Module I

1

CONCEPTS AND MEASURES OF GROWTH AND DEVELOPMENT – I

Unit Structure:

1.0 OBJECTIVES

- To understand the meaning of economic growth and economic development.
- To understand the difference between the growth and development.
- To understand relation between economic growth and structural change.
- To understand the relation between inequality and growth.

1.1 INTRODUCTION

Economic Growth is a narrower concept than economic development. It is an increase in a country's real level of national output which can be caused by an increase in the quality of resources (by education etc.), increase in the quantity of resources & improvements in technology or in another way an increase in the value of goods and services produced by every sector of the economy. Economic Growth can be measured by an increase in a country's GDP (gross domestic product).

Economic development is a normative concept i.e. it applies in the context of people's sense of morality (right and wrong, good and bad). The definition of economic development given by Michael Todaro is an increase in living standards, improvement in self-esteem needs and freedom from oppression as well as a greater choice. The most accurate method of measuring development is the Human Development Index which takes into account the literacy rates & life expectancy which affects productivity and could lead to Economic Growth. It also leads to the creation of more opportunities in the sectors of education, healthcare, employment and the conservation of the environment. It implies an increase in the per capita income of every citizen.

1.2 ECONOMIC GROWTH

The modern conception of economic growth began with the critique of Mercantilism, especially by the physiocrats and with the Scottish Enlightenment thinkers such as David Hume and Adam Smith, and the foundation of the discipline of modern political economy. It is an increase in the value of goods and services produced by an economy. It is conventionally measured as the percent rate of increase in real gross domestic product, or *GDP.* Growth is usually calculated in *real* terms, i.e. inflation-adjusted terms, in order to net out the effect of inflation on the price of the goods and services produced. In economics, "economic growth" or "economic growth theory" typically refers to growth of potential output, i.e. production at "full employment," rather than growth of aggregate demand.

Economic growth is the increase of per capita gross domestic product (GDP) or other measure of aggregate income. It is often measured as the rate of change in real GDP. Economic growth refers only to the quantity of goods and services produced.

Economic growth can be either positive or negative. Negative growth can be referred to by saying that the economy is shrinking. Negative growth is associated with economic recession and economic depression.

In order to compare per capita income across multiple countries, the statistics may be quoted in a single currency, based on either prevailing exchange rates or purchasing power parity. To compensate for changes in the value of money (inflation or deflation) the GDP or GNP is usually given in "real" or inflation adjusted, terms rather than the actual money figure compiled in a given year, which is called the nominal or current figure.

Economists draw a distinction between short-term economic stabilization and long-term economic growth. The topic of economic growth is primarily concerned with the long run. The short-run variation of economic growth is termed the business cycle.

1.3 ECONOMIC DEVELOPMENT

Economic development until the 1960s was considered the same as economic growth. It is now understood as economic growth plus some progressive changes which determine the welfare of the people. Mahbub ul Haq, a leading Pakistani economist observed that "the problem of development must be defined as a selective attack on the worst forms of poverty. Development goals must be defined in terms of progressivereduction and eventual elimination of malnutrition, disease, illiteracy, squalor, unemployment and inequalities. We were taught to take care of our GNP because it would take care of poverty. Let us reverse this and take care of poverty because it will take care of the GNP. In other words, let us worry about the content of GNP even more than its rates of increase." There are two approaches to the concept of Economic Development and these two approaches are the traditional and the modern approach.

The Traditional Approach : The traditional approach defines economic development in economic terms. It means a sustained annual increase in GNP at rates varying from 5 to 7 percent along with changes in the economic structure so that the share of agriculture declines in both production and employment and the share of the secondary and tertiary sectors increases. The policy measure to achieve such GNP growth is industrialization. Objectives of poverty elimination, reduction in economic inequalities and employment generation are subsumed in the process of industrialization. The traditional approach is also known as the Trickle Down approach to Economic Development.

The Modern Approach : The Trickle Down approach failed to solve the problems of mass poverty is most of the developing countries. During the 1970s, economic development was redefined to include objectives such as reduction and elimination of poverty, inequality and unemployment. 'Redistribution with Growth' became the new approach to economic development. Following the new approach, Charles P Kindleberger and Bruce Herrick observed that:

"Economic development is generally defined to include improvements in material welfare, especially for persons with the lowest incomes, the eradication of mass poverty with its correlates of illiteracy, disease and early death, changes in the composition of

inputs and outputs that generally include shifts in the underlying structure of production away from agricultural towards industrial activities, the organization of the economy in such a way that productive employment is general among the working age population rather that the situation of a privileged minority and the correspondingly greater participation of broadly based groups in making decisions about the directions, economica and otherwise, in which they should move to improve their welfare."

1.4 DISTINCTION BETWEEN GROWTH AND DEVELOPMENT

There are significant differences between economic growth and economic development. The term "economic growth" refers to an increase (or growth) in real national income or product expressed usually as per capital income. National income or product itself is commonly expressed in terms of a measure of the aggregate output of the economy called gross national product (GNP). Per capita income then is simply gross national product divided by the population of the country. When the GNP of a nation rises, whatever the means of achieving the outcome, economists refer to it as economic growth.

The term "economic development," on the other hand, implies much more when used in relation to a country or an entire economy. It typically refers to improvements in a variety of indicators, such as literacy rates and life expectancy, and it implies a reduction in poverty. Critics point out that GDP is a narrow measure of economic welfare that does not take into account important non-economic aspects such as more leisure time, access to health & education, the environment, freedom, or social justice. Economic growth is a necessary but insufficient condition for economic development.

Economic Growth does not take into account the size of the informal economy. The informal economy is also known as the black economy which is unrecorded economic activity. Development alleviates people from low standards of living into proper employment with suitable shelter. Economic Growth does not take into account the depletion of natural resources which might lead to pollution, congestion & disease. Development however is concerned with sustainability which means meeting the needs of the present without compromising future needs. These environmental effects are becoming more of a problem for Governments now that the pressure has increased on them due to Global warming.

Different View related Growth and Development:

For a layman, the terms economic development and economic growth are synonyms. For a long time, the terms, economic development, economic growth, economic progress, economic welfare, secular change and other similar terms are being commonly used in day-to-day life as synonyms. But some leading economists have drawn a line of demarcation between them. Under the above heading we shall discuss the difference between the above two concepts, i.e., economic development and economic growth which is given below:

Mrs. Ursula Hicks, "Development should relate to underdeveloped countries, where there is possibility of developing and using hitherto, while the term growth is related to economically rich and advanced countries where most of the resources are already known and developed."

This definition draws a vivid distinction between the economic development and economic growth. The first term relates to the problems of underdeveloped countries and their solution, whereas the second term is related to the problems of developed countries of the world.

Prof. A. Maddison, "the rising of income levels is generally called economic growth in rich countries and in poor countries it is called economic development."

This definition also points out the same fact that economic development is concerned with the rising of income level in underdeveloped countries like India, whereas economic growth refers to the rising of income levels in advanced and rich countries like America, U. K., France, Germany etc.

Prof. J. A. Schumpeter, "Development is a discontinuous and spontaneous change in the stationary state, which for ever alters and displaces the equilibrium state previously existing; while growth is a gradual and steady change in the long run, which comes about by a general increase in the rate of savings and population ‖ .

This explanation emphasises that the economy is in the stationary state before the process of development starts and in that stationary state, equilibrium exists among the different development variables such as investment and savings, income and expenditure, demand and supply etc. The view of Schumpeter has been widely accepted and elaborated by the majority of economists.

C. *P. Kidleberger,* "Economic growth means more output and economic development implies both more output and changes in the technical and institutional arrangements, by which it is produced."

This explanation states that growth is synonymous with higher output. Any increase in the quantity of development variables is termed as growth. It has nothing to do with the means and methods of production. Development, on the other hand, implies not only higher output, but also the changes which help in raising the level of output. Kindleberger has further explained the difference by an analogy with human beings. According to him, "Growth involves focussing on height or weight while development draws attention to the change in functional capacity."

Prof. J. *K.* ***Mehta*** has summed up the above discussion in the words, "The word Growth has quantitative significance while the Development has by comparison qualitative significance."

Byrns and ***Stones,*** "Economic growth occurs when more goods can be produced. Economic development entails improvements in the quality of life, in the qualities of goods available or in the ways production is organised."

Dr. Bright Singh, "Economic development is a multi-dimensional phenomenon, it involves not only increase in money incomes, but also improvement in real habits, education, public health, greater leisure and in fact all the social and economic circumstances that make Tor a fuller and happier life. On the contrary, in case of economic growth, there is increase in national income alone. There is no structural change in the economy."

The distinction between economic development and economic growth may further be explained by means of the table given below :

Table No. 1.1

Difference between Economic Development and Economic Growth

S. N.	Basis of Difference	Economic Development	Economic Growth
1.	**Utilisation**	Economic Development relates to the utilisation and development of unused resources in the underdeveloped countries.	Economic Growth relates to optimum utilisation and development of under-utilised resources of developed countries
2.	**Implication:**	progressive changes in socio-economic structure of country(institutional and technological changes)	output of goods and services in the country like increase the income in savings, investment etc.
3.	Concerned with	Development relates to underdeveloped countries.	Growth relates to developed countries.
4.	**Effect:**	Brings both qualitative and quantitative changes in the economy	Brings quantitative changes in the economy
5.	Prof. A. Maddison's View	The rising of income levels is generally called economic growth in rich countries.	The rising of income levels is generally called economic development in poor countries.
6.	Nature and cause of change	According to Schumpeter, "Economic development is discontinuous and spontaneous state in the stationary state."	According. to Schumpeter, "Economic growth is a gradual and steady change in the long run."
7.	More out put and changes	According to Kindleberger, economic development implies more output and changes in the technical and institutional arrangements.	According to Kindle-berger, economic growth means more output.

8.	Significance	According to Prof. J. K. Mehta, economic development has qualitative significance.	According to Prof. J. K. Mehta, economic growth has quantitative significance.
9.	Bryns and Stones' views	According to Bryns and Stones, economic development entails improvement in the quality of life and goods.	According to Bryns and Stones, economic growth occurs when more goods can be produced.
10.	Dr. Bright Singh's view	Economic development is a multi-dimensional phenomenon.	Economic growth is a single dimensional phenomenon.
11.	Scope	Economic development is a wider concept than economic growth.	Economic growth is a narrower concept than economic development.
12.	Importance	Economic development is not possible without economic growth.	Economic growth is possible without economic development.
13.	Character	Economic development is regulated and controlled in character.	Economic growth is spontaneous in character.
14.	John Friedman's view.	Economic development is an innovative process leading to the structural transformation of social system.	Economic growth is an expansion of the system in one or more dimensions without a change in its structure.
15.	Real National Income	Economic development is the process as well as increase in real national income.	Economic growth is simply the rise in real national income and not the process.

In spite of the above apparent difference, most of the economists are of the opinion that there is no difference between economic development and economic growth and hence they use both these terms as synonyms. According to *Arthur Levis,* "Most often we shall refer only to growth but occasionally for the sake of variety, to progress.

Economic growth is a necessary but not sufficient condition of economic development.

1.5 ECONOMIC GROWTH AND STRUCTURAL CHANGE

The relation between economic growth and structural change is analyzed by a dynamic multisector world model, where production follows demand and demand changes with higher income. It shows that economic growth is inevitably connected with structural change. If structural change is restrained, the growth rate is reduced. The model covers not only structural change in the sense of changes in the proportion of production and demand of different commodities. Structural change in the statistical sense, i.e., change in the parameter values of the behavior equation, is not considered.

1.6 CAPABILITIES, ENTITLEMENTS AND DEPRIVATION

The Sen‘s capability approach involves concentration on freedoms to achieve in general and the capabilities to function in particular. The major constituents of the capability approach are functionings and capabilities. Functionings are the beings and doings of a person, whereas a person‘s capability is the various combinations of functionings that a person can achieve.Capability is thus a set of vectors of functionings, reflecting the person‘s freedom to lead one type of life or another.

Amartya Sen's capacity approach has emerged as a leading alternative to general economic standards / analysis such as poverty, inequality and human development. In his studies, he has developed, refined and defended the framework related to human potential and freedom. Sen’s capacity approach inspired the United Nations to create a Human Development Index.

Income and wealth are tools that are not just a necessity in them, but can be used for other purposes. Economic growth cannot be considered a last resort. Development should focus on increasing our enjoyment of life and freedom. According to Sen, aggregate income, national production, etc. primarily, traditional development moves away from the elements associated with economics to the rights of the people and the capabilities created by these rights. The key points are as follows.

Rights:
A right is a set of alternative items that an individual can acquire using the totality of the rights and responsibilities which he or she faces in society. Rights create the ability to do certain things.

Rights for most people depend on their ability to sell labor and the price of goods. Rights are determined not only by market mechanisms but also by factors such as power relations in society, spatial distribution of resources in society and what individuals can get from the state.

Capacity:

Rights create capacity. The benefit of a person is decided by his ability to do what he can or cannot do, what cannot be. According to Sen, poverty cannot be properly measured by income or utility as traditionally understood. What a person has is what a person is or can be, and does, or can do. The well-being of the people does not depend on the characteristics of the goods used in the utility system, but on what goods consumers can use and how they make the goods.

Example: the importance of books for an uneducated person.

The man uses the book as a fuel for cooking or as a decorative item. The book doesn't matter much to him. Another example is a person with a parasitic disease. A person with a parasitic disease will not be able to get the nutrition from the food that a person without the disease will get.

According to Sen, poverty is ultimately not just a matter of income, it is a failure to achieve minimum capacity. It is important to note that the emphasis is not only on how a person actually works, but also on his ability to work in important ways. Some may be deprived of such abilities as ignorance, government repression, lack of financial resources or false awareness.

1.7 INEQUALITY AND GROWTH

Income inequality is a critical factor in determining the level of progress and well-being of the citizens of a country. Inspite of the growth and development achieved by developing countries, the vast majority of population remains poor. Thus inequalities have increased in spite of economic progress.

There are aspects of inequality. Vertical inequality is the traditional measure of inequality which is discussed in the development policy. Horizontal inequality is concerned with how the different groups in society are treated, based on race, religion, language, class, gender etc. Both the measures help to evaluate the well-being of the people.

It has been experienced that as an economy grows from a traditional to a modern economy, growth is accompanied by

widening disparities in the personal income distribution. The disparities may occur due to various factors like industrious nature of people and skills. Even opportunities may not be available for all which may lead to inequalities. Lack of appropriate taxation system, and differences in individual ability may result in inequalities. Later with more developmental efforts, the inequalities will reduce.

Horizontal inequality shows how economic differences, social limitations and political power together create inequalities among different groups in a society. The groups may belong to different race, religion, gender, class or language. Horizontal inequalities can lead to conflicts within a society which adversely affect the development process.

Inequality affects an economy adversely in various ways. As far as economic growth is concerned, increased inequality creates dissatisfaction, ill feeling and frustration among the poor which may even lead to a civil war. Extreme inequality leads to economic inefficiency. Inequality may lead to inefficient allocation of resources. For example, high inequality leads to an over emphasis on higher education at the expense of good quality universal primary education. High inequality leads to actions like excessive lobbying, large political donations, bribery and cronyism.

1.8 SUMMARY

While economists do not agree on exactly how to promote economic development, there is general agreement that development requires economic growth, a real increase in per capita income, and the social and political institutions necessary to support an expansion of the national economy. It also requires citizens who can work effectively in the enterprises. As the production of goods and services rise at a rate higher than increases in population there is economic growth. Economic development, in addition to increased per capita income, also includes fundamental changes in the structure of the economy. These changes are characterized by a growing industrial sector combined with a declining agriculture share of Gross Domestic Product (GDP) as well as significant changes in population growth, rural to urban migration, and employment opportunities.

1.9 QUESTIONS

Q1. What is the meaning of economic growth?

Q2. What is the meaning of economic development?

Q3. Explain the difference between economic growth and economic development?

Q4. Explain the relation between economic growth and structural change?

Q5. Explain the relation between inequality and economic growth?

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2

CONCEPTS AND MEASURES OF GROWTH AND DEVELOPMENT – II

Unit Structure:

2.0 OBJECTIVES

- To understand the meaning of Human Development Index To study how Human development progresses in India
- To study different areas, methods of HDI measures, Education Index
- To study Gender related development index
- To study Sen's capability approach
- To study Environmental sustainability and development To study market and state as agencies of development

2.1 MEASUREMENT OF INEQUALITY

Economists usually distinguish between two principal measures of income distribution for analytical and quantitative purposes. They are the personal or size distribution of income and the functional or distributive factor share distribution of income.

1. The personal or size distribution of income : This measure is most commonly used by economists. It simply deals with individual persons or households and the total incomes they receive. The

distribution across income size classes is commonly called the —size distribution of income‖. Income inequality among the households is commonly measured by the distribution of income according to the size of income per household. The higher the share of the low income classes in income, the more equal the distribution of income.

Methods of Measurement :

a) A very popular method to analyze personal income is to arrange all individuals by ascending personal incomes. For this the population has to be divided into distinct groups i.e. deciles (tenths) or quintiles (fifths). Then it is determined as to what proportion of the total national income is received by each income group.

The second method to analyze personal income statistics is to construct a Lorenz curve. The numbers of income recipients are plotted on the horizontal axis in cumulative percentage. The vertical axis shows the share of total income received by each percentage of population. Both are cumulative up to 100% meaning that both the axes are equally long. Every point on the Lorenz curve represents a statement. For example, the bottom ‗X' share of households has ‗y' share of the total income. Suppose there are 100 households, they are arranged in ascending incomes. The Lorenz curve is constructed by plotting the cumulative share of households on the horizontal axis and the cumulative share of household income on the vertical axis. The figure is enclosed in a square. A diagonal line is drawn from the origin or the lower left corner of the diagram to the upper right corner of the diagram. On the diagonal line, at every point, the percentage of income received is exactly equal to the percentage of income recipients. The diagonal line represents —perfect equality‖ of distribution of income. For example, if we take the mid point of the diagonal, i.e. halfway, 50% of the income is distributed to exactly 50% of the population.

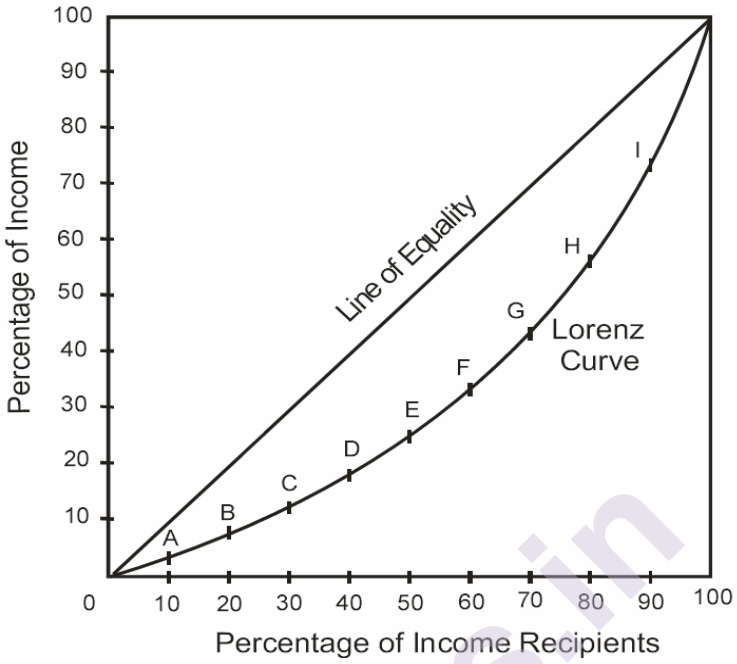


Figure No. 2.1

The Lorenz curve shows the actual quantitative relationship between the percentage of income recipients and the percentage of the total income they received during a given year. In the above diagram, the Lorenz curve has data plotted in terms of decile groups. It is clear from the Lorenz curve that 50% of the population is receiving a little less than 20% of the income. In the same way, 80% of the population is receiving less than 50% of the total income. This is clear from point *H* on the Lorenz curve.

