the market size, increase productivity, and provide an incentive for the private sector to invest. Nurkse was in favour of attaining balanced growth in both the industrial and agricultural sectors of the economy. He recognised that the expansion and inter-sectoral balance between agriculture and manufacturing is necessary so that each of these sectors provides a market for the products of the other and in turn, supplies the necessary raw materials for the development and growth of the other.

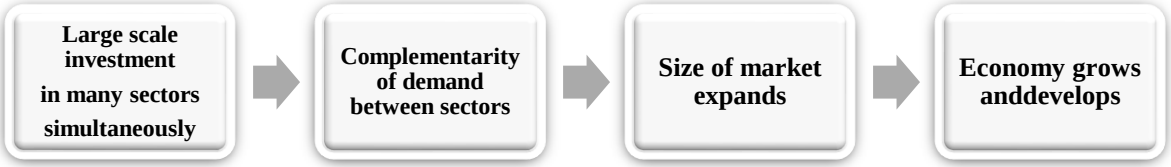
Nurkse's theory discusses how the poor size of the market in underdeveloped countries perpetuates its underdeveloped state. Nurkse has also clarified the various determinants of the market size and puts primary focus on productivity. According to him, if the productivity levels rise in a less developed country, its market size will expand and thus it can eventually become a developed economy. Apart from this, Nurkse has been nicknamed an export pessimist, as he feels that the finances to make investments in underdeveloped countries must arise from their own domestic territory. No importance should be given to promoting exports

Size of market and inducement to invest:

The size of a market assumes primary importance in the study of what induces investment in a country. Ragnar Nurkse referenced the work of Allyn A. Young to assert that inducement to invest is limited by the size of the market. The original idea behind this was put forward by Adam Smith, who stated that division of labour (as against inducement to invest) is limited by the extent of the market.

According to Nurkse, underdeveloped countries lack adequate purchasing power. Low purchasing power means that the real income of the people is low, although in monetary terms it may be high. If the money income were low, the problem could easily be overcome by expanding the money supply; however, since the meaning in this context is real income, expanding the supply of money will only generate inflationary pressure. Neither real output nor real investment will rise. It is to be noted that a low purchasing power means that domestic demand for commodities is low. Apart from encompassing consumer goods and services, this includes the demand for capital as well.
Ragnar Nurkse concluded,

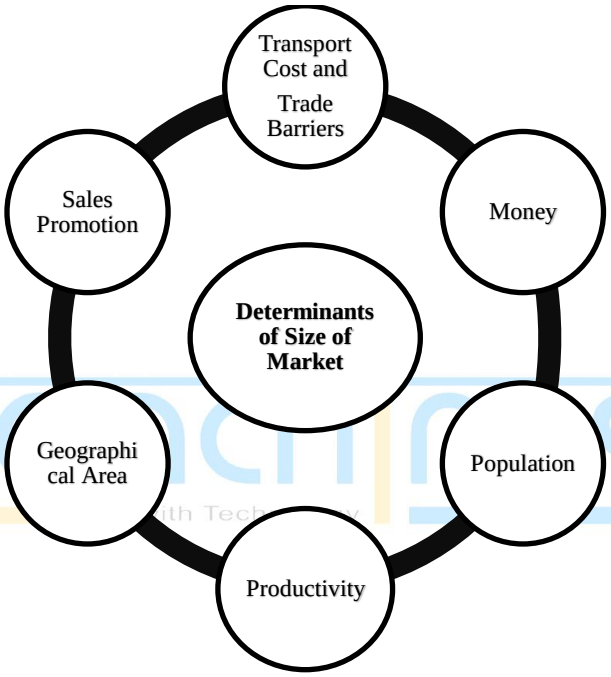
"The limited size of the domestic market in a low-income country can thus constitute an obstacle to the application of capital by any individual firm or industry working for the market. In this sense the small domestic market is an obstacle to development generally."



The process of economic development as per Ragnar Nurkse's Balanced Growth Theory

Determinants of size of market

According to Nurkse, expanding the size of the market is crucial to increasing the inducement to invest. Only then can the vicious circle of poverty be broken. He mentioned the following pertinent points about how the size of the market is determined



Limitations:

Although the balanced growth hypothesis has been widely discussed, it has a number of limitations. The ideas are difficult to test empirically. From a purely theoretical point of view, the argument does not generalize straightforwardly to open economies. If firms can sell their output abroad, the role of domestic market size appears much less important.

The balanced growth hypothesis then requires a more complex story, perhaps one in which firms are especially reliant on domestic markets in the early stages of their development.

The ideas have also been criticized on other grounds. The most prominent sceptic was Hirschman (1958), who argued that simultaneous, coordinated investment asked too much of developing countries. He regarded growth as a necessarily unbalanced dynamic process, in which successive disequilibria create the conditions for development in other sectors.

Unbalanced Growth:

The theory of unbalanced growth is the opposite of the doctrine of balanced growth. According to this concept, investment should be made in selected sectors rather than simultaneously in all sectors of the economy. No underdeveloped country possesses capital and other resources in such quantities as to invest simultaneously in all sectors. Therefore, investment should be made in a few selected sectors or industries for their rapid development, and the economies accruing from them can be utilized for the development of other sectors. Thus, the economy gradually moves from the path of unbalanced growth to that of balanced growth. Economists like Singer, Kindleberger, Streeten, etc. have expressed their views in favour of the unbalanced growth doctrine which are in fact criticisms of the theory of balanced growth. It is, however, Hirschman who has propounded the doctrine of unbalanced growth in a systematic manner.

The concept of unbalanced growth has been popularized by Hirschman.

It is his contention that deliberate unbalancing the economy according to a pre-designed strategy is the best way to achieve economic growth in an underdeveloped country. According to Hirschman, investments in strategically selected industries or sectors of the economy will lead to new investment opportunities and so pave the way to further economic development. He maintains that "development has of course proceeded in this way, with growth being communicated from the leading sectors of the economy to the followers, from one industry to another, from one firm to another." He regards development as a "chain of disequilibria" that must keep alive rather than eliminate the disequilibria, of which profits and losses are symptoms in a competitive economy.

According to Hirschman, when new projects are started, they appropriate external economies created by previous projects and create new external economies that can be exploited by subsequent ones. There are some projects that appropriate more external economies that they create which he calls convergent series of investments. Hirschman also calls them induced investments for they are net beneficiaries of external economies. There are other projects too that create more external economies than they appropriate which he characterizes as divergent series of investments. From the point of view of the economy, the latter may have a greater social desirability than private profitability, whereas induced investments may be less desirable from the social viewpoint. In practice, development policy should aim at

1. the prevention of convergent series of investments which appropriate more external economies than they create; and

2. the promotion of divergent series in which more economies are created than are appropriated

Balanced Vs. Unbalanced Growth

Having examined critically the doctrines of balanced and unbalanced growth, we attempt an overview of these strategies of economic development

Differences

The case for balanced growth rests on the fact that vicious circles of poverty are at work in underdeveloped countries which are responsible for the small size of the local market for their goods. The solution lies in a balanced pattern of investment in a number of mutually supporting different industries so that the size of the market is enlarged. Its critics argue that an underdeveloped country does not possess sufficient resources in men, materials and money for simultaneous investments in a number of complementary industries. Another serious weakness of this doctrine is that it emphasises the complementarity of markets for final goods, primarily consumer goods as an inducement to invest and leaves out intermediate goods markets. Proponents of unbalanced growth strategy favour investments in selected sectors rather than simultaneously in all sectors of the economy. Investments in selected sectors lead to new investment opportunities. This is possible by deliberately unbalancing the economy. The aim is to keep alive rather than eliminate the disequilibria by maintaining tensions, disproportions and disequilibria. The strategy of unbalanced growth aims at removing scarcities in underdeveloped countries by induced investment decision-making. Critics point out that in such countries decision-making itself is scarce along with other resources. Moreover, creating imbalances within the economy by making investments in strategic sectors in the face of acute shortage of resources leads to inflationary pressures and balance of payments difficulties in underdeveloped countries.

Important

- In macroeconomics, balanced growth refers to classes of equilibrium growth paths, while in development economics the term refers to a particular development strategy.
- The idea plays an important role in teaching and research in macroeconomics because of its simplicity and explanatory power.
- Unbalanced growth is a situation in which the various sectors of a given economy are not growing at a rate similar to one another.
- In Hirschman's opinion, the real bottleneck is not the shortage of capital, but lack of entrepreneurial abilities.
- Unbalanced growth theorists agree that significant development cannot be achieved within free, unregulated markets by a small number of industries.

8.2.8 Theory of Big Push Approach

This theory was propounded by Prof. Paul N. Resenstein Rodan in 1943. Rodan claimed that a big push or a large all round minimum amount of investment is required to put a country on the path of sustaining development. In the words of Resenstein Rodan, "Launching a country into self-sustaining growth is a little like getting an aero plane off the ground. There is a minimum speed which must be passed before the craft can become airborne. Proceeding bit by bit will not add up in its efforts to the sum total of the single bites." Similarly, if the process of development has to be initiated, scattered and small efforts would not help but a big push in investment is required to be initiated.

He offered reasons for it in the form of four types of indivisibilities that every economy faces. These indivisibilities are:

(a) Indivisibility in the Production Function: There are some factors of production which are indivisible and hence give increasing returns. Social overhead capital enjoys such indivisibilities as it is irreversible in time; it has long gestation period with a minimum durability. All these features of Social Overhead Capital make it obligatory to put a large scale initial lump sum investment that pushes up the level of investment.

(b) Indivisibility of Demand: In UDCs, the size of markets is very small. The small size of market increases uncertainty and thereby hinders capital investment in the economy. To increase the size of market and reduce uncertainty, a simultaneous large scale investment is required to be made in a number of industries.

(c) Indivisibility in the Supply of Savings: As explained in vicious circle of poverty, low level of income does not let people save much. Therefore, investment at a very large scale is desirable which can lead to high increase in income and thereby savings.

(d) Psychological Indivisibilities: These indivisibilities refer to the fact that small and isolated efforts are not noticed by people at large. It therefore, does not create a hope for better returns.

Therefore, a large chunk of investment in one go can lead to external economies and hence, lead to an increase in the rate of development.

Criticisms of the Theory

The critiques of the theory claim that a big push in the economy will create many problems in the economy.

1. The theory suggests something which everyone knows by common sense but the hurdle in a big investment is lack of funds, skilled labourers, and availability of dynamic entrepreneurs.

2. Investment involves risk. Risk factor has been ignored by the theory. What if, investment does not produce expected returns?

3. The assumption of the creation of external economies by large scale investment is unrealistic and may not prove to be true. In short run, it may rather increase demand for resources and thereby increase input prices. In such case, investment will create diseconomies rather than economies.

4. The theory underestimates the importance of development in agriculture to bring about overall economic development.

Important

- The theory of the model emphasizes that underdeveloped countries require large amounts of investments to embark on the path of economic development from their present state of backwardness.
- Rosenstein-Rodan argued that the entire industry which is intended to be created should be treated and planned as a massive entity
- Marshallian economies also accrue to a firm within a growing industry, resulting from agglomeration of industrial districts or clusters in a particular area.
- Availability of skilled labour is an externality which arises when industrialization occurs, as workers acquire better training and skills.
- Many investments are profitable in terms of social marginal net product but not in terms of private marginal net product.
- The theory has been criticized by Hla Myint and Celso Furtado.

Sub Unit 3: Models of Economic Growth

8.3.1 Economic Growth Models-I: Harrod-Domar Growth Model

There are many theories which have tried to explain the process of economic growth. These theories are also called growth models. Growth models set out the quantitative relationship among the critical variables in a rigorous form. Different economists have different opinions on the fact that which factors are most important in determining the rate of economic growth. Accordingly, each exponent has formulated a different growth model. In this chapter, Harrod-Domar model has been explained.

Background to the Harrod-Domar Growth Model:

Two economists R.F. Harrod and E.D. Domar worked almost concurrently to develop this model of economic growth. The ideas in the two models are different in details but are so similar in their essence that that two models have got integrated and are presented as Harrod-Domar Model. HDM considered demand as well as supply side of the investment process and hence, integrated the classical and Keynesian analysis.

Essence of the Model

If there is increase in productive capacity of the economy without parallel increase in real national income, it may lead to under-utilization of new capital, there may be lack of other factors of production or the new capital may be substituted for labour. In simple words, unless and until capital formation and increase in real national income go side by side, growth will not sustain for long.

Assumptions of the Model

1. There is full employment equilibrium of national income initially.
2. No government interference.
3. It is a closed economic model.
4. No lags in adjustment.
5. APS and MPS are equal.
6. Capital output ratio and propensity to save are constant.

The Harrod Model (HM):

R.F. Harrod showed through his model that steady growth rate may be achieved with fixed capital output ratio and fixed propensity to save. He also explained the conditions that need to be fulfilled to maintain this steady growth rate. He further elaborated how natural resources put a ceiling on the growth rate of the economy.

It is based on three growth rates:

i. **Actual Growth Rate (G)**
ii. **Warranted Growth Rate (G_w)**
iii. **Natural Growth Rate:**

Critique of the Harrod Model

1. In real scenario, there is no evidence of the existence of fixity of production function, saving ratio, growth rate of labour force as assumed by Harrod.

2. There are many other factors leading to economic growth like improvement in technology which Harrod model does not discuss.

The Domar Model (DM):

The Domar model has tried to explain that what should be the growth rate to maintain full employment equilibrium in the economy? Domar Model has explained the conditions which need to be satisfied to attain the given goal.

Statement of the Model

Investment in the economy affects AD as well as As because on the one hand, investments increases productive capacity, and at the same time it generates income through multiplier effect. It is clear from the equation that there is direct relation between effective demand and level of investment and inverse relation between effective demand and MPC.

Assumption of the Model

The assumptions of the Domar Model are as follows:

1. MPC is constant; hence, income is determined by investment.
2. Employment is a function of utilization ratio i.e. the ratio between actual output and productive capacity.
3. Productive capacity can be increased by at a given ratio via past and present investment

8.3.2 The Solow Model:

Professor R.M. Solow builds his model of economic growth as an alternative to the Harrod-Domar line of thought without its crucial assumption of fixed proportions in production. Solow postulates a continuous production function linking output to the inputs of capital and labour which are substitutable.

Assumptions of the Solow Model

1. The simplifying assumption of the model is that the economy produces one composite good which can either be consumed or accumulated as a stock of capital. No denial to the fact that many goods are produced in the economy but only for simplicity sake, it has been assumed that one composite or aggregate good is produced.

2. All labour is assumed to be homogeneous.

3. Stock which is accumulated in the past (referred to as capital) and labour are the factors of production in the production function.

4. Constant returns to scale are assumed to prevail, i.e. any given percentage change in inputs brings forth equal increase in output.

5. MPS is constant. And Savings = Ys, where s is MPC.

6. Labour force is increasing at a growth rate which is exogenously determined.

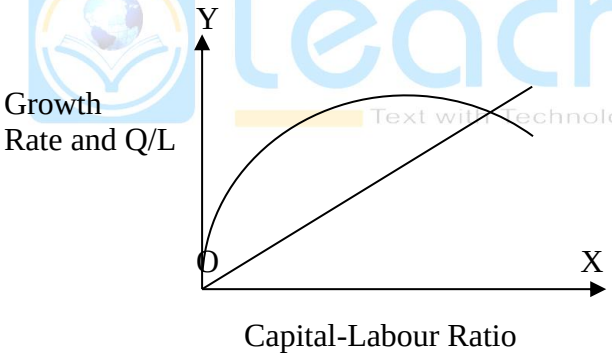
7. It is a closed economy.

8. It is a laissez faire economy with no interference of the government.

THE MODEL

Given these assumptions. Solow shows in his model that with variable technical coefficient there would be a tendency for capital-labour ratio to adjust itself through time in the direction of equilibrium ratio. If the initial ratio of capital to labour is more, capital and output would grow more slowly than labour force and vice versa. Solow's analysis is convergent to equilibrium path (steady state) to start with any capital labour ratio.

The above relationship can also be depicted graphically.



Note: *Solow's Model is indicating that a permanent change in savings rate i.e. MPC has only temporary effect on the economy's Growth Rate*.

8.3.3 Joan Robinson's Model of Economic Growth and Capita

Mrs Joan Robinson in her book "The Accumulation of Capital" builds a simple model of economic growth based on the 'capitalist rules of the game.' But "it is not so much concerned with an automatic convergence to a moving equilibrium in a capitalist economy, as with studying the properties of equilibrium growth."