The population of the Lorenz curve will make clear the degree of equality or inequality. If the Lorenz curve coincides with the diagonal line there is perfect equality and all the people in the households get the same income. As the Lorenz curve moves away from the diagonal line, inequality also increases

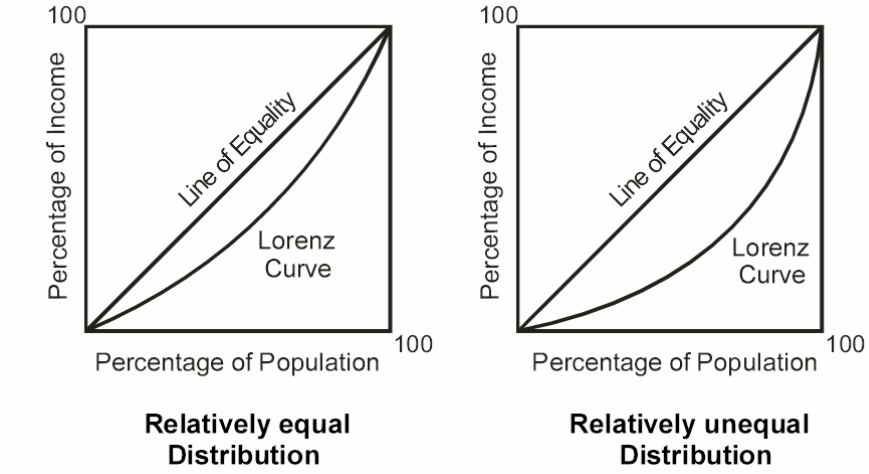


Figure No. 2.2

c) Gini concentration ratio or calculation of the Gini co-efficient is another measure of the relative degree of income inequality. This is obtained by calculating the ratio of the area between the diagonal and the Lorenz curve divided by the total area of the half square in which the curve lies.

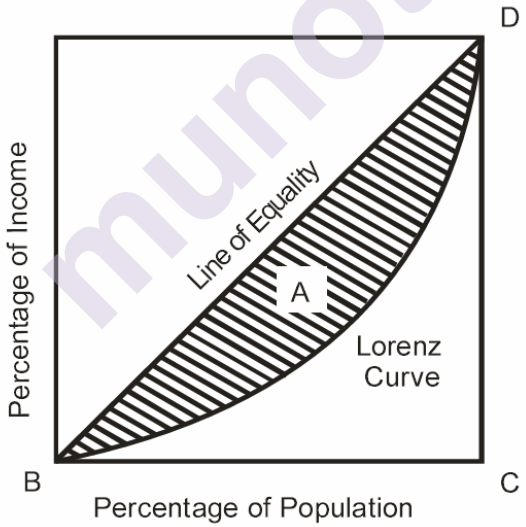


Figure No. 2.3

$$\text{Gini co-efficient} = \frac{\text{Shared Area A}}{\text{Total Area BCD}}$$

This ratio is known as the Gini Co-efficient, named after the Italian statistician who first formulated it in 1912. Gini

co-efficients are aggregate inequality measures and can vary anywhere from zero (perfect equality) to one (perfect inequality). Gini co-efficient is commonly used to study the income and wealth distribution.

2. The Functional Distribution or Factor share of Distribution of income : The functional distribution of income attempts to explain the share of total national income that each of the factors of production (land, labour, capital) receives. This method looks at the income received by the factors as a whole in the form of rent, interest and profit. This method is not concerned with specific individual incomes. Functional distribution of income has emerged as a very important branch of study. It explains the income of a factor of production by the contribution that this factor makes to production. Supply and demand curves are assumed to determine the unit price of each productive factor. When this unit prices are multiplied by quantities employed, we get the total payments to each factor Example – the supply and demand for labour determine the wage rate. When this wage is multiplied by the total level of employment, we get the total wage payments called the wage bill. Thus functional distribution of income is a very relevant and important part of distribution studies.

Economic Growth and Income Inequality

Income inequality is a critical factor in determining the level of progress and well being of the citizens of a country. Inspite of the growth and development achieved by developing countries, the vast majority of population remains poor. Thus inequalities have increased inspite of economic progress.

There are aspects of inequality. Vertical inequality is the traditional measure of inequality which is discussed in the development policy. Horizontal inequality is concerned with how the different groups in society are treated, based on race, religion, language, class, gender etc. Both the measures help to evaluate the well being of the people.

It has been experienced that as an economy grows from a traditional to a modern economy, growth is accompanied by widening disparities in the personal income distribution. The disparities may occur due to various factors like industrious nature of people and skills. Even opportunities may not be available for all which may lead to inequalities. Lack of appropriate taxation system, and differences in individual ability may result in inequalities. Later with more developmental efforts, the inequalities will reduce.

Horizontal inequality shows how economic differences, social limitations and political power together create inequalities among different groups in a society. The groups may belong to different race, religion, gender, class or language. Horizontal inequalities can lead to conflicts within a society which adversely affect the development process.

Inequality affects an economy adversely in various ways. As far as economic growth is concerned, increased inequality creates dissatisfaction, ill feeling and frustration among the poor which may even lead to a civil war. Extreme inequality leads to economic inefficiency. Inequality may lead to inefficient allocation of resources. For example, high inequality leads to an over emphasis on higher education at the expense of good quality universal primary education. High inequality leads to actions like excessive lobbying, large political donations, bribery and cronyism.

2.2 MEASUREMENT OF POVERTY

For formulating poverty reduction programmes it is necessary to define poverty and measure poverty. The extent of absolute poverty is the number of people who are unable to command sufficient resources to satisfy basic needs. They are counted as the total number living below a specified minimum level of real income or an international poverty line. Absolute poverty is measured in terms of the basic needs a person has to meet in order to survive adequately in modern society. However, the expressions like —adequately‖ and —modern society‖ are vague.

Another approach to explain the concept of absolute poverty is to estimate the minimum intake of calories required for survival so the search for measuring poverty led to the concept of poverty line. The poverty line indicates the income level below which poverty exists. For this data is needed with respect to the income or consumption. The common statistical instruments are used for estimation of poverty.

1. Surveys with regard to income, consumption standards, nutritional contents.
2. Surveys are also conducted to gather information with regard to employment, housing conditions.
3. Census data also enables the estimation of poverty

Human Poverty Index :

The Human Poverty Index was introduced by the United Nations Development Programme (UNDP) in the Human

Development Report 1997. HPI is a composite index to measure poverty which is based on three indicators.

i) Life Expectancy
ii) Basic Education
iii) Access to public and private resources.

Life expectancy is an important indicator of human development. Life expectancy in developing countries is 40 whereas in the developed countries it is 60. Life expectancy is a reflection of the overall living conditions, health and sanitary measures, food and nutrition.

Literacy is another indicator of the level of development. The level of illiteracy is high in developing countries inspite of globalization and changes in technology literacy is important to keep pace with changes happening in the country and at the global level. It is also essential to take advantage of economic opportunities.

The third indicator of HPI is the standard of living. Though this criteria cannot be easily defined, it is a combination of three variables. Standard of living is based on three variables i.e. the percentage of people with access to health services, to safe water and the percentage of malnourished children under five. The HPI is published for each country. Though HPI is an overall index showing the level of development, individual indicators are also prepared separately, so that policy makers can study the specific problems are formulate policies for human development. For example, health and sanitation may be a problem area for a particular country. Policies can be tailor made to remedy the situation.

Alternative Poverty Measures :

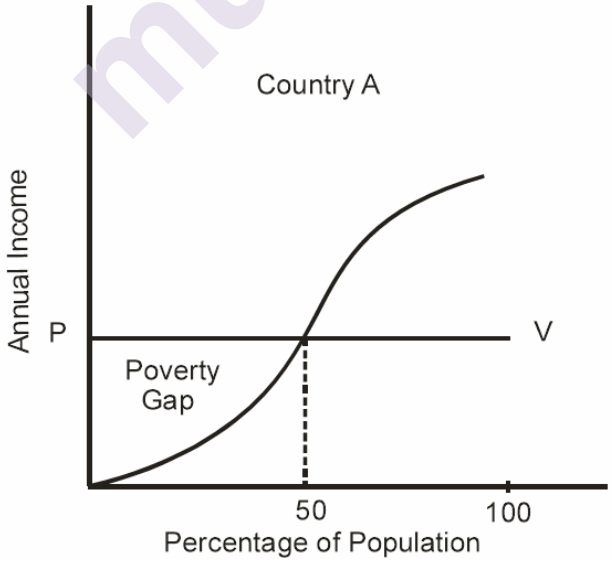
Head Count Ratio : Absolute Poverty may be measured by the number of ―headcount ‖ , H of those, whose incomes fall below the absolute poverty line . When the head count is taken as a fraction of the total population, N, it is called the headcount Index, .

The poverty line is set a level that remains constant in real terms so that we can chart our progress on one absolute level once time. The level is set at a standard below which we would consider a person to live in ‖ absolute human misery ‖ such that one‘s health is in danger. It is difficult to define a ―minimum health standard ‖ that is fixed over time since technology changes over time. It is more practical to establish a reasonable minimum standard which is applicable over a few decades so as to understand the progress made. The international poverty level is

defined at a level of 1 dollar per day. This may not be practically useful in the Indian extent when anti-poverty programmes have to be designed. Another more practical method of determining a local absolute poverty line is to define the combination of food or basket of food on the basis of nutritional requirements surveys and data collected from the households will make clear the nature and type of goods purchased by people and how they are not meeting the standard set by the basket of food which is supposed to by nutritionally balanced and ideal. Food alone is not sufficient to determine the poverty line. Hence the expenditures of the households on basic needs such as clothing, shelter and medical care have to be included to determine the local absolute poverty line. Calculating by this method has shown that the poverty line may come to more than 1 dollar per day.

Poverty Gap : Depending on the poverty line and simply counting the number of people below the accepted poverty line can be misleading since it has a number of limitations. If the povertyline is set at US 360 dollars per person, there may be people earning 355 dollars or 300 dollars or any other category. To put everyone into a homogeneous group is misleading since all will be given the same weights when calculating the proportion of the population that lies below the poverty line. The seriousness of the poverty problem may be different for different income level. The concept of ‘Poverty Gap‘ which measures the total amount of income necessary to raise everyone who is below the poverty line upto that line.

Poverty gap is illustrated in the diagrams below



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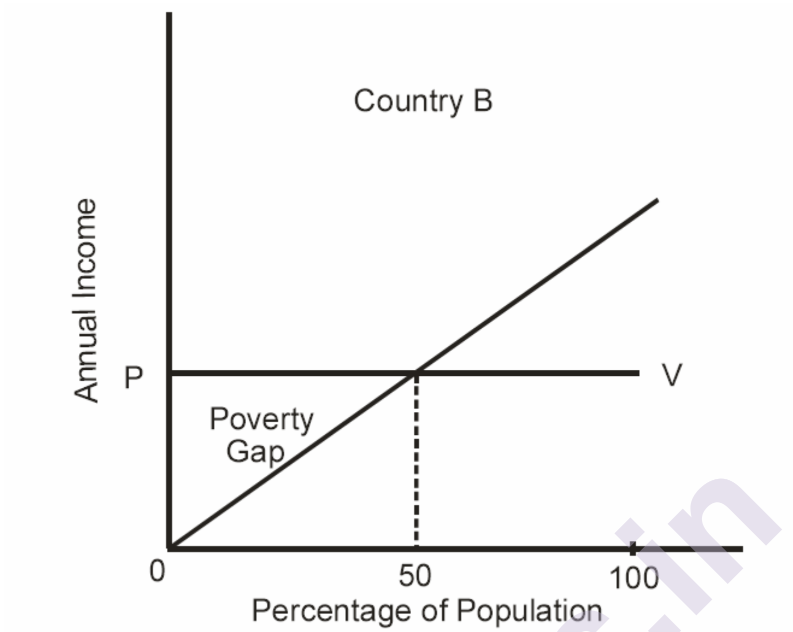


Figure No. 2.5

Measuring the Poverty Gap

The poverty gap is the shaded area between the poverty line PV and the annual income profile of the population. In both countries A and B, 50% of the populations are falling below the poverty line. But the poverty gap is more for country =A‘ then =B‘. Hence the poverty situation is more serious for a country like =A‘ and more efforts will be needed to remove poverty. The extent to which the incomes of the poor lie below the poverty line can be calculated. The ―total income shortfall‖ or total poverty gap of the poor is defined as

$$TPG = \sum_{i=1}^{N} y_p - y_i$$

y_p = poverty line income

y_i = income of the individual / family i

TPG is also defined as the amount of money per day needed for bringing every poor person in the economy upto the minimum income standards. The average poverty gap

$APG = \dfrac{TPG}{H}$ where ‘H’ is the number of people below the poverty line.

2.3 MEASUREMENT OF DEVELOPMENT

Human Development: India‘s high growth rates have been a matter of boastful self-congratulatory publicity for the Indian Government, with the recent recession being projected as a temporary setback, soon to be overcome. The latest Human Development Report released by the UNDP in India recently serves to confront and challenge the tall claims with the rude realities of India‘s poor human development performance in the very midst of its much-touted economic success story.

The Human Development Index ranking, based on 2007 data, finds India at a shocking 134th place out of 182 countries. India‘s ranking in a statistical update based on 2006 data, released by the UNDP last year was 132; the 2007-2008 HDR based on 2005 data ranked India at 128, while in the preceding year India was at 126. Undeniably, in the very phase when the Manmohan Singh Government was boasting of high growth rates, India‘s performance in terms of providing the basics required for a life of dignity continued to slide steeply. If this is true of the high-growth period, the fate of human development indicators in India in times of Recession can only be imagined.

The Four Elements in Development:

Having seen what it means to be a developing country, we now turn to an analysis of the process by which low-income countries improve their living standards. We saw in the last chapter that economic growth in the United States—growth in its potential output—rides on four wheels. These are:

(1) Human resources,
(2) Natural resources,
(3) Capital formation,
(4) Technology.

The sources of growth are no different in other countries, no matter how rich or poor. Let's see how each of the four wheels operates in developing countries and consider how public policy can steer the growth process in favorable directions.

2.4 HUMAN DEVELOPMENT INDEX

The HDI – human development index – is a summary composite index that measures a country's average achievements in three basic aspects of human development: health, knowledge, and a decent standard of living. Health is measured by life expectancy at birth; knowledge is measured by a combination of the adult literacy rate and the combined

primary, secondary, and tertiary gross enrolment ratio; and standard of living by GDP per capita (PPP US$).

The Human Development Index (HDI) is a composite statistic used to rank countries by level of "human development" and separate developed (high development), developing (middle development), and underdeveloped (low development) countries. The statistic is composed from data on life expectancy, education and per-capita GDP (as an indicator of standard of living) collected at the national level using the formula given in the Methodology section below.

The origins of the HDI are to be found in the United Nations Development Programme's (UNDP) Human Development Reports (HDRs). These were devised and launched by Pakistani Economist Mahbub ul Haq in 1990 and had the explicit purpose: ""to shift the focus of development economics from national income accounting to people centered policies''. To produce the HDRs, Mahbub ul Haq brought together a group of well known development economists including: Paul Streeten, Frances Stewart, Gustav Ranis, Keith Griffin, Sudhir Anand and Meghnad Desai. But it was Amartya Sen's work on capabilities and functionings that provided the underlying conceptual framework. Haq was sure that a simple composite measure of human development was needed in order to convince the public, academics, and policy-makers that they can and should evaluate development not only by economic advances but also improvements in human well-being. Sen initially opposed this idea, but he went on to help Haq develop the Human Development Index (HDI). Sen was worried that it was difficult to capture the full complexity of human capabilities in a single index but Haq persuaded him that only a single number would shift the attention of policy-makers from concentration on economic to human well-being.

The HDI has been used since 1990 by the United Nations Development Programme for its annual Human Development Reports.

Human Development Index measures achievements on average on the basis of three following criteria. Areas which are of significance to human development:

- Life expectancy at birth which measures the longevity of life.
- Knowledge which is based on the following two factors:
- Adult literacy rate
- Gross enrolment ratio at primary, secondary and tertiary level.

- Per capita GDP measures the standard of living of the people.

On the basis of above criteria an index is created for each of the above dimensions. This is done on the basis of maximum and minimum values for each of the above three indicators.

Table 2.1: Maximum and Minimum Values for Calculating HDI

Indicator	Maximum Value	Minimum Value
Life expectancy at birth	85	25
Adult literacy rate	100	0
Gross enrolment ratio	100	0
GDP per capita (PPP US$)	40,000	100

The actual values for each country are compared with the maximum and minimum value and for each country the values of all the indicators would range between 0 and 1. The following formula is used:

$$Index\ for\ each\ indicator = \frac{Actual\ value - Minimum\ value}{Maximum\ value - Minimum\ value}$$

Human Development Index	Norway HDI Rank: 1	India HDI Rank: 127	Burundi HDI Rank: 171
Life expectancy at birth (years), 2001	78.7	63.3	40.4
Adult literacy rate (% age - 15 and above), 2001	-	58.0	49.2
Combined primary, secondary and tertiary grcfcs enrolment ratio (%), 2000-01	98	56	31
GDP per capita (PPP US$), 2001	29,620	2,840	690
Life expectancy index, 2001	0.90	0.64	0.26
Education index, 2001	0.99	0.57	0.43
GDP index, 2001	0.95	0.56	0.32
Human Development Index (HDI) value, 2001	0.944	0.590	0.337
GDP per capita (PPP US$) rank minus HDI rank	4	-12	0

Table 2 gives the Human Development index of selected countries as given by the UN Human Development Report, 2003. According to this report, India is ranked 127 among a total of 175 countries. India is classified on the basis of HDI as a country of medium human development.

Three dimensions in the HDI: The HDI combines three dimensions:

Life expectancy at birth, as an index of population health and longevity

Knowledge and education, as measured by the adult literacy rate (with two-thirds weighting) and the combined primary, secondary, and tertiary gross enrolment ratio (with one-third weighting).

Standard of living, as indicated by the natural logarithm of gross domestic product per capita at purchasing power parity.

The formula defining the HDI is promulgated by the United Nations Development Programme (UNDP) In general, to transform a raw variable, say x, into a unit-free index between 0 and 1 (which allows different indices to be added together), the following formula

$$x\text{-index} = \frac{x - \min x}{\max x - \min x}$$

where $\min x$ and $\max x$ are the lowest and highest values the variable x can attain, respectively.

The Human Development Index (HDI) then represents the uniformly weighted sum with 1/3 contributed by each of the following factor indices:

Methods of HDI measures:

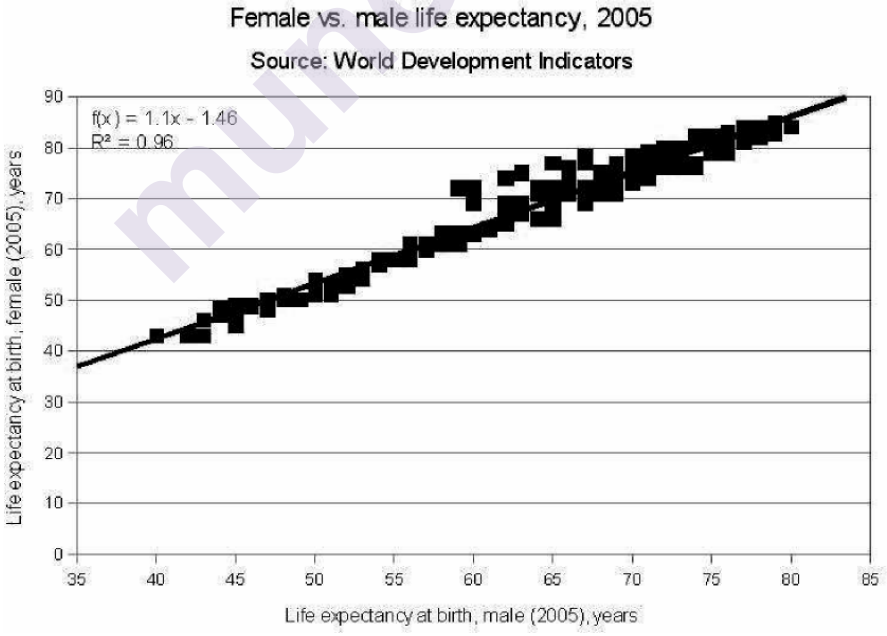
A) Life Expectancy Index:

Life expectancy is the expected (in the statistical sense) number of years of life remaining at a given age. It is denoted by ex, which means the average number of subsequent years of life for someone now aged *x,* according to a particular mortality experience. (In technical literature, this symbol means the average number of *complete* years of life remaining, excluding fractions of a year. The corresponding statistic including fractions of a year, the normal meaning of life expectancy, has a symbol with a small circle over the *e.)* The life expectancy of a group of individuals is heavily dependent on the criteria used to select the group. Life

expectancy is usually calculated separately for males and females. Females live longer than males in countries with modern obstetric care.