Assumptions: Mrs Robinson's model is based upon the following assumptions

1. There is no foreign trade or it is a three sector economy.
2. There is laissez faire competition in the market.
3. There are two factors of production; labour and capital.
4. Technology remains unchanged.
5. Production function is given and fixed.
6. Labour is abundant.
7. National product is divided between entrepreneurs (owners of capital) and workers (owners of labour).
8. General Price level remains unchanged.
9. Saving-investment function is performed by entrepreneurs and workers are spending their entire income in consumption.

THE MODEL

Given these assumptions, net national income in the Robinson model is the sum of the total wage bill plus total profits which may be shown as

$$\mathbf{Y = wN + pK}$$

where Y is the net national income, w the real wage rate, N the number of workers employed, p the profit rate and K the amount of capital. Here Y is a function of N and K. Since the profit rate is crucial in the theory of capital accumulation, it can be shown as

$$p = \frac{Y - wN}{K}$$

$$p = \frac{\frac{Y}{N} - w}{\frac{K}{N}} \qquad \text{(Divided by N)}$$

By putting Y /N = l and K/N = θ (theta), we have

$$p = \frac{1 - w}{\theta}$$

Thus, the profit rate is the ratio of labour productivity minus the total real wage rate to the amount of capital utilized per unit of labour. In other words, the profit rate (p) depends on income (Y), labour productivity (l), the real wage rate (w) and the capital-labour ratio (θ). On the expenditure side, net national income (Y) equals consumption expenditure (C) plus investment expenditure (I),

$$Y = C+I$$

Since Joan Robinson assumes zero saving out of wages but attributes saving to entrepreneurs, profits are meant for investment only, we have

$$S = I$$

This saving-investment relation may be shown as: $S = pK, \quad I = \Delta K$

$$pK = \Delta K, \ \ or, p = \frac{\Delta K}{K} = \frac{l - w}{\theta}$$

The growth rate of capital (ΔK/K) being equal to p (the profit rate), it depends on the ratio of the net return on capital relative to the given stock of capital. If income remains constant and the wage rate decreases or income increases and the wage rate remains constant, the profit rate would tend to increase. The profit rate can also increase if the capital-labour ratio falls. In this way, the entrepreneurs maximize profits.

Note: Golden Age Equilibrium refers to a situation in which smooth steady growth at full employment level arises out of the equality of the 'Desirable' and 'possible' rates of accumulation. Suppose capital labour ratio (K/N or Q) is constant at full employment level.

8.3.4. Kaldor's model of growth

The Kaldor model is an attempt to make the saving-income ratio a variable in the growth process. It is based on the 'classical saving function' which implies that saving equals the ratio of profits to national income, i.e., S = P/Y.

Assumptions

1. He assumed full employment in the economy and hence AS curve is perfectly inelastic.

2. National Income consists of wages (includes wages as well as salaries) and profits (includes income of entrepreneurs as well as property owners).

3. Both wage earners and profit earners save and hence total savings dependent on wages as well as profits.

4. Profits depend on the level of investment.

5. General price level is constant.

6. Technology keeps changing as per the level of capital accumulation.

7. Kadlor assumes technical progress function which is a joint product of growth of capital and growth of productivity. Therefore, technical progress function is shown by Tt' in figure below. As shown in the diagram, Tt' is the technical progress function which is convex upwards but flattens out beyond a certain point such as A when capital per worker starts diminishing.

Appreciations

(a) Kadlor's model explains the steady path of growth not a steady state i.e. it is dynamic not static.

(b) The division of the model into two phases: with constant population and with expanding population; makes it extremely useful particularly for developing countries.

(c) Kadlor's technical progress function relates output per head to capital per head.

Criticism

(a) This model does not explain the determination of the rate of growth of the economy in terms of the volume of investment, saving-income ratio and capital output ratio.

(b) It does not explain the reason for the stability or instability of a particular point of equilibrium.

Conclusion

To conclude with Prof. Sen: "The Kaldor model of distribution is based on a number of restrictive assumptions... It is not easy to marry this macro-model to assumptions of individual behaviour, and to combine it with attempted profit maximization requires that: (a) expectations be unfulfilled, which may be all right, but also that (b)this should lead to no feedback in entrepreneurial decision making, which is not so all right. .. what is less clear is whether the Kaldor model provides a satisfactory alternative or involves a jump from the frying pan to the fire.

Important

- This theory was provided by Mrs. Joan Robinson in 1956 in her book 'The Accumulation of Capital'.
- Mrs. Joan Robinson's growth model is based on the assumption that saving-investment function is performed by entrepreneurs and workers are spending their entire income in consumption.
- Limping Golden Age: It is a situation in which the steady rate of capital accumulation is happening but there is unemployment of labour with it.
- Kalecki was a polished economist who has written the diverse aspects of economics.
- Kalecki gave his theory in his essay in 1969 titled 'Introduction to the Theory of Growth in a Socialist Economy'.
- Pasinetti's theory of growth and distribution is a refinement or a corrected reformulation of Kadlor's model.

Sub Unit 4: Technical progress – Disembodied & embodied; endogenous Growth

8.4.1 Technological Change and Progress

The Harrod-Domar analysis is based on the assumption of fixed coefficients in production and thus gives rise to the famous 'knife-edge' problem. The neoclassical models also treat technical progress exogenously. Kendrick, Kaldor, and Solow, among others, have been the most consistent critics of this approach who have tried to demonstrate the role of technological changes in the growth of an economy. Before discussing the models of technical change, we shall attempt the basis of these models as enshrined in the controversy over neutral and non-neutral technical change.

Embodied and Disembodied:

Technical Change Embodied capital change is the change that occurs due to the change in type of factor of production, usually capital. It involves introduction of new machines, new process of production, new product. On the other hand, disembodied capital change occurs when same amount and type of factors of production can produce more. It will happen when isoquant shift inwards showing the production of same output with lesser inputs. It is factor augmenting technical change.

Neutrality of Technical Change:

Neutrality broadly means that technical change is neither labour saving nor capital saving. It means it reduces the usage of inputs in same ratio and does not affect the relative demand and supply of factors of production and hence, does not affect the prices of inputs. It must be clear from above that disembodies technical change is neutral.

Hicks's Classification of Technical Change

Sir John Hicks gave a classification of technical progress in terms of its effect on the ratio of marginal product of capital to marginal product of labour. If after introduction of technology, MPK/MPL falls, it is capital saving. If it remains same, it is neutral. If it increases, it is labour saving.

Harrod's Classification of Technical Change

Sir Roy Harrod put forward his classification of technical change in an article in 1937 and expanded on it in his book which was published in 1948. He defined neutral technical change as one in which capital-output ratio remains constant in the presence of a constant interest rate. In other words, neutral technical change implies that given a constant rate of interest, the distribution of the total national product between capital and labour remains constant.

Solow's Classification of Technical Change

Solow compared technical change by comparing points on old and new per worker production at which the labour-output ratio is constant. Hence, Solow said technological progress to be neutral when at points where labour-output ratio is constant, and dS/dt is zero. In other words, when the relative shares of capital and labour in total product remains constant. Solow neutral technical progress is Hicks's capital augmenting.

What about Embodied Technical Progress?

It has been clarified that embodied capital change is the change that occurs due to the change in type of factor of production, usually capital. It involves introduction of new machines, new process of production, new product. On the other hand, disembodied capital change occurs when same amount and type of factors of production can produce more. Disembodies technical change is exogenous for many growth models and it is not explained how does it happen. It seems to be a miraculous event. Solow provided an index of effective capital in his paper 'Investment and Technical progress' published in 1960. Assuming embodied technical progress as an exogenous factor that too without any supporting theory for its explanation, makes it very difficult to understand the determinateness of embodied capital. Moreover, capital goods or machines may be of different vintages. Therefore, we need to develop a model that gives a satisfactory explanation of the factors that determine the level of embodied progress and the process by which it takes place.