In countries with high infant mortality rates, the life expectancy at birth is highly sensitive to the rate of death in the first few years of life. Because of this sensitivity to infant mortality, simple life expectancy at age zero can be subject to gross misinterpretation, leading one to believe that a population with a low overall life expectancy will necessarily have a small proportion of older people. For example, in a hypothetical stationary population in which half the population dies before the age of five, but everybody else dies exactly at 70 years old, the life expectancy at age zero will be about 35 years, while about 25% of the population will be between the ages of 50 and 70. Another measure such as life expectancy at age 5 (e5) can be used to exclude the effect of infant mortality to provide a simple measure of overall mortality rates other than in early childhood—in the hypothetical population above, life expectancy at age 5 would be 70 years. Aggregate population measures such as the proportion of the population in various age classes should also be used alongside individual-based measures like formal life expectancy when analyzing population structure and dynamics.

Female v/s Male Life expectancy:



Women tend to have a lower mortality rate at every age. In the womb, male fetuses have a higher mortality rate (babies are conceived in a ratio of about 124 males to 100 females, but the

ratio of those surviving to birth is only 105 males to 100 females). Among the smallest premature babies (those under 2 pounds or 900 g) females again have a higher survival rate. At the other extreme, about 90% of individuals aged 110 are female.

In the past, mortality rates for females in child-bearing age groups were higher than for males at the same age. This is no longer the case, and female human life expectancy is considerably higher than those of men. The reasons for this are not entirely certain. Traditional arguments tend to favor socio-environmental factors: historically, men have generally consumed more tobacco, alcohol and drugs than females in most societies, and are more likely to die from many associated diseases such as lung cancer, tuberculosis and cirrhosis of the liver. Men are also more likely to die from injuries, whether unintentional (such as car accidents) or intentional (suicide, violence, war). Men are also more likely to die from most of the leading causes of death (some already stated above) than women. Some of these in the United States include: cancer of the respiratory system, motor vehicle accidents, suicide, cirrhosis of the liver, emphysema, and coronary heart disease.

These far outweigh the female mortality rate from breast cancer and cervical cancer etc.

Some argue that shorter male life expectancy is merely another manifestation of the general rule, seen in all mammal species, that larger individuals tend on average to have shorter lives. This biological difference occurs because women have more resistance to infections and degenerative diseases

$$\text{Life Expectancy Index} = \frac{LE - 25}{85 - 25}$$

B) Education Index:

The Education Index is measured by the adult literacy rate (with two-thirds weighting) and the combined primary, secondary, and tertiary gross enrolment ratio (with one-third weighting). The adult literacy rate gives an indication of the ability to read and write, while the GER gives an indication of the level of education from kindergarten to postgraduate education.

Education is a major component of well-being and is used in the measure of economic development and quality of life, which is a key factor determining whether a country is a developed, developing, or underdeveloped country.

$$\text{Education Index} = \frac{2}{3} \times ALI + \frac{1}{3} \times GEI$$

c) Adult literacy index:

The Adult literacy index (ALI) is a statistical measure used to determine how many adults can read and write in a certain area or nation. Adult literacy is one of the factors in measuring the Human Development Index (HDI) of each nation, along with life expectancy, education, and standard of living.

The equati on for calculating the Adult Literacy Index is:

$$\text{Adult Literacy Index (ALI)} = \frac{ALR - 0}{100 - 0}$$

The **gross enrolment ratio** (**GER)** or **gross enrolment index** (**GEI)** is a statistical measure used in the education sector and by the UN in its Education Index. The GER gives a rough indication of the level of education from kindergarten to postgraduate education – known in the UK and some other countries (mostly in the Commonwealth of Nations) as primary, secondary, and/or tertiary – amongst residents in a given jurisdiction.

In the UN, the GER is calculated by expressing the number of students enrolled in primary, secondary and tertiary levels of education, regardless of age, as a percentage of the population of official school age for the three levels

$$\text{Gross Enrolment Index (GEI)} = \frac{CGER - 0}{100 - 0}$$

D) Gross domestic product:

The **gross domestic product** (**GDP)** or **gross domestic income** (**GDI**) is a measure of a country's overall economic output. It is the market value of all final goods and services made within the borders of a country in a year. It is often positively correlated with the standard of living, alternative measures to GDP for that purpose.

Gross domestic product comes under the heading of national accounts, which is a subject in macroeconomics.

GDP can be determined in three ways, all of which should in principle give the same result. They are the product (or output) approach, the income approach, and the expenditure approach.

$$\text{GDP} = \frac{log\ GDPpc - \log 100}{\log 40000 - \log 100}$$

2.5GENDER RELATED DEVELOPMENT INDEX (GDI)

The **Gender-related Development Index** (GDI) is an indication of the standard of living in a country, developed by the United Nations (UN). It is one of the five indicators used by the United Nations Development Programme in its annual Human Development Report. It aims to show the inequalities between men and women in the following areas: long and healthy life, knowledge, and a decent standard of living.

While HDI measures average achievement, the GDI adjusts the average achievement to reflect the inequalities between men and women. The three components used for the purpose are: (i) female life expectancy, (ii) female adult literacy and gross enrolment ratio, and (iii) female per capita income.

If gender inequality were not penalised, the value of GDI and HDI would be the same, but if gender inequality exists, the value of GDI would be lower than that of HDL The greater the difference between HDI and GDI, the greater is the gender inequality. Table 2.4 provides data both for HDI and GDI for selected countries. It may be noted that near gender equality exists in Norway, Canada, United States, United Kingdom, Japan, Mexico, Russian Federation, Malaysia, Venezuela, Philippines, Sri Lanka, China, Vietnam and Indonesia. Countries which indicate higher gender inequality are Saudi Arabia, Pakistan, Iran, India, Egypt and Nigeria.

However, there is a greater awareness in the world about gender inequality and efforts are being made to reduce gender inequality by promoting the education of females and giving them a better status in the family. Some countries have lagged behind due to cultural biases against the females. However, in them also, women movements are promoting the cause of bringing about gender equality.

GDI in India:

In India, Life expectancy at birth of females in 2001 was 64 years, but for males, it was 62.8 years. Comparing with medium human development countries, Indian achievement, though good, is still much lower in relation to Mexico, Venezuela, Russian Federation, Thailand, Philippines, Sri Lanka, Iran, Vietnam, to name a few among them.

Although gap between life expectancy of females and males is very small, but in other gender-related development indicators, this gap is very wide. For instance, adult literacy of females was barely 46.4 per cent as against 69.0 per cent of

males in 2001. Similarly, combined Gross Enrolment ratio of females was 49 per cent as against 63.0 per cent for males in 2001. Likewise, Estimated Earned Income of females was $ 1,531 as compared with that of males to be $ 4,070 in 2001. This implies that female income was just 38 per cent of male income. Obviously, either females suffered from gender discrimination in wage income or they did not have regular employment and a big proportion was employed as casual labourers or a large proportion of females worked part time. There may be many more factors, but it cannot be denied that females suffered gender bias both in education and employment.

Calculating the GDI involves three steps:

Step 1: Unit-free indices between 0 and 1 are calculated for females and males in each of the following areas:

1. life expectancy,
2. education (the adult literacy rate and the combined primary to tertiary gross enrolment ratio),
3. Estimated earned income (at purchasing power parity US$).

- Female Life Expectancy Index
$$= \frac{\text{female life expectancy} - 27.5}{87.5 - 27.5}$$
- Male Life Expectancy Index
$$= \frac{\text{female life expectancy} - 22.5}{82.5 - 22.5}$$

Female & Male Education Indices

$$= \frac{2}{3}\frac{\text{adult literacy rate of gender}}{100} + \frac{1}{3}\frac{\text{gross enrollment rate of gender}}{100}$$

Female & Male Income Indices

$$= \frac{\log \text{ earned income of gender} - \log 100}{\log 40{,}000 - \log 100}$$

Step 2: For each area, the pair of gender indices, are combined into an Equally Distributed Index that rewards gender equality and penalizes inequality. It is calculated as the harmonic mean of the two indices.

Equally Distributed index

$$= \left(\frac{\text{female share of population}}{\text{female} - \text{index}} + \frac{\text{male share of population}}{\text{male} - \text{index}}\right)^{-1}$$

Step 3: The GDI is the unweighted average of the three Equally Distributed Indices: Equally distributed life expectancy index, Equally distributed education index, Equally distributed income index.

The UN uses a different standard for male and female life expectancy, basically assuming that it is natural that women should live about 5 years longer than men. If the life expectancy index was set at an equal age of 85 years, the GDI calculated would increase, reflecting the superior life expectancy of women in almost all countries. Just replace 87.5 years and 82.5 years with 85.0 years and replace 27.5 years and 22.5 years with 25.0 years to equalize it. Iceland, for example, would have a GDI of 0.992 instead of 0.962 under this method.

2.6 ROLE OF MARKET AND STATE

Market and State as Agencies of Development:

While markets do act in a manner that they tend to encourage competition and thus bring about efficiency and increase in productivity, the market failure has been noticed in the following:

(i) In case of imperfect competition, markets generate situations in which state intervention becomes necessary to ensure competition.

(ii) In case of monopoly, market failure is obvious and the state must intervene to break monopoly by anti-monopoly legislation or other measures.

(iii) Market failure has also been noticed in public goods like education and health. In these areas, unless the state establishes schools, colleges, universities, primary health centres and hospitals, it would not be possible to take care of the weaker sections of the society.

(iv) Market failure has also been noticed in areas of economic infrastructure like irrigation, roads, railways, telecommunications etc. Private sector loves to use infrastructure, but would not like to invest in infrastructure, more especially in remote areas, where the rate of return may be very small. Thus, it is generally expected that the public sector should create infrastructures and thus create an environment which facilitates direct investment by the private sector.

The question arises: market failures necessitate state intervention so that the imperfections of the market mechanism can be corrected. For instance, markets set prices on the basis of demand and supply forces. But to quote Michael Lipton, setting

prices right is quite different from letting prices come from state inaction. Obviously, the function of the State is to set right prices so that correct signals for allocation of resources can be made. State failures, however, do not justify the use of market in all situations. It is quite possible that there is a need to change policies or to take strong administrative measures to correct state failures.

This only underlines the fact that even if markets are to be used more extensively, this does not eliminate the role of the State. *Rather than arguing for minimal state intervention, it would be more prudent to argue for effective state intervention.*

World Development Report (1999-2000) has also stated that in development thinking so far as the regulatory sphere is concerned, "the focus has shifted from deregulation to building an effective regulatory framework."

2.7 SUMMARY

1. India has been categorised by the Human Development Report 2001 as a medium human development country. A major impediment to progress in human development is the very fast growth of population experienced in India.

2. The Human Development Index (HDI) is a summary composite index that measures a country's average achievements in three basic aspects of human development: health, knowledge and a decent standard of living. Health is measured by life expectancy at birth; knowledge is measured by a combination of the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio and standard of living by GDP per capita.

3. Following are the methods of HDI measures:

A) Life Expectancy Index: Life Expectancy is the expected (in statistical Sense) number of years of life remaining at a given age. It is denoted by ex, which means the average number of subsequent years of life for someone now aged x, according to a particular mortality experience.

B) Education Index: The Education Index is measured by the adult literacy rate (with two-third weighing) and the combined primary, secondary and tertiary gross enrolment ratio (with one-third weighing).

C) **Adult literacy Index:** The Adult literacy index is a statistical measure used to determine how many adults can read and write in a certain area or nation.

D) **Gross Domestic Product:** The gross domestic product or gross domestic income is a measure of a country's overall economic output. It is the market value of all final goods and services made within the borders of a country in a year. It is often positively correlated with the standard of living, alternative measures to GDP for that purpose.

4. The Gender related Development Index (GDI) is an indication of the standard of living in a country, developed by the United Nations (UN). It is one of the five indicators used by the United Nations Development Programme in its annual Human Development Report. It aims to show the inequalities between men and women in the following areas: long and healthy life, knowledge and a decent standard of living.

5. Sustainable development is development which is everlasting and contributes to the quality of life through improvements in natural environments. Natural environments, in turn, supply utility to individuals, inputs to the economic process and services that support life. The concept of sustainable development assigns equal emphasis on development, environmental protection and preservation. It emphasises the creation of sustainable improvement in the quality of life of all people through increase in real income, per capita income, national income, improvements in health, education, general quality of life and overall improvements in quality of natural environmental resources.

6. The main objective of sustainable development is the creation of sustainable improvements in the quality of life for all people on the earth.

2.8 QUESTIONS

Q1. Write note on following:

a) Measurement of Inequality
b) Measurement of poverty
c) Human Development Index
d) Human Poverty Index

Module II

3

MODERN THEORIES OF GROWTH AND DEVELOPMENT – I

Unit Structure

3.0 OBJECTIVES

- To study the Harrod model of growth.
- To study the Domar model of growth.
- To study the Solow model of growth.

3.1 INTRODUCTION

The Harrod-Domar model is based on assumptions not found in UDCs and hence they are not applicable. Prof. Hirschman suggests that UDCs must have their own independent growth models. However, Prof. Kurihara believes that both the saving and income ratio and the capital output ratio have universal character and they are measurable strategic variables. UDCs which adopt planned and balanced economic growth can definitely use these models because their saving-income ratio and capital output ratios remain constant during the plan period.

3.2 HARROD-DOMAR GROWTH MODEL

The model is based on the experiences of advanced capitalist economies and it analyses the requirements of steady growth in such economies.

REQUIREMENTS OF STEADY GROWTH

Harrod and Domar attempted to determine the rate of income growth necessary for the steady working of the economy. Their models are different in details. However, their conclusions are similar. According to the two, investment has a key role in the economic growth process because it generates income and increases the productive capacity of the economy. Rise in income may be known as the demand effect and rise in productive capacity may be known as the supply effect of investment. Expansion inreal income and output depends upon net investment. Full employment equilibrium will be maintained if growth in real income and output is equal to the rise in the productive capacity. If growth in real income and output is less than the growth in the productive capacity, excess capacity will emerge and entrepreneurs will reduce investment leading to reduced levels of income and employment in the subsequent periods and the economy will move away from the path of steady growth. The required rate of growth in real income and output in order to maintain full employment is known as the Warranted Rate of Growth or the full capacity growth rate.

ASSUMPTIONS

The Harrod-Domar model is based on the following assumptions:

1. There is an initial full employment level of equilibrium.
2. There is absence of government interference.
3. The economy is a closed economy.
4. There are no adjustment lags between investment and productive capacity.
5. The average propensity to save is equal to the marginal propensity to save.
6. The ratio of capital stock to income is fixed.
7. The marginal propensity to save remains constant.
8. There is no depreciation of capital goods.
9. Saving and investment relate to the income of the same year.
10. The general price level is constant.
11. Interest rate is constant.
12. The proportion of labor and capital in the productive process is fixed.
13. Fixed and circulating capital are lumped together to be capital.
14. There is only one type of product.

(A) THE DOMAR MODEL

The rate at which investment should increase in order to make the increase in real income equal to the increase in the productive capacity can be obtained by linking aggregate supply and aggregate demand through investment.

1. **Increase in Productive Capacity or the Supply Side.** Let the annual rate of investment be 'I' and the annual productive capacity per dollar be 's'. Thus the productive capacity of 'I' dollar invested will be I·s dollars per year. However, new investment will compete with the old for attracting factors of production leading to a lower output from the old plants. As a result, the rise in productive capacity of the economy will be less than I·s which is indicated as Io where o represents the net social average productivity of investment (= $\Delta Y/I$). Thus Io < Is. Io is the total net potential increase in the output of the economy and is known as the 'sigma effect'. According to Domar Io is the supply side of the investment.

2. **Required Increase in Aggregate Demand.** Let the annual increase in income be denoted by ΔY and increase in investment by ΔI and the propensity to save by a (= $\Delta S/\Delta Y$). Then the increase in income will be equal to the multiplier (1/a) times the increase in investment i.e. $\Delta Y = \Delta I \times 1/a$.

3. **Equilibrium.** In order to maintain full employment equilibrium level of income, aggregate demand should be equal to aggregate supply. Equality between AD and AS is the fundamental equation of the model which is stated as follows:

$$\Delta I \times 1/a = Io \text{ which can be restated as } \Delta Y = Io.$$

Solving the above equation by dividing both sides by I and multiplying by a we get:

$$\Delta I/I = ao.$$

This equation shows that to maintain full employment, the growth rate of net autonomous investment ($\Delta I/I$) must be equal to $\alpha\sigma$ (mps times the productivity of capital). $A\sigma$ is the rate at which investment must grow to ensure the use of potential capacity in order to maintain a steady growth rate of the economy at full employment.

Domar gives a numerical example to explain his point. Let o = 25% per year, a = 12 per cent and Y = 150 Billion USD per year.

In order to maintain full employment, an amount equal to 150 × 12/100 = 18 billion USD should be invested. This will raise productive capacity by the amount invested σ times i.e. by:

$$\frac{150 \times 12}{100} \times \frac{25}{100} = 4.5 \text{ Billion USD.}$$

The national income will therefore rise by 4.5 Billion USD per year. But the relative rise in income will equal the absolute increase divided by the income itself, i.e.

$$150 \times \frac{\frac{12}{100} \times \frac{25}{100}}{150} = \frac{12}{100} \times \frac{25}{100} = \alpha\sigma = 3 \text{ Percent}$$

Or $$\frac{4.5 \times 100}{150} = \frac{450}{150} = 3 \text{ Percent}$$

Thus in order to maintain full employment, income must grow at a rate of 3 per cent per annum which is the equilibrium rate of growth. Any divergence from the 3 per cent rate of growth will lead to cyclical fluctuations. When $\Delta I/I > \alpha\sigma$, the economy would experience boom and when $\Delta I/I < \alpha\sigma$, the economy would experience depression.

(B) THE HARROD MODEL

Prof. RF Harrod tries to show in his model how steady growth may occur in the economy. Once the steady or the equilibrium growth rate is disturbed, the disequilibrium will continue on account of the cumulative forces leading the economy into secular deflation or inflation. The model is based upon three distinct rates of growth. The actual growth rate 'G' which is determined by the saving ratio and the capital output ratio. 'G' shows the short run cyclical variation in the growth rate. The warranted growth rate is represented by 'Gw' which is the full capacity growth rate. The natural growth rate is represented by 'Gn' which is regarded as the welfare optimum by Harod. 'Gn' may also be called as full employment rate of growth.

The Actual Growth Rate (G)

In Harrod's model, the first fundamental equation is:

GC=s (1)

Where G is the rate of growth of output in a given period of time i.e.

(∆Y/∆Y),

'C' is the net addition to capital and is defined as the ratio of investment to the increase in income i.e. I/∆Yand 'S' is the average propensity to save i.e. S/Y. Substituting these ratios in the above equation, we get:

$$\frac{\Delta Y}{Y} \times \frac{I}{\Delta Y} = \frac{S}{Y} \text{ OR } \frac{I}{Y} = \frac{S}{Y} \text{ OR I = S.}$$

The Warranted Rate of Growth (Gw)

It is the rate at which producers will be happy with what they are doing. It is the entrepreneurial equilibrium. Given the propensity to save, the rate of growth of output will be equal to the growth rate in income or demand. The equation for the warranted growth rate is:

GwCr=s .....(2)

Where Gw is the warranted rate of growth which is equal to ∆Y/∆Y, 'Cr' is capital required to maintain the warranted rate of growth i.e. the required capital output ratio which is equal to I/∆Y. 's' = S/Y or the average propensity to save. Thus if the economy is to grow at a steady rate of Gw, income must grow at the rate of s/Cr per year i.e. Gw = s/Cr.