Important

- This unit explains the meaning of technical progress; difference between technical progress and technical change; role of technical progress in growth and development.
- Technical change means improvement in production process. Production function superior to the one that existed before technical change.
- by changing the intensity of factors of production, these technical changes bring about a change in the relative share of these factors of production in total product.
- n order to get marginal product of capital and marginal product of labour, we can differentiate the production function with respect to capital and labour.
- The version given by Hicks is based on marginal product of factors and their prices.
- If labour force increases at a constant rate, g, and MPS is also constant, then the economy will reach at an equilibrium level of output per worker and an equilibrium level of capital per worker.

8.4.2 The New Endogenous Growth Theory

Endogenous growth theory began with the efforts of Paul Romer in 1986 and Robert Lucas in 1988. Endogenous growth models originated in two sources, one to give a coherent explanation of convergence controversy, and the other, to go beyond an unrealistic simple world of perfect competition and constant returns to scale in growth models. Their work differs from Neo-Classical economists who took economic growth is caused by factors that are exogenous. The endogenous growth theory is an extension of Solow Model in the sense that the latter introduced increasing and diminishing returns to the theories of economic growth but the latter al so included technical change as an endogenous variable in growth models.

THE SOLOW-SWAN MODEL

The Solow-Swan model of economic growth postulates a continuous production function linking output to the inputs of capital and labour which leads to the steady state equilibrium of the economy. It is based on the following assumptions:

(1) One composite commodity is produced.

(2) Output is regarded net output after making allowance for the depreciation of capital.

(3) There are constant returns to scale.

(4) There are diminishing returns to an individual input.

(5) The two factors of production—labour and capital—are paid according to their marginal physical productivities.

(6) Prices and wages are flexible.

(7) There is perpetual full employment of labour.

(8) There is also full employment of the available stock of capital.

(9) Labour and capital are substitutable for each other.

(10) There is no technical progress.

(11) The saving ratio is constant.

(12) Saving equals investment.

(13) Capital depreciates at the constant rate.

(14) Population grows at a constant rate.

IMPLICATIONS OF THE MODEL

There are some important implications or predictions of the Solow-Swan model of growth: 1. The growth rate of output in steady state is exogenous and is independent of the saving rate and technical progress. 2. If the saving rate increases, it increases the output per worker by increasing the capital per worker, but the growth rate of output is not affected. 3. Another implication of the model is that growth in per capita income can either be achieved by increased saving or reduced rate of population growth. This will hold if depreciation is allowed in the model. 4. Another prediction of the model is that in the absence of continuing improvements in technology, growth per worker must ultimately cease. This prediction follows from the assumption of diminishing returns to capital. 5. This model predicts conditional convergence. All countries having similar characteristics like saving rate, population growth rate, technology, etc. that affect growth will converge to the same steady state level. It means that poor countries having the same saving rate and level of technology of the rich countries will reach the same steady state growth rates in the long run.

THE CONVERGENCE-DIVERGENCE CONTROVERSY

One of the important predictions (or implications) of the Solow-Swan neo-classical growth model is that of convergence. Convergence is the process of "catching up" of one economy with another economy. The growth convergence prediction has been the focus of extensive empirical research in the 1990s. This led to a debate about the convergence or divergence of GNP per capita over time across economies based on diverse data sets of countries on a comparable basis. We discuss this controversy in the light of the new empirical growth literature. Convergence of growth is of two types: (1) Absolute or unconditional convergence, and (2) conditional convergence.

Note: The various empirical studies show that absolute convergence cannot be a powerful force in the world, otherwise the poorest countries would be growing very rapidly. In fact, poor countries remain poor and some even decline in absolute terms. Apart from the Asian Tigers, the convergence between poor and advanced countries has been limited or absent. As a result, there is growing evidence of divergences in GDP per capita across economies.

THE ENDOGENOUS GROWTH THEORY

The endogenous growth theory is a new theory which explains the long-run growth rate of an economy on the basis of endogenous factors as against exogenous factors of the neoclassical growth theory. The Solow-Swan neoclassical growth model explains the long-run growth rate of output based on two exogenous variables: the rate of population growth and the rate of technological progress, and that is independent of the saving rate. As the long-run growth rate depended on exogenous factors, the neoclassical theory had few policy implications. As pointed out by Romer, "In models with exogenous technical change and exogenous population growth, it never really mattered what the government did.' The new growth theory does not simply criticise the neoclassical growth theory. Rather, it extends the latter by introducing endogenous technical progress in growth models. The endogenous growth models have been developed by Arrow, Romer and Lucas, among other economists. We briefly study their main features, criticisms and policy implications.

8.4.3 ARROW'S LEARNING BY DOING MODELS

The Arrow Model. Arrow was the first economist to introduce the concept of learning by doing in 1962, by regarding it as endogenous in the growth process. His hypothesis was that at any moment of time new capital goods incorporate all the knowledge then available based on accumulated experience, but once built, their productive deficiencies cannot be changed by subsequent learning. Arrow's model in a simplified form can be written as

$$Yi = A(K)\ F\ (Ki, Li)$$

where, Yi denotes output of firm i, K1 donates its stock of capital, Li denotes its stock of labour, K without a subscript denotes the aggregated stock of capital and A is the technology factor. He showed that if the stock of labour is held constant, growth ultimately comes to a halt because socially very little is invested and produced. Therefore, Arrow did not explain that his model could lead to sustained endogenous growth.

CRITICISMS OF NEW GROWTH THEORY

Despite the fact that the New Growth Theory has been regarded as an improvement over the new classical growth theory, still it has many critics:

1. According to Scott and Auerbach, the main ideas of the new growth theory can be traced to Adam Smith and increasing returns to Marx's analysis.

2. Srinivasan does not find anything new in the new growth theory because increasing returns and endogeneity of variables have been taken from the neo-classical and Kaldor's models.

3. Fisher criticises the new growth theory for depending only on the production function and the steady state.

4. To Olson, the new growth theory lays too much emphasis on the role of human capital and neglects the role of institutions.

5. In the various models of new growth theory, the difference between physical capital and human capital is not clear. For instance, in Romer's model capital goods are the key to economic growth. He assumes that human capital accumulates and when it is embodied in physical capital then it becomes a driving force. But he does not clarify which is the driving force.

6. By using secondary school enrolment as a proxy for human capital in their model, Mankiw, Romer and Weil find that physical and human capital accumulation cannot lead to perpetual economic growth.

Sub Unit 5: Indicators of Economic Development: PQLI, HDI, SDGs

Economists have tried to measure social indicators of basic needs by taking one, two or more indicators for constructing composite indices of human development. We study below the Physical Quality of Life Index (PQLI) of Morris and the Human Development Index (HDI) as developed by the United Nations Development Programme (UNDP).

8.5.1 PHYSICAL QUALITYOF LIFE INDEX (PQLI)

The Physical Quality of Life Index was the most serious challenge to GNP per capita as the index of development. It was invented by M.D. Morris in 1979. He constructed a composite Physical Quality of Life Index (PQLI) relating to 23 developing countries for a comparative study. He combined three component indicators of infant mortality, life expectancy at age one and basic literacy at age 15 to measure performance in meeting the most basic needs of the people. This index represents a wide range of indicators such as health, education, drinking water, nutrition and sanitation. The PQLI shows improvement in the quality of life when people enjoy the fruits of economic progress with increase in life expectancy (LE), fall in infant mortality rate (IMR) and rise in basic literacy rate (BLR).

To find out the achievement level of the positive variable, its minimum value is deducted from its actual value and the balance is divided by the difference (range) between maximum value and minimum value i.e.

$$\text{Achievement level (Dimensional Index)} = \frac{Actual\ value - Minimum\ Value}{Maximu\ value - Minimum\ value}$$

To find out the achievement level for a negative indicator, its actual value is deducted from its maximum value and the balance is divided by the difference (range) between maximum value and minimum value i.e.

$$\text{Achievement level (Dimensional Index)} = \frac{Max.\ value - Min.\ Value}{Max.\ value - Min.\ value}$$

According to Morris, each of the three indicators measures results and not inputs such as income. Each is sensitive to distribution effects. It means that an improvement in these indicators signifies an increase in the proportion of people benefiting from them. But none of the indicators depends on any particular level of development. Each indicator lends itself to

international comparison. Taking Gabon's infant mortality rate of 229 per thousand live births as the worst rate in 1950, Morris sets it at 0. At the upper end, the best achievement is set at 9 per thousand for the year 2000. Again, taking Vietnam's life expectancy at age one as 38 years in 1950, Morris sets it at 0 of the life expectancy index. The upper limit is set at 77 years for men and women combined for the year 2000. Lastly, the basic literacy rate at 15 years is taken as the literacy index. This set of values is presented in Table 1.