If income grows at the warranted rate, the capital stock of the economy will be fully utilized and entrepreneurs will be willing to continue to invest the amount of saving generated at full potential income. Gw is therefore a self-sustaining rate of growth and at Gw growth rate, the economy will follow the equilibrium path.

The Origin of Long-run Disequilibria

At full employment growth, the actual growth rate 'G' must equal 'Gw' resulting in a steady grwoth rate and 'C' must equal 'Cr' i.e. the actual capital goods must be equal to the required capital goods for steady growth. If 'G' and 'Gw' are unequal, the economy will be in disequilibrium. For example, if G > Gw, then C < Cr and

there will be shortages of goods and equipment leading to secular or general inflation. The ruqired investment will be greater than saving and hence aggregate supply will be less than aggregate demand. There would thus be chronic or continuous inflation. This is shown in figure 3.1(A). Notice that the actual growth rate 'G' follows the warranted growth path 'Gw' from the full employment level of income Y_o up to point 'E' through period t_2. From t_2, 'G' deviates from 'Gw' and lies above it. In later periods, the gap between G and Gw widens. Conversely, if G < Gw, then C > Cr resulting in a secular or general depression because actual income grows at a rate less than the rate of growth of the productive capacity of the economy. This is a situation in which the actual capital goods are greater than the required capital goods. This means that the required investment is less than saving and aggregate demand is less than aggregate supply. The result is fall in output, employment and income. There would thus be chronic depression. This is shown in Fig. 3.1(B). Notice that from period t_2 onwards, G falls below Gw and the gap widens in the subsequent periods. According to Harrod, once the equilibrium is disturbed, it cannot be automatically restored. Hence public policy should aim at establishing equality between G and Gw in order to maintain long run stability. In this context, the concept of natural rate of growth assumes importance.

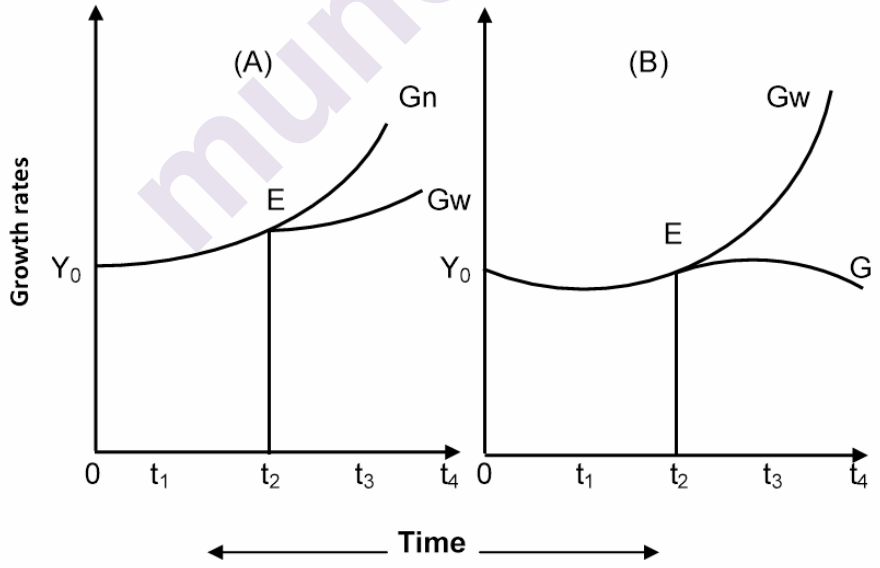


Fig. 3.1(A). Secular Inflation **Fig. 3.1(B). Secular Depression**

The Natural Rate of Growth

The natural rate of growth is the rate of growth determined by the increase in population and technological improvements at full employment. The equation for the natural growth rate is:

$$Gn.Cr = s \quad Or \quad GnCr \neq s.$$

Here Gn is the natural or full employment rate of growth.

Divergence of G, Gw and Gn

Full employment equilibrium will be attained when Gn = Gw = G. If there is any divergence between thee rates of growth, there will be either secular stagnation, inflation or depression. If G> Gw, investment increases faster than savings and incomes rises faster than Gw resulting in inflation. If G < Gw, saving increases faster than investment and rise of income is less than Gw resulting in depression. According to Harod, if Gw> gn, secular stagnation will develop. In this situation, Gw is also greater than G because the upper limit to the actual rate is set by the natural rate as shown in Figure 3.2(A). When Gw> Gn, C> Cr and there will be excess of capital goods due to shortage of labor which keeps the rate of increase in output to a level less than Gw. Excess capacity results in reduced investment, employment, output and incomes. The economy will be found in chronic depression and savings will be considered bad. If Gw < Gn, Gw is also less than G as in Fig.3. 2(B), secular inflation will develop in the economy. When Gw < Gn, C will be less than Cr (C < Cr), there is shortage of capital goods and labor is abundant. Profits are high because desired investment is greater than realized investment and businessmen will tend to increase their capital stock. This will lead to secular inflation. In such a situation, saving is good because it permits the warranted growth rate to increase.

The policy implications of the model are that saving is good in any inflationary gap economy and bad in a deflationary gap economy. Thus, in an advanced economy, 'S' has to be moved up and down as the situation demands.

LIMITATIONS OF THE HARROD-DOMAR MODEL

1. The propensity to save (α or s) and the capital output ratio (σ) are assumed to be constant. In reality, these do not remain constant in the long run and hence the requirements of steady growth may change. Further, steady growth rate may be obtained even with variable α and σ.
2. The assumption that labor and capital are used in fixed proportions is not acceptable. Labor can be substituted for capital and the economy can move towards a steady growth path.
3. The general price level is assumed to be constant. In reality, prices do change and may stabilize unstable situations.
4. The assumption that interest rate is constant is unrealistic and irrelevant to the model. A reduction in interest rates during periods of over- production can make capital intensive processes more profitable by increasing the demand for capital and thus reduce excess supply of goods.
5. The Harrod - Domar models ignore the effect of government programs on economic growth.
6. The model neglects the entrepreneurial behavior which actually determines the warranted growth rate in the economy.
7. The model fails to distinguish between capital goods and consumer goods.
8. According to Prof. Rose, the primary source of instability in Harrod's system lies in the effect of excess demand or excess supply on production decisions and not in the effect of growing capital shortage or excess capital on investment decisions.

Notwithstanding these limitations, the model is based on a free market economy with fiscal neutrality and is designed to indicate conditions of progressive equilibrium for an advanced economy.

The model is important because it attempts to infuse dynamism and secularize Keynes's static short-run saving and investment theory.

APPLICATION OF HARROD-DOMAR MDOEL TO UNDERDEVELOPED COUNTRIES

The Harrod-Domar models are based on three principal concepts of saving function, autonomous and induced investment and productivity of capital. The model was basically developed to solve the problem of secular stagnation in the advanced economies of the post-war period. The application of these models has been extended to the development problems of the under-developed countries.

Let us see as to how these models can be used for planning in UDCs. Let us assume the capital output ratio to be 4:1 and Gw to be 3 per cent per annum. By applying the Harrod Domar formula, the planners can find out the saving ratio required to sustain the growth rate of 3 per cent per annum. By substituting the above values in Harrod's model GwCr = s, we get:

$$\frac{3}{100} \times \frac{4}{1} = \frac{12}{100} = 0.12 \text{ or } 12\%$$

Thus if the capital output ratio is assumed to be 4:1 in an economy, the domestic savings must be 12% of the national income so that the economy grows at the rate of 3% per annum. Given the saving ratio and the capital output ratio, Harrod's formula for calculating growth rate is Gw = s/Cr and if S is 12% and the value of Cr is 4, then Gw = 12 /4 = 3 per cent. UDCs are characterized by low savings, high level of investment and chronic inflation. Hence, Harrod suggests the financing of large investments through the expansion of bank credit and automatic investment of inflationary profits in the capital markets. In the absence of organized capital markets in the UDCs, bank credit is the only way to finance investments and generate economic growth. Low savings in UDCs are responsible for low rate of growth and mass unemployment and under-employment. Thus the actual level of savings should be raised to the required level of savings by a compulsory tax or a surplus budget so that S = Sr. Further, Harrod also emphasizes the need for changes in the social and institutional factors because social and institutional obstacles are viewed as a cause of low growth rate.

LIMITATIONS OF THE HARROD-DOMAR MODEL IN UDCs

1. **Different Conditions.** The models were not intended to guide industrialization programs of under developed countries.
2. **Savings Ratio.** The growth models require high savings as well as low capital output ratio. In the UDCs, savings and investment decisions are taken by a small percentage of people with the majority of people leading a subsistence life.
3. **Capital Output Ratio.** It is difficult to measure capital output ratio when productivity is hindered by shortages and bottlenecks. According to Prof. Hirschman, the predictive and operational value of a model based on the capital output ratio and the savings ratio is less useful in under developed countries.
4. **Structural Unemployment.** According to Prof. Kurihara, the model fails to solve the problem of structural unemployment in UDCs i.e. unemployment arising out of a faster growth of population than the accumulation of capital.
5. **Disguised Unemployment.** The models begin with the assumption of full employment level of income which is not found in UDCs. Disguised unemployment cannot be removed by these models.
6. **Government Intervention.** UDCs cannot develop without substantial government intervention in the form of public investment, planning and regulating the economy. However, the model is based on laissez-faire policy.
7. **Foreign Trade and Aid.** The models are based on the assumption of a closed economy. However, UDCs are open economies in which foreign trade and aid has a major role.
8. **Price Changes.** Prices are assumed to be constant. However, the development experience of UDCs indicates inflationary growth.
9. **Institutional Changes.** Institutional factors are assumed to be given. However, economic development is not possible without institutional changes in Under developed countries.

3.3 SOLOW'S NEOCLASSICAL GROWTH MODEL

Solow's growth model is one of the best known model of economic growth. The model gives utmost importance to savings in the growth process. According to Solow, economies will converge to the same level of income, given, they have the same rate of savings, depreciation, labour force growth and productivity growth. R. M. Solow built his model of economic growth as an alternative to the Harrod-Domar model without its crucial assumptions of fixed proportions in production.

Assumptions :

1. The Solow model allows substitution between capital and labour. When both the inputs are used, it leads to diminishing returns.
2. One composite commodity is produced.
3. There are constant returns to sale. The product function is homogeneous of the first degree.
4. The two factors of production – labour and capital are paid according to their marginal physical productivities.
5. Prices and wages are flexible.
6. There is perpetual full employment of labour.
7. The available capital stock is also fully employed.
8. Labour and capital are substitutable for each other.
9. There is neutral technical progress.
10. The saving ratio is constant.

The Model :

Solow has taken technology as an exogenous factor and the residual factor which explains long term growth. Solow's neoclassical growth model uses a standard aggregate production function as given by the equation $Y = K\alpha\ AL^{1-\alpha}$. When Y = Gross Domestic Product, K = Stock of capital (including human and physical capital), L = Labour, A = Productivity of labour which grows at an exogenous rate. In the equation α = elasticity of output with respect to capital. It is the percentage increase in GDP resulting from 1% increase in human and physical capital. The aggregate production function is given as $Y = f\ K,L$. Taking both inputs together, constant returns to scale operates. At time 't' $y\ t = K\ t^{\alpha}\ A\ t\ L\ t^{1-\alpha}$. Y = Gross Domestic Product, K = Stock of capital, L = Labour and $A\ t$ represents the productivity of labour which grows over time at an exogenous rate. Since constant returns to scale is operating, if all the inputs are increased by the same amount, output also will increase by the same amount.

$$yY = F\ yK, yL$$

y = Some positive amount

Dividing the above equation by L,

$$\frac{Y}{L} = F\left(\frac{K}{L}, 1\right) = f\ K$$

The output per worker is a function that depends on the

amount of capital per worker. Increased capital availability per worker will enable increased output.

Solow gave importance of the growth of savings. The total capital stock grows when savings are greater than depreciation. Capital labour ratio K (Which is called capital deepening) and depreciation will together determine the actual growth in capital stock.

Therefore, $\Delta K = Sf\ K\ -\ \infty + n\ K$ (1)

where $Sf\ K$ is the savings and ∞K is the depreciation and 'nK' is capital provided to the new workers joining the labour force. It is assumed that the productivity of labour 'A' remains constant. This results in a state in which output and capital per worker remain constant. Such a state is known as a steady state. To find this steady state we have to set ΔK as zero. To attain the steady state, the following condition must be satisfied.

$Sf\ K^{\infty}\ =\ \infty + n\ K^{\infty}$ (2)

Where K^{∞} is the level of capital per worker, when the economy is in a steady state. If the actual growth of capital stock 'K' is higher or lower than K^{∞}, the economy will return to K^{∞} which represents stable equilibrium.

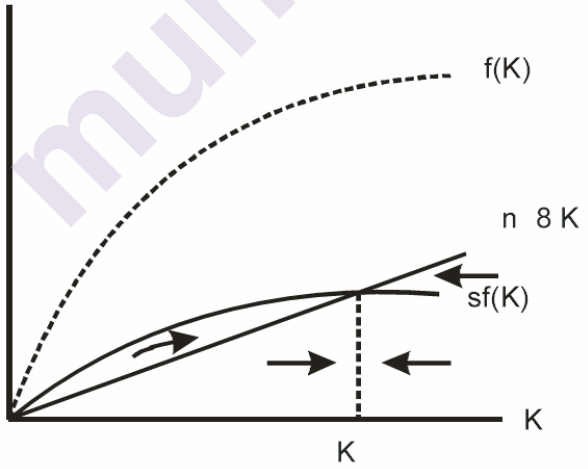


Figure: Equilibrium in the Solow Growth Model

The stable equilibrium can be explained with the help of the above diagram. To the left of K^{∞}, $K < K^{\infty}$. In this case, $n+8\ K < Sf\ K$ as per the Solow equation (1) when $n+8\ K < Sf\ K$, $\Delta K > 0$. As a result K in the economy is growing toward the equilibrium point K^{∞}. Similarly to the right of K^{∞}, $n+8\ K \rightarrow Sf\ K$ and hence $\Delta K < 0$. It means that the capital per worker is shrinking toward the equilibrium K^{∞}.

3.4 SUMMARY

Solow's model is an improvement over Harrod Domar Model. In Harrod-Domar Model there is a knife edge balance in the economy.

Any disturbance in the balance will take the economy away from equilibrium. Solow's model explains the possibilities of steady growth. However, Solow's model suffers from the following limitations.

1. Solow's model does not discuss investment function. The role of entrepreneurship is ignored in the theory.
2. Solow assumed flexibility of factor prices. But the liquidity trap situation may prevent the rate of interest in falling further. As a result, capital output ratio may not rise to a level necessary for attaining the path of equilibrium path.
3. Solow's model is based on the unrealistic assumption of homogenous and malleable capital. However, capital goods are highly heterogeneous and thus pose the problem of aggregation.
4. Solow leaves out technical progress and treats it as an exogenous factor in the growth process.

3.5 QUESTIONS

Q1. Explain Harrod model of growth.
Q2. Explain Domar model of growth.
Q3. Explain the Solow model.

4

MODERN THEORIES OF GROWTH AND DEVELOPMENT – II

Unit Structure

4.0OBJECTIVES

1. To study the approaches to technical change.
2. To know the concept of convergence.
3. To study the Lucas human capital.
4. To study the endogenous growth model of Romer.

4.1APPROACHES TO TECHNICAL GROWTH

The technical change is the term used in economics to describe a change in the amount of output produced from the same amount of inputs. Technical change is not necessarily technological as it might be organizational or due to a change in a constraint such as regulation, input prices or quantities of inputs.

It is possible to measure the technical change as the change in output per unit of factor input.

In the free-market economies, technological advances lead to increases in productivity, but at the expense of older, less-efficient means of production, creating a level of subjective risk for which compensation (in theory) is the return on capital. This rate or return is reflection of all of the perceived risks associated with the capital financing of the means of production, including technology risks. From a capital finance point of view, advances in technology are the classic definition of systemic market risk. The outflow of this condition is the "creative destruction" of portion of the means of production as evidenced by businesses discontinuing the

production of obsolete products and/or cessation of business activities that are no longer profitable. In its purest form, capitalism entails the constant level of creative destruction of a portion of the means of production and increase in the Gross Domestic Product (GDP) of the subject economy reflects the growth after the losses due to economic obsolescence have been reconciled. Accordingly, increases in GDP provides a substantive measurement that demonstrates that capitalism does not in effect create an economic construct where one party can only make a gain at expense of the other party (i.e.: if one party could only profit at the expense of another party, then it would be impossible to achieve any nominal growth in GDP).

4.2CONVERGENCE

Idea of convergence in economics (also sometimes known as the catch-up effect) is the hypothesis that poorer economies' per capita incomes will tend to grow at the faster rates than richer economies. And in the Solow growth model, economic growth is driven by accumulation of the physical capital until this optimum level of capital per worker, which is the "steady state" is reached, where output, consumption and capital are constant. This model predicts more rapid growth when the level of physical capital per capita is low, something often referred to as “catch up” growth. As a result, all economies should eventually converge in terms of the per capita income. Developing countries have the potential to grow at the faster rate than developed countries because diminishing returns (in particular, to capital) are not as strong as in capital-rich countries. Poorer countries can replicate the production methods, technologies, and institutions of the developed countries.

In the economic growth literature the term "convergence" can have two meanings. The first kind (sometimes called "sigma-convergence") refers to reduction in the dispersion of levels of income across economies. "Beta-convergence" on the other hand, it occurs when poor economies grow faster than rich ones. Economists say that there is "conditional beta-convergence" when the economies experience "beta-convergence" but conditional on other variables (namely the investment rate and the population growth rate) being held constant. They say that "unconditional beta-convergence" or "absolute beta-convergence" exists when growth rate of an economy declines as it approaches its steady state. According to Jack Goldstone, "in the twentieth century, the Great Divergence peaked before the First World War and continued until the early 1970s, then, after two decades of indeterminate fluctuations, in the late 1980s it was replaced by the Great Convergence as the majority of Third World countries reached economic growth rates significantly higher than those in most first

World countries." Thus the present-day convergence should be regarded as a continuation of the Great Divergence.

For Example - In the 1960s and 1970s the East Asian Tigers rapidly converged with developed economies.

Types of Convergence:

1. **Absolute convergence:**
   The lower initial GDP will lead to a higher average growth rate.Implication of this is that poverty will ultimately disappear 'by itself'. It does not explain why some nations have had the zero growth for many decades.

2. **Conditional convergence:**
   A country's per worker income converges to a country-specific long-run level as determined by the structural characteristics of that country.The implication is that structural characteristics, and not initial national income, determine the long-run level of GDP per worker. Thus, foreign aid should focus on the structure (infrastructure, education, financial system etc.) and there is no need for income transfer from the richer to the poorer nations.

3. **Club convergence:**
   It is possible to observe different the "clubs" or the groups of countries with similar growth trajectories. Several countries with low national income also have low growth rates.

Thus, this is in contrast to theory of conditional convergence, and would suggest that the foreign aid should also include income transfers and that initial income does in fact matter for economic growth.

4.3 ENDOGENOUS GROWTH MODEL OF ROMER

The traditional growth theories were not able to explain the sources of long term economic growth. In fact, traditional growth theories believed that economies cannot grow over a long period. According to neoclassical theory, the low capital labor ratios of developing countries promise high rates of return on investment. However, in the era of World Bank-IMF sponsored globalization, particularly in the context of LDCs, it has been found that most of the LDCs failed to attract new foreign investment or to stop the flight of domestic capital. The paradoxical behavior of developing-world capital flows (from poor to rich countries) led to the development of the concept of Endogenous Growth or the New Growth Theory.

The new growth theory provides a theoretical framework for analyzing sustained endogenous growth that is determined by the system governing the production process. The endogenous growth models hold GNP growth to be a natural consequence of long run equilibrium. They explain the growth rate differentials across the countries and growth in itself. They also explain the factors that determine the size of λ (the rate of growth of GDP) that is not explained and exogenously determined in the So low neoclassical growth equation.