Table 1: Maximum and Minimum Values of Component Indicators

Dimension	Maximum	Minimum	Range
Infant Mortality Rate	229	9	220
Life Expectancy at Age One	77	38	39
Basic Literacy Rate	180	0	100
One this basis, Morris presents the following correlation:			
N = (150)	Infant Mortality	Rate Life Expectancy	
Life Expectancy at Age One	–0.919	– +	
Literacy Rate	–0.919	0.897	

Table 2 : PQLI Performance and GNP Per Capita Growth Rate

Country	1950	PQLI 1960	1970	Average annual GNP Per capita Growth Rate
India	14	30	40	1.8
Sri Lanka	65	75	80	1.9
Italy	80	87	92	5.0
USA	89	91	93	2.4

Source : Morris D. Morris and M.B. McAlpin, Measuring the Conditions of India's Poor, 1982

On the basis of the values of the component indicators given in Table 1, we can construct the PQLI on the basis of the three indices in the following manner:

$$\text{IMRI} = \frac{229 - Actual\ IMR}{220}$$

$$\text{LEI} = \frac{Actual\ Life\ Expectance - 38}{39}$$

$$\text{BLI} = \frac{Actual\ Literacy\ Level - 0}{100}$$

We calculate the PQLI for India on the basis of 2001 Census data for these variables : IMR = 67, LE = 65 years, and BL= 65%.

$$\text{IMRI} = \frac{229-67}{220} = 0.74$$

$$\text{LEI} = \frac{65-38}{39} = 0.69$$

$$\text{BLI} = \frac{65-0}{100} = 0.65$$

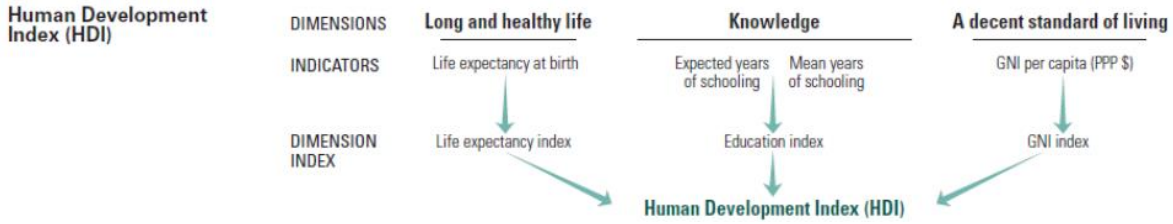
$$\text{PQLI} = \frac{IMRI+LEI+BLI}{3} = \frac{0.74 + 0.69+0.65}{3} = \frac{2.08}{3} = 0.69$$

Physical Quality of Life Index (PQLI) = (1/3) (LEI + IMI + BLI)

8.5.2 HUMAN DEVELOPMENT INDEX (HDI)

This Index has been developed by Pakistani Economist Mahbub Ul Haq.

- The origin of HDI can be seen in the year 1990, when United Nation Development Program has used HDI in Human Development Report.
- Three essential components have been incorporated while developing HDI- Life Expectancy, Education and GNI (Gross National Income).
- Formulae of HDI is given below:



- Range of HDI lies between 0 and 1
- 0 indicates very low level of development and 1 indicates very high level of development.
- Further, HDI range is classified into several category:

a) Very high development when HDI lies between 0.8-1
b) High development when HDI lies between 0.70-0.79
c) Medium development when HDI lies between 0.55-0.69
d) Low development when HDI lies between 0.35-0.549

India's rank on the Human Development Index in the year 2019 is 129 out of 189 countries.

Poverty Index

- **1. Head Count Ratio**: It measures prevalence of poverty in a particular area. It can be calculated by taking the total number of people in a country who fall below a predetermined income level and dividing this by total number of populations.
- Formulae of HCR is given below:

$$\mathrm{HDI} = \sqrt[3]{\mathrm{LEI} \cdot \mathrm{EI} \cdot \mathrm{II}}.$$

- Criticism: It does not say anything about degree of poverty

2. Poverty Gap Index: This index is an improvement over the Head Count Ratio. It includes degree of poverty people experience when they are below the poverty line.

- It is the mean of the ratio of the poverty gap to the poverty line
- PGI lies between 0 and 1
- Formulae of PGI is given below:

$$PGI = \frac{1}{N}\sum\left(Z - \frac{Y_{j.1}(Y_j < Z)}{Z}\right)$$

N= Total population
Z= Poverty line
Yj = Income of the jth individual

3. **Square Poverty Gap Index:**

This index measures the severity of the poverty. This index highlights people who are far away from the poverty line.

This index is similar to the Poverty Index as it also weights the poor based on poor they are.

Formulae of SPGI is given below:

$$P_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z - y_i}{z}\right)^\alpha$$

- P_α = measure of poverty
- n = total households
- q = number of poor households
- z = poverty line
- y_i = income of ith household

Above equation is known as Foster-Greer-Thorebecke class of poverty equation.

Alpha = 2

8.5.3 SUSTAINABLE DEVELOPMENT GOAL (SDGs)

Introduction: On 25 September 2015, the Heads of State and Government and High Representatives meeting at United Nations Headquarters in New York adopted the document titled *Transforming our world: the 2030 Agenda for Sustainable Development* adopting a new set of global Sustainable Development Goals which will transform the world in the next 15 years. It is accepted by all countries and is applicable to all, taking into account different national realities, capacities and levels of development and respecting national policies and priorities. These are universal goals and targets which involve the entire world, developed and developing countries alike. They are integrated and indivisible and balance the three dimensions of sustainable development viz; Economic, Social and Environmental.

Background: The Sustainable Development Goals (SDGs) are an inter-governmentally agreed set of targets relating to They will follow on from the Millennium Development Goals which had the target year as 2015. The SDGs were first formally discussed at the United Nations Conference on Sustainable Development held in Rio de Janeiro in June 2012 (Rio+20). On 19 July 2014, the UN General Assembly's Open Working Group on Sustainable Development Goals (OWG) forwarded a proposal for the SDGs to the Assembly. The 17 goals with 169 targets are covering a broad range of sustainable development issues. These included ending poverty and hunger, improving health and education, making cities more sustainable, combating climate change, and protecting oceans and forests. The Goals and targets are the result of over two years of intensive public consultation and engagement with civil society and other stakeholders around the world, which paid particular attention to the voices of the poorest and most vulnerable.

The SDG document envisage a world of universal respect for human rights and human dignity, the rule of law, justice, equality and non-discrimination; of respect for race, ethnicity and cultural diversity; and of equal opportunity permitting the full realization of human potential and contributing to shared prosperity; A world which invests in its children and in which every child grows up free from violence and exploitation; A world in which every woman and girl enjoys full gender equality and all legal, social and economic barriers to their empowerment

have been removed; A just, equitable, tolerant, open and socially inclusive world in which the needs of the most vulnerable are met.

The new development agenda, thus envisage a world in which every country enjoys sustained, inclusive and sustainable economic growth and decent work for all. A world in which consumption and production patterns and use of all natural resources —from air to land, from rivers, lakes and aquifers to oceans and seas —are sustainable; One in which democracy, good governance and the rule of law, as well as an enabling environment at national and international levels, are essential for sustainable development, including sustained and inclusive economic growth, social development, environmental protection and the eradication of poverty and hunger; One in which development and the application of technology are climate-sensitive, respect biodiversity and are resilient; One in which humanity lives in harmony with nature and in which wildlife and other living species are protected.

Continuing the development momentum of MDGs: The Millennium Development Goals (MDGs) experience provides compelling evidence that the international community can be mobilized to confront such complex challenges. Governments, civil society and a wide range of international actors conjoined behind the MDGs in a multi front battle against poverty and disease. They generated innovative approaches, vital new data, new resources, and new tools and technology for this struggle. Transparency was enhanced, multilateral approaches were strengthened, and a results-based approach to public policy was fostered.Sound public policies inspired by the MDGs, enhanced by collective action and international cooperation, led to remarkable successes.