The endogenous growth theory differs from the neoclassical growth theories in the following ways:

1. Rejects diminishing marginal returns to capital investments and permits increasing returns to scale in aggregate production.
2. Focuses on the role of externalities in determining the rate of return on capital investments.
3. Assumes that public and private investments in human capital generate external economies and productivity gains that offset the natural tendency for diminishing returns.
4. Seeks to explain the existence of increasing returns to scale and the divergent long term growth patterns among countries.
5. Technology is not considered necessary to explain long run growth.

The new growth theories can be expressed by the equation Y = AK (Harrod-Domar Model). Here, 'A' represents any factor that affects technology and K includes both physical and human capital. But there are no diminishing returns in this equation of growth which means investments in physical and human capital can generate external economies and productivity gains that exceed private gains so as to obtain increasing returns and sustained long term growth. The new growth theory therefore emphasizes the role of savings and investment in human capital investment for achieving rapid economic growth. The new growth theory therefore also differs from the traditional theories in many other ways. Firstly, there is no convergence of growth rates amongst closed economies. National growth rates remain constant and differ across countries depending on national savings rates and technology levels. Secondly, there is no tendency for per capita income levels in capital-poor countries to catch up with those in rich countries with similar savings and population growth rates. As a result, a temporary or prolonged recession in one country can lead to a permanent increase in the income gap between itself and rich countries.

The endogenous growth models explain paradoxical capital flows across countries leading to greater wealth inequalities

between developed and developing countries. The prospect of high returns on investment offered by developing countries with low capital labor ratios is negated by lower levels of complementary investments in human capital, infrastructure or research and development. There is less benefit to poor countries from alternative forms of capital expenditure because the free market leads to the accumulation of less than the optimal level of complementary capital.

Where complementary investments produce social and private benefits, governments may improve the efficiency of resource allocation by providing public goods or by encouraging private investment in knowledge intensive industries where human capital can beaccumulated and increasing returns to scale generated. Further, the new growth theory explains technological change as an endogenous outcome of public and private investment in human capital and knowledge-intensive industries. They therefore suggest an active role for public policy in promoting economic development through direct and indirect investments in human capital formation and the encouragement of foreign private investment in knowledge intensive industries such as computer software and telecommunications.

THE AK MODEL

The Romer model is known to be relevant to the developing countries because it looks at the spill-over effects of industrialization. The model assumes that growth processes are derived from the firm or industry. Each industry individually produces with constant returns to scale. Romer assumes that economy-wide capital stock, positively affects output at the industry level so that there is economy-wide increasing returns to scale. Capital stock includes knowledge which has spillover effects and it is in the nature of a public good. The industry level production function is given at equation (1).

$$Y_i = AK_i \alpha L_i 1 - \alpha \overline{K}^{\beta} \quad \text{..... (1)}$$

In Equation (1), Yi stands for the industry level output, 'A' stands for the knowledge component of capital at the industry level, 'L' stands for labor, 'α' stands for productivity of capital, 1 – α, stands for productivity of labor, , stands for economy wide capital stock and 'β' stands for the productivity (spillover effect) of industry wide capital.

Assuming symmetry across industries so that each industry will use the same level of capital and labor, the economy wide aggregate production function can be stated as in equation (2).

$$g - n = \beta / \left[1 - \alpha + \beta\right] \quad \text{..... (2)}$$

`In equation (2), 'A' is assumed to be constant because technology is assumed to be constant or that there is no technological progress. From equation (2), the growth rate of per capita income in the economy can be stated as in equation (3).

$$g - n = \beta / [1 - \alpha + \beta] \quad \text{..... (3)}$$

Where 'g' is the output growth rate and 'n' is the population growth rate. Without technological progress, the per capita growth would be zero and hence β = 0.

Romer assumed that taking labor, capital, and economy-wide capital together, β> 0, thus g – n > 0, and Y/L is growing (Y/L is the labor-output ratio). If we allow for technological progress in the model, growth will increase proportionately. Thus the Romer model, with a technology spillover, avoids diminishing returns to capital.

Criticisms of the Endogenous Growth Theory

The new growth theory remains dependent on a number of traditional neoclassical assumptions that are not applicable to less developed economies. The theory is criticized on the following grounds.

1. **The assumption of symmetry or that the productivity of capital is constant across the industries.** This assumption does not permit the growth generating reallocation of labor and capital among the sectors that are transformed during the process of structural change.

   Economic growth in LDCs is affected by inefficiencies arising from poor infrastructure, inadequate institutional structures and imperfect capital and goods markets. Since the theory overlooks these important factors, its applicability for the study of economic development is limited. For instance, the theory fails to explain low rates of factory capacity utilization in LDCs where capital is scarce. May be, poor incentive structures are responsible for poor GNP growth as much as low saving and human capital formation. Allocative inefficiencies are common in transition economies. However, their impact on short and medium term growth has been neglected due to the new theory's overemphasis on the determinants of long term growth rates.

3. Finally, **there is little empirical evidence on the predictive value** of endogenous growth theories.

4.4 HUMAN CAPITAL

The concept of human capital has relatively more importance in the labour-surplus countries. These countries are naturally endowed with more of the labour due to the high birth rate under the given climatic conditions. Surplus labour in these countries is the human resource available in more abundance than the tangible capital resource. This human resource can be transformed into the human capital with effective inputs of education, health and moral values. Transformation of raw human resource into highly productive human resource with these inputs is the process of human capital formation. Problem of scarcity of tangible capital in the labour surplus countries can be resolved by accelerating the rate of human capital formation with both private and public investment in education and health sectors of their national economies. Tangible financial capital is an effective instrument of promoting economic growth of the nation. Tangible human capital, on the other hand, it is an instrument of promoting comprehensive development of the nation because human capital is directly related to human development, and when there is human development, the qualitative and quantitative progress of the nation is inevitable. This importance of the human capital is explicit in the changed approach of United Nations (UN) towards comparative evaluation of the economic development of different nations in the world economy. United Nations publishes the Human Development Report (HDR) on the human development in different nations with the objective of evaluating rate of human capital formation in these nations.

The human capital is the backbone of human development and economic development in every nation. Mahroum suggested, at the macro-level, the human capital management is about three key capacities: the capacity to develop talent, the capacity to deploy talent, and the capacity to draw talent from elsewhere. Collectively, these three capacities form backbone of any country's human capital competitiveness. The recent U.S. research shows that geographic regions that invest in human capital and economic advancement of immigrants who are already living in their jurisdictions help boost their short- and long-term economic growth. There is also the strong evidence that organizations that possess and cultivate their human capital outperform other organizations lacking human capital.

4.5 SUMMARY

Human capital is one of the essential pillar in anthropological economics. The anthropological economics is a criterion for analyzing economic systems, whether public or private.

It analyzes and modifies the economic processes using the language of economics in favor of the anthropological perspective. In this perspective the human capital is scope of and for the entire economic process.

4.6 QUESTIONS

Q1. Explain the concept of human capital.
Q2. Explain the approaches to technical growth.
Q3. Explain the endogenous growth theory.
Q4. Explain the concept of convergence.

Module III

5

MICROECONOMICS OF DEVELOPMENT - I

Unit Structure:

5.0 OBJECTIVES

- To understand the segmentation of rural land market.
- To understand the segmentation of rural labour market.
- To understand the segmentation of rural capital market.
- To understand the segmentation of rural credit market.
- To understand the microfinance and market inter-linkages.

5.1 SEGMENTATION OF RURAL LAND MARKET

Land is a key factor for any economic activity. Land market transactions play an important role in the process of economic transformation and development. Conventionally land is considered as a factor of production. However, it is increasingly becoming a speculative asset. Land has a number of characteristics, which make it different from other assets that may be traded on the market. Besides economic aspects, such as immovability, limited supply, planning regulations and permitted land use etc., geographical location as the unique characteristic of each land parcel.

The trends in land market indicators like size of area, number of sales and price of land are analysed in detail. Within the domestic sectors, economic recession has been visible in the land

market earlier than in other sectors. This may be because of the fact that land market transactions involve huge amounts of investment and a higher level of risk. A close watch on the movements in key factors such as number of sales, area transacted, and land prices would therefore help along way in shaping the right policies to ward off economic fluctuations.

Rural land in the region closer to areas that facilitate accessibility to capital has in average a higher market price, also in case when changes of land use are not anticipated in the very near future. This fact can be linked with the attractiveness of rural landscape for living place and development of economic activities in the regions with favourable economic and demographic indicators, and is associated with the urbanisation process.

- There are a number of common obstacles faced by the land markets in most developing nations Compensation and/or privatization processes are not finished (unsolved Compensation claims, differences between legal and physical Compensation, registration problems, etc.),
- Political restrictions imposed by the governments to avoid drastic changes in agricultural sector (prohibitions on certain land transactions, incentives to avoid massive decollectivizations, etc.),
- Lack of incentives to undertake private, either individual or collective, farming business (credit, technical assistance, marketing, etc.),
- significant power of state agencies in the land market (as owners or lenders) and as providers of the regulatory framework (in case of land reforms undertaken by the state agencies)
- social and economic differentiation between managers of reformed collective units and private farmers,
- relevant governmental organizations still in a transition and/or redefinition stage involved in the process, and
- Cultural, ethnic and social values strongly attached to land ownership.

The use (and transfer systems) of the state lands, the regulations, and the land reform strategy followed by each country defines the way in which land should become a private and tradable good, and who (and how) can access it. As in the case of any other good in a market oriented economy, the mechanism to access land (to buy or rent) is through the market land prices.

5.2 SEGMENTATION OF RURAL LABOUR MARKET

Segmented labour markets theory was sufficiently popular in the late 1960sand the early 1970s. It was, hence, taken seriously by prominent mainstream labour economics. Segmented labour markets are dual labour markets, which consist of various sub-groups with little or no crossover capability. Labour is not a completely homogeneous commodity. Workers differ in their tastes and preferences for leisure and work for monetary rather than non-monetary rewards. They also differ in human capital,their investment in education and training, their work skills and experience. Human Capital Theory seeks to explain wage differentials as a consequence of differing human capital stocks that determine an individual's marginal productivity. Human capital stock is defined as "the stock of knowledge, skills, aptitudes, education, and training that an individual or a group of individuals possess."

Why does segmentation occur? One approach to this question focuses upon the evolution of the product markets, from the competitive and the localized to the producer dominated, and from the national to an international market. Technological change makes capital-intensive methods of production possible. Employers, however, are unwilling to undertake large-scale investment unless the product demand is stable and predictable; when demand is variable, labour-intensive techniques are preferred. A growing division is found between firms which cater for stable markets and those in unstable markets. Firms with stable product demand create primary conditions of employment, including, notably, job security. Firms which face unstable demand operate in the secondary segment of the labour market.

Segmentation into Primary and Secondary Markets: The primary and secondary segments, to use the terminology of dual labour market theory, are differentiated mainly by stability characteristics. Primary jobs require and develop stable working habits; skills are often acquired on the job; wages are relatively high; and job ladders exist. Secondary jobs do not require and often discourage stable working habits; wages are low; turnover is high; and job ladders are few. Secondary jobs are mainly (though not exclusively) filled by women, and youth.

Segmentation into Formal and Informal Markets: Informal activities prove to be quite diverse. Some are activities with easy entry and no fixed hours of operation. By contrast, other informal activities exhibit limited entry due to higher set-up costs, irregular hours of operation, and employment of family labour and unskilled

labour with semi-specified work relations. These contrast with formal sector enterprises, which are characterised by restricted entry, regular place and hours of operation, and employment of non-family labour with specific work-relations. These belong in the category of formal sector, even if they are very small in scale. On example would be professional services companies which although small in scale, cannot be viewed in any meaningful way as part of the informal sector.

Another factor observed in many people working in the informal sector was that their employment was voluntary in nature, That is, given the constrained choices open to them, a great many workers are in the sector voluntarily. These people know that job opportunities are available in the urban formal sectors for people like themselves and they could get such jobs. Yet they choose not to seek such jobs, the foremost reason is that they prefer the combination of monetary rewards and psychological aspects of their employment in the informal sector.

A third important conclusion is that the upper-tier informal sector and the easy-entry informal sector are linked to the formal sector in different ways. Whereas most workers in the informal sector who were dissatisfied with their positions sought better jobs in the formal sector, some who had left the formal sector behind and could reach the upper-tier in the informal sector were glad to be in the informal sector.

The formal sector provides training for workers to move into the upper tier small scale employment. Example is the food industry workers who leave jobs to set up their own food processing activities.

The criteria for being informal were: self-employed workers with less than 13 years of education, temporary workers, employers, and family workers in firms with less than 5 employees, and domestic service. In the formal sector all other classifications were included, covering all the blue and white collar workers ***Segmentation by race:*** While minority workers are present in secondary, subordinate primary, and independent primary segments they often face distinct segments within those submarkets. Certain jobs are "race-typed," segregated by prejudice and by labour market institutions. Geographic separation also plays an important role in maintaining divisions between race segments.

Segmentation by Sex: Certain jobs have generally been restricted to men; others to women. Wages in the female segment are usually lower than in comparable male jobs; female jobs often require and encourage a "serving mentality"-an orientation toward providing services to other people and particularly to men. These characteristics are encouraged by family and schooling institutions.

5.3 SEGMENTATION OF RURAL CAPITAL MARKET

Definitions of Market Segmentation:

According to American Marketing Association, "Market segmentation refers to dividing the heterogeneous markets into smaller customer groups having certain homogeneous characteristics that can be satisfied by the firm."

According to Philip Kotler, "Market segmentation is the sub dividing of a market into homogeneous subsets of consumers, where any subset may conceivably be selected as a market target to be reached with a distinct marketing mix."

According to William J. Stanton, "Market segmentation consists of taking the total heterogeneous market for a product and dividing it into several sub markets or segments each of which tends to be homogeneous in all significant aspects."

According to Schiffman and Kanuk, "Market segmentation can be defined as the process of dividing a market into distinct subsets of consumers with common needs or characteristics and selecting one or more segments to target with a distinct marketing mix."

Capital market segmentation:

The capital market segmentation is financial market imperfection caused mainly by government constraints, institutional practices, and investor perceptions.

The most important imperfections are

- Asymmetric information between domestic and foreign-based investors
- Lack of transparency
- High securities transaction costs
- Foreign exchange risks
- Political risks
- Corporate governance differences

5.4 SEGMENTATION OF RURAL CREDIT MARKET

Credit :

In India a multi-agency approach comprising co-operative banks, scheduled commercial banks and RRBs has been followed for purveying credit to agricultural sector. The policy of agricultural

credit is guided mainly by the considerations of ensuring adequate and timely availability of credit at reasonable rates through the expansion of institutional framework, its outreach and scale as also by way of directed lending. Over time, spectacular progress has been achieved in terms of the scale and outreach of institutional framework for agricultural credit. Some of the major discernible trends are as follows :

Over time the public sector banks have made commendable progress in terms of putting in place a wide banking network, particularly in the aftermath of nationalisation of banks. The number of offices of public sector banks increased rapidly from 8,262 in June 1969 to 68,355 by March 2005.

One of the major achievements in the post-independent India has been widening the spread of institutional machinery for credit and decline in the role of non-institutional sources, notwithstanding some reversal in the trend observed particularly in the 1990s

The share of institutional credit, which was little over 7 per cent in 1951, increased manifold to over 66 per cent in 1991, reflecting concomitantly a remarkable decline in the share of non-institutional credit from around 93 per cent to about 31 per cent during the same period. However, the latest NSSO Survey reveals that the share of non-institutional credit has taken a reverse swing which is a cause of concern (Table 1).

Notwithstanding their wide network, co-operative banks, particularly since the 1990s have lost their dominant position to commercial banks. The share of co-operative banks (22 per cent) during 2005-06 was less than half of what it was in 1992-93 (62 per cent), while the share of commercial banks (33 to 68 per cent) including RRBs (5 to 10 per cent) almost doubled during the above period.

Table No. 5.1
Relative Share of Borrowing of Cultivator Households from Different Sources

(Per cent)

Source Credit	1951	1961	1971	1981	1991	2002
1	2	3	4	5	6	7
Non-Institutional	**92.7**	**81.3**	**68.3**	**36.8**	**30.6**	**38.9**
Of which						
Money Lenders	69.7	49.2	36.1	16.1	17.5	26.8
Institutional	**7.3**	**18.7**	**31.7**	**63.2**	**66.3**	**61.1**
Of which						
Cooperatives						
Societies / Banks	3.3	2.6	22.0	29.8	23.6	30.2
Commercial Banks	0.9	0.6	2.4	28.8	35.2	26.3
Unspecified	**-**	**-**	**-**	**-**	**3.1**	**-**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source : All India Debt and Investment Survey and NSSO

The efforts to increase the flow of credit to agriculture seems to have yielded better results in the recent period as the total institutional credit to agriculture recorded a growth of around 21 per cent during 1995-96 to 2004-05 from little over 12 percent during 1986-87 to 1994-95. In terms of total credit toagriculture, the commercial banks recorded a considerable cent) including RRBs (5 to 10 per cent) almost doubled during the above period (Chart 1). growth (from around 13 per cent to about 21 per cent), while cooperative banks registered a fall (over 14 per cent to over 10 per cent) during the above period.

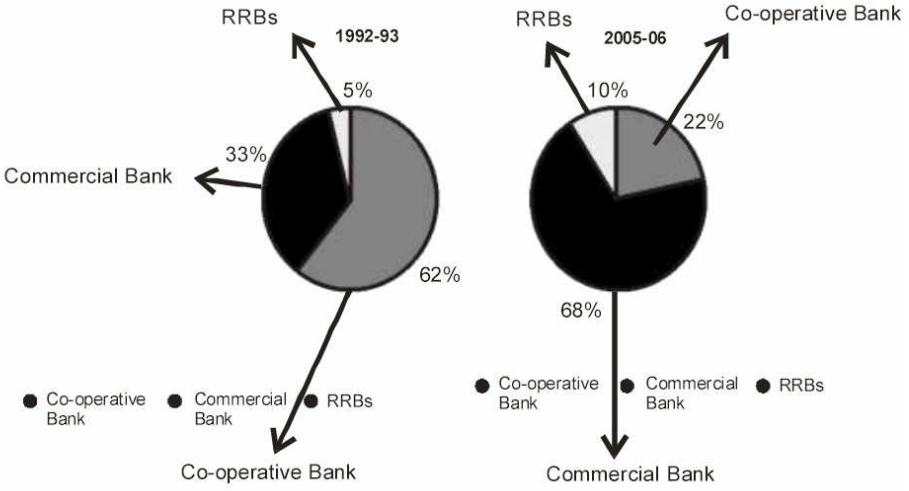


Figure 5.1

However, the growth of direct finance to agriculture and allied activities witnessed a decline in the 1990s1 (12 per cent) as compared to the 1980s (14 per cent) and 1970s (around 16 per cent). Furthermore, a comparative analysis of direct credit to agriculture and allied activities during 1980s and since 1990s reveals the fact that the average share of long-term credit in the total direct finance has not only been much lower but has also decelerated (from over 38 per cent to around 36 per cent), which could have dampening effect on the agricultural investment for future growth process.

Availability of adequate credit is vital for every sector and agriculture is not an exception. In India, Commercial Banks, Cooperative Banks, and Regional Rural Banks (RRBs) are responsible for smooth flow of credit to agricultural sector. But a huge unorganized market exists for credit to agricultural sector in India, which provide timely fund to this sector but at the exorbitant rate of interest. Among organized credit disbursement to agriculture commercial banks play a vital role with a share of about 70% where as cooperative sector and RRBs contribute 20% and 10 % respectively. Kisan Credit Card (KCC) scheme was introduced to provide adequate and timely support from the banking system to the farmers for their cultivation needs. This scheme has made rapid progress and more than645 lakh cards issued up to October 2006.

The 'Farm Credit Package' announced by the Government of India in June 2004 stipulated doubling the flow of institutional credit for agriculture in ensuing three years. Annual targets for this package are being surpassed in the two consecutive years from its introduction and it is likely to surpass in the third year also.