In two decades since 1990, the world has halved extreme poverty, lifting 700 million out of extreme poverty. Between 2000 and 2010, an estimated 3.3 million deaths from malaria were averted, and 22 million lives were saved from fighting tuberculosis. Access to antiretroviral therapy (ART) for HIV-infected people has saved 6.6 million lives since 1995. Gender parity in primary school enrolment, access to child and maternal health care, and in women's political participation improved steadily.

The Post 2015 development Agenda and Sustainable Development Goals (SDGs): In the quest to shape a global sustainable development agenda for the years beyond 2015, the international community has embarked upon an unprecedented process. The cornerstone for the current global process of renewal was established in Rio de Janeiro in June of 2012, with the adoption of the outcome document of the United Nations Conference on Sustainable Development **"The Future We Want."** The document described the lessons learned from two decades of development experience, and provided an extensive assessment of the progress and gaps in the implementation of the sustainable development agenda.

The outcome document set out a mandate to establish an open working group to develop a set of sustainable development goals for consideration and appropriate action by the General Assembly at its sixty-eighth session. It also provided the basis for their conceptualization. The document gave the mandate that the sustainable development goals should be coherent with

and integrated into the United Nations development agenda beyond 2015. Poverty eradication is the greatest global challenge facing the world today and an indispensable requirement for sustainable development. In the outcome document, the commitment to freeing humanity from poverty and hunger as a matter of urgency was reiterated.

The Open Working Group (OWG) on Sustainable Development Goals Constituted by the UNGA has after extensive consultations with member countries, International Organisations, Civil Society and all other stakeholders submitted a Report which was adopted by UNGA as the main document for deciding the post 2015 development agenda. The SDGs, encompassing the three dimensions of sustainable development in terms of economic, social and environmental aspects, are envisaged to be wider than the MDGs which basically reflected the **social** pillar.

The OWG has proposed 17 Goals and associated 169 targets. These encompass the whole range of interests and concerns among the international community. During 2015 after an extensive intergovernmental negotiating process with involvement of other stakeholders the Goals and Targets were finalised. The UN Summit on Sustainable Development Goals held during 25-27 September 2015 adopted the Goals and Targets as the development agenda for Post 2015.

The 17 Goals adopted by United Nations are as given below.

Sustainable Development Goals

Goal 1. End poverty in all its forms everywhere

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3. Ensure healthy lives and promote well-being for all at all ages

Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5. Achieve gender equality and empower all women and girls

Goal 6. Ensure availability and sustainable management of water and sanitation for all Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10. Reduce inequality within and among countries

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12. Ensure sustainable consumption and production patterns

Goal 13. Take urgent action to combat climate change and its impacts*

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

National Monitoring of SDGs: In India, National Institute of Transforming India (NITI) Aayog has been assigned the role of overseeing the implementation of Sustainable Development Goals (SDGs) and identification of National Targets under the SDGs and assigning them to the Ministries/Departments concerned for implementation. The Ministry of Statistics and Programme Implementation (MoSPI) has been assigned with the responsibility of developing statistical indicators for measuring the SDGs.

NITI Aayog has also constituted a Working Group (WG) to deal with the matters relating to SDGs such as, examining data sheet prepared by DMEO on mapping of Central schemes and other initiatives that correspond to the SDGs on the basis of which national level indicators for the SDGs will be framed. Various schemes at the State level which are aligned with SDGs are also being implemented by the States. There are no separate Budgetary allocations for the implementation of SDGs. As such, funds are allocated in the Union Budget for various schemes and programmes of the Government to meet the corresponding goals and targets of the SDGs. A draft mapping of Goals and Targets in respect of the Central Ministries, various flagship initiatives of the Government and Centrally Sponsored Schemes (CSS) has been carried out by NITI Aayog, circulated to the Ministries and uploaded on NITI Aayog's website to facilitate better awareness and faster implementation of the SDGs and targets. NITI Aayog has also requested all States/UTs to carry out similar mapping of the SDGs and related targets through their respective departments to faster implementation.

For development of National Indicator Framework for SDGs, Ministry of Statistics and Programme Implementation (MoSPI) has initiated dialogues with the Central Ministries and the State Governments towards this. The issue related with the development of national indicator framework was discussed as a central theme in the Conference of Central and State Statistical Organizations (COCSSO) held in November 2015. MoSPI had also organized a National Workshop on developing a monitoring framework for the SDGs with the Central Ministries / Departments and State Governments in September 2016. As per the outcome of the workshop, the nodal Ministries will define / prioritize the targets in the national context in partnership with the other related Ministries which are responsible for implementing various SDGs targets as per NITI Aayog mapping. The Ministries / Departments will also examine the programmes and schemes to align with SDG targets and to define / identify suitable indicators for the nationally define SDG targets MoSPI is also providing the technical supports to the Ministries in the exercise. The process for finalization of indicators is under progress.

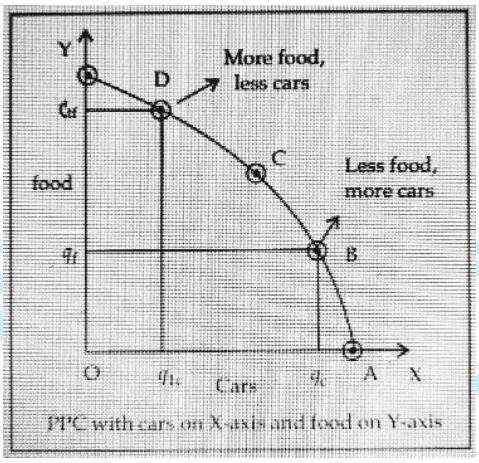
To monitor the implementation of the sustainable development goals, it will be important to improve the availability of and access to data and statistics disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national/state contexts.

Sub Unit 6: Poverty and Inequalities – Concepts and Measurement

When the benefits of growth are unevenly distributed, poverty continues to persist even at a high rate of economic growth. This is evident in many economies of the world where per capita incomes are quite high still a majority of the section is facing a problem of poverty and miserable quality of life. This unit has tried to explain the twin problem of poverty and inequality

8.6.1 Poverty and Inequality:

Poverty and inequality are two related problems. More will be inequality; more will be poverty in the economy especially in a country where the level of total output is not so high. This twin problem can be explained with the help of production possibility frontier.



In the figure 1: cars are shown on X-axis and food on the Y-axis. Car is a symbolic of luxuries and food is symbolic of necessities. Curve AE is production possibility frontier showing various combinations of food and car that economy can produce with given resources which are fully utilized in a state of technology. All combinations A, B, C, D, and E are conceivable for the economy and are all efficient. If the economy is relatively poor, and income is relatively equitably distributed, then it will, operate at some point like D where, it will produce more of food and less cars. If income is inequitable distributed then production will take at some point around B where it is producing more of cars and less food. It is so because allocation of resources depends upon effective demand which in turn depends upon distribution of national income.

To take a practical example, we can look at Indian market scenario, where on the one hand, resources are being allocated for producing cosmetics and on the other hand, people are dying of starvation. Since there are huge inequalities, more resources are being allocated for the production of luxuries and poor are deprived of even basic needs.

Nature of Poverty There are many dimensions of poverty. But in economic sense, Poverty is a phenomenon in which a section of the society is unable to fulfil even its basic necessities of life concerning food, clothing, housing, education and health.

8.6.2 Absolute and Relative Poverty

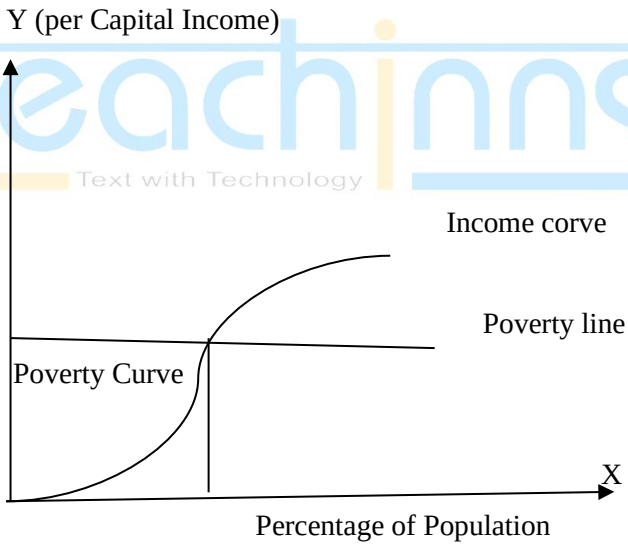
Basis	Absolute Poverty	Relative Poverty
Meaning	It refers to a phenomenon in which a section of the society is unable to fulfil even its basic necessities of life concerning food, clothing, housing, education and health.	It refers to a phenomenon in which inequalities of income exist and hence one person is poor in relation to another person.
Cause	Over population, low economic. growth, over dependence on agriculture etc.	Inequalities of income
Remedy	There are remedies to remove absolute poverty by PAPs and other ways.	It cannot be removed as people have different skills and accordingly their incomes vary.
Measurement	It is measured by poverty line	It is measured by gini co-efficient.

Measurement of Poverty Different economists have given different methodologies for measuring poverty. Some important of these are:

(a) Head-Count Ratio: Head-Count ratio refers to the total number of people whose income is below the defined poverty line. Poverty line is an imaginary line that gives a measuring rod to determine whether a person is poor or non poor. Those who are living below poverty line are poor, while those living above poverty line are non poor. Poverty line is fixed at different levels by different countries depending on their level of development. Poverty line is measured in three steps: (a) measure the minimum calorie requirement for subsistence level; (b) converting the quantitative diet requirements in monetary terms;

(c) determining minimum level of consumption expenditure. Head Count Ratio = M N where M is the number of poor and N is population. The biggest limitation of Head count ratio is that it does not reflect the intensity of poverty. It may be desirable to know who are the poorest of the poor. The division of poor into the most destitute, destitute, and poor is useful for following purposes. It may help us to formulate a suitable minimum wage policy. This division may help to draft different policies for different levels of poverty. Other issues related to poverty like, insufficient development of mental faculties, can be tackled better.

(b) Poverty Gap: It is a measure which helps in measuring magnitude of effort required to eradicate poverty. Poverty gap is defined as the increase in national income required in order alleviating poverty. It is shown with the help of following diagram. It is shown in the diagram that poverty is equal in two countries X and Y but, poverty gap is more in country
X, hence, country X would require more effort to eradicate poverty.
Poverty Gap = Z Xp Z – Where, Z = poverty line Xp is the average consumption expenditure of the poor.



Squared Poverty Gap Poverty Gap Index:
This is a measure of high intensity of efforts that are required to address the problems of the poorest of the poor. It takes into account poverty ratio, poverty gap ratio and consumption distribution of the poor.

Poverty gap index $=\frac{M*(Z-Xp)}{N*Z}$

Symbols used signify the same as above.

(d) Foster-Greer-Theobeche Measure: It is measured by using the formula

Foster – Greer – Theobeche measure $=\frac{M}{N}$

[R^2 +(1-R^2) CVP] Where, M/N is head count ratio, R is Poverty gap ratio, and CVP is coefficient of variation of consumption expenditure among the poor.

(e) Sen Index: It is measured by using the formula:

Sen Index = $\frac{M}{N}$[R + (1 – R) GP]

Where, M/N is head count ratio, R is Poverty gap ratio, and GP is gini coefficient of consumption expenditure among the poor.

Functional Impact of Poverty

Functional impact of poverty shows how the causes of poverty become its consequences as well making a vicious circle of poverty. Poor and Access to Credit: Formal sources of credit are generally inaccessible for the poor due to following reasons:

(a) Lack of collateral to back the loan amount;

(b) Since the poor have low income, as per law of diminishing marginal utility, the marginal utility of I rupee will be higher for the poor than for the rich. It is for this reason that poor are assumed to have a higher probability of being defaulters in repayment of a loan. It is shown with the help of following diagram. In this diagram, Income is shown on X-axis and utility is shown on Yaxis. It is shown that if both the poor and rich repay a given amount of loan say d, then MUm of sacrificed in repaying the loan is higher for the poor. But it does not consider the bad will that being a defaulter will create.

Inequalities of Income:

India's per capita income (nominal) is $ 1219, ranked 142nd in the world, while its per capita purchasing power parity (PPP) of US $3,608 is ranked 129th. It is estimated that India's Per Capita Income will register an average growth rate of 13% during 2011-20 so as to reach $ 4,200 by 2020. In the year 2020 India's real GDP is projected to be at $5 trillion, and per capita Nominal GDP at $ 3,650. India's per capita purchasing power parity (PPP) will be at $ 12,800 in the year 2020. States of India have large disparities. One of the critical problems facing India's economy is the sharp and growing regional variations among India's different states and territories in terms of per capita income, poverty, availability of infrastructure and socio-economic development. Although income inequality in India is relatively small (Gini

coefficient: 32.5 in year 1999- 2000); India's nominal Gini index rose to 36.8 in 2005, while real Gini after tax remained nearly flat at 32.6. Despite significant economic progress, a quarter of the nation's population earns less than the government-specified poverty threshold of $0.40/day. 27.5% of the population was living below the poverty line in 2004-2005. Reforming cumbersome regulatory procedures, improving rural connectivity, establishing law and order, creating a stable platform for natural resource investment that balances business interests with social concerns, and providing rural finance are important.

—World Bank: India Country Overview 2008

Between 1999 and 2008, the annualized growth rates for Maharashtra (9.0%) Gujarat (8.8%), Haryana (8.7%), or Delhi (7.4%) were much higher than for Bihar (5.1%), Uttar Pradesh (4.4%), or Madhya Pradesh (3.5%). By 2010, economically backward states start to catchup up with developed states with Bihar with an impressive 11 percent growth rate. This is said to be due to better governance. According to a World Bank paper Development Policy Review, $1 a day poverty rates in rural Orissa (43%) and rural Bihar (40%) are some of the highest in the world. Seven low-income states - Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, and Uttar Pradesh - are home to more than half of India's population. Bihar's 80 million people are by far the poorest in India. On the other hand, rural Haryana (5.7%) and rural Punjab (2.4%) compare well with middle-income countries. The Economic Survey of India 2007 by OECD concluded: At the state level, economic performance is much better in states with a relatively liberal regulatory environment than in the relatively more restrictive states".

The analysis of this report suggests that the differences in economic performance across states are associated with the extent to which states have introduced market-oriented reforms. Thus, further reforms on these lines, complemented with measures to improve infrastructure, education and basic services, would increase the potential for growth outside of agriculture and thus boost better-paid employment, which is a key to sharing the fruits of growth and lowering poverty.

States by GDP per capita

Andhra Pradesh, West Bengal, Haryana, Maharashtra, Kerala, Punjab, Gujarat and Tamil Nadu have a higher per capita GDP among larger states. Small Delhi and Goa top the list.

Rural-urban gap

Like in other countries, cities provide a better standard of living. Towns and cities make more than two thirds of the Indian GDP, even though less than a third of the population live in them. India has a high rate of migration from rural areas to urban cities. A major reason for the massive migration to cities was the Partition of India. More than half of the refugees from Pakistan settled In urban areas such as Delhi. It is estimated that up to 590 million people, or 40% of the Indian Population will be living in cities by 2030, much higher than the current 28%. Also, it is estimated that six states, including West Bengal, Tamil Nadu, Gujarat, Maharashtra, Karnataka and Punjab will have more than half of their total population living in Urban areas by 2030. In India, urban areas have seen a much higher growth rate as compared to rural areas. Despite up to three-fourths of the population living in rural areas, rural areas contribute to only one-third of the national income. The main reason for rural India's poor performance in terms of income is the fact that rural India is mostly dependent on agriculture. The agriculture sector in India grew at a rate of only 1.6% in 2008-09, while the Indian Economy grew at a rate of 6.7%, despite the 2008 Financial Crisis. An extremely slow rate of growth in the agriculture sector of the Indian economy has serious implications for the rural-urban divide, both in terms of income and GDP. Some estimates say that that the average income of a person living in an urban area may be up to 4 times higher than that of a person living in a rural area. The rising levels of urbanization in India is a major reason for the rising levels of income disparity in the country. Despite the fact that up to four-fifths of Indian households save money, almost a quarter of them spend more than they earn.

Bridging the Urban-Rural Gap

In India, the government has taken steps to bridge the urban-rural gap. This includes setting up the Council for Advancement of People's Action and Rural Technology (CAPART) by the Ministry of Rural Development. CAPART helps in providing assistance to various organizations which help in developmental activities. There is a constantly widening rift between rural and urban India, not only in terms of income, but other social measures. There is an urgent need to strengthen the agriculture sector in India, bring about reforms in labour laws, and provide education.