Insurance :

Insurance is a prime necessity to mitigate uncertainty that persists in agriculture. In India, agriculture is still affected by such factors, which are beyond control of human being. So, there is a great need for agricultural insurance in India. Keeping this in mind, Government of India in coordination with the General Insurance Corporation of India (GIC), had introduced National Agricultural Insurance Scheme (NAIS) from rabi 1999-2000 season. The main objective of this scheme is to protect the farmers against losses suffered by them due to crop failure on account of natural calamities. Agricultural Insurance Company of India (AICIL) which was incorporated in December 2002 took over the implementation of NAIS.

AICIL introduced Rainfall Insurance Scheme called 'Varsha Bima' during 2004 southwest monsoon period. Varsha

Bima provided for five different options suiting varied requirements of farming community :

1. Seasonal rainfall insurance based on aggregate rainfall from June to September.
2. Sowing failure insurance based on rainfall between June 15 and August 15.
3. Rainfall distribution insurance with the weight assigned to different weeks June and September.
4. Agronomic index constructed on the basis of water requirements of crops.
5. A catastrophe option covering extremely adverse deviation of 50% and above in rainfall during the season.

During kharif 2006, this Varsha Bima scheme is being implemented in around 150 districts covering 16 states across the country. AICIL is also piloting another weather related insurance product for mango and coffee.

Rural Infrastructure Development Fund (RIDF): RIDF was announced by the Government of India in 1995-96 to boost public sector investment in agriculture and rural infrastructure. The Fund is raised from the commercial banks to the extent of their short fall in agricultural lending as priority sector. The activities, which have been made eligible for loans from RIDF, include rural roads and bridges, irrigation, mini and small hydel projects, community irrigation wells, soil conservation, watershed development and reclamation of waterlogged areas, flood protection, drainage, forest development, market yard, go-downs, apna mandi, rural haats and other marketing infrastructure, cold storages, seed / agriculture / horticulture farms, plantation and horticulture, grading and certifying. mechanisms such as testing and certifying laboratories, fishing harbors/jetties, reverine fisheries, animal husbandry, modern abattoir, drinking water supply, infrastructure for rural educational institutions, public health institutions, construction of toilet blocks in existing schools and 'pay and use' toilets in rural areas, village knowledge centers, desalination plants in coastal areas, infrastructure for information technology in rural areas, and construction of anganwari centers.

Micro Finance :

Micro finance scheme has been introduced by National Bank for Agriculture and Rural Development (NABARD), the apex bank for agriculture and rural development in India, to improve the access of the rural poor to formal institutional credit and other financial products. In all 547 banks, which include 47 commercial banks, 158 RRBs, 342 cooperative banks are now actively involved

in the operation of Self Help Group (SHG)- Bank Linkage Programme to spread the facility of micro finance to the needy small and marginal farmers and tiny entrepreneurs. The programme has enabled nearly 329 lakh poor families in the country to gain access to micro finance facilities from the formal banking system.

Capital Formation in Agriculture :

The share of the agriculture sector's capital formation in G.D.P. declined from 2.2% in the late 1990s to 1.9% in 2005-06. Stagnation or fall in the public investment in irrigation is partly responsible for this fall. However there is indication of a reversal of this trend with public sector investment in agriculture accelerating since 2002-03.The share of public investment in gross investment in agriculture increased by 6.5 percentage points from 1999-2000 to reach 24.2% in 2005-06.

Check Your Progress:

1. What is the concept of segmentation of rural land market?
2. What is the concept of segmentation of rural labour market?
3. What is the concept of segmentation of rural credit market?
4. What is the concept of segmentation of rural capital market?

5.5 MICROFINANCE

Microfinance refers to the provision of small scale financial services to economically active people. The provision of financial services like credit facilities to operate small enterprises or micro enterprises. These units may be engaged in a variety of activities. They may be people who work for wages or commissions. They may be people who make an income from renting out their land, vehicles, draft animals or machinery and tools. These households have multiple sources of income.

More than 500 million of the world's poor population are economically active. These poor population earn their livelihood by being self employed or they work in micro enterprises. They produce a variety of goods in small workshops, trading and retail activities, making pots, furniture or sell fruits and vegetables. It is difficult for these people to secure capital and they have hardly any access to financial services. Since the institutional soruces are not ready to finance these poor people, they depend on family, friends etc. Microfinance is the solution to the needs of the people for finance. Though the movement was originally started for providing micro credit, it started covering a variety of financial services. In India NABARD (National Bank for Agricultural and Rural Development) finances more than 500 banks. These banks lend money to Self Help Groups. The bank ability of the rural poor was discovered. With new lending methods, the rural poor repaid loans on time. There has been a tremendous growth in the number of successful micro finance institutions which are reaching out to a number of poor people and that are becoming commercially viable.

Features of Microfinance Services:

1. **Micro finance loans can be used for a number of purposes** : It enables the poor to accumulate assets and enable the poor to be economically independent. It helps the poor to invest in income generation activities. They can improve their standard of living through better education health and housing. The people have flexibility in loan use. It is understood that the clients themselves know about how best to manage their funds.

2. **Microfinance gives importance to financial services and not subsidies :** The low income entrepreneurs are more interested in getting working capital and run their business. They require capital and continued access to financial services rather than subsidies. The small entrepreneurs borrow small amounts and are able to comfortably pay off the loans while making a profit for themselves. The people find it better to borrow from micro finance institutions rather than from money lenders or the government.

3. **The micro finance revolution has helped in women empowerment :** Since women constitute the most vulnerable section of the society, MFIs have a special role to play in the upliftment and empowerment of women. Women face a number of disadvantages and problem since they have fewer economic opportunities and they hear the burden of domestic work, child bearing, education, health and nutrition of children. MFIs have found to the very helpful especially for women. Experience has proved that women are sincere and regular in repayment.

Microfinance supports institutions and not projects : There is a stress on the creation of institutions rather than projects for meeting the financial needs of the poor on a sustained basis. It has been proved that successful microfinance institutions reach large numbers of clients and become financially self – sufficient. The objective of setting up micro finance institutions is to reach out to the very poor people and provide them with quality financial services. The success of microfinance is due to the following features.

(i) It is possible to know the needs of the clients and design appropriate products. For example, the institutions are able to meet specific requirements of the people like short term loans, high liquidity, saving services etc.

(ii) Reducing risk and increasing value to the clients : There is no pressure to produce collateral security. The borrowers are motivated to repay. For example the idea of poor group lending is adopted. In this several people guarantee one another‘s loan and incentives are given to people who repay on time.

(iii) Low administration cost : Since the operations are efficient and simple, the administrative expenses are low.

5. The microfinance movement has brought out the fact that institutions can serve the poor and still be sustainable.

6. There are a variety of financial services tailored to meet the specific requirements of poor population. For example, micro credit is a part of microfinance. Experiments with micro credit in Bangladesh have shown that it is possible to help extremely impoverished people to engage in self employment projects that allow them to generate an income and enable them to create wealth thus getting rid of poverty. The success of the micro credit policy is urging the mainstream finance industry to consider micro credit as a source of future growth. This brings out the various possibilities for the growth of micro finance which can revolutionize the society by empowering the poorer sections of the society.

5.6 MARKET INTER-LINKAGES

Inter-linked markets:

Two markets that are often linked are the rural land markets and the rural credit markets. The landowner decides the amount of loan to be given to the tenant and the tenant either accepts the contract or does not. Further, loans can be taken for Production purpose by the tenant to buy inputs for Production and for Consumption Purpose. If the landlord gives a production loan he

can get two sources of income. One, by keeping a share of the produce as a landlord and the other as a direct income from interest payments.

Rural Land markets are also interlinked to Rural Labour markets. As there is very little mobility of labour from agriculture into other sectors, the rural landless labour is often exploited by the land-owners. But this exploitation gets lesser when there is modernisation and development which brings about a degree of education amongst the landless labour, therefore reducing the exploitation. But this issue is relevant for less developed nations where there is very little linkage with other sectors thereby reducing the mobility of labour.

Rural land markets further get linked to the Households, when the rural land is used to produce Cash crops instead of Food crops for which they were used earlier, thereby leading to an increase in the food prices and affecting the household incomes.

Rural land markets are also linked to the export market when modern agricultural entrepreneurs' demand for rural land increases for export crops such as fruits etc. This linkage is found to be more prominent ever since globalisation took place.

5.7 SUMMARY

- Segmented labour markets theory was sufficiently popular in the late 1960sand the early 1970s.
- Rural Land markets are also interlinked to Rural Labour markets.
- Rural land markets are also linked to the export market when modern agricultural entrepreneurs' demand for rural land increases for export crops such as fruits etc.
- Micro finance scheme has been introduced by National Bank for Agriculture and Rural Development (NABARD), the apex bank for agriculture and rural development in India, to improve the access of the rural poor to formal institutional credit and other financial products.

5.8 QUESTION

Q1. Explain the concept of microfinance.
Q2. Explain the concept of market inter leakages.
Q3. Explain the features of microfinance services.

6

MICROECONOMICS OF DEVELOPMENT - II

Unit Structure:

6.0 OBJECTIVES

- To understand the concepts of land market, labour market, households and credit martet.
- To understand the household model of fertility
- To understand the relation between institutions and development.

6.1 LAND MARKETS

Land is a key factor for any economic activity. Land market transactions play an important role in the process of economic transformation and development. Conventionally land is considered as a factor of production. However, it is increasingly becoming a speculative asset. Land has a number of characteristics, which make it different from other assets that may be traded on the market. Besides economic aspects, such as immovability, limited supply, planning regulations and permitted land use etc., geographical location as the unique characteristic of each land parcel.

Land markets are mechanisms that, provided there are appropriate institutional checks and balances, allocate ownership

and use rights in a manner that allows land and its associated assets to be used in the most economic way.

6.2 LABOUR MARKETS

Labour market is the place where workers and employees interact with each other. In the labour market employers compete to hire the best and the workers compete for the best satisfying job. Labour market represents the interaction of demands and suppliers of various categories of labour through which prices of these categories of labour, i.e., wage rates are determined.

The concept of labour market incorporates considerations of the complex of economic and social forces influencing the process through which employers recruit workers and workers seek employment.

The labor market is also known as the job market which refers to the supply of and demand for labor and in which employees provide the supply and employers provide the demand.

6.3 HOUSEHOLDS

Households are the final consumers of goods and services produced by the firms. They create the demand in the market according to their tastes and preferences. Firms produced and supplied goods in the market, as per their demand. So, households determine the production line of a country.

The households are the main sources of the government tax-revenue. They are main tax-payer. A household pays the income tax, wealth tax, estate duty, gift tax etc. as direct taxes to the state. Similarly, household pays several indirect taxes to the government like sales tax, customs duty, VAT etc. also. All these tax revenues are collected for welfare and development of the economy.

6.4 CREDIT MARKET

The credit market refers to the market through which companies and governments issue debt to investors, such as investment-grade bonds, junk bonds, and short-term commercial paper. Sometimes credit market is called as the debt market, the credit market also includes debt offerings, such as notes and securitized obligations, including collateralized debt obligations (CDOs), mortgage-backed securities, and credit default swaps (CDS).

Check Your Progress:

1. What is the concept of households?
2. What is the meaning of land market and labour market?
3. explain the meaning of credit market?

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6.5THE HOUSEHOLD MODELOF FERTILITY

The economists are now interested in studying the microeconomic determinants of family fertility. They want to provide a better theoretical and empirical explanation for the falling birth rates during the stage III of demographic transition. To study the behaviour of households, the economists have made use of the traditional neo-classical theory of household and consumer behaviour. They made use of the principles of economy and optimization to explain the family size decisions.

The size of population and its implications on development is a macroeconomic problem. It has its impact on the socio-economic as well as political issues. But if we analyze this macro problem, we can trace its root cause to the micro level which is the household or the family.

In fertility analysis, children are considered as a special kind of consumption good so that fertility becomes a rational economic response to the consumer‘s demand for children relative to other goods. Other factors remaining constant the desired number of children can be expected to vary directly with household income. The desired number of children also depends on the strength of demand for children relative to other consumer goods and to the sources of increased income, female employment. The desired number of children vary inversely with the strength of taste and other goods. Mathematically, these relationships can be expressed as

$$Cd = f\ Y, Pc, Px, tx\ ,\ x = 1 \ldots n$$

Y = income

Pc = the ‘net price‘ of children which is the difference between anticipated costs and benefits

Px = The prices of all other goods

tx = The taste for goods relative to children

The implications are

1) The higher the household income, the greater the demand for children.
2) The higher the net price of children, the lower the quantity demanded.
3) The higher the prices of all other goods relation to children, the greater the quantity of children demanded.
4) The greater the strength of tastes for goods relation to children, the fewer the children demanded.

The neo-classical theory of consumer behaviour is applied to explain the falling fertility rate. Based on the principle of diminishing marginal utility and equimarginal utility, a rational consumer invests capital in such a way that the marginal productivity of a unit of money or resource from different investment is equalized. There is an inverse relationship between the price of a good or service and the demand for them. This theory is applied a household or family to enable them to take a decision to have a child. According to the theory children are considered as ―consumption good‖ and also an investment. They are consumption good since the parents, enjoy the pleasure or satisfaction from children. Children are also investment as the parents expect the children to be a source of security in their old age. Therefore, the number of children desired by the family depends on their consumption and security needs. For the purpose of deciding, the parents have to weigh the cost and benefit of having an additional child.

a) **The cost factors in bringing up children :** Bringing up children will mean additional costs to the parents. The parents have to incur expenditure on education and training for making the children socially and economically productive. It also involves an opportunity cost for the mother in the form of time spent specially by the mother in looking after the child could have been spent in earning an income or in some social, religious or political activities. Better off parents with higher expectations are ready to spend more money on there children. Hence cost increase. The cost for poor parents is negligible and the opportunity cost of bringing up children is almost nil for the poor. Due to the fact that the poor are illiterate and of a low economic and social status they do not have any alternative or their opportunity cost is nil.

b) **Benefits of having children :** Poor people consider children as assets since there is hardly any investment. The poor parents provide minimum subsistence needs of children. On the other hand, more children means more work and hence more income for the family. Children work as child labourer and hence they

are considered productive even at a young age. They are also considered as support for old age. The prevailing social customs, religious beliefs and the value system expect the children to take care of the parents. Thus children are considered assets by the poor.

For the rich people, children are a responsibility and a liability. The rich parents will want their children to be better than them. Hence they try to provide the best education and training. The opportunity cost for a mother is high in terms of income and time. The mother may have to sacrifice income and time to bring up the children. Generally, the rich parents do not depend on their children in old age for financial support and security. Thus the rich people opt for less children. Thus, the decision regarding the number of children depends on cost benefit considerations. The developing countries are still facing the problem of illiteracy and poverty. Children are considered as assets due to these factors. Only with the spread of education, the people will change their attitudes.

6.6 INSTITUTIONS AND DEVELOPMENT

Institution is the way of thought or action of some prevalence and permanence, which is embedded in the habits of a group or the customs of people.

It can be claimed that institution is that which people adapt to means for fulfillment of needs and objectives with the procedures and behaviour.

In the simple words, institution is another word for procedure, convention and arrangements.

According to C.H. Cooley, “An institution is a complex integrated organisation of collective behaviour established in the social heritage and meeting some persistent need or want.”

Role of Institutions in the Economic Development:

A country’s social and economic institutions dominate the process of economic development. They determine the attitudes, motivations and conditions for development. If the institutions are elastic and encourage people to avail economic opportunities and further to lead higher standard of living and inspire them to work hard, then economic development will occur.

On the other hand, if they discourage all this, economic development will be hampered and adversely affected. This has been rightly observed by the UNO that the economic development

is impossible in the absence of appropriate atmosphere. So, economic progress will not take place unless atmosphere is a favourable to it.

People of the country must desire progress and their social, economic, legal and political institutions must be favourable to it.

Emphasizing the significance of these institutions in the economic development, Prof. A.K. Cairn-cross says, “Development is not governed in any country by economic forces alone and the more backward the country, the more this is true. The key to development lies in men’s mind, in the institutions in which their thinking finds expression and the play of opportunity on ideas and institutions.”

Therefore, the right kings of institutions or growth promoting institutions are a pre-requisite for the rapid economic development of a country. These institutions may be called the growth promoting which permit or stimulate, rather than impede, the adoption of new techniques and the formation of productive capital.

In the broad sense, institutions promote economic growth to the level that they associate efforts with regard to permit increased division of labour, expansion of trade and freedom to seize economic opportunities.

In this regard, Prof. W.A. Lewis observed, “Institutions promote or restrict growth according to the protection, they accord to effort, according to the opportunities they provide for specialization and according to the freedom of action they permit.”

According to Prof. W.W. Rostow, “For economic progress, a country must have timely changes in people’s tendencies and needful improvement in social institutions and appropriate changes in political and social conditions.” Thus, it becomes important to recognise that the socio-political environment may or may not be conducive to economic progress.

Certain religious and social attitudes are the more favourable to development than others.

Thus, institutions greatly influence economic growth through the influence on the rate of capital formation, growth of entrepreneurship, technological change and the desire of the people to work.

Impact of Institutions on the Growth of Economic Development:

1. General Attitude to Economic Effort:

Institutions have greatly influenced people's attitude towards the work, will and efficiency for the economic development.

In this connection, Prof. W.A. Lewis writes, "Men will not make effort unless the fruit of that effort is assured to themselves or to those whose claims they recognised."

Therefore, institutions must establish some sort of the relationship between effort and reward in order to get economic growth.

2. Technological Knowledge:

As there is lack of technical knowledge in under-developed countries, resources are lying unutilized and strict institutional structure is not in a position to accept technological change.

3. Entrepreneurship:

The growth of entrepreneurship of the country depends on its institutional structure and value system. They are necessary for the automatic increase in supply of entrepreneurs. Therefore, high suitable prestige and suitable reward is the foremost condition for success of entrepreneurship. Less restriction be imposed and the excessive taxation may be avoided.

4. Labour Productivity:

The social set up of the country affects the productivity of the labour to a considerable extent. Meritorious development of the labourers is not possible due to unfavourable change in social institutions. This means that the size and quality of thelabour force are greatly influenced by social institutions and value system in a society.

Therefore, to raise the productivity of labourers, it is the desirable traditional customs and social institutions. They not only determine size of the labourers but also influences its productivity. Mostly in under-developed countries, many institutions are prevalent which are harmful for the labour productivity.

Some of such institutions are the joint family system, family attachment, traditional values, contentment, minimum wants, caste system, religious feelings and principle of equality in distribution of property etc.

5. Saving and Capital:

Institutional structure of a country exercises a great influence on the will and power to save and capital formation. To promote capital formation, proper legislation protecting the right to property should be made.

Some Institutions and Economic Growth:

1. Private Property:

The institution of the private property possesses a significant influence on people's desire to work hard, to save and invest. It is a legal right to haveprivate property by which the people have full independence to use and acquire the property and are restricted to use of other's property. The right of property may rest in a private person or in a group or in public authority.

2. Caste System:

The caste system which prevails most of the under-developed countries, also creates hindrance in the path of their economic growth. Caste system is a strict social classification that limits the person's senses and brings obstacles in the right atmosphere for development.

3. Joint Family System:

Other major institution which has the capability to affect economic development is the joint family system. In the society, it is very much effective that influences incentive for the labour mobility, people's attitude towards work, development of diligence, rate of saving and investment.

4. Law of Inheritance:

The law of inheritance is the capable to influence the economic development of a country because people have full faith in the principle of inheritance. According to this law, after the death of the present property owner, it will be distributed among the different inheritors including sons and daughters.

5. Religion:

In the opinion of Prof. K. William Kepp, "In under-developed countries religious institutes are responsible for slow speed of economic progress." So, the religion in a society affects the tendencies and the views of the people which influence more the atmosphere of economic development and extension of economic activities. It can be indirectly a hindrance to promote the economic development.

6. Attitude towards Work:

The attitude towards the work and aspiration of the people are other crucial factors which determine economic development in

the society. In the sense, the people's attitude and motivation to work are determined by material gains that are likely to get for their hard labour. In this regard, Prof. Lewis has pointed out that men will not do their best work, unless the fruits of their labour are assured to them or to their heirs.

6.7 SUMMARY

Suitable institutions must provide the legal security to protect private property against misuse by the government and of government property by individual.If institutions pay due honour to material capital, then investors are encouraged to invest their money.

Consequently, society will also save and rate of capital formation will be stimulated accordingly. Hence, people's sense of conducts, behaviour, customs gets appropriate changes in accordance with institutional structure of the society, thereby social institutions have imperative influence on the saving and capital formation.

The study of UNO reveals that for attaining economic development, social value and institutional structure need timely change.However, its report conveys, "Rapid economic development is impossible without the painful changes, traditional philosophical thoughts should be discarded, old institutions need to be disorganised, caste and class bondages should be abolished and large number of people, who are not up keeping with progress will have to abandon hopes of own luxurious life".

6.8 QUESTIONS

Q1. Give note on land markets
Q2. Explain the concept of credit market
Q3. Give note on labour market.
Q4. What are the Impact of Institutions on the Growth of Economic Development?

Module IV

7

MACROECONOMICS OF DEVELOPMENT - I

Unit Structure:

7.0 OBJECTIVES

- To understand the development and constraints of natural resources.
- To understand the environmental problems in economic development.
- To understand the relation between environment and sustainable development.

7.1ENVIRONMENT AND DEVELOPMENT

Environmental degradation can detract from the pace of economic development by imposing high costs on developing countries through health-related expenses and the reduced productivity of resources. The poorest 20% of the world's population will experience the consequences of environmental ills most acutely. Severe environmental degradation, due to population pressures on marginal land, has led to falling farm productivity and per capita food production.

Traditional Economic Model of the Environment Privately Owned Resources

If resources are scarce and rationed over time, scarcity rent may arise even when the marginal cost of production is constant as in Figure 7.1. The owner of a scarce resource has a finite volume of a resource X to sell (75 units)and knows that by saving a portion of

it for future sales, she can charge a higher price today. The price of the good rationed over time must equate the *present value* of the *marginal net benefit* of the last unit consumed in each period. That is the consumer must be indifferent between obtaining the next unit today or tomorrow. If she is willing to offer only 50 units for sale today, the market price for scarce resources is Ps. The scarcity rent collected by the owner of the resource is equal to PsabP.

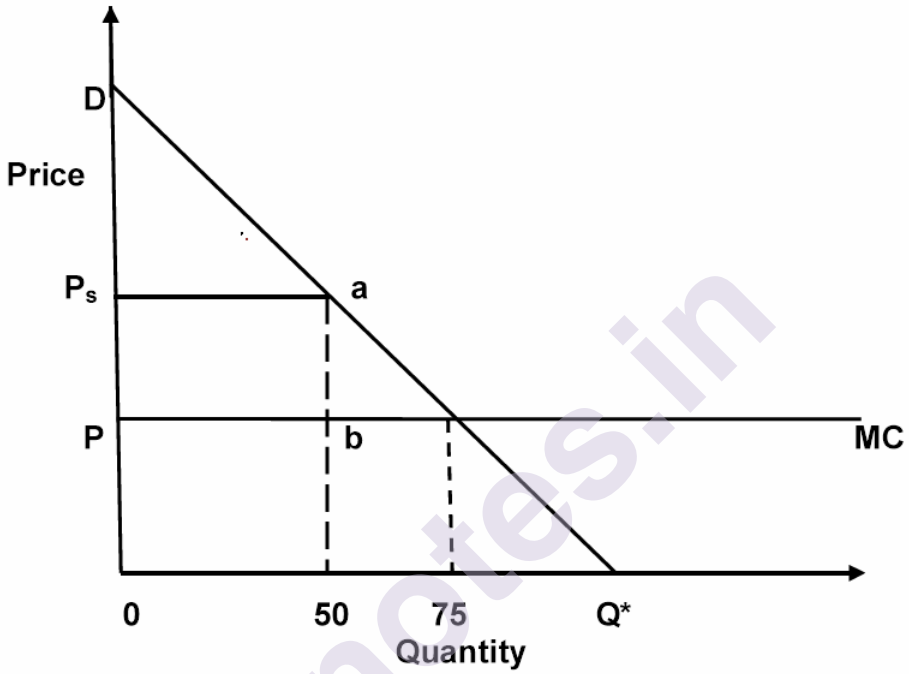

Figure 7.1: Optimal Resource Allocation over time

It is the owner's ability to collect these rents that creates the rationing effect and is thus necessary to ensure the efficient allocation of resources over time. In the absence of scarcity, all of the resource will be sold at the extraction cost P=MC, 75 units will be consumed at one time, and no rent will be collected.

The proponents of neoclassical free-market theory stress those inefficiencies in the allocation of resources result from impediments to the operation of the free market or imperfections in the property rights system. So long as all resources are privately owned and there are no market distortions, resources will be allocated efficiently. Perfect **property rights** markets are characterized by four conditions.

1. Universality – all resources are privately owned.
2. Exclusivity – it must be possible to prevent others from benefiting from privately owned resources.
3. Transferability – the owner of a resource may sell the resource when desired.

4. Enforceability - the intended market distribution of the benefits from resources must be enforceable.

Under these conditions, the owner of a scarce resource has an economic incentive to maximize the net benefit from its sale or use. For example, a farmer who owns his land will choose the levels of investment, technology, and output that maximize the net yield from the land. Because the value of the land may be used as collateral, any viable on-farm investment can be financed by obtaining a loan or the prevailing market rate of interest.

If the foregoing condition are not met simultaneously then the inefficiency than arises (misallocation of resources) due to it need to be removed.

Common Property Resources:

If a scarce resource is publicly owned and thus freely available to all, as is the case with common property resource, any potential profits or scarcity rents will be competed away. The neoclassical theory suggests that in the absence of scarcity rents, inefficiencies will arise. Figure 7.2 describes the relationship between the returns to labour on a given piece of land and the number of labourers cultivating it

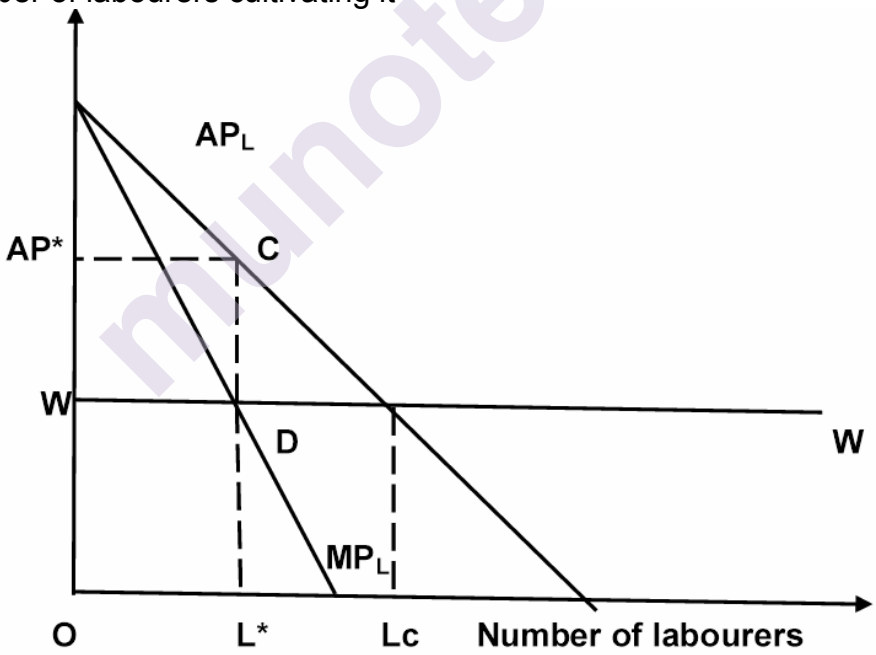

Figure 7.2

Suppose that the land is held privately. The landowner would hire additional labour to work on the land until the marginal product of the last worker is equal to the market wage, W, at point L*. The workload is shared equally among the employees, each of whom produces the average product. A profit maximiser will thus hire L*

workers, with a total output equal to average product AP* multiplied by the number of workers, L*. Scarcity rents collected by the landowner equal AP*CDW.

Society's total net benefit from land will be lower under a system of common property, unless workers can coordinate their resource use decisions in a cooperative manner. Workers income will continue to exceed the wage until enough workers are attracted so that the average product falls to the level of the wage, at which point the labour force equals Lc. Though total farm output may either rise or fall the marginal product of the additional workers is below the wage. Assuming that all workers could be employed elsewhere must fall when marginal product falls below W. No scarcity rent is collected at Lc. The implication of the common property model is that, where possible, privatisation of resources will lead to an increase in welfare and an efficient allocation of resources.

7.2 DEVELOPMENT AND THE CONSTRAINT OF NATURAL RESOURCES

Humans are the most intelligent than all of living things on the earth. Man has made full use of the natural resources on the strength of his intelligence, skill, intelligence, energy. He is constantly striving to make human life rich and comfortable. Not only air, water, land, rivers, streams, stones, minerals, plants, animals, birds; but also all the tangible and intangible elements of the environment are used by human beings. These elements are called natural resources.

Humans of all ages, from primitive man to modern man, have depended on the resources of the environment to survive. Although, modern man lives a more comfortable life than primitive man, his life depends on nature as much as primitive man. From the point of view of human life and development, the importance of resources is unique. For this, it is necessary to study resources.

Concepts of Natural Resource:

Man uses the elements of nature to fulfill his needs; these are called as natural resources. Natural resources are visible and invisible, tangible and intangible. Therefore, human needs are met. Therefore, human life and human existence are the factors that are useful to them.

Interpretation

According to Zimmermann, a resource is a tool to meet a specific goal or need.

According to Jockey Smith, resource wealth is an environmental factor that is useful to humans in one way or another.

According to Ginsberg, the material element that is freely provided by nature in the field of human action is resources.

7.3ENVIRONMENTAL PROBLEMS IN ECONOMIC DEVELOPMENT

Considering the future of the country, the country faces three major economic problems as population control, economic development including environmental protection, poverty alleviation, etc. The reason for the constant rise of the earth's temperature is human intervention in the environment and economic development. Due to these two, the temperature has increased by 05.1% in the last 200 years. Climate change can be detrimental to the migration of agro-industries, migration of animals and human habitation in the region.

The environment problems in economic development are as follows -

1) Lack of clean water and sewerage system:

According to a World Bank report, 1 billion people in developing countries do not have access to safe drinking water. Also, 1.7 billion people do not have access to proper sanitation. It has been observed that human health has declined due to malaria, cholera etc.

2) Air pollution:

Along with industrialization, automobiles have been a major contributor to air pollution. Industrial, domestic energy, vehicles, etc. have led to a large increase in air pollution. In 1980, 1.3 billion people living in suburbs suffered from emissions other than dust and fumes. Humans are exposed to many diseases due to this pollution.

E.g. various diseases related to respiratory diseases, cancer, skin diseases, asthma, lack of oxygen in the blood, loss of vision, eye irritation, cough, etc. Currently a large amount of nitrogen, sulfur, carbon and other harmful gases are released into the air. So,the human health is under threat.

3) Loss of soil fertility:

In agriculture, land is a natural resource and is considered as the main capital. Human and all living beings depend on the fertility of the land. However, this fertility is being destroyed.

E.g. Continuous cropping, continuous use of brackish water, low water holding capacity, increasing use of organic fertilizers etc.

4) Deforestation and degradation of biodiversity:

In developing countries, forests, coastal forests, inland watersheds, etc. are rapidly declining. This is rapidly depleting biodiversity.

5) Increase in greenhouse gas and temperature or global warming:

According to researchers studying the atmosphere, carbon dioxide and other greenhouse gases cause an increase in temperature.

A) By 2050, global warming will be the highest in human history.

B) Changes in rainfall are possible.

C) The regular possibility of reshaping the islands in the ocean, earthquakes and volcanic eruptions cannot be ruled out.

D) Different diseases will spread rapidly. For example malaria, malaria etc.

E) Rising temperatures will reduce evaporation and greatly reduce the production of wheat, rice and maize.

6) Climate change:

Climate change will adversely affect the water cycle, leading to floods, droughts, rising sea levels, inundation of coastal areas, changes in agricultural production and natural imbalances in all regions, endangering human life and adversely affecting human economic development.

Measures to overcome environmental problems:

Economic growth and development have both positive and negative effects. The 1992 World Development Report identified measures to protect the environment along with increased productivity. Poverty alleviation was one of the key measures. Policies and economic efficiency and environmental protection are important. This should lead to a balance between economic development and the environment.

Important Policies / Remedies:

1) Creating a positive relationship between environment and development:

Strategies for modern technological advancement, minimal exchange of raw materials, waste generation should be implemented. Further measures are planned to achieve these policies.

A) Elimination of price difference -

Government policy imposes a double price on kerosene fuel. This leads to an increase in air pollution due to the double cost of open market and discounted rates. Canceling fuel discounts will not only increase efficiency and save money but also reduce local pollution. It will reduce global carbon emissions from fuels.

B) Restoration of property rights:

When public goods are given to people collectively, it is used more than is reasonable. E.g. Forests, grazing lands, etc., on the other hand, giving ownership to farmers will reduce the loss of forests and forest lands out of a sense of belonging and thus help in proper management of natural resources.

2) Strategies for Humanitarian Change:

Environmental damage cannot be prevented by simply granting ownership rights and concessions. Policies should be formulated keeping in mind that the behavior of the user of the equipment affects other communities. Therefore, many behavioral change policies have been implemented in India as follows:

A) The first category is based on rewards or incentives. E.g. market based policy

B) The second category is in numerical or restrictive form, e.g. regulatory policy

3) Prevention of water pollution:

Protect rivers and seas from contaminated water such as contaminated factory water, domestic sewage, and river waste.

4) Public Expenditure Review:

Public spending affects the environment. Large investments from domestic governments and development agencies such as the World Bank are made through public spending. This is detrimental regardless of the importance of the environment. Recently, many countries have seen environmental scrutiny related to public spending.

7.4 ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

The concept of sustainable development is of very recent origin. This term was first used by the world conservation strategy presented by the International Union for the conservation of Nature and the Natural Resources in 1980. In 1983, the United Nations set up the world commission on Environment and Development (called the Brundland Commission) to examine the problems

related with this area. The commission in its report entitled on *'Our Common Future'* submitted in 1987, for the first time introduced the concept of 'Sustainable Development' which meets the needs of the present generation without compromising the ability of future generations to meet their own needs.

Sustainable development is development, that last long. There is growing realisation of environmental problems like air pollution, water pollution, deforestation, soil erosion, acid rains, solid and hazardous wastes, ozone depletion etc. in the world in modern times. The concept of sustainable development tries to find suitable solution of all these global problems.

Meaning:

Sustainable development means that development should *'keep going'.* Sustainable development is development which is everlasting and contributes to the quality of life through improvements in natural environments. Natural environments, in turn, supply utility to individuals, inputs to the economic process and services that support life. The concept of sustainable development assigns equal emphasis on development, environmental protection and preservation. It emphasises the creation of sustainable improvement in the quality of life of all people through increase in real income, per capita income, national income, improvements in health, education, general quality of life and overall improvements in quality of natural environmental resources. As a matter of fact, environmental degradation has to be stopped at all cost so as to preserve health and to promote welfare of the community as a whole. According to D. W. Pearce and E. Barbier, *"Sustainable Development describes the process in which natural resources base is not allowed to deteriorate. It emphasises the hitherto unappreciated role of environmental quality and environmental inputs in the process of raising real income and quality of life."*

Objectives:

To achieve the goal of sustainable development, it is necessary to control the gross exploitation of the natural resources which is going on a wide scale by all countries whether underdeveloped, developing and developed countries on account of which the human life is becoming difficult day by day. Thus, the main objective of sustainable development is the creation of sustainable improvements in the quality of life for all people on the earth.

The main objectives of sustainable development are:

1. accelerating economic growth,
2. meeting basic needs,

3. lifting living standards,
4. helping in ensuring clean environment — free from all types of pollution,
5. maximizing the net effects of economic development,
6. preservation and enhancement of the stock of environmental, human and physical capital,
7. intergenerational equity,
8. Overall strict control on gross exploitation of the natural resources of each country. We must give more to mother land than what we extract from it. Today, sustainable development is the only available alternative which can make the future of the future generations bright.

7.5 SUMMARY

Sustainable development is the practice of the developing land and the construction projects in a manner that reduces their impact on the environment by allowing them to create energy efficient models of self-sufficiency. This can take the form of installing solar panels or wind generators on the factory sites, using geothermal heating techniques or even participating in cap and trade agreements. Biggest criticism of the sustainable development is that it does not do enough to conserve the environment in the present and is based on the belief that the harm done in one area of the world can be counter balanced by creating environmental protections in the other.

7.6 QUESTIONS

Q1. What are the environmental problems in economic development?

Q2. Explain the concept of sustainable development?

Q3. State the relation between sustainable development and environment.

Q4. Explain constraints of natural resources.

8

MACROECONOMICS OF DEVELOPMENT - II

Unit Structure:

8.0 OBJECTIVES

- To understand the role of international financial and trade institutions.
- To understand relation between trade and foreign exchange.
- To understand relation between trade and development.

8.1 TRADE AND DEVELOPMENT

Baldwin proposed that 'trade is an engine of growth'. According to him, international trade serves as a means of fostering economic growth by allowing a country to access the inputs available in other countries at a lower price and helps is generating foreign exchange by facilitating exports. This argument is along the lines of comparative advantage proposed by David Ricardo. To this, the arguments of 'learning-by-doing' and 'learning-by-producing' were added to highlight the processes through countries participating in the free trade will develop dynamic advantage and productivity gains that will further help them to experience higher growth rates over a period of time. In other words, free trade ensures that each participating country shall realise the full and proper use of its resources both in the short-run when it is reaping the static gains, and in the long-run when it is reaping the dynamic advantages. For long, the theory of comparative advantage and free trade doctrine on which it was based formed the essentials of development strategy. However, Kravis observed that in the twentieth century, international trade is more like a handmaiden of growth rather than an engine of growth. This is because, developed countries, led by the US have

generally been adopting policies that are away from the spirit of free trade and suited more to the domestic interests.

Starting with the OECD-sponsored study of trade policies in developing countries, there has been an argument that the trade strategies in these countries need a relook. This was further supported by NBER-sponsored study of another set of developing countries. Therefore, the World Bank and the IMF started insisting on the trade policy reforms for many developing that sought their assistance. Therefore, we shall first examine the import-substitution industrialisation (ISI) strategy first and then proceed to the export-promotion industrialisation (EPI) strategy. We shall then draw some conclusions based on these.

The import substitution industrialisation (ISI) strategy is based on the infant industry argument of J.S. Mill. According to him, a country should protect its industry if it satisfies certain conditions. These are: i) these industries will not be set up unless they are protected from the foreign competition, ii) they make losses initial years of operation, iii) in the long-run they shall be able to make profits and compete with imports on their own. All such industries need to be protected in the short-run to develop the domestic industrial sector in an economy. This is known as the 'Mill-Bastable Test'. Interestingly, the US has extensively used this in the initial stages of its economic development. German economist List extended this argument further and suggested that the entire domestic industry should be protected instead of some selected industries since it is difficult to select the industries with potential comparative advantage.

The Singer-Prebisch-Myrdal hypothesis discussed above further supported temporary protection to the domestic industry since the primary exports suffer the problem of secular deterioration in the terms of terms of trade due to inelastic demand. Hirschman recommended the protection to domestic industry as part of his unbalanced growth strategy. Together, these arguments favoured many developing countries, including India, opting for ISI strategy during the early 1950s.

Studies subsequently, mainly by Balassa, showed that the ISI strategy is doomed to fail since it violated the principle of allocative efficiency. To this, the concept of factor market distortions developed by Kindleberger lent further support and many countries were forced to review their development strategies. The example of the Asian Tigers was often shown as the evidence for the efficacy of EPI strategy. This takes us to the logic of the ISI strategy. The LDCs that adopted this strategy did not achieve the high growth rates that were posted by the Asian Tigers. Given this fact, it needs to be seen as to why this is so. The major

problem was the developed countries did not co-operate in providing the necessary support to these countries. Often the aid was tied and thus was not always to the use of the recipient country. Bhagwati and Desai in their study show many such cases in the Indian context. The pressure exerted by the advanced countries on the policy-makers of the developing countries forced them to choose projects and plants that were in direct variance of their needs and requirements. Thus, the ISI strategy was not allowed to operate under optimal conditions.