Inequality of Income across Indian States

India has grabbed seven billionaires in the Forbes top 100 rich list 2011 which puts India in the league of the countries with the most riches. Unfortunately at the same time, nearly 28% of the total population of India, accounting for nearly 300 million people is under below poverty line. With increasing population in India, the inequality in India has also grown and the gap between the rich and poor has widened over the past decades. A comparison of the per capita incomes of Indian states to other economies reveals stark inequalities. The per capita GDP of Goa is highest which is 1,35,129 Rs while Bihar is the lowest which is just 16177 Rs. This article looks at the inequality pertaining in India through the lens of Gini-coefficient for the past thirty years for 23 states.

The Gini Co-efficient is the standard measure of inequality. A score of 0 would indicate perfect equality with each state having an equal per capita income whereas a score of 1 would indicate perfect inequality with all income going to one state. Growing Income disparity is India is raising concern over inclusive growth A study of per capita state GDP figures from 1981 to 2008 enabled the computation of the gini coefficient shows a continuing upward march of the coefficient and inter-state inequality. The average gini-coefficient during 1981-1990 is 0.15 while it increased to 0.19 during 1991-2000. The average gini coefficient for the period of 2001-08 is experienced to be .24 with the percentage increment of more than 26% over previous decade which justifies the growing income disparity in India which alarming. It shows that in India, poor are becoming poorer and rich are getting richer and the growth in India is exclusive rather than inclusive.

8.6.3 Measurement of Inequalities of Income

There are four principles which an ideal statistical tool for measuring inequalities of income must satisfy. These are:

(a) The Anonymity Principle: This principle states that a measure of inequality must remain silent about the quality of people. In other words, it keeps the identity of people involved anonymous.

(b) The Scale Independence Principle: The measure of inequality should depend upon dispersion of national income and not the magnitude of it.

(c) The Population Independence Principle: The measure of inequality of income should not be affected by total size of population.

(d) The Transfer Principle or Pigou: Dalton Principle: It must indicate the impact of transfer of income from the rich to the poor or other way round.

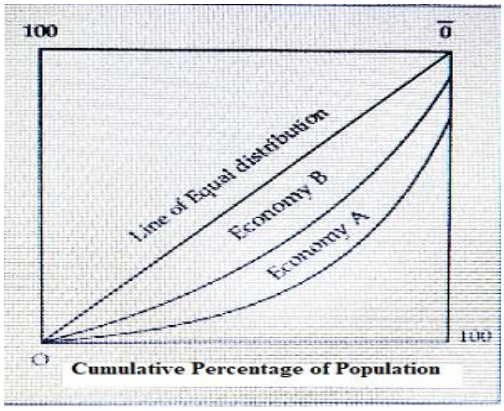
Two Approaches to Measurement:

(a) Personal distribution of income

(b) Functional distribution of income.

It considers only the income earned by a person and neglects the total number of hours devoted to earn that income. There are many methods of measuring inequalities in personal distribution of income. A few of these are:

(a) Lorenz Curve: Lorenz curve is a statistical tool developed by an American statistician Prof. Max D Lorenz to measure inequalities of income. The data relating to population and income distribution is transposed into percentage and arranged into cumulative frequency distribution. A straight line joining the two origins is drawn which represents 100% population and 100% of income. This line is called Line of Equal Distribution. This line acts as a reference point for comparing and knowing the extent of inequalities. If the actual distribution of income line coincides with this line, it shows perfect equalities of income in the economy. Greater is the gap between the line of actual distribution of income and Line of Equal Distribution, greater are the inequalities in the economy and vice versa. It is shown with the help of following diagram. Percentage of income is taken along Yaxis and percentage of population is taken along X-axis. Joining 100% of both the axis we get ED. ED is the line of equal distribution. If two Lorenz curves of two economies are such as shown in the diagram then inequalities of income are greater in economy A than Economy B.



(b) Quintile Distribution: In this method, the distribution of income is shown by quintiles. It is simpler than Lorenz curve and can give same details. For example, say in country A the poorest 20% get 5% of national income and the richest 20% get 45% of national income, then we can say that huge inequalities of income exist in this country.

(c) Gini Coefficient or Gini Concentration Ratio: It is obtained by calculating the ratio of the "area" between the line of equal distribution and Lorenz curve divided by the total area of the half square in which the curve lies.

(d) Coefficient of Variation: It is a relative measure of dispersion based on standard deviation. It assumes income is normally distributed. C. V. is a relative measure of dispersion which shows the extent to which a central value deviates from the all other values.

$$\text{C.V.} = \frac{Standard\ Deviation}{Mean} * 100$$

(ii) Functional Distribution

Functional distribution gives us the relative share of profits, interest, wages and rent in the national income. For our discussion, we are considering the percentage share of income received by labour in comparison to the percentage share received by other three factors of production. Functional distribution of income is explained with the help of a diagram. We can merge natural and manmade resources into capital and labour and organization into one labour. Now there are two factors of production labour (variable factor) and capital (fixed factor). X-axis shows the number of workers employed and y axis shows the wage rate. D1 is demand curve of labour derived from Marginal productivity of labour. S1 is supply curve of labour. Equilibrium gets established at point E where ON number of labourers are employed and they get wages equal to OW. Total output generated by all labour employed is OWRN. Out of it, OWEN is the share of labour. Hence, capital gets residual amount which is equal to area WER. *Criticism: It ignores the role of non-market forces e.g. collective bargaining, monopoly powers etc.*

Growth and Inequalities

(i) Kuznet's Inverted-U Hypothesis: Simon Kuznet gave this hypothesis which says as an economy grows in initial stage, inequalities of income in the economy increase. But after a particular level. of development, the income differentials start to narrow down. Therefore, after this level, inequalities of income start to decrease.

(ii) Gary S. Fields' prediction: Gary S. Fields made use of Lorenz curve to explain how inequalities of income change during the course of economic growth. He gave three situations :

(a) Traditional-Sector Enrichment Growth typology: If in an economy, the benefits of growth are divided among traditional sector worker and modern sector does not grow much, there will be reduction in absolute as well as relative poverty.

(b) Modern-Sector Enrichment Growth Typology: If in an economy, the benefits of growth are shared among people in the modern, sector, and traditional sector does not get its benefits, total output in the economy will increase but inequalities of income will also increase leading to rise in both absolute and relative poverty.

(c) Modern-Sector Enlargement Growth: When economic growth occurs by increasing the size of modern sector, keeping wages in all sectors constant, absolute poverty reduces and Lorenz curve fails to give an idea of what happens to relative poverty. This may also give rise to Kuznet's 'inverted U hypothesis'.

8.6.4 Poverty, Inequality and Welfare

Inequalities of income lead to poverty, both absolute and relative. It gives birth to an economy where one section gets his dogs vaccinated and other section sees his children starving. Welfare implications of the phenomenon are discussed below:

(a) Waste in Resource Allocation: When there are huge inequalities of income, richer section spends more and more on luxuries. It leads to misallocation of resources.

(b) Loss in Productive Capacity: Extremely rich people sit idle and feel unhappy and demoralized. On the other hand, weaker sections are malnourished and hence do not get proper nourishment. Both of these reduce the productivity in the economy.

(c) Loss in Welfare: According to law of diminishing marginal utility, if an income of Rupee one is taken from the rich and given to the poor, it will increase aggregate utility of the poor.

Important

- *Poverty is a phenomenon in which a section of the society is unable to fulfil even its basic necessities of life concerning food, clothing, housing, education and health.*
- *Head-Count ratio refers to the total number of people whose income is below the defined poverty line.*
- *The biggest limitation of Head count ratio is that it does not reflect the intensity of poverty.*
- *Functional impact of poverty shows how the causes of poverty become its consequences as well making a vicious circle of poverty.*
- *There are four principles which an ideal statistical tool for measuring inequalities of income must satisfy.*
- *The data relating to population and income distribution is transposed into percentage and arranged into cumulative frequency distribution.*
- *Functional distribution gives us the relative share of profits, interest, wages and rent in the national income.*
- *According to law of diminishing marginal utility, if an income of Rupee one is taken from the rich and given to the poor, it will increase aggregate utility of the poor.*