Following the collapse of the Soviet bloc, the world unanimously embraced the free trade strategy. This reached its pinnacle in the establishment of the World Trade Organisation (WTO). The experience of different countries under the WTO during the last twenty years is a sad story of the failure of the export promotion strategy that was so fondly highlighted by the neoclassical economics. We shall now turn to this.

1. The worsening of socio-economic indicators in the sub-Saharan Africa are a direct, incontrovertible proof that free trade and globalisation are not necessarily the only path to improving the economic conditions of the poor.

2. Those who profess by free trade are themselves the ardent followers of protectionism. This can be seen at the WTO negotiations on the agricultural trade. The USA and the EU linked the lowering of their domestic support to the NAMA (non-agricultural market access). Though they continue to support their domestic agriculture for a variety of reasons, they do not intend to allow the LDCs to do so in the name of freer trade. The livelihood considerations were give scant attention in the name of lowering of trade barriers.

3. Evidence from the disputes at the WTO indicate that the USA is the largest litigant under the new system. Earlier, it forced the Japanese under the voluntary export restraints (VERs) and other measures. Their own failing comparative advantage is being offset at the cost of other countries, mainly the developing countries.

4. Trade policy reforms and international highhandedness are sought to be the instruments. The conclusions of Hong Kong Summit are a mute testimony to the manner in which the advanced countries led by the USA succeed in fulfilling their policy objectives. In each round of negotiations, new issues, often unrelated, are introduced and the developing countries are either forced to accept them due to their own domestic compulsions or due to the pressure brought upon them.

5. The WTO itself is expressing the concern for the spread of regional trade agreements (RTAs) which are opposed to the spirit of multilateral trade. Significantly, the USA is participant in many of these RTAs. The experience of Mexico in the NAFTA lends enough evidence to the dangers inherent in these arrangements.

The role of trade in economic development of the backward countries needs to be looked in terms of the role that it plays in an economy by supplementing the domestic resources. We shall now turn to the financing aspects of economic development.

8.2 TRADE AND FOREIGN EXCHANGE

Any country has its own system of foreign exchange control because exchange control is complementary to international trade. Trade transactions, exchange of capital, trade services are under the control of the exchange. .

The value of money denominated in foreign currency for international exchange is the foreign exchange rate. The exchange rate between the two countries is called the foreign exchange. It has been said many times that the Reserve Bank has less foreign exchange reserves.

Foreign Exchange Market:

The study of trade balance and transaction balance is important in the transactions that take place in international trade. The currency of any country is accepted without any doubt in the domestic arena. For example, the rupee with Indian currency is accepted anywhere in India. In order to complete a transaction, one has to buy and sell foreign currency. The market through which the transaction of buying and selling foreign currency is done.

Therefore, the foreign exchange market is called a well-organized market.

Functions of Foreign Exchange Market:

1. To assist in the completion of foreign exchange transactions.
2. To supply foreign dowry as per demand.
3. Collecting power of attorney in respect of foreign currency from foreign exchange banks and selling it to the needy.
4. Migration of goods and services from one country to another.
5. Provide a research facility to facilitate international exchange transactions.
6. To protect against exchange rate fluctuations and potential losses.

Foreign exchange instruments:

The exchange is used to complete the exchange transactions in international trade. If the exchange rate is not fixed then it changes.

1) Foreign currency -

Foreign exchange is essential for international trade. Foreign exchange banks collect foreign currency. Foreign currency is made available to the customers as per the requirements of the customers. Transactions in international trade are completed.

2) Gold Exports -

Countries involved in international trade have free trade in terms of imports and exports. Gold is exported to pay off foreign debts. The reality is that the route has been closed by the government due to lack of free import and export of gold.

3) Foreign exchange bill -

Some conditions are fixed in the transaction between import and export. In addition, the bill of lading in respect of the goods is insured and the required documents are sent to the bank.

4) Bank Draft -

In order to complete international transactions, the importers complete the transaction by drawing a draft in the bank in the name of export-rate. For this, foreign currency can be obtained.

5) Telegraphic Transaction or Transfer -

In order to expedite the transaction of international trade, the banks instruct the foreign bank by telegram. The foreign banks then pay the amount to the exporter, which is called telegraphic transfer method.

6) Mail Transfer -

The importer deposits the amount paid by the exporter in the bank account for the transaction. Guaranteed mail transfer is used if the importer wants a guarantee on how many days he will receive the specified amount.

7) Letters of credit -

Credit letters are also called letters of credit. Credit letters are issued by banks if the appropriate amount is telegraphed or deposited in a bank account near a foreign exchange bank. After issuing the letter, the importer instructs the bank to withdraw the amount at the foreign branch of the bank and accept the bill. Accordingly, the letter holders receive a certain amount.

The above tools are used to complete exchange transactions in international trade.

8.3 ROLE OF INTERNATIONAL FINANCIAL AND TRADE INSTITUTIONS

Macroeconomic management consists of Stabilisation and structural adjustment programmes. With these programmes, both the IMF and World Bank deal with economic issues and focus their efforts on broadening as well as strengthening the economies of their member nations.

Stabilisation involves short term measures to restore balance of payments, while structural adjustment measures are implemented on a longer term basis, to `restructure the economy and generate economic growth.' These policies are closely linked and usually involve devaluation of currency, cuts in public spending, elimination of subsidies, cuts in the civil service, privatization of state owned industries, opening of local economies to foreign investment and an emphasis on export promotion in order to earn foreign currency to apply to debt servicing.

Whilst Stablisation programmes are generally associated with the IMF, structural adjustment is dealt with by the World Bank. The IMF focuses primarily on BOP management, the World Bank, on the other hand, gives priority to the longer-term development of an economy.

The IMF pays an important attention to monetary and fiscal policy, exchange rate management and foreign borrowing. Thus, the IMF has played a key role in ensuring prince stability, strengthening the balance of payments (BOP) and provision of loans to countries needing assistance. IMF activities revolve around typical financial and monetary issues such as the exchange rate, interest rates, credit, money supply, inflation, government expenditures and revenues, and balance of payment aggregates.

The original dividing line between the IMF and the World Bank, implied that IMF received guidance from the World Bank on development issues. In turn, the World Bank followed IMF advice on domestic macroeconomic and exchange rate policies, adjustment of temporary balance of payments disequilibria and Stabilisation programmes. The distinction however became blurred during the turbulent years after the breakdown of the Bretton Woods par value system from 1968 to 1973 and during the debt crisis in the 1980s.

Following the economic problems of developing countries (hereafter LDCs) in the 1970s (oil price shocks in 1973-74 as well as 1979-80, decline in terms of trade, debt crisis in 1979-80s, fiscal deficits and high inflation), the two institutions formulated structural

adjustment programmes designed specifically to resolve the economic problems of LDCs. The problems can be traced initially to the collapse of the Bretton Woods exchange rate system in 1971, which contributed to the volatility of the exchange rate.

Throughout the 1970s, the IMF and World Bank were marginalised as lenders to countries who could instead borrow from commercial banks anxious to recycle the massive surpluses of the Organization of Petroleum Exporting Countries (OPEC) and a new excess of liquidity within international capital markets. The IMF initially responded by expanding access to its resources, particularly to countries with no access to commercial finance. The World Bank undertook more policy-based lending and expended its focus to include rural development.

The festival of lending ended when the US Federal Reserve increased interest rates in 1979. Suddenly indebted governments found that their creditors would not roll over their loans. The borrowers could not meet their debt repayment obligations.

Several large commercial banks were on the brink of failure. The IMF and World Bank were called upon to extend loans to the debtors to ensure that they would repay their over-exposed creditors and therefore avert an international banking crisis.

The conditional loans required borrowers to undertake stringent measures to stabilise and ensure adjustment in their economies in order to access credit from the IMF or World Bank.

The debt crisis which began in Latin America in the early 1980s drew the IMF and World Bank into a new role. Since 1980s, the IMF and World Bank have played key roles in planning and management of LDCs.

Conditionality in the first phase of the debt crisis emphasized Stabilisation. This meant that governments were required to:

(i) Reduce inflation,

(ii) Rationalize and stabilise the exchange rate.

(iii) Increase interest rates,

(iv) Reduce public sector expenditure and investments,

(v) Increase taxation, and

(vi) Eliminate subsidies.

These are the staple requirements of IMF conditionality. They are reinforced by requirements made by the World Bank in its structural adjustment loans which require government to:

(i) Liberalise trade and minimize tariffs,

(ii) Privatise state-owned industries,

(iii) Encourage foreign investment, and

(iv) Dergulate their economies.

Taken together the conditionality of the IMF and World Bank came to be labelled the Washington Consensus.

Stabilisation

Definition : Stabilisation policy can be defined as the policy response to correct macroeconomic imbalances when an economy is off-track from its potential growth.

The term `Stabilisation' came about because the economy's balance of payments (BOP) crisis was thought of as spiralling out of control, with inflation increasing, capital flight intensifying, and debt-servicing difficulties mounting at increasing rates.

Stabilisation circumstances arise because of overseas and domestic macroeconomic shock. The former shocks mainly refer to adverse movements in the terms of trade, the debt and interest rate crises, and foreign exchange shortage, while the latter shocks usually include hyperinflations, financial collapses, irresponsible policy teams, and natural disasters. (Taylor 1988).

Goals / Targets : The general goals of Stabilisation policy are:

(a) Improving the current account balance and attaining a viable overall balance of payments.

(b) Satisfactory long-term growth performance (sustainable, stable growth rate),

(c)Reducing inflation (stable price level), and

(d) High level of employment (low unemployment).

There are no conflicts over the goals of the Stabilisation policy but policy conflicts arise over the ways these objectives are achieved.

Necessity: Generally, a country needs a Stabilisation programme when it experiences an imbalance between aggregate domestic demand and aggregate supply. Thus, the primary role of the IMF. Focusing on aggregate demand, is to assist the member country in designing a policy package that applies measures to restore a sustainable balance between aggregate demand and supply, and to simultaneously expand the production of tradable goods.

Approach : The IMF's Stabilisation programmes are primarily designed to improve the current accounts balance and the overall balance of payments of countries experiencing external payments difficulties. A typical Fund programme mainly employs monetary measures, exchange rate policies, and fiscal measures, and combined aggregate demand policies, supply enhancing measures, and relative price policies.

The IMF follows a three-pronged approach to confront balance of payments problems:

(i) Securing sustainable external finance.

(ii) Adoption of demand-restraining measures consistent with available financing, and

(iii) Procreeding with structural reforms to promote growth and adjustment in the medium and longer term.

The latter IMF programmes are to two types:

(a) Short-term, in which the macroeconomic disequilibrium is thought to be reversible in one or two years, e.g., The Standby Arrangement (SBA). The priority course of action in SBAs is expenditure reduction.

(b) Medium-term in which the macroeconomic disequilibrium in caused by structural impediments to growth or a heavy external debt burden. IMF medium-term programmes aim to correct a serious external payments disequilibrium due to structural impediments to growth and debt overhang. The programme involves a strategy that keeps expenditures in line with output and increases growth. E.g., the Structural Adjustment Facility (SAF), Extended Structural Adjustment Facility (ESAF) and Poverty Reduction and Growth Facility (PRGF).

The reliance on, and the relative importance of each of three above mentioned components depends on the specific circumstances of the member country for instance, the blueprint for a country whose international reserves are depleted as a result of unsustainable fiscal imbalances will place considerably more (initial) emphasis on demand-restraining measures than that for a country whose overall external position worsened suddenly as a consequence of an adverse terms of trade shock, a natural disaster, or negative spillovers from events in other countries.

Once the crisis has been contained and confidence restored, external financing constraints often become less pressing and the macroeconomic policy stance can become more supportive of domestic demand.

It should be stressed however, that the role of the IMF is to contribute to design the adjustment strategy, help the country secure external financing and monitor the progress in overcoming the external crisis, but that it is up to the country's authorities to implement in a timely and credible manner the policy measures contemplated in the strategy.

A member's more basis objectives of high output growth, alleviating poverty, and so forth are not explicitly among those core areas. This doesnot mean that the IMF is unconcerned about these objectives. It is simply a reflection of the IMF belief that a country experiencing severe balance of payments difficulties must set its priority to reducing this difficulty and correcting the macroeconomic and structural imbalances at their root in order to achieve the more basic objectives in a sustainable manner over the longer term.

The IMF has generally insisted that Stabilisation must occur before structural reform is attempted. However, more recent statements seem to indicate a growing recognition by the fund that to the extent that efforts to channel resources away from inefficient uses are impeded by institutional rigidities, structural reform can play a critical role in achieving balance of payments viability and growth.

Features of IMF's approach to Stabilisation :

1. **Quantitative features :** IMF's approach to economic Stabilisation has vital quantitative features.

(i) Projections are made for key macroeconomic variables (e.g., national output, price level, current account balance) under the policies to be adopted under the programme.

Attention is paid to the likely availability of external financing to assure that viability restored to the country's external payments position.

2. **Performance criteria :** IMF's programmes also contain quantitative "performance criteria" for key variables related to macroeconomic policies (popularly referred to as conditionality) which typically include ceilings for the fiscal deficit and the central bank's net domestic credit and floors to net international reserves. These criteria are calculated using a flows-of-funds frame work known as "financial programming." Financial programming is a method that has gradually evolved over the years taking into consideration; (i) the major institutional and structural developments in the economies which have requested IMF assistance, (ii) the considerable changes in the international economy, (iii) progress in the study of macroeconomic and international issues.

3. **The process :** The IMF approach to Stabilisation and how it functions is best understood by considering the process of an IMF supported Stabilisation programme.

A typical IMF-supported programme is not set in stone at its inception. It is flexible. It does not proceed exactly in accordance with the initial plan nor is it terminated because of some minor deviation.

An IMF programme begins with an explicit request from a member. The IMF staff then prepares a blue print of the programme which is used as the basis for the negotiations. When an agreement is reached after bargaining over the key elements of the programme the arrangement has to be cleared by the IMF management and then approved by the IMF executive board. Thereafter disbursements proceed automatically if all the performance clauses are met as initially specified. If various conditions are not met deviations may be accompanied with "waivers," projections may be revised and numerical targets changed.

Check your progress:

1. What is meaning of stabilization?
2. What are the goals of stabilization policy?

8.4 STRUCTURAL ADJUSTMENT AND STABILIZATION

Overall financial management includes financial stabilization and fundamental adjustment programs. The International Monetary Fund and the World Bank control financial matters through such projects. Their focus is on strengthening and expanding the economies of their member countries. Economic stabilization emphasizes the reduction of short-term imbalances in a country's transactions. The basic adjustment program is used to restructure the economy in the long run and to sustain economic growth. The program includes devaluation of the currency, reduction of public expenditure, closure of concessions, reduction in public services, opening up of foreign investment to the domestic economy, promotion of export-oriented industries, etc.

In general, the International Monetary Fund is related to the economic situation. So the World Bank is concerned with long-term fundamental adjustments. Due to the economic crisis in the developing world in the 1970s, two institutions were set up to make fundamental adjustments. Countries that lend on conditional loans from the International Monetary Fund and the World Bank first have to take tough economic measures.

The policy of economic stabilization is a plan of action to address the overall imbalance in order to get the economy back on track. Economic stratification is needed to address the problems created by the imbalance in the balance of payments of the economy. Rising inflation, remittances and interest on foreign loans, repayments, etc. create a huge imbalance in the year. This creates the need for economic stabilization.

The shock at the domestic and foreign levels of the overall economy creates the need for stratification. Traditionally, trade, agriculture, debt, interest rates, food shortages, etc., create imbalances in trade. In modern times, the rapidly rising inflation, the economic downturn, irresponsible policies, natural disasters, etc. hit the economy as a whole.

Economic Stabilization Policy Objectives:

1. To increase the current account balance of the transaction balance and move towards favorable transaction balance.
2. Maintaining a sustainable economic growth rate means maintaining a satisfactory long-term economic growth rate.
3. Reducing the rate of inflation to a stable price level.
4. High employment level

Structural Adjustment Programs (SAPs):

Since the 1980s, the International Monetary Fund and the World Bank have pursued economic policies for the development of the world's underdeveloped and developing countries. These policies or development programs are called basic adjustment programs.

Interpretation:

The fundamental adjustment is that the International Monetary Fund and the World Bank have forced economic reforms to allow developing countries to embrace a free economy. Making these financial reforms was the precondition for obtaining loan funds from this institution.

Origin:

In the late 1970's, a series of catastrophes in the global economy led to a fundamental adjustment program. Due to all these types of

financial disasters e.g. Crisis, debt crisis, multi-pronged economic recession, etc. made it necessary for the planners of developing countries to intervene in the economic development program for the welfare of the nation. In the 1980's, the World Bank introduced long-term lending to developing countries to address recurring deficits through basic adjustment programs, rather than just lending.

In the year 2002, there was a change in the basic adjustment program. Poverty alleviation strategies were implemented. The World Bank, based on the new ideology, opined that successful economic programs are implemented with the support of the government. Apart from the poverty alleviation program, the World Bank and the IMF have adopted a more and more constructive approach.

Structural Adjustment Program Objectives:

1. After World War II, the main objective of the International Monetary Fund was to prevent a Great Depression like the 1930s. It was created to prevent global recession. The purpose of the IMF was to provide loans to some poor countries and to expand economic policies in developed countries. This will prevent future recessions.

2. In the 1980s, there was a huge fiscal and external imbalance. The reasons are declining production and rising inflation. These governments faced rising inflation, budget deficits and trade deficits, raised interest rates, cut public spending and imposed restrictions on imports. In such a scenario, the IMF's immediate objective was to strike a balance between improving international finance. Because for long-term growth, it was necessary to create investment and growth, increase savings and create economic efficiency.

3. The basic adjustment program was designed to improve a country's foreign investment climate. Measures were taken to reduce trade and investment restrictions, increase exports and earn foreign exchange, and reduce government deficits by cutting all public accounts.

Critical Evaluation of SAPs:

1. The adjustment program places more emphasis on reviving transaction errors. Other appropriate and balanced approaches to resolving the cost crisis have not been considered.

2. Government sovereignty is considered secondary and the role of government in socio-economic development is limited. In the name of free economy, government control of public enterprises is reduced through privatization, decentralization etc.

3. This program is widening the gap between rich and poor. The concentration of income is in the hands of the rich. The poorer classes are excluded from the decision-making process and their ownership of natural resources has also come to an end.

4. This program threatens democracy and the democratic process. Borrower governments have to accept adjustment programs that are inconsistent with their policy. These policies are against the will of the people. Alternatively poor countries cannot repay their loans on time. They become insolvent.

5. There is a lack of public participation responsibility and transparency in the planning and implementation of the adjustment program.

6. The National Food Security Policy is threatened because of its concentration in the export sector and its reliance on short-term investment.

7. This program limits the rights of children in Parliament, the right to development and the bias against women's rights.

8. In these programs only domestic economic compromise is emphasized. At the same time the objectives of sustainable development and self-reliance and people's participation in the financial planning and decision making process are omitted. The above objectives are set aside.

9. Due to the restrictions imposed by the adjustment program, women have to suffer immensely. Reductions in public services have increased the workload of women. Therefore, there is an increased cost for their health care and family education.

8.5 SUMMARY

The basic adjustment program seeks to end the volatility of economic factors at the overall level. This year, economic growth rates, public deficits and inflation levels are taken into account as a shared measure of the effectiveness of the program. The common index that measures the success of this program is the economic growth rate. In some countries, growth rates have slowed down due to adjustment programs, while in others, progress has been rapid. According to some critics, the measure of success of this program should take into account the economic indicators as well as the social and cultural indices.

8.6 QUESTIONS

Q1. Explain the relation between trade and development.

Q2. Explain relation between trade and foreign exchange

Q3. What is the role of International Financial and Trade Institutions?

Q4. Explain the Structural Adjustment and Stabilization Programme in detail.

